OECD Review of Agricultural Policies

INDONESIA

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OECD Review of Agricultural Policies: Indonesia 2012

BETTER POLICIES FOR BETTER LIVES

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Foreword

This Review of Agricultural Policies: Indonesia *is part of a series of reviews of national agricultural policies undertaken on behalf of the OECD's Committee for Agriculture. It was initiated in response to a request from Mr. Suswono, Indonesia's Minister of Agriculture, who provided full support for the* Review. *It has been prepared in close co-operation with the Ministry and conducted in partnership with the OECD Investment Committee.*

The Review *examines the policy context and the main trends in Indonesia's agriculture. It classifies and measures support provided to agriculture using the same method the OECD employs to monitor agricultural policies in OECD countries and in a growing number of emerging economies, including Brazil, China, Russia, South Africa, Ukraine and soon also Kazakhstan. On request from the Indonesian authorities, the* Review *includes a special chapter on key challenges to be addressed to attract sustainable investment in agriculture, drawing from the OECD Policy Framework for Investment in Agriculture (PFIA). The study is the first step towards a regular OECD engagement with Indonesia on agricultural policy issues through the periodic monitoring of agricultural policy developments.*

The study was carried out by the Development Division of the OECD Trade and Agriculture Directorate (TAD) in co-operation with the Investment Division of the OECD Directorate for Financial and Enterprise Affairs (DAF). Andrzej Kwieciński co-ordinated the report and wrote Chapter 1 with Silvia Sorescu. Chapter 2 was written by Darryl Jones and Chapter 3 by Coralie David under the supervision of Karim Dahou in the Investment Division. Valuable contributions were provided by Alexis Fournier and Dongsik Woo for Chapter 1; Jesus Anton for Chapter 2; and Misuzu Otsuka and Mike Pfister for Chapter 3. Research and statistical support was provided by Florence Bossard and Laetitia Reille with assistance from Christine Le Thi and Frano Ilicic. Anita Lari provided secretarial assistance. Michèle Patterson provided publication support. Ken Ash, Carmel Cahill and Michael Plummer and many other colleagues in the OECD Secretariat and member country delegations furnished useful comments on earlier drafts of the report.

The study benefited greatly from the support provided by the Indonesian Ministry of Agriculture, in particular from Mr. Tahlim Sudaryanto, Assistant Minister for International Cooperation, who acted as the main contact and liaison person on all aspects of the study. The study benefited from the substantive input from the team of experts from the Indonesian Ministry of Agriculture and from the Indonesian Center for Agriculture Socio-Economic and Policy Studies (ICASEPS) led by Ms. Handewi Purwati Saliem. Experts from these institutions provided most of the data and essential information on the functioning of agricultural programmes in Indonesia.

The OECD team appreciates the willingness of Mr. Kunio Tsubota and Mr. Setyo Adhie to share the database on Indonesia developed within the Asian Productivity Organisation project. This helped to initiate preparations of the OECD Producer Support Estimate database for this country.

This study was made possible through voluntary contributions from Australia and Canada. It was reviewed at a roundtable with Indonesian officials and experts in Bogor, Indonesia, in

March 2012. The Indonesian delegation led by Mr. Rusman Heriawan, Vice-Minister for Agriculture, participated in the peer review of Indonesian agricultural policies by the OECD's Committee for Agriculture at its 158th session in May 2012. Indonesian officials have been involved from the initial discussions of the study outline through to the peer review and final revisions, but the final report remains the sole responsibility of the OECD.

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Abbreviations

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AIATs	Assessment Institutes for Agricultural Technology
AMDAL	Environmental Impact Assessment *Analisis Mengenai Dampak Lingkungan*
API	Importer Identification Number *Angka Pengenal Impor*
ASEAN	Association of Southeast Asian Nations
BAL	Basic Agrarian Law
BAPEDAL	Environment Impact Management Agency *Badan Pengendalian Dampak Lingkungan*
BAPPENAS	National Agency of Planning and Development
BDS	Business Development Services
BI	Bank of Indonesia
BIMAS	Mass Guidance (agricultural intensification programme) *Bimbingan Massal*
BKP	Indonesia Agricultural Quarantine Agency *Badan Karantina Pertanian*
BKPM	Indonesian Investment Co-ordinating Board *Badan Koordinasi Penanaman Modal*
BLP	Direct Fertiliser Aid *Bantuan Langsung Pupuk*
BOP	Balance of Payments
BPN	National Land Agency *Badan Pertanahan Nasional*
BPOM	National Agency of Drug and Food Control *Badan Pengawasan Obat dan Makanan*
BPP	Agricultural Extension Office *Balai Penyuluhan Pertanian*
BPPC	Clove Marketing and Buffer Agency *Badan Penyangga dan Pemasaran Cengkeh*
BPS	Central Statistics Agency *Badan Pusat Statistik*
BRI	Bank Rakyat Indonesia
BULOG	Food Logistics Agency *Badan Urusan Logistik*
CBN	National Seed Reserve *Cadangan Benih Nasional*

CBP	Government Rice Reserve *Cadangan Beras Pemerintah*
CEPT	Common Effective Preferential Tariff
CPO	Crude Palm Oil
CSE	Consumer Support Estimate
CSR	Corporate Social Responsibility
DAFEP	Decentralised Agriculture and Forestry Extension Project
DAK	Special Allocation Fund *Dana Alokasi Khusus*
DIS	Debtor Information System *Dana Alokasi Khusus*
DNI	Negative Investment List *Daftar Negatif Investasi*
DPR	People's House of Representatives *Dewan Perwakilan Rakyat*
EPZ	Export Processing Zone
EU	European Union
FAO	United Nations Food and Agriculture Organisation
FDI	Foreign Direct Investment
FFPO	Fresh Food of Plant Origin
GAPOKTAN	Federation of Farmer Groups *Gabungan Kelompok Tani*
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GHG	Greenhouse Gas
GOI	Government of Indonesia
GSSE	General Services Support Estimate
HET	Highest Retail Price *Harga Eceran Tertinggi*
HGB	Land Right to Build *Hak Guna Bangunan*
HGU	Land Right to Cultivate *Hak Guna Usaha*
HM	Freehold Land Ownership *Hak Milik*
HP	Land Right to Use *Hak Pakai*
HPP	Government Purchase Prices *Harga Pembelian Pemerintah*
IAARD	Indonesia's Agency for Agricultural Research and Development
ICASEPS	Indonesian Center for Agricultural Socio Economic and Policy Studies
ICOR	Incremental Capital Output Ratio
ICT	Information and Communication Technology
IDR	Indonesian Rupiah
IFC	International Finance Corporation
IMF	International Monetary Fund

IRIEC	Indonesian Research Institute for Estate Crops
ISO	International Organisation for Standardisation
ISPO	Indonesian Sustainable Palm Oil
KKOP	Credit for Food Crop Harvest and Distribution *Kredit Kepada Koperasi*
KKP	Food Security Credit *Kredit Ketahanan Pangan*
KKP-E	Food Security and Energy Credit *Kredit Ketahanan Pangan dan Energi*
KPEN-RP	Bio Energy Development and Plantation Revitalisation Credit *Kredit Pengembangan Energi Nabati and Revitalisasi Perkebunan*
KUD	Village Unit Cooperatives *Koperasi Unit Desa*
KUPS	Cattle Breeding Credit *Kredit Usaha Pembibitan Sapi*
KUR	People's Business Credit *Kredit Usaha Rakyat*
KUT	Credit for Farm Enterprises *Kredit Usaha Tani*
LOI	Letter of Intent
LPEM	Institute for Economic and Social Research *Lembaga Penyelidikan Ekonomi dan Masyarakat*
LPI	Logistics Performance Index
MFN	Most Favoured Nation
MoA	Ministry of Agriculture, Indonesia
MoE	Ministry of Environment, Indonesia
MoF	Ministry of Forestry, Indonesia
MoPW	Ministry of Public Works, Indonesia
MoT	Ministry of Trade, Indonesia
MP3EI	The Master Plan for Acceleration and Expansion of Indonesia Economic Development 2011-2025 *Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*
MPS	Market Price Support
MSMEs	Micro, Small and Medium Enterprises
NGO	Non-Governmental Organisation
NPIK	Special Importer Identification Number *Nomor Pengenal Importir Khusus*
O&M	Operations and Maintenance
OECD	Organisation for Economic Co-operation and Development
OPK	Special Market Operations *Operasi Pasar Khusus*
Permentan	Regulation of the Ministry of Agriculture *Peraturan Menteri Pertanian*
PFI	Policy Framework for Investment
PFIA	Policy Framework for Investment in Agriculture

PLN	State-owned Electricity Company *Perusahaan Listrik Negara*
PMA	Foreign Capital Investment Company *Penanaman Modal Asing*
PMDN	Domestic Capital Investment Company *Penanaman Modal Dalam Negeri*
PPP	Public-Private Partnership
PSO	Public Service Obligation
PT	Limited Liability Company *Perseroan Terbatas*
PTPN	State-owned Estate Company *Perusahaan Terbatas Perkebunan Nasional*
PTSP	One-stop Integrated Services Centre *Pelayanan Terpadu Satu Pintu*
PUAP	Rural Agribusiness Development Programme *Pengembangan Usaha Agribisnis Perdesaan*
R&D	Research and Development
RASKIN	Rice for the Poor *Beras untuk Orang Miskin*
RBC	Responsible Business Conduct
REDD	Reducing Emissions from Deforestation and Forest Degradation
RPJMN	Medium-Term National Development Plan 2010-2014 *Rencana Pembangunan Jangka Menengah Nasional*
RSPO	Roundtable on Sustainable Palm Oil
SCT	Single Commodity Transfers
SEZ	Special Economic Zone
SMEs	Small and Medium Enterprises
SOB	State-owned Bank
SOE	State-owned Enterprise
SPS	Sanitary and Phyto-Sanitary Standards
TFP	Total Factor Productivity
TRQ	Tariff Rate Quota
TSE	Total Support Estimate
UNCTAD	United Nations Conference on Trade and Development
URAA	Uruguay Round Agreement on Agriculture
US	United States
USAID	United States United States Agency for International Development
USD	United States dollar
USDA	United States Department of Agriculture
USO	Universal Service Obligation
VAT	Value Added Tax
WDI	World Development Indicators
WTO	World Trade Organisation
WUA	Water User Association

Executive summary

Indonesia is the world's 4th most populous country and the 10th largest agricultural producer, just behind Turkey and France and ahead of Germany and Argentina. It is the world's most important palm oil producer, the second-largest natural rubber producer, and the third-largest rice producer and consumer after China and India. The country is scarce in agricultural land, at one-third of the world's average when measured in per capita terms, but relatively abundant in water resources.

Although the contribution of agriculture to Indonesia's GDP has fallen from 19% in 1990 to 15% in 2010 and its share in total employment from 56% to 38%, the number of persons employed in agriculture remains persistently high at about 42 million. This results from the inability of capital-intensive extractive industries and slow-growing manufacturing to generate alternative employment opportunities. Thus, economy-wide structural reforms are needed to stimulate long-run transformation of the agriculture sector and the wider economy. While food crop production is based on small family farms, large commercial farms specialise in perennial crops, in particular palm oil. Palm oil and rubber account for around 60% of total agro-food exports and contribute to a significant surplus in Indonesia's agro-food trade.

Indonesia has achieved significant progress in poverty eradication. Nevertheless, 13% of the population continues to live below the nationally-defined poverty line. Around half of the population still lives on less than USD 2 at PPP/person/day and remains vulnerable to falling into absolute poverty in the event of a natural disaster or deterioration in economic conditions. Most of the poor live in rural areas. Food consumption has improved, but rather modestly, and hunger and undernourishment persist in some areas. Smallholders are constrained by slow progress in the registration of land rights and by poorly developed infrastructure. Natural resources and the environment are under strong pressure, partly due to the expansion of agricultural land leading to large-scale deforestation and soil erosion.

The 1997-98 Asian crisis deeply affected Indonesia's economy, but it also triggered a large programme of reforms, including in agriculture. There are four main objectives of Indonesian agricultural policy. Achieving self-sufficiency in the production of certain commodities is the government's main approach to assuring food security. Self-sufficiency targets are set for rice, sugar, soybeans, maize and beef. The government is concerned not only with producing enough of these strategic commodities but also ensuring that prices are affordable for consumers and that supply is distributed across the archipelago. Closely linked to this is an objective to diversify production and consumption away from carbohydrates (rice and wheat) towards animal-based products, and fruits and vegetables, particularly root vegetables. A third objective is to raise the level of competitiveness of agricultural production and value-added processing. Improving the welfare of farmers

through higher incomes is also a desired policy outcome to reduce the level of rural poverty.

These policy objectives are pursued through the use of output and input subsidies, and payments for the provision of services to agriculture generally. A wide range of input subsidies on fertiliser, seeds and credit is used to support agricultural producers. In turn, RASKIN, a targeted "rice for the poor" programme is designed to support poor consumers, including in rural areas. It has given the government flexibility to allow a steady increase in the producer price of rice, but at the cost of increasing budgetary expenditure to finance the programme.

The average applied import tariff on agro-food products fell from 20% in 1990 to 5% in 2010. Import monopolies, licensing requirements and export restrictions on agricultural products were removed in 1997-98. However, in the 2000s quantitative import restrictions were reintroduced, notably for rice, sugar and beef. Import requirements imposed for food safety, SPS and cultural reasons are becoming more stringent. A variable export tax regime was introduced on crude palm oil and derived products, and more recently on cocoa.

Developments in agricultural policy can be assessed by changes in the level of support measured by the %PSE (Producer Support Estimate as a share of farmers' gross receipts) and the %TSE (Total Support Estimate expressed as a share of GDP). For Indonesia, both indicators have increased since the beginning of the 1990s, showing an upward trend in both the level of support to agricultural producers and the cost of this support on the overall economy. The level of support to producers as measured by the %PSE averaged 9% in 2006-10, varying between –10% in 2008 and 21% in 2010. This wide variation reflects the government's efforts to stabilise domestic prices and balance the interests of producers and consumers in the context of price volatility on international markets. The 2006-10 average of 9% is higher than that of South Africa and Brazil, just below the United States and China, and well below the OECD average of 22%. In contrast, the %TSE of 1.9% for 2006-10 is well above the OECD average of 0.9% and among the highest estimated. This shows that for a relatively poor country with a large agricultural sector, even if agricultural support as measured by the PSE is low, the burden on the economy is relatively high.

In recent years the objective of food self-sufficiency has been the main driver for various policy measures applied in Indonesia. However, food self-sufficiency does not address the core elements of food security. The focus on self-sufficiency as a means to achieve food security is misplaced, in particular because the use of import protection to increase the returns to farmers also increases food costs for consumers and hinders the competitiveness of the agricultural sector, thereby limiting agricultural productivity growth. On balance, such measures undermine rather than improve access to food for poor consumers, a group which includes a majority of farmers who are net buyers of food staples.

A diversified approach to food security is recommended, tackling the different causes of food insecurity with a diversified set of strategies and instruments. The rising and high cost of fertiliser subsidies requires steps to improve their effectiveness and efficiency. A more efficient scheme would be to provide vouchers to farmers who then can choose the type and quantity of inputs they may wish to apply. The monopoly position given to state-owned fertiliser producers also needs to be reformed. Consideration also needs to be given to replacing RASKIN with a conditional cash transfer payment programme.

This would be a long-term step towards improving the food security situation of poor households by giving them greater choice and reducing the emphasis on rice.

Food security in Indonesia would be greatly enhanced by making agriculture a more attractive sector for investors. Both domestic and foreign investments in agriculture have remained relatively low compared with the economic importance of the sector in terms of its share in GDP and employment. Foreign direct investment in particular is constrained by increasing restrictions on foreign ownership. Low land registration levels and complicated land rights delay the acquisition of such rights by domestic and foreign investors. Companies still need to obtain numerous permits and licenses both from the central and the local governments. Inadequate infrastructure, in particular transport and irrigation systems is a major bottleneck discouraging investment. Ensuring that investment is both environmentally and socially responsible remains a major challenge. Confusing land classification and vested interests undermine the efforts to curb deforestation rates. Customary land rights of smallholders and local communities are not officially recognised, leading to an increasing number of land conflicts with large investors. Infrastructure development and improved access to credit could effectively contribute to increasing agricultural productivity and enhance the development of competitive agro-processing industries and value chains. The provision of modern research and extension services, tailored to the needs of various types of farms and adequately funded, is also of crucial importance.

A long-term strategy of farm restructuring is needed to improve productivity and cope with the resulting fall in agricultural employment. Such a strategy should recognise various pathways to development and offer a mix of policy measures addressing various needs. Some farmers may need assistance to become more productive, some others may need to diversify income sources within and outside agriculture, while others may choose to leave the sector completely for off farm work. Safety net mechanisms should be provided to help those struggling to adjust. As Indonesian farming systems are strongly differentiated regionally, such a strategy should allow for tailored approaches depending on specific local conditions.

Highlights and policy recommendations

This *Review*, undertaken in close co-operation with the Indonesian Ministry of Agriculture, assesses the performance of Indonesian agriculture over the last two decades, evaluates Indonesian agricultural policy reforms and provides recommendations to address key challenges in the future. The evaluation is based on the OECD Committee for Agriculture's approach that agriculture policy should be evidence-based and carefully designed and implemented to support productivity, competitiveness and sustainability, while avoiding unnecessary distortions to production decisions and to trade. Conducted in partnership with the OECD Investment Committee, the *Review* comprises a special chapter highlighting key challenges to be addressed to attract sustainable investment in agriculture, drawing from the OECD Policy Framework for Investment in Agriculture.

Indonesia is one of the world's key agricultural producers…

With a population of 238 million people of which half lives in rural areas, Indonesia is the 4th most populous country in the world after China, India and the United States. It is the world's 15th largest country with a land area of 1.9 million km^2. In addition, it covers a marine area of around 3.1 million km^2. Its GDP at purchasing power parity (PPP) was USD 1 030 billion in 2010, the world's 16th largest. Its GDP per capita of USD 4 300 at PPP ranks Indonesia as a lower middle-income country.

With more than 17 000 islands, of which 6 000 are inhabited, Indonesia is a strongly heterogeneous country in terms of population density, land and water resources, climatic conditions and infrastructure. On average, Indonesia is scarce in agricultural land at just 0.23 ha per capita, which represents only a third of the world's average, similar to Italy and Germany, below China and above India (WB WDI, 2012). But it is relatively abundant in renewable water resources at 8.5 thousand m^3/capita/year, slightly less than the United States, but four times more than China and eight times more than India (FAO Aquastat, 2012).

Although the contribution of agriculture to GDP has fallen from 19% in 1990 to 15% in 2010 and its share in total employment from 56% to 38% over the same period, the sector continues to provide employment to about 42 million persons. Improvements in labour productivity have increased at roughly the same pace as total production, with the result that total employment in agriculture has remained relatively stable. In the countries with strongest growth in labour productivity, such as China and Malaysia, employment in the sector has tended to fall. This is not yet the case in Indonesia.

Agriculture is dominated by abundant labour in relation to available agricultural land resulting in small-scale production. In particular, food crop production is based on tiny farms using little mechanisation with average area ranging from 0.3 ha in Java to 1.4 ha for

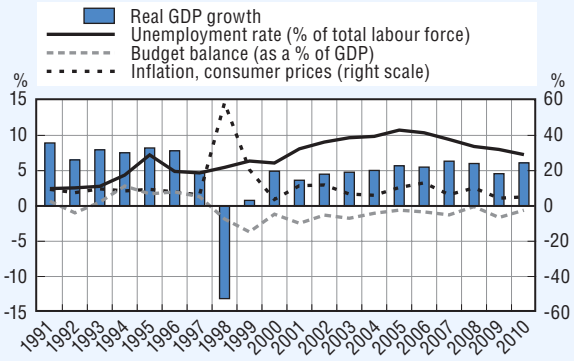
Box 0.1. **Indonesia: Contextual information**

Table 0.1. **Contextual indicators, 1990, 2010***

	1990	2010*
Economic context		
GDP (USD billion)	106	708
Population (million)	184	238
Land area (thousand km^2)	1 911	1 911
Population density (habitants/km^2)	96	124
GDP per capita, PPP (USD)	1 449	4 293
Trade as % of GDP**	42	42
Agriculture in the economy		
Agriculture in GDP (%)	19.4	15.3
Agriculture share in employment (%)	55.9	38.4
Agro-food exports (% of total exports)	14.9	21.5
Agro-food imports (% of total imports)	7.6	9.8
Characteristics of the agricultural sector		
Agro-food trade balance (USD billion)	2.2	20.5
Crop in total agricultural production (%)	80	82
Livestock in total agricultural production (%)	20	18
Agricultural area (AA) (million ha)	45	54
Share of arable land in AA (%)	45	44
Share of irrigated land in AA (%)	14	17
Share of agriculture in water consumption (%)	93	82

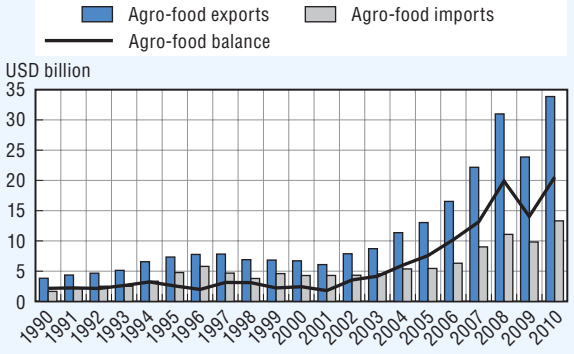
* or latest available year.
** ratio of the sum of exports and imports to GDP.
Source: BPS Indonesia; OECD statistical databases; WB WDI; FAOSTAT.

Figure 0.1. **Main macroeconomic indicators, 1991-2010**



Source: OECD statistics, 2011; WB WDI.
StatLink http://dx.doi.org/10.1787/888932649242

Figure 0.2. **Agro-food trade, 1990-2010**



Source: UN, UN Comtrade database, 2011.
StatLink http://dx.doi.org/10.1787/888932649261

irrigated land off-Java. While smallholders are also important suppliers of perennial crops, there are large private and state-owned farms operating mainly in Kalimantan and Sumatra specialised in perennial crops, in particular palm oil and rubber. Their average size is around 2 600 ha and they occupy about 15% of the total crop area. If these farms are taken into account, the overall estimated average farm size is almost 2 ha.

With an average value of agricultural production at USD 66 billion in 2007-09, Indonesia is the world's 10th largest agricultural producer, just behind Turkey and France and ahead of Germany and Argentina. It is the world's most important palm oil producer, just ahead of Malaysia, the second largest natural rubber producer after Thailand and the third largest rice producer after China and India (FAOSTAT, 2012).

... and macroeconomic reforms to date have brought positive results

The 1997-98 Asian crisis deeply affected Indonesia's economic and political environment. It triggered a large programme of reforms which improved macroeconomic stabilisation, opened up previously protected sectors to international competition, enhanced capital inflows, and created more favourable conditions for the development of the agricultural sector. Domestic and external imbalances have been successfully addressed over the last decade. Fiscal consolidation led to a steady reduction in the budget deficit over the period 2001-05 and it has been maintained at below 2% of GDP since then. The central government debt as a percentage of GDP declined from a peak of 90% in 2000 to 28% in 2009 (OECD, 2010a). The country is currently well-placed to finance the short term costs of some of the reforms in the agro-food sector proposed below. However, the inability of capital-intensive extractive industries and slow-growing manufacturing to offer employment opportunities contributes to the fact that a high proportion of the labour force continues to work in agriculture. Thus, economy-wide structural reforms are needed to stimulate long-run transformation of the agriculture sector.

Agriculture is a priority sector for the government...

Agriculture is one of the key strategic sectors identified by successive governments in Indonesia. An important feature of the policy framework is the establishment of medium-term (five-year) plans. While the Ministry of Agriculture (MoA) has the main responsibility for policy development and implementation, a large number of other central government ministries and agencies are involved. Since decentralisation in 2001, local government and even village level representation have been given a greater role in planning and implementing agricultural policy. These two factors create co-ordination challenges in agricultural policy development at the central and regional level (OECD, 2012). The move to greater democracy also increased the political power of farmers. There is strong public and political party support for agriculture.

... with four distinct phases of policy development

Agricultural policy developments since the mid-1960s can be divided into four stages:

- **Mid-1960s-mid-1980s:** Increasing rice production was a political and economic priority for Suharto's New Order government. It established the National Logistics Agency (*Badan Urusan Logistic*, BULOG) and gave it an increasing role over the purchase (at minimum guaranteed prices), distribution and trade in strategic products, and access to cheap credit. Farmers were provided with subsidised inputs (high-yielding seeds, fertilisers and pesticides) and concessional credits, and supported with extension services and upgraded irrigation systems. The increase in government revenue resulting from the rise in oil prices during the 1970s made all this possible.
- **Mid-1980s-1996:** The fall in oil prices during the 1980s caused the scaling back or termination of many of these programmes. Price support policies were terminated for

maize and soybeans. Extension services went through a variety of restructuring phases. Border protection in the form of tariff surcharges was gradually and unilaterally eliminated. As a consequence, Indonesia had little to do to meet its commitments under the Uruguay Round Agreement on Agriculture. However, few reforms occurred in terms of the regulatory control given to BULOG and other parties over domestic and international flows of agricultural products. Strong vested interest groups, particularly in the processing sector, prevented reforms from occurring despite the concern that smallholder farmers were perhaps benefiting little from the policy mix.

- **1997-99:** The Asian financial crisis and reforms initiated by the government in line with IMF loan conditionality led to the termination of these controls. BULOG's monopoly over the importation and domestic marketing of products was abolished; the mixing ratio requirement fixing maximum amounts of dairy imports in relation to domestic milk production was scrapped; agricultural tariffs were reduced; and fertiliser subsidies eliminated. Subsidised credit was provided to farmers to assist them in coping with the difficulties caused by the financial crisis and the worst drought in 50 years. The government responded to the plight of poor consumers by introducing the Rice for the Poor (*Beras Untuk Orang Miskin*, RASKIN), a targeted rice distribution programme, which has become a mainstay of the social assistance policy framework.
- **2000-present:** Many of these policy reforms have been reversed. Fertiliser and seed subsidy programmes have been reintroduced and greatly expanded. Tariffs and quantitative limitations have been placed on the importation of rice and sugar to protect farmers. Additional import restrictions have been mandated for many products, including extra licensing requirements, product registration, shipment approval and border inspection. These measures have added to the cost of trading with Indonesia. The decentralisation process led to a deterioration of extension services and irrigation systems supporting producers. Attempts have been made to revitalise both. A new law has required the establishment of a unified extension service. Central government is providing additional resources to increase the number of extension workers and the quality of their advice. Responsibilities for irrigation systems have been clarified. Farmers, through Water Users Associations (WUA), are responsible for the operation and maintenance and rehabilitation of on-farm irrigation systems. This has also been accompanied by increased funding to central and local government and WUAs. Improving the quality of the extension service and irrigation systems has been strongly supported by the work of the World Bank.

Agricultural policy objectives...

Four main objectives shape Indonesian agricultural policy. Achieving self-sufficiency in the production of certain commodities is the government's main approach to assuring food security. Self-sufficiency targets are set for rice, sugar, soybeans, maize and beef. The government is concerned not only with producing enough of these strategic commodities but also ensuring that prices are affordable for consumers and that supply is distributed across the archipelago. Efforts to balance concerns between producers and consumers is an important feature of agricultural policy in Indonesia. Closely linked to this is an objective to diversify production and consumption away from carbohydrates (rice and wheat) towards animal-based products, and fruits and vegetables, particularly tuber vegetables. A third objective is to raise the level of competitiveness of agricultural

production and value-added processing. Improving the welfare of farmers through higher incomes is also a desired policy outcome to reduce the level of rural poverty.

… are pursued primarily via output and input subsidies

These policy objectives are pursued through the use of output and input subsidies, and payments for the provision of services to agriculture generally (Box 0.2). Administrative difficulties restrict the ability to use less distorting forms of support. It is hard to base transfers on area farmed or income/revenue earned when most farmers do not have land titles or bank accounts, or do not pay income tax. Instead, support is channelled through the two available markets of what farmers sell and the purchases they make.

Box 0.2. **Overview of agricultural policy instruments applied in Indonesia**

Domestic policy instruments

- ***Minimum purchase prices*:** Applied to rice and sugar. BULOG is required to purchase rice for distribution through RASKIN and stock requirements at guaranteed prices set by the government. Sugar millers are required to pay sugar cane growers a government determined price as a condition of the preferential licences they hold to import sugar.
- ***Fertiliser subsidies:*** Farmers producing on less than 2 ha are able to purchase fertilisers at subsidised prices. The subsidy is provided to fertiliser manufacturers. The value of this subsidy has increased dramatically due to the decision to hold the subsidised prices of fertilisers constant despite growing costs of fertiliser production.
- ***Seed subsidies:*** Rice, maize and soybean farmers are the major beneficiaries. They can purchase seeds at subsidised prices, apply for an annual allocation of free seeds and receive seeds in response to natural disasters.
- ***Credit schemes*:** Farmers are able to access credit at interest rates 5-7 percentage points below commercial rates. Since 1999, these loans have been channelled through commercial banks. New concessions have been made available to companies working with growers of perennial crops and livestock farmers. A credit guarantee scheme was introduced in 2005. Since 2008, a rural finance scheme has provided funds directly to federated farmers' groups as seed-money for them to on-lend to members based on the microcredit model.
- ***Income support:*** Assistance is provided for those affected by bad weather and natural disasters.
- ***Insurance:*** Two small-scale projects have been piloted for rice and cattle.
- ***Extension services*:** Provided free to farmers. The availability and quality of this advice varies across districts.

Box 0.2. **Overview of agricultural policy instruments applied in Indonesia** *(cont.)*

General services provided to the agricultural sector as a whole

- ***Irrigation*:** As members of WUAs, farmers are supposed to be charged for the cost of operating, maintaining and rehabilitating the local (tertiary) system that supplies their water. Farmers are not charged for the cost of delivering water from the source to the tertiary system via primary and secondary canals, which are under the responsibility of central and regional governments. Government expenditure has increased during 2000s, including finance to assist WUAs rehabilitate on-farm irrigation channels.
- ***Research and development*:** Expenditure on research is relatively small in comparison to other countries.
- ***Marketing and promotion*:** Money is spent to develop local markets and terminal storage facilities and improve processing operations. No export subsidies are provided.

Trade policy instruments

- ***Tariffs*:** The average applied MFN agricultural tariff, excluding alcoholic beverages and spirits, decreased from 20% to 5% between 1990 and 2000 and has remained close to this level during the 2000s. This compares with an average bound rate at 47% in 2010. Rice and sugar are covered by specific tariffs with levels adjusted frequently in response to changing international prices for these commodities.
- ***Import licensing*:** Restrictions limit the quantity of rice and sugar that can be imported. Since 2008, companies must be approved by the Ministry of Trade as registered importers to import a range of processed products manufactured from meat, cereal, sugar and cocoa. Similar restrictions were placed on animals and animal products in 2011, with cattle and beef imports limited through a quota system.
- ***SPS and food safety:*** Processed food imports require both product registration and import approval from the Ministry of Health. Similarly, imports of animal based products must have MoA import approval, be accompanied by a *halal* certificate and derive from a processing facility that has been inspected by the MoA. Since 2009, each shipment of fresh fruit must be tested on arrival for chemical content.
- ***Export taxes*:** In 2007, a flat rate export tax regime on crude palm oil (CPO) and derived products was replaced with a variable regime. Under the variable regime, the applicable export tax rate increases as the international price of CPO rises. It was introduced to reduce the incentive to increase exports in response to rising international prices. CPO is taxed at a higher rate than derived products to encourage further domestic processing. A similar but simpler variable export tax regime has been applied to cocoa since April 2010.
- ***Export licensing*:** Exports of bovine animals, rice, palm nuts and kernel, and urea fertiliser must be approved before shipment. Exports of cocoa, rubber, bananas and pineapple to Japan, and cassava to the EU are regulated.
- ***Regional trade agreements*:** Indonesia is a member of the Association of Southeast Asian Nations (ASEAN), Asia-Pacific Economic Cooperation (APEC), World Trade Organisation (WTO) and supports trade liberalisation between ASEAN members and their major trading partners in the region, including China, Japan, India, Korea, Australia and New Zealand. These trade agreements contain clauses allowing sensitive products to be excluded from tariff reduction commitments or given a longer time period for implementation, thus their impact on agro-food trade is limited.

Agricultural production is increasing…

While annual growth in the volume of agricultural production has averaged 3.4% since 1990, there have been significant fluctuations in this rate. In particular, the Asian crisis and *El Niño* were two major factors behind the contraction of production during 1997-99. Overall, between 1990 and 2009, Gross Agricultural Output increased in volume terms by 97%, of which crop production by 97% and livestock production by 89%, compared with a population growth of 29% over the same period indicating a significant increase in production per capita.

… with Total Factor Productivity (TFP) growth driven by the expansion of perennial crops…

Comprehensive analysis by Fuglie shows that TFP contribution to agricultural growth was strong during the "Green Revolution" in the 1960s and 1970s when new technologies and improved crop varieties were widely adopted. TFP growth slowed during the 1980s, but land and labour use expanded allowing agriculture to continue growing. In the 1990s, overall TFP growth was weak, reflecting a fall in public spending in the sector that was not replaced by private investment. In the 2000s, TFP growth resumed and accounted for around 60% of agricultural growth, the remaining 40% being explained by an expanded use of factors of production, in particular land. TFP growth in the 2000s was sourced mostly from a changing structure of agricultural production rather than yield growth. The diversification away from food staples into high-valued commodities, such as perennial and horticultural crops and livestock products, was the key factor behind strong TFP growth in this period. Compared with other countries in the region, Indonesia's performance was poor in the 1990s but improved significantly in the last decade with the annual TFP growth rate second only to Malaysia and above the Southeast Asia average (Fuglie, 2010 and 2012). It should be noted that growth of TFP has been stronger in agriculture than in the economy as a whole over the last two decades. For example, in 2001-09 agricultural TFP growth was 3.7% per year compared with 2.1% for the whole economy (Fuglie, 2012 and OECD, 2010a).

… in line with Indonesia's comparative advantage

Over the last two decades Indonesia has been a net exporter of agro-food products. Since 2005, the value of agro-food exports has been consistently more than twice the value of agro-food imports and its share in total exports increased from 11% in 2000 to 21% in 2010. Palm oil and natural rubber alone accounted for 60% of total agro-food exports in 2008-10. Asian countries are the main export destinations. Their share of Indonesian agro-food exports has risen from around one-half in 1990-92 to two-thirds in 2008-10. India is the most important export market accounting for 16% of the total agro-food exports.

Agro-food imports are relatively more diversified than exports in terms of both product and country of origin. Major agro-food imports include wheat, cotton, soybean, dairy products, sugar, tobacco and beef. The United States and Australia are the most important suppliers accounting for 19% and 17% respectively of agro-food imports in 2008-10.

This pattern of trade reflects Indonesia's comparative advantage in producing certain perennial tropical crops for export while importing land-intensive commodities such as cereals and some livestock.

Poverty rates are declining…

The steady economic progress and income growth in the 1970s until the mid-1990s was accompanied by massive reductions in poverty incidence. While the Asian crisis temporarily reversed this trend, poverty reduction resumed in the 2000s with the poverty rate falling to 13% in 2010 as measured by the Indonesian poverty line (in 2010, equivalent of USD 0.83/person/day for urban population and USD 0.68/person/day for rural population, both in current USD terms and at current annual average exchange rate). The reduction in the absolute number of the poor as the economy recovered from the Asian crisis was due mostly to a reduction in the number of rural poor. However, rural poverty remains significantly greater than urban poverty, both in absolute numbers and in percentage rates. If counted at the World Bank definition of absolute poverty at USD 1.25 at PPP/person/day, the rates are higher, but the decline remains equally impressive from 54% in 1990 to 19% in 2009. If a broader definition at USD 2 at PPP/person/day is applied, the poverty rates are significantly higher, with declines from 85% in 1990 to 51% in 2009 (WB WDI, 2012). Thus, even if progress in poverty reduction has been significant, around half of the population remains vulnerable to falling into absolute poverty in case of natural disasters or a deterioration in economic conditions.

… and food consumption is improving, but…

The average proportion of household expenditures on food declined from 63% in 1999 to 51% in 2009. The share fell for both urban and rural households, but remains much higher for rural households. Consumption of rice and other staples has stabilised or declined while that of fruit, vegetables, fish, dairy products and prepared foods has increased, both in absolute and relative terms. There has been a modest increase in the dietary energy intake per person reaching about 2 500 kcal/capita/day in 2007. This is higher than in India and the Philippines, but lower than in China, Malaysia and Viet Nam.

The proportion of daily calorie intake from plant-based as opposed to livestock products remains higher than in many other Asian developing countries. In fact, meat consumption has remained very low, partly due to low incomes, but also to high prices of livestock commodities as a result of various measures limiting imports, which have pushed domestic prices above those on international markets.

… undernourishment persists locally

Despite improvements in food availability, health and social services, undernourishment and malnutrition exist in almost every district. Undernourishment was estimated at around 13% in 2007, falling from 15% in 2002 (WB WDI, 2012). This rate is lower than in such neighbouring countries as Thailand or Philippines, but higher than in Viet Nam or China. At the other end, health problems associated with excess consumption related to higher incomes are becoming an increasing concern.

Investment in agriculture remains relatively low…

While total investment in agriculture has increased over the last decade, available data suggest that the share of agriculture in total realised investment remains much lower than the share of the sector in GDP, imports, exports and employment. Foreign direct investment (FDI) inflows in agriculture in particular have remained weak compared with FDI inflows in other sectors. Low Incremental Capital Output Ratio (ICOR), measuring the investment required to generate an additional unit of output, indicates that investment in agriculture is currently more productive than investment in manufacturing or large part of services.

… due to a poor business climate hindering domestic and foreign investment in agriculture

Since 1998, investment climate reform has been one of the government's top priorities. The FDI regime has been liberalised, but Indonesia still remains more restrictive towards FDI than most OECD countries. In fact, agriculture has become more restrictive towards FDI over the last few years with upper limits to foreign equity for food crops decreasing from 95% in 2007 to 49% in 2010.

The existing regulatory framework is complex and changes to the legislation are unpredictable. For example, the Horticulture Law enacted in 2010 lowered the upper limit of foreign ownership in horticulture business to 30% and businesses must comply within four years. The decentralisation process increased transaction costs and uncertainty for investors that need to deal with various government levels for administrative procedures. Box 0.3 provides an overview of major constraints to attracting investment in the sector.

The government is actively promoting large-scale investments in agriculture…

While public spending targets mainly food crops, most private investment is channelled to perennial crops. Investment in palm oil plantations by large private companies has increased over the last decade. The total area of palm oil plantations owned by both companies and smallholders expanded from 5.7 in 2004 to 8.1 million ha in 2010 (almost one-fifth of the total crop area). Investment in biofuels has been driven by subsidies and mandatory requirements for the domestic use of biofuels in transportation, industry and power generation and by exports.

Existing investment incentives in agriculture target mainly large integrated businesses in specific regions. In particular, the government is focusing on six economic corridors as growth centres through its Master Plan 2011-2025. Palm oil is one of the main target sectors in Sumatra and Kalimantan, while food estates are developed in Sulawesi and Papua. It is envisaged that these growth centres will benefit from an improved investment climate, including the easing of regulations and licensing, fiscal and non-fiscal incentives, and infrastructure development.

Box 0.3. **Major constraints to increased investment in agriculture**

- Receiving clear and secure ***land rights*** is a challenge. The law requires that all land rights be registered. However, land registration has been slow and only around one-third of privately-owned land parcels have been registered over the last forty years. Most rural households have unregistered land rights acquired through inheritance from parents and relatives. This creates a significant barrier to accessing credit. Access to land by large investors remains a long and unclear process. Investing companies can be granted only limited land rights and must receive a location licensing. The government has worked continuously on simplifying and speeding up business licensing and investment procedures, but investors are still required to obtain various sector-specific technical licenses from different government agencies.
- Indonesia suffers from ***insufficient and poor quality infrastructure*** as a result of decades of public and private under-investment. While the government has built considerable momentum for infrastructure reform since 2000, the implementation of the new legislative framework is still at a relatively early stage. The irrigation network is in poor condition due to inadequate expenditure on operations and maintenance, limiting possible rice productivity increases. High transport and logistics costs and the lack of reliable electricity are a serious constraint on business operations and undermine the competitiveness of agricultural value chains.
- While improvements in human capital have contributed to agricultural productivity growth over the last decades, decentralisation has undermined the effectiveness of ***extension services***, and thereby human capital enhancement in agriculture. Spending on agricultural extension has increased recently and various programmes have been launched to support skills development to address this issue. Public spending in ***research and development (R&D)*** in agriculture is still low compared with other Asian countries.
- ***Access to credit*** is a binding constraint for Micro, Small and Medium Enterprises (MSMEs). In East Java for instance, 95% of farmers have never obtained credit from banks. Several programmes and regulations are in place to facilitate access to credit by MSMEs and smallholders, including relaxed collateral requirements which remain the major obstacle to farmers' access to credit. The Debtor Information System has increased the transparency on the use of collateral. While some credit guarantee schemes target specifically MSMEs, these services are granted mainly to medium and big enterprises. Only limited insurance services are available in the agricultural sector.
- As regards ***trade policy***, Indonesia remains relatively restrictive compared with other Asian developing countries, and selected markets remain highly controlled by the state. Export taxes have been imposed on crude palm oil and more recently on cocoa beans to enhance investment in processing industries but this may deter investors in perennial crops.

... which generate benefits but also pose environmental and social risks

Large-scale investments in agriculture can bring the necessary expertise, financing capacities, and marketing networks to enhance the competitiveness of agricultural value

chains. However such investments can potentially have adverse environmental and social impacts in the Indonesian context. While responsible business conduct (RBC) principles, public participation, and access to information have been enshrined in the legislation, implementing regulations are still lacking and enforcement remains weak. Similarly, stronger environmental protection has recently been legislated, but existing institutions and an unclear decentralisation process do not allow for effective law enforcement.

Forest management remains one of the major challenges in terms of responsible investment in agriculture. Agricultural growth has relied largely on converting forested areas into agricultural land. This has caused a loss of biodiversity, generated carbon emissions and higher rates of soil erosion contributing to declining water quality and downstream sedimentation. Several legislative changes were made after the 1997-98 forest fires, but the legal framework for forest management remains inconsistent and allows for unsustainable practices. The initiative Reducing Emissions from Deforestation and Forest Degradation (REDD) was launched in Indonesia in 2010 and the President declared a two-year Forest Moratorium in 2011.

Large-scale investments in agriculture can have a positive social impact only if effective policies are put in place to support MSMEs and secure the land rights of smallholders and local communities. The government is actively supporting MSMEs, in particular by reserving certain industries and requiring partnerships with MSMEs in certain sectors. However, the recognition of customary land rights remains a critical and sensitive issue. While these rights are mentioned in the legislation, they are often ignored in practice. As a result, an increasing number of land conflicts between local communities and large-scale plantations are reported. Business partnerships between large agricultural investors and smallholders can be part of the solution. The government has actively promoted such partnerships since the 1970s.

The level of support to agriculture fluctuates dramatically from year-to-year

Developments in agricultural policy can be seen by changes in the level of support measured by the %PSE (Producer Support Estimate as a share of farmers' gross receipts) and the %TSE (Total Support Estimate as a share of GDP). A striking feature is the large fluctuations in support that occur from year to year. During 1990-2010, the %PSE varied between –89% and 21% and the %TSE between –12% and 4%. This variation is sometimes caused by market developments, such as in 1998 when the rapid depreciation of the rupiah resulted in a sharp rise in world prices in local currency, thereby lowering the %PSE. In other years, policy changes explain the variation. For example, policy measures taken to insulate the domestic market from the sharp rise in cereal and oilseed prices contributed to a sharp drop in support in 2008. Another feature is the existence of negative %PSE values. These indicate that for some years farmers were being taxed rather than supported by government policies.

... has been increasing since 2000...

Annual variations aside, support to producers has been rising over 1990-2010. The average %PSE for the five-year period 1990-94 was 3%; for the most recent five-years 2006-10 it

averaged 9%, even including the -10% estimated for 2008. Similarly, the total cost of agricultural policies to taxpayers and consumers as measured by the %TSE has risen from 0.9% for 1990-94 to 1.9% for 2006-10. This upward trend in support reflects both an increase in budgetary expenditure and moves to support producer prices. The 2006-10 average %PSE of 9% is higher than Brazil and Ukraine, just below the United States and China, well below the OECD average of 22% (OECD, 2011a). Nevertheless, the %TSE at 1.9% for 2006-10 is one of the highest and well above the OECD average at 0.9%. This shows that for a relatively poor country with a large agricultural sector, even if agricultural support as measured by the PSE is low, the burden on the economy can be relatively high.

... and is dominated by price support and input subsidies

Market Price Support (MPS) is the dominant form of support to producers. This mostly reflects border protection for certain agricultural commodities as well as output price support for rice and sugar. In particular, given the importance of rice within the agricultural sector, the MPS value for rice drives the overall PSE. For example in 2010, MPS for rice alone represented one-third of total PSE. Budgetary support to agriculture has increased from 1.4% of gross farm receipts in 1990-94 to 2.0% in 2006-10. The vast majority of this, 98% in 2006-10, is provided through payments for variable or fixed inputs that are known to have low transfer efficiency, meaning that typically a small portion of the transfers from taxpayers ends up as additional farmers' income (OECD, 2002 and 2008). This might be particularly true in Indonesia where large fertiliser subsidies are channelled through fertiliser suppliers and not provided to farmers directly.

Actions for further reform

The actions proposed below suggest policy reforms for consideration by the government as key building blocks to support increased agricultural productivity, competitiveness and sustainability. In light of expressed government objectives, these proposals highlight policy options that are potentially more effective and efficient than some existing policy measures.

A comprehensive approach to building food security is recommended, tackling the different causes of food insecurity with specific policy instruments and providing a coherent overall policy set that provides appropriate incentives and disincentives. Food security would be greatly enhanced by making agriculture a more attractive sector for investors. Investment in agriculture is relatively low, and foreign direct investment in particular is constrained by restrictions on foreign ownership. Low land registration levels and complicated land tenure system discourage both domestic and foreign investors and undermine efforts to curb deforestation rates. Inadequate infrastructure, in particular transport and irrigation, and limited access to long term financing are additional constraints to investment. A range of import and export restrictions isolate farmers from both input and output markets, while input subsidies are used extensively to lower production costs and raise output. In the end, such policies increase food costs for consumers and the fiscal cost for taxpayers. Alternative policies could ease constraints to investment, improve access to markets, encourage agricultural productivity growth, including through the reinforcement of the Agricultural Knowledge System, and improve sustainable resource use.

Indonesia is in an inevitable and a desirable process of economic restructuring that will result, amongst other things, in a significant fall in employment in agriculture. A long-term strategy of farm restructuring that differentiates between various types and size of farms and incorporates relevant policy measures to address both short and long term needs would very much facilitate a smooth transition. Some households may need assistance for their farm business to become more competitive, some may need to diversify income sources within and outside agriculture, and some may prefer to leave the sector for alternative employment. Farm policy, along with appropriate economy-wide measures, should focus on increasing opportunities and choice for rural households, rather than on supporting an existing farm structure. As Indonesian farming systems are strongly differentiated regionally, a long term strategy should allow for tailored approaches depending on specific local conditions.

The actions below are not exhaustive and are derived from analysis undertaken during the course of this *Review*. They should be interpreted as a starting point for government consideration, refinement, and elaboration – not as an exact prescription to follow.

1. Pursue food security through a broader range of measures

The objective of food self-sufficiency does not address the core elements of food security. The focus on self-sufficiency as a means to achieve food security is misplaced, not least because the use of import protection to increase the returns to farmers also increases food costs for consumers and hinders the competitiveness of the agricultural sector, thereby limiting agricultural productivity growth. On balance, such measures undermine rather than improve access to food for poor consumers, a group which includes a majority of farmers who are net buyers of food staples. A diversified approach to food security is recommended, tackling the different causes of food insecurity with a diversified set of strategies and instruments.

The country can be self-sufficient in food production but still food insecure if people do not have enough income to buy food. Thus, the most relevant way to improve food security is to combat poverty and to stimulate domestic production through easing constraints on investment in agriculture as discussed in greater detail below. Such investment would not only increase food availability, but would also enhance productivity growth, create jobs and raise incomes, thus improving access to food.

Diversification of production and income sources, including through off-farm work, should be pursued. Access to off-farm work by farm families would be facilitated by further improvement in transport capacity. Better market infrastructure would ease access to domestic and global value chains, thus increasing benefits from the growing demand for processed products. Diversification from rice production into high-value crops would allow farmers to earn higher incomes from a given amount of land, thus improving their access to food. In turn, palm oil production should not undermine the production of other cash crops that can offer important savings and risk spreading functions in areas without access to formal banking and insurance services. The benefits of agricultural diversification should be reflected in land-use planning decisions.

Insurance schemes could reduce income fluctuations and thus stabilise access to food. Insurance provides a tool for farmers to deal with income variations caused by price and

output fluctuations, which are likely to rise as a result of climate change (OECD, 2011b). Work has been done in trialling insurance programmes for rice and cattle in certain districts. These pilot programmes should be assessed before being extended across a wider range of commodities and made available in other districts. Such evaluation would need to include the cost of the programmes, the extent to which benefits reached intended beneficiaries and the actuarial soundness of the system. In the long-term, sound insurance schemes would allow for a more stable policy framework and reduce the need for one-off support payments to farmers. The short-term challenge is to demonstrate to farmers the value of insurance. In this regard, a subsidy on the insurance premium may be justifiable. However, there is also a need to set a time line for the phase out of the government subsidy so that producers know what the full cost is and that they will bear most of this cost at some point in the future.

International initiatives to address emergency situations are worth pursuing. While the root cause of food insecurity is poverty, not physical scarcity of food, emergency situations might occur where food supplies have broken down. In this respect, recent steps to establish a regional emergency stockpile of rice signed between the ten ASEAN members and China, Japan and South Korea is a sensible solution and reduces the need for rice self-sufficiency.

Trade can be an essential part of the food security strategy. With the 4th largest population in the world and a strategic location for maritime trade, Indonesia can benefit from relatively easy access to international supplies of cheap and diversified food for its growing and increasingly affluent population and could also increase exports to its Asian neighbours increasingly dependent on agro-food imports. Relying only on domestic production may make Indonesia vulnerable to fluctuations in supply. Thus, to improve food security the country needs to have the ability to buy food on international markets. Import protection is inconsistent with Indonesia's objective to be a trading nation and increase its export performance. The inconsistent and unpredictable nature of import measures is reducing the incentive to trade with Indonesia, reinforcing the perception that trade is unreliable. In particular, non-tariff measures need to be more transparent. A growing number of administrative requirements are being placed on imports. While many of these are justifiable from a food safety or sanitary/phytosanitary perspective, and apply equally to both imports and domestic products, others appear to be introduced to specifically reduce the quantity of imports, increase the cost of importing, or make the process of importing more difficult. These need to be reformed, at least by improving their transparency.

RASKIN needs to be reformed. Targeted safety nets are a key component of policy measures to enhance food security, as a long-term solution to deal with limited access to food by the poor. They allow flexibility to deal with the impact of the price rises on poor households without disrupting the market, and in particular without interfering with price signals to farmers. Once a safety net mechanism is in place, transfers can be raised when prices increase and can be lowered when prices fall. RASKIN is an important component of the social security framework, providing assistance to the most vulnerable. However, the system has some deficiencies in that targeted households receive a smaller quantity of rice than intended. Furthermore, the policy decisions taken to increase border protection for rice have increased the budgetary cost of the programme, making the cost of these inefficiencies even greater. An initial reform could be to gradually increase the subsidised price paid by recipients. This would reduce the incentive for on selling. A bolder step would be to replace the in-kind transfers with conditional cash transfers proven successful in a

number of countries (e.g. *Bolsa Familia* in Brazil). However, good governance and sufficient capacity at the local level are necessary conditions for these programmes to be effective.

Input subsidy schemes should be made more efficient. A large proportion of budgetary support is provided through fertiliser and seed subsidies, both intended to diminish the cost of agricultural production and to enhance food availability. It is important that these are reviewed to ensure that the money is being used efficiently. In particular, channelling the financial support through the fertiliser suppliers to the producer has a number of drawbacks as it reduces the incentive for these companies to be efficient in their production. The cost of the programme may escalate because it is propping up the input producers. Moreover, such subsidies do not have lasting effects, they encourage waste and pollution and are prone to corruption. A more efficient scheme would be to provide vouchers to farmers who then can choose the type and quantity of inputs they wish to consume. Concerns regarding the costs of distribution of fertiliser to islands far away from centres of fertiliser production could be overcome by giving farmers in these islands more vouchers. Budgetary savings from a more efficient scheme could be re-allocated to support the Agricultural Knowledge System as discussed in point 3 below.

2. Ease constraints on investment[1]

Accelerate the registration of land rights. While quite often not sufficient, a land certificate is a necessary condition for access to loans, including those supported by government programmes. The Community Service for Land Certification (*Layanan Rakyat untuk Sertifikasi Tanah,* Larasita) does not have sufficient capacity to accelerate land registration at the national level. The programme should be expanded to cover all districts and strengthened through the provision of better equipment, in particular transportation and communication means and modern devices for land mapping, and through improved human capacities. In addition, land registration costs remain relatively high for smallholders, in particular due to the cost of land mapping. The project initiated by the National Land Agency (*Badan Pertanahan Nasional*, BPN) to conduct land certification free of charge could be scaled up to reach a larger number of smallholders and be jointly financed by the central and local governments.

Clarify the land tenure system. The land tenure system should be simplified and the respective responsibilities of the National Land Agency, the Ministry of Forestry, and the Ministry of Mining over land management clarified to enhance land market transparency and efficiency, thereby reducing the cost of doing business. Land classified as 'forest land' could be reviewed to eliminate the grey area between land classified as forest and agricultural land and to better match with existing forest areas. Some areas now classified as forests are in fact not forested or already under agriculture or other uses. Rather than imposing limits on plantation areas, regulations could focus on environment and community protection, and anti-competitive behaviours could be handled by the Competition Commission on a case by case basis. Finally, the legislation regarding land expropriation should be better enforced to ensure that compensation for expropriation is based on market price.

Recognise and protect customary land rights. The weak recognition of customary land rights (*ulayat* rights) generates an increasing number of land conflicts between large investors and local communities, and is undermining the livelihoods of smallholders. The

legalisation of *ulayat* rights would have a significant effect on poverty and sustainable land management. Occupancy could be recognised as evidence of land ownership and informal evidence accepted, such as tax receipts combined with testimony by neighbours. Land registration enhances land tenure security, but it often implies the transformation of *ulayat* rights into individual rights which affects the fabric of social relationships. Land registration should not disregard the great diversity of local land rights and tenure arrangements that still exist. For instance, overpopulated Java, where customary land rights have almost completely disappeared and land rights have become strongly individual, requires different land rights provisions than other regions. The legislation should recognise such diversity and provide for both individual and customary rights. Finally, a special court for agrarian conflicts could be set up as an independent institution to solve the rising number of land conflicts.

Simplify business licensing procedures further. Significant efforts have been made to accelerate licensing procedures, but there remains scope for further improvement. The Indonesian Investment Co-ordinating Board (*Badan Koordinasi Penanaman Modal*, BKPM) licensing authority should be strengthened and cover sectoral licenses currently administered by other institutions. Mapping all the licenses and administrative procedures related to agricultural investment and re-examining their purpose could help identify reform needs to reduce the cost of doing business in the sector. Furthermore, the government could use its administrative resources to ensure the effective enforcement of regulations on a continuing basis rather than to issue one-time licenses, and to focus in particular on high-risk and sensitive areas related to the safeguard of smallholders, local communities, and the environment.

Promote investment opportunities while conducting regular monitoring of the costs and benefits of investment incentives. BKPM should develop its promotion activities further, in particular to promote the services and facilities offered to investors in new plantation estates. At the same time, detailed cost and benefit analyses and regular monitoring of investment incentives is critical to avoid unnecessary public expenditures and rent-seeking and promote efficient investments. Business surveys and academic research often confirm that fiscal incentives are not one of the most important determinants for attracting investments. Spending on infrastructure may be more efficient in attracting investment than offering fiscal incentives and providing subsidies, such as for biofuel development. In particular, the incentive bias in favour of large agricultural investments, such as the large estates being developed by the government in East Kalimantan and Papua, should be closely analysed as it may discourage production by smallholders and offset efforts to protect these farmers.

Co-ordinate and strengthen periodic evaluations of the Negative Investment List. As FDI in agriculture has been increasingly restricted over the last few years, such evaluations are essential to ensure an effective and predictable revision process and to secure investors. For example, the government could require sector Ministries to perform cost-benefit analysis to justify any additions to the negative list.

Assess short-term and long-term costs and benefits of export taxes on palm oil and cocoa beans. Export taxes succeeded in limiting CPO exports to supply the domestic processing industry, but hurt producers and delay the industry's adjustment to the international market. Direct measures to release constraints on the development of local processing industries, such as infrastructure development in regions with a comparative advantage

for such industries, would be more effective at enhancing the industry's competitiveness than export taxes. However in the short term, the revenue raised through export taxes could be used to fund infrastructure development.

3. Reinforce the Agricultural Knowledge System

Increase public funding on research and development (R&D). The intensity of research in Indonesia is low compared to other neighbouring countries. Partnerships and consortia between national and international research, extension, and farmers would enhance access to best practices and the utilisation of mature technologies and increase uptake by farmers. Furthermore, the government can set incentives to induce the private sector to invest more in agricultural R&D, in particular through the enforcement of intellectual property rights such as patents and licenses. Research in the production of non-perennial crops – rice, other food and feed crops, and animal products – needs more support and coherence. In addition, research into other parts of the rural economy and their interactions with the urban sector should be strengthened to support the objective of income diversification and to prepare grounds for the strategies of farm restructuring as discussed in point 5 below.

Enhance the efficiency of extension services. The implementation of Extension Law 16/2007 should be expanded to cover all provinces and districts. This should be combined with renewed efforts to build their capacities and ensure they can provide high quality extension services to farmers. The emphasis of advice should shift from a narrow focus on increasing rice production to a broader perspective on the farm as an agri-business unit. Advice should be differentiated depending on the target farmers. Those who have no future in farming should be advised on exit strategies and those with potential would benefit from business development plans for an increased scale of operation and from advice on management practices, including risk management adapted to local conditions. Bigger farms should pay for advice service, but it should be free of charge for smallholders. Extension workers need access to new technologies and innovative agricultural research through good Internet connectivity and better upstream linkages to the R&D institutions, in particular the Assessment Institutes for Agricultural Technology (AIATs).

Promote the engagement of public extension services with the private sector. Programmes aimed at enhancing the performance of extension services, such as the Decentralised Agricultural and Forestry Extension Project (DAFEP) and the Farmer Empowerment through Agricultural Technology and Information Project (FEATI), highlight that the private sector has been a strong co-operator and shed light on the importance of linking farmers, government and private extension services. Partnership arrangements should be encouraged to reduce the duplication of activities and better transfer private sector knowledge to farmers and extension workers. This would enable the private sector to be involved in the curricula development of training and extension programmes to better link training provision with industry demands.

4. Enhance the efficiency of water management systems[2]

Increase public spending on irrigation. While efficiency gains can be made by improving current spending patterns, greater investment is also needed to meet rehabilitation needs. Any expansion of the irrigation coverage would need to be preceded by a careful assessment of long-term trends in demand for water-intensive commodities, in particular rice, the capacity of small and very small farms to raise water productivity, and the environmental impact of new irrigation infrastructure.

Set appropriate incentives for operations and maintenance (O&M) of irrigation networks. Increased public spending in irrigation must be combined with adequate incentives for O&M activities so that sub-national governments and WUAs adequately fund O&M of irrigation systems. Currently, local governments and WUAs have little incentive to undertake O&M because they can receive funding for rehabilitation work, i.e. they can get money if the system deteriorates far enough. The cost of rehabilitating the provincial and district networks should thus be shared between the central and local governments according to their fiscal capacity, for example through a matching grant where the size of the central government's assistance for rehabilitation would be determined by O&M funding from local governments.

Improve water services and the reliability of water supplies to farmers. This is a pre-condition toward introducing farm water charges and associated policy tools such as water trading. Charging farmers for water provision can provide a signal of the value of water, thus improving water use efficiency, shifting water use to higher value products and facilitating the recovery of infrastructure costs. However, it is not realistic if water is not provided in a reliable manner from upper level canals. In addition, the task can be challenging, but still feasible, in regions where a large number of farmers share a single canal system.

5. Enhance farm restructuring

Develop a long-term strategy of farm restructuring. As Indonesia is in the process of economic restructuring resulting in a fall in employment in agriculture, not only in relative but also soon in absolute terms, a long term vision of farm restructuring is needed. In this respect, the work of several international organisations, including OECD, could be helpful to differentiate between types of farms and relevant policy measures addressing their particular needs (Brooks, 2012). Such policy measures could differentiate between farms which need some assistance to become more competitive, those which need to diversify income sources within and outside agriculture, those leaving the sector for off farm work and those unable to adjust and for which a relevant safety net should be developed.

Encourage various forms of mutually beneficial business partnerships. Indonesia has extensive experience in developing partnership arrangements between large investors in agriculture and smallholders acting as their suppliers. Contract farming is the most common partnership scheme, but mixed models are also widely used, with investments in a large-scale core enterprise at the centre involving out-growers under contracts to supplement core production. The government should impose legally binding requirements to large investors involved in such partnerships to promote responsible business conduct, including the respect of human rights and labour standards, and ensure that these

partnerships have no adverse social and environmental impacts. The OECD Guidelines for Multinational Enterprises and the FAO Voluntary Guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security provide useful guidance. Smallholders should be able not only to file complaints and access dispute settlement mechanisms if contracts are not enforced, but also to ensure that their complaints are dealt with in a fair and transparent manner. Consultation processes required by the legislation need to grant landowners a collective veto over the plantation permit and to provide for sanctions if initial commitments are not met. The government could assist farmers' organisations, in particular through the work of extension workers, to strengthen their negotiation, management and organisation skills.

Link smallholders with markets. Over the last two decades, changes in consumption patterns combined with rapid development of modern retailing stimulated transformation of the downstream sector. Such transformation requires changes in marketing channels for agricultural commodities and creates both opportunities and challenges for the dominant small-holding farming sector. Further efforts to develop and maintain transportation systems, including local roads, and to improve access to electricity and information and communication technologies, are needed to link farmers with markets. Maintenance costs should be budgeted at the onset of projects, and maintenance funds could be created. Fiscal incentives for road maintenance by local governments could be based on the year-on-year quality of the road maintenance that they undertake.

6. Diversify financing sources for rural businesses

Carefully monitor credit programmes. The government has taken steps to improve access to credit through subsidised interest rate loans, credit guarantees and the direct provision of funds (PUAP) to farmers groups for distribution to members based on the microcredit model. All three programmes need to be carefully monitored and evaluated. In terms of subsidised credit rates, there has been a long history of debt write-offs. These need to be avoided. The PUAP programme needs to be fully evaluated to ensure that the funds borrowed by farmers are being paid back to the group. If not, the programme is just a one-off transfer of wealth.

Expand the scope of the Credit Bureau and the Debtor Information System (DIS). The availability of reliable credit information is expected to facilitate credit expansion by reducing credit risk, transaction costs, and reliance on collateral. However, if credit information is the only criteria used to screen potential debtors, it may lead to the exclusion of the MSMEs that undertake investments with the highest economic returns and which are able to drive innovation and agricultural growth. Thus, in addition to credit information, the Credit Bureau should also register the abilities of the debtors, such as their entrepreneurial ability, to better assess the likelihood of loan repayment. Microfinance institutions can help by testing new financial products and providing information on the ability of their debtors. The lack of collateral is often the binding constraint to access credit. The DIS should continue to focus on enhancing the recovery of collaterals but also provide for regulations to widen possible collaterals, which would enhance smallholders' access to credit.

7. Reinforce and implement the legislation on forest and environment protection

Strengthen law enforcement for forest management. Law enforcement is a real challenge to allow for sustainable forest management. Indonesia could strengthen its existing collaboration with Brazil which provides a successful example of effective law enforcement. From 2000 to 2005, Brazil lost 3.5 million hectares of forest annually, the highest deforestation rate in the world. Since 2005, however, deforestation has begun to decrease as a result of the Brazilian government's aggressive effort to implement the Environment Law.

Ensure the success of Indonesia's participation in REDD. REDD success relies on a well-functioning decentralised governance, including increased capacities of local governments and civil society in local forest management. REDD success also requires the commitment and co-operation of many stakeholders, including local communities, the private sector, the Ministries of Forestry and Environment, the National Climate Change Council, and Bappenas, to produce solid emissions reductions for sale, select suitable sites and ensure the respect of customary land rights, change incentives, monitor and verify data, and find appropriate buyers to share financial benefits and risks. REDD should also be carefully monitored and regulated to avoid 'land grabbing' , in particular by ensuring that customary rights are respected. REDD should be effectively integrated in the legislation. For example, Law 26/2007 provides the possibility for province and district government to revisit their spatial plan and change land use every five years, which offers significant opportunities for REDD development in state forest areas.

Reinforce the legislation on environmental protection. In addition to ensuring the effective implementation of the existing legislation on environmental management, this legislation should be reinforced. The 2007 Investment Law stipulates that to be eligible for incentives, an investment should fulfil at least one of ten criteria, including promotion of environmental sustainability. This should be a requirement and not only an option. Similarly, the scheme currently applied for palm oil called Indonesian Sustainable Palm Oil (ISPO) could be expanded to other perennial crops.

Carefully assess the economic and environmental soundness of biofuel policy. Subsidies and mandatory requirements for the use of biofuels have attracted a large part of investments in agriculture. However, the economic viability of biofuel production is uncertain in many countries. The inflexible nature of mandates may result in significant market distortions. Moreover, the impact of biofuels on the reduction of greenhouse gas emissions, especially when produced with palm oil or jatropha, can be negative if previously non-cultivated areas are cleared for biofuel production. While existing regulations prohibit forest clearing for biofuel production and state that biofuel programmes should make use of non-productive areas, their enforcement remains challenging. Hence, the cost-effectiveness and the environmental soundness of current biofuel policies need to be carefully analysed, in particular in the context of subsidised oil prices. The emphasis on biofuels may crowd out investments in other more efficient technologies.

8. Improve agricultural policy governance

Enhance the regulatory framework in agriculture. Actions to strengthen the regulatory framework within the agricultural sector need to be developed as part of the broader government strategy to enhance regulatory quality (OECD, 2012). The Ministry of Agriculture would benefit from developing capabilities to enhance *ex ante* assessment of laws and government regulations which it initiates. It would also benefit from a systematic assessment of whether existing laws and regulations within its jurisdiction support its policy goals. Such action may necessitate support by other central government authorities with expertise in policy areas such as investment, competition, environment, co-operatives and small and medium enterprises. This should be accompanied by measures to ensure implementation of regulatory changes at the sub-national level, as well as an effective codification of laws and regulations to ensure agricultural producers, traders and investors have access to clear and transparent information on existing regulatory procedures and requirements.

Enhance participative policy formulation. Farmer organisations, consumer organisations, researchers, representatives of the upstream and downstream sectors as well as non-government agencies involved in development should be consulted on policy formulation and evaluation and should, as appropriate, be involved in negotiations with the government.

Strengthen transparency and accountability of publicly-funded programmes. Budget transparency is a key element of good governance and a requisite for accountability about policy intentions, formulation and implementation. In particular, the Ministry of Agriculture – in co-ordination with the Ministry of Finance – would benefit from defining clearly the objectives, outputs and outcomes associated with special allocation funds (*dana alokasi khusus*) and co-administered funds (*dana tugas pembantuan*). Special allocation funds finance much of agricultural investment expenditure carried out by sub-national governments. Co-administered funds finance other agricultural priorities of the national government implemented by sub-national governments. Transparency could support monitoring of sub-national government performance by the Ministry of Agriculture, external audit bodies (i.e. Finance and Development Oversight Body, sub-national audit units/BAWASDA, National Audit Board), affected parties and the general public.

Policy decisions should be evidence-based. Reliable and timely statistics are necessary to assess the results of reforms undertaken so far, to formulate policy responses and to design policies for the future. To date, user orientation of statistics is not sufficient. The accuracy of data on volumes produced and consumed of agricultural commodities, the value of production by commodity, farm structures in terms of ownership and use, the level and structure of rural household incomes (both from agricultural and non-agricultural sources), and on agricultural land is far from adequate. Data collection could be less expensive if combined with a revitalisation of extension and research services. Once collected, data should be freely distributed, not sold. A more comprehensive and coherent system of monitoring, analysing and reporting of Indonesia's agricultural policies will help analyse, assess and improve policy performance.

Notes

1. Suggestions on how to address the constraints identified in Box 0.3 are mostly covered under other headings of this section. Some constraints, in particular infrastructure development, go beyond the scope of this Review and are covered in detail in the *OECD Review of Investment Policy in Indonesia* (OECD, 2010b). This section focuses on the institutional and procedural aspects to reduce investment constraints in agriculture.
2. Comprehensive recommendations related to water management can be found on the website dedicated to the workshop "Sustainable Water Management for Food Security" held in Bogor, Indonesia, in mid-December 2011 (ADB/MoA/OECD, 2011). Only recommendations more directly resulting from the Review are provided in this section.

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Synthèse et recommandations pour l'action publique

Cet Examen, réalisé en étroite collaboration avec le ministère indonésien de l'Agriculture, évalue la performance de l'agriculture indonésienne au fil des deux dernières décennies ainsi que les réformes engagées dans ce domaine, avant de formuler des recommandations pour relever les grands défis à l'avenir. L'analyse se fonde sur le point de vue du Comité de l'agriculture de l'OCDE selon lequel les politiques agricoles doivent s'appuyer sur des observations factuelles, être élaborées et appliquées avec discernement pour soutenir la productivité, la compétitivité et le développement durable, et éviter de fausser les décisions de production et les échanges. Réalisé en partenariat avec le Comité de l'investissement de l'OCDE, cet Examen intègre un chapitre spécial consacré aux principaux défis à relever pour attirer des investissements durables dans le secteur agricole, qui met à profit le Cadre d'action pour l'investissement agricole de l'OCDE.

L'Indonésie est l'un des premiers producteurs agricoles mondiaux…

Avec 238 millions d'habitants, dont la moitié vit en zone rurale, l'Indonésie est le 4^{e} pays le plus peuplé du monde après la Chine, l'Inde et les États-Unis, est le 15^{e} pays le plus vaste, avec une superficie de 1.9 million km^2, et son espace maritime s'étend sur près de 3.1 millions de km^2. À parité de pouvoir d'achat (PPA), son PIB était de 1 030 milliards USD en 2010, ce qui le classe au 16^{e} rang mondial. En revanche, son PIB par habitant à PPA (4 300 USD) le classe parmi les pays à revenu intermédiaire de la tranche inférieure.

Avec plus de 17 000 îles, dont 6 000 sont habitées, l'Indonésie est un pays très hétérogène sur bien des plans : densité de population, ressources foncières et hydriques, conditions climatiques et infrastructures. Elle possède en moyenne peu de terres agricoles : à peine 0.23 ha par habitant, soit un tiers seulement de la moyenne mondiale, un niveau équivalent à celui de l'Italie et de l'Allemagne, inférieur à celui de la Chine et supérieur à celui de l'Inde (Banque mondiale, 2012). En revanche, ses ressources renouvelables en eau sont relativement abondantes, avec 8 500 m^3/habitant/an, ce qui est légèrement moins que les États-Unis, mais quatre fois plus que la Chine et huit fois plus que l'Inde (FAO Aquastat, 2012).

Bien que la contribution de l'agriculture au PIB ait chuté de 19 % en 1990 à 15 % en 2010, et que sa part dans l'emploi total soit passée de 56 % à 38 % sur la même période, le secteur continue d'employer environ 42 millions de personnes. La productivité du travail a progressé à peu près au même rythme que la production totale, si bien que l'emploi total dans l'agriculture est resté relativement stable. Dans les pays qui ont enregistré la plus

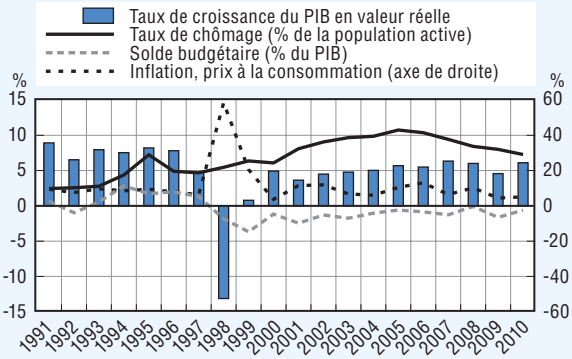
Encadré 0.1. **La situation en Indonésie**

Tableau 0.1. **Indicateurs contextuels, 1990, 2010***

	1990	2010*
Contexte économique		
PIB (milliards USD)	106	708
Population (millions)	184	238
Superficie du pays (milliers de km^2)	1 911	1 911
Densité de population (habitants/km^2)	96	124
PIB par habitant aux PPA (USD)	1 449	4 293
Échanges en % du PIB**	42	42
L'agriculture dans l'économie		
Part de l'agriculture dans le PIB (%)	19.4	15.3
Part de l'agriculture dans l'emploi (%)	55.9	38.4
Exportations agroalimentaires (% des exportations totales)	14.9	21.5
Importations agroalimentaires (% des importations totales)	7.6	9.8
Caractéristiques du secteur agricole		
Balance commerciale du secteur agroalimentaire (milliards USD)	2.2	20.5
Part des produits végétaux dans la production agricole totale (%)	80	82
Part des produits animaux dans la production agricole totale (%)	20	18
Superficie agricole (SA) (millions ha)	45	54
Part des terres arables dans la SA (%)	45	44
Part des terres irriguées dans la SA (%)	14	17
Part de l'agriculture dans la consommation d'eau (%)	93	82

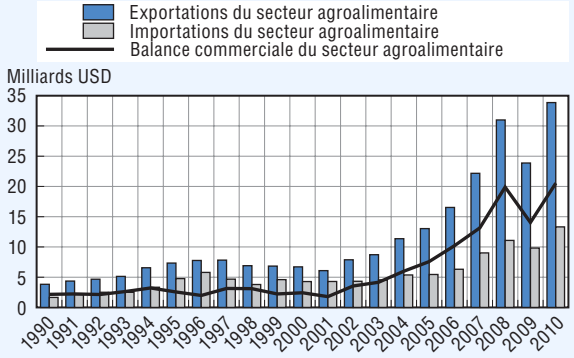
* ou dernière année disponible.
** somme des exportations et des importations par rapport au Produit Intérieur Brut (PIB).
Source : BPS Indonésie ; bases de données statistiques de l'OCDE ; Banque mondiale, WDI ; FAOSTAT.

Figure 0.1. **Principaux indicateurs macroéconomiques, 1991-2010**



Source : Statistiques de l'OCDE, 2011 ; Banque mondiale, WDI.
StatLink http://dx.doi.org/10.1787/888932649242

Figure 0.2. **Commerce agroalimentaire, 1990-2010**



Source : Base de données Comtrade des Nations Unies, 2011.
StatLink http://dx.doi.org/10.1787/888932649261

forte croissance de la productivité du travail, tels que la Chine et la Malaisie, l'emploi agricole a eu tendance à chuter. Ce n'est pas encore le cas en Indonésie.

L'agriculture se caractérise généralement par une main-d'œuvre abondante par rapport aux terres disponibles, d'où une production à petite échelle. La production de cultures vivrières, notamment, repose sur de minuscules exploitations utilisant peu de machines, dont la superficie moyenne va de 0.3 ha en moyenne à Java à 1.4 ha pour les exploitations irriguées en dehors de cette île. Si les petits exploitants sont aussi d'importants producteurs de cultures pérennes, il existe, principalement à Kalimantan et à Sumatra, de vastes plantations privées et appartenant à l'État qui sont spécialisées dans ces cultures, produisant notamment de l'huile de palme et du caoutchouc. Elles s'étendent sur quelque 2 600 ha en moyenne et occupent environ 15 % de la superficie cultivée totale. Si l'on tient compte de ces exploitations, la superficie moyenne d'une ferme est estimée à près de 2 ha.

Avec une production d'une valeur moyenne de 66 milliards USD au cours de la période 2007-09, l'Indonésie est le 10e producteur agricole mondial, juste derrière la Turquie et la France, devant l'Allemagne et l'Argentine. Elle est le premier producteur mondial d'huile de palme, juste devant la Malaisie, le deuxième producteur de caoutchouc naturel après la Thaïlande et le troisième producteur de riz après la Chine et l'Inde (FAOSTAT, 2012).

… et les réformes macroéconomiques menées jusqu'à présent ont donné de bons résultats

La crise asiatique de 1997-98 a eu un profond impact sur la situation économique et politique en Indonésie. Les pouvoirs publics ont réagi par un vaste plan de réformes, qui a contribué à stabiliser la situation macroéconomique, ouvrir à la concurrence internationale des secteurs jusque-là protégés, accroître l'afflux de capitaux et créer des conditions plus favorables au développement du secteur agricole. Au fil de la décennie qui vient de s'écouler, les déséquilibres intérieurs et extérieurs ont été corrigés. Entre 2001 et 2005, les efforts d'assainissement des finances publiques ont permis de réduire progressivement le déficit budgétaire, resté inférieur à 2 % du PIB depuis lors. Après avoir culminé à 90 % du PIB en 2000, la dette de l'État a été ramenée à 28 % en 2009 (OCDE, 2010a).

À l'heure actuelle, le pays est bien placé pour financer les coûts à court terme de certaines des réformes du secteur agroalimentaire proposées ci-après. Cela étant, une forte proportion de la population active reste employée dans l'agriculture, en raison notamment du manque de perspectives d'emploi dans les industries extractives, à forte intensité en capital, et dans l'industrie manufacturière, qui croît à un rythme modeste. Par conséquent, des réformes structurelles à l'échelle de l'économie tout entière s'imposent pour stimuler une transformation du secteur agricole sur le long terme.

L'agriculture est un secteur prioritaire pour les pouvoirs publics…

Les gouvernements successifs ont considéré l'agriculture comme un secteur stratégique pour le pays. Elle fait l'objet de plans à moyen terme (cinq ans) qui constituent un volet important du cadre d'action. Si le ministère de l'Agriculture est la principale autorité chargée d'élaborer et de mettre en œuvre les politiques dans ce domaine, de nombreux autres ministères et organismes sont également concernés par ce processus. Parallèlement, les pouvoirs locaux, y compris au niveau des villages, jouent un rôle plus important dans la planification et la mise en œuvre des politiques agricoles depuis la décentralisation de 2001. Cette situation soulève des problèmes de coordination de l'élaboration des politiques au niveau national et régional (OCDE, 2012). L'évolution vers plus de démocratie a également conféré un pouvoir politique accru aux agriculteurs, et le secteur agricole bénéficie d'un fort soutien dans l'opinion publique et de la part des partis politiques.

... et les politiques le concernant ont connu quatre phases distinctes

L'évolution des politiques agricoles depuis le milieu des années 60 peut être divisée en quatre phases :

- **Du milieu des années 60 au milieu des années 80 :** augmenter la production de riz était une priorité tant politique qu'économique pour le gouvernement de l'Ordre nouveau de Suharto. Ce dernier a donc créé l'Agence nationale de logistique (*Badan Urusan Logistic*, BULOG), lui a confié un rôle de plus en plus important dans l'achat (à des prix minimums garantis), la distribution et le commerce de produits stratégiques, et lui a donné accès à des crédits à faible taux. Les agriculteurs ont bénéficié d'intrants subventionnés (variétés de semences à haut rendement, engrais et pesticides) et de prêts subventionnés, des services de vulgarisation leur ont été proposés, et les réseaux d'irrigation ont été modernisés. Toutes ces mesures ont été rendues possibles par la hausse des recettes publiques à la suite de la flambée des prix du pétrole dans les années 70.
- **Du milieu des années 80 à 96 :** au cours des années 80, un grand nombre de ces programmes ont dû être réduits ou abandonnés en raison de la chute des prix du pétrole. Les politiques de soutien des prix ont été supprimées pour le maïs et le soja. Les services de vulgarisation ont été restructurés à plusieurs reprises. Les protections douanières, sous forme de majoration des droits de douane, ont été progressivement et unilatéralement éliminées. Par conséquent, l'Indonésie n'a pas eu beaucoup d'efforts à faire pour tenir ses engagements dans le cadre de l'Accord sur l'agriculture issu du Cycle d'Uruguay. Toutefois, les réformes n'ont guère remis en cause le pouvoir dont jouissaient BULOG et d'autres en matière de régulation des flux intérieurs et internationaux de produits agricoles. De puissants groupes d'intérêt, notamment dans le secteur de la transformation, ont bloqué des réformes qui auraient pu dissiper les craintes de voir les petits producteurs être les laissés-pour-compte des politiques en vigueur.
- **1997-99 :** la crise financière asiatique et les réformes engagées par le gouvernement conformément aux conditions imposées par le Fonds monétaire internationale (FMI) en contrepartie des prêts accordés ont conduit à la suppression de ces pouvoirs. Le monopole de BULOG sur l'importation de produits et leur commercialisation sur le marché intérieur a été aboli, les quotas d'importation de produits laitiers fixés par rapport à la production laitière nationale ont été abandonnés, les droits de douane sur les produits agricoles ont été abaissés, et les subventions aux engrais ont été supprimées. Les agriculteurs ont bénéficié de crédits subventionnés pour surmonter les ravages de la crise financière et de ce qui était alors la pire sécheresse depuis 50 ans. Le gouvernement a réagi à la détresse des plus démunis en introduisant un programme de distribution de riz ciblé baptisé « Du riz pour les pauvres » (*Beras Untuk Orang Miskin*, RASKIN), qui est devenu l'un des piliers du cadre d'action sociale.
- **De l'an 2000 à aujourd'hui :** les pouvoirs publics sont revenus sur bon nombre de ces réformes. Les programmes de subvention aux engrais et aux semences ont été réintroduits, puis largement développés. Pour protéger les agriculteurs, des droits de douane et des quotas ont été imposés sur les importations de riz et de sucre. D'autres restrictions frappent à présent l'importation de nombreux produits : prescriptions en matière de licences, déclaration des produits, autorisation d'expédition et inspections aux frontières. Ces mesures pèsent sur le coût des échanges avec l'Indonésie. Le

processus de décentralisation a entraîné une détérioration des services de vulgarisation et des réseaux d'irrigation utilisés par les producteurs, et les pouvoirs publics ont tenté de les améliorer. Une nouvelle loi prescrivant la mise en place d'un service de vulgarisation coordonné a été adoptée. Des ressources supplémentaires sont débloquées par l'État pour augmenter le nombre de vulgarisateurs et améliorer la qualité de leurs conseils. En ce qui concerne les réseaux d'irrigation, les pouvoirs publics ont clairement réparti les responsabilités. Par le biais des associations d'usagers de l'eau (AUE), les agriculteurs sont chargés du bon fonctionnement, de l'entretien et de la remise en état des réseaux d'irrigation des exploitations. Cette réforme s'est accompagnée d'une augmentation des financements dont bénéficient les autorités centrales et locales et les AUE. La Banque mondiale soutient activement l'amélioration de la qualité des services de vulgarisation et des réseaux d'irrigation.

Les objectifs des politiques agricoles…

Les politiques agricoles indonésiennes suivent quatre grands axes. Pour les pouvoirs publics, le principal moyen d'assurer la sécurité alimentaire consiste à atteindre l'autosuffisance pour certaines denrées. Des objectifs ont donc été fixés en ce sens pour le riz, le sucre, le soja, le maïs et la viande bovine. Les pouvoirs publics cherchent non seulement à assurer une production suffisante de ces denrées stratégiques, mais également à veiller à ce que les prix restent abordables pour les consommateurs et que l'offre soit répartie sur tout l'archipel. Les politiques agricoles visent ainsi à trouver un juste équilibre entre les intérêts des producteurs et ceux des consommateurs. Cette aspiration s'accompagne d'un deuxième objectif, qui est de diversifier la production et la consommation pour passer d'une alimentation riche en glucides (riz et blé) à une alimentation privilégiant les produits de l'élevage, les fruits et les légumes (tubercules, notamment). Troisièmement, les pouvoirs publics souhaitent rendre la production agricole plus compétitive et développer la transformation à forte valeur ajoutée. Enfin, il s'agit également d'améliorer le bien-être des agriculteurs en augmentant leurs revenus, de façon à réduire la pauvreté rurale.

… sont poursuivis principalement à l'aide de subventions aux extrants et aux intrants

Pour atteindre ces objectifs, l'État subventionne les extrants et les intrants et finance la fourniture de services au secteur agricole en général (encadré 0.2). Des difficultés administratives entravent le recours à des formes de soutien moins distorsives. Il est en effet difficile de calculer les transferts à partir des surfaces cultivées ou des recettes/revenus lorsque la plupart des agriculteurs n'ont ni titre de propriété ni compte bancaire ou qu'ils ne paient pas d'impôt sur le revenu. Le soutien est donc acheminé au travers des deux marchés disponibles à l'heure actuelle que sont les ventes des producteurs et leurs achats.

Encadré 0.2. **Instruments de politique agricole appliqués en Indonésie**

Instruments appliqués à l'intérieur du pays

- ***Prix minimum d'achat* :** appliqués au riz et au sucre. BULOG est tenue d'acheter du riz pour le distribuer *via* le programme RASKIN et alimenter les stocks à prix garantis fixés par le gouvernement. Les sucreries doivent payer un prix déterminé par les pouvoirs publics aux producteurs de canne à sucre, en contrepartie des autorisations préférentielles d'importation de sucre qui leur sont accordées.
- ***Subventionnement des engrais* :** les agriculteurs travaillant sur moins de 2 ha peuvent acquérir des engrais à prix réduits. Les subventions sont versées directement aux fabricants d'engrais. Leur montant est monté en flèche, car l'État souhaite maintenir constant le prix subventionné des engrais malgré la hausse de leurs coûts de production.
- ***Subventionnement des semences* :** les producteurs de riz, de maïs et de soja en sont les principaux bénéficiaires. Ils peuvent acheter des semences à des prix subventionnés, demander chaque année l'attribution d'un quota gratuit et obtenir des semences en cas de catastrophe naturelle.
- ***Dispositifs en matière de crédit* :** les agriculteurs peuvent obtenir des crédits à des taux d'intérêt inférieurs de 5 à 7 points de pourcentage aux taux commerciaux pratiqués. Depuis 1999, ces prêts sont octroyés par l'intermédiaire de banques commerciales. Des avantages sont aussi offerts depuis peu aux entreprises travaillant avec des producteurs de cultures pérennes et des éleveurs. Un dispositif de garantie des crédits a été mis en place en 2005. Depuis 2008, un plan de financement rural fournit directement des fonds à des fédérations d'agriculteurs, qui les rétrocèdent ensuite à leurs membres sur le modèle du microcrédit.
- ***Soutien des revenus* :** une aide est apportée aux agriculteurs victimes d'intempéries et de catastrophes naturelles.
- ***Assurance* :** deux projets pilotes à petite échelle sont menés pour le riz et le bétail.
- ***Services de vulgarisation* :** fournis gratuitement aux agriculteurs. Leur disponibilité et leur qualité varient d'une circonscription à l'autre.

Services d'intérêt général fournis au secteur agricole dans son ensemble

- ***Irrigation* :** en tant que membres des AUE, les agriculteurs sont censés subvenir aux coûts de fonctionnement, d'entretien et de remise en état du réseau local (tertiaire) dont ils tirent leur eau. En revanche, le coût de transport de l'eau par les canaux primaires et secondaires, de la source jusqu'au réseau tertiaire, ne leur est pas facturé, ces canaux étant placés sous la responsabilité des administrations nationale et régionales. Les dépenses publiques ont augmenté pendant les années 2000, notamment les fonds versés pour aider les AUE à remettre en état les canaux d'irrigation sur les exploitations.
- ***Recherche et développement* :** les fonds consacrés à la recherche sont relativement faibles par rapport à d'autres pays.
- ***Commercialisation et promotion* :** des fonds sont versés pour développer les marchés locaux et les terminaux de stockage et pour améliorer les opérations de transformation. Il n'existe pas de subventions à l'exportation.

Encadré 0.2. **Instruments de politique agricole appliqués en Indonésie** *(suite)*

Instruments de politique commerciale

- ***Droits de douane* :** les droits NPF (nation la plus favorisée) moyens appliqués aux produits agricoles, hors boissons alcoolisées et spiritueux, sont passés de 20 % à 5 % entre 1990 et 2000. Ils se sont à peu près maintenus à ce niveau au cours des années 2000. À titre de comparaison, le taux consolidé moyen s'élevait à 47 % en 2010. Des droits de douane spécifiques s'appliquent au riz et au sucre ; leur niveau est fréquemment ajusté en fonction de l'évolution des prix internationaux de ces produits.
- ***Licences d'importation* :** les importations de riz et de sucre sont limitées. Depuis 2008, seules les entreprises agréées par le ministère du Commerce peuvent importer un certain nombre de produits transformés à base de viande, de céréales, de sucre et de cacao. En 2011, des restrictions similaires ont été imposées pour les animaux vivants et les produits animaux ; les importations de bovins et de viande bovine sont limitées par un système de quotas.
- ***Mesures Sanitaires et Phytosanitaires (MSP) et sécurité des aliments* :** pour importer des aliments transformés, il faut à la fois les déclarer auprès du ministère de la Santé et obtenir une autorisation d'importation de ce dernier. En outre, les importations de produits d'origine animale doivent être approuvées par le ministère de l'Agriculture, accompagnées d'un certificat *halal* et provenir d'un site de transformation inspecté par le ministère. Depuis 2009, chaque cargaison de fruits frais doit être soumise à son arrivée à des essais pour vérifier sa teneur en produits chimiques.
- ***Taxes à l'exportation* :** en 2007, le régime d'imposition forfaitaire des exportations d'huile de palme brute (HPB) et de ses produits dérivés a été remplacé par un régime variable : à présent, le taux d'imposition augmente lorsque le prix international de l'HPB progresse. Cette mesure a été adoptée pour éviter la hausse des exportations en réponse à une flambée des prix internationaux. L'HPB est taxée à un taux plus élevé que ses produits dérivés pour encourager sa transformation sur le territoire national. Un régime similaire, quoique plus simple, d'imposition variable des exportations est appliqué au cacao depuis avril 2010.
- ***Licences d'exportation* :** les exportations de bovins, riz, amandes de palme et engrais à base d'urée doivent être autorisées au préalable. Les exportations de cacao, caoutchouc, bananes et ananas vers le Japon, et de manioc vers l'UE sont réglementées.
- ***Accords commerciaux régionaux* :** l'Indonésie est membre de l'Association des nations de l'Asie du Sud-Est (ASEAN), de la Coopération économique Asie-Pacifique (APEC) et de l'Organisation mondiale du commerce (OMC). Elle encourage la libéralisation des échanges entre les membres de l'ASEAN et leurs principaux partenaires commerciaux de la région, tels que la Chine, le Japon, l'Inde, la Corée, l'Australie et la Nouvelle-Zélande. Ces accords commerciaux contiennent des clauses permettant d'exclure des produits sensibles de certains engagements (baisse des droits de douane) ou d'accorder des délais supplémentaires pour leur application : leur impact sur le commerce agroalimentaire est donc limité.

La production agricole est en hausse…

Si le volume de la production agricole a crû en moyenne de 3.4 % par an depuis 1990, ce taux a beaucoup fluctué. La période 1997-99, en particulier, a été marquée par une

contraction de la production due principalement à la crise asiatique et à *El Niño*. Dans l'ensemble, de 1990 à 2009, la production agricole brute a augmenté en volume de 97 % (+97 % pour les cultures et +89 % pour l'élevage). La croissance démographique s'est, quant à elle, élevée à 29 % sur la même période ; la production par habitant a donc enregistré une hausse considérable.

… et la croissance de la productivité totale des facteurs est due au développement des cultures pérennes…

D'après une analyse approfondie menée par Fuglie, la productivité totale des facteurs (PTF) a fortement contribué à la croissance agricole pendant la « Révolution verte » des années 60 et 70, qui a vu l'adoption de nouvelles technologies et l'amélioration des variétés de cultures. Sa progression a ralenti dans les années 80, mais le secteur agricole a poursuivi sa croissance du fait de l'augmentation de l'utilisation de terres et du nombre de travailleurs. Dans les années 90, la hausse de la PTF a été faible dans l'ensemble, ce qui s'explique par une baisse des dépenses publiques dans ce secteur qui n'ont pas été remplacées par des investissements privés. Dans les années 2000, la PTF a repris sa dynamique de croissance et été à l'origine de quelque 60 % de la croissance agricole, les 40 % restants s'expliquant par un recours accru aux facteurs de production, notamment les terres. Cette tendance a été davantage le fait d'une évolution de la structure de production agricole que d'une hausse des rendements : le secteur s'est en effet diversifié, se détournant des aliments de base au profit de productions à forte valeur ajoutée telles que les cultures pérennes et horticoles ou encore l'élevage. Par rapport à d'autres pays de la région, l'Indonésie a enregistré des résultats médiocres dans les années 1990, mais cette tendance s'est inversée durant la dernière décennie : elle a alors affiché un taux de croissance annuel de la PTF supérieur à la moyenne de l'Asie du Sud-Est, taux que seule la Malaisie a surpassé (Fuglie, 2010 et 2012). Il est à noter que la PTF a davantage progressé dans l'agriculture que dans l'économie dans son ensemble au cours des vingt dernières années. Durant la période 2001-09 par exemple, la croissance annuelle de la PTF agricole a été de 3.7 %, contre 2.1 % pour l'ensemble de l'économie (Fuglie, 2012, et OCDE, 2010a).

… qui cadre avec l'avantage comparatif de l'Indonésie

Au cours des vingt dernières années, l'Indonésie a été un exportateur net de produits agroalimentaires. Depuis 2005, la valeur de ces exportations est toujours plus de deux fois supérieure à celle des importations agroalimentaires. La part des produits agroalimentaires dans les exportations totales a augmenté, passant de 11 % en 2000 à 21 % en 2010. À eux seuls, l'huile de palme et le caoutchouc naturel ont représenté 60 % des exportations agroalimentaires sur la période 2008-10.

La majeure partie des exportations agroalimentaires indonésiennes sont destinées à des pays asiatiques, qui en ont absorbé les deux tiers environ en 2008-10, contre la moitié en 1990-92. Avec 16 % du total, l'Inde est le premier marché d'exportation.

Les importations agroalimentaires sont plus diversifiées que les exportations, tant en termes de produits que de pays d'origine. Les principaux produits importés sont le blé, le coton, le soja, les produits laitiers, le sucre, le tabac et le bœuf. Les États-Unis et l'Australie

sont les plus importants fournisseurs. En 2008-10, ils représentaient respectivement 19 % et 17 % des importations agroalimentaires.

Cette physionomie des échanges traduit l'avantage comparatif de l'Indonésie qui privilégie la production de certaines cultures pérennes tropicales pour l'exportation et l'importation des produits nécessitant d'importantes surfaces agricoles, tels que les céréales et certains produits animaux.

La pauvreté reflue…

Le développement économique et l'amélioration des revenus observés à partir des années 70 jusqu'au milieu des années 90 sont allés de pair avec un fort recul de la pauvreté. Si la crise asiatique a temporairement inversé cette tendance, le taux de pauvreté a recommencé à diminuer dans les années 2000 pour tomber à 13 % en 2010 d'après le seuil de pauvreté indonésien (soit, en 2010, l'équivalent de 0.83 USD/personne/jour pour la population urbaine et 0.68 USD/personne/jour pour la population rurale, en USD courants et au taux de change moyen annuel courant). Lorsque l'économie s'est relevée de la crise asiatique, le nombre total de personnes pauvres a baissé, et ce principalement en raison du recul du nombre de pauvres en zone rurale. Néanmoins, la pauvreté demeure notablement plus élevée dans les campagnes qu'en zone urbaine, aussi bien en termes absolus qu'en termes relatifs. Si l'on prend en compte le seuil de pauvreté absolue défini par la Banque mondiale, soit 1.25 USD à PPA/personne/jour, ce taux est plus élevé mais la baisse reste tout aussi impressionnante, puisque l'Indonésie est passée de 54 % en 1990 à 19 % en 2009. En appliquant une définition moins restrictive, soit 2 USD à PPA/personne/jour, on obtient un taux de pauvreté sensiblement plus élevé, qui est passé de 85 % en 1990 à 51 % en 2009 (Banque mondiale, 2012). Par conséquent, malgré les importants progrès accomplis dans la lutte contre la pauvreté, la moitié environ de la population est susceptible de basculer dans la pauvreté absolue en cas de catastrophe naturelle ou de dégradation des conditions économiques.

… et l'alimentation s'améliore…

En moyenne, les ménages consacraient 51 % de leurs revenus à la nourriture en 2009, contre 63 % en 1999. Cette part a baissé en zone urbaine et rurale, mais elle demeure nettement plus élevée dans les campagnes. La consommation de riz et d'autres aliments de base s'est stabilisée ou a diminué, tandis que celle de fruits, légumes, poisson, produits laitiers et aliments préparés a augmenté, tant en termes absolus qu'en termes relatifs. L'apport énergétique journalier a enregistré une augmentation modeste pour s'établir à environ 2 500 kcal/habitant/jour en 2007, soit un niveau supérieur à celui de l'Inde et des Philippines, mais inférieur à celui de la Chine, de la Malaisie et du Viêtnam. La part de l'apport calorique provenant de produits végétaux plutôt qu'animaux est restée supérieure à celle de beaucoup d'autres pays en développement d'Asie. De fait, la consommation de viande est demeurée très modeste, ce qui tient à la faiblesse des revenus, mais aussi aux prix élevés des produits animaux, qui ont dépassé ceux observés sur les marchés internationaux sous l'effet de diverses mesures limitant les importations.

… mais la sous-alimentation n'a pas disparu

Malgré une meilleure disponibilité des aliments et l'amélioration de la santé et des services sociaux, presque toutes les circonscriptions restent confrontées à la sous-alimentation et la malnutrition. On estime ainsi qu'environ 13 % de la population souffrait de sous-alimentation en 2007 contre 15 % en 2002 (Banque mondiale, 2012). C'est moins que dans des pays voisins comme la Thaïlande ou les Philippines, mais plus qu'au Viêtnam ou en Chine. D'un autre côté, sous l'effet de l'élévation des revenus, les problèmes de santé liés à une alimentation excessive deviennent de plus en plus préoccupants.

Les investissements dans l'agriculture restent relativement faibles

Si l'investissement agricole total a augmenté au cours de la dernière décennie, les données disponibles tendent à indiquer que la part de l'agriculture dans le total des investissements réalisés reste bien inférieure à son poids dans le PIB, les importations, les exportations et l'emploi. L'afflux d'investissements directs étrangers (IDE) dans l'agriculture, notamment, demeure faible par rapport aux chiffres relevés dans d'autres secteurs. Le coefficient marginal de capital, qui mesure l'investissement nécessaire pour obtenir une unité supplémentaire de production, est peu élevé et indique que les investissements agricoles sont actuellement plus productifs que ceux réalisés dans l'industrie manufacturière ou dans une grande partie des secteurs de services.

Le climat des affaires est peu propice à l'investissement

Depuis 1998, la réforme des conditions d'investissement est l'une des priorités principales des pouvoirs publics. Le régime appliqué aux IDE a été libéralisé, mais l'Indonésie continue de suivre des politiques plus restrictives que la plupart des pays de l'OCDE en la matière. L'agriculture en particulier s'est plutôt fermée aux IDE ces dernières années : le plafond des prises de participation étrangères dans les productions vivrières a ainsi été abaissé de 95 % en 2007 à 49 % en 2010. La réglementation en place est complexe, et les changements de législation sont imprévisibles. Par exemple, la loi sur l'horticulture promulguée en 2010 a ramené à 30 % le plafond des participations étrangères dans les entreprises de ce secteur, et celles-ci ont quatre ans pour se mettre en conformité. Le processus de décentralisation a augmenté les coûts de transaction et les incertitudes pour les investisseurs, confrontés à différents interlocuteurs dans leurs démarches administratives. L'encadré 0.3 présente les principales contraintes qui freinent l'investissement dans le secteur.

Encadré 0.3. **Principaux freins à l'investissement dans l'agriculture**

- L'obtention de ***titres de propriété foncière*** garantis et dépourvus d'ambiguïté est difficile. La législation indonésienne exige que tous ces titres soient enregistrés. Or ce processus est lent : seul un tiers environ des parcelles de terrain appartenant à des particuliers ont été enregistrées au cours des quarante dernières années. La plupart des ménages ruraux possèdent des droits fonciers non déclarés, acquis par héritage. Cette situation entrave notablement l'accès au crédit. Pour les grands investisseurs, l'accès aux terrains reste un processus long et semé d'incertitudes. Les entreprises qui investissent ne peuvent obtenir que des droits fonciers limités et doivent demander une autorisation d'implantation. Les pouvoirs publics se sont régulièrement employés à simplifier et à accélérer la délivrance des permis d'activité et les procédures d'investissement, mais les investisseurs doivent toujours se procurer différentes autorisations techniques propres à leur secteur auprès de divers organismes publics.
- Après plusieurs décennies de sous-investissement public et privé, l'Indonésie pâtit aujourd'hui ***d'infrastructures insuffisantes et de mauvaise qualité***. Bien que l'État ait largement favorisé la réforme des infrastructures depuis 2000, l'application du nouveau cadre législatif reste relativement balbutiante. Le réseau d'irrigation est en mauvais état car les dépenses consacrées à son fonctionnement et son entretien ont été insuffisantes, ce qui limite les possibilités d'augmentation de la productivité des cultures de riz. Les coûts de transport et de logistique sont élevés et l'approvisionnement en électricité est peu fiable, ce qui entrave sérieusement les activités des entreprises et grève la compétitivité des filières agricoles.
- Alors que l'amélioration du capital humain a contribué à faire progresser la productivité agricole au cours des dernières décennies, la décentralisation a nui à l'efficacité des ***services de vulgarisation***, et donc au perfectionnement du capital humain dans l'agriculture. Les dépenses de vulgarisation agricole ont récemment augmenté et différents programmes ont été lancés pour développer les compétences afin de corriger ce problème. Toutefois, les dépenses publiques de ***recherche et développement (R-D)*** agricoles restent faibles par rapport à d'autres pays asiatiques.
- ***L'accès au crédit*** est un obstacle de taille pour les micro, petites et moyennes entreprises (MPME). Dans l'est de Java, par exemple, 95 % des agriculteurs n'ont jamais obtenu de crédit auprès d'une banque. Plusieurs programmes et règlements sont en place pour faciliter l'accès au crédit des MPME et des petits producteurs, tels que l'assouplissement des garanties obligatoires, qui restent le principal obstacle pour les agriculteurs. Le Système d'information sur les débiteurs a permis d'améliorer la transparence sur l'utilisation des garanties. Si certains dispositifs de garantie de crédit visent spécifiquement les MPME, ce service est principalement accordé aux moyennes et grandes entreprises. Il existe peu de services d'assurance dans le secteur agricole.
- En ce qui concerne la ***politique commerciale***, l'Indonésie reste relativement restrictive par rapport à d'autres pays asiatiques en développement. Un certain nombre de marchés restent fortement contrôlés par l'État, qui a imposé des taxes à l'exportation sur l'huile de palme brute et plus récemment sur les fèves de cacao pour encourager l'investissement dans les industries de transformation. Cela peut toutefois avoir un effet dissuasif sur l'investissement dans les cultures pérennes.

Les pouvoirs publics encouragent activement les investissements agricoles à grande échelle…

Si les dépenses publiques ciblent principalement les cultures vivrières, la plupart des investissements privés sont affectés aux cultures pérennes. Les grandes entreprises privées ont accru leur investissement dans les plantations de palmiers à huile au cours de la dernière décennie. La superficie totale de ces plantations (détenues par des entreprises et des petits producteurs) est passée de 5.7 millions d'hectares en 2004 à 8.1 millions d'hectares en 2010 (ce qui correspond à près d'un cinquième de la surface cultivée totale). Les investissements dans les biocarburants sont stimulés par des subventions et des obligations d'utilisation de ces carburants dans les transports, l'industrie et la production d'électricité à l'intérieur du pays, ainsi que par les exportations.

Les mesures d'incitation à l'investissement agricole visent surtout les grandes entreprises intégrées dans des régions particulières. Le gouvernement se concentre en particulier sur six couloirs économiques, promus au rang de pôles de croissance, dans le cadre de son Plan directeur 2011-25. L'huile de palme est l'un des principaux secteurs visés à Sumatra et Kalimantan, tandis que des plantations vivrières sont développées à Sulawesi et Papua. Il est prévu de faire bénéficier ces pôles de croissance d'un climat plus propice à l'investissement, notamment par l'assouplissement de la réglementation et des procédures d'autorisation, par des incitations fiscales et par la mise en place d'infrastructures.

… ce qui procure des avantages, mais présente également des risques

Des investissements de grande ampleur dans l'agriculture peuvent apporter les compétences, les capacités de financement et les réseaux de commercialisation nécessaires pour accroître la compétitivité des filières agricoles. Toutefois, ces investissements peuvent avoir des conséquences environnementales et sociales préjudiciables en Indonésie. Si les principes de conduite responsable des entreprises (CRE), de participation du public et d'accès à l'information sont désormais inscrits dans la législation, il n'existe toujours pas de règlements régissant leur application et les efforts visant à les faire respecter laissent à désirer. De la même manière, la loi impose désormais une protection plus stricte de l'environnement, mais les institutions en place et le manque de clarté du processus de décentralisation font obstacle à son application effective.

La gestion des forêts reste l'un des principaux défis à relever pour assurer des investissements responsables dans l'agriculture. La croissance du secteur agricole repose largement sur la conversion de zones boisées en terres agricoles. Cette conversion a provoqué une perte de biodiversité, entraîné des émissions de carbone et accéléré l'érosion des sols, avec pour conséquence une baisse de la qualité de l'eau et des problèmes de sédimentation en aval. Plusieurs modifications ont été apportées à la législation après les

feux de forêts de 1997-98, mais le cadre juridique régissant la gestion forestière reste incohérent et autorise des pratiques de surexploitation. L'initiative Réduction des émissions liées à la déforestation et à la dégradation des forêts (REDD) a été lancée en Indonésie en 2010. L'année suivante, le Président a déclaré un moratoire de deux ans sur la déforestation.

Les investissements à grande échelle dans l'agriculture ne peuvent avoir des retombées sociales positives que si des politiques efficaces sont mises en place pour soutenir les MPME et garantir les droits fonciers des petits producteurs et des communautés locales. En l'occurrence, les pouvoirs publics soutiennent activement les MPME, notamment en leur réservant certaines activités et en rendant obligatoires les partenariats avec des MPME dans certains secteurs. En revanche, la reconnaissance des droits fonciers coutumiers demeure une question critique et sensible. Bien que mentionnés dans la législation, ces droits sont souvent ignorés dans la pratique, d'où une hausse du nombre de conflits fonciers entre communautés locales et exploitants de grandes plantations. Ce problème pourrait être réglé en partie en créant des partenariats économiques entre grands investisseurs agricoles et petits exploitants ; ce type de collaboration est activement encouragé par le gouvernement depuis les années 70.

Le soutien à l'agriculture fluctue considérablement d'une année à l'autre

L'évolution de la politique agricole peut être appréciée à partir des variations du niveau du soutien indiqué par l'ESP en % (estimation du soutien aux producteurs en proportion des recettes brutes des agriculteurs) et l'EST en % (estimation du soutien total en proportion du PIB). Or ce soutien fluctue grandement d'une année à l'autre. De 1990 à 2010, l'ESP en % a varié entre –89 % et 21 %, et l'EST en %, entre –12 % et 4 %. Ces écarts sont parfois dus à l'évolution du marché, comme en 1998, lorsque la rapide dépréciation de la roupie a entraîné une flambée des prix mondiaux en monnaie locale, abaissant de ce fait l'ESP en %. D'autres années, ces fluctuations s'expliquent par des modifications des politiques. Ainsi, les mesures prises pour protéger le marché intérieur du brusque renchérissement des céréales et des oléagineux ont contribué à un fort recul du soutien en 2008. Un autre fait marquant est l'existence de valeurs de l'ESP en % négatives certaines années, qui indiquent que les agriculteurs étaient alors taxés et non soutenus par les politiques publiques.

... est en hausse depuis 2000...

Si l'on fait abstraction des variations annuelles, le soutien aux producteurs a augmenté de 1990 à 2010. De 3 % au cours de la période de cinq ans allant de 1990 à 1994, l'ESP en % moyenne est passée à 9 % au cours de la période quinquennale la plus récente (2006-10), malgré –10 % estimé en 2008. De même, le coût total des politiques agricoles pour les contribuables et les consommateurs, mesuré par l'EST en %, est passé de 0.9 % pour 1990-94 à 1.9 % pour 2006-10. Cette tendance haussière reflète à la fois une augmentation des dépenses budgétaires et une volonté de soutenir les prix à la production. L'ESP en % moyenne pour 2006-10 (9 %) est plus élevée que celle du Brésil et de l'Ukraine, juste en dessous de celle des États-Unis et de la Chine, et très inférieure à la moyenne de l'OCDE de 22 % (OCDE, 2011a). En revanche, l'EST en % de 1.9 % pour 2006-10 est l'une des plus

élevées et bien supérieure à la moyenne de l'OCDE (0.9 %). Ces chiffres montrent que dans un pays relativement pauvre où le secteur agricole est important, le soutien à l'agriculture peut constituer un fardeau relativement lourd pour l'économie même si l'ESP est faible.

… et s'avère dominé par le soutien aux prix et les subventions à l'achat d'intrants.

Le soutien des prix du marché (SPM) est la principale forme de soutien aux producteurs. Cela tient principalement à la protection douanière appliquée pour certains produits agricoles et aux mesures de soutien des prix à la production concernant le riz et le sucre. Étant donné l'importance du riz dans le secteur agricole, la valeur du SPM du riz a un impact déterminant sur l'ESP globale. En 2010, par exemple, le SPM du riz seul représentait un tiers de l'ESP totale. Le soutien budgétaire à l'agriculture a augmenté, passant de 1.4 % des recettes brutes des agriculteurs pour 1990-94 à 2 % pour 2006-10. L'écrasante majorité de ce soutien, 98 % en 2006-10, prend la forme de paiements au titre d'intrants variables ou fixes, connus pour leur faible efficacité de transfert : autrement dit, seule une petite portion des transferts des contribuables est généralement convertie en revenus supplémentaires pour les agriculteurs (OCDE, 2002 et 2008). C'est peut-être particulièrement vrai en Indonésie, où d'importantes subventions transitent par les fournisseurs d'engrais, sans être versées directement aux exploitants.

Mesures de réforme complémentaires

Les mesures ci-après représentent des suggestions de réformes sur lesquelles les pouvoirs publics pourraient envisager de s'appuyer pour faire progresser la productivité de l'agriculture, sa compétitivité et sa viabilité. Compte tenu des objectifs déclarés des pouvoirs publics, ces propositions mettent en exergue des solutions potentiellement plus efficaces et efficientes que certaines mesures actuellement en vigueur.

Il est recommandé d'adopter une démarche globale pour assurer la sécurité alimentaire, en luttant contre les différentes causes d'insécurité alimentaire à l'aide d'instruments précis, et en élaborant un ensemble cohérent de mesures créant des incitations et des contre-incitations appropriées. Un secteur agricole plus attrayant pour les investisseurs favoriserait grandement la sécurité alimentaire. En effet, l'investissement est relativement faible dans le secteur agricole, et l'investissement étranger direct, notamment, est entravé par des restrictions imposées aux prises de participation étrangères. La complexité du régime foncier et le fait que peu de titres de propriété soient dûment enregistrés découragent à la fois les investisseurs nationaux et étrangers et nuisent aux mesures de lutte contre la déforestation. Les carences infrastructurelles, notamment dans les transports et l'irrigation, et l'accès limité aux financements à long terme représentent d'autres freins à l'investissement. Un certain nombre de restrictions à l'importation et à l'exportation isolent les agriculteurs des marchés des intrants et des extrants, et les autorités recourent largement aux subventions aux intrants pour abaisser les coûts de production et accroître la production.

Au final, ces politiques augmentent le coût des aliments pour les consommateurs et le coût budgétaire supporté par les contribuables. L'application d'autres politiques pourrait permettre d'assouplir les contraintes à l'investissement, d'améliorer l'accès aux marchés, d'encourager la croissance de la productivité agricole, y compris en renforçant le système de connaissances agricoles, et de favoriser une utilisation durable des ressources.

L'Indonésie est engagée dans un processus inévitable et souhaitable de restructuration économique, qui entraînera entre autres une baisse importante de l'emploi agricole. Une stratégie à long terme de restructuration des exploitations différenciée en fonction de leur type et de leur taille, et intégrant des mesures pertinentes pour répondre aux besoins à court et long termes, faciliterait grandement une transition en douceur. Certains ménages agricoles peuvent avoir besoin d'aide pour rendre leur activité plus compétitive, d'autres peuvent avoir besoin de diversifier leurs sources de revenu, agricoles ou non, d'autres encore devraient abandonner entièrement le secteur agricole au profit d'autres emplois. Les politiques visant les exploitations agricoles, tout comme les mesures concernant l'ensemble de l'économie, devraient donner davantage de choix et d'opportunités aux ménages ruraux plutôt que de soutenir des structures agricoles en place mais non viables. En Indonésie, les systèmes de production agricole sont très différents d'une région à l'autre ; toute stratégie à long terme devrait être suffisamment flexible pour définir des approches adaptées aux conditions locales.

Les lignes d'action proposées ci-après ne sont pas exhaustives et découlent des analyses réalisées dans le cadre de cet Examen. Elles sont à interpréter comme un point de départ pour une réflexion des pouvoirs publics qui appelle un travail de mise au point et de perfectionnement : il ne s'agit pas d'une prescription à suivre à la lettre.

1. Agir en faveur de la sécurité alimentaire au travers d'un plus large éventail de mesures

L'objectif d'autosuffisance alimentaire ne répond pas aux éléments clés de la sécurité alimentaire. La quête d'autosuffisance n'est pas un moyen approprié pour atteindre la sécurité alimentaire, notamment parce que les mesures de protection à l'encontre des importations qui sont destinées à accroître les recettes des agriculteurs augmentent également le coût des aliments pour les consommateurs et freinent la compétitivité du secteur, limitant ainsi la croissance de la productivité agricole. Tout bien pesé, de telles mesures ont plutôt tendance à entraver qu'à améliorer l'accès à la nourriture des consommateurs pauvres, qui sont en majorité des agriculteurs, acheteurs nets d'aliments de base. Mieux vaut donc adopter une démarche plus globale, en s'attaquant aux différentes racines de l'insécurité alimentaire à l'aide d'un ensemble de stratégies et d'instruments variés.

Le pays peut être autosuffisant en denrées alimentaires mais connaître l'insécurité alimentaire si ses habitants n'ont pas les moyens de s'acheter de la nourriture. Par conséquent, le meilleur moyen d'améliorer la sécurité alimentaire consiste à lutter contre la pauvreté et à stimuler la production intérieure en assouplissant les contraintes à l'investissement agricole, comme expliqué ci-avant. Cet investissement permettrait non seulement d'accroître les disponibilités alimentaires, mais également de faire progresser la productivité, de créer des emplois et d'augmenter les revenus, améliorant ainsi l'accès à la nourriture.

La production et les sources de revenu, notamment extra-agricoles, devraient être diversifiées. L'accès à des activités extra-agricoles serait facilité par le renforcement des capacités de transport. L'amélioration de l'infrastructure des marchés permettrait un accès plus aisé aux chaînes de valeur nationales et mondiales, ce qui permettrait de bénéficier de la demande croissante de produits transformés. En passant de la riziculture à des

productions à forte valeur ajoutée, les agriculteurs pourraient tirer plus de revenus d'une parcelle donnée et améliorer ainsi leur accès à la nourriture. Cela étant, la production d'huile de palme ne devrait pas nuire à celle d'autres cultures de rapport qui permettent de répartir le risque dans des zones où les services formels de banque et d'assurance sont inaccessibles. Les avantages d'une diversification de l'agriculture devraient être pris en compte dans les décisions d'aménagement du territoire.

Des programmes d'assurance pourraient réduire la fluctuation du revenu et stabiliser ainsi l'accès à la nourriture. L'assurance est un outil permettant aux exploitants de faire face aux variations de leur revenu provoquées par les fluctuations des prix et de la production, qui sont amenées à s'amplifier sous l'effet du changement climatique (OCDE, 2011b). Des programmes pilotes d'assurance ont été testés dans certaines circonscriptions pour le riz et le bétail. Ils doivent être évalués avant d'être étendus à davantage de produits et appliqués ailleurs dans le pays. Cette évaluation devrait tenir compte du coût des programmes, du degré auquel les destinataires visés en ont effectivement bénéficié et de l'équilibre technique du système. À long terme, des dispositifs d'assurance sains permettraient de stabiliser le cadre d'action et de réduire la nécessité de paiements exceptionnels pour soutenir les agriculteurs. Tout l'enjeu, à court terme, consiste à démontrer l'intérêt d'une assurance aux exploitants. À cet égard, la mise en place d'une subvention au titre des primes d'assurance peut se justifier. Il est toutefois nécessaire de programmer dès le départ le retrait progressif de cette aide publique, pour que les producteurs en connaissent le coût intégral et sachent qu'ils en supporteront la majeure partie à l'avenir.

Il importe de continuer à adhérer aux initiatives internationales visant à faire face aux situations d'urgence. Si la cause profonde de l'insécurité alimentaire est la pauvreté et non la rareté de la nourriture à proprement parler, certaines situations d'urgence peuvent survenir en raison d'un effondrement des approvisionnements alimentaires. Les accords récemment signés entre les dix membres de l'ASEAN, la Chine, le Japon et la Corée du Sud en vue de créer une réserve d'urgence de riz à l'échelle de la région sont donc une bonne solution ; ils permettent d'atténuer le besoin d'autosuffisance en riz.

Les échanges peuvent jouer un rôle essentiel dans la stratégie de sécurité alimentaire. Quatrième pays le plus peuplé de la planète et occupant une position stratégique sur les voies du commerce maritime, l'Indonésie peut accéder relativement aisément sur les marchés internationaux à des approvisionnements alimentaires diversifiés et bon marché pour répondre aux besoins de ses habitants de plus en plus nombreux et prospères, et elle pourrait également accroître ses exportations en direction de ses voisins asiatiques, dont la dépendance à l'égard des importations alimentaires va croissant. Si elle s'en remet uniquement à la production intérieure, elle peut devenir vulnérable à ses fluctuations. Pour améliorer la sécurité alimentaire, l'Indonésie doit donc être en mesure d'acheter de la nourriture sur les marchés internationaux. Les mesures de protection à l'encontre des importations ne sont pas compatibles avec l'ambition du pays de devenir une puissance commerciale et d'améliorer ses résultats à l'exportation. Le caractère incohérent et imprévisible des mesures appliquées aux importations limite l'incitation à commercer avec l'Indonésie et renforce l'impression que les échanges y sont peu fiables. Les mesures non tarifaires, en particulier, doivent être plus transparentes. De plus en plus d'exigences administratives sont imposées aux importations. Si beaucoup d'entre elles se justifient dans un souci de sécurité des aliments ou d'un point de vue sanitaire/phytosanitaire et s'appliquent tout autant aux produits nationaux qu'aux importations, d'autres

prescriptions semblent avoir été mises en place spécifiquement pour réduire les volumes importés ou rendre l'importation plus coûteuse ou plus difficile. Ces dispositions doivent être réformées ou au moins devenir plus transparentes.

Le programme RASKIN doit être réformé. Les filets de sécurité ciblés jouent un rôle clé dans les mesures d'amélioration de la sécurité alimentaire : ils représentent en effet une solution à long terme pour aider les pauvres à accéder à la nourriture. Ils permettent de gérer avec souplesse l'impact des hausses de prix sur les ménages pauvres sans perturber le marché, et tout particulièrement sans compromettre la fonction indicatrice des prix pour les agriculteurs. Une fois ce type de mécanisme en place, les transferts peuvent être augmentés lorsque les prix augmentent, et abaissés lorsqu'ils diminuent. Le programme RASKIN est un élément important du dispositif de protection sociale, qui apporte une aide aux plus vulnérables. Il n'est toutefois pas sans failles, puisque les ménages ciblés reçoivent moins de riz que prévu. En outre, les décisions prises par les pouvoirs publics pour protéger davantage le riz par des mesures à la frontière ont augmenté le coût budgétaire du programme et, partant, le coût de ces inefficiences. L'une des premières réformes pourrait consister à augmenter progressivement le prix subventionné payé par les bénéficiaires, ce qui découragerait la revente. Une autre mesure, plus audacieuse, consisterait à remplacer les transferts en nature par des transferts monétaires soumis à conditions, lesquels se sont avérés efficaces dans plusieurs pays (à l'instar de *Bolsa Familia* au Brésil). Pour que de tels programmes soient efficaces, une bonne gouvernance et des moyens suffisants au niveau local sont toutefois indispensables.

Les dispositifs de subvention aux intrants doivent devenir plus efficients. Une grande partie du soutien budgétaire sert à subventionner les engrais et les semences, afin de réduire les coûts de production agricole et d'accroître la disponibilité des denrées alimentaires. Il est important de vérifier si ces fonds sont utilisés efficacement. En l'occurrence, le fait d'apporter un soutien financier aux producteurs par l'intermédiaire des fournisseurs d'engrais présente plusieurs inconvénients, car ces derniers sont du coup moins incités à améliorer leur efficacité. Le coût d'un tel programme peut monter en flèche, car il soutient les producteurs d'intrants. En outre, ces subventions n'ont pas des effets durables, elles encouragent le gaspillage et la pollution et elles sont vulnérables aux risques de corruption. Il serait plus judicieux de fournir des bons pour intrants aux agriculteurs, qui pourraient ainsi choisir le type et la quantité d'intrants à appliquer. En ce qui concerne les inquiétudes au sujet des coûts de distribution des engrais dans les îles éloignées des centres de production, les pouvoirs publics pourraient y répondre en accordant davantage de bons aux exploitants de ces îles. Les économies budgétaires réalisées grâce à un dispositif plus efficient permettraient de dégager des moyens qui pourraient servir à soutenir le système de connaissances agricoles, comme indiqué au point 3 ci-après.

2. Assouplir les contraintes imposées à l'investissement[1]

Accélérer l'enregistrement des titres fonciers. Bien que souvent insuffisant, un certificat de propriété est une condition *sine qua non* pour accéder à un prêt, y compris ceux financés par les programmes publics. Le Service communautaire de certification foncière (*Layanan Rakyat untuk Sertifikasi Tanah,* Larasita) ne dispose pas des moyens nécessaires pour accélérer l'enregistrement des titres fonciers au niveau national. Le programme devrait être élargi à toutes les circonscriptions, et il conviendrait de le renforcer en lui fournissant

de meilleurs équipements – notamment des moyens de transport et de communication et des appareils modernes de cartographie – et un personnel mieux formé. En outre, l'enregistrement foncier reste relativement onéreux pour les petits exploitants, notamment du fait des coûts de cartographie. Le projet de certification foncière gratuite lancé par l'Agence nationale du foncier (*Badan Pertanahan Nasional*, BPN) pourrait être transposé à une plus grande échelle afin de bénéficier à davantage de petits exploitants, et être financé conjointement par l'État et les collectivités locales.

Supprimer toute ambiguïté dans le système foncier. Le système foncier devrait être simplifié, et les prérogatives respectives de l'Agence nationale du foncier, du ministère des Forêts et du ministère de l'Exploitation minière en matière de gestion foncière devraient être précisées pour rendre le marché foncier plus transparent et efficient, et réduire ainsi le coût de l'accès à la terre propriété foncière. Les terres classées « terrains boisés » pourraient être reclassifiées, pour supprimer les zones « grises » existant entre les terrains considérés comme des forêts et les terres agricoles et pour assurer une meilleure concordance avec les espaces forestiers réellement existants. En effet, certaines zones aujourd'hui classées en tant que « forêts » ne sont pas boisées ou servent déjà à d'autres usages. Au lieu d'imposer des limites à la superficie des plantations, la réglementation pourrait se concentrer sur la protection de l'environnement et des communautés, et les comportements anticoncurrentiels pourraient être traités par la Commission de la concurrence au cas par cas. Enfin, il conviendrait de mieux faire appliquer la législation concernant les expropriations pour faire en sorte que les compensations versées correspondent aux prix du marché.

Reconnaître et protéger les droits fonciers coutumiers. Les droits fonciers coutumiers (droits *ulayat*) sont peu reconnus, ce qui entraîne un nombre croissant de conflits fonciers entre grands investisseurs et communautés locales, et compromet les moyens de subsistance de petits producteurs. La reconnaissance des droits *ulayat* dans la législation aurait un impact non négligeable sur la pauvreté et la gestion durable des terres. Le fait d'occuper une terre pourrait être reconnu comme une preuve de propriété foncière, et les preuves informelles, telles que les recettes fiscales combinées aux témoignages de voisins, pourraient être acceptées. L'enregistrement foncier apporte une sécurité aux occupants des terrains, mais il implique souvent de transformer des droits *ulayat* en droits individuels, ce qui a un effet néfaste sur le tissu de relations sociales. La législation devrait prendre acte de la diversité des droits fonciers et des régimes d'occupation et prévoir des titres à la fois individuels et coutumiers. Sur l'île de Java surpeuplée, par exemple, les droits fonciers coutumiers ont presque entièrement disparu et les titres fonciers sont de plus en plus personnels, ce qui exige des dispositions légales différentes de celles d'autres régions. Enfin, une cour indépendante spéciale consacrée aux conflits agraires devrait être créée pour résoudre ces conflits dont le nombre ne cesse d'augmenter.

Simplifier encore davantage la délivrance de permis d'activité. D'importants efforts ont été accomplis pour accélérer la délivrance de permis d'activité, mais il reste une grande marge d'amélioration. Le Comité indonésien de coordination des investissements (*Badan Koordinasi Penanaman Modal*, BKPM) devrait avoir plus de pouvoirs pour délivrer des permis et être chargé de secteurs qui relèvent actuellement d'autres institutions. Il pourrait être judicieux de dresser un état des lieux de l'ensemble des permis requis et des procédures administratives intervenant dans les investissements agricoles, ainsi que de réexaminer leur finalité, afin de déterminer les réformes à engager pour réduire le coût de l'activité économique dans le secteur agricole. En outre, les pouvoirs publics pourraient utiliser les

ressources administratives dont ils disposent pour veiller à l'application effective de la réglementation au jour le jour au lieu de délivrer des permis ponctuels, et pour se concentrer en particulier sur les domaines sensibles et à risques dans l'optique de protéger les petits producteurs, les communautés locales et l'environnement.

Promouvoir les opportunités d'investissement tout en surveillant régulièrement les coûts et les avantages des mesures d'incitation. BKPM devrait développer davantage ses activités de promotion, notamment pour mettre en avant les services et les aides matérielles proposés aux investisseurs dans les nouvelles plantations. En parallèle, les mesures d'incitation à l'investissement doivent impérativement faire l'objet d'un suivi ; leurs coûts et leurs avantages doivent être analysés en détail pour éviter des dépenses publiques inutiles et des comportements de recherche de rente, ainsi que pour promouvoir des investissements performants. Les enquêtes de conjoncture et les études universitaires confirment régulièrement que les incitations fiscales ne sont pas parmi les facteurs les plus déterminants pour attirer les investisseurs. À cet égard, les dépenses en infrastructures peuvent s'avérer plus efficaces que l'existence de mesures fiscales et de subventions. En particulier, la tendance des incitations à privilégier les grands investissements agricoles, par exemple dans les vastes domaines développés par le gouvernement dans l'est de Kalimantan et à Papua, devrait être analysée minutieusement, car elle peut avoir un effet dissuasif sur les petits agriculteurs et contrebalancer les efforts entrepris pour les protéger.

Coordonner et approfondir les évaluations périodiques de la liste des investissements négatifs. Étant donné que le régime des investissements étrangers directs en agriculture est devenu plus restrictif ces dernières années, il est essentiel de procéder à de telles évaluations pour garantir un processus de révision prévisible et attirer durablement des investisseurs. Par exemple, le gouvernement pourrait exiger des ministères sectoriels que chaque ajout à la liste des investissements négatifs soit justifié par une analyse coûts-avantages.

Évaluer les coûts et les avantages à court et long termes des taxes à l'exportation sur l'huile de palme et les fèves de cacao. Si les taxes à l'exportation ont permis de limiter les exportations d'huile de palme brute afin d'alimenter les entreprises de transformation nationales, elles nuisent aux producteurs et retardent l'adaptation de ces entreprises au marché international. Or pour rendre les industries de transformation nationales plus compétitives, il serait plus efficace d'agir directement pour réduire les obstacles freinant leur évolution, en développant par exemple les infrastructures dans les régions qui ont un avantage comparatif en la matière, plutôt que de recourir à ces taxes. À court terme, le produit des taxes à l'exportation pourrait toutefois servir à financer ce développement.

3. Renforcer le système de connaissances agricoles

Accroître les financements publics en recherche et développement (R-D). Davantage de fonds publics doivent être accordés à la R-D. L'intensité de la recherche menée en Indonésie est moins importante que dans d'autres pays voisins. La création de partenariats et de consortiums nationaux et internationaux entre instituts de recherche, services de vulgarisation et agriculteurs permettrait d'améliorer l'accès aux pratiques exemplaires et de développer l'utilisation de technologies qui ont fait leurs preuves, ainsi que leur adoption par les agriculteurs. En outre, les pouvoirs publics peuvent créer des incitations

pour engager le secteur privé à investir davantage dans la R-D agricole, notamment en assurant le respect des droits de propriété intellectuelle tels que les brevets et les licences. La recherche sur les productions autres que les cultures pérennes – riz, autres cultures vivrières et fourragères et produits animaux – doit être davantage soutenue et devenir plus cohérente. En outre, il conviendrait de renforcer les travaux de recherche consacrés à d'autres secteurs de l'économie rurale et à leurs interactions avec le secteur urbain, afin d'appuyer l'objectif de diversification des revenus et de préparer le terrain pour les stratégies de restructuration des exploitations agricoles évoquées au point 5 ci-après.

Améliorer l'efficience des services de vulgarisation. La loi sur la vulgarisation 16/2007 devrait être étendue à toutes les provinces et circonscriptions, et cela devrait aller de pair avec de nouvelles mesures pour renforcer les capacités de ces dernières et faire en sorte qu'elles soient en mesure de fournir des services de qualité aux agriculteurs. Au lieu de se concentrer exclusivement sur l'augmentation de la production de riz, ces conseils devraient embrasser une perspective plus large en envisageant l'exploitation comme une entreprise agricole. Les conseils prodigués devraient être adaptés aux agriculteurs. Ceux qui n'ont pas d'avenir dans l'agriculture devraient être orientés vers des stratégies de sortie. Quant à ceux qui ont un potentiel, des conseils pourraient leur être fournis sur la façon de planifier le développement de leur activité, ainsi que sur des aspects tels que les pratiques de gestion, notamment la gestion des risques en fonction des conditions locales. Ces services de conseil devraient être payants pour les grandes exploitations, mais gratuits pour les petits producteurs. Les vulgarisateurs ont besoin d'accéder aux nouvelles technologies et aux résultats des dernières recherches en agriculture, grâce à une bonne connexion à internet et à une meilleure collaboration en amont avec les instituts de R-D, notamment les instituts d'évaluation des technologies agricoles.

Promouvoir l'implication du secteur privé auprès des services de vulgarisation publics. Les programmes visant à améliorer la performance de ces services, tels que le Projet de vulgarisation agricole et forestière décentralisée et le Projet pour l'autonomisation des agriculteurs par la technologie et l'information agricoles, montrent que le secteur privé a été un partenaire important et qu'il est essentiel de coupler les services de vulgarisation dispensés par les agriculteurs, les pouvoirs publics et le secteur privé. Les partenariats devraient être encouragés pour éviter les doubles emplois et améliorer le transfert des connaissances du secteur privé vers les exploitants et les vulgarisateurs. Cette collaboration permettrait d'impliquer le secteur privé dans l'élaboration des programmes de formation et de vulgarisation, pour que ces derniers répondent mieux aux besoins de l'industrie.

4. Améliorer l'efficience des systèmes de gestion de l'eau[2]

Augmenter les dépenses publiques consacrées à l'irrigation. S'il est possible de gagner en efficience en améliorant les programmes de dépenses actuels, il faut aussi accroître les investissements pour répondre aux besoins de remise en état. Avant toute extension de la superficie irriguée, il conviendrait d'évaluer attentivement les tendances à long terme de la demande de cultures grosses consommatrices d'eau, à commencer par le riz, la capacité des petites et micro-exploitations à améliorer la productivité de l'eau et l'impact de nouvelles infrastructures d'irrigation sur l'environnement.

Élaborer des mesures d'incitation adéquates pour l'exploitation et l'entretien des réseaux d'irrigation. La hausse des dépenses publiques consacrées à l'irrigation doit aller de pair avec l'application d'incitations adéquates pour que les autorités infranationales et les AUE financent convenablement l'exploitation et l'entretien des réseaux d'irrigation. À l'heure actuelle, les collectivités locales et les AUE sont peu encouragées à s'investir dans l'exploitation et l'entretien dans la mesure où des fonds leur sont accordés pour les travaux de remise en état en cas de dégradation suffisamment forte du réseau d'irrigation. Les coûts de remise en état des réseaux des provinces et des circonscriptions devraient donc être partagés entre l'État et les collectivités locales en fonction de la capacité budgétaire de chacun. Par exemple, l'État pourrait verser une subvention de contrepartie au titre de la remise en état dont le montant dépendrait du financement de l'exploitation et de l'entretien par les collectivités locales.

Améliorer les services d'eau et la fiabilité de l'approvisionnement en eau pour les agriculteurs. Il s'agit d'une condition *sine qua non* pour pouvoir faire payer des redevances sur l'eau aux exploitants et adopter des mesures connexes comme l'échange de droits d'eau. Le fait de facturer l'eau fournie aux agriculteurs peut signaler la valeur de cette ressource, encourageant ainsi les exploitants à l'utiliser de manière plus rationnelle et pour des produits à plus forte valeur ajoutée, et faciliter la récupération des coûts d'infrastructure. Cependant, cet objectif est illusoire si l'alimentation en eau n'est pas fiable en amont. En outre, une telle entreprise peut être délicate, mais pas impossible, dans les régions où un grand nombre d'agriculteurs partagent un seul système de canalisation.

5. Faire avancer la restructuration des exploitations agricoles

Développer une stratégie à long terme de restructuration des exploitations agricoles. L'Indonésie est engagée dans un processus de restructuration économique qui entraînera une baisse de l'emploi agricole, non seulement en termes relatifs mais bientôt également en termes absolus. C'est pourquoi elle doit formuler une stratégie à long terme de restructuration des exploitations agricoles. Les travaux de plusieurs organisations internationales, dont l'OCDE, pourraient s'avérer utiles pour distinguer les différents types d'exploitations et déterminer les mesures les mieux adaptées à leurs besoins précis (Brooks, 2012). Une distinction pourrait ainsi être opérée entre les exploitants qui ont besoin d'être aidés pour devenir plus compétitifs, ceux qui doivent diversifier leurs sources de revenu, agricoles ou non, ceux qui sont appelés à abandonner l'agriculture au profit d'autres emplois, et ceux enfin qui sont incapables de s'adapter et pour lesquels il conviendrait de mettre en place un filet de protection adéquat.

Encourager différentes formes de partenariats économiques mutuellement bénéfiques. De nombreux partenariats ont déjà été conclus en Indonésie entre de grands investisseurs agricoles et des petits producteurs faisant office de fournisseurs. L'agriculture sous contrat est le type de partenariat le plus répandu. D'autres modèles mixtes sont également largement appliqués, dont celui où des investissements dans une grande entreprise centrale font intervenir des plantations satellites sous-traitantes pour compléter la production. Les pouvoirs publics devraient imposer des obligations légales aux grands investisseurs concernés par de tels partenariats pour s'assurer qu'ils adoptent un conduite responsable (respect des droits de l'homme et des normes du travail, notamment) et que ces partenariats ne sont pas dommageables pour la collectivité et l'environnement. Les

Principes directeurs de l'OCDE à l'intention des entreprises multinationales, de même que les Directives volontaires de la FAO pour une gouvernance responsable des régimes fonciers applicables aux terres, aux pêches et aux forêts dans le contexte de la sécurité alimentaire nationale, fournissent des orientations utiles dans ce sens. Les petits producteurs devraient non seulement pouvoir se tourner vers la justice et accéder à des mécanismes de règlement des litiges si les contrats ne sont pas respectés, mais aussi avoir la garantie que leurs plaintes sont traitées de façon équitable et transparente. Dans le cadre des processus de consultation imposés par la loi, les propriétaires fonciers doivent avoir le droit d'opposer un veto collectif aux permis de plantation, et d'imposer des sanctions si les engagements de départ ne sont pas respectés. Les pouvoirs publics pourraient soutenir les organisations agricoles, notamment au travers de l'action des vulgarisateurs, pour développer leurs capacités de négociation, de gestion et d'organisation.

Relier les petits producteurs aux marchés. Au fil des deux dernières décennies, l'évolution des modes de consommation, conjuguée au développement fulgurant de la distribution moderne, a stimulé la transformation du secteur en aval. Ces changements nécessitent de faire évoluer les circuits de commercialisation des produits agricoles et sont porteurs à la fois d'opportunités et de défis pour le secteur des petits producteurs qui domine l'agriculture. Pour relier les agriculteurs aux marchés, il est essentiel de continuer à développer et entretenir les réseaux de transport, y compris les routes locales, et d'améliorer l'accès à l'électricité et aux technologies de l'information et des communications. Les coûts d'entretien devraient être budgétisés dès le début des projets, et des fonds pourraient être créés pour les financer. Pour encourager les administrations locales à entretenir la voirie, des incitations budgétaires fondées sur la qualité des travaux de maintenance entrepris chaque année pourraient être appliquées.

6. Diversifier les sources de financement des activités rurales

Surveiller de près les programmes de crédit. Les pouvoirs publics ont pris des mesures pour améliorer l'accès au crédit : emprunts à taux d'intérêt subventionnés, garanties de crédit et versement direct de fonds à des groupes d'agriculteurs qui se chargent ensuite de les répartir entre leurs membres, selon le modèle du microcrédit. Ces trois dispositifs doivent être suivis et évalués attentivement. En ce qui concerne le premier d'entre eux, la pratique des annulations de dette, bien qu'appliquée depuis longtemps, est à éviter. Pour sa part, le programme de versement de fonds à des groupes d'agriculteurs doit être évalué en profondeur pour s'assurer que les sommes empruntées par les exploitants sont remboursées au groupe. Dans le cas contraire, il s'agit simplement d'un transfert ponctuel de richesse.

Élargir le champ d'action du Bureau du crédit et du Système d'information sur les débiteurs. L'accès à des données fiables sur la solvabilité devrait faciliter l'accès au crédit en réduisant le risque de crédit, les coûts de transaction et le recours aux garanties. Cependant, si ces données sont le seul critère utilisé pour sélectionner les débiteurs potentiels, il y a un risque d'exclusion des MPME qui réalisent les investissements ayant le plus fort rendement et qui pourraient être le fer de lance de l'innovation et de la croissance agricole. Par conséquent, outre les données sur la solvabilité, le Bureau du crédit devrait également consigner les aptitudes des débiteurs, telles que leurs compétences entrepreneuriales, pour mieux évaluer leur capacité de remboursement. Les instituts de microfinance

peuvent jouer un rôle utile à cet égard en testant de nouveaux produits financiers et en donnant des informations sur les capacités de leurs débiteurs. L'absence de garantie est souvent l'obstacle fondamental à l'accès au crédit. Le Système d'information sur les débiteurs devrait continuer de mettre l'accent sur la récupération des garanties, mais également proposer d'élargir le champ des garanties possibles, ce qui améliorerait l'accès des petits exploitants au crédit.

7. Renforcer la législation sur la protection des forêts et de l'environnement et veiller à son application

Faire mieux respecter la législation sur la gestion des forêts. L'application de la législation est un enjeu fondamental pour parvenir à une gestion durable des forêts. L'Indonésie pourrait renforcer ses liens de collaboration avec le Brésil, qui a réussi à faire appliquer concrètement sa législation en la matière. De 2000 à 2005, le Brésil a perdu chaque année 3.5 millions d'hectares de forêt, soit plus qu'aucun autre pays de la planète. Depuis 2005, cependant, le déboisement recule suite aux efforts énergiques engagés par le gouvernement pour faire appliquer la loi sur l'environnement.

Veiller à ce que la participation de l'Indonésie à l'initiative REDD soit un succès. La réussite de l'initiative REDD repose sur le bon fonctionnement d'une gouvernance décentralisée qui accorde davantage de moyens aux autorités locales et à la société civile en matière de gestion des forêts locales. Elle exige également l'implication et la coopération de nombreux acteurs, dont les communautés locales, le secteur privé, les ministères des Forêts et de l'Environnement, le Conseil national du changement climatique et Bappenas, pour produire et vendre des crédits d'émission valables, sélectionner des sites adaptés et veiller au respect des droits fonciers coutumiers, modifier les incitations, surveiller et vérifier les données et trouver des acheteurs appropriés pour partager les avantages et les risques financiers. L'initiative REDD devrait aussi être surveillée et réglementée avec beaucoup d'attention pour éviter un « accaparement des terres », notamment en assurant le respect des droits coutumiers. Elle devrait être intégrée concrètement à la législation. Ainsi, la loi 26/2007 permet aux provinces et aux circonscriptions de revoir leur plan d'aménagement du territoire et de modifier l'utilisation des terres tous les cinq ans, ce qui offre d'importantes possibilités de développement de l'initiative REDD dans les zones boisées nationales.

Renforcer la législation sur la protection de l'environnement. Les pouvoirs publics devraient non seulement veiller à l'application effective de la législation en vigueur sur la protection de l'environnement, mais également la renforcer. La loi sur l'investissement de 2007 stipule que pour pouvoir bénéficier des mesures d'incitation, un investissement doit remplir au moins un critère parmi les dix qui sont répertoriés et au nombre desquels figure la promotion du développement durable. Or le respect de ce critère-là devrait être obligatoire et non facultatif. De la même manière, la certification actuellement appliquée en faveur d'une huile de palme respectueuse de l'environnement en Indonésie devrait être élargie à d'autres cultures pérennes.

Évaluer avec soin le bien-fondé économique et environnemental des politiques relatives aux biocarburants. Les subventions accordées aux biocarburants et les obligations d'utilisation ont attiré de nombreux investissements dans l'agriculture. La viabilité économique de la

production de biocarburants demeure toutefois incertaine dans beaucoup de pays. La rigidité des obligations peut entraîner d'importantes distorsions du marché. En outre, les biocarburants peuvent avoir des conséquences négatives sur la lutte contre les émissions de gaz à effet de serre, surtout lorsqu'ils sont produits à partir d'huile de palme ou de jatropha produite sur des terrains jusque-là non cultivés. Certes, la réglementation en vigueur interdit d'abattre des forêts pour produire des biocarburants et prévoit l'utilisation de zones non productives à cette fin, mais son application reste difficile. Il est donc essentiel d'analyser minutieusement le rapport coût-efficacité et le bien-fondé environnemental des politiques actuelles relatives aux biocarburants, d'autant qu'elles s'inscrivent dans un contexte de prix du pétrole subventionnés. L'importance accordée aux biocarburants pourrait réduire l'investissement dans d'autres technologies plus performantes.

8. Améliorer la gouvernance des politiques agricoles

Renforcer le cadre réglementaire du secteur agricole. Des mesures de renforcement du cadre réglementaire du secteur agricole devraient être élaborées dans le cadre de la stratégie gouvernementale plus générale d'amélioration de la qualité de la réglementation (OCDE, 2012). Le ministère de l'Agriculture aurait intérêt à se doter de meilleures capacités d'évaluation *ex ante* des lois et règlements dont il est à l'origine, ainsi qu'à vérifier systématiquement si les lois et règlements en vigueur qui touchent à son domaine de compétence vont dans le sens de ses objectifs. Pour ce faire, il pourrait être nécessaire de collaborer avec d'autres secteurs de l'administration nationale qui sont compétents dans des domaines comme l'investissement, la concurrence, l'environnement, ou encore les coopératives et les petites et moyennes entreprises. Cette démarche devrait s'accompagner de mesures pour assurer l'application des réformes au niveau infranational, ainsi que d'une codification efficace des lois et des règlements pour que les producteurs, les intermédiaires du commerce et les investisseurs agricoles disposent d'informations claires et transparentes sur les procédures à suivre et les exigences à respecter.

Rendre plus participative la formulation des politiques. Les organisations agricoles, les organisations de consommateurs, les chercheurs, les représentants des secteurs d'amont et d'aval et les organismes non gouvernementaux parties prenantes au développement devraient être consultés dans le cadre de la formulation et de l'évaluation des politiques, et participer lorsqu'il y a lieu à des négociations avec les pouvoirs publics.

Améliorer la transparence des programmes financés par les autorités publiques. La transparence budgétaire est l'un des piliers de la bonne gouvernance. Il s'agit d'une condition essentielle pour assurer la transparence dans la mise en œuvre des politiques publiques. À cet égard, le ministère de l'Agriculture – en collaboration avec le ministère des Finances – aurait intérêt à définir clairement les objectifs, les résultats et les réalisations attendus des fonds d'affectation spéciale (*dana alokasi khusus*) et des fonds coadministrés (*dana tugas pembantuan*). Les premiers financent une grande partie des investissements agricoles réalisés par les autorités infranationales. Les seconds soutiennent des activités répondant à d'autres priorités agricoles du gouvernement national qui sont mises en œuvre par les autorités infranationales. Grâce à une meilleure transparence, la performance de ces autorités pourrait être plus facilement suivie par le ministère de l'Agriculture, les organismes d'audit extérieurs (c'est-à-dire l'Organe de supervision du

développement et des finances, les instituts d'audit régionaux/BAWASDA et le comité national des commissaires aux comptes), les tiers concernés et le grand public.

Les décisions des pouvoirs publics doivent être fondées sur des données probantes. Il est nécessaire de disposer de statistiques fiables et à jour pour évaluer les résultats des réformes entreprises jusque-là, réagir en conséquence et élaborer des politiques pour l'avenir. Pour l'instant, les statistiques ne sont pas suffisamment adaptées aux besoins des utilisateurs. Les données concernant les volumes de produits agricoles produits et consommés, la valeur de la production par produit, la structure des exploitations (en termes de propriété et d'utilisation), le niveau et la composition du revenu des ménages ruraux (sources agricoles ou non), ainsi que les terres agricoles, sont loin d'atteindre un niveau de précision suffisant. La collecte de données pourrait être moins onéreuse si elle était couplée à une revitalisation des services de vulgarisation et de recherche. Les données collectées devraient être diffusées gratuitement et non vendues. Un système complet et cohérent de suivi et de notification des politiques agricoles indonésiennes permettra d'analyser, d'évaluer et d'améliorer l'efficacité de ces politiques.

Notes

1. Les propositions de solution aux freins identifiés dans l'encadré 0.3 sont pour la plupart présentées dans d'autres parties de cette section. Certains obstacles, notamment le niveau de développement des infrastructures, sortent du cadre de cet Examen et sont analysés en détail dans l'ouvrage *OECD Review of Investment Policy in Indonesia* (OCDE, 2010b). Cette partie se concentre sur les aspects institutionnels et les procédures sur lesquels il serait possible d'agir pour réduire les contraintes à l'investissement agricole.
2. Le site Internet du séminaire « Sustainable Water Management for Food Security » qui s'est tenu à Bogor, en Indonésie, en décembre 2011 (BAD/Ministère de l'Agriculture/OCDE, 2011), propose des recommandations détaillées sur la gestion de l'eau. Seules celles liée directement au présent Examen sont répertoriées dans cette section.

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Chapter 1

The policy context

This chapter examines the key issues that have shaped the development of the Indonesian agricultural sector and that have conditioned policy responses over the last two decades. Indonesia was deeply affected by the 1997-98 Asian crisis which activated a large programme of reforms including opening up to international competition and capital inflows. These reforms helped to achieve macroeconomic and political stability and to create more favourable conditions for the development of agriculture, an important sector providing employment for 38% of active population and contributing 15% of GDP in 2010. The farm structure is based on small family farms ranging on average from 0.3 ha in Java to 1.4 ha for irrigated land off-Java. Large commercial farms, located mainly in Sumatra and Kalimantan, specialise in perennial crops, in particular palm oil and rubber. These two commodities account for around 60% of total agro-food exports and contribute to a significant surplus in Indonesia's agro-food trade. While Indonesia has made significant progress in poverty eradication, 13% of its population continues to live below the nationally-defined poverty line. Poverty incidence in rural areas is twice as high as in urban areas. Increase in agricultural productivity and higher farm incomes are among the key factors towards further progress in poverty reduction. Food consumption has improved, but hunger and undernourishment persist in some areas. Smallholders are constrained by slow progress in registration of land rights which limits access to credit and by poorly developed infrastructure restricting their access to markets. Natural resources and the environment are under strong pressure, partly due to the expansion of agricultural land leading to large-scale deforestation and soil erosion, but also due to the over-exploitation of marine resources, and water pollution from agricultural chemicals. While higher yields of perennial crops will contribute to output growth, most of the production growth is still projected to come from the expansion of the planted area.

1.1. General aspects

This section provides a short overview of the political, social, natural and economic landscapes in which the agricultural sector functions.

Political and demographic characteristics

The Republic of Indonesia is a multiparty presidential democracy with a bicameral parliament. Parliamentary and presidential elections take place every five years. The president was elected for the first time by popular vote in 2004. The two houses of the elected legislative body, the **People's Consultative Assembly** (*Majelis Permusyawaratan Rakyat*, MPR), are the 560-seat House of People's Representatives (*Dewan Perwakilan Rakyat*, DPR) and the 132-seat Regional Representative's Council (*Dewan Perwakilan Daerah*, DPD). The DPR consists of representatives of political parties and has the power to approve national legislation, while the DPD consists of non-partisan representatives of provinces and its authority is limited to submitting legislative proposals related to regional issues to the DPR. In addition to being the Head of the Republic of Indonesia, the President is also the Head of Government and is assisted in his tasks by a Vice-President. The President appoints the Council of Ministers who are not required to be elected members of the legislature (EIU, 2008).

After the 1997-98 Asian financial crisis, Indonesia underwent substantial political, economic, and institutional reforms. Through the promulgation of the Law 22/1999 on Regional Autonomy on 1 January 2001, Indonesia embarked on a programme of decentralisation aimed at empowering local governments to better respond to diverse local conditions (Box 1.1).

Administratively Indonesia is divided into 33 provinces made up of 399 districts (*kabupaten*) and 98 municipalities (*kota*), all having their own local governments and parliamentary bodies. Districts and municipalities are divided into sub-districts (*kecamatan*) which are further divided into villages (*desa*) and urban neighbourhoods (*kelurahani*). While local governments continue to be highly dependent on budget transfers from the central government, actual implementation of various programmes in key areas (public works, health, education and culture, agriculture, communication, industry and trade, capital investment, land, co-operatives, and labour affairs) belongs to district and municipality governments (Section 2.1). The provincial government is mainly responsible for ensuring co-ordination among districts/municipalities, thus holding a secondary role.

Indonesia is the fourth most populous country in the world after China, India and the United States, with a **population** of 237.6 million people in 2010 of which 49% lives in rural areas (BPS, 2011). In the 2000s, overall population growth was 1.5% per year, down from 2.3% in the 1970s, but slightly up from 1.4% in the 1990s. The total fertility rate fell from 5.6 births per woman in the 1960s to 2.15 in 2010 (WB WDI, 2012). This considerable decrease is partly due to a family planning programme initiated in 1970 (EIU, 2008). The population is relatively young with around 44% being 24 years old or less (UN POPIN, 2011).

Economic development has brought large-scale migration from rural to urban areas with 51% of the population living in urban areas in 2010, as compared with 42% in 2000 and 31% in 1990.

Indonesia has a high adult literacy rate of 95.4% and trends in other indicators reveal significant progress in **education**. In 2009, 95% of children were enrolled in primary education, while secondary enrolment was reported to be 69%. However, there is an estimated participation rate of only 23.5% in tertiary education, a lower rate when compared with other South-East Asian countries such as Malaysia (36.5%) or Thailand (44.6%) (WB WDI, 2011).

Box 1.1. **Indonesia: "Unity in diversity"**

Indonesia is the world's largest archipelago with more than 17 000 islands, of which 6 000 are inhabited. On the basis of their geographical proximity, the islands can be grouped into eight major regions: Sumatra, Java, Bali, Nusa Tenggara, Kalimantan, Sulawesi, Papua and Maluku (Table 1.1). These regional groupings are strongly heterogeneous in terms of land and water resources, climatic conditions, human resources, infrastructure and access to markets, all relevant factors for agricultural development.

Table 1.1. **Indonesia: Selected regional indicators, 2010**

	Indonesia	Sumatra	Java	Bali	Nusa Tenggara	Kalimantan	Sulawesi	Maluku	Papua
Land area, thousand km^2	1 911	481	129	6	67	544	189	79	416
Population, million	237.6	50.6	136.6	3.9	9.2	13.8	17.4	2.6	3.6
Population density, persons/km^2	124	105	1 059	673	35	25	92	35	7
Poverty rate,[1] % of population,	13.3	13.1	12.7	4.9	22.0	7.4	13.5	18.1	28.3
Employed in agriculture, % of total	38.3	49.0	30.1	30.9	55.8	47.5	49.0	54.2	73.6

1. National definition. Detailed explanations are provided in Section 1.2.
Source: BPS, 2011.

The geographic landscape is highly diverse, being home to one of the richest ecosystems in the world. Most of the larger islands are mountainous alternating with stretches of lowlands. Mountains higher than 3 000 meters above sea level can be found on the islands of Sumatra, Java, Bali, Lombok, Sulawesi and Seram. Tectonical conditions make agricultural conditions unpredictable in some areas, but volcanic ash has resulted in fertile soils, especially in Java.

The distribution of the population across the archipelago is highly asymmetric. Java represents only 7% of the total land area but hosts 57% of the population, largely due to its favourable climate and soils. In turn, Papua occupies 22% of the land area but is inhabited by less than 2% of the population. While the national average population density is 124 persons/km^2 (close to China's density but much less than that of many other Asian countries), the density in Java is above 1 000 persons/km^2 against 7 persons/km^2 in Papua (Table 1.1).

There is great ethnic and linguistic diversity across provinces. The vast majority of the population is of Indo-Malay and Melanesian origin but there are over 300 minority groupings, some forming ancestral tribal groups in Kalimantan, Sumatra and neighbouring islands. There are large cultural differences within these ethnic groups, and more than 700 different languages and dialects are spoken. Wide socio-economic gaps divide densely populated Java which was favoured both economically and politically until the decentralisation, and large but sparsely populated outer islands (EIU, 2008; OECD, 2010).

Natural resources and climatic conditions

Indonesia is the world's 15th largest country with the land area of 1.9 million km^2. In addition, it covers a marine area of around 3.1 million km^2.

Indonesia lies across the equator and stretches across three time zones. Almost entirely tropical in climate, it is characterised by high temperatures, high humidity and abundant rainfall. Temperatures range from 21 to 33 °C and the average relative humidity lies between 70% and 90%. While there are no real seasons, the period from June to September is a dry season and the period from December to March is a rainy season.

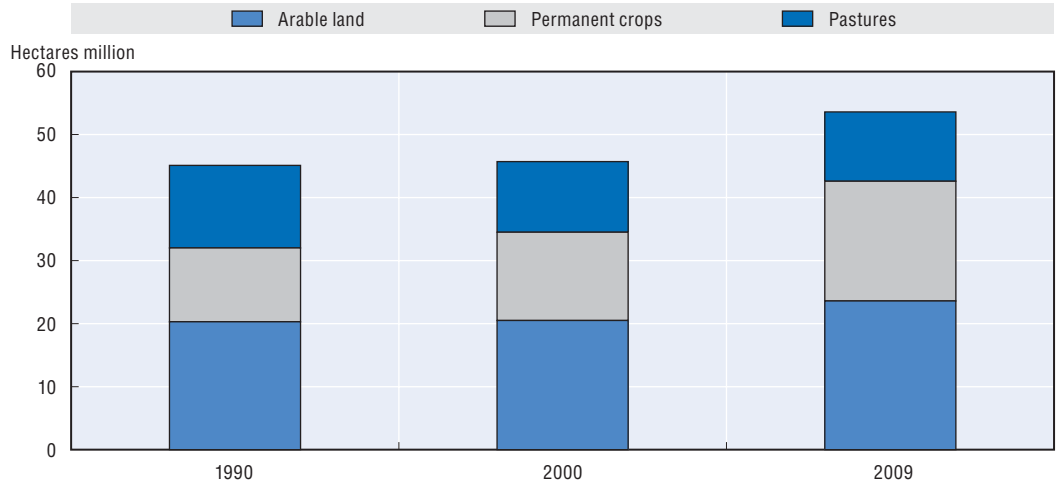
The country is **rich in natural resources**, the exploitation of which has played an important role in its rapid economic growth since the 1960s. It possesses reserves of oil and gas, along with rich deposits of coal, tin, nickel, copper, bauxite, silver, gold and iron, located primarily in parts of Sumatra, Kalimantan and Papua. Indonesia is a member of the Organization of the Petroleum Exporting Countries (OPEC), but declining oil production partly due to a lack of investment in new exploration, and growing domestic demand stimulated by economic growth and energy subsidies, have changed its status to a net importer of oil since 2005 (OECD, 2010; EC, 2011).

Indonesia also has the world's third largest forest area (944 320 km^2 or 52% of the land area; WB WDI, 2011), in particular in the three major islands of Papua, Kalimantan and Sumatra. However, deforestation has been progressing largely due to illegal logging and land conversion from forests to perennial crop production (ADB, ILO and IDB, 2010).

Agricultural land

Indonesia is **scarce in agricultural land** at just 0.23 ha per person, which is at the third of the world's average, similar to Italy and Germany, below China and above India (FAOSTAT, 2012). Agricultural land covers 53.6 million ha representing approximately 30% of the land area and consists of 23.6 million ha of arable land (44%), 19 million (35%) of permanent crops, and 11 million ha (21%) of permanent pastures and meadows (Figure 1.1).

Figure 1.1. **Agricultural land, 1990-2009**



Source: FAOSTAT, 2012.

StatLink http://dx.doi.org/10.1787/888932649280

While the area of permanent pastures and meadows slightly declined, the total crop area – comprised of arable land and land for permanent crops – increased from 32 million ha in 1990 to 42.6 million ha in 2009 (Figure 1.1). This expansion was mostly driven by the development of new area under perennial crop production (called "estate crops" in Indonesia), in particular oil palm, and occurred outside Java, especially in Kalimantan, Sumatra and Sulawesi. It was supported by a number of government programmes, such as nucleus-plasma programme based on partnerships between large estates and smallholders (Section 3.4) and the Transmigration Programme (Transmigrasi) stimulating migration from densely populated Java and Bali to the outer islands (Section 1.3).

Crop areas can be found in lowlands (< 200 m) sown mostly to rice, maize, cassava, fruit and planted with perennial crops, and in highlands (> 800 m) dominated by vegetables and cool-climate crops. In recent years, cropping has also diversified in a meso-production area (200-800 m) with a growing production of vegetables. Indonesia's climate pattern allows for multiple cropping during the year, in particular in Java and Bali where good climate and soil conditions allow for up to three crop rotations per year.

Water resources

Water is abundant in almost every region. Renewable water resources are at 8 500 m^3/capita/year, slightly less than the United States, but four times more than China and eight-fold more than India (FAO Aquastat, 2012). The average rainfall is about 2 700 mm/year, with uplands in central Sumatra, central Kalimantan and the western half of Java experiencing heavy rainfall all year round. By contrast, parts of the lowlands or coastal areas receive far less rain (less than 1 000 mm/year) and may experience acute water shortages, such as eastern Java during the dry season.

About 7.2 million ha, 17% of the crop land, was irrigated in 2009, with the rest being rain-fed. However, only around half of irrigations systems is in good condition and the rest remains damaged to a various degree due to a lack of funding for appropriate operations and maintenance (Section 2.2).

Although water resources are abundant, the seasonal and spatial variation in the rainfall pattern and lack of adequate storage create competition and conflicts among users (FAO Aquastat, 2012). With agricultural activities consuming 82% of all water withdrawals, urban and rural areas suffer substantial constraints on the quality and quantity of water available for domestic and industrial use (Amin, 2011).

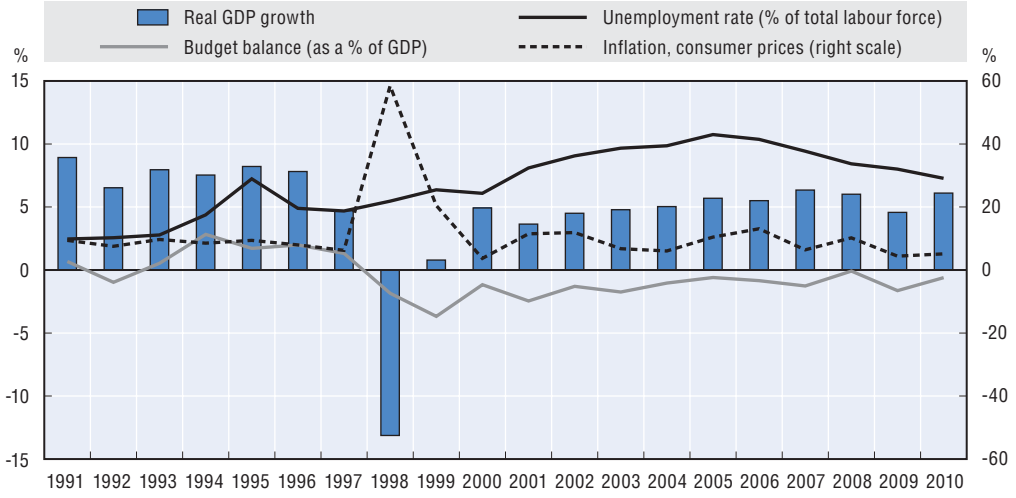
Infrastructure

When compared with its regional peers, the **quality and stock of infrastructure** in Indonesia are poor, with the exception of the mobile phone network characterised by rapidly growing penetration rates and the fourth largest number of users in the world. Since the 1997-98 Asian crisis, infrastructure has suffered deeply from public under-investment, low private participation and local administrative capacity constraints. The road density is only 23 km/100 km^2, a much lower level than, for example, in Viet Nam (48 km/100 km^2) or Thailand (35 km/100 km^2) (WB WDI, 2011). A large share of roads is in poor condition. The accessibility to electricity grids is lower than in neighbouring countries (Section 3.3). The water and sanitation sector still faces poor access and service quality, with a low percentage of rural households being connected to improved water sources and with only 36% of the rural population having access to improved sanitation in 2008 (OECD, 2010; WHO, 2011).

Macroeconomic performance

In 1997, the massive financial and economic crisis that hit much of Asia caused a radical slowdown in Indonesia's economic growth. While GDP growth averaged 7-8% per year in the first half of the 1990s, GDP plunged by 13% in 1998 (Figure 1.2). Agriculture acted as a buffer sector by absorbing some of the people laid off in other sectors (ADB, 2006). Regaining **macroeconomic stability** required substantial macroeconomic and structural reforms. Trade liberalising policies and currency devaluation promoted a stronger market orientation of the economy, created incentives for exploiting comparative advantage in tropical crops, and generated growth in agricultural productivity (Rada and Regmi, 2010). Economic growth started to take off in 2000 with GDP growth accelerating to above 5% in the second half of the 2000s. Indonesia weathered the 2008-09 crisis rather well, registering a 4.6% real GDP growth in 2009, the third highest in the G20 after China and India (OECD, 2010). The Indonesian economy was less affected than neighbouring economies largely because exports account for a relatively small proportion of the GDP and there is a higher reliance on internal and informal financing.

Figure 1.2. **Indonesia: Selected macroeconomic indicators, 1990-2010**



Source: WB WDI, 2011; OECD *Indonesia Economic Outlook*, 2011.

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GDP at purchasing power parity (PPP) was USD 1 030 billion in 2010 making Indonesia the world's 16th largest economy. With GDP per capita of USD 4 300 at PPP in 2010, Indonesia is ranked as a **lower middle-income country**. Like most economies in the region, the country has progressively shifted from a primarily agrarian economy towards stronger reliance on services and industry over the past five decades. As a result, economic activity is now dominated by the industrial sector which contributed 47% to total GDP in 2010, including around 8% by the oil and gas sector. Contributions from agriculture and services amounted to 15% and 38%, respectively, in 2010 (BI, 2011).

Strong economic growth over the last decade helped diminish tensions on the **labour market**. Officially registered unemployment has been decreasing since 2005 and reached 7.3% in 2010. Indonesia is characterised by a dual labour market, with a small formal market and a much larger informal one accounting for about 70% of the total (OECD, 2010).

The steady economic progress in the period preceding the Asian crisis was accompanied by an impressive fall in the **poverty incidence,** calculated as a share of population below nationally defined poverty line, from 40% in 1976 to 18% in 1996. As a result of the crisis, the rate increased to 23% in 1999, but since then fell again to reach 13% in 2010 (see Section 1.2 for a detailed discussion on the methodology and results). The majority of poor people live in rural areas where the poverty rate was 17% in 2010 (BPS, 2011). According to the Medium Term Development Plan, the government's target is to reduce the rate to 8-10% by 2014.

Indonesia has a history of high **inflation rates** during some periods, in particular at the end of the 1990s. The current macroeconomic policy framework, in place since 2005, combines inflation targeting with a flexible though not completely free-floating exchange rate which contributed to a reduction in the inflation level from 13.1% in 2006 to 5.1% in 2010 (Figure 1.2) and to slightly above 4% in 2011. While inflation is still a concern for the government, maintaining the stability of the rupiah, amid volatile flows of foreign capital will remain a priority for the authorities. Abrupt changes in capital flows is the main channel through which the country may be affected if the global outlook is to worsen.

Indonesia has successfully addressed domestic and external imbalances over the last decade. **Fiscal consolidation** led to a steady reduction in the budget deficit over the period 2001-05 and it has been maintained at below 2% of GDP since then. The central government debt as a percentage of GDP declined from a peak of 90% in 2000 to 28% in 2009 (OECD, 2010).

Trade policy prior to the Asian crisis was one of unbalanced and incomplete liberalisation, with import tariffs being steadily reduced since the 1980s but with many non-tariff measures still in place, in particular licensing. Liberalisation intensified following the Asian crisis in compliance with the International Monetary Fund (IMF) programme recommending the elimination of protection for agricultural products and automotive industries. While trade as a share of GDP peaked at 96.2% in 1998 as a result of a massive exchange rate depreciation and a diminishing GDP, this share was only at 45.5% in 2009, much lower than an average for five founding nations of the Association of Southeast Asian Nations (ASEAN-5) of 110% in 2008 (ASEAN, 2009).

There has been a major shift in the **geographical trade structure** since 2002. While the shares of exports to the United States and to the European Union tend to decline, the relative importance of Australia, Japan, China, India or Malaysia tends to increase indicating a strengthening of regional trade. Indonesia continues to support liberalisation under the ASEAN Free Trade Agreement, Asia-Pacific Economic Cooperation (APEC), World Trade Organisation (WTO) and between ASEAN members and their major trading partners in the region, in particular China, Japan, India, Korea and most recently Australia and New Zealand. However, in the mid-2000s, the government began to implement non-tariff import measures for some products such as livestock, poultry, fresh milk, and shrimp (Section 2.3).

Private investment saw an upturn in 2003 after several years of decline (Section 3.1). Restrictions on foreign direct investment (FDI) were simplified with the 2007 and 2009 Investment Laws. The World Investment Prospects Survey 2010-12 prepared by the United Nations Conference on Trade and Development (UNCTAD) places Indonesia in the top 15 of most attractive countries for FDI (UNCTAD, 2010). In a move expected to trigger more investment in the country, in December 2011 Fitch Ratings raised Indonesia's sovereign

credit rating to investment grade, thus enabling the government to borrow from international markets more cheaply.

However, Indonesia's **competitiveness** has not fully recovered from the Asian crisis. The low contribution of exports to growth is the result of a variety of conditions including the appreciation of the rupiah, high transportation costs due to the still deficient infrastructure, a lack of reliable electricity supplies, higher corporate tax rate than in regional peers, poor governance and the higher competitiveness of other countries in the region in labour-intensive sectors. The manufacturing sector specialised in low-technology segments such as textiles, garments, footwear and wood products, and did not improve much its technology status over time in comparison with other fast growing economies in the region. The economy seems to be returning to an output structure based on natural resource abundance with growing competitiveness in agricultural products such as palm oil and in mining products such as tin, copper or coal (Molnár and Lesher, 2009). As a result, job creation by the manufacturing industry is weak which might be one of the reasons for the persistently high level of employment in agriculture (Section 1.2) as forces pulling labour out of agriculture are largely limited to the service sector (Aswicahyono *et al.*, 2011).

1.2. Agricultural situation

This section examines the importance of the agricultural sector, including the agro-food industries, to the economy, and assesses agriculture's performance in terms of output, employment, input use, productivity, incomes, poverty alleviation, food consumption, agro-food trade flows and agro-environmental impacts.

Evolving roles of agriculture over time

The agricultural sector during the colonial period was focused on the production of tropical export crops, e.g. rubber, sugar cane, spices and tea, to the detriment of food crops. When Indonesia declared its independence in 1945, the relatively unproductive food crop sector was unable to provide sufficient food for the growing population. Together with a limited ability to pay for imports, this led Indonesia to set national **food self-sufficiency** as a key policy goal. Therefore, from the 1970s up to the early 1990s, the agricultural sector benefited from a development strategy focused on both the introduction of improved inputs and technologies, but also on the expansion of the agricultural resource base and the development of human capital (Section 2.1). The diffusion of high-yielding varieties of food crops proved to be successful, while agricultural land was expanded, mostly for perennial crops (Fuglie, 2010a).

While the entire economy shrank during the Asian crisis, agro-business was the only sector that proved resilient to external shocks and provided sufficient revenue to fuel the stagnant economy in some regions. As in many other countries undergoing economic crisis, the agricultural sector acted as **a buffer** absorbing workers laid off in other economic sectors. The sharp currency devaluation and major trade liberalisation reforms following the Asian crisis provided incentives for developing an export-oriented strategy in perennial crops (Rada and Regmi, 2010).

As the economy develops, the agricultural sector faces **increasing demand** for larger quantities and more diversified agricultural products caused by growing incomes and a rapid, albeit slowing, population growth. Overall, food security has improved thanks to

growing staple food production improving food availability and to higher income levels making food accessible to a dominant part of the population (Rada and Regmi, 2010).

With the implementation of the **Master Plan** for Acceleration and Expansion of Indonesia Economic Development 2011-2025 (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia* – MP3EI) adopted in May 2011, Indonesia aims "to position itself as one of the world's main food suppliers, as a processing centre for agricultural, fishery, and natural resources". The current Agricultural Development Plan 2010-14 identifies key challenges for near-term agricultural development, namely ways to "increase the productivity and added value of products through an environmentally friendly agricultural system; restore and develop land and water infrastructures as well as seeding and breeding systems; provide disadvantaged farmers and livestock breeders with access to low-interest financing; strengthen competitiveness in the global market and improve the weak economic growth resulting from the global crisis; strengthen the institutions for productive economic activities in rural areas; respond to the demand for food supply; and develop high-yielding commodities for horticulture, farming, and plantations", along with self-sufficiency targets for key agricultural commodities (MoA, 2010 and Section 2.1).

Agriculture and the food sector in the economy

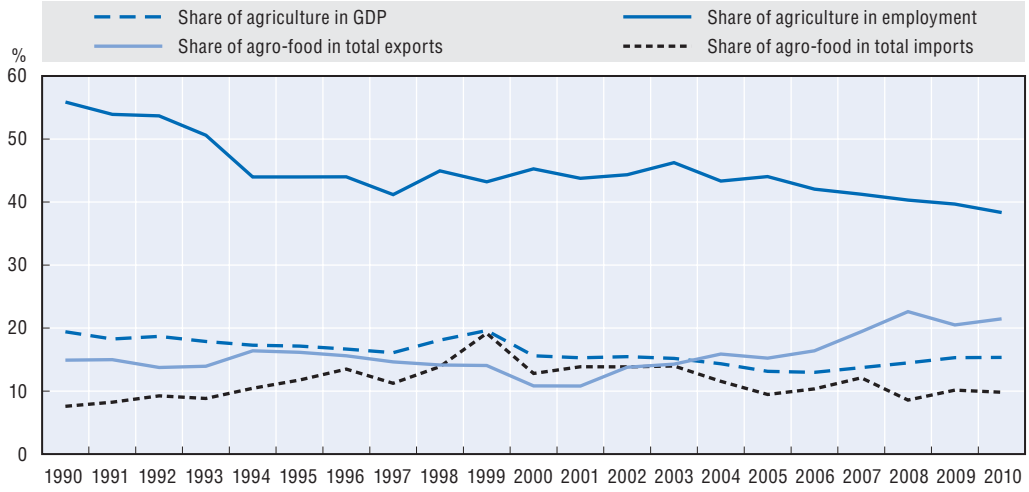
While its contribution to the economy has fallen, agriculture continues to be an important source of income for almost 40% of the population (Figure 1.3). Its share in GDP had declined from 19% in 1990 to 13% in 2007, but then increased to 15% in recent years driven by the good export performance of some perennial crops. Its **share in employment** fell from 56% in 1990 to 38% in 2010, below the share of services. It still remained, however, around 2.5 times higher than the sector's share in GDP. This indicates relatively low labour productivity which is one of the reasons for the low incomes of households dependent on farming.

The share of agro-food in the total **value of exports** fluctuated at around 15% before the Asian crisis, fell to 10% just after, and has followed an upward trend since 2001 largely driven by a strong performance of palm oil exports. As a result, this share increased to above 20% in recent years. In turn, the share of agro-food in the total **value of imports** increased before and during the Asian crisis, but since then has fallen to reach about 10% in recent years (Figure 1.3). When compared with agriculture's share in GDP at 15% in recent years, these shares indicate that the sector's openness to international trade is relatively strong on the export side, but much weaker on the import side. However, the situation is strongly differentiated across subsectors (section on agro-food trade flows below).

While the **share of agriculture in regional GDP** was lower than the national average in Java, Bali, Kalimantan and Papua in 2008, it was significantly higher in Maluku, Sulawesi, Nusa Tenggara and Sumatra. The share of agriculture has decreased massively in Java-Bali, Nusa Tenggara and Kalimantan over the last two decades, but has not changed much in Sumatra and has even increased in Maluku (Figure 1.4).

Although the direction of **structural transformation** of Indonesia's economy has been in line with the evolution of other developing countries in the region, the speed of transformation has been much slower than in such countries as Korea, Thailand, Malaysia, Viet Nam or China, especially in terms of the share of agricultural employment (Figure 1.5).

Figure 1.3. **The share of agriculture in GDP, employment, total exports and imports, 1990-2010**



Note: Agriculture data include forestry, hunting and fisheries. Agro-food trade data include fish and fish products as well as natural rubber.

Source: BPS, 2011; Bank of Indonesia (BI), 2011; UN, UN Comtrade, 2011.

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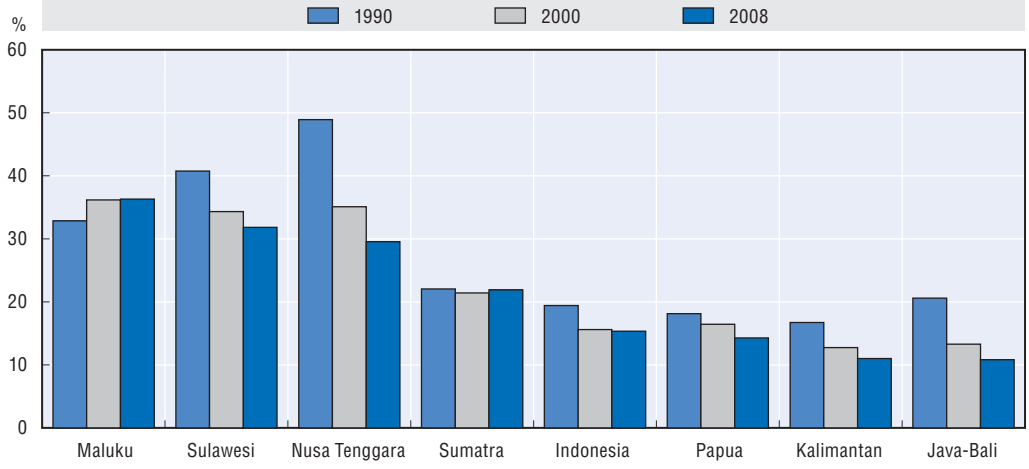
Figure 1.4. **The importance of agriculture in regional GDP, 1990-2008**



Note: The percentage value represents the share of value added contributed by agriculture, forestry, hunting and fisheries in total regional GDP.

Source: SUSENAS surveys, 1990-2009, BPS.

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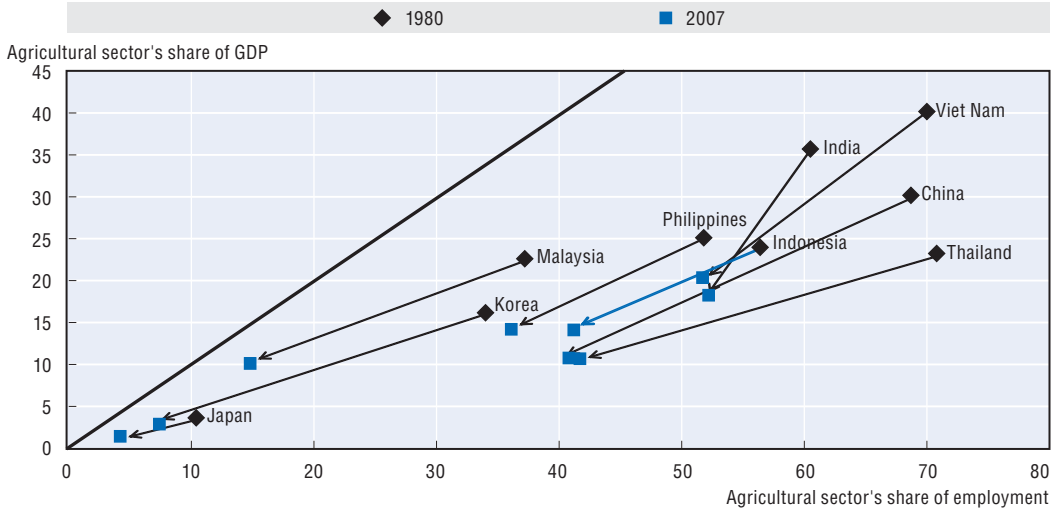
Evolution of market conditions

During the Asian crisis, both output and input price indices increased significantly as the rupiah depreciated massively against the US dollar. In the immediate period after the crisis, **farmers' terms of trade** improved as output prices increased strongly, in particular for exportable estate crops. Since then, the terms of trade deteriorated slightly in the first half of the 2000s and then stabilised at a level just above the one observed at the beginning of the 1990s (Figure 1.6). It can be concluded that over the last two decades Indonesian

Figure 1.5. **Evolution of agriculture's share of GDP and share of employment in selected Asian countries, 1980-2007**



Note: For Viet Nam the share of agriculture in total employment is for 1996 and 2006 instead of 1980 and 2007 and the share of agriculture in GDP is for 1985 instead of 1980.

Source: WB WDI, 2011; national data for China and India.

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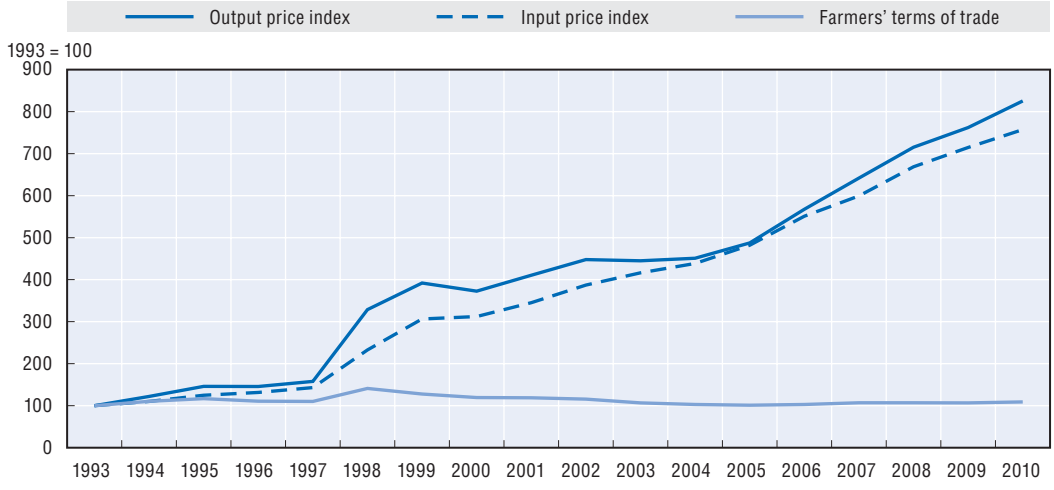
Figure 1.6. **Output and input price indices and farmers' terms of trade, 1993-2010**



Source: BPS, 2011.

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farmers were on average not exposed to the growing cost-price squeeze observed in many developed and developing countries.

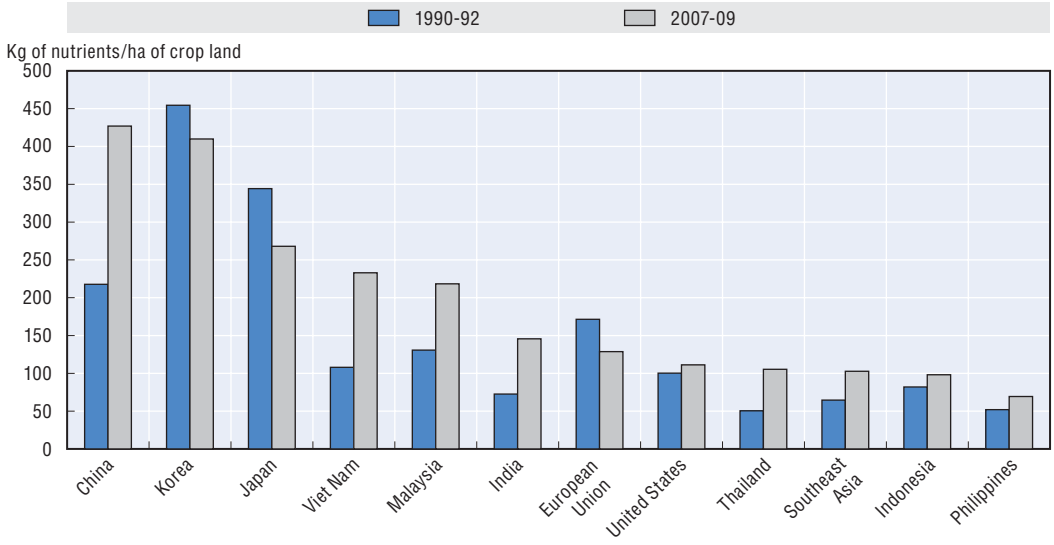
Changes in capital investment and input use

The growing demand for food and favourable conditions on international markets for various perennial crops drove the expansion of plantations, stimulated domestic and foreign capital investment in agriculture, and contributed to a rapid increase in purchases of agricultural inputs. In 2008, total **investment in agriculture** (including domestic and foreign) decreased as a consequence of the global economic crisis. It resumed its growth in

2009 and was around six times higher in 2010 than in 1999. However, the average share of agriculture in total investment remained relatively low at around 9% for domestic and 3% for foreign direct investment in 1999-2010 (Section 3.1). Most foreign investment projects are located in Java, Sumatra and Kalimantan, followed by Sulawesi and Papua (Italian Trade Commission-Jakarta, 2010).

Average **fertiliser application rates** are relatively low and even declined from 82 kg/ha on average in 1990-92 to 75 kg/ha in 2002 as a result of the reduction in fertiliser subsidies, the increased diversification into perennial crops demanding less fertilisers, and the Asian crisis (ADB, 2006). With an improving economic climate and a resumption of fertiliser subsidies in 2003, the consumption of fertilisers started to increase and reached an average of 98 kg/ha in 2007-09. This rate is just below the regional average (103 kg/ha), higher than in the Philippines (69 kg/ha) but remains much lower than in such countries as China (427 kg/ha) and Viet Nam (233 kg/ha) (Figure 1.7). However, the rates in the latter two

Figure 1.7. **Use of chemical fertiliser in selected countries (active nutrient kg/ha of cropland)**



Note: Use of fertiliser includes nitrogenous, phosphate and potash fertilisers in nutrient terms. Cropland includes arable land and permanent crops.

Source: FAOSTAT, 2011.

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countries should not be treated as a positive reference as various studies suggest that fertilisers are strongly overused in some Asian countries, in particular in China, leading to significant water pollution and to negative impacts on farmers' incomes (OECD, 2009).

Fertiliser application rates vary substantially across Indonesia's regions due to differences in soil characteristics presenting different nutrient imbalances and deficiencies, in crop production structures, as well as in market access and in infrastructure for transporting inputs. For example, fertiliser application reached 285 kg/ha of cropland in Java in 2000 and might already be too high. This compares with 117 kg/ha in Sumatra, 109 kg/ha in Sulawesi, 98 kg/ha in Nusa Tenggara, 35 kg/ha in Kalimantan, and only 23 kg/ha in Maluku and Papua (ADB, 2006). Nitrogen fertiliser was the most widely used in 2008 (64% of total consumption in nutrient terms), followed by potash fertilisers (27%) (FAOSTAT, 2011). As livestock production is not well developed, most farmers do not apply

manure. Among food crops, the highest application rates per hectare are for rice followed by maize and soybean, and the lowest for groundnut and cassava (FAO, 2005; MoA, 2011).

Adoption of **farm machinery** accelerated in the 1980s, when farmers started replacing draft animals in tillage operations with two-wheel walking tractors (Fuglie, 2010a). Currently, tractors and threshers are most widely used. Tractors are usually applied for land preparation activities such as primary and secondary tillage, while seeding and planting activities are mostly done manually. Threshers are mostly used in more developed areas such as Java where agricultural labour has become scarce due to competitive wages in other industries. According to the latest available data, the numbers of combine harvesters-threshers and tractors per 1 000 agricultural workers more than doubled between 1990 and 2003 (Table 1.2), but remain relatively low compared with other South-East Asian countries. For example, there were two tractors per 1 000 workers in Indonesia in 2003 which is much lower than in Malaysia (24), Thailand (11) or Viet Nam (5.9), but higher than in the Philippines (0.9) (FAOSTAT, 2011). This reflects existing endowment in factors of production, characterised by scarce capital and abundant labour resources, as well as the dominance of small-scale farming systems. But relatively low rates of machinery adoption may also reflect more difficult access to credit and weaker institutional arrangements for shared purchase and use of machinery than in neighbouring countries.

Table 1.2. **Agricultural machinery in Indonesia per 1 000 workers, 1990-2003**

	1990	1995	2000	2003
Combine harvesters-threshers	3.0	6.9	8.3	7.4
Tractors	0.7	1.4	2.2	2.0

Note: The latest rate for combine harvesters-threshers is for 2002.
Source: OECD calculations based on FAOSTAT, 2011.

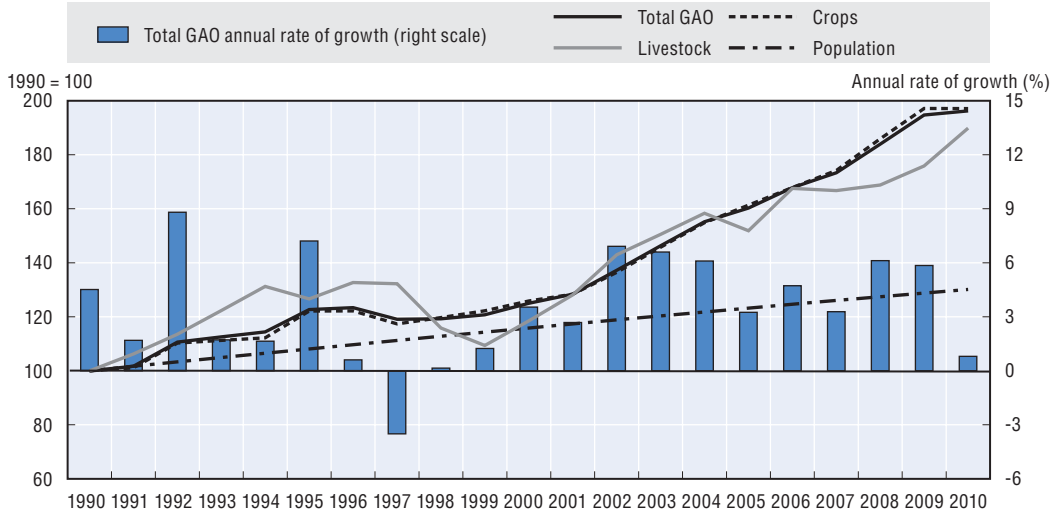
Farm output

Between 1990 and 2010, **gross agricultural output** (GAO) increased by 97% with crop production rising by 97% and livestock production by 89% compared with the population growth of 30% (FAOSTAT, 2012).

While annual growth in the volume of agricultural production has averaged 3.4% since 1990, there have been **significant fluctuations** in this rate. In particular, the Asian crisis and *El Niño* were two major factors behind the contraction in 1997-98. While crop production was affected only slightly, livestock production shrank by almost one-fifth largely due to higher feed prices generated by the rupiah devaluation and lower meat consumption caused by lower real incomes (Ifft, 2005). In addition, accelerated sales of animals became a source of emergency cash for impoverished farmers (Brandenburg and Sukobagyo, 2002). Since 2000, crop output has grown steadily, largely driven by increasing exports of perennial crops such as palm oil and rubber. Livestock production also rebounded and its growth rate was close to that of crops (Figure 1.8).

There has been an important **change in the composition of production** away from staple food crops, in particular rice, to other commodities, in particular palm oil. The relative importance of the livestock subsector remains small and in 2009 was even smaller than in 1991. However, poultry meat production is expanding and its share in the total has increased in the last two decades (Table 1.3).

Figure 1.8. **Growth in agricultural output, 1990-2010**



Source: FAOSTAT, 2012; WB WDI, 2012.

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Table 1.3. **Changes in the composition of the value of agricultural production, 1991-2009 (%)**

	1991	2000	2009
Crops, including:	**80.3**	**82.6**	**82.9**
Cassava	3.4	2.8	5.4
Cocoa beans	0.6	1.9	1.8
Coffee	2.0	2.3	1.5
Maize	3.8	4.8	6.5
Natural rubber	1.7	0.9	2.2
Palm oil	3.5	6.3	11.6
Rice	32.2	29.4	18.8
Soybean	3.3	1.2	0.9
Spices	4.2	5.0	5.0
Sugar cane	3.7	1.9	1.2
Livestock, including:	**19.7**	**17.4**	**17.1**
Beef and veal (cattle meat)	4.1	2.8	3.1
Eggs	1.8	5.4	2.9
Milk	0.5	0.7	0.6
Poultry meat	4.7	4.8	7.3
Pig meat	5.2	2.1	1.9
Total	**100.0**	**100.0**	**100.0**

Source: FAOSTAT, 2012.

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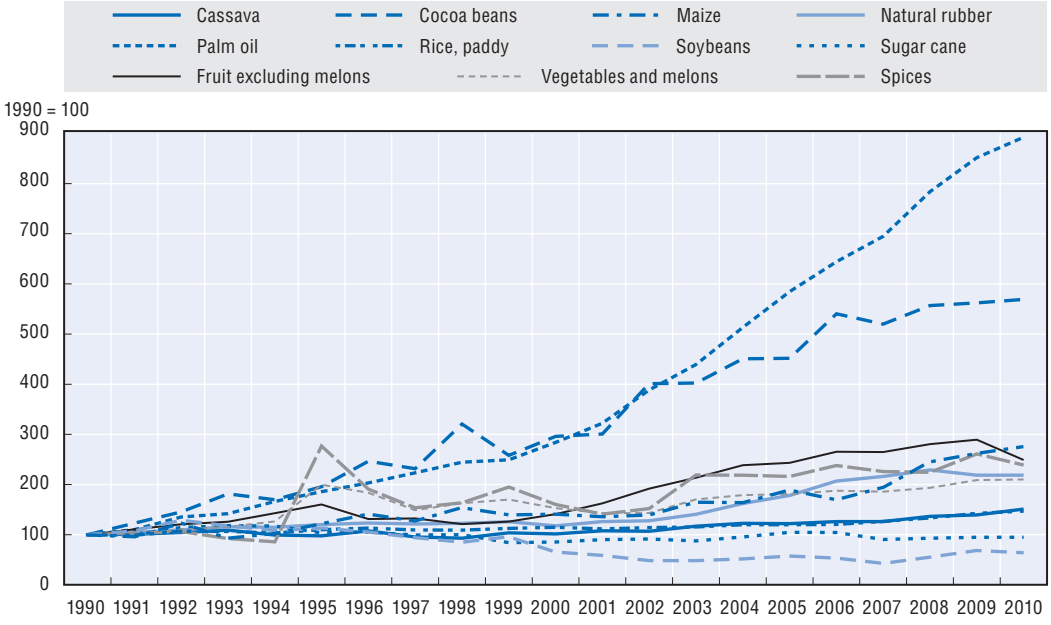
Among food crops, **rice** still dominates at almost one-fifth of the total value of agricultural production in 2009, although this compares with one-third at the beginning of the 1990s (Table 1.3). Indonesia is the world's third largest producer and consumer of rice, after China and India, and accounts for 9% of the world's total. It is practically self-sufficient in rice production with occasional imports playing a marginal role in meeting domestic demand. While the volume of rice production increased more than four times from 1961 to 1990, it has been growing very slowly since then, largely in line with the

population growth. As a result, rice consumption stabilised at around 130-140 kg per capita, one of the highest rates in the world (section on food consumption below). In contrast, **maize** production more than doubled from 1990 to 2010, and took off after 2001 mostly in response to the increasing demand from the poultry industry. **Soybean** production decreased from the mid-1990s until 2007 and then started to increase, but in 2010 remained lower than in the first half of the 1990s (Figure 1.9).

Figure 1.9. **Changes in crop production, 1990-2010**



Source: FAOSTAT, 2012.

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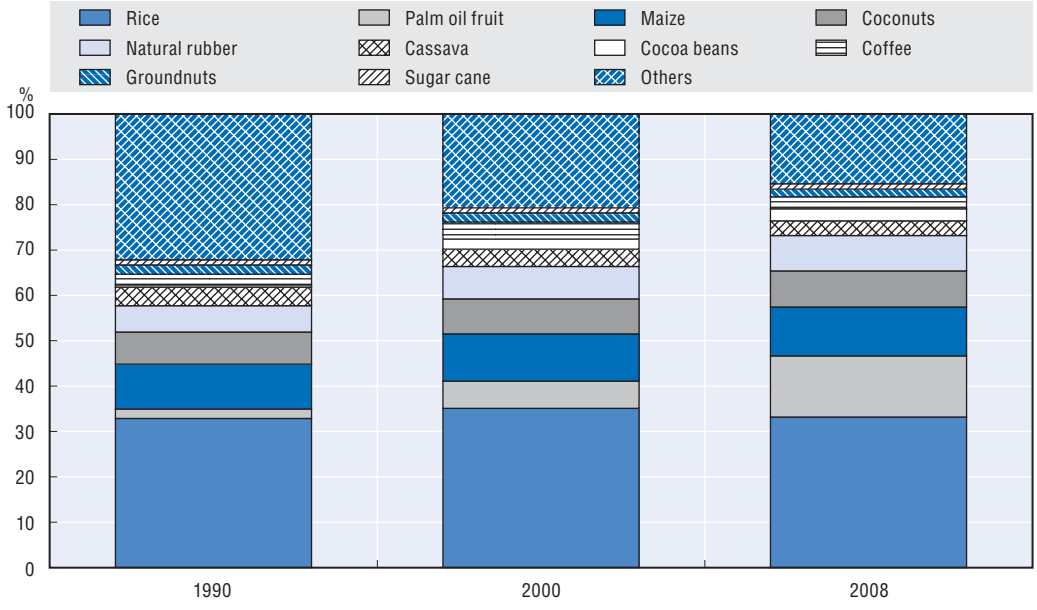
Among perennial crops, **palm oil** and **cocoa** expanded rapidly after 1980. Supported by the rapid growth in the international demand, palm oil production has experienced a massive increase with output levels in 2010 being nine times higher than in 1990 (Figure 1.9 and Box 1.2). Since 2007, Indonesia has become the largest palm oil producer in the world, just ahead Malaysia. Cocoa production, also driven by strong international demand, increased almost six times in 1990-2010, making Indonesia the second largest cocoa producer representing 18% of the world's production. Rubber production stagnated until 2000, but has almost doubled since then (Figure 1.9). In 2010, Indonesia accounted for 28% of the world's natural rubber production, being the second largest producer just after Thailand (Masterplan, 2011). In comparison, **sugar cane** production has stagnated and was lower in 2010 than in 1990.

Indonesia produces a wide range of **fruit and vegetables**. While the Asian crisis had a negative impact on income-sensitive production of fruit and vegetables, by 2010 fruit production had increased 2.5 times and that of vegetables doubled compared with 1990 (Figure 1.9). The vegetable subsector is developing in Java, Sumatra and Sulawesi. In 2000-04, West Java alone produced 35% of the national vegetable production, benefiting from the large and growing Jakarta market (Johnson *et al.*, 2008).

Spices remain Indonesia's speciality. In volume terms, it is the third largest producer in the world, after India and China, with three-fourth of global production of cloves and more than 40% of both cinnamon and vanilla originating from this country in 2008-10. Indonesia is also the world's second largest producer of pepper and one of the most important producers of ginger and nutmeg (FAOSTAT, 2012). However, their relative importance in Indonesia's total agricultural production remains small at around 5% (Table 1.3).

In terms of **crop area**, rice still accounts for around one-third of the total, but this share has declined slightly in the 2000s. The share of other staple foods has also stabilised or even declined, in particular for cassava (Figure 1.10), while the area allocated to palm oil production has expanded significantly. Between 1990 and 2008, it grew by 650% and its share increased from about 3% to 14% of total crop area. Today Sumatra hosts the majority of the palm oil crops with 75% of total mature palm tree area and 80% of total palm oil production. In recent years, Indonesia has encouraged expansion of this crop in more remote locations in Kalimantan, Sulawesi and Papua (USDA, 2009). The share of other perennial crops, in particular of rubber and cocoa, has also increased, but only by 1-2 percentage points (Figure 1.10). In 2009, about 70% of the total perennial crops area was held by smallholders operating on 1-2 ha in most cases, while the rest was managed by large private and state-owned companies (Section 1.3).

Figure 1.10. **Composition of crop area, 1990-2008**



Source: FAOSTAT, 2011.

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In comparison with crops, the **livestock sector** is small and its production has been much less stable (Figure 1.11). Meat production was deeply affected by the Asian crisis with beef, poultry and sheep meat production all experiencing dramatic falls. Since 1999, poultry meat production has expanded but suffered again in 2005 due to the outbreak of Highly Pathogenic Avian Influenza (HPAI) which spread to more than two-thirds of the provinces and resulted in the death of more than 10 million birds (WB, 2005). The evolution of egg production has paralleled that of poultry meat. Milk production has experienced a massive increase in the last three years but from very low levels. Beef, sheep and pig meat have experienced erratic production levels since 2000 and their shares in meat production remain small.

Box 1.2. **The development of palm oil production**

The palm oil tree (*Elaeis guineensis*) originates from the tropical rainforest of West Africa. International trade in palm oil began at the turn of the 19th century and was mainly the result of the Industrial Revolution in Europe that created a demand for palm oil for candle-making and lubricant for machinery. At the beginning of the 20th century, Southeast Asia was found to have the best conditions for cultivating palm oil trees in terms of soil quality, solar radiation, and rainfall pattern. Further improvements in palm oil refining technology in the 20th century allowed using palm oil as an ingredient in numerous manufactured products. Today crude palm oil (CPO) and palm kernel oil have a wide range of uses in the food and oleo-chemical industries. Besides its role as major cooking oil in Asia, it is used in the production of margarine, frying fat, and sauces as well as soaps, detergents, cosmetics and household care products, and applied in the leather, textile, metal and chemical industries. Palm oil can also be burned directly as fuel and used as a raw material for biodiesel production.

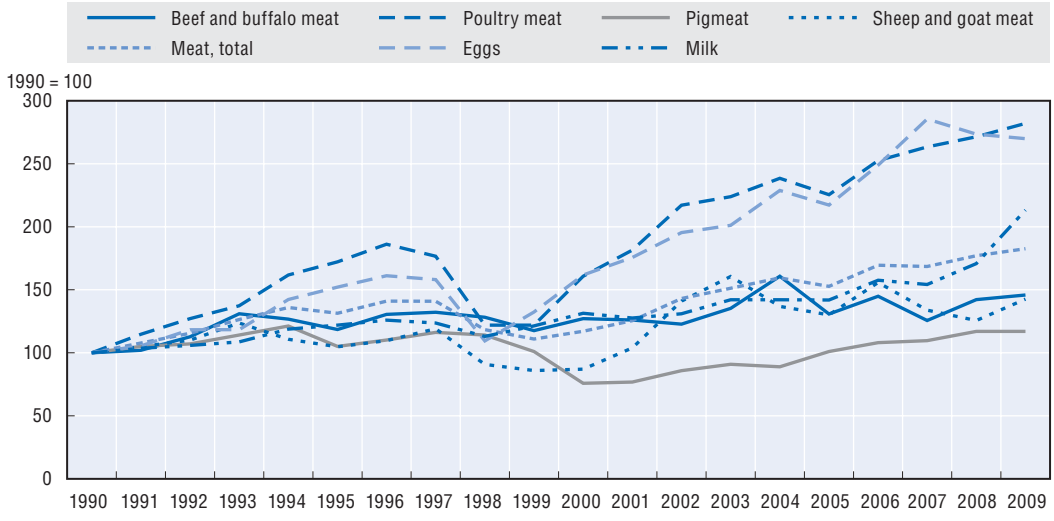
Until the 1940s, palm oil production developed at a moderate pace as it was mainly employed as a lubricant. In the early 1950s its global production and trade started to grow steeply and continuously as it started to be applied as a cheap alternative to other edible oils. Over the last two decades, the share of palm oil in global vegetable oil production has more than doubled. Two countries – Indonesia and Malaysia – account for roughly 90% of both the global production and exports of palm oil. Three main factors allowed palm oil production its remarkable expansion: its yields exceed by far those of other vegetable oils (for instance, ten times more oil can be obtained from one ha of palm oil than of soybean); its production costs are lower when compared with other oil crops; and it can have multiple applications.

There were distinct phases in the spectacular growth of the Indonesian palm oil sector. In the period of 1968 to the late 1970s, the government responded to the attractive prices of palm oil on international markets through the creation of State Owned Plantations (*Perseroan Terbatas Perkebunan Nasional*, PTPN). At the end of the 1970s, the nucleus-plasma model was initiated to expand perennial crop production, especially palm oil. The programme provided large companies, both state-owned and private, with long-term leases to state land. It also provided smallholders (plasma) surrounding the company plantations with capital at preferential interest rates. In the 1980s, these arrangements were quite often combined with the transmigration programme within which families from densely populated Java were resettled to sparsely populated regions of Sumatra, Kalimantan, Sulawesi, and Papua. In the following decade, the government launched KKPA (*Koperasi Kredit Primer Untuk Anggota* or "Primary Co-operative Credit for Members") to continue supporting partnerships between large-scale private sector and co-operatives consisting of smallholders. Following the decentralisation in 2001, the government financial support weakened but various plasma-nucleus arrangements have been continued. The most recent legislation requires large investors to build partnerships with smallholders on at least 20% of the plantation area. New schemes based on the nucleus-plasma model were launched in 2006, including the palm oil plantation revitalisation programme which offers government-subsidised credit to plasma farmers (Sections 2.2 and 3.4)

The success story of palm oil is associated with a number of drawbacks, including: increasing concerns regarding the environmental sustainability of its expansion; fair treatment of smallholders involved in partnership schemes; a strong concentration of agricultural resources as opposed to sector diversification; a strong dependence on export markets; and a high level of vulnerability to weather changes.

Source: Thoenes, 2006; Rasiah and Shahrin, 2006; EuropaBio, 2008; McCarthy and Cramb, 2009; GAIN-ID 1116, 2011.

Figure 1.11. **Changes in livestock production, 1990-2009**



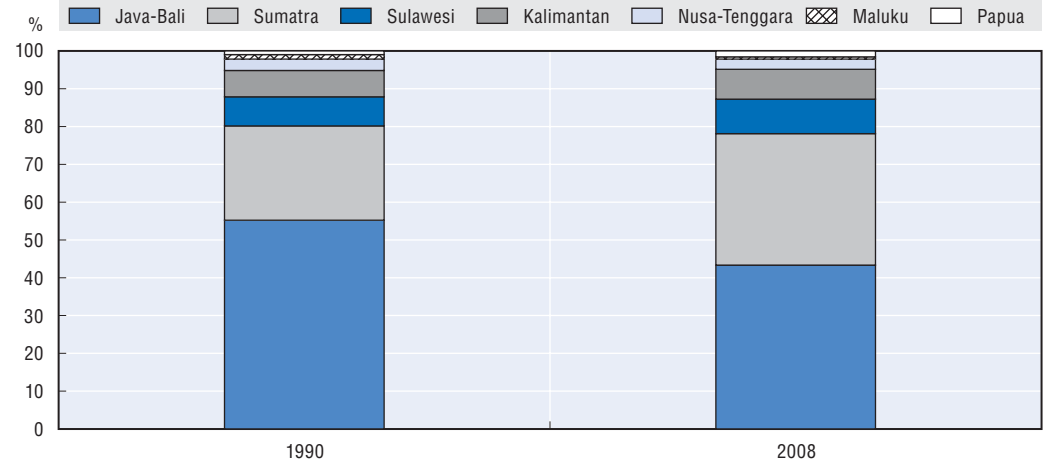
Source: FAOSTAT, 2011.

StatLink http://dx.doi.org/10.1787/888932649470

Livestock farming remains **fragmented**, but new large units started to emerge and their shares in market supplies are growing fast (Section 1.3). Poultry farming is by far the most important sub-sector, followed by ruminants (in particular beef cattle, goats and sheep) with the non-ruminants (such as pigs and horses) being of marginal importance for cultural and economic reasons. Distribution of livestock production is strongly differentiated across regions and parallels unequal population densities, production systems and infrastructure development. Java is the centre of livestock production benefiting from relatively easy access to large urban centres.

Regional distribution of agricultural value added shows that Java-Bali still dominates, but its share in the total fell significantly from 55% in 1990 to 43% in 2008, largely due to a strong growth in the relative importance of production in Sumatra, but also in Kalimantan and Sulawesi, driven by the expansion in production of perennial crops (Figure 1.12).

Figure 1.12. **Regional distribution of agricultural value added, 1990 and 2008**



Source: SUSENAS surveys, 1990-2008, BPS.

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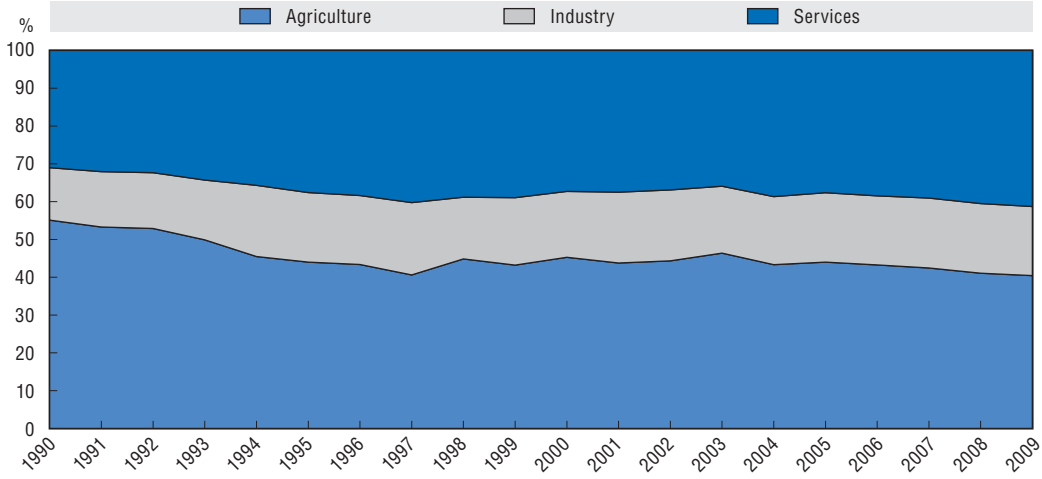
Farm employment

The total number of persons **employed in agriculture** remained relatively stable over the last two decades: 41.6 million in 2009 compared with 42.3 million in 1990. Thus, although the sector's share in total employment has gradually declined to slightly below 40% in 2009, Indonesia is not yet at the stage of an absolute fall in its farming population (Figures 1.13 and 1.14).

In 1990, about 75% of the total Indonesian workforce worked in rural areas and this share declined to around 60% in 2003. The largest part of **rural workers** is still classified as

Figure 1.13. **Evolution of employment structure by sector, 1990-2009**

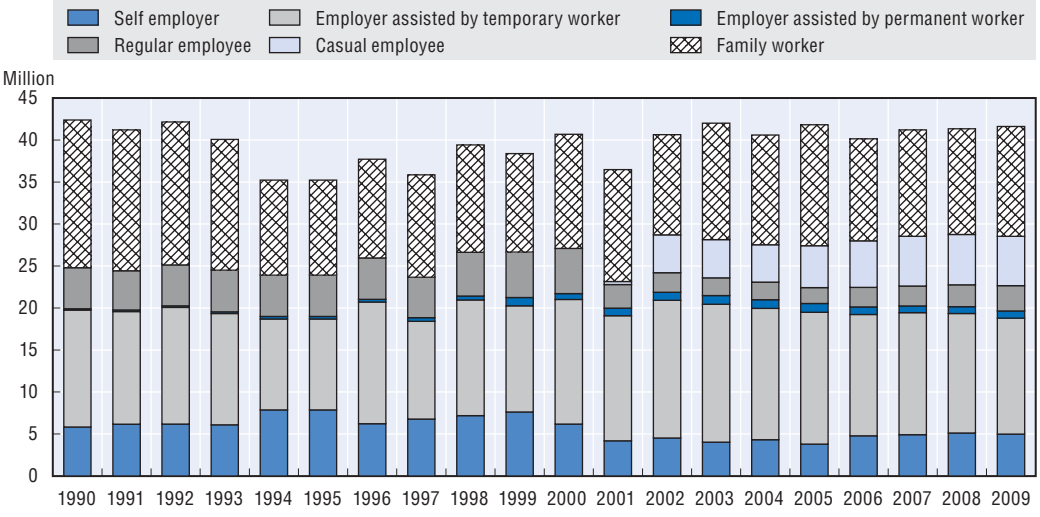


Note: Agriculture includes forestry, hunting and fisheries.

Source: SAKERNAS surveys, 1990-2009, BPS; WB WDI, 2011.

StatLink http://dx.doi.org/10.1787/888932649508

Figure 1.14. **Level and composition of agricultural employment, 1990-2009**



Note: A casual employee is a worker on a temporary employment contract with generally limited entitlements to benefits and little or no security of employment.

Source: MoA, 2011.

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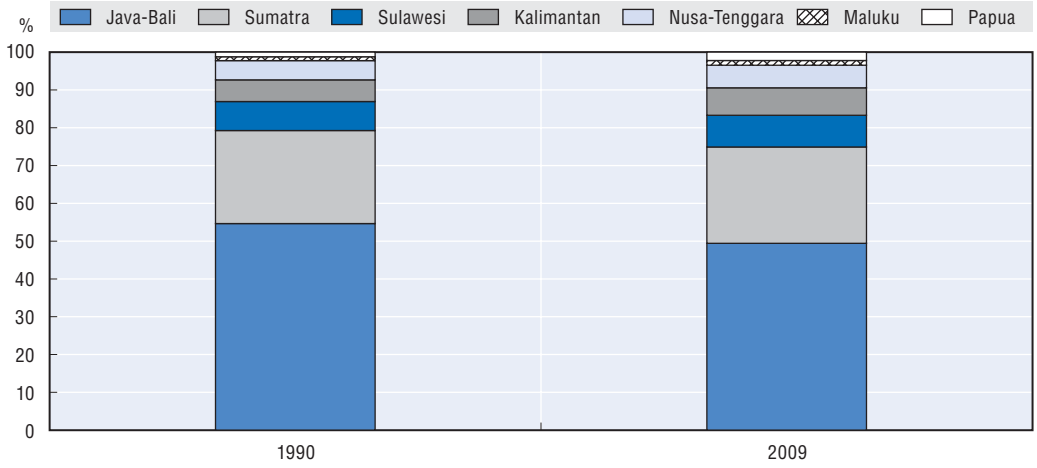
employed in agriculture, although this proportion declined from 75% in 1990 to 68% in 2003. Nevertheless this still high labour force participation in agriculture must be carefully interpreted as many people work part-time in farming and earn a large share of their income from non-farm activities. In densely populated Java, the share of non-farm income has increased so time spent in farming per agricultural worker probably declined (Booth, 2002). In contrast, outside of Java and Bali, the crop area expanded more rapidly than the agricultural labour force so area farmed per worker rose and the average time spent on farming may have increased. This is where most of the expansion in perennial crop production occurred, and, unlike annual crops where labour demand tends to be highly seasonal, labour required in perennial crops is often more evenly spaced throughout the year (Fuglie, 2010b).

While the total number of persons employed in agriculture remained relatively stable, there have been important **changes in the composition of farm employment** (Figure 1.14). In particular, the proportion of unpaid family workers in agriculture decreased from 41% in 1990 to 31% in 2009. A first reason is that family labour was increasingly replaced with wage labour as family members found more lucrative non-farm employment opportunities both prior to the Asian crisis and during the recovery period. A second explanation is that with crop diversification and an orientation towards commercial crops, a part of the unpaid family labour shifted away from subsistence agriculture towards profit-generating agricultural activities (ADB, 2000). There was also a strong fall in the category "regular employee." Aside the immediate impact of the economic crisis, it was also an effect of a new regulation obliging industries, including farmers, to pay compensation to fired workers. As a result, industries preferred to use out-sourced workers under short-term contracts and the share of regular employee dropped from 11% to 7%. Meanwhile, a new category of casual workers gained importance with the share growing from 0% in 2000 to 12% in 2009 (Figure 1.14).

Regional distribution of farm labour shows that around half of the farmers still work in Java-Bali, the most populated region within the archipelago, but this share has fallen slightly since 1990. It is followed by Sumatra at around one-fourth and Sulawesi at slightly less than one-tenth (Figure 1.15).

Figure 1.15. **Regional distribution of agricultural employment, 1990 and 2009**



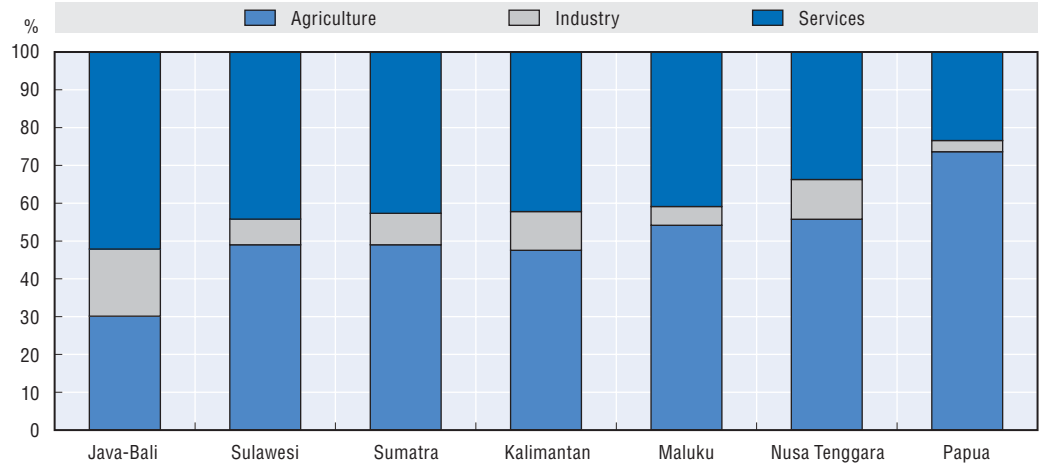
Source: SAKERNAS surveys, 1990-2010, BPS.

StatLink http://dx.doi.org/10.1787/888932649546

The process of structural change and diversification away from agriculture was faster in Java and Bali than in the remaining regions. The share of farm employment fell in Java-Bali from 48% in 1990 to 30% in 2010. In all other regions (Sumatra, Sulawesi, Kalimantan, Nusa Tenggara, Maluku and Papua), the share also fell, but agriculture still employs around half of the working population and in Papua the share is still above 70% (Figure 1.16).

In 2009, the **agricultural land-to-labour ratio** ranged from almost 5 ha per worker in Kalimantan to below 0.4 ha in Java (Figure 1.17). While in Java this ratio remained almost unchanged over the last two decades, it increased in all other provinces until 2000 and fell by 2009, with the exception of Bali and Nusa Tenggara. In 2000 the average land-to-labour ratio at 0.68 ha per agricultural worker was higher than in Viet Nam (0.29), but lower than in Malaysia (4.32), Philippines (0.86) or Thailand (0.87) (ADB, 2006).

Figure 1.16. **Employment structure across regions, 2010**

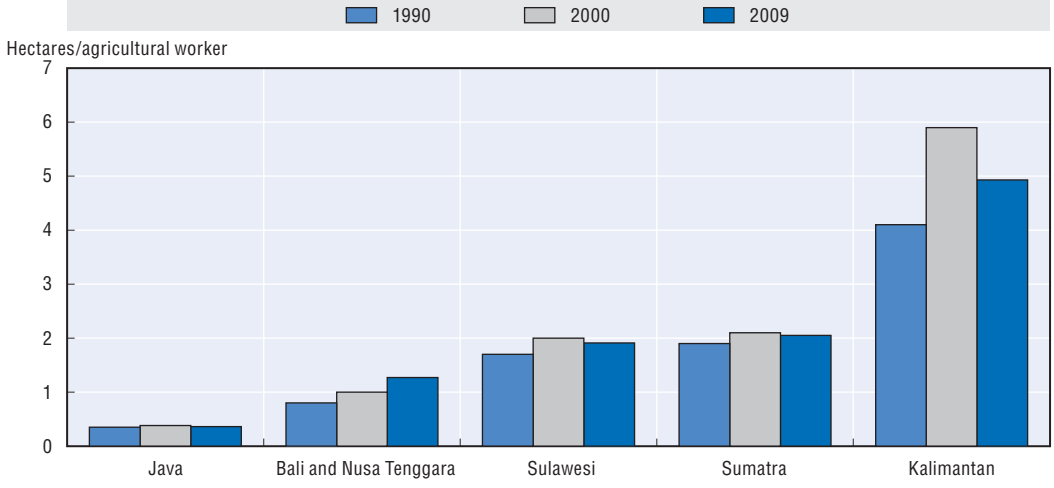


Note: Agriculture includes forestry, hunting and fisheries.

Source: BPS, 2011.

StatLink http://dx.doi.org/10.1787/888932649565

Figure 1.17. **Land-to-labour ratio for agriculture, 1990-2009**



Note: Data for Maluku and Papua are not available.

Source: Asian Development Bank (ADB), 2006; SUSENAS surveys, 1990-2008, BPS.

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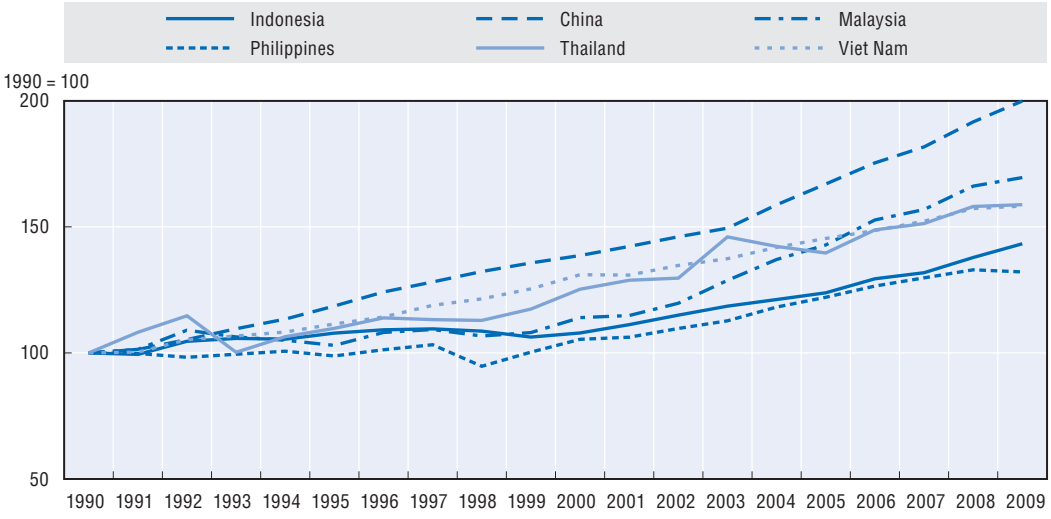
Productivity

When compared with some neighbouring countries, **labour productivity** growth in agriculture was slightly stronger than in the Philippines, but weaker than in China, Malaysia, Viet Nam and Thailand (Figure 1.18). Slow progress in labour productivity compared with other countries can be explained by the fact that total employment in agriculture remains roughly unchanged, thus labour productivity growth is roughly equal to agricultural production growth. Labour productivity growth in countries with the strongest growth such as China and Malaysia is driven both by production growth and a fall in agricultural employment. This is not yet the case in Indonesia.

Figure 1.18. **Labour productivity growth in agriculture in selected Asian countries, 1990-2009**



Note: Agricultural productivity is calculated as the value added in agriculture per unit of agricultural labour.
Source: WB WDI, 2011.

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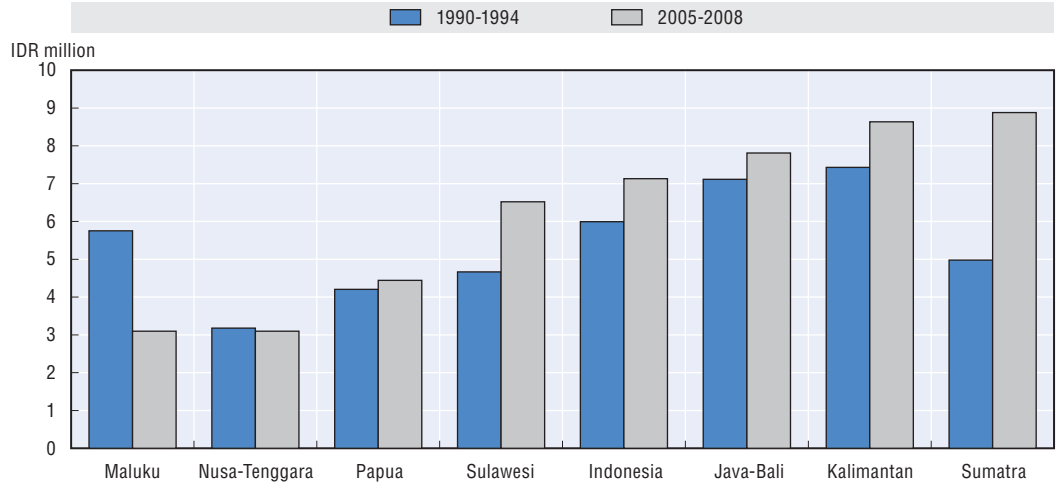
There are **significant disparities across regions in terms of labour productivity** in agriculture (Figure 1.19). In Java land and labour productivity grew substantially up to the end of the 1990s as farmers intensified production, first through improved rice technologies introduced during the Green Revolution and later by shifting resources into higher-value subsectors such as horticulture, livestock and aquaculture (Fuglie, 2010b). In the other major islands (Sumatra, Kalimantan and Sulawesi), the expansion of crop area was the primary source of growth in labour productivity. Labour productivity increased as the average cropland per worker rose, but land productivity did not improve to the same extent. While land productivity has been much higher in Java and Bali up to the mid-2000s, the increasing area worked per farm on major non-Java islands helped close the gap in labour productivity between these regions (Fuglie, 2010b). In fact, labour productivity in Sumatra and Kalimantan is currently higher than in Java and than the national average. Sulawesi continues to catch up. These are areas where palm oil plantations were extended (USDA, 2009). However, in Nusa Tenggara, Maluku and Papua, labour productivity was lower than the national average for the entire period, and in Maluku it has been steadily decreasing due to local conflicts, poor marketing, inadequate natural resource management, and poor infrastructure (IFAD, 2011).

Figure 1.19. **Agriculture labour productivity in selected regions, 1990-2008**

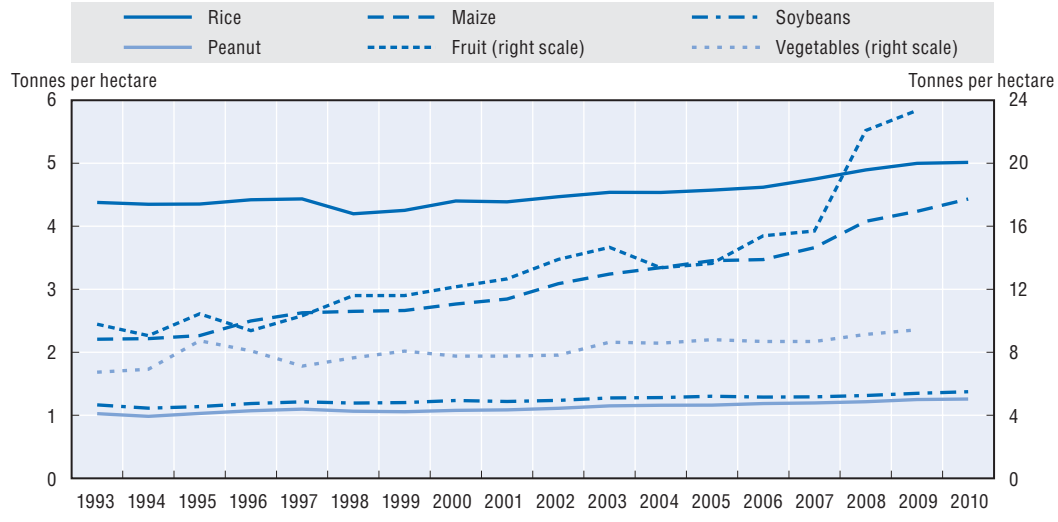
Constant 2000 IDR



Note: Agricultural labour productivity is calculated as the value added in agriculture per unit of agricultural labour.
Source: SUSENAS surveys, 1990-2008, BPS.

StatLink http://dx.doi.org/10.1787/888932649622

Figure 1.20. **Crop yields for selected food crops, 1993-2009**



Source: BPS, 2011; FAOSTAT, 2011.

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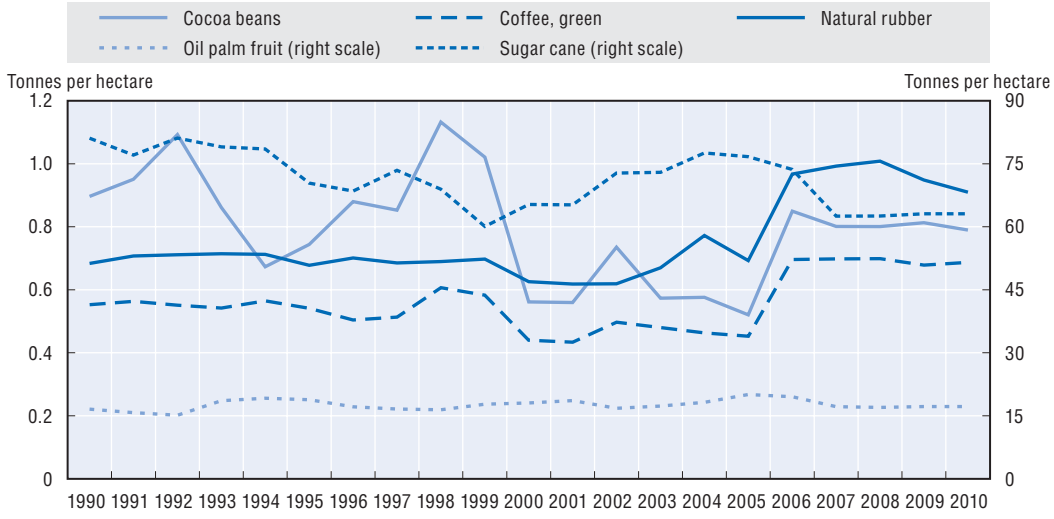
Progress in **agricultural land productivity** varies widely across crops, especially as concerns staple food crops (Figure 1.20). While for maize land productivity doubled between 1993 and 2010, it improved only slowly for rice. Rice yields at around 5 tonnes/ha in 2009 compare favourably with Thailand (2.9 tonnes/ha), India (3.2 tonnes/ha) and Malaysia (3.7 tonnes/ha) but are lower than in China (6.6 tonnes/ha) and Viet Nam (5.2 tonnes/ha). Moreover, growth in rice yields in Indonesia has been much weaker than in all these countries with the exception of China where the rate was almost the same as in Indonesia over the last two decades (FAOSTAT, 2012). A stagnant trend is also observed for soybeans or peanuts. In turn, yields have considerably improved for fruit and vegetables

Figure 1.21. **Crop yields for selected perennial crops, 1990-2010**



Source: FAOSTAT, 2011.

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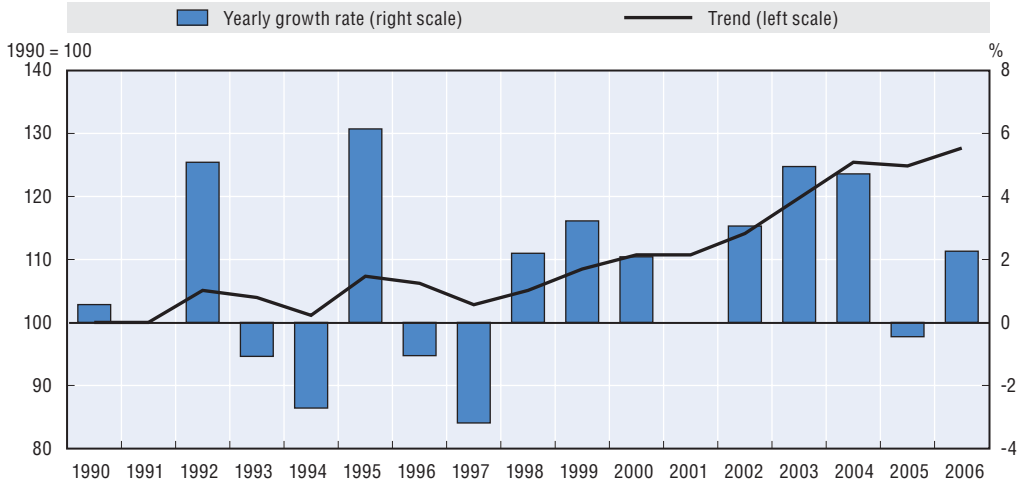
(Figure 1.20), and for some perennial crops (Figure 1.21). Among perennial crops, rubber and coffee have experienced significant increases in yields, particularly in the 2000s, while there was a slightly decreasing trend for cocoa beans and sugar cane. In the case of oil palm fruit, yields have increased only marginally (Figure 1.21). However, there is significant potential to increase palm oil yields without cropland expansion under the condition that smallholders regularly apply fertilisers, plant high-yielding varieties, improve harvesting practices, and large-scale producers improve the management of plantations (USDA, 2009).[1]

The contribution of **Total Factor Productivity** (TFP) to agricultural growth was strong during the "Green Revolution" in the 1960s and 1970s when new technologies and improved crop varieties were widely adopted. During the 1980s, TFP growth slowed but land and labour use expanded and continued fostering agricultural growth (Fuglie, 2010a). In the 1990s, yearly TFP growth rates strongly fluctuated and overall TFP growth was weak, partly reflecting the negative impact of the *El Niño* drought and the Asian crisis (Figure 1.22). In more recent years (2001-06), TFP growth resumed and its rate matched or even exceeded peak levels of the "Green Revolution" period. Between 2002 and 2006, agricultural TFP grew by around 2.9% per year and accounted for around 60% of agricultural growth, resource expansion for the other 40%. Adoption of improved technology, diversification into high-value commodities and expansion of area allocated to perennial crops were the three main factors behind this achievement (Fuglie, 2010a).

It should be noted that growth of TFP has been stronger in agriculture than in the economy as a whole over the last two decades. In the 1990s when agricultural performance was weak and agricultural TFP grew by just 0.99% per year, the economy-wide TFP fell by 0.09% per year. In 2001-09, both rates were positive although the rate of agricultural TFP growth was 3.7% per year compared with 2.1% for the whole economy (Fuglie, 2012 and OECD, 2010).

When compared with other countries in the region, it can be noted that while Indonesia's performance was poor in the 1990s, it has improved significantly in the 2000s

Figure 1.22. **Evolution of total factor productivity in agriculture, 1990-2006**



Note: In 1991 and 2001 the TFP did not change compared with the previous year.

Source: OECD calculations based on Fuglie, 2010a.

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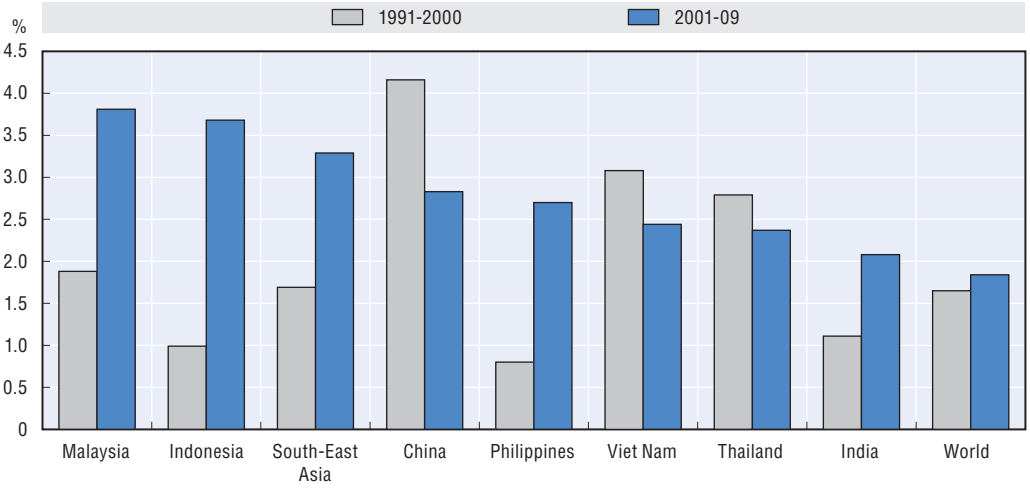
Figure 1.23. **Total factor productivity in agriculture in selected countries, annual growth rates, 1991-2009**



Source: Based on Fuglie, 2012.

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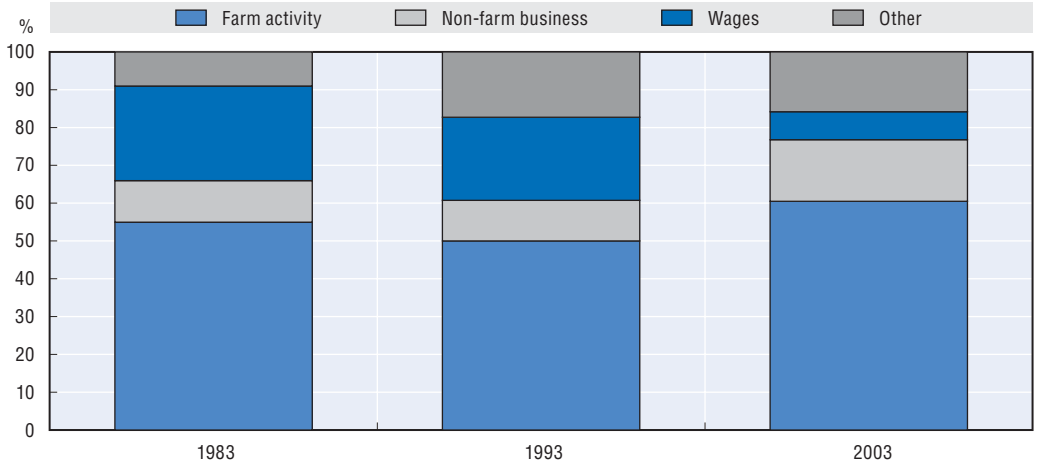
with the annual TFP growth rate at 3.7% second only to Malaysia and above the South-East Asia average at 3.3% per year (Figure 1.23).

Farm incomes and poverty reduction

According to the results from the three most recent agricultural censuses, **incomes per rural household** increased in real terms by 56% during 1993-2003, compared with just 17% during 1983-93. In 1993-2003, the growth was more evident in Java at 70% compared with off-Java at only 52% (Rusastra *et al.*, 2007). The share of agriculture in rural incomes declined from 55 to 50% in 1983-93 but had increased to 60% by 2003 as a result of the Asian crisis. Accordingly, the share of wages fell drastically, but this fall was partly compensated

by an increase in the share of revenues from non-farm businesses (Figure 1.24). More recent surveys provide only partial results and do not allow direct comparisons with the census results. However, it can be concluded that by the end of the 2000s, the share of agriculture in incomes of households producing food crops had fallen to about 50% but remained high at about 80% for households specialised in perennial crops (PATANAS, 2009 and 2010). The next agricultural census is planned for 2013.

Figure 1.24. **Income structure by rural household activity, 1983-2003**



Source: Agricultural Census 1983, 1993 and 2003, BPS.

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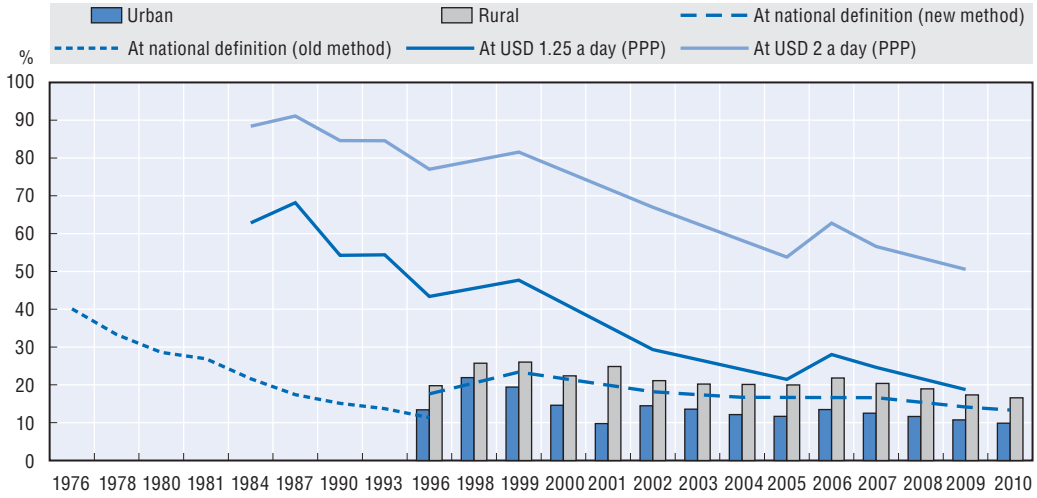
While rural incomes are growing, they remain much lower than incomes of urban households. The ratio of **urban to rural** per capita expenditures varied between 1.6-1.8 in 1999-2009, grew in the recovery period after the Asian crisis, and fell slightly since the mid-2000s (SUSENAS surveys).

The steady economic progress in the period of 1970s until the mid-1990s was accompanied by considerable reductions in poverty incidence. The most commonly applied method to assess the level and evolution of poverty in Indonesia is the percentage of population below the **poverty line** defined by the Indonesian Central Bureau of Statistics (*Badan Pusat Statistik*, BPS). The line consists of two components: Food Poverty Line (FPL), which refers to the daily minimum requirement of 2 100 Kcal/person/day, and the Non-Food Poverty Line (NFPL) which refers to the minimum requirement for household necessities for clothing, education, health, and other basic individual needs. The monetary value of the sum of these two components is defined as the poverty line. A person whose expenditure/capita/month is below the poverty line is considered to be poor. The poverty line is calculated for urban and rural areas and for each province separately. This allows quite detailed analysis of poverty trends across provinces (see below). In 1998, the consumption basket used to estimate the minimum basic needs was enlarged to include greater expenditure on non-food items such as electricity and housing. The only year for which poverty rates were calculated using the two methods is 1996, thus there is a discontinuity in the rates before and after that year (Figure 1.25). The monetary value of the line is adjusted annually to reflect changes in prices. For example, in 2010 the line was at IDR 232 989/person/month for urban population and at IDR 192 234/person/month for rural population. In current USD terms and at annual average exchange rate it was an equivalent

Figure 1.25. **Poverty headcount rates at national and international poverty lines, % of population, 1976-2010**



Note: National data is reported for the years for which poverty rates are available. In 1998, the consumption basket used to estimate the national poverty line was redefined. Data at international definitions of poverty is not available for 2003, 2004 and 2008. For these years, missing data has been replaced by trendlines.

Source: SUSENAS surveys, 1993-2009, BPS; WB WDI, 2012.

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of USD 0.83/person/day for urban population and USD 0.68/person/day for rural population.[2]

The evolution of **poverty incidence shows a massive decline** from 40.1% in 1976 to 11.3% in 1996 according to the old definition of poverty line and to 17.6% if the new definition is applied. However, the Asian crisis temporarily reversed this downward trend with poverty incidence increasing to 23.4% in 1999 (Figure 1.25). The main factors responsible for this increase were the massive increase in prices for most commodities (UNDP, 1999) combined with declining real wages and rising unemployment (Said and Widyanti, 2001; Smith *et al*., 2002). In the 2000s, the reduction in poverty incidence resumed and the rate had fallen to 13.3% by 2010. It can be noted that the fall continued even during the period of food price spikes on international markets in 2007-08 and the global crisis of 2009. This was largely due to strong macroeconomic performance and to higher incomes which allowed to compensate the average consumer for the utility loss caused by the relative increase in food prices (Jones and Kwieciński, 2010). The above trends based on the national definition of the poverty line are confirmed if international definitions are applied. If counted at the World Bank definition of absolute poverty at USD 1.25 at PPP/person/day, the rates are higher, but a fall remains equally impressive from 54% in 1990 to 19% in 2009. If a broader definition at USD 2 at PPP/person/day is applied, the rates are significantly higher, but declined from 85% in 1990 to 51% in 2009 (WB WDI, 2012; Figure 1.25). Thus, even if progress in poverty reduction has been significant, around half of population remains vulnerable to falling under the absolute poverty in case of natural disasters or a deterioration in economic conditions.

As is typical in developing countries, **rural poverty is greater than urban poverty**, both in absolute and relative terms (Figure 1.25). In 2010, the poverty rate in rural areas was by two-thirds higher than in urban areas. Meanwhile, the reduction in the absolute number of the poor in 1999-2010 was largely due to a reduction in the number of the rural poor by 12.4 million people against a reduction of 4.5 million in the number of the urban poor

(SUSENAS Surveys and BPS, 2011). Taking into account that incomes from agriculture still constitute around half of total rural incomes and that as much as 58% of the poor depend on agriculture as the main source of income (BPS, 2011), continued progress in raising farm labour productivity and incomes from agriculture remain important factors to diminish rural poverty.

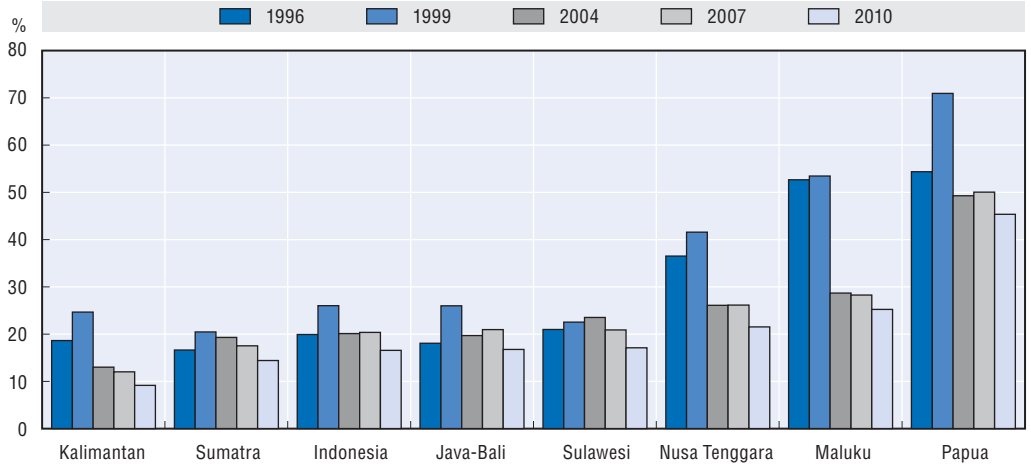
In 1996 **income distribution** was relatively even with the Gini coefficient of 0.36 and only 0.28 in the rural areas. Since then the Gini index has been rising slightly but remained relatively low at 0.37 in 2009, close to the rate in Viet Nam (0.38 in 2008) and much lower than in countries such as Malaysia (0.46 in 2009) or Thailand (0.54 in 2009) (WB WDI, 2011). This indicates that income distribution in Indonesia is more equal than in these neighbour countries.

Poverty rates vary substantially between and within regions (Arirateng, 2008). Densely populated Java and Bali have the highest number of poor people, but poverty incidence is close to the national average largely due to opportunities to earn income from non-agricultural sources. This contrasts with many eastern provinces where livelihoods depend only on harvesting one crop per year on dry land (IFAD, 2007).

All regions, in particular Java, Bali and Papua, saw their rural poverty rates rising from 1996 to 1999 following the Asian crisis and then decreasing steadily until 2010 (Figure 1.26). Even if rural poverty rates in the poorest regions, including Nusa Tenggara, Maluku and Papua, have been declining strongly, they are still high when compared with the national average, particularly so in Papua. There are also striking differences in rural poverty incidence between provinces of the same region. For example, rural poverty incidence in Maluku province (31%) was 2.5 times higher than the rate in Maluku Utara (12%), another province of the same archipelago. The same imbalances are encountered in Sulawesi (BPS, 2011).

In Kalimantan, Sulawesi and Sumatra where land is still available for crop expansion, a larger share of income is derived from high-productivity perennial crops and non-agricultural activities than from food crops. In these regions rural income growth is generally above the

Figure 1.26. **Evolution of rural poverty headcount rates in selected regions, 1996-2010**



Note: 1996 poverty rates are provided at the new definition of the poverty line.

Source: SUSENAS surveys, 1996-2010, BPS.

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national average and rural poverty incidence is lower (ADB, 2006; Figure 1.26). It is found that in the palm oil communities the proportion of poor people is small (less than 10%) and inequality in income distribution low (Gini at around 0.36) (Susila, 2004). In provinces where rural poverty is above the national average, staple crops and low productivity perennial crops still dominate local agriculture (ADB, 2006).

Food consumption

According to the FAO data, there has been a consistent increase in the **daily energy intake** per person from 2 357 kcal in 1990 to around 2 500 kcal in 2000, but a more modest increase in the following decade with dietary energy intake reaching 2 538 kcal in 2007. Daily food consumption per person in Indonesia in 2005-07 was lower than in the United States (3 770 kcal) or in the European Union (3 462 kcal) or in some Asian countries such as China (2 974 kcal), Malaysia (2 908 kcal), Viet Nam (2 769 kcal). It was higher than in India (2 300 kcal) or the Philippines (2 518 kcal) (FAOSTAT, 2011). The proportion of daily calorie intake from plant-based products is higher than in many OECD countries and even that in some other Asian developing countries. Consumption of livestock products is much lower than in high-income countries and even than in neighbouring countries. Dietary patterns also differ across regions of Indonesia (Johnson *et al.*, 2008).

On average, the **proportion of expenditures on food** in total household expenditures has been steadily declining from 63% in 1999 to 51% in 2009 (Table 1.4). The share has fallen for both urban and rural households, but remains much higher for rural households (59%) than for urban households (47%) in 2010 (BPS, 2011). This difference reflects much higher incomes in urban areas.

Despite the importance attached to traditional food culture, **food consumption patterns** have changed over the last two decades in response to income growth and the influence of western style foods. These changes have been consistent with trends observed in many developing countries. Although cereal consumption per person had increased during the Asian crisis to about 190 kg per person as consumers turned to cheaper food, it has declined to below 180 in the second half of the 2000s (Figure 1.27).

Among cereals, rice dominates at 130-140 kg per person. Rice consumption is mostly from own production: the proportion of self-produced rice in consumption ranges from 38-63% in Java to 53-94% in off-Java (ICASEPS, 2008). However, nationally, more than 80% of all Indonesians are **net consumers of rice,** it means that they consume more rice than they produce. Even in rural areas, 62.4% of households do not produce rice and a further 9.3% of households are net rice consumers. Thus, only 28% of rural households are actually net producers of rice (McCulloch, 2008). Further analysis indicates that even farmers are dominantly net consumers (Table 1.5). Around two-thirds of them consume more rice than produce as only 55% of agricultural households are rice farmers, and more than one-quarter of rice farmers consume more rice than they produce. This is particularly true for poor rice producers in rural areas as one-third of them do not produce enough to meet their annual consumption needs (Table 1.5).

As consumption of meat, fish, fruit, and vegetables increased (Figure 1.27), the contribution of cereals to per person daily calorie intake declined from 58% in 1999 to 49% in 2009 (Table 1.6). Fruit consumption doubled from 1990 to 2007. Poultry meat consumption per person more than doubled and became the second most important source of protein intake, next to fish (Bond *et al.,* 2007). Consumption of other types of meat

Table 1.4. **Percentage of monthly average per capita expenditure by commodity group, 1999-2009**

Commodity group	1999	2009
Food items		
Cereals	16.8	8.9
Tubers	0.8	0.5
Fish	5.6	4.3
Meat	2.3	1.9
Eggs and milk	2.9	3.3
Vegetables	6.2	3.9
Legumes	2.3	1.6
Fruit	2.1	2.1
Oil and fats	3.0	2.0
Beverages	3.1	2.0
Spices	1.7	1.1
Miscellaneous food items	1.3	1.3
Prepared food	9.5	12.6*
Alcoholic beverages	0.1	-
Tobacco and betel	5.3	5.3
Total of food	62.9	50.6
Non-food items		
Housing and household facility	15.9	19.9
Goods and services	10.7	17.5
Clothing, footwear and headgear	5.2	3.3
Durable goods	2.9	5.9
Taxes and insurance	0.9	1.4
Parties and ceremony	1.5	1.4
Total of non-food	37.1	49.4

Note: (*) includes alcoholic beverages.
Source: SUSENAS Surveys, Module Consumption, 1999, 2002-09, BPS.

Table 1.5. **Net rice consumers, %**

	Households	Rice farmers	All farmers	All indonesians
Urban	Non-poor	28.5	75.9	95.5
	Poor	25.3	67.3	85.8
	All	27.7	73.7	94.5
Rural	Non-poor	25.2	63.2	72.3
	Poor	33.2	68.1	72.1
	All	26.6	64.2	72.3
Total	Non-poor	25.6	64.8	82.7
	Poor	31.8	68	76.5
	All	26.8	65.4	81.9

Note: Poor/non-poor as defined by the national definition of poverty line. Farmers are those in households where the head of the household works in agriculture. Rice farmers are those in households that produced rice in 2004. Urban farmers and urban rice producers are included as a non-negligible number of urban households produce rice.
Source: Reproduced from N. Mc.Culloch, 2008.

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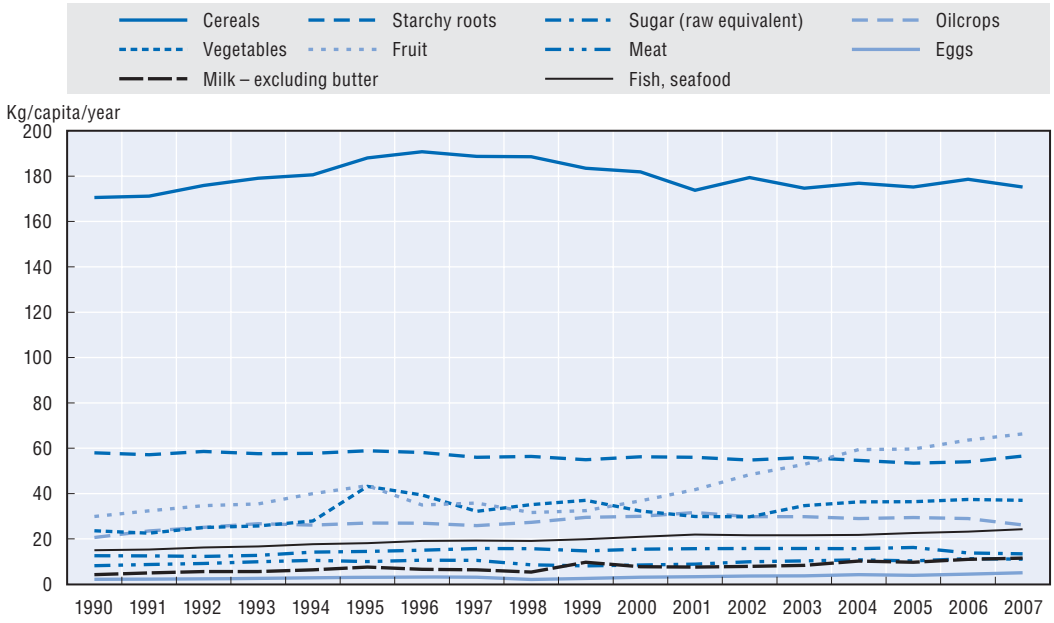
remains very low, but for bovine meat it tends to increase. Milk consumption increased, but remains very low (Figure 1.27). For example, while dairy products consumption is at about 4 kg/per capita, in India and China it is at about 11-12 kg and in neighbouring Malaysia 23 kg (Masterplan, 2011). One of the reasons for the still very low livestock products' consumption in Indonesia are their high prices resulting from various mostly non-tariff measures applied on imports, driving domestic prices above those on international

Figure 1.27. **Food consumption per capita in Indonesia, 1990-2007**



Source: FAOSTAT, 2011.

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Table 1.6. **Average daily per capita consumption of energy by commodity group, 1999-2009 (%)**

Commodity	1999	2009
Cereals	57.7	48.8
Tubers	3.3	2.1
Fish	2.0	2.3
Meat	1.1	1.9
Eggs and milk	1.3	2.7
Vegetables	1.8	2.0
Legumes	2.8	2.9
Fruit	1.8	2.0
Oil and fats	11.1	11.9
Beverages	5.6	5.3
Spices	0.8	0.8
Miscellaneous food items	1.6	3.1
Prepared food	9.8	14.5
Total	100	100

Source: SUSENAS Surveys, Module Consumption 1999, 2002-09, BPS, 2011.

markets (Sections 2.3 and 2.4). In turn, rising incomes, urbanisation, and greater participation in the workforce have increased the use of ready-prepared meals (Johnson *et al.*, 2008). Accordingly, the share of prepared food in total food expenditures increased from 10% in 1999 to 13% in 2009 and the share of cereals declined from 17% to below 9% in over the same period (Table 1.4).

Despite general improvements in food availability, health and social services, **hunger and malnutrition** exist in some form in almost every district, especially among the poor. The percentage of households classified as food insecure still exceeds 30% in selected provinces of Kalimantan, Maluku and Papua (Hardinsyah, 2011). Undernourishment was estimated at around 13% in 2007, a fall from 15% in 2002. This rate is lower than in

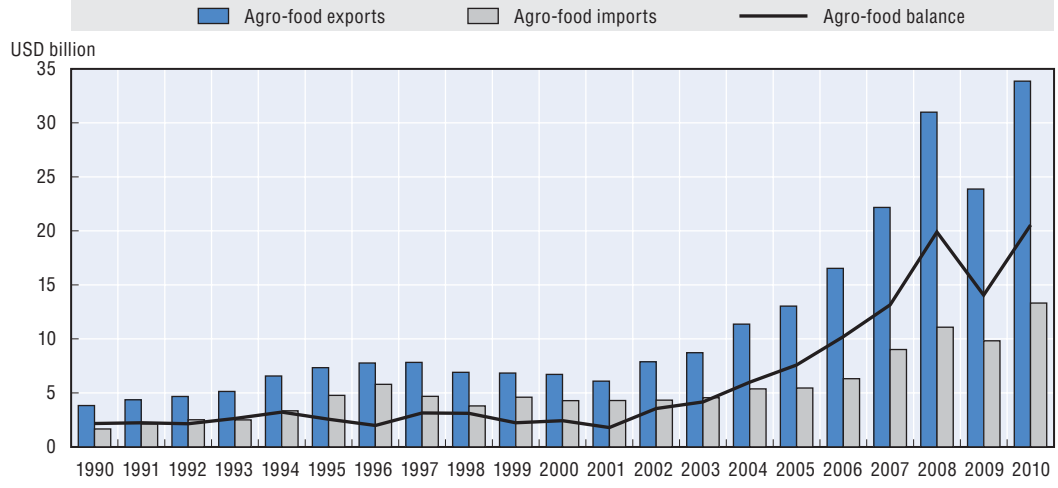
neighbouring countries such as Thailand (16%) and the Philippines (15%), but higher than in Viet Nam (11%) and China (10%) (WB WDI, 2011). Malnutrition affects all age groups and, at present, includes a wide-range of nutrient-related deficiencies such as: intra-uterine growth retardation, protein energy malnutrition, iodine deficiency disorders, vitamin A deficiency, iron-deficiency anaemia.

While Indonesia has significantly reduced the prevalence of **underweight** among under-five children, still 21% of rural children and 15% of urban children were considered underweight in 2010 (Hardinsyah, 2011). Moreover, the prevalence of stunting children under five was as high as 37% in 2007 and their total number at 7.6 million was the fifth largest in the world (UNICEF, 2009). At the other end, health problems associated with excess consumption related to higher incomes are becoming an increasing concern. In 2010, 27% of women and 17% of men were considered **overweight** and the rates tend to increase (Hardinsyah, 2011). The increasing consumption of prepared food partly explains this tendency for over-nutrition (Ngwenya and Ray, 2007).

Agro-food trade flows

Indonesia has constantly been a net exporter of agro-food products during 1990-2010 (Figure 1.28).[3] In the post-Asian crisis period, rupiah devaluation helped boost agricultural exports, but over the last decade the explosion of palm oil exports has become the main contributor to the growing positive net balance. Since 2004, the **value of agro-food exports** has represented more than the double the value of agro-food imports. The value of exports decreased in 2009 in the context of the global financial crisis, but increased again in 2010. Palm oil and natural rubber alone accounted for almost 60% of total agro-food exports in 2008-10. Even if the trade performance of other commodities is much poorer, the agro-food sector shows on average a strong integration with international markets on the export side. It is much weaker on the side of imports. The ratio of agro-food exports to the value of agricultural GDP stood at 31% in 2010 and that of agro-food imports at 12% compared with averages of 22% and 19% respectively for the whole economy (Table 1.7).

Figure 1.28. **Indonesia's agro-food trade, 1990-2010**



Note: Agro-food trade includes fish and fish products as well as natural rubber, but does not include forest products.
Source: UN, UN Comtrade Database, 2011.

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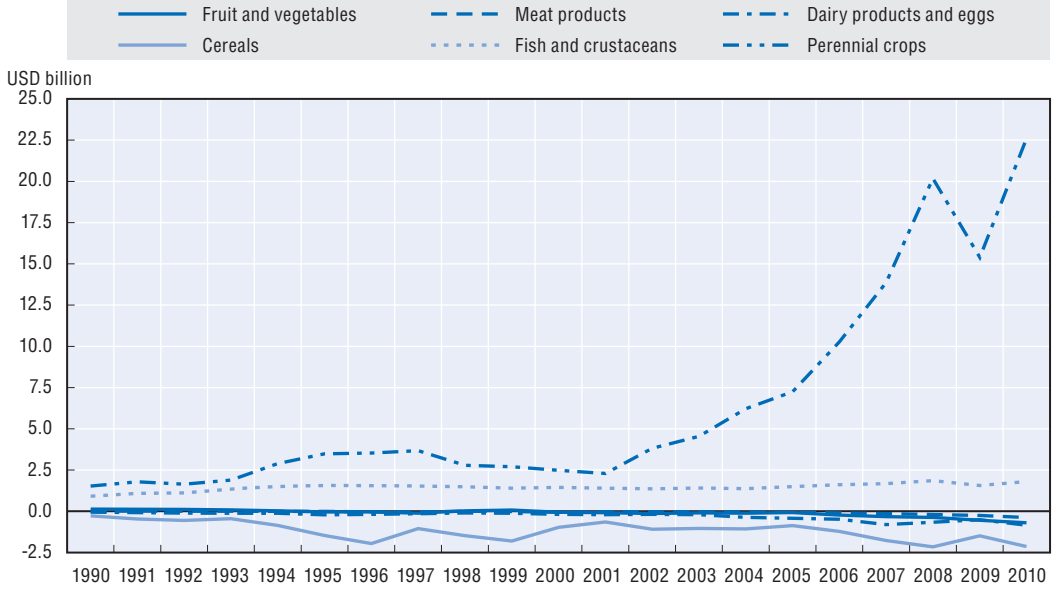
Table 1.7. **Agro-food sector's integration with international markets, 1990-2010**

		1990	1995	2000	2005	2007	2008	2009	2010
Agriculture, Gross Domestic Product (GDP), current prices	USD billion	22.2	34.6	25.7	37.5	59.3	73.9	82.5	108.4
Agro-food exports	USD billion	3.8	7.3	6.7	13.0	22.2	31.0	23.9	33.9
Agro-food imports	USD billion	1.7	4.8	4.3	5.5	9.0	11.1	9.8	13.3
Agro-food trade balance	USD billion	2.2	2.6	2.4	7.6	13.2	19.9	14.1	20.5
Coverage degree of imports by exports	%	231	154	157	239	246	279	243	254
Share of agro-food trade in total trade									
Exports	%	15	16	11	15	19	23	20	21
Imports	%	8	12	13	9	12	9	10	10
Ratio of agro-food exports to agricultural GDP	%	17	21	26	35	37	42	29	31
Ratio of agro-food imports to agricultural GDP	%	7	14	17	15	15	15	12	12
Ratio of total exports to total GDP	%	22	22	38	30	26	27	22	22
Ratio of total imports to total GDP	%	19	20	20	20	17	25	18	19

Source: OECD calculations based on UN, UN Comtrade Database, 2011; WB WDI, 2011.

While **net export** of perennial crops is growing, it is stagnating or turns to growing net import for other commodities (Figure 1.29). The trade balance for cereals has had a small deficit since 1990, due largely to growing imports of wheat from 1.7 million tonnes in 1990 to 4.8 million tonnes in 2010. There was a small trade surplus for fruit and vegetables in the 1990s, but this turned into a deficit in the 2000s due to, among other factors, weak marketing linkages between the expanding modern retailing sector and small-scale producers. The **net import** of livestock products (meat, dairy and eggs) is small but grew in the 2000s. Overall, this trade pattern might reflect Indonesia's comparative advantage in exports of tropical perennial crops that benefit from advantageous natural conditions, but a comparative disadvantage for land-intensive commodities such as cereals and selected types of livestock that require an adequate feed base and investment. Indonesia also benefits from advantageous conditions for the development of fish production, but there are a number of challenges that do not allow the sector to tap its export potential (Box 1.3).

Figure 1.29. **Net trade in basic groups of agro-food commodities, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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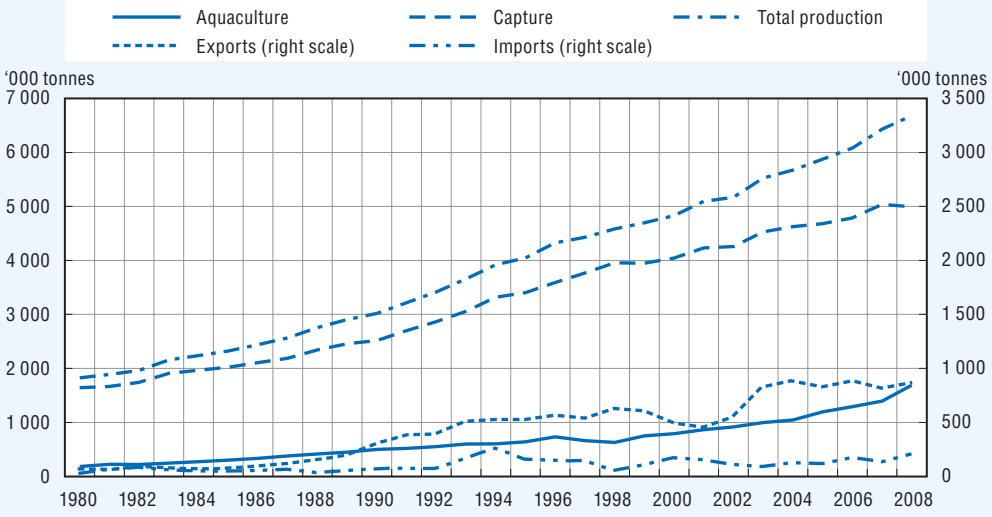
Box 1.3. **The role of fisheries in the Indonesian economy**

With about 3.1 million km^2 of marine territory and 81 000 km of coastline, second only to Canada, Indonesia has good conditions for the development of fisheries production, both open sea capture and aquaculture. In 1980-2008, its fisheries production was increasing at an average rate of 4.7% per year. In 2008, Indonesia produced 6.7 million tonnes of fish, including 5 million from capture and 1.7 million from aquaculture (Figure 1.30). Currently, Indonesia is the fourth major fish producer in the world, after China, India and Peru.

Figure 1.30. **Indonesia's fisheries production and trade, 1980-2008**



Source: FAO, Fisheries and Aquaculture Information and Statistics Services, 2011.

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Fishery activities in Indonesia are labour intensive and provide employment for 4.7 million persons, including 2.3 million fishermen and 2.4 million fish farmers. In total, they accounted for almost 5% of overall employment and contributed around 3% to Indonesia's GDP in 2010. Indonesia is the world's tenth largest fish exporter, but export performance has weakened in recent years. In terms of quantity, it has stabilised at about 0.8-0.9 million tonnes since 2003, meaning that the share of exports in production declined from 15% in 2003 to 13% in 2008. This is partly due to growing domestic consumption, but also to challenges from disease infestation at the farming stage and from strict sanitary and environment-related standards requested by key importers such as the United States, Japan and the European Union.

Indonesia has been managing fisheries resources based on total allowable catch (TAC). Overall, most marine resources in the western part of Indonesian waters have been exploited intensively, while most resources in the eastern part still have room for development. In turn, given the vast amount of Indonesia's marine and inland waters, aquaculture has good prospects for expansion. Its development accelerated in the 1980s with the expansion of freshwater and brackish water aquaculture, while mariculture started to develop in the 1990s. High rates of aquaculture growth at 8.3% annually in 1980-2008 were achieved mainly due to area expansion, technological transfer, innovation and suitable quality fish seeds. While the sector currently accounts for around 25% of total fish production in Indonesia, it is likely to surpass the importance of marine capture fisheries in providing high quality animal protein, employment and export earnings.

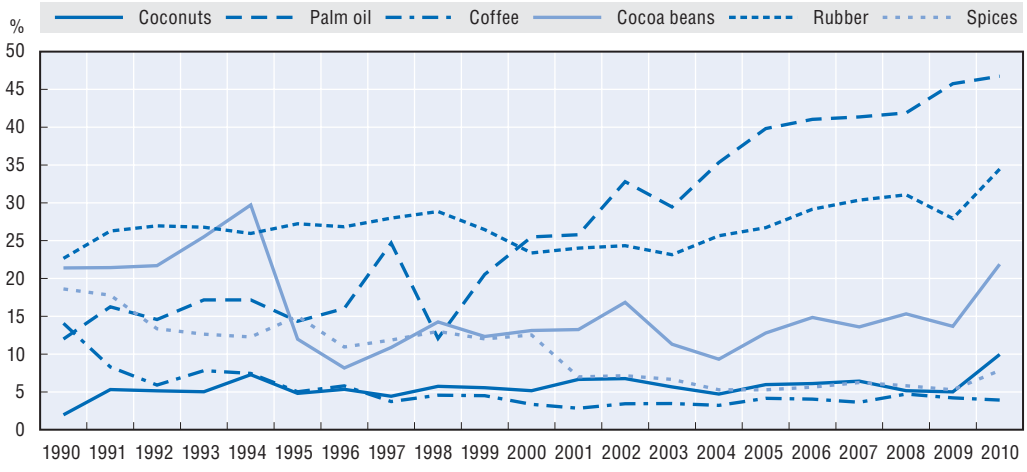
Box 1.3. **The role of fisheries in the Indonesian economy** *(cont.)*

Major challenges for the Indonesian fisheries sector are overfishing in both marine and inland fisheries waters, low incomes and living standards of fishers and fish farmers, weak management practices, degradation of the coral reef and other marine environment, partly due to climate change, and stricter requirements for labelling, packaging, product safety, traceability and green/eco-labelling.

Source: FAO, 2011a; FAO, 2011b; FAO, 2011c.

The **dominant export products** are currently perennial crops such as palm oil, natural rubber, cocoa beans, coffee and coconut. With the exception of coconut, mostly produced for the domestic market, their production is driven by external markets with the share of exports in production ranging from 51% for cocoa beans to 79% for natural rubber in 2007-09. This export orientation has built Indonesia's strong position on international markets as shown by its share in global exports of palm oil close to one-half, that of natural rubber at around one-third and that of cocoa at one-fifth in 2010 (Figure 1.31). Indonesia is also one of key exporters of spices, in particular of nutmeg, cinnamon, vanilla, pepper and cloves. However, its share in world's exports of spices fell from 15-20% at the beginning of the 1990s to slightly above 5% in the second half of the 2000s (Figure 1.31) and their relative importance in Indonesia's total agro-food exports declined from 4% to around 1% over the same period (UN Comtrade Database).

Figure 1.31. **Share of Indonesia in world's exports of selected commodities, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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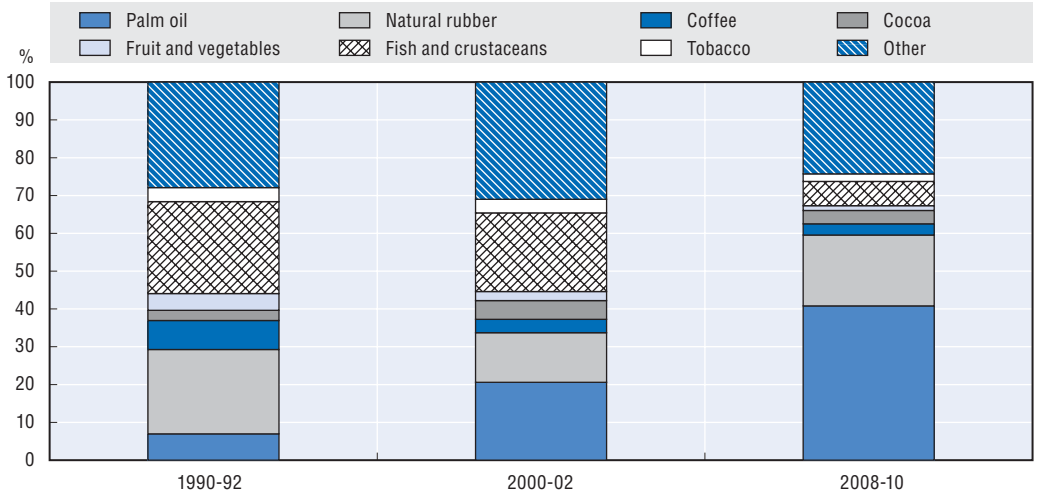
The relative importance of various commodities in **agro-food exports has evolved over time** (Figure 1.32). In the early 1990s, the key agro-food export product was fish and crustaceans at almost one-fourth of the total, followed by natural rubber and coffee. Palm oil exports were at 7% of the total. By the end of the 2000s, the share of palm oil exports had increased to above 40%, that of natural rubber remained strong at almost 20%, and that of fish and crustaceans had collapsed to 6% only. The value of fish and crustaceans exports

Figure 1.32. **Composition of agro-food exports, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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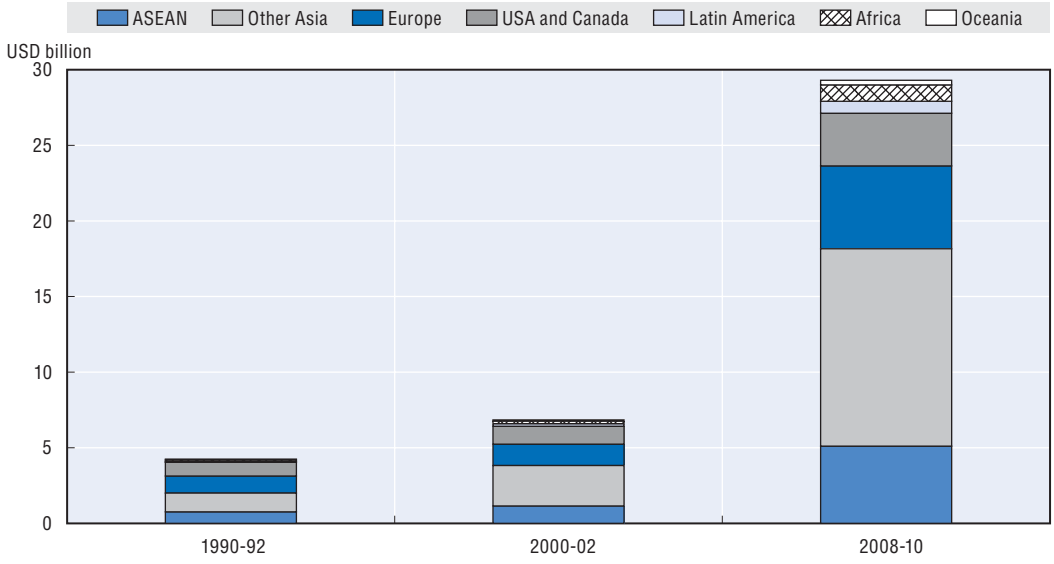
had increased, but much less so than that of perennial crops which resulted in a massive fall in the share.

Indonesia is the **world's largest exporter of palm oil** with more than 70% of its production exported. The main export destination in 2007 was Asia with a share of 73%, followed by Europe at 19% and Africa at 7%. The main destination countries are India, the Netherlands, Malaysia, Italy, Singapore, Germany and China. Exports to India accounted for 46% of the total in 2006-10.[4] Partly due to increased labour costs in Malaysia, Malaysian companies have actually shifted plantations to Indonesia, which explains the large palm oil share exported back to Malaysia (TradeData, 2010). Indonesia is the European Union's most important supplier of palm oil, representing more than half of its palm oil imports in 2009. Most of the imported palm oil is used for food products and cosmetics, but the share used for biofuels has been increasing (EC, 2011). However, the European Union is manifesting concerns with regard to the sustainability of palm oil production in view of the deforestation and the damage to the local environment caused by the expansion of the plantations (Section 3.4).

Destination countries for agro-food exports are mainly neighbouring Asian countries, with almost two-thirds of the total exported to these countries in 2008-10 compared with around half in 1990-92. Within this group, trade liberalisation within the ASEAN (Section 2.3) helped expand trade but roughly at the same rate as for other partners, thus the share of the group in total Indonesian agro-food exports remained almost unchanged at 17-19%. Driven by growing exports of palm oil, India is by far the most important export market accounting for 15% of the total. It is followed by China at 12% and the Unites States at 11% (Figures 1.33 and 1.34). The European Union is an important destination, but its share is small compared with the size of its agro-food market. Despite competitive prices, the lack of experience relative to non-Asian markets has reduced the overall competitiveness of Indonesian firms in these markets (EC, 2011).

While agro-food exports are dominated by a few commodities, **agro-food imports** are becoming increasingly diversified (Figure 1.35). In 1990-92, the share of the three key imported commodities (wheat, cotton and soybeans) was above 60% of the total, but by

Figure 1.33. **Indonesia's agro-food exports by region, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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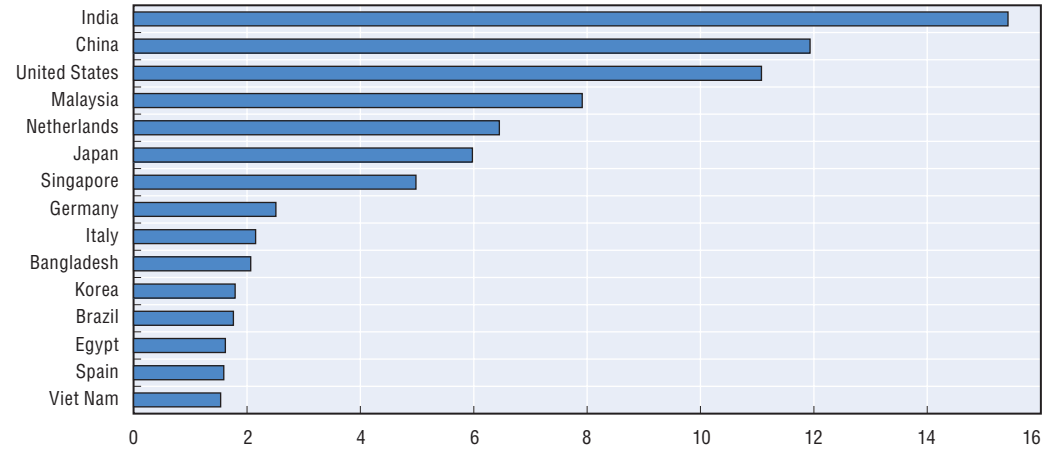
Figure 1.34. **Main export markets for Indonesia's agro-food products, 2008-10 average**

As per cent of total agro-food exports



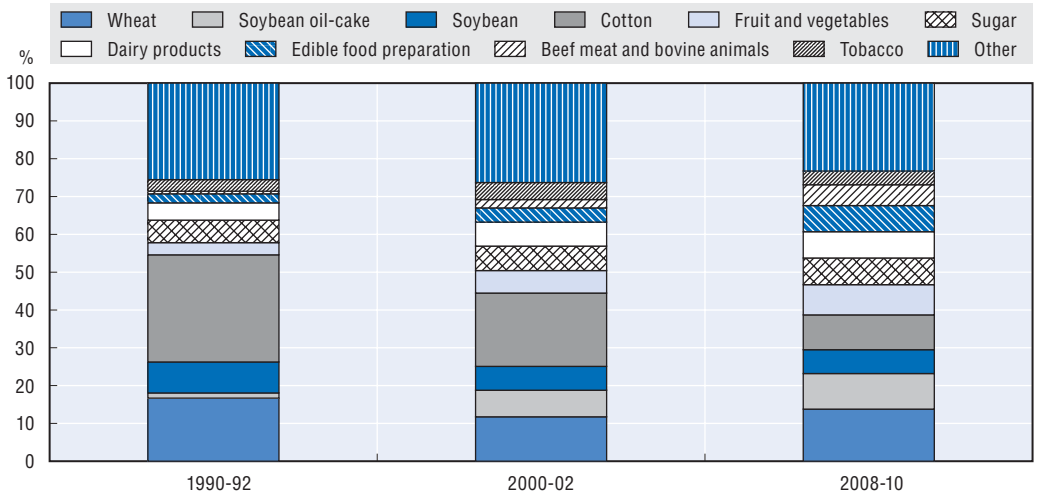
Source: UN, UN Comtrade Database, 2011.

StatLink http://dx.doi.org/10.1787/888932649907

2008-10 their share had shrunk to below 30%. The share of cotton lint imports decreased dramatically from 28% in the early 1990s to 9% in 2008-10, largely due to the decline of the textile industry over the last decade. The industry's competitiveness was undermined by ageing machinery, rising labour and energy costs, and labour disputes problems. Moreover, Indonesia faces fierce competition from China, India, Pakistan, Bangladesh, Viet Nam and Thailand which have invested massively in new machinery and technologies (Chongbo, 2004). Soybean imports increased in quantitative terms, but their share declined by the end of the 2000s. In turn, imports of soybean oil cake – a by-product of the oil processing industry and used as an animal feed – expanded being driven by the demand from the livestock sector. The shares of a large number of other commodities tend to increase, in particular of dairy products, beef, prepared food, selected fruit and vegetables (such as garlic), and sugar

(Figure 1.35). This stronger demand for more diversified food results from growing incomes and urbanisation.

Figure 1.35. **Composition of agro-food imports, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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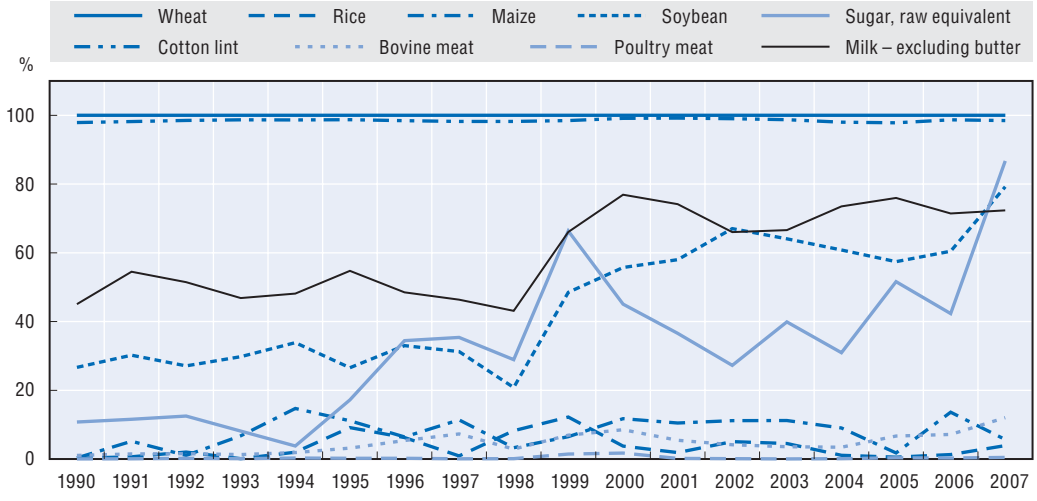
The relative **importance of imports in total domestic use** of selected commodities is high, and in recent years has been at 100% for wheat (not produced in Indonesia), 98-99% for cotton lint, 60-80% for soybean and dairy products, 40-90% for sugar and around 10% for bovine meat and maize. In turn, the shares for rice and poultry are small and fluctuated between 0-10% in the 2000s (Figure 1.36). It can be seen that while Indonesia is close to its 2014 self-sufficiency targets (Section 2.1) for rice and maize, it is increasingly less likely to achieve this target for beef, and it is practically impossible for sugar and soybean for which

Figure 1.36. **Share of imports in Indonesia's domestic use of selected commodities, 1990-2007**



Source: FAOSTAT, 2012.

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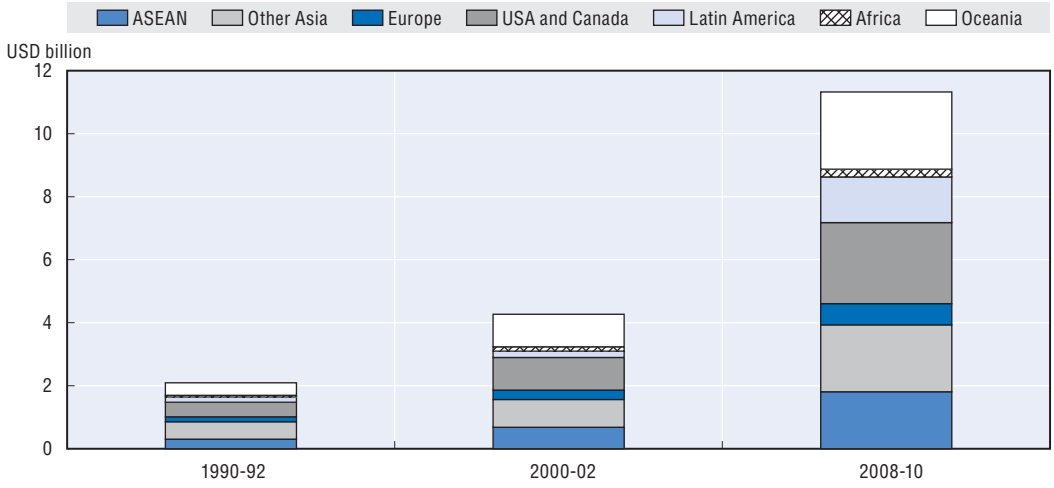
the relative importance of imports in total domestic use is high and tends to increase (Figure 1.36).

The United States and Australia are the major **suppliers of Indonesia's agricultural imports** (Figures 1.37 and 1.38). Australia is the top supplier of wheat, dairy products, vegetables and live cattle and together with New Zealand accounted for one-fifth of total agro-food imports in 2008-10. The United States is the largest supplier of soybeans, but their market share is declining in the face of increased competition from South America, particularly Brazil (Agriculture and Agri-Food Canada, 2010a). China is also becoming an increasingly significant supplier of fresh fruit and vegetables, selected processed food items and, in particular, garlic. Thailand and other South East Asian countries as well as India and Pakistan are also important fresh product suppliers. Canada is a supplier of

Figure 1.37. **Indonesia's agro-food imports by region, 1990-2010**



Source: UN, UN Comtrade Database, 2011.

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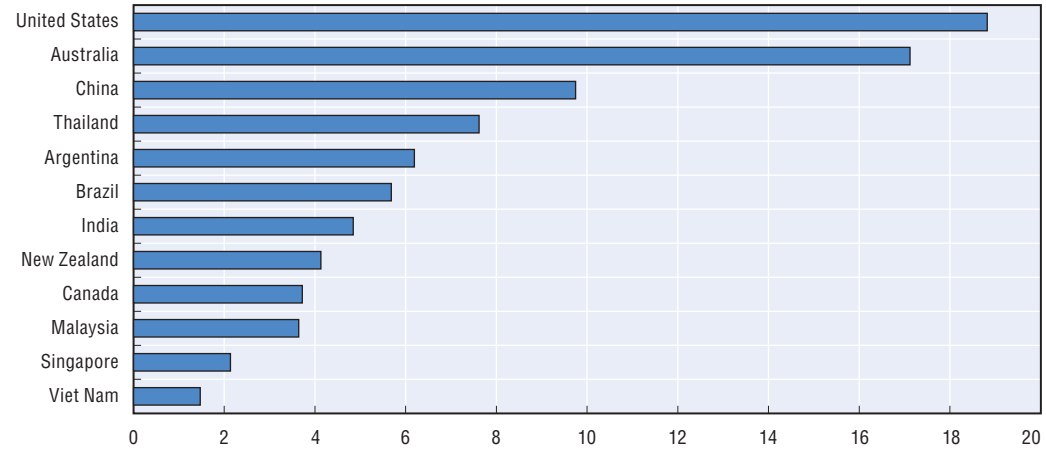
Figure 1.38. **Main suppliers of agro-food products to Indonesia, 2008-10 average**

As per cent of total agro-food imports



Source: UN, UN Comtrade Database, 2011.

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wheat, potatoes, cattle feed and food preparations. Among European countries, the Netherlands and Denmark are important suppliers of milk products.

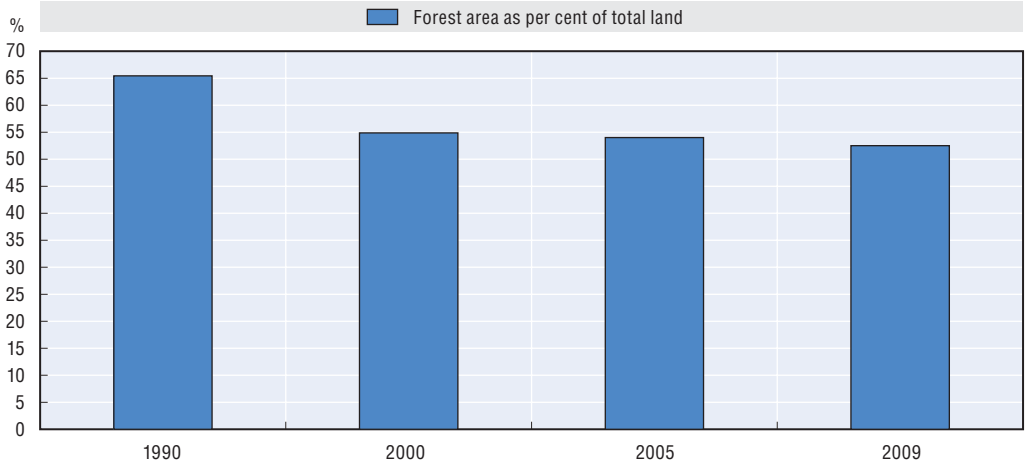
Agro-environmental situation

Rapid economic growth combined with rising population density leads to **massive pressures on the environment**. The Environmental Performance Index positioned Indonesia 134th of 163 countries in 2010 and only 12th among the 13 Southeast Asian countries in terms of environmental sustainability and performance (ADB, ILO and IDB, 2010). In particular, palm oil sustainability is considered as a major agro-environmental issue as the expansion of the palm oil plantations has contributed to the destruction of natural forests, increased carbon emissions and endangered biodiversity (MoE, 2010).

Deforestation, particularly through peat fires, makes Indonesia the third largest emitter of greenhouse gases (World Bank, 2010). It leads to loss of biodiversity, soil erosion, desertification, flooding, and affects local communities whose existence depends critically on forest resources. The primary causes of deforestation include: illegal logging, conversion to agricultural land, forest fires and mining. In addition, a number of regulatory and institutional issues have facilitated deforestation during the last two decades, in particular: unclear roles and responsibilities of different levels of government under the decentralisation process; land tenure and access issues by local communities versus private companies; inappropriate land pricing and rents; as well as weak enforcement of existing laws and protocols at the national and local levels (ADB, 2005).

The annual rate of deforestation decreased from 1.9 million ha in the 1990s to 0.3 million ha in the first half of the 2000s, but then increased again to 0.7 million in the second half of the 2000s (FAOSTAT, 2011). As a result, forest area as per cent of total land area declined from 65% in 1990 to 53% in 2009 (Figure 1.39). For further discussion on deforestation and forest management see Section 3.4.

Figure 1.39. **Forest area in Indonesia, 1990-2009**



Source: FAOSTAT, 2011.

StatLink http://dx.doi.org/10.1787/888932650002

Floods and soil erosion are among the most serious problems resulting from deforestation. Uncontrolled clearing of forests has led in many cases to the degradation of the carrying capacity of upstream areas of water catchments. Moreover, land clearing

within flooding areas, water catchment areas and riverbanks has resulted in reduced infiltration capacity, changes in river morphology, and reduced carrying capacity of streams, thus actually increasing the risk and frequency of flooding (MoE, 2011). Soil erosion from upland deforestation aggravate the problem of siltation downstream and into the sea. Silt deposits cover and kill coral reefs. Due to intensive rice cultivation practices, particularly in irrigated land, there is a tendency of declining soil quality in rice producing provinces. Heavy application of inorganic fertilisers during long period of time resulted in worsened soil structure and in water pollution, in particular in Java (ICASEPS, 2008). In swampy land, the problem lies mainly in the high level of acidity due to improper land and water management practices.

Indonesia held approximately 6% of the world's and 21% of the Asia and Pacific region's **freshwater reserves** in 2004 (ADB, ILO and IDB, 2004). However, it struggles to supply enough water for its industry and agriculture, and adequate clean water for human consumption. By 2020, Indonesia is predicted to face spatially scarce water resources, particularly in Java, Bali, and Nusa Tenggara (MoA, 2011). Water quality is also becoming an important issue due to the pollution caused by manufacturing and mining activities, waste from household activities, and the use of chemicals in agriculture (fertiliser, pesticides and herbicides).

Water pollution is also related to palm oil production. A range of waste materials is generated during the production of palm oil. The palm oil mill effluent (POME) has been responsible for the contamination of rivers as mills dumped excess liquid waste material instead of using an efficient treatment of the waste and effective disposal techniques. The POME is generated mainly during oil extraction as well as washing and cleaning processes in the mill (Rupani *et al.*, 2010).

In 2000 **water intensity in agriculture** (for temporary and permanent cropland) was estimated at 2 250 m^3 per ha per year, which is higher than in Malaysia (736 m^3/ha/year) and the Philippines (1 981 m^3/ha/year) but much lower than in Thailand (4 300 m^3/ha/year) and Viet Nam (5 974 m^3/ha/year) (WRI, 2011). Many of the country's water resources are exploited unsustainably. Rivers are often used for wastewater disposal from industries and waste from households, and intensive extraction of groundwater had resulted in sea water intrusion to aquifers. Of the 33 rivers monitored in 2008, 54% were polluted (ASEAN, 2009).

Agriculture is one of the sources of **air pollution** through the release of toxic-gas component to air, like methane along different others. The total emissions of methane from paddy rice field tend to increase, and were estimated at 1.5-1.8 million tonnes in 2008. The livestock sector and the application of urea fertiliser also produce emission of methane, at around 0.9 million tonnes per year each. Land clearing and biomass burning have not only been a major source of carbon emission, but also raised the issue of fog and smoke in the air, especially by perennial crops farming in Kalimantan and Sumatra. The government has consequently enforced a law to prohibit land clearing by burning on estate plantations and introduced an early warning system for detecting fires in major fire-prone area (MoA, 2011).

Indonesia hosts one of the greatest **biodiversity** in the world. It is endowed with nearly 10% of the world tropical forest and has the most extensive area of coral reefs. In 2009, however, Indonesia had one of the highest numbers of threatened species within the ASEAN region (close to 1 000), much more than Viet Nam or Thailand. The loss of biodiversity species is closely linked to forest loss and, in the case of marine species, to over-exploitation of coastal resources. Deforestation alone has destroyed the habitat of

many species and is threatening the extinction of many others. In response, Indonesia has established the National Committee on Natural Genetic Resource to formulate policy on protecting and utilising the biodiversity resources. The Committee built an international and national network for biodiversity development (MoA, 2011).

One of the richest areas of biodiversity Indonesia is found along the coastal zone, and includes coral reefs, mangrove swamps, sea grass beds, lagoons, and estuaries. Mangroves constitute important buffers to flooding, storm surges, and sea level rise. Agricultural expansion, urbanisation and increased economic activity along the coast affect this ecosystem negatively. More than half of the national fishery harvest comes from capture fisheries in coastal areas. The marine ecosystem is being endangered due to inland activities that have increased the discharge of sediments onto the reefs, pollution from agricultural and industrial activities, and unsustainable fishing practices such as blast fishing and the use of the deadly poison sodium cyanide in many locations. From 3.5 million ha of mangrove in 1988, only 1.2 million ha were still reported in 2007 (ADB, ILO and IDB, 2010).

Climate change already has significant impacts. Analysis of long-term historical climate data suggests that maximum and minimum temperatures have steadily increased and the average is predicted to increase by further 0.8°C by 2030. Significant decreases and increases in rainfall have been detected in different regions. Monsoon onset has also changed in many parts of Indonesia with increasing delays in some regions, particularly in Java. The wet season has tended to shorten, especially in Java, Kalimantan and South Sumatra. A 30-day delay in monsoon onset is very likely to occur more frequently in 2050 compared with the present, and the length of the rainy season will probably shorten (Naylor *et al*., 2007; MoE, 2010; Oktaviani *et al*., 2011).

Changes in spatial rainfall patterns, the length of the wet season, and the increasing inter-seasonal variability could have negative implications for the agriculture sector. It is estimated that the strongest negative impact will be on rice production (Oktaviani *et al*., 2011). The rice-rice system, which is the current cropping pattern used in most of the rice growing areas, may no longer be the most effective production system in the near future. As the second planting depends heavily on irrigation water, under extreme drought years this might become increasingly limited and lead to major production losses. Increases in temperatures, changes in rainfall pattern and in the length of the seasons may also lead to the development of crop pests and diseases. A one-meter sea level rise due to global warming could flood 405 000 ha of coastal lands, particularly the northern coast of Java, the eastern coast of Sumatra, and the southern coast of Sulawesi (Oktaviani *et al*., 2011). It will result in flooding of agricultural land, including rice fields positioned close to coastal areas, but also in the increased salinisation of coastal aquifers (MoE, 2010 and Oktaviani *et al*., 2011).

The impact of climate change on coastal areas and fisheries is likely to be significant. The increase in sea temperatures during *El Niño* years has started to cause coral bleaching. In 1997-98, this affected the coastal areas of East Sumatra, Java, Bali and Lombok. Coral bleaching has significant impact on fish populations since corals provide the habitat for numerous species of reef fish. Damage to reefs increases the risk of coastal erosion. Rising ocean temperatures are likely to inhibit the growth of phytoplankton, which many important species of fish depend on for feeding. Thus, it becomes probable that some fish species will migrate (MoE, 2010).

1.3. Structural change in the agro-food sector

This section analyses structural changes in the agro-food sector including land tenure issues, changes in land use and farm size, and competition in the agro-food industries.

Agricultural land tenure system and policies

The 1945 Constitution of Indonesia provides that all land, water, air space and natural richness are controlled by the State and must be used to assure the welfare of the people. The most important piece of legislation regulating land rights is Law 5/1960, known as **the Basic Agrarian Law** (BAL) (Winoto, 2009). Under the BAL, land controlled by the State on behalf of the people is available for distribution to all citizens under various forms of land tenure. Although initially the BAL applied to all land in the country, it ceased to be applied to forests when the Basic Forestry Law (Law 5/1967) was adopted in 1967, later replaced by a new Forestry Law in 1999. Forestry land is now held under the jurisdiction of the Ministry of Forestry (USAID, 2010).

Established in 1988, **the National Land Agency** (*Badan Pertanahan Nasional*, BPN) was responsible for the administration of all non-forest land. Activities of the BPN were grouped under four areas stipulated in the BAL: land reform, land use, land titling, and land survey/registration (Heryani and Grant, 2004). Under Law 22/1999, land affairs were devolved to local governments (USAID, 2010), but BPN was maintained as a central agency with a role limited to legislation, performance standards, uniform land registration procedures, training and the provision of some land-related services (Heryani and Grant, 2004; Hendriatiningsih *et al.*, 2009).

The BAL defines the fundamental **types of land rights** that may be held by both private individuals and entities and describes the role of the State in regulating and implementing these rights (USAID, 2010).[5] While foreigners are not eligible for the right of land ownership (*Hak milik*), they can be granted some other types of land use rights as enumerated below. The main objective of the BAL was to remove the legal dualism between colonial law over land and customary right to land (*Hak ulayat*) based on communal land rights and land rights exercised by individuals with the consent of the community (Penot *et al.*, 2002). *Hak ulayat* law principles vary widely across regions (USAID, 2010). The BAL explicitly acknowledges that Indonesia's agrarian law is derived from *Hak ulayat*. However, to obtain *ulayat* rights, several conditions must be met: *ulayat* must not conflict with national interests or other regulations set out in the BAL; the land must be under the ownership of a recognised traditional community (*adat*) and its boundaries must be well defined and understood; *ulayat* rights can only be registered and certified after having been rendered into one of the formal land rights recognised in the BAL.

The BAL sets seven forms of land rights that can be registered, including the rights, restrictions and responsibilities of the tenure holder.[6] These land rights can be primary titles derived directly from the State or secondary titles granted by other title holders (BAL, 1960):

- ***Hak milik (right of ownership):*** It is the strongest land right. It is unlimited in time and can be sold, gifted, exchanged, bequeathed, and mortgaged. Only Indonesian citizens and special bodies designated by the government, e.g. government banks, co-operatives and religious and social bodies, can hold this right. The right should be registered and the holder is given a certificate as evidence of his title. Subsequent government approval is not necessary for sale or mortgage of land if the buyer is an Indonesian citizen. However, this approval is necessary if the buyer is a legal entity. In all cases, the State

retains the right to regulate the use of land in accordance with any authorised regional or local development plans.

- ***Hak guna-usaha* (right to cultivate):** It is the right to exploit the land directly controlled by the State for the purpose of agriculture, fisheries or cattle breeding. It can be granted on land whose area is at least 5 ha. Only Indonesian citizens and corporate bodies incorporated under Indonesian law and domiciled in Indonesia are eligible. It is transferable and can be used as collateral. It can be granted for a maximum period of 35 years and extended for a further 25 years.
- ***Hak guna bangunan* (right to build):** It applies to rights to construct and own buildings on land. Only Indonesian citizens and corporate bodies incorporated under Indonesian law and domiciled in Indonesia are eligible. It is transferable, can be used as collateral and can be granted for a period of up to 30 years and extendable for a further 20 years.
- ***Hak pakai* (right to use):** It is the right to use and to harvest from land which is directly controlled by the State or belonging to other persons. It is transferable under certain conditions. Its eligibility is wide and includes Indonesian citizens, foreign citizens domiciled in Indonesia, corporate bodies incorporated under Indonesian law and domiciled in Indonesia and foreign corporate bodies having representation in Indonesia. The use right is granted for a definite term or for as long as the land is used for a specific purpose.
- ***Hak sewa untuk bangunan* (right to lease for buildings):** It represents the entitlement to use land owned by another party for the purposes of building construction. The user of this right is obliged to make rental payments to the owner of the property. There is no fixed term for this type of land right. The eligibility is the same as for the "right to use" and includes Indonesian citizens, foreign citizens residing in Indonesia, corporate bodies established under Indonesian law and domiciled in Indonesia and foreign corporate bodies having representation in Indonesia.
- ***Hak membuka tanah* and *Hak memungut hasil hutan* (right to clear land and right to collect the forest products)**: These rights can only be held by Indonesian citizens. There is no private or community land ownership or land rights for forest areas, only forest concessions. BPN only becomes involved in forest land areas when forest land is converted to non-forest use (BAPPENAS and BPN, 2000).

The BAL requires that all land rights be registered, but no time limit was given at the time of its promulgation. **Land registration** is still ongoing, and during the last four decades BPN has managed to register only around one-third of the privately-owned land parcels. Thus most rural households have unregistered land rights acquired in most cases through inheritance from parents and relatives. Although Article 56 of the BAL recognises the continuing validity of rights derived from *adat*, the right of the new holder cannot be fully recognised by the State until a new certificate is purchased confirming that the land is not State land (USAID, 2010). The slow progress in land registration creates an important barrier in access to credits, including to those offered on preferential terms, as farmers are required to provide the collateral to meet the bank lending requirements (Section 2.2).

Despite further efforts to implement the BAL, existing ambiguity over land rights remains one of the reasons for **land conflicts.** In 2007 the number of land disputes reached almost 7 500 cases covering 608 000 ha of land. Most frequently they result from the expansion of plantation estates and the development of infrastructure projects and other

facilities related to urbanisation. Other reasons include housing/real estate development, development of productive forest areas, development of industrial estate and factories, cases related to construction and irrigation, development of tourism facilities (hotels and resorts), and the development of large-scale mining industry and of military facilities (Winoto, 2009; Section 3.2).

Farm structures

Like in many other south-east Asian countries, Indonesian agriculture is dominated by abundant labour per unit of land resulting in small-scale farms using little mechanisation. However, while production of rice and other food crops is dominated by **smallholders**, production of perennial crops is more mixed as it attracts large-scale producers.[7] In turn, the livestock sector driven by growing domestic demand has been undergoing deep restructuring, in particular poultry production.

Agricultural censuses and farm surveys include almost exclusively land sown to annual food crops, it means 23.6 million ha accounting for 55% of the total crop area. Data on the remaining 45% of the crop area allocated to perennial crops is very limited. Available data suggest that around 70% of the perennial crops area (or around 30% of the total crop area) was held in 2009 by smallholders operating in most cases on 1-2 ha, although some smallholders may hold up to 50 ha.[8] The remaining 30% of perennial crop area (or around 15% of total crop area) is held by large private and state-owned companies.[9] Their total number was around 2 300 and their average size around 2 600 ha in 2009. More than half of them specialise in palm oil production. While their average size was around 4 250 ha (BPS, 2011), some of them operate on more than 100 000 ha. If we tentatively assume that there are 2-3 million smallholders producing perennial crops in addition to around 25 million producing food crops and that there are no farms specialising exclusively in livestock production, the total number of farms could be at around 27-28 million. Thus, an **average size of farm**, including all types of farms, would be **almost 2 ha**, including 0.9 ha of arable land, 0.7 ha of perennial crops and 0.4 ha of permanent pastures and meadows. This is more than typically reported, but still small.

According to the latest two censuses, the number of farms producing food crops increased from 21.2 million in 1993 to 24.9 million in 2003. Slightly more than half are located in Java. This increase in the number of farms is correlated with a **fall in the average size of farm** producing food crops. This tendency has been confirmed by more recent farm surveys which indicate that the fall took place across all land types and across almost all regions. At present, the average food crop producing farm size varies between 0.3 ha for dry land areas in Java and 1.4 ha for irrigated land in off-Java (Table 1.8).

Farm surveys show that many households depending on agriculture do not own any land and work as labourers on other farms or corporate estates (Fuglie, 2010b). These so-called "**landless farmers**" constituted around 12% of farms in Java and 7% in off-Java in 2007. Small farms below 0.5 ha dominate with a share of 57% in Java and 37% in off-Java. Within this category the vast majority of farms are even smaller than 0.25 ha. In Java, there are practically no farms larger than 2 ha while in off-Java their share is important at 13% (Table 1.9).

The fall in the farm size is accompanied by a more **unequal land distribution** as shown by the increasing values of the Gini ratio. The Gini ratio of landholdings increased from 0.64 in 1993 to 0.71 in 2003 (Rusastra *et al.*, 2007). Recent surveys show that in 2007 a

Table 1.8. **Changes in average farm size, 1995 and 2007**

Region and land type	Farm size (ha)	
	1995	2007
Java, irrigated land	0.49	0.36
Java, dry land	0.40	0.30
Off-Java, irrigated land	1.49	1.35
Off-Java, dry land (food crop and horticulture)	0.99	0.99
Off-Java, dry land (perennial crops)	1.28	1.20

Source: ICASEPS, 2008, adapted from Sudaryanto *et al.*, 2009.

Table 1.9. **Distribution of farm households by size and region, 2007 (%)**

Farm size (ha)	Percentage of farm households	
	Java	Off-Java
Landless	12.4	7.1
0-0.25	40.5	20.8
0.25-0.50	16.5	16.6
0.50-1.00	21.5	19.5
1.00-1.50	5.0	16.2
1.50-2.00	4.1	7.1
Above 2.00	0.0	12.9

Source: ICASEPS, 2008, adapted from Sudaryanto *et al.*, 2009.

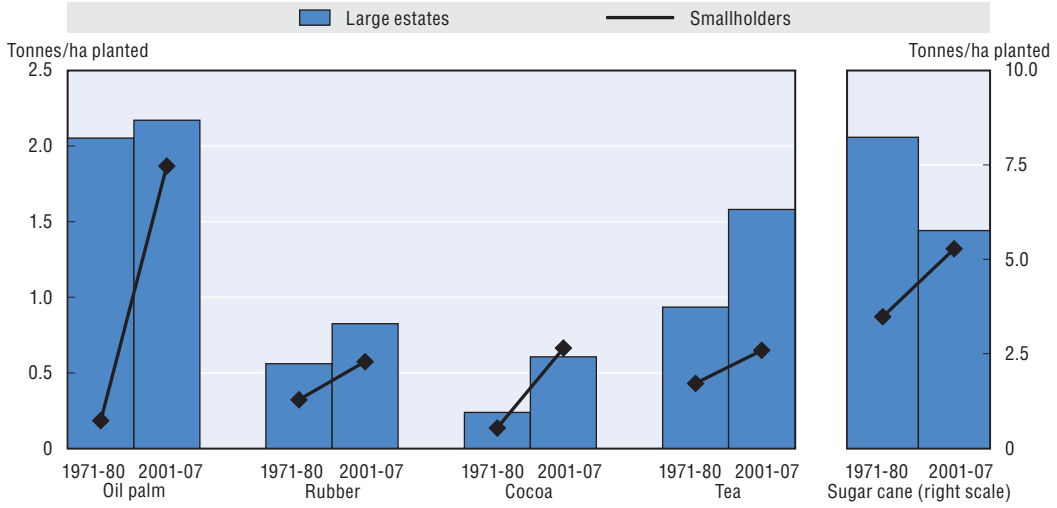
more skewed land distribution could be observed particularly in the irrigated farm area in Java and in the off-Java dry land for food crops and horticulture. In contrast, there is a decrease in the Gini index for dry land farms in Java, irrigated land in off-Java and dry land for perennial crops in off-Java (Sudaryanto *et al.*, 2009).

There is an important **difference in land tenure systems** between Java and other regions. While in Java 77% of food crop farmers owned rice fields in 2007, in off-Java this percentage was 53%. The remaining farmers acceded rice fields through fixed rent, share-cropping or operating family land. In Java, the most frequent was fixed rent (14.2%) followed by family land (4.1%) and share-cropping (only 3.5%). In off-Java, share-cropping was most popular (20.4%) followed by fixed rent arrangements (16.4%) (Irawan *et al.*, 2007).

Within **perennial crops**, smallholders dominate production of coconut, coffee, clove, tobacco and pepper. In turn, both smallholders and large companies participate in the production of palm oil, rubber, cocoa, sugar cane, and tea. The share of smallholders in area planted ranges from 40-45% for oil palm and tea, but for rubber and cocoa it is much higher at 80-90% in 2001-07 (Fuglie, 2010b).

There has been significant **progress in yields** on smallholders' plots compared with those on large estates. The yield gap has diminished as smallholder land productivity approached yields on large estates for palm oil, sugar cane and cocoa (Figure 1.40). The productivity gap remains large for tea and rubber. In the case of rubber, this may partly result from lower tree density per unit of land as smallholders practice mixed cropping, i.e. rubber trees are planted in such a way that allows accommodating other types of crops on the same area. This contrasts with the cropping system of large estate based on monoculture (Fuglie, 2010b). One of the reasons for a spectacular increase in land

Figure 1.40. **Yields of large and small perennial crop producers, 1971-2007**



Source: Based on Fuglie, 2010b.

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productivity by smallholders could be partnership arrangements between estates and smallholders undertaken within nucleus-plasma programmes over the last thirty years (Box 1.2 and Section 3.4).

Recognising the issue of disparities in land availability per farmer, the government implemented various programmes encouraging migration across islands. The **Transmigration (*Transmigrasi*) Programme**, initiated during the Dutch colonial rule, was reinvigorated in the 1970s (Penot *et al.*, 2002). By moving poor landless populations from the densely populated inner islands such as Java and Bali to the outer islands, the programme attempted to provide settlers with opportunities to generate income from agriculture in less populated areas and to stimulate development of outer islands. While Indonesia received substantial external financial assistance (e.g. loans from the World Bank or the ADB) during 1980-90 to develop the programme, external support started to fade away at the beginning of the 1990s. Indeed, the transmigration programme received much criticism for redistributing rather than reducing poverty by not ensuring enough quality soil and market access to farmers, putting pressure on natural forests, and creating conflict with indigenous communities. Resettlement figures were still high in the first half of the 1990s, but dropped in the aftermath of the Asian crisis and change in the political regime. Moreover, decentralisation left Javanese provinces with less budget for the implementation of the programme and in 2000 large-scale transmigration was officially terminated by the government. However, under the restructured Ministry of Manpower and Transmigration (*Kementerian Tenaga Kerja dan Transmigrasi*, KTKT) the government maintains the transmigration programme, although on a far smaller scale than in previous decades. Overall, by the end of 2011 around 2.2 million households or 8.8 million people had been resettled over the last six decades (KTKT, 2012).

Although the relative importance of the livestock sector in total production remains small (Section 1.2), growing demand for livestock products stimulates important changes in the livestock production patterns and in its upstream and downstream linkages. In particular, the **poultry sector** production has been undergoing **fast restructuring**. While in terms of numbers small-scale farms raising free range chicken still dominate, these are

various types of industrial and semi-industrial farms which develop at high rates and capture a growing share of the market. Some of them produce more than one million chickens per year. The most advanced sub-sector is comprised of farms owned and managed by eight large multinational corporately-owned companies operating in Indonesia and producing a highly valued product with complete control over inputs and outputs. The share of large foreign companies in the domestic broiler production could have reached 70-80% in 2009. The rapid expansion of the modern poultry sector has created new related lines of business such as breeding farms, hatchery, slaughterhouse operation, egg trading, poultry feed industry, and animal medicine industry (ICN, 2009). Between traditional and industrial producers, there is a sector of small commercial producers co-operating with large companies or working with "local integrators" (independent farmers or investors who contract other farmers). Within co-operation arrangements, some large companies provide small producers with funds to start business in poultry production, and supply them with maintenance and production facilities, feed, medicines and vitamins. In turn, small producers are typically required to market a certain minimum number of chickens through large companies and to meet standards set by these companies (ICN, 2009). West Java is the centre of the poultry industry, particularly for large industrial broiler production, followed by East Java.

The transformation of the **cattle sector** has been slower with more than 80% of cattle farms owned by small-holders. The majority of them have just two or three heads of cattle. Cattle are generally perceived as an asset which can be easily turned into cash for family emergencies and as a source of meat for social events. Only a small but a growing number of larger commercial livestock farms exist which target the large concentrated market in Java. For example, larger cattle farms with over 50 heads of cattle are being developed, particularly in Nusa Tenggara where sufficient grazing land exists. These farms receive support from government's various programmes to help improve the productivity (Section 2.2 and Agriculture and Agri-Food Canada, 2010b). A relatively new but fast developing form of intensive cattle production is cattle fattening, largely based on live cattle imports from Australia. Imported calves are fattened for the market, using crop and agro-industrial by-products combined with rice bran or oilseeds cake. Most of the feedlot businesses are located in Java, in particular in areas surrounding the Jakarta conurbation (Agriculture and Agri-Food Canada, 2010b).

In 2010, there were 0.5 million **dairy cows** in Indonesia producing 0.9 million tonnes of milk, thus indicating low productivity at 1.8 tonnes per cow per year. Java produces 99% of Indonesia's milk with East Java alone accounting for almost 60% of the total (BPS, 2011). Production remains dominated by small-holders, but corporate dairy farmers emerged and production from cows owned by them has been increasing at a much faster rate than from cows owned by individual farmers. Most individual farmers are members of a local dairy centre which provides a range of services to farmers including collecting the milk, checking the milk quality and paying the farmer. However, the small size of operation, scarcity of land with suitable elevation for dairy cattle farming, limited farmer education and scarcity of forage are quoted among the most important difficulties in increasing the quantity and quality of domestically produced milk (Agriculture and Agri-Food Canada, 2010b and Morey, 2011). As a result, about three-fourth of the domestic demand for milk is met by imports, mostly from Australia and New Zealand (Section 1.2 and Figure 1.36).

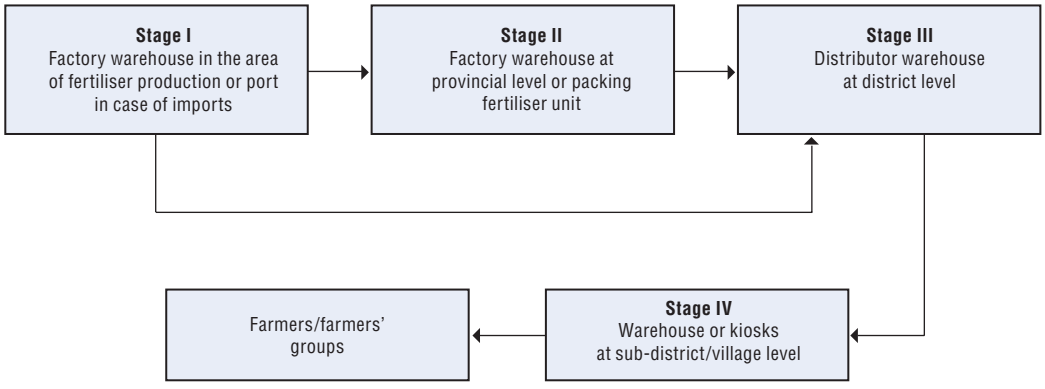
Competitiveness and structural change in the upstream and downstream sectors

For most agricultural commodities, private enterprises are the key players in the upstream and downstream sectors. However, some inputs, in particular fertilisers, and some outputs, in particular rice, are considered strategic and governed by state regulations.

Input supply system

In an attempt to stimulate the use of **fertilisers**, the government has set up **a subsidy programme** which includes: planning of the quantities requested and produced, setting a ceiling price (Highest Retail Price, called HET), fixing the amount of subsidies to cover the costs of provision of fertilisers at the HET, and distributing subsidised fertilisers to eligible farmers (Section 2.2). Around 75% of fertiliser is distributed at subsidised prices and subject to strict regulations, and 25% is sold at market prices in village kiosks (Pandin, 2008). While subsidised fertilisers are destined to staple food producers, non-subsidised fertilisers are available mostly for perennial crop producers but also for those staple food producers who wish to apply more fertilisers than available through the subsidised system. Only those amounts requested by farmers to the farmer groups on the basis of the size of operated land (Definite Plan of Group Needs, RDKK) can expect to be supplied to specified kiosks at the village level, and only those farmers who submitted such requests are eligible. To avoid leakages of subsidised fertilisers to non-eligible producers, a separate distribution system has been put in place (Figure 1.41). There is a special Supervisory Commission at the central government level and Supervisory Commissions at the provincial and district levels appointed to supervise the distribution of subsidised fertilisers.

Figure 1.41. **Subsidised fertiliser distribution channel in Indonesia**



Source: Rachman B. and T. Sudaryanto, 2010.

Within this framework, the fertiliser industry is strictly regulated and dependent on the availability of subsidies and on access to gas supplies at regulated prices. As gas accounts for 50-60% of the urea fertiliser production cost structure, any limitations in access to gas have an immediate impact on the volumes of fertiliser produced. In particular, in periods of high gas prices on the international markets, Indonesian gas producers opt for exports thereby leaving domestic fertiliser producers undersupplied. As a result, despite a growing domestic demand for fertilisers that is stimulated by subsidies, **domestic production stagnates**, leaving space for growing imports handled by state trading companies (FAO, 2005).

Currently, there are five fertiliser producers. All are state-owned and since 1997 they have been combined into a single holding company, now named PT Agro Kimia Indonesia. The lack of competition, insufficient gas supply and obsolete technologies (75% of factories are more than 20 years old) are major factors leading to low capacity use, around 20-30% below potential, and high production costs. The current system is **inefficient** and leads to a large number of irregularities. Field surveys indicate that subsidised fertilisers are not available in required quantities, deliveries are delayed, only 40% of fertiliser subsidies reach smallholders operating on less than 0.5 ha, and 90% of farmers purchase fertilisers at prices higher than the HET (Rachman and Sudaryanto, 2010; ICASEPS, 2008; Section 2.2).

The **seed industry** is also dominated by government agencies or state companies that produce and multiply seed for rice and other corps. The Indonesian Agency for Agricultural Research and Development (IAARD), the research arm of the Ministry of Agriculture, carries out varietal improvement, including for crops. Improved seed is distributed to farmers typically through government agencies. Private seed industry focuses on estate crops, hybrid corn and some high-valued horticultural crops. In horticulture, private companies are active in providing seeds for production that is exported or processed into high-valued products. In such cases, large agribusiness companies with international trade networks or local processing facilities contract with local farmers for the production of specific commodities provide them with seeds along with other inputs and technical advice, and purchase contracted commodity at a price specified in the contract (Fuglie, 2001). Table 1.10 provides an example of such transaction arrangements.

Table 1.10. **Standard contractual agreement between a farmer and potato agribusiness in Garut district, West Java province, Indonesia, 2005**

Farmer	Indofood Fritolay Makmur (IFM)
• Purchase the potato seeds provided by the IFM • Implement potato cultivation practices recommended by the IFM • Pay the credit (loan) after harvesting period to the IFM	• Provide good quality potato seeds to farmers • Facilitate the provision of potato production inputs to farmers • Assist the potato farmers in terms of cultivation practices conducted by field agri-supervisors • Purchase the potato harvest based on the price and product specification agreements

Source: Saptana *et al.*, 2005.

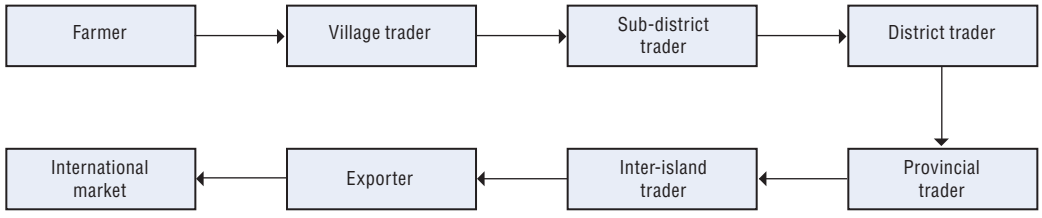
Machinery use by food crop producers is limited but growing (Section 1.2). Farmers can purchase machinery individually or collectively, within a farmer group, or at distributor (dealer) places. Purchase of some types of machinery is supported by government programmes (Section 2.2).

While **availability of production inputs** on local markets is considered good in general, accessibility is limited by farmers' low incomes. According to field surveys conducted in 2006, 35-42% of farmers in Off Java and 17-21% in Java borrow money to purchase inputs. There is a large number of credit programmes managed by the Ministry of Agriculture and Bank of Indonesia to facilitate access to finance (see Section 2.2 for detailed description). However, the key source of finance for farmers remains traders and rice millers. The repayment of credit is in kind or in cash. Interest rate in such transactions is high (ICASEPS, 2008).

Marketing channels for outputs

Over the last two decades, **changes in consumption patterns** combined with rapid development of modern retailing stimulated transformation of the downstream sector. Such transformation requires changes in marketing channels for agricultural commodities and creates both opportunities and challenges for the dominant small-holding farming sector. The most typical marketing channel linking farmers with domestic and international traders is shown on Figure 1.42. However, there is a wide diversity of channels depending on the commodity and government's involvement in the marketing process. This section provides a short overview of marketing channels for rice, the key food commodity, and for fresh fruit and vegetables, for which demand has been growing thus enhancing the transformation of linkages between farmers and consumers.

Figure 1.42. **Standard marketing channel for agricultural commodities in Indonesia**



Source: MoA, 2011.

While on average around 70% of rice produced is retained as farmers' own-household consumption (see section on food consumption above), the remaining 30% is sold through **two major marketing channels**: one private and one run by the government. Their relative importance varies across provinces and from one year to the next, but on average the private channel accounts for about 80% of total rice trading activities and the government for the remaining 20%. In periods of smaller production the share of the government channel tends to increase (Arifin *et al.*, 2001). The private channel supplies rice mostly to local populations and to small town dwellers, and the government channel delivers rice mostly to large urban centres.

The government-run channel is managed by **Perum BULOG** (*Badan Urusan Logistic*) and includes warehouses at the provincial and district levels and farmer groups and co-operatives at the village level. One of its normative roles is to purchase rice from farmers or millers at government determined prices in order to undertake its obligations to distribute rice to poor households through the Rice for the Poor (*Beras untuk Orang Miskin*, RASKIN) and hold stock for emergency purposes and open market operations when directed by the government. While no longer required to defend a minimum floor price for farmers and being financed by the government for purchasing only the quantity of rice needed for its obligations, BULOG's activity helps support the market price (Sections 2.1 and 2.2).

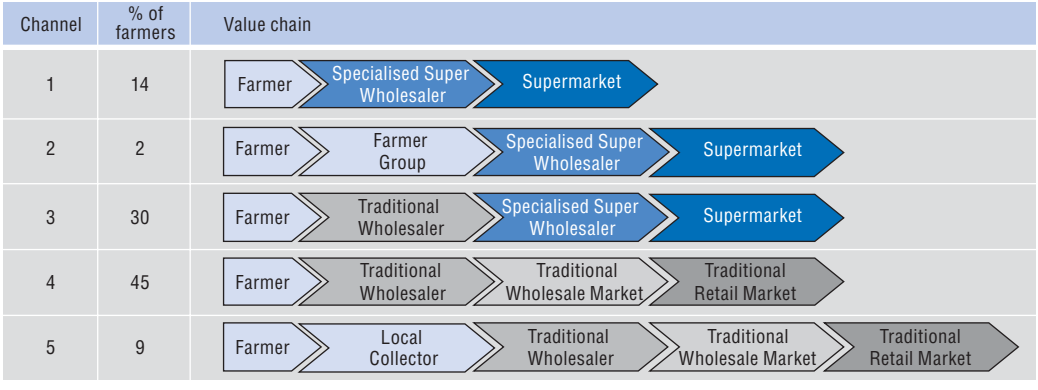
The **private channel** involves collectors at the district, sub-district and village levels, rice millers, wholesalers, bazaar traders and retailers. While farmers can sell their rice directly on the market, most often they conduct a transaction with village collectors due to immediate cash needs (MoA, 2011). Cash needed to purchase inputs forces many farmers to sell rice even before the harvest. As typically farmers do not have any on-farm

processing capacity, paddy rice is sold to collectors in the form of wet/non-husked grain or dry/non-husked which needs to be milled or hulled by rice millers. In many cases, millers buy rice directly from farmers and sell it to the government-run marketing channel. Wholesalers and bazaar traders are engaged in large volume trade transactions, generally in the central district of a provincial area. In turn, retailers buy large quantities and sell in small quantities to consumers. There is no entry barrier to retail trading, thus anyone can be a rice retailer.

The rapid development of modern retailing (see next section) requires high quality, fresh, standardised agricultural products supplied on time in determined quantities. This applies to many commodities, but in particular to **fruit and vegetables** for which demand has been rapidly growing. This creates important challenges for the farm sector dominated by smallholders who are largely disconnected from the modern retailing system due to poor roads, fraud, corruption, and the lack of cold chains and logistic services. Emerging cold chains are further plagued by the presence of blackouts and rolling brownouts, a key dilemma for the marketing of perishables (subsection on electricity; Section 3.3). As a result, while the overall volume of fruit and vegetable production has more than doubled over the last two decades, about 60% of fruit and vegetables sold by supermarkets are imported – about 80% for fruit and 20% for vegetables (WB, 2007).

A case study based on **value chain analysis** for tomatoes produced in West Java and sold in Jakarta indicates that while more than half of the farmers in this area still rely on long-established channels supplying traditional retailers (channels 4 and 5, Figure 1.43), an increasing share of farmers has switched to new-generation wholesalers dedicated to serve supermarkets, fast food chains, restaurants and hotels (channels 1, 2 and 3). The same study shows that channel 2 is the most beneficial for farmers. Within this channel farmers are organised into a group which grades, sorts, packs, transports and sells its products to the specialised wholesaler. Such an arrangement helps capture more value added and allows producers to benefit from quality differentiation. As a result, the farmers' share of the retail price of tomatoes is about 30% on average, nearly twice the level the other channels can provide. While still nascent, channel 2 is likely to become more important in the future (WB, 2007).

Figure 1.43. **Farmers and marketing channels for tomatoes, West Java, 2004/05**



Source: Adapted from WB, 2007.

At the national level, however, just under 10% of farmers producing fresh vegetables are linked directly to new market channels with the remaining 90% selling their products to traditional markets through collectors and wholesalers (WB, 2007). **Farmer groups** or organisations facilitating joint marketing, preliminary processing or purchase of inputs can work only if members have common economic objectives. So far, numerous government programmes dedicated to developing farmer groups, associations or co-operatives are driven by the objective to create an institutional framework at the village level to implement particular policy measures, such as distribution of subsidised fertilisers or rice procurement, and much less by the objective to improve the farmers' position in a value chain. A 2006 field survey showed that while the vast majority of farmers knew of the existence of farmer groups, less than 20% recognised any benefit from being part of such a group (ICASEPS, 2008).

Food industry

Food processing is a **leading industrial sector** accounting for around one-fifth of total industrial employment and total value of industrial production. In 2009, the gross output value of the food processing industry was USD 46.6 billion, up 6% from 2008, a significant slowdown after a period of strong expansion at 20-35% per year in preceding years (BPS, 2010).

The industry consists of **enterprises of all sizes**. In 2009, about 5 800 large (100 or more employees) and medium-size (20-99 employees) businesses accounted for over 80% of output. The remaining 20% of processed food is produced by home-based small-scale (5-19 employees) and micro (1-4 employees) enterprises and sold on the street in roadside outdoor small restaurants, small roadside retailer kiosks, or on the street by vendors with small carts (BPS, 2010 and GAIN, ID1043, 2011). While the total value of processed food is increasing rapidly and the industry continues to employ more workers, the number of large and medium-size enterprises tends to decline, reflecting an ongoing concentration of the industry. Enterprises are unevenly distributed across provinces with the majority located in Java.

Indonesia has been opening up to **Foreign Direct Investment** (FDI) since the mid-1980s, but FDI in food processing was small until modern retailing took off after the Asian crisis. Currently, among the top ten food companies, four are multinationals: Danone, Nestle, Coca-Cola and Unilever. The other six companies are Indonesian, producing soft drinks, hot drinks and packaged food. The largest food company is Indofood Sukses Makmur, which runs a vertically integrated business from primary production, through processing to retailing (Napitupulu *et al.*, 2009). It has established a large production base with its Plantations Division currently operating on 242 000 ha of planted area, of which 205 000 ha or 85% are planted with palm oil, 22 000 ha with rubber and 11 000 ha with sugar cane (Indofood, 2010).

Retail trade

An expansion of the **modern retail secto**r, or "supermarket diffusion", started in the second half of the 1980s, but a real "take off" was triggered by a letter of intent signed in January 1998 between the government and the IMF within Indonesia's economic recovery programme. Among other provisions, the letter stated that the government should revoke the ban on foreign investors to enter the wholesale and retail businesses. This was followed by the Presidential Decree 99/1998 and a Decision Letter of the State Minister of Investment which opened the sector to foreign investors. The regulations specified that

licensing procedures and all other provisions that a foreign retailer has to meet be the same as those applicable to local large-scale retailers (Natawidjaja, 2005). A later Presidential Decree 111/2007 stated that only supermarkets under 1 200 square meters and mini-markets under 400 square meters should be owned by domestic investor (GAIN, ID1001, 2010).

Thus, earlier existing demand-side drivers, such as urbanisation, income growth and diet change, could be met by a massive investment-side response led by FDI and supplemented by domestic retail investors. The FDI inflow into retailing was initiated by the French retailers Continent and Carrefour which introduced the "hypermarket" concept. Modern food retail businesses has since expanded with hypermarkets, supermarkets, and mini-markets gradually replacing more traditional retail outlets, including wet markets and independent small grocers. It is estimated that traditional retail loses about a 2% share each year (Natawidjaja, 2005; Napitupulu, 2009). As a result, the share of modern outlets in total sales value had increased by 2008 to almost 40%, while the share of **traditional markets** had fallen to around 60%. While foreign investors control two-thirds of the hypermarket sector, supermarkets and minimarkets are largely owned by domestic investors. Currently, there are five major players in the hypermarket group and three of them dominate the market. In 2008, Carrefour had 49% of hypermarket sales, followed by Hypermart (Indonesian ownership) with 22% and Giant with 18% (GAIN, ID1001, 2010).

Modern retailers offer a wide range of food and beverage products with grocery products contributing to about 65% of their retail sales. A growing number of Indonesians are shopping at these stores, particularly middle and upper income consumers. **Competition** between retailers is fierce with the total number of modern retail outlets, including supermarkets, hypermarkets and mini markets more than doubling between 2003 and 2009 to reach almost 13 000 units in 2009. More than 80% of them are located on Java, in particular in Jakarta area, but they are spreading progressively to other islands (GAIN, ID1001, 2010).

Foreign trade enterprises

Indonesian enterprises' **access to foreign trade** in agro-food products changes over time. The implementation of the Uruguay Round agreements led to the exclusion of soybean meal and dairy products from the list of products subject to import licensing, but Indonesia was still allowed to grant sole importer licenses to public agencies for a number of commodities. Thus BULOG was granted sole import rights for rice, soybeans, sugar, wheat, wheat flour and garlic and the BPPC, a cloves marketing agency, was granted such rights for cloves. Then, following the agreement with the IMF in 1998, the government agreed to phase out all import licensing restrictions that could not be justified for health, safety, environmental or security reasons. As a result, all agro-food commodities were also taken out from the list with the exception of rice. In 2004, Indonesia notified to the WTO that BULOG was the only Indonesian state trading enterprise (STE) with the purpose of supporting domestic rice producers and stabilising the price of rice at consumer and producer levels (WTO, 2007).

Although the agreement with the IMF did not require to eliminate BULOG's monopoly over rice imports, the government later decided to open up rice trade to the private sector as well. However, the share of private importers remains negligible and BULOG continues to be the key rice importer (Sections 2.2 and 2.3). Moreover, in the 2000s the government introduced new licences that restrict sugar imports to a limited number of domestic sugar processors and initiated various approval requirements, ranging from appointment as an

importer through to the approval of a particular shipment for such commodities as cloves, certain processed foods, and animals and animal products (Section 2.3).

1.4. Summary

This section provides a short overview of basic conclusions from the analysis undertaken in Chapter 1.

Reforms helped to establish a stable macroeconomic framework. The 1997-98 Asian crisis deeply affected Indonesia's economy, but it also triggered a large programme of reforms which improved macroeconomic stabilisation, opened Indonesia to international competition, enhanced capital inflows, and created more favourable conditions for the development of the agricultural sector.

Agriculture remains a key sector. Although the contribution of agriculture to GDP has fallen to 15%, the sector continues to provide employment to about 42 million persons, i.e. 38% of the working population. This indicates a relatively low labour productivity in the sector.

Agricultural labour productivity grows slowly. As employment in agriculture remains relatively stable, labour productivity growth is roughly equal to the rate of production growth. In the countries with the strongest growth, such as China and Malaysia, labour productivity growth is driven by two factors: growth in production and a fall in employment. This is not yet the case in Indonesia.

Small farms dominate food crop production. Agriculture is dominated by abundant labour in relation to available agricultural land. Food crop production is based on small-scale farms using little mechanisation with farms ranging on average from 0.3 ha in Java to 1.4 ha for irrigated land off-Java.

Large farms specialise in perennial crops. While smallholders are important suppliers of perennial crops, there are large private and state-owned farms operating mainly in Kalimantan and Sumatra specialised in perennial crop production, in particular palm oil. Their average size is around 2 500 ha and they occupy about 15% of the total crop area.

Slow progress in the registration of land rights. The law requires that all land rights be registered. However, land registration has been slow and only around one-third of privately-owned land parcels have been registered over the last forty years. Most rural households have unregistered land rights acquired through inheritance from parents and relatives. This creates an important barrier in access to credit.

Growth in agricultural production is three times stronger than population growth. While annual growth in the volume of agricultural production has averaged 3.4% since 1990, there have been significant fluctuations in this rate. In particular, the Asian crisis and *El Niño* were two major factors behind the contraction of production during 1997-99. Overall, between 1990 and 2010, the Gross Agricultural Output increased by 97% with crop production increasing by 97% and livestock production by 89%, compared with a population growth of 30%.

Total Factor Productivity (TFP) growth in agriculture is driven by the expansion of perennial crops. TFP contribution to agricultural growth was strong during the "Green Revolution" in the 1960s and 1970s when new technologies and improved crop varieties were widely adopted. During the 1980s TFP growth slowed but land and labour use accelerated and continued fostering agricultural growth. In the 1990s, overall TFP growth

was weak. In the 2000s, TFP growth resumed and accounted for around 60% of agricultural growth. Diversification into high-valued commodities and agricultural land expansion into perennial crops rather than yield growth were the main factors behind this achievement. As in many other countries, growth in agricultural TFP was stronger than in the economy as a whole.

Palm oil and natural rubber dominate agro-food exports. Over the last two decades Indonesia has been a net exporter of agro-food products. Since 2005, the value of agro-food exports has represented nearly the double the value of agro-food imports. Palm oil and natural rubber alone accounted for 60% of total agro-food exports in 2008-10. Exports are mainly concentrated on Asian countries, with around two-thirds of the total exports going to these countries in 2008-10, compared with around half in 1990-92. India is the most important export market accounting for 16% of the total.

Agro-food imports are increasingly diversified. However, a dominant part of agro-food imports is still based on bulk commodities such as wheat, cotton, soybean, soybean oil cake, dairy products, sugar, tobacco and beef. United States and Australia are the most important suppliers accounting for 19% and 17%, respectively, of the total in 2008-10.

Comparative advantage seems to work. While the trade balance tends to improve for perennial crops, it stagnates or becomes increasingly negative for the remaining commodities. This might reflect Indonesia's comparative advantage in exports of commodities benefiting from advantageous natural conditions for production of selected perennial crops but comparative disadvantage in land-intensive commodities such as cereals and selected types of livestock.

Poverty rates decline. The steady economic progress and income growth in the 1970s until the mid-1990s was accompanied by massive reductions in poverty incidence. While the Asian crisis temporarily reversed the downward trend, poverty reduction resumed in the 2000s with the poverty rate falling to 13% in 2010. Rural poverty is significantly greater than urban poverty, both in absolute numbers and in percentage rates. The reduction in the absolute number of the poor following the Asian crisis was due mostly to a reduction in the number of rural poor.

Food consumption improves. An average proportion of expenditures on food in total household expenditures has declined from 63% in 1999 to 51% in 2009. The share has fallen for both urban and rural households, but remains much higher in rural households. Consumption of rice and other staples has been declining and that of fruit, vegetables, fish, dairy products and prepared foods increasing. There has been a modest increase in the dietary energy intake per person reaching about 2 500 kcal/capita/day in 2007 which is lower than in China, Malaysia and Viet Nam, but higher than in India and the Philippines. The proportion of daily calorie intake from plant-based products remains higher and that of livestock products lower than in many other Asian developing countries.

Undernourishment persists locally. Despite improvements in food availability, health and social services, undernourishment and malnutrition exist in almost every district. Undernourishment was estimated at around 13% in 2007, falling from 15% in 2002. This rate is lower than in such neighbouring countries as Thailand or Philippines, but higher than in Viet Nam or China.

Smallholders are poorly linked with markets. Private enterprises are the key players in the upstream and downstream sectors for most agricultural commodities. However, some inputs, in particular fertilisers, and some outputs, in particular rice, are considered

strategic and governed by state regulations. Over the last two decades, changes in consumption patterns combined with rapid development of modern retailing stimulated transformation of the downstream sector. Such transformation requires changes in marketing channels for agricultural commodities and creates both opportunities and challenges for the dominant small-holding farming sector in Indonesia. Poor infrastructure adds to difficulties in linking farmers with markets.

The environment remains under massive pressures. Rapid economic growth combined with rising population density lead to massive pressures on environment. Agro-environmental issues include expansion of agricultural land leading to large-scale deforestation and related wildfires, pressures on crop land from urbanisation, over-exploitation of marine resources, soil erosion and water pollution from agricultural chemicals. Deforestation and the destruction of peat lands make Indonesia the third largest emitter of greenhouse gases. Issues that relate to agriculture have special importance for broader attempts to implement sustainable development in Indonesia.

Notes

1. The government assesses that CPO yields could reach 7 tonnes/ha compared with the current average of 3.8 tonnes/ha against 4.6 tonnes/ha in Malaysia (Masterplan, 2011). Note that CPO yields are different from those in Figure 1.21 expressed in oil palm fruit terms.
2. For the period 2006-10, time reference for monthly expenditures was March, thus the total was divided by 31 to arrive at daily expenditures.
3. In this section agro-food trade includes fish and fish products as well as natural rubber, but does not include forest products.
4. India is the largest importer of crude palm oil in the world, mainly used for cooking.
5. In addition to the land tenure, the BAL also regulates the water and airspace tenure which comprises the rights to use waters, to cultivate and catch fish, and to use airspace (Hendriatiningsih *et al*., 2009).
6. The BAL limits the periods for which land rights to cultivate, build and use are granted to 50-60 years. The Investment Law 25/2007 extended these periods to 70-95 years, but then the Constitutional Board rejected these extensions (Section 3.2).
7. It can be noted that minimum and maximum sizes for agricultural land holdings were imposed through Law 56 of 1960 "On stipulation of the size of agricultural land". Limits on the size of landownership depended on the population density of the region and the type of cultivated land. Absentee ownership was forbidden (US Country Studies, 1992). The fixing of such minimum limits was primarily intended to prevent further subdivision of land. Government Regulation No. 224 of 1961 "On implementation and redistribution of land and provision of compensation" provided a process by which the State could expropriate land in excess of the maximum size and absentee lands and redistribute these to tenant farmers and others (USAID, 2010). While these laws remain in existence, they are not implemented.
8. The term "smallholder" producing perennial crops is not well defined in the Indonesian statistics. While in most cases it is understood that they operate on 1-2 ha, there are more descriptive definitions which include: peasant farmers who have chosen to grow, e.g. palm oil on their own plots; settlers and transmigrants in areas under large-scale plantation, often brought in specifically to provide labour (within plasma and/or Transmigrasi programmes); indigenous people whose customary land rights have been overridden by land rights granted by the government to a plantation company; and farmers in debt to company-established co-operatives. There are also more precise definitions applied e.g. by the Roundtable on Sustainable Palm Oil which assumes that smallholders are "family based enterprises producing palm oil from less than 50 ha of land" (Vermeulen and Goad, 2006).
9. Within the large-scale sector, while private palm oil companies have expanded almost ten times from 1990-2011, the area operated by state-owned enterprises only doubled over the same period. As a result, in 2011 large-scale private palm oil plantations operated on almost 4.5 million ha compared with 0.6 million ha operated by the state-owned enterprises (MoA, 2011).

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ANNEX 1.A1

Indonesia: Projected production, consumption and trade of major commodities by 2021

This annex presents the main projections for the major agricultural products produced, consumed and traded by Indonesia during the next ten years as embedded in the OECD-FAO *Agricultural Outlook* 2012-2021 report. The main purpose of the report is to build consensus on global prospects for the period 2012-21, for the agriculture, fisheries and food sectors, and on emerging issues which affect them. A jointly developed modelling system, based on the OECD's Aglink and FAO's Cosimo models facilitates consistency and analysis of the projections. The fully documented outlook database, including historical data and projections, is available through the OECD-FAO joint Internet site *www.agri-outlook.org*.

Indonesia: The main assumptions underlying projections

Macroeconomic assumptions

- Population is assumed to increase from 242 million in 2011 to 264 million in 2021, it means at an annual rate of 0.8%;
- Inflation is expected to average around 5% in the coming decade;
- The Indonesian rupiah is expected to depreciate in nominal terms relative to the USD to IDR/USD 10 250 in 2021;
- GDP is expected to grow at 6-7% per year.

Policy assumptions

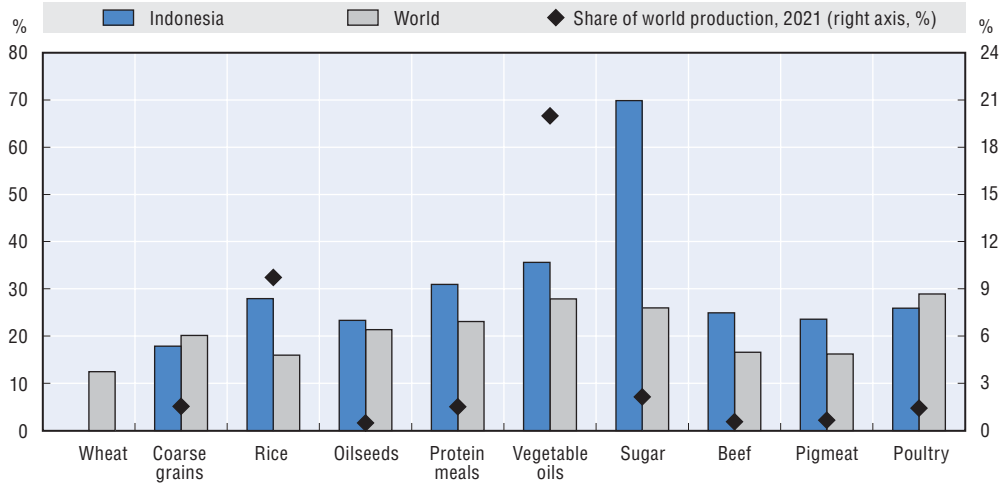
- The 2011 tariff levels are assumed to remain constant until 2021;
- Area allocated to palm oil trees is expected to increase to 6 million ha.

Main findings

Indonesia's position on selected world markets will increase

Indonesia is projected to strengthen its position as one of the most important agricultural producers in the world (Figure 1.A1.1). The evolution of production in Indonesia in the coming decade is largely above the rates projected for world production of such commodities as rice, protein meals (in Indonesia almost exclusively palm kernel meal and coconut meal), vegetable oils, sugar and beef. In particular, production growth rates of rice and sugar are expected to be much stronger in Indonesia than in the world.

Figure 1.A1.1. **Production: Per cent change 2021 compared with 2009-11 average**



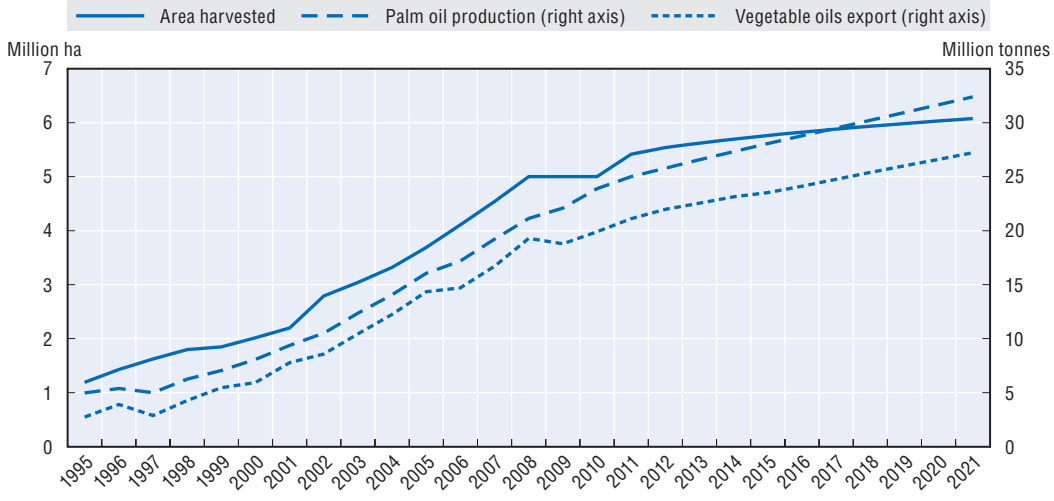
Source: OECD-FAO, *Agricultural Outlook 2012-2021*.

StatLink HTTP://DX.DOI.ORG/10.1787/888932650040

Main trends for selected commodities

Indonesia's production of vegetable oils is projected to increase to almost 36.8 million tonnes out of 184 million produced worldwide in 2021, thus bringing Indonesia's share to 20% from the current 19%. Almost 90% of Indonesian vegetable oils come from palm oil production which is projected to continue growing strongly over the next decade (Figure 1.A1.2). While expanded area planted will still be a major contributor to production growth, more than 40% of growth is projected to come from higher yields, which would be a welcome change from previous trends. Productivity growth from a given area would save forests and would limit concerns of import countries demanding application of good environmental practices.

Figure 1.A1.2. **Projected palm oil production**



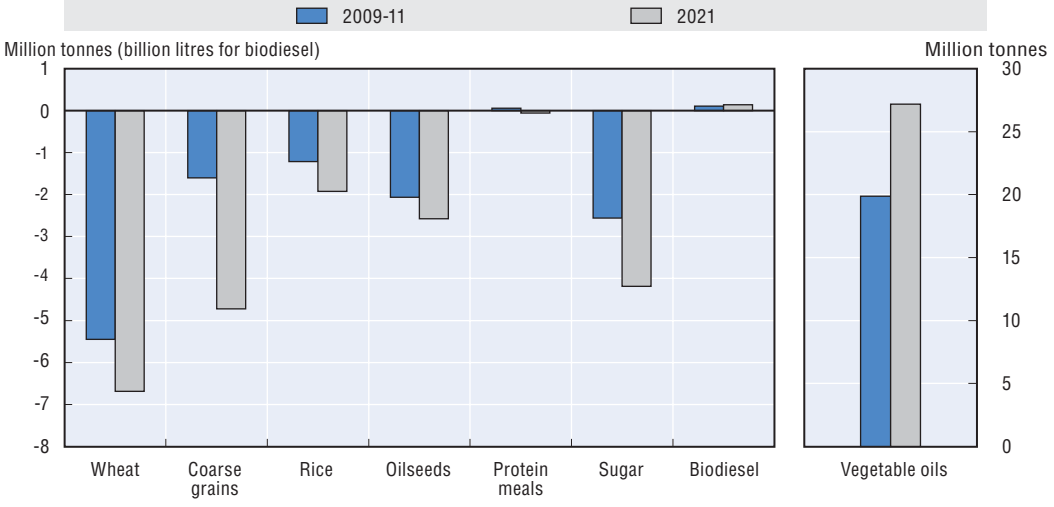
Source: OECD-FAO, *Agricultural Outlook 2012-2021*.

StatLink HTTP://DX.DOI.ORG/10.1787/888932650040

Around 27 million tonnes of palm oil, roughly three-fourth of production, is projected to be exported in 2021, making Indonesia one of the largest exporters (35% of world exports in 2021). The rest of the production is projected to be used for human consumption which is to increase from 4.5 in 2009-11 to 5.3 million tonnes in 2021 and only marginally (4% of total) for biofuel production.

Rice will remain the basis of the local diet and its consumption is projected to increase from 41.5 million tonnes in 2009-11 to 54.4 million in 2021. This will constitute around 10% of worldwide rice consumption compared with Indonesia's share in world population at 3.4%. Production is projected to follow the same pace as consumption to reach 52.7 million tonnes in 2021, thus leaving a small margin for imports at 1-2 million tonnes (Figure 1.A1.3). However, Indonesia's stocks of rice tend to be relatively low at around 7-10% of total use, thus any variation in supply may lead to a change from net importer to net exporter position and vice-versa.*

Figure 1.A1.3. **Projected net trade position for selected products**



Source: OECD-FAO, *Agricultural Outlook 2012-2021*.

StatLink HTTP://DX.DOI.ORG/10.1787/888932650040

Indonesia is not producing wheat and is, therefore, totally dependent on imports which are to increase to almost 7 million tonnes by 2021 (Figure 1.A1.3). In contrast to rice, Indonesia's stock of wheat remain large at above 3 million tonnes during the projection period, thus at almost 50% of total annual use.

Indonesia reserves an important share of its planted area to coarse grains. Until 2004, the area was even larger than that allocated to palm oil trees. By 2021, the area is projected to increase to 4.2 million ha and production to almost 21 million tonnes, up 17% over

* It has to be noted that rice projections for Indonesia are sensitive to policy assumptions and to the assessment of the current levels of production and consumption. For example, the USDA assumes that Indonesia's per capita rice consumption is already high and a reduction in per capita consumption should be expected, unless a large increase in rice use as animal feed is envisioned. Moreover, within the self-sufficiency campaign, the government encourages lower rice consumption and increased production. Thus, USDA's current baseline projects Indonesian consumption at just 43.3 million tonnes in 2021/22. To achieve self-sufficiency with the USDA level for projected consumption, yields would need to rise by 16% over the period 2011-21, or by 1.5% per year, assuming area remains constant (USDA, 2012).

2009-11 levels. While human consumption is projected to account for almost half of total use, animal feed use will increase strongly and will contribute to a projected rise in coarse grain imports at almost 5 million tonnes in 2021 (Figure 1.A1.3).

For some other commodities Indonesia is projected to remain a net importer, including of oilseeds at around 2.5 million tonnes and of sugar at around 4 million tonnes in 2021 (Figure 1.A1.3). Net imports of beef and dairy products are also projected to increase, but projections related to livestock commodities are very sensitive to policy assumptions and not sufficiently reliable to be reported.

Chapter 2

Policy trends and evaluation

This chapter examines agricultural policy and the support provided to agricultural producers in Indonesia since 1990. The main priorities of agricultural policy concern food self-sufficiency, food diversification, value-added and competitiveness, and farmers' welfare. The Ministry of Agriculture has a primary role in developing and implementing policies to achieve these objectives, but a number of other central government ministries and agencies also have significant roles. A wide range of input subsidies on fertiliser, seeds, credit, etc., is used to support agricultural producers. The number and budgetary cost of these measures have grown rapidly since the mid-2000s. The introduction of a targeted rice for the poor programme (RASKIN) in 1998 has allowed the government to steadily increase the minimum producer price of rice, but at the cost of increasing budgetary expenditure on RASKIN. Tariffs have fallen significantly over the period. The average tariff on agriculture (excluding alcoholic beverages) has dropped from 20% in 1990 to 5% in 2010. Import monopolies, licensing requirements and export restrictions on agricultural products were removed in 1997-98. However, quantitative import restrictions have been reintroduced, notably for rice, sugar and beef. Import requirements imposed for SPS and cultural reasons (i.e. halal certification) are becoming more stringent. They are often implemented in a non-transparent manner and add to the cost of importing. Export taxes have been reinstated on crude palm oil and its derived products, and recently introduced on cocoa. The level of support to producers as measured by the %PSE averaged 9.3% in 2006-10, varying between –10% in 2008 and 21% in 2010. This variation reflects the government's efforts to stabilise domestic prices and to balance interests of producers and consumers in the context of price volatility on international markets. The total value of transfers arising from support to agriculture was equivalent to 1.9% of GDP in 2006-10.

Agricultural policy has been and remains a significant priority for successive governments due to the important contributions of the sector to the Indonesian economy, environment and society. Nowhere is this preference more clearly seen than in the comment by former President Suharto that his single proudest achievement as Indonesia's President was the attainment of rice self-sufficiency.[1] The focus of this chapter is on the major developments in agricultural policy since 1990. Section 2.1 describes the framework of agricultural policy with regard to key policy objectives, the major phases of policy development, and the legal and institutional arrangements for administering agricultural policy. Domestic agriculture-related policies are considered in Section 2.2, with polices grouped in accordance with the structure of OECD estimates of support. Section 2.3 examines trade policies relating to the agro-food sector. Section 2.4 quantifies the extent of support provided to agriculture and the cost that this imposes on Indonesian consumers and taxpayers. The final section summarises the main conclusions of the chapter.

2.1. Agricultural policy framework

Government agencies have a major influence on the sector. They not only create the overall policy framework, they also set specific targets for production, consumption, employment, etc.; invest in infrastructure; organise the purchase and distribution of product; and control various upstream and downstream activities. While the overall direction of policy is set out in five-year strategic plans, adjustments are made in response to significant crisis events: the 1997-98 Asian financial crisis and the sharp rise in food and oil prices a decade later being obvious examples. Co-ordinating policy development, implementation and monitoring among a large number of central government agencies, regional and local governments, business/private sector, farmers, community and other related parties, is a significant challenge for officials.

Agricultural policy objectives: Current and past

The four priority objectives of agricultural policy are to: *a)* achieve food self-sufficiency, *b)* enhance diversification of production and consumption, *c)* raise the competitiveness and value added of production, and *d)* increase farmers' welfare (MoA, 2010). There is a strong inter-relationship between these objectives. Diversifying consumption away from rice assists the effort to achieve self-sufficiency; improving competitiveness can lead to higher returns, enhancing farmer welfare; increasing farmer income contributes to food security by raising the purchasing power of rural households and by making farming a viable and attractive option. Nevertheless, the **dominance given to food self-sufficiency** creates conflicts and competition for resources with the other objectives. In addition to these four, two other priorities came to prominence during the 2000s: ensuring the environmental sustainability of production, and improving governance structures and accountability.

Achieving food self-sufficiency

Achieving self-sufficiency in the production of certain commodities is the government's main approach to assuring food security – defined in Indonesia as "a state of condition that food is fulfilled and accessible for all people, from macro level (country) to individual". In particular, **self-sufficiency in rice** has been a cherished goal of agricultural policy for many decades. It is an emotive subject, closely linked by the general public to Indonesian nationalism and by the public sector to political survival. But it is understood to be more than just quantity. Ensuring retail food prices remain at "moderate" levels is important for alleviating poverty and facilitating the rural – urban migration needed for manufacturing sector growth. Just what "moderate" means is not easy to define, but an approximate definition is: "not much higher than people have been used to over the last few years and fairly close to the trend level of the corresponding border prices" (Fane and Ware, 2008). Another important aspect of this objective relates to ensuring an appropriate distribution of food throughout the archipelago, especially to isolated areas during periods of famine.

In the current strategic plan for agriculture covering the five-year period 2010-14, production targets are set for 39 products (MoA, 2010). For **five food commodities** – rice, corn, soybean, sugar and beef – targets have been set at levels that would achieve self-sufficiency based on the forecasted consumption (Table 2.1). Production increases for rice during the late 2000s, which averaged 3.8% per annum between 2004 and 2009, enabled Indonesia to once again claim self-sufficiency in rice in 2007. The increase in maize production over the same period was more significant, with an average increase of 11.4% per annum. As rice and maize are already at self-sufficiency level, the target for 2010-14 is to maintain production in line with the expected growth in demand. Production targets in 2014 for rice and maize represent annual average increases in production of 3.5% and 13% respectively over 2009 levels. In February 2011, President Yudhoyono raised the 2014 production target for rice of 75.7 million tonnes by a further 13% by requiring a surplus of 10 million tonnes by that year. Self-sufficiency in 2014 is also targeted for soybean, sugar and beef. Achieving these targets will require even larger production increases in the case of sugar and soybean, 23% and 35% per annum respectively. While the beef target requires a relatively modest 7% annual average growth, it represents a turn-around in the production trend, which fell during 2005-09. The policy measures being used to pursue these production targets sometimes overlap commodities, such as the increase in fertiliser subsidies, and at other times are quite distinctive to a commodity, such as the import regime.

Table 2.1. **Self-sufficiency targets for rice, maize, soybean, sugar and beef, 2014**

Commodity	Production (000 tonnes)			Annual average growth rate (%)	
	2004 actual	2009 actual	2014 target	Five Year Plan 2005-09	Five Year Plan 2010-14
Rice (dry unhusked, GKG)	54 088	64 399	75 700	3.8	3.5
Maize (dry loose)	11 225	17 630	29 000	11.4	12.9
Soybean (dry shells)	723	974	2 700	6.9	35.4
Sugar (refined equivalent)	2 052	2 624	5 700	5.6	23.4
Beef (carcass weight)	448	408	550	–1.8	7.0

Source: MoA, 2010; *Statistical Yearbook of Indonesia 2011*, BPS, 2011.

Enhancing diversification of production and consumption

Closely linked to food self-sufficiency is the objective of **food diversification**. As the population grows, along with better welfare, the need for various types of quality products also increases. The Ministry of Agriculture (MoA) wishes to see a reduction in the consumption of rice. During 2010-14 per capita rice consumption is targeted to decrease by 1.5% annually, compensated for by higher consumption of tuber vegetables, animal-based food, fruits and vegetables. This would result in a more diverse, nutritious, well-balanced and safe food consumption pattern, reflected through an increase in the Desirable Dietary Plan (PPH) score from 86.4 in 2010 to 93.3 in 2014. A National Workshop on Food and Nutrition, conducted in 2004, recommended that no more than half the required carbohydrate intake should come from rice with the remaining taken from tuber. Statistics show that the people of Indonesia consume more rice than the required carbohydrate intake, reaching 62.2% in 2007 (MoA, 2010).

Raising the level of competitiveness and value-added

While achieving food self-sufficiency focuses on increasing the level of production and decreasing imports, raising the level of **competitiveness and value added** focuses on improving the quality of production and increasing exports. This has become an increasingly important priority with the gradual opening up of the domestic market to agricultural imports and the need to increase quality standards to compete in the global market. The objective requires an efficient production system, processing and quality control. At present, approximately 80% of agricultural products are exported in the form of raw materials, with only 20% in processed form. At the end of 2014, the target is to have 50% of agricultural exports in processed form. Improvement in the quality of agricultural products (fresh and processed) is measured through the increased number of agricultural products that receive certification for quality guarantee (SNI, Organic, Good Agricultural Practices, Good Handling Practices and Good Manufacturing Practices). At the end of 2014, all products of organic agriculture, fermented cocoa, and processed rubber (*bokar*) must be certified and a mandatory certification policy will be in place (MoA, 2010).

Increasing farmers' welfare

Poverty remains a major social issue, and in general the level of income received by rural households is much lower than urban households (Section 1.2). As the primary source of rural income, returns from agriculture have a significant bearing on **rural poverty.** Hence a fourth priority for agriculture policy is to increase farm income by raising returns from production – both increasing output and ensuring that producer prices do not fall as a result – and lowering the costs of production. Protecting farm incomes is a legal obligation of the government. Law 5/1992 states that the government will endeavour to ensure that farmers who participate in government programmes receive a good income (World Bank, 1999).

Ensuring environmental sustainability

In recent years, issues relating to the environmental sustainability of agriculture have attracted greater policy focus. Considerable attention has been given to the need to **conserve land** in agriculture production, particularly on Java. Every year around 40 000 ha of productive paddy land in Java is converted into non-agriculture use. In addition, high population pressure is causing greater fragmentation into ever smaller land holdings. This problem has been partly solved by increasing planting intensity, particularly on Java, and

land expansion on other islands. However, these solutions impose further environmental pressures. Intensification of farming activities has reduced water quality in river basin areas, while expanding production outside Java has encouraged further deforestation (Section 3.4). Competition for water use has intensified due to growing demand by households and industries. As a follow-up action to the 2009 High Level Conference on Climate Change in Copenhagen, the government has given a commitment to reducing **GHG emissions** from peat, energy, waste, forestry, industry and agriculture by 26% in 2020. As a step to achieve this, MoA has been entrusted with the task of reducing GHG emissions by 29.3 million tonnes of CO_2 from agriculture and 55.6 million tonnes of CO_2 from peat during 2010-14 (MoA, 2010). The potential impacts of climate change on agriculture are a major concern to the government. These include a shift in the location and timing of rice planting, and an increase in pests and crop/livestock diseases.

Improving governance structures and accountability

There are two aspects to the objective of improving governance structures and accountability, both driven by wider government initiatives. The first involves removing **corruption, collusion and nepotism** (*Korupsi, Kolusi dan Nepotisme*, KKN) from all parts of governance structures and systems including budgeting, salary, recruitment and career, control and supervision. As part of the reforms initiated in the late 1990s, the government took a number of steps to tackle these issues including in agriculture. The intention is to create an organisation that is clean – transparent, accountable and free of corruption – and caring – providing effective and efficient facilitation, services, protection, advocacy and empowerment to individuals and groups concerning their interests and aspirations (MoA, 2006). The second relates to improving co-ordination across the large number of agencies involved in agriculture policy. The move to decentralisation that occurred in the early 2000s added another challenge to the implementation of agricultural policies due to lack of competent staff at local government level, and large numbers of overlapping working groups operating independently at the national and local level.

Phases of agricultural policy development

In the more than forty-five years since Suharto's New Order began in 1966 agricultural policy developments can be divided into **four broad phases** (Table 2.2). For each of these phases, a broad focus of agriculture policy can be identified, along with specific drivers of change and major domestic and trade policy initiatives.

1966-mid-1980s: Suharto's New Order government inherited an economy in crisis, with chronic budget deficits, sky rocketing inflation and international debt that could not be repaid. It realised from the outset the great importance of **adequate rice supplies** to maintain political stability. The previous government had been severely disrupted by the social unrest generated by high rice prices. Increasing domestic food production was also an economic priority. With uncertain foreign exchange earnings it had limited ability to pay for food imports. Moreover, the development of the manufacturing sector was constrained by the technologically stagnant agriculture sector from which labour and capital could not easily be freed (ADB, 2006). Consequently, food policy during this period was essentially rice policy and in practice focused on the achievement of self-sufficiency in rice.

One of the first actions taken was to establish the Food Logistics Agency (*Badan Urusan Logistik*, **BULOG**). Its initial function was to purchase basic commodities for public servants and the military. From 1970 onwards it was given increasing responsibility over the price

Table 2.2. **Evolution of agricultural policy in Indonesia**

	1966-mid-1980s	Mid-1980s-1996	1997-1999	2000-present
Main focus of phase	Production expansion	Structural adjustment	Structural reform	Revitalisation
Main drivers of change	• Need to avoid social unrest • Rise in oil price • Green revolution	• Fall in oil prices • Poor export performance • Trade agreements: URAA, AFTA, APEC	• Asian financial crisis • El Niño drought	• Poor productivity performance during the 1990s • Stronger agricultural producer lobby
Major agricultural domestic policy developments	• Establish and expand the role of BULOG in marketing • Provision of subsidised inputs such as fertiliser and pesticides, and cheap credit • Infrastructure spending	• Phase down of input subsidies • Very little change in terms of intervention in the regulatory environment	• Remove BULOG's market monopoly powers • Removal of fertiliser subsidy • Introduction of targeted rice distribution programme (OPK/ RASKIN)	• Reinstate fertiliser subsidy • Increased expenditure on extension services, R&D and irrigation
Major agricultural trade policy developments	• Tariff surcharges raised • Quantitative controls on imports and exports • Introduce export tax on CPO and derived products	• Abolish tariff surcharges • General tariff reduction programme • Abolish and then reintroduce export tax on CPO and derived products	• BULOG monopoly powers removed on trade in rice • Import licensing arrangements for sugar replaced by tariff • Abolish local content requirements for dairy and soymeal • Remove export ban on CPO and derived products	• Increased tariffs on rice and sugar • Quantitative controls on trade in rice, sugar and beef • More stringent non-tariff measures • Introduce variable export tax on CPO and derived products, and cocoa

and distribution of basic staples, especially rice and wheat flour. Through its market operations and buffer stocks, BULOG sought to control regional differences and season fluctuations in rice prices through a price-band system. Floor prices were set to keep farm gate prices above production costs while ceiling prices were set to maintain affordability for lower-income rice consumers, especially in urban areas. To finance its activities BULOG was able to make use of the government's low-interest credit system known as Bank of Indonesia (BI) liquidity credits. It was also given monopoly import rights over rice and wheat flour.

To raise rice production the government improved the implementation of Mass Guidance (*Bimbingan Massal*, **BIMAS**), an agricultural intensification programme first introduced by the Sukarno government. Through BIMAS, packages of technological change in the form of high-yielding varieties (HYV) of rice, fertiliser and pesticides were developed and disseminated at subsidised prices through kiosks operated by village co-operatives (*Koperasi Unit Desa*, KUD). Local branches of the Bank Rakyat Indonesia (BRI) provided subsidised credit to farmers to purchase these inputs. Indonesia was fortunate that many of the new crop varieties developed during the green revolution were often better suited to its geographic and climatic conditions than in developing countries elsewhere. It also benefited from being an oil exporter during the oil price boom of the 1970s. The resulting increase in government revenue enabled substantial **public investment in irrigation**, facilitating both area expansion and production intensification. Other infrastructure investments, including roads, transport and communications facilities, grain storage facilities and fertiliser plants, allowed for increases in farm gate prices without undue increases in the consumer prices (Hofman *et al.*, 2004). Rice yields showed particularly

strong growth in the late 1970s and early 1980s. As a consequence Indonesia moved from a position where it imported almost a third of the world's traded rice in some years, to self-sufficiency by 1984, a goal that had been thought unattainable by informed commentators (Temple, 2001).

The government also initiated major programmes to expand **estate crop** production in the 1970s, especially in sparsely populated regions of Sumatra, Kalimantan, Sulawesi and Papua. A "transmigration" programme resettled farm families from densely populated Java, and elsewhere to these regions. A "nucleus-estate scheme" (NES) provided corporations with subsidised capital and long-term leases to public lands for estate crop production, on condition that these companies provide technical and marketing services to smallholder estates surrounding the company plantations (Fuglie, 2010). In 1981, BULOG was given full monopoly over the marketing and distribution of sugar, both domestic and imported, and set prices at all levels of the supply chain.

Mid-1980s-1996: The large fall in oil prices beginning in the early 1980s and the reduction in demand for other traditional Indonesian exports, mainly agricultural products, due to the slowdown in the world economy, drastically reduced the basis and prospects for economic growth. The government responded by **cutting public spending**, devaluing the currency, liberalising the banking sector and reducing protection so as to promote non-oil exports (Fane and Warr, 2008). However, in general a greater emphasis was directed at promoting manufacturing rather than agriculture (Rada *et al*., 2011). With regard to agriculture, attention was given to promoting estate crops – specifically rubber, palm oil and cacao – for export, and poultry for domestic consumption. As part of the government's austerity cuts, pesticide subsidies were eliminated, fertiliser subsidies reduced, and there was a significant decline in the expansion of irrigated areas. Serious outbreaks of brown plant hopper in 1985 and 1986 affected rice crops and forced the abandonment of BIMAS. In its place, field schools were established to educate farmers about integrated pest management (IPM). Such a reversal in policy had a significant impact on rice production as yields fell and area expansion slowed. Hence in 1989, the government redefined the concept of rice self-sufficiency from absolute self-sufficiency to self-sufficiency on trend (Erwidodo and Hadi, 1999).

During the early 1990s, Indonesia was involved in concluding trade negotiations at both the multilateral – the Uruguay Round – and regional level – the Association of Southeast Asian Nations (ASEAN) Free Trade Agreement (AFTA). In 1994, it emerged as a champion of concerted unilateral liberalisation (Vanzetti, *et al*., 2005). As host of that year's Leaders meeting, it gave Asia-Pacific Economic Cooperation (APEC) the legacy of the Bogor goals of free and open trade and investment by 2010 for developed countries and 2020 for developing countries. In the same year, the government announced a bold trade and investment deregulation package: limitations on foreign ownership were abolished, tariffs reduced and 10 sectors previously closed to foreign investment, including estate plantations, were opened up. However, following a large inflow of foreign investment, especially from Malaysia, the government backtracked on its initiative to open up estate crops to foreign companies. Moreover, limited reforms were taken in agriculture because of political interests (Kuncoro and Resosudarmo, 2006).[2] In fact, state monopolies in rice, wheat, soybean, sugar, cloves and spices were strengthened. Farmers benefited little from these distortions: wheat is not grown in Indonesia, sugar cane had to be delivered to a particular mill so growers faced a monopsonist, and high soybean prices lowered the profitability of intensive livestock production (Anderson and Strutt, 1995).

1997-1999: In mid-1997, a currency crisis rapidly turned into a financial crisis, an economic crisis, and then a political crisis. Making matters worse, the financial crisis coincided with one of the worst droughts in 50 years, which caused a significant fall in rice production. The government attempted to **stabilise prices** by imposing sweeping controls on food trade and marketing, selling off its food stocks and providing BULOG with a favourable exchange rate at which to import large quantities of rice to meet the domestic shortfall. From mid-1997 to mid-1998, the government managed to keep domestic food prices at 50-60% of import parity levels. However, capital flight led to a shortage of foreign exchange and the depreciation of the rupiah, greatly increasing the fiscal costs of importation. Further, the difference between domestic and international prices led to large-scale smuggling of rice and other food goods out of the country. The government was unable to supply enough imported rice to domestic markets, and in mid-1998, domestic rice prices rose sharply. As prices for food and other necessities soared and unemployment increased, the buying power of large segments of the population eroded. Social unrest erupted in May 1998. Suharto was forced to step down, and his successor Habibie gave way to the first democratically elected president in 1999.

To secure much needed loan facilities from the International Monetary Fund (IMF), the government signed a series of Letters of Intent (LOI's) outlining reforms they would undertake in exchange for financial support. While most of the reforms in these LOI's pertained to macroeconomic and financial policy, they included a number of significant reforms directly affecting the regulatory environment for agriculture (Annex Table 2.A1.1). BULOG's monopoly over the importation and domestic marketing of wheat and wheat flour, soybeans and sugar was abolished; the mixing ratio requirement for dairy imports was scrapped; tariffs were reduced; and the ban on exports of crude palm oil (CPO) and its derived products was lifted.

In August 1998, the government replaced its general consumer rice price stabilisation policy, implemented through market interventions by BULOG, with a targeted rice distribution programme to poor households with incomes below the official poverty line. Initially called Special Market Operations (*Operasi Pasar Khusus*, OPK), its name was changed in early 2002 to Rice for the Poor (*Beras untuk Orang Miskin*, RASKIN) to more clearly identify the name with its purpose. In September 1998, the government announced that BULOG would no longer procure food commodities other than rice on the domestic market and that trade in foodstuffs would be liberalised, ending BULOG's monopoly on rice imports. In December 1998, the government terminated the fertiliser subsidy programme. To stimulate production and reduce the impact on farmers of the removal of fertiliser subsidies, the government increased the floor price of rice and took measures to increase the availability of credit and lower its cost.

2000-present: Since 2000, a number of these reforms have been reversed. Fertiliser subsidies have been reinstated. Rice imports have been severely restricted and licenses to import sugar limited to a small group of sugar processors. Minimum purchase prices for rice and sugar have been raised. Non-tariff barriers have been used to control imports of products such as poultry and beef. These measures have been taken as part of the government's grand strategy to revitalise agriculture. Efforts have been made to revitalise a number of different areas including land tenure, seed, infrastructure and facilities, human resources, financial, institutional, technology and downstream industry.

Table 2.3. **Policy responses to rising commodity prices in 2007-08**

Commodity	Policy response	Period
Rice	Permission given to BULOG to import significant quantities of rice	Between January 2007 and April 2008
	Lowered tariff from IDR 450/kg (USD 49/tonne) to IDR 200/kg (USD 22/tonne)	Between March 2007 and May 2007[1]
	Raised the government reference purchase price for farmers (HPP)	2007 onwards
	Expanded the quantity of rice distributed to poor households through RASKIN[2]	February 2008 onwards
	Restrictions placed on exports	Between April 2008 and May 2009
Wheat flour	Lifted the Indonesian National Standard (SNI)[3]	Between January 2008 and July 2008
	Removed the 5% tariff	From 21 January 2008 to 28 January 2009
	Implemented the PPN-DTP (government covered value added tax)[4]	From February 2008 to January 2009
Soybeans	Removed the 10% tariff	From 14 January 2008 to 14 July 2008
	Implemented the PPN-DTP on processed soybean products[4]	From 14 January 2008 to 14 July 2008
	Sold soybeans to small-scale producers of tofu and temph (fermented soybean cake) at a subsidised price of IDR 1 000/kg (USD 103/tonne)	From April 2008 to September 2008
Cooking oil	Increased export tax rates on CPO and derived products and introduced variable export tax regime	From February 2007 to November 2008
	Instructed CPO producers to increase the amount of product available for domestic consumption as cooking oil	From May 2007 to December 2007
	Provided 40 000 tonnes of non-branded cooking oil at subsidised price to low income communities and SMEs	From May 2007 to November 2007
	Implemented the PPN-DTP on non-branded and package cooking oil[4]	From September 2007 to December 2008

1. It was subsequently raised from IDR 450/kg to IDR 550/kg between September 2007 and February 2008 to protect farmers at which point it was lowered back to IDR 450/kg.
2. For 2007, the number of eligible households was increased to 15.8 million, from 10.8 million in 2006. For 2008, the number of eligible households was increased to 19.1 million. In addition, the monthly rice ration was increased from 10 to 15 kg for 9 out of the 10 months, although the price paid for the rice was increased from IDR 1 000/kg to IDR 1 600/kg. For 2009, the number of households eligible was reduced to 18.5 million but the monthly ration was provided for the full 12 months of the year, with the subsidised price remaining the same.
3. Thereby removing the requirement that imported wheat flour be fortified with iron, zinc, thiamine, riboflavin and folic acid.
4. Under the PPT-DTP (*Pajak Pertambahan Nilai Ditanggung Pemerintah*) policy the government pays the 10% VAT.

Source: Jones and Kwieciński, 2010; World Bank, 2010.

Moreover, there has been an important shift in the paradigm of agricultural development. Compared to the pre-crisis period, a greater priority is now given to support the **interests of farmers** along the food chain, rather than to increase the profits of food processors or stabilise food prices for consumers. The focus has shifted from simply increasing production to increasing farmers' incomes and welfare; from the production of primary commodities to agribusiness in rural areas; and from labour-intensive technology to create more employment opportunities to capital-intensive technology as well as agricultural mechanisation as a means of increasing productivity and efficiency.

A major factor influencing this rise in political support for the agricultural sector has been the increased **political influence of farmers** as a result of the democratic changes introduced in the wake of the financial crisis and the fall of Suharto (Fane and Warr, 2008). One factor explaining this is the sheer number of voters that farm households represent. The current emphasis on input subsidies is a result of political dynamics at the beginning of the decade wherein Parliament wanted to put in place public expenditure activities to benefit farmers (voters) as directly as possible and avoid all the leakage of traditional programmes (World Bank, 2012). Another factor is the growing strength of agricultural lobby groups, which have become well-organised and present politically forceful arguments. For example, the Indonesian Sugarcane Farmers' Association (*Asosiasi Petani Tebu Rakyat Indonsia*,

APTRI) played a significant role in pushing for the new sugar tariffs in 2002. Its supporters applied pressure by staging disruptive rallies and ransacking warehouses suspected of containing illegal imports (Stapleton, 2006). Such activity is supported by the fact that much of the country's influential public opinion is sceptical of the merits of an open economy and deeper global commercial integration (Basri and Hill, 2008).

Despite the rising power of farmers, the government maintains a strong commitment to ensuring that **retail prices** for certain strategically important commodities remain at reasonable levels. This is clearly seen by the policy measures taken in response to the sharp rise in international commodity prices in 2007-08 (Table 2.3). Some of these responses sought to directly affect market prices, such as tariff reductions and the payment of the VAT due on the product by the government itself (*Pajak Pertambahan Nilai Ditanggung Pemerintah,* PPN-DTP). Other responses attempted to place downward pressure on market prices by increasing supply, such as the release of government stocks or increasing export taxes. A few specifically targeted those most affected by the price rises, e.g. the volume of subsidised rice distributed through RASKIN increased by 75% between 2007 and 2008.

Legal framework for policy implementation

Laws and regulations

Law 12/2011 on the Formulation of Laws and Regulations sets out the legislative hierarchy and guides the formulation of laws and regulations. At the top sits the 1945 Constitution of Indonesia followed by the Resolution of the People's Consultative Assembly. Below this, Laws (*Undang Undang*, UU) have the highest priority in the legislative system. The People's House of Representatives (*Dewan Perwakilan Rakyat*, DPR), in co-operation with the central government represented by the Ministry of Law and Human Rights, is responsible for producing **Laws**. The President has no power of veto: under the Constitution if the President does not sign a bill passed by the DPR, it will self-enact and automatically become Law after 30 days. Interim Laws (*Peraturan Pemerintah Pengganti Undang-Undang*, PERPU) sit alongside Laws. A PERPU is issued by the President and can only be issued in an emergency when the need is immediate. It must be ratified by the DPR in their first sitting after enactment to continue in force at which stage it becomes a Law. If not ratified at that sitting it ceases to have effect.

Next in the hierarchy are Government Regulations (*Peraturan Pemerintah,* PP). They are used to implement Laws and can only be made in relation to a particular Law. Like Laws, PPs are developed by the DPR in consultation with the Ministry of Law and Human Rights. Below this are Presidential Regulations (*Peraturan Presiden*, PERPRES). A PERPRES is issued to implement a higher legislation, i.e. it relates to matters stipulated by a Law or a PP. Regulations to implement Laws and PPs can also be issued by Ministers (*Peraturan Menteri*, PERMEN) and heads of departments (*Peraturan Direktur Jenderal*, PERDJ). **Regulations** are a relatively new legislative term in Indonesia, introduced by Law 10/2004. Prior to this Law, the term Decree (*Keputusan*) was only used, and was issued in one of two forms: either as a public rule (equivalent to a regulation) or as a declaration/instruction. Since 2004, ***Decrees*** are still issued but only in the latter sense. As a declaration, Decrees sit below Regulations in the legislative hierarchy because they are attached to a particular individual or group of officials within a particular institution. They are issued to determine or define specific policy that is needed, and are only binding in their respective sectors as an administrative decision. As with Regulations, Decrees can be issued by the President (*Keputusan Presiden*,

KEPPRES), Ministers (*Keputusan Menteri*, KEPMEN) and heads of departments (*Keputusan Direktur Jenderal*, KEPDJ).

Sitting outside this legislative hierarchy are **Presidential Instructions** (*Instruksi Presiden*, INPRES). These have no legal standing. Rather, they are an important statement of political commitment or intent. They are used to highlight important issues that need to be addressed, direct various bodies to co-operate and co-ordinate actions, and provide instructions on a range of measures that should be taken to resolve the issue. They cannot include legislative amendments or contradict Laws. However, the President can use them to call upon the DPR and ministries to draw up appropriate legislation.

The major laws, regulations and decrees specifically relating to agriculture are listed in Table 2.4. Among the most important is the Basic Agrarian Law 5/1960 which defines the fundamental types of rights that may be held by private individuals and entities, and describes the role of the state with regard to its direct use of land as well as its regulation of private rights and private uses of land. Law 7/2004 on Water Resources affirms the state's control over all water resources and sets out the priorities for water use. Irrigation needs of farmers is ranked second behind the use of water for daily basic needs, such as drinking, bathing, cooking, washing, sanitation and religious worship. Law 7/1996 on Food sets down basic policy on foods, food safety (*keamanan pangan*) and food security (*ketahanan pangan*). Separate laws are established to control the production of plantation, horticulture, cultivation and livestock.

Table 2.4. **Major laws, regulations and decrees affecting the agro-food sector**

Topic	Laws	Regulations/Decrees
Land	Law 5/1960 Basic Agrarian Law Law 41/1999 on Forestry Law 32/2009 on Environmental Management Law 41/2009 on Protection of Agricultural Land and Sustainable Food Law 2/2012 on Land Procurement for Public Interest	Presidential Decree 24/1997 on Land Registration Presidential Regulation 36/2005 on Land Procurement for Development for Public Purposes Presidential Decree 10/2006 Concerning land administration at national, regional and sector levels Government Regulation 10/2010 on the Procedure for Changing Forest Status and Functions Government Regulation 11/2010 on Control and Use of Abandoned Land
Water	Law 7/2004 on Water Resources	Government Regulation 20/2006 on Irrigation
Food	Law 7/1996 on Food	Government Regulation 69/1999 on Food Labelling and Food Advertisement Government Decree 68/2002 on Food Security Government Regulation 28/2004 on Food Safety, Quality and Nutrition
Quarantine	Law 16/1992 on Animal, Fish and Plant Quarantine	Government Regulation 82/2000 on Animal Quarantine Government Regulation 14/2002 on Plant Quarantine
Extension	Law 16/2006 on Extension System for Agriculture, Fisheries and Forestry	Government Regulation 43/2009 on the Financing, Development and Supervision of Extension Services
		Minister of Agriculture Regulation 26/2007
Investment	Law 25/2007 on Investment	Presidential Regulation 36/2010 on List of Business Fields Closed to Investment and Business Fields Open with Conditions to Investment
Production of specific commodities	Law 18/2009 on Livestock and Animal Health Law 18/2004 on Estate Crops Law 13/2010 on Horticulture Law 18/2010 on Cultivation	Minister of Agriculture Regulation 26/2007 on Guidance on Licensing Plantation Business Minister of Agriculture Regulation 39/2007 on Guidelines on Food Crops Business Permits

Source: Various Indonesian government sources.

National development and sector strategic plans

Another important element of the legal and policy framework is the establishment of long-term (25 years) and medium-term (5 years) national development plans. Formulating these is the responsibility of the National Development Planning Agency (BAPPENAS). The Long-Term National Development Plan (*Rencana Pembangunan Jangka Panjang Nasional*, RPJPN) sets out the overall vision for the nation, with the current RPJPN covering 2005-25. Medium-Term National Development Plans (*Rencana Pembangunan Jangka Menengah Nasional*, RPJMN) describe the government's development strategy, outlines national priorities, and serve as a basis for the setting annual budgets over a five-year period. The current RPJMN covers 2010-14 and is the second five-year plan issued under the current RPJPN. Agriculture is given a strong prominence in both. The RPJMN for 2005-09 identified agriculture revitalisation as one of the six economic development priorities and the current RPJMN identifies food security as one of eleven national priorities.

National development plans in turn give rise to medium-term (5 years) **sectoral strategic plans** (*Renstra*), including for agriculture. The relevant ministries prepare their strategic plans in line with the RPJMN for the same five-year period, and the vision and direction of the RPJPN. The strategic plan for agriculture describes the framework for agricultural development: describing past performance, and the problems and challenges faced by the sector; outlining the vision, mission, objectives and targets; setting the strategies and policy direction; and detailing the agricultural development programmes. The current 2010-14 strategic plan for agriculture maintains the seven strategic areas set out in the previous plan: 1) land revitalisation; 2) seed revitalisation; 3) infrastructure and facility revitalisations; 4) human resource revitalisation: 5) financial revitalisation; 6) institutional revitalisation; 7) technology and downstream industry revitalisations. Modifications have been made to some existing programmes and some new programmes introduced (MoA, 2010).

With the aim of enhancing the 2005-25 RPJPN, the government announced in 2011 a **Masterplan** for Acceleration and Expansion of Indonesia Economic Development 2011-25 (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*, MP3EI) (Co-ordinating Ministry of Economic Affairs, 2011). The vision is for Indonesia to be one of the world's leading developed countries by 2025. The MP3EI focuses on 22 specific economic activities, grouped within eight programmes – agriculture, mining, energy, industrial, marine, tourism, telecommunications and national strategic areas. Five of the 22 activities relate to agriculture production: palm oil, rubber, cocoa, food crops and animal husbandry. Food and beverage industry activities are included in the industrial programme. A selection of the 22 economic activities will be promoted within each of six regional corridors. These have been selected with reference to the natural advantages of each corridor and to ensure development occurs across the archipelago. In order to increase development in each of these activities/regions, the Masterplan identifies various actions within three areas: regulation and policy, connectivity (infrastructure), and human resources and science and technology. A common thread across the agricultural activities is to increase yields and stimulate further processing, e.g. increase planting with high-quality seeds, develop port capacity and establish research centres.

Institutional arrangements for administering agricultural policy

Central government ministries and agencies

The MoA has the **main responsibility** for formulating, implementing and administering agricultural policy in Indonesia. Its current structure has been in place since 2000, with the sub-ordinate areas based on agribusiness component (Table 2.5). Because agriculture is given a national priority status, the functions and policies affecting the sector are not fully under the authority of MoA at the central government level. The tasks in setting agriculture development priorities and objectives are facilitated by MoA, the Co-ordinating Ministry for Economic Affairs, BAPPENAS and the Ministry of Finance. The Co-ordinating Ministry of Economic Affairs has the task of synchronising and co-ordinating the planning, preparation, and implementation of policies in the field of economy, including the business and investment climate and infrastructure. It manages the mechanism for subsidy, guarantee, taxation, investment and allocation of equality fund for agriculture management of subsidy mechanisms. Similarly, the MoA is required to work with the Co-ordinating Ministry for Social

Table 2.5. **Main tasks and budget share of Echelon 1 divisions under the Ministry of Agriculture**

Echelon 1 division	Share of budget[1] %	Activities
Secretariat General	18.5	Co-ordinating the implementations of task, mentoring, providing administrative support to all organisational units within the Ministry of Agriculture
Directorate General of Food Crops[2]	15.2	Formulating and implementing policies and technical standardisation for food crops, including distribution of food crops seed subsidy, management of food crops seed reserve system, production management of cereal crops, development of forecast for pest attacks
Agency for Agricultural Extension and Human Resource Development	12.1	Formulating and implementing agricultural extension and human resource development in accordance with laws and regulations, including agricultural training, education and counselling systems
Directorate General of Agriculture Infrastructure	11.7	Formulating and implement land and water management, including expansion of farming area and management of water for farming; distribution of subsidised fertiliser
Agency for Agricultural Research and Development	9.8	Formulating and implementing research and agricultural development, including crop, horticulture and livestock production, biotechnology, social and economic research, and dissemination of agricultural technology innovation
Directorate General of Livestock and Animal Health	8.0	Formulating and implementing policies and technical standardisation for livestock, including improvement of breeding material, management and control of animal and zoonosis diseases, and ensuring halal requirements are met
Directorate General of Processing and Marketing of Agricultural Products	5.7	Formulating and implementing policies and technical standardisation in the field of processing and marketing of agricultural products, including the development of quality and standards, and domestic and international marketing
Agency for Food Security	5.6	Formulating and implementing policies on food availability, food insecurity, distribution of food reserves, and food consumption and diversification
Directorate General of Estate Crops[3]	5.0	Formulating and implementing policies and technical standardisation for estate crops, including production, productivity and quality improvement
Agency for Agriculture Quarantine	4.5	Formulating and implementing agricultural quarantine for both animals and plants
Directorate General of Horticulture[4]	3.2	Formulating and implementing policies and technical standardisation in the field of horticulture, including production, productivity and quality improvement
Inspectorate General	0.7	Implementing internal control within the Ministry of Agriculture

1. Average budget allocation over 2007-09.
2. Food crops include rice, maize, soybeans, peanuts, cassava and sweet potatoes.
3. Estate crops include both food crops – sugar cane, palm oil, coconut, cocoa, coffee, tea, pepper, cashew nut – and non-food crops – rubber, cotton, tobacco, clove, jathropa, patchouli and kemiri sunan.
4. Horticultural crops include chillies, shallots, potatoes, mango, banana, durian and mangosteen and root and ornamental plants.

Source: MoA, 2010.

Welfare in terms of poverty alleviation efforts and the Co-ordinating Board for Investment on investment matters.

A large number of other line ministries or public institutions have responsibilities relating to agriculture (Table 2.A1.2)**.** A key challenge is to ensure adequate **co-ordination** among the ministries to avoid overlaps and conflicts in activities. On issues related to agriculture infrastructure such as irrigation and rural roads, MoA collaborates with the Ministry of Public Works (MoPW). Similarly, the National Land Agency and the Ministry of Forestry (MoF) play important roles in allocating additional land for agricultural use. For example, one of the initiatives being undertaken to realise the target of self-sufficiency in sugar by 2014 is to increase the plantation area from 316 000 to 766 000 ha by 2014. However, only 66 000 of the required 350 000 ha had been secured by the end of 2011. The additional land secured is classified as forest area – under the jurisdiction of MoF – which issued licences allowing it to be used for agriculture.

Regional government

In addition to co-ordination at the central government level, MoA must also take into consideration regional government proposals in formulating policy. After the fall of the Suharto regime in 1998, Indonesia embarked on a "big-bang" **decentralisation programme**. President Habibie introduced and the parliament quickly passed Law 22/1999 on Regional Autonomy and Law 25/1999 on Fiscal Balance.[3] The new system became operational on 1 January 2001. The central government decentralised most functions and resources to the second-tier of local government – districts and municipalities (*kabupaten* and *kota*) – largely by-passing the 33 provinces headed by governors. The number of second-tier governments has risen sharply, from a little over 250 during most of the Suharto era, to approximately 500: 399 districts and 98 municipalities. The range of services under the second-tier local governments' responsibilities expanded from a limited set of construction projects, maintenance of local infrastructure and regulation of firms to 11 key functions including agriculture.[4] Decentralisation was motivated by a fear of territorial disintegration, due to widespread inter-communal and ethnic violence. It was also pushed as an antidote to widely acknowledged corruption at the central government level (Barichello and Patunru, 2009).

As a consequence, agricultural development planning has shifted from top-down policy and planning to **top-down policy and bottom-up planning**. Before decentralisation, the agricultural development planning function was characterised by central command and control. Regional institutions tended to be executors of activities determined at the central level. In bottom-up planning, agricultural development activities are formulated starting at the district level, moving up to the provincial level and then to the central level. Under the co-ordination of the Local Development Planning Board (BAPPEDA), each district/municipal government conducts an Agricultural Development Planning Conference to formulate a planning document for agriculture. Similar conferences are then held at the provincial level to co-ordinate and evaluate the district/municipal proposals. Provincial BAPPEDA have the role of co-ordinating agricultural development by integrating activities, regional development, and development budget source. At the national level, MoA organises a development planning meeting to socialise the national policy and develop regional government commitment.

Regional government also play an important role in implementing and administrating many policy measures. In particular, **district government agriculture offices** (*Dinas Pertanian*), in association with farmer groups where relevant, develop proposals that are

eligible for funding through central government programmes, with the criteria established by the relevant central government line ministry. Once accepted by the line ministry, funding for the proposal is transferred from the line ministry to the district government, who in turn transfers the money to the relevant farmer groups. Around 60% of MoA's budget is transferred to district level governments through this "co-administering" mechanism (*Dana Tugas Pembantuan*, DTP).[5] Funding for district-level programmes is in many cases supplemented by local funding, although local governments have been delegated few revenue-raising opportunities.[6] Most of their other revenue comes from transfers from the Ministry of Finance in the form of Balance Funds and Special Autonomy and Adjustment Funds. Balance Funds consist of the Revenue Sharing Fund (*Dana Bagi Hasil*, DBH), General Allocation Funds (*Dana Alokasi Umum*, DAU) and Special Purpose Grant Funds (*Dana Alokasi Khusus*, DAK). The objective of these transfers is to reduce financial discrepancy between the centre and regions as well as among the regions, and to reduce interregional disparity in the provision of public services (OECD, 2010).

The DAU grant, which is the largest component of budget transfers to the regions, is a general-purpose grant that is intended to equalise sub-national fiscal resources and is mostly used to cover administrative costs such as the local civil service wage bill. In contrast, the **DAK grant** is the main source for the development of physical infrastructure for sub-national governments. DAK funding is allocated across a large number of areas such as education, health, infrastructure, agriculture, maritime affairs and fisheries, and the environment (ADB, 2010).[7] DAK transfers for irrigation infrastructure began in 2003 while those for agriculture related infrastructure commenced in 2005. Although DAK funding is directly transferred from the Ministry of Finance to sub-national governments, MoA provides guidance on what priority agriculture facilities should be financed.

Because the transfer of responsibilities to local government was made without adequate funding, policy guidelines, or training of local officials, it was perhaps inevitable that corruption at the local level became rampant. A 2008 World Bank review concluded that: "Overall, the environment for 'good governance' at the local level is weak and corruption similar to the national situation is endemic" (cited in Barichello and Patunru, 2009). In addition to "unofficial" payments, official taxes or user charges (*perda*) can be imposed on the transportation of agricultural commodities out of a region (The Asia Foundation, 2011). Decentralisation may also have raised barriers to internal trade and the movement of factors of production because of weak administration and delays in document processing. The use of trade-distorting, revenue-raising measures by local governments increases the consumer price of goods, reduces competitiveness and discourages investment. Partly because of the resulting "compartmentalism" in the economy and the higher transactions costs for most economic activities caused by these activities, there is much donor interest and activity in **improving local governance**, including agricultural extension services and water and irrigation management (Box 2.1).

Parastatal institutions

There are more than twenty **state-owned enterprises** (SOE) involved in the agricultural sector (Table 2.A1.3). Seven are involved in manufacturing and delivering farm inputs. The two SOEs producing seeds compete with private sector companies in the seed market, but the five fertiliser SOEs operate in a monopoly position. This is reinforced with the establishment in 2008 of PT Agro Kimia Indonesia as the holding company for the five fertiliser SOEs. Fifteen SOEs grow, process and distribute a variety of estate crops including

Box 2.1. **Involvement of the World Bank in Indonesian agriculture**

The World Bank has a long-standing relationship with the government of Indonesia with regard to agriculture – helping finance agricultural technical services since 1975 and extension services since the late 1960s. It has also financed smallholder cattle development, tree crop development, and more recently, integrated pest management projects, research management and decentralised extension projects.

The ***Farmer Empowerment through Agricultural Technology and Information (FEATI)*** project (2007-12) is a community empowerment programme jointly funded by World Bank and the government. The aim of the project is to reshape the delivery of agricultural research and extension services towards a dynamic multi-provider system so that farmers can become more competitive, increase their income and improve their livelihoods. By the end of 2011, 16 314 Farmer-Managed Activities (FMAs) have been implemented in around 3 064 villages, located within 68 districts/18 provinces. In addition, 789 district-level Rural Extension Centres have been constructed with a total project objective of 807. Activities also include developing a business plan for the commercialisation of the e-Petani software to cell phone companies.

A new investment lending operation in support of improving the institutional and human resource capacity of the Indonesian agricultural research system – the ***Sustainable Management of Agricultural Research and Technology Dissemination (SMARTD)*** will be launched in 2012. The project objective is to strengthen the capacity of the Indonesian Agency for Agricultural Research and Development (IAARD) to develop and disseminate international best practice technologies for improved agricultural productivity, profitability and sustainability.

The World Bank has also worked on issues relating to land tenure and water resources. The goal of the ***Land Management Project and Policy Development Project***, which began in 2004, is to contribute to government programmes in achieving poverty reduction, economic growth and promote full utilisation of land resources in a sustainable manner. The project seeks to improve land tenure security and enhance the efficiency, transparency, and improve service delivery of land titling and registration while enhancing local government capacity to undertake land management functions with great efficiency and transparency.

The ***Water Resources and Irrigation Sector Management Programme*** is an 11-year adjustment programme loan that commenced in 2003 as an extension of support provided since 1997 on institutional development for water resource management. The programme assists with improving the governance and management of water resources as a whole, and the institutional capacity, operation and infrastructure of irrigation schemes in particular. The first phase of the programme was designed to help put Indonesia's Law 7/2004 on Water Resources into action. Phase two of the programme will focus on improving capacity for basin water resource and irrigation management. It is expected to directly impact on 500 000 farming households in 100 districts across 14 provinces.

Source: World Bank website for Indonesia, *www.worldbank.org/en/country/indonesia*.

palm oil, rubber, sugar, cocoa, coffee and tea.[8] Each plantation SOE produces a different mix of crops and manages a number of estates. Some also have non-agricultural related business ventures. While the plantation SOEs operate within predefined boundaries, similar to the fertiliser SOEs, they compete with private sector companies. For some products SOEs hold a dominant position in the market. For example, SOEs operate 51 of the 61 sugar mills in the country. In January 2012, PT Perkebunan Nusantara III was

appointed as the holding company to oversee the other 14 plantation companies to improve their co-ordination, investment and management performance.

BULOG was transformed into an SOE on 9 May 2003, now trading as Perum BULOG.[9] An important reason for corporatisation was that leaving it as a national agency presented problems in adjusting BULOG's operations to the 1999 decentralisation laws (Yonekura, 2005). Organisational reform was also necessitated by a series of corruption incidents in the early 2000s, such as the "Bulogate" scandal and the illegal use of IDR 35 billion (USD 5 million) belonging to the BULOG employees' welfare foundation by the deputy chairman. **BULOG performs four public service functions**. It is responsible for providing and distributing subsidised rice to the poorest through RASKIN. As about 65% of RASKIN is delivered to rural areas, BULOG operates more than 50 000 distribution points throughout Indonesia. Its existing and extensive network of warehouses makes it the only viable operator of RASKIN. The second function is to release rice onto the open market whenever the government deems that retail prices of rice are above tolerable levels. BULOG is also responsible for the management of the government rice reserve (*Cadangan Beras Pemerintah*, CBP). Initiated in 2005, this reserve of 500 000 tonnes (originally 350 000) is held in anticipation of an emergency situations caused by natural disasters or climatic events. In total, BULOG operates with a stock holding of at least 1 million tonnes of milled rice to perform these three functions, and has authority to build up its stock holding to 2 million tonnes. Finally, it must procure rice from farmers and/or millers at Government Purchase Prices (*Harga Pembelian Pemerintah*, HPP), which are set before the start of each season by the government through a Presidential Instruction (INPRES).

Farmer organisations

During the period of Suharto's New Order government, **only two farmer organisations** were allowed: the quasi-state union, the Indonesian Farmers' Union (*Himpunan Kerukunan Tani Indonesia*, HKTI), and the state initiated village-level co-operative system (*Koperasi Unit Desa*, KUD). Both were more instruments of control than of representation. The KUD concept was introduced in 1970 to function as a service centre for rural people residing in one or more villages. The roles, responsibilities and powers of the KUD were progressively expanded during the 1970s and 1980s, along with their number. The main activities assigned to KUD's included involvement in BIMAS by marketing and distributing fertiliser and other production inputs, and procuring rice for national stocks on behalf of BULOG. It became obligatory for farmers, particularly rice farmers, to join the KUD to have access to this support. For paddy farmers, being a member of these institutions meant compulsory acceptance of new technology, input and guidance of extension workers. Presidential Decree 4/1984 consolidated their economic dominance by forcing the merger of some other commodity and input co-operatives into the KUD structure, and limited the development of alternatives (Suradisastra, 2006).

Since the resignation of Suharto in 1998 there has been an unprecedented **rise in the number of farmer organisations** and in the political influence of farmers. Presidential Decree 18/1998 stimulated the development of new co-operatives by removing the exclusive right of KUDs to be the co-operative in rural areas. Competitive elections, the emergence of genuine political parties, the reduction of military influence and the general growth of freedom of speech, all greatly expanded the potential political space. Farmers have seized this new space with gusto, forming a remarkable panoply of overlapping organisations and associations (Table 2.6).

A large number of farmer groups have been formed at the **village level** in the context of various government programmes, for example to access credit or determine fertiliser requirements. A recent initiative is to create a federation of these farmer groups (*Gabungan Kelompok Tani*, GAPOKTAN) in each village through the Rural Agribusiness Development Programme (*Pengembangan Usaha Agribisnis Perdesaan*, PUAP). Private companies have been responsible for the development of other local farmer groups as an obligation for having gained the right to log timber or develop estate crops. Other farmer groups focus on a particular **issue**, often supported by NGOs in their mission to empower rural people. These have generally focussed on advocating farmers' rights over natural resources such as land and water (particularly prominent on the Outer Islands) or in helping farmers develop sustainable agricultural practices such as organic agriculture. Rather than being locally based, some farmer groups focus on a particular **sector**. Producer organisations exist for sugar, cocoa, coconut, palm oil, rice, sugar, tobacco and coffee. APRRI has been the most active of these groups – combating smuggling and launching repeated raids on suspected warehouses, mills and cargo ships that they suspect of carrying illegal sugar.

Table 2.6. **Farmer-based organisations in Indonesia**

Type of organisation	Number
Farmer groups	270 817
Federation of farmer groups	28 304
Working group of federations of farmer groups	1 365
Farmer input supply and marketing co-operatives	15 433
Producer organisations for high value crops	2 100
Total	318 019

Source: IFPRI/FAO/IICA *Worldwide Extension Study*, 2010, *www.worldwide-extension.org/asia/indonesia*.

At the national level, the largest **network of farmer organisations** is the Indonesian Peasant's Union (*Serikat Petani Indonesia*, SPI).[10] Established in 1998, the initial focus was on agrarian reform – corrective action to restructure unequal ownership, control, allocation and management of agrarian resources. In more recent years it has moved on to campaign on issues such as food sovereignty, sustainable agriculture and anti-neoliberalism, protesting strongly against rice imports and "unfair" trade practices such as subsidised commodity imports. Other national farmer organisations include the National Peasant Union (*Serikat Tani National*, STN), the Alliance of Agrarian Reform Movements (*Aliansi Gerakan Reforma*, AGRA), and the Indonesian Peasant's Alliance (*Aliansi Petani Indonesia*, API).

Although increasing in number, **existing farmer institutions are very weak** (MoA, 2006). A farmer's interest in joining an organisation or group tends to be based on the assistance to be provided to the group. Consequently, farmer organisations are generally dependent on facilities from other institutions and their activities will likely cease without help. Moreover, the present condition of farmer groups is uncoordinated because every government institution establishes their respective farmer groups to implement their own project. This results in many overlapping farmer groups. Further, farmers in general are not aware of the benefit of organisation for accessing various information technologies, capital financing and the markets required to develop farm and agricultural businesses (MoA, 2010). Despite the large number of organisations, it is estimated that only 25% of farmers belong to one or more of these organisations (IFPRI/FAO/IICA Worldwide Extension Study, 2010).

2.2. Domestic policies

This section discusses in detail domestic agricultural related policy measures that provide support to agriculture in Indonesia. It begins by examining the policies through which transfers are directly received by producers, i.e. included in the measurement of the Producer Support Estimate (PSE), from price support measures and input subsidies through to disaster relief. Trade policies can also provide support to producers and these are discussed in Section 2.3. Two important policies providing support to the agricultural sector as a whole are then discussed: research and development and infrastructure. These are included in the General Services Support Estimate (GSSE). Another GSSE classified expenditure, inspection services, is described in Section 2.3. The final sub-section discusses policies that are provided to consumers specifically for the purposes of reducing the price of the goods they consume. These are included in the Consumer Support Estimate (CSE).

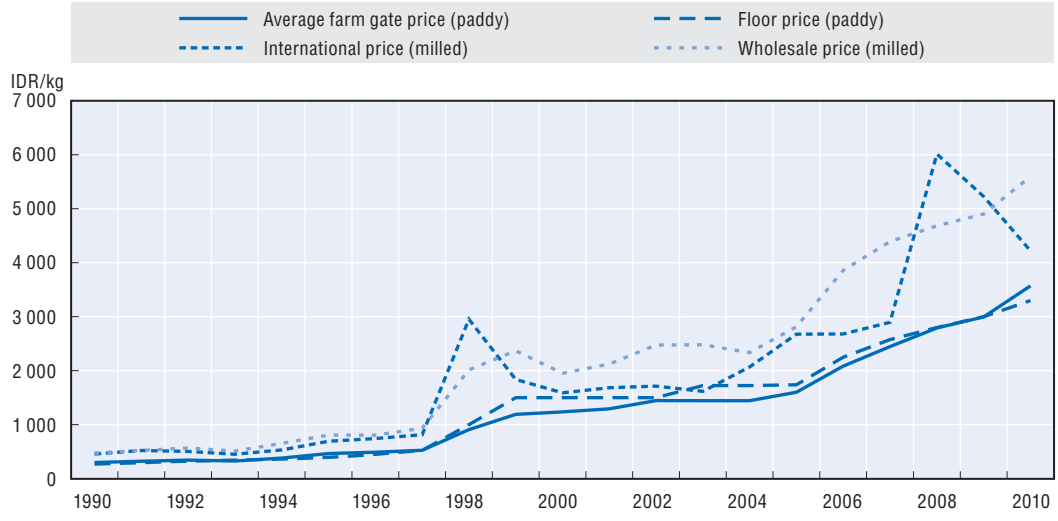
Price support measures

Government determined producer floor prices were removed for a number of commodities at the end of the 1980s. For example, the floor for maize was terminated in 1989, having been in place since 1978. Along with this, BULOG ceased to exert monopoly control over maize imports and over inter-island and inter-provincial marketing. In the cases of groundnut, mungbean and soybean, the floor price policy was terminated in 1981, 1989 and 1991, respectively. In these three cases the prevailing farm gate prices were always higher than the floor prices due to higher international (import) prices, making these floor prices ineffective (Trewin, 1999). Price support policies remain in place for rice and sugar.

From 1969 to 1997, the government stabilised domestic prices of **rice** by a combination of a price band (guaranteed floor price for producers and a ceiling price for consumers) and a monopoly on trade given to BULOG. BULOG procured rice from farmers via KUDs. Farmers were not forced to sell their crop to KUD – able to sell rice to private traders if they offered better prices than the floor price. During this period BULOG was successful in stabilising domestic producer and retail rice prices, while keeping them in trend with world prices overall (Figure 2.1). Its success was in part due to its credibility. BULOG had demonstrated its commitment and ability, in terms of access to finance and expertise, to operate a floor-ceiling price stabilisation scheme for more than two decades. Local traders knew the patterns and procedures of BULOG, seasonally and between years, and anticipated their purchase and sales actions. This meant they were willing to undertake seasonal stocking activities that complemented and simplified BULOG's operations (Barichello, 2010).

In the mid-1990s, retail rice prices stabilised at around IDR 1 000/kg (USD 450/tonne). Retail prices of rice started to rise sharply from the end of 1997 due to a rapid depreciation of the rupiah. This was compounded by a very poor domestic rice harvest in 1998, which forced BULOG to import nearly 6 million tonnes of rice that year (Figure 2.2). Riots in May 1998 caused consumers to hoard rice. Meanwhile the activities of the private sector, especially of large distributors to supply rice, were severely curbed by the worsening economic situation and the difficulty of procuring working capital due to the higher interest rate. As a consequence of these factors, retail rice prices reached IDR 3 000/kg (USD 293/tonne) in September 1998.

Figure 2.1. **Comparison of different types of rice prices in Indonesia, 1990-2010**



Note: Wholesale price is the average price of IR III quality rice on the Jakarta market. International price is Thailand 15% broken, accounting for transport costs to Indonesia.

Source: MoA, 2011; USDA *World Rice Report*, 2011.

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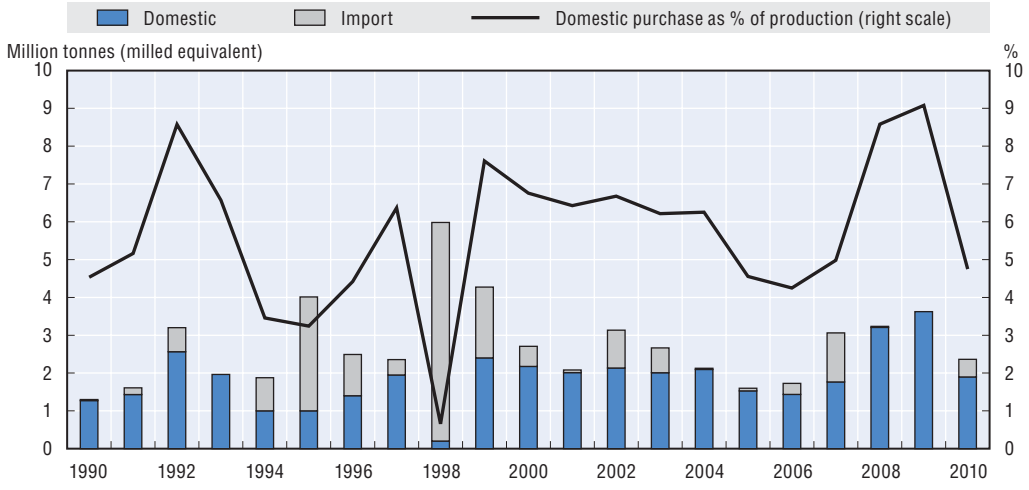
Figure 2.2. **Domestic purchases and imports of rice by BULOG, 1990-2010**



Source: MoA, 2011.

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In August 1998, BULOG's monopoly power over trade, access to subsidised credit and responsibility for defending the government producer floor price for rice were removed, with OPK/RASKIN introduced to provide targeted support for the most vulnerable consumers. Because rice procured by BULOG for RASKIN and for stockholding purposes is purchased at government determined prices (HPP) and with government financing, the government maintains some degree of direct influence over producer prices. Over the ten-year period 2001-10, BULOG's annual level of procurement has averaged 6% of domestic production, varying between a low of 4% in 2006 and a high of 9% in 2009. Domestic prices for rice have also been supported by trade policy measures: a specific tariff on rice imports

introduced in 2000 and the effective ban on imports that has been in place since 2004. These measures have contributed to a widening gap between domestic and international rice prices over the 2000s, with the notable exception of 2008-09 when various policy measures were taken to reduce the transmission of the international rice price spike on the Indonesian market. With rising producer prices, the HPP has also had to rise in order to enable BULOG to purchase enough rice for its obligations.

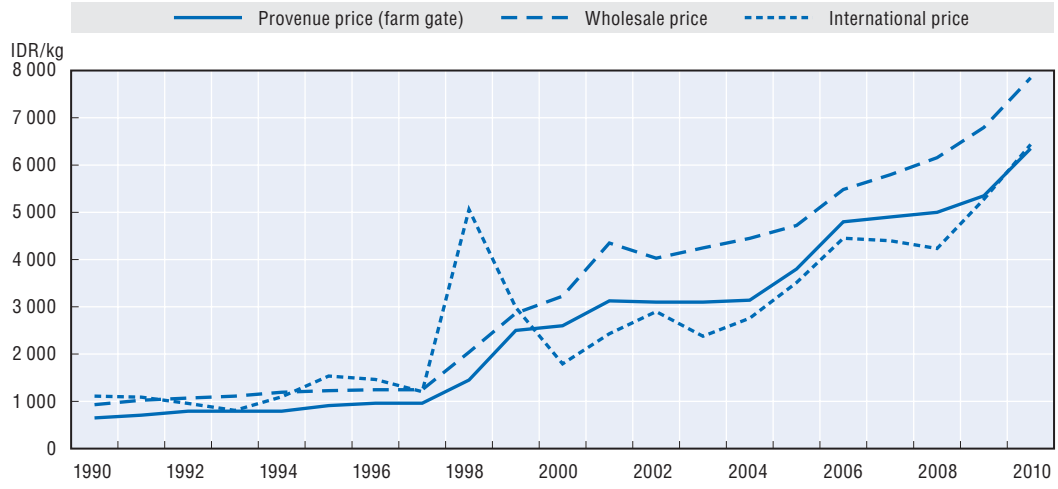
As a further step to assist producers and increase the effectiveness of the HPP, the Capital Empowerment for Rural Economic Institutions (*Dana Penguatan Modal – Lembaga Usaha Ekonomi Pedesaan*, **DPM-LUEP**) was developed in 2003 and ran until 2008. The programme provided interest-free credit for selected rural business units so that they could assist in stabilising the price of rice at an acceptable level during the harvest season by purchasing rice on the basis of the HPP. In 2007, the programme was extended to include corn and soybeans, with the target prices determined by the provincial government. During the life of this programme, the government provided finance to 1 184 LUEPs in 27 provinces.

In the early 1970s, BULOG was given the role of stabilising prices and distributing **sugar**. As part of an effort to achieve self-sufficiency in sugar production, announced toward the end of the 1970s, BULOG's role was extended in 1981 by giving it the monopoly on sugar imports and all purchases of domestic production. In effect, BULOG was given complete control over the supply of sugar on the domestic market. The distribution chain and most prices were also regulated. BULOG chose who would receive the "purchase" quotas, giving them control over who would receive the economic rents in this distribution system. In addition to supporting farmers, the government used the system to support sugar cane mills, many of which are operated by SOEs, by allocating them the purchase quotas (Fane and Warr, 2008).

At the farm level, regulation took the form of price setting as well as a form of quantity setting. The government set the price structure for sugar, which consisted of a *provenue* (manufactured primary price) paid to growers and an ex-factory price. Smallholders, who had been forced to grow sugar to supply Dutch-owned sugar mills in the colonial period, continued to be forced to supply the now state-owned mills in the post-nationalisation period under the central government's sugar cane intensification scheme (*tebu rakyat intensifikasi*, TRI). Under TRI, selected farmers were required by the regional government head to grow sugar for its 2-3 year rotation, and these "required duties" were rotated within the village. This policy of forced sugar plantings was controversial because on irrigated land it was normally (not always) the case that rice was more profitable (Barichello, 2010).

A part of the 1997-98 reform packages, BULOG's monopoly over the trade and distribution of sugar was removed along with the obligation of farmers to plant sugar to support sugar mills. There was a re-regulation of imports in late 1999, with import licenses given to the Java-based sugar millers. However, these were removed at the start of 2000 and replaced by tariffs of 20-25%. More importantly, since 2002 quantitative restrictions on sugar imports have been imposed; giving control of the domestic consumer market to sugar millers in return for an obligation to purchase 75% of their sugar raw material requirements from domestic sugar cane growers and ensure growers receive at least a government determined minimum price for their product. Consequently, the gap between domestic and international prices widened considerably during the early 2000s and has remained so over the decade (Figure 2.3).

Figure 2.3. **Comparison of different types of sugar prices in Indonesia, 1990-2010**



Note: All prices are expressed in refined sugar equivalent.

Source: MoA, 2011; COMTRADE.

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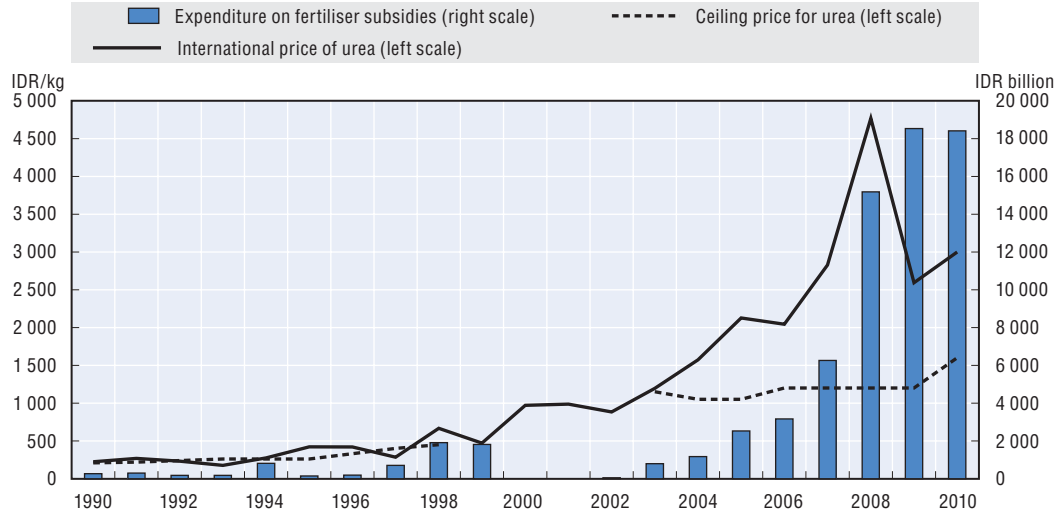
Fertiliser subsidies

Indonesia began subsidising fertiliser in 1971 as part of the broad range of policies introduced to make use of the high yielding crop varieties developed in the green revolution. Maximum Retail Prices (MRP) were set for four types of fertiliser – Urea, Zinc Ammonia (ZA), TSP and KCl.[11] To keep a balance between the output and input support measures in operation at that time, MRPs were set in relation to the minimum procurement price for paddy within a paddy-to-urea price ratio of 1.30 to 1.50 (Table 2.A1.4) In return, the SOE fertiliser manufacturers received subsidised natural gas from the state-owned producer Pertamina and subsidies through a complex freight equalisation scheme (World Bank, 1999). This system created a heavy budgetary burden for the government. Over the seven years 1984-90 the fertiliser subsidy averaged almost IDR 650 billion (USD 440 million) per annum. Because of this, the programme was **phased out over the 1990s** by both gradually increasing MRPs and removing fertilisers from the scheme. As a result, the budgetary cost of fertiliser subsidies reduced to an average of IDR 350 billion (USD 160 million) during 1990-97 – averaging 17% of budgetary expenditure supporting agriculture production (Figure 2.4).

In April 1998, as an emergency response to the shortage of domestic food grain supply caused by the drought, subsidies on all fertilisers for food crops were reinstated to increase production. However, with the sharp devaluation of the rupiah later in the year, the subsidy would have cost IDR 5 trillion (USD 637 million) for fiscal year 1998/99. This was unsustainable, and on 1 December 1998 all subsidies for fertiliser were terminated and the government withdrew from the marketing of fertilisers. To ease the burden for farmers, the government increased the minimum purchase prices for rice (by 50% in the case of paddy), reduced the annual interest rate on concessional loans from 14% to 10.5%, and raised the maximum borrowing level for farmers.

In 2003, the government **reinstated fertiliser subsidies** for domestically produced Urea, SP-36, ZA and NPK fertilisers, for use solely by farmers producing on less than 2 ha. The subsidy is again paid directly to the five SOE fertiliser manufacturers, who are required

Figure 2.4. **Fertiliser subsidies in Indonesia, 1990-2010**



Note: International price is bulk spot, f.o.b. Black Sea (primarily Yuzhnyy) from July 1991; for 1990-91 (June) f.o.b. Eastern Europe.

Source: MoA, 2011; Index Mundi, *www.indexmundi.com*.

StatLink http://dx.doi.org/10.1787/888932650116

to sell these products to farmers at a Highest Retail Price (*Harga Eceran Tertinggi*, HET) – which are set each year by the government. For Urea, the subsidy is given in the form of a natural gas subsidy. The fertiliser industry in Indonesia largely depends on natural gas for fertiliser production, accounting for 50-60% to the total production cost of Urea (Dewi, 2010). The liberalisation of the gas sector in 2001 means that the government can no longer provide the subsidy through a reduced price for gas as it did in the past. Under the current system, the natural gas price and the HET for Urea determine the per-unit value of the subsidy. The quantity element is limited to the amount of gas needed to produce the volume of fertiliser required by smallholder farmers. The volume of fertiliser is in turn determined through a bottom-up process. In each village a definitive plan needs group (*Rencana Definitif Kebutuhan Kelompok*, RDKK) of farmers establishes their fertiliser requirements. This is aggregated up at the district and provincial levels to obtain a national volume of fertiliser demand. For non-urea fertilisers, the subsidy is presented to offset the fertiliser selling price.

In addition to reintroducing fertiliser subsidies, the government changed the **distribution system**. PT Pupuk Sriwijaya had been appointed in 1979 as the sole distributor. In 2004 this was removed and replaced by a new tightly controlled zoning pattern with predetermined distribution areas for each manufacturer, designed to prevent leakage from one market to another.[12] Manufacturers can only distribute fertiliser to warehouses within their predefined territory – warehouses can only distribute fertiliser to retailers (kiosks) in their district up to the pre-determined total volume needed by the district – kiosks can only provide fertilisers to farmers/farm groups in their area – farmers can only buy subsidised fertiliser at a specified kiosk.[13] As a further measure to prevent leakage, manufacturers are only allowed to export fertiliser after domestic demand has been fully met.

The HET price for urea was held fairly constant from 2003-09. With huge increases in the price of energy during the late 2000s, the budget for the fertiliser subsidy programme increased significantly from 2005 to 2009. A further factor contributing to the budget

increase was an expansion in the quantity of subsidised fertiliser being distributed, particularly NPK fertiliser (Table 2.7). Expenditure on fertiliser subsidies represented 37% of total budgetary support for agriculture in 2008-10.

Table 2.7. **Quantity of subsidised fertiliser provided to farmers, 2003-10**

	(000 tonnes)							
	2003	2004	2005	2006	2007	2008	2009	2010
Distributed through the HET price subsidy system								
Urea	4 339	4 239	4 027	4 300	4 300	4 800	5 500	4 931
SP-36	1 000	800	600	700	800	800	1 000	850
ZA	715	600	400	700	700	700	923	850
NPK	300	400	230	400	700	900	1 500	2 100
Organic	–	–	–	–	–	345	450	750
Distributed through BLP system								
Organic – Granular[1]	–	–	–	–	–	152	195	293
Organic – Liquid[2] (000 litre)	–	–	–	–	–	1 010	1 297	1 955
NPK	–	–	–	–	–	51	65	98

1. *Pupuk Organik Granular* (POG).
2. *Pupuk Organik Cair* (POC).

Source: MoA, 2011.

Despite the tight control, the dual pricing system for fertilisers is **experiencing some problems**, with shortages and delays caused by distortions and inefficiencies (Rachman and Sudaryanti, 2010). One major issue is that the price subsidy paid to manufacturers does not necessarily transfer down to producers – only 10% of farmers paid the HET price or below for Urea in 2007 (Osorio *et al*., 2011). In reality many farmers who operate more than 2 ha also receive the subsidy by splitting land into several plots on behalf of their family members. Because of the price disparity between subsidised and non-subsidised fertiliser on the domestic market, and frequently between the domestic price of subsidised fertiliser and fertiliser price in the international market, there is a strong incentive to illegally sell product to farmers ineligible to purchase the subsidised product or smuggle subsidised fertiliser abroad. The only supervision of the programme comes in the form of a reporting system, with no field monitoring. A second issue is that the lack of competition in the distribution system removes the incentive for manufacturers to innovate and invest in producing and distributing fertiliser more efficiently. This is compounded by the fact that while Java accounts for about 60% of demand for urea fertiliser only about 20% of urea is produced there. Accordingly there is a high transportation cost associated with distributing fertilisers.

The government has taken a number of actions to deal with these concerns. Two steps have been taken to improve the transfer of fertiliser support to the targeted group of smallholder farmers. The **Direct Fertiliser Aid** (*Bantuan Langsung Pupuk*, BLP) programme commenced in 2008. It is a small programme, based on a free distribution of organic and NPK fertilisers to farmers who participate in field schools (Table 2.7). It has focused its distribution on farmers in areas that fall below the average national/provincial/district productivity rates. It has also tightened the distribution system. As of 1 January 2009, the distribution of subsidised fertilisers from retailers to farmers/farmer groups has been implemented closely based on the RDKK. Retailers are only allowed to sell subsidised

fertilisers to farmers registered with a RDKK, verified by the Village Head, District Head, and Regent.

With the objective of improving production, marketing and distribution of fertiliser, the government set up a single holding company, PT Agro Kimia Indonesia in 2008. It has also invested IDR 2.8 trillion (USD 290 million) to **revitalise the industry**, primarily allocated to the rehabilitation of four factories that are more than 30 years old (three owned by PT Pupuk Sriwijaya and one owned by PT Kaltim). Through this investment the production capacity of the industry will increase from 8 million tonnes to 10.4 million tonnes of Urea and from 1.37 million tonnes to 3 million tonnes of NPK.

Covering 6.5 million ha, organic farming mostly follows traditional practices. Organic standards were introduced in 2003. The goal for 2010 is the development of the framework for organic certification and accreditation. As a step towards this, in 2006 a competent authority for organic food was created, with its main task to formulate policy for organic and traditional food systems and to develop a certification programme. This initiative fits within the MoA's strategy to improve the marketing of products in order to support farmers and their ability to produce and sell quality food.

In addition to the distribution of organic fertiliser through the BLP programme, two other support measures relating to organic fertiliser have been introduced. In 2006, the government began distributing free-of-charge an **organic fertiliser making unit** (*Unit Pembuat Pupuk Orgaik*, UPPO) to farmer groups. A UPPO consists of 35 cows, an animal enclosure, organic fertiliser processing tool, simple compost house, fermentation tank and three wheeler vehicles. Each UPPO is capable of producing 135 tonnes of organic fertiliser per year from livestock manure. As at the end of 2009, 1 345 UPPOs had been distributed. In 2008, organic fertiliser was included as a product eligible for price subsidies through the HET system. To increase the use of organic fertiliser the HRP of organic fertiliser was reduced from IDR 1 000/kg (USD 103/tonne) in 2008 to IDR 500/kg (USD 48/tonne) in 2009.

Seed subsidies

As with fertiliser, seeds are another important agricultural input, accounting for above 5% of total production costs (MoA, 2010). Many farmers are involved in the traditional or informal seed system, especially for those composite varieties that farmers could reproduce by themselves without any significant reduction in yields (Sayaka, 2007). The government wishes to promote the use of **good quality seeds** by farmers in order to improve farm productivity. One of the incentives provided to farmers to achieve this objective is the granting of subsidies for superior seeds. There are three types of seed subsidies provided (Table 2.8).

Table 2.8. **Expenditure on seed programmes for rice, maize and soybeans, 2005-10**

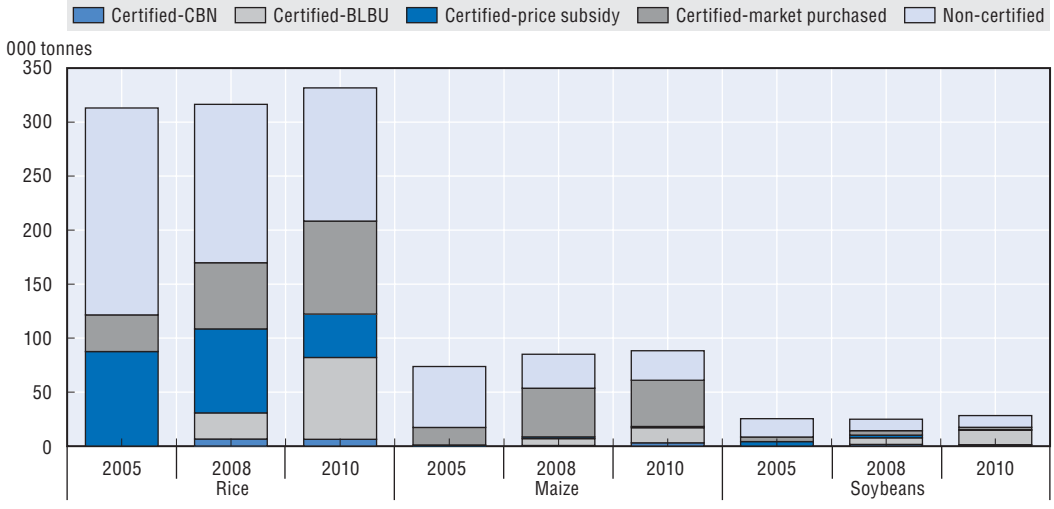
Type	Billion IDR					
	2005	2006	2007	2008	2009	2010
Price subsidy	80.0	99.0	71.3	110.0	120.5	93.7
National Seed Reserve (CBN)	–	37.9	86.1	177.0	372.2	261.1
Direct Superior Seed Aid (BLBU)	–	–	222.5	597.5	1 035.2	1 642.6
Total	80.0	136.9	379.8	884.5	1 527.9	1 997.4

Source: MoA, 2011.

The traditional policy method for supplying subsidised seeds to farmers has been to provide a **subsidy to the two SOEs**, PT Sang Hyang Seri and PT Pertani, so that they can lower the price of seeds that they supply. Every province has a quota of subsidised seed made available to it that is sold in specifically appointed stores. Farmers must register their purchases and it is illegal for farmers to on-sell subsidised seed. A recent study has shown this to be an ineffective approach, failing to encourage farmers to adopt certified seed (Sayaka, 2007). It found that the retail price of seed was relatively expensive, including those produced by PT SHS and PT Pertani, as the producers and the traders gained significant profits. Furthermore, the two companies considered the price subsidy as a source of additional income and did not use it to lower seed prices for farmers.

The **National Seed Reserve** (*Cadangan Benih Nasional*, CBN) began in 2004, although the first distribution of seed through the programme did not occur until 2006. The programme provides free certified seeds of rice, maize and soybean to farmers who are affected by natural disasters or willing to demonstrate new seed varieties within their village. The two SOEs are required to hold stocks equivalent to 30% of the annual planting requirements in case of natural disasters.

Figure 2.5. **Provision of certified seeds for rice, maize and soybeans, 2005, 2008 and 2010**



Source: MoA, 2011.

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In 2007, the **Direct Superior Seed Aid** (*Bantuan Langsung Benih Unggul*, BLBU) programme was introduced. BLBU provides farmers with free certified seeds for non-hybrid paddy, hybrid paddy, hybrid maize, composite maize and soybeans. Each farmer group calculates the quantity of seeds it wishes to receive, with the total aggregated at the district level. The government can supply only about 25% of the seeds demanded by farmers through this process because of budgetary constraints. The district government decides how this limited volume is distributed between farmers in their district. In general, if a farmer group receives an allocation of seed for a particular crop through this programme in one year, it cannot receive any allocation in the following year. In the third year it may receive an allocation of seed for another crop. Farmers must participate in field schools as a requirement to receive free seeds through both CBN and BLBU.

The introduction of the CBN and BLBU programmes has resulted in an **increase in the use of certified seeds** by farmers (Figure 2.5). In 2005, just 40% of rice planted was of certified quality. This has increased to nearly 63% by 2010. The increase is not only due to the use of freely distributed certified seed but also due to an increase in the purchase at market prices of certified seed. For example, in 2010 over 25% of total provision of certified seeds of rice was purchased at market prices compared to just 10% in 2005.

Credit policies for farmers

Indonesia has a long history of providing subsidised credit in general, and to agricultural producers specifically. One of the important features of BIMAS was the provision of **subsidised credit** to rice farmers. BI supplied BRI with funds at 3% per year, while the farmers repaid BRI at 12%, a rate below the annual inflation rate and the interest rate paid on small savings. Total BIMAS lending peaked at IDR 55 billion (USD 133 million) in the 1975/76 planting season. By the conclusion of the programme in 1983/84, lending had fallen to IDR 14 billion (USD 14 million). However the default rate had risen to almost 55%. A factor contributing to the high default rate was the periodic debt forgiveness programmes, which created the expectation among borrowers that sooner or later unpaid loans would be pardoned. Annual operating losses for BRI exceeded IDR 20 billion (USD 20 million) in 1983 and 1984 (Meyer and Nagarajan, 1999).

Credit for Farm Enterprises (*Kredit Usaha Tani*, KUT) was introduced in 1985 following the termination of BIMAS to provide farmers with capital for purchasing fertiliser, seeds, pesticides and other production inputs. Rather than channelling funds through BRI, the distribution of BI credit was handled by KUDs. Farmers were able to borrow at 12% per annum, half the commercial rates of around 20-24%. The maximum amount of credit available was around IDR 300 000 (USD 200) per ha of rice field, with eligibility based only on the financial feasibility of farms. A multitude of other credit programmes were introduced to stimulate the development of the palm oil industry, with programmes for both private developers and smallholders (Thomas and Orden, 2004). As a result of various banking reforms carried out during the mid-1980s through to the early 1990s, the 200 odd rural credit programmes were pared back to four (World Bank, 1999). Three were specifically for farmers: KUT; Credit for Co-operatives (*Kredit Kepada Koperasi*, KKOP) – to provide working capital and investment capital to co-operatives for the procurement and distribution of food commodities, and post-harvest financing; and Credit for Members of Primary Co-operatives (*Kredit Kepada Koperasi Primer untuk Anggota*, KKPA) – where the total amount of credit given to each borrower (who must be a member of a co-operative) is around IDR 50 million (USD 25 000) and is usually provided for tree crop farming.

In response to the 1997-98 financial crisis and harvest failure, the government sought to use existing rural credit programmes to move capital into the hands of smallholder farmers and rural entrepreneurs to increase production and stimulate the rural economy. A number of important **changes were made to KUT** (World Bank, 1999). The total amount of available credit was increased from IDR 570 billion (USD 55 million) in 1997 to IDR 9.8 trillion (USD 1.2 billion) in 1998. The maximum borrowing level for farmers was raised to IDR 2 million (USD 195) per ha and the interest rate reduced from 14% to 10.5% per annum, much lower than market rates of around 30% (Daryanto, 1999). All nonperforming KUT debts incurred over 1985-95 were forgiven and overdue payments incurred since 1995 were rescheduled. In total IDR 117 billion (USD 65 million) was written off, or approximately 15% of KUT lending during 1985-95.[14] The write-off allowed many previously ineligible KUD to

become eligible again for KUT credit. Moreover, collateral requirements were considerably loosened. As a consequence of these changes, IDR 8.1 trillion (USD 790 million) worth of credit was distributed in 1998.

As part of its commitments set out in the LOIs to the IMF, Law 23/1999 was passed, requiring BI to ensure that only commercial banks meet farmers' credit requirements. Consequently, the task of managing KUT and KKOP was given back to BRI. However, the government abolished KUT in August 2001 because of the **high level of non-repayment** and agreed to write-off the unpaid loans. In 2006, Commission VI of the DPR supported the government decision to write-off the unpaid loans of KUT, which amounted to IDR 5.749 trillion (USD 593 million) as of June 2005, and urged the government to finalise this action expeditiously. The write-off specifically targeted debtors that suffered from the failed harvest. Commission VI admitted that at that time many KUDs were established to qualify for KUT, and that after they got the credit they were dissolved (GAIN-ID6015, 2006). The government has still not written off the unpaid KUT debt. Consequently, farmers who owe this money find it difficult to secure new credit.

In place of KUT, the **Food Security Credit** (*Kredit Ketahanan Pangan*, KKP) scheme began operating, which distributed funds through ordinary commercial banks.[15] When initially implemented, the government provided an interest subsidy directly to the commercial institution because the interest rates they were charging were much higher than what the farmers had been paying under KUT. This was meant to be a temporary measure, but has continued on and the "loan interest subsidy" has become a feature of agricultural policy. KKP was replaced in 2008 by the **Food Security and Energy Credit** (*Kredit Ketahanan Pangan dan Energi*, KKP-E) programme (Table 2.9). The difference between KKP-E and its predecessor KKP include a broader crop coverage, higher credit limit per applicant (increasing from IDR 15 million [USD 1 500] to IDR 25 million [USD 2 600]), larger land area credit coverage (from two ha to four), longer credit period (from three years to five), and a higher annual budget (from IDR 2.083 trillion [USD 215 million] to IDR 10.863 trillion [USD 1.1 billion]).

Since establishing KKP, two other loan interest subsidy schemes have been introduced. In 2006, the government established a subsidised credit scheme for farmers to support the development of smallholder plantation development and revitalisation, including for biofuel crops – **Bio Energy Development and Plantation Revitalisation Credit** (*Kredit Pengembangan Energi Nabati and Revitalisasi Perkebunan*, KPEN-RP).[16] This was introduced as one of the steps towards energy diversification through the development of biofuels as mandated in Presidential Instruction 1/2006. The loan is made to a farmers group or co-operative, from where the funds are disbursed to the individual group/co-operative members. By 2009, 53 299 farmers had participated, covering an area of 115 169 ha consisting of oil palm (111 977 ha), rubber trees (1 972 ha), and cacao trees (1 220 ha). This is far short of the target of 1.5 million ha of palm oil.

In order to support the development of the livestock industry, an interest rate subsidy programme was specifically introduced in 2010 for breeding cattle – **Cattle Breeding Credit** (*Kredit Usaha Pembibitan* Sapi, KUPS).[17] Businessmen who wish to purchase cattle can obtain a loan at 5% interest rate. To become eligible for the loan, the businessman must partner with dairy or beef cattle farmers. Four national banks are involved with the programme – Bank Mandiri, BRI, Bank Negara Indonesia (BNI) and Bank Bukopin.

Although a significant amount of subsidised credit has been made available through budget allocations, the **uptake by farmers has been relatively small** in relation to the size

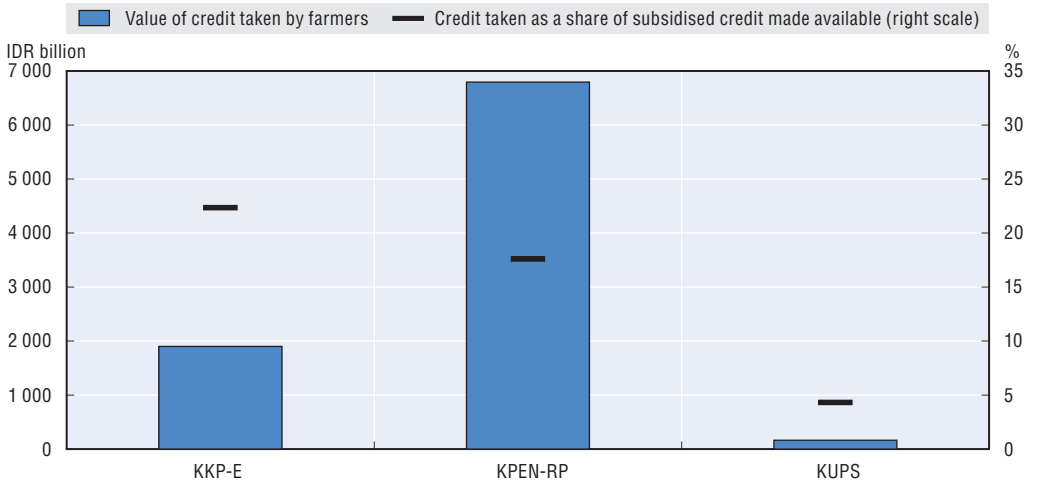
Table 2.9. **Credit programmes for agriculture, 2010**

	KKP-E	KPEN-RP	KUPS	KUR	PUAP
Name	Food Security and Energy Credit (*Kredit Ketahanan Pangan dan Energi*)	Bio Energy Development and Plantation Revitalisation Credit (*Kredit Pengembangan Energi Nabati and Revitalisasi Perkebunan*)	Cattle Breeding Credit (*Kredit Usaha Pembibitan Sapi*)	People's Business Credit (*Kredit Usaha Rakyat*)	Rural Agribusiness Development Programme (*Pengembangan Usaha Agribisnis Perdesaan)*
When started	2008 as a replacement for KKP	As a follow-on from KPEN-RP which began in 2006	2010	2008	2008
Type	Interest rate subsidy	Interest rate subsidy	Interest rate subsidy	Loan guarantee	Grant
Purpose	Provide loans for working capital and investment directly to farmers	Provide loans to companies working with smallholders	Assist businessmen purchase beef and dairy cattle who are required to build partnerships with farmers in order to apply	Provide those with a sustainable businesses but no bankable collateral the opportunity of applying for working capital and investment credit	Provide seed money to a federated farmer groups in a village (*Gapoktan*) to establish a revolving credit facility modelled on micro-credit schemes
Objective	Enable farmers, breeders and their groups to intensify production; assist co-operative in procuring foodstuffs such as rice, maize and soybeans	Support estate crop and biofuel crop production by smallholders	Support the procurement of 800 000 beef cattle and 200 000 dairy cattle over the five years 2010-14	Accelerate the development of primary sectors; empower small-scale businesses; improve accessibility to credit and financial institutions; reduce poverty levels; and expand job opportunities	To reduce poverty and unemployment levels in rural areas by increasing product quality, productivity and expand agribusiness activities
Commodities eligible	Food crops, horticulture, sugar cane, animal husbandry, farming machinery and equipment	Palm oil, cocoa, rubber	Cattle – both beef and dairy	All commodities	All commodities
Interest rate paid by borrowers	7% for sugar cane farmers; 6% for non-sugar cane farmers	6% for rubber; 7% for non-rubber	5%	The market interest rate up to a maximum of 14-22%	Determined by each *Gapoktan*
Interest rate received by banks	12-13%	12%	13%	The market interest rate up to a maximum of 14-22%	The money is given as a grant. No repayment to government required
Interest rate subsidy/loan guarantee	5-7%	5-6%	8%	The government provides guarantee for up to 70% of the loan	Not applicable
Maximum loan per borrower	IDR 50 million (USD 5 500) per ha and up to 4 ha	IDR 172 million (USD 19 000)	IDR 66 million (USD 7 300)	IDR 500 million (USD 55 000)	Determined by each *Gapoktan*
Maximum credit term	Working capital loan period is according to the business cycle; the investment loan is for not more than 5 years	13 years for palm oil and cocoa – with the subsidy provided for 5 years; 15 years for rubber – with the interest subsidy provided for 7 years	6 years – with the subsidy provided for 2 years	3 years for working capital and 5 years for investment	Determined by each *Gapoktan*

Source: MoA, 2011.

of the credit made available (Figure 2.6). The best performing in this regard is the KKP-E scheme. In 2010, farmers borrowed a total of IDR 1.9 trillion (USD 209 million) of subsided credit through this scheme, equivalent to 22% of the IDR 8.5 trillion (USD 936 million) available. In contrast, less than 5% of the subsidised credit potentially available through KUPS was borrowed. A major reason for this low uptake is that eligible borrowers do not have the collateral to meet the banks commercial lending requirements. The participating banks bear the full extent of the credit risk and the selection of farmers for participation is at the sole discretion of the executing banks.

Figure 2.6. **Uptake of credit provided to farmers through interest rate subsidy programmes in 2010**



Source: MoA, 2011.

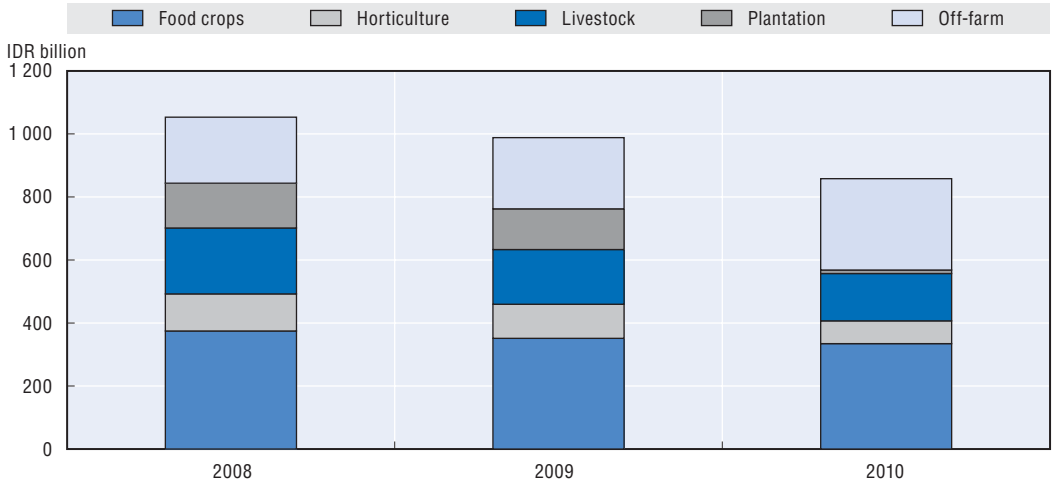
StatLink http://dx.doi.org/10.1787/888932650154

To overcome this constraint on access to credit, the government commenced in 2005 providing **credit guarantee programmes** to farmers through the Agricultural Finance Service Scheme (SP3). This was replaced in 2008 by the People's Business Credit (*Kredit Usaha Rakyat*, KUR), which integrated SP3 with several other guaranteed credit programmes conducted by other government ministries. KUR is a credit guarantee scheme in which the government accepts 70% of risk and the implementing bank 30%. Individuals, groups or co-operatives are eligible to access this program with maximum credit amount of IDR 500 million (USD 55 000) per customer. For agribusiness, the eligible fields range from production inputs to the procurement of agricultural tools and machineries, on-farm activities, and processing and marketing of the agricultural products. Only 16% of the credit taken out through KUR is used for agribusiness activities. As at the end of 2011, around IDR 22 trillion of government funds were being used to guarantee credit, which is operating with a default rate of about 3-4%.

As a further measure to overcome the problem of capital shortage, the government launched in 2008 a rural financing scheme called **Rural Agribusiness Development Programme** (*Pengembangan Usaha Agribisnis Perdesaan*, PUAP). The objective of PUAP is to reduce poverty and unemployment levels in rural areas by increasing product quality, productivity levels and stimulating the expansion of agribusiness activities. Furthermore, it aims to improve the performance of federated farmer groups (*Gapoktan*) as economic

institutions established and managed by farmers. It provides a grant of IDR 100 million to the Gapoktan in each village that is intended as seed money for a revolving credit facility to support both on-farm and off-farm activities. The aim is to reach 10 000 new Gapoktan each year. In the first three years of operation, funding has been provided to a total of 29 013 Gapoktan, with 75% of the funds being borrowed by farmers to support on-farm activities (Figure 2.7).

Figure 2.7. **Government expenditure on PUAP and use of funds by borrowers, 2008-10**



Source: MoA, 2011.

StatLink http://dx.doi.org/10.1787/888932650173

Other input subsidies

In addition to fertiliser, seed and credit subsidies, other forms of input subsidies are also provided to agricultural producers. Assistance is provided to crop producers in order to reduce post-harvest losses and increase yields. This ranges from tarpaulins, through to power tool threshers and dryers, and rice milling units. For livestock producers, input support can include the provision of animals and artificial insemination (AI) services. For example, a cattle farmer pays just IDR 50 000 (USD 6) per cow for AI, which will be inseminated up to three times for this price until there is conception. After three unsuccessful attempts, the cow will be examined to see if she is able to conceive. Another measure introduced as part of the policy package to achieve beef self-sufficiency is the save the productive cow from slaughter programme. Through this programme the government purchases productive cows that are about to be slaughtered and gives them to farmers groups that wish to expand.

Income support measures

The government has sought to support farm income through policies such as minimum producer prices and input subsidies. There are no support policies providing payments to farmers based on either receipts or income, whether current or non-current levels. There are no preferential tax policies provided for farmers although there are some incentives for plantations (see Chapter 3). By law, farmers pay the same income tax as other members of the population, but enforcement is limited.

The government provides support to farmers who are affected by **bad weather and natural disasters**. In addition to the provision of seeds discussed above, farmers with government-subsidised loans may be able to have their loan repayments either rescheduled or even written-off. For this to occur, farmers are required to follow procedures set out by the government. During 2005-09, an average of 29 743 ha of paddy fields were flooded (11 043 ha of which experienced crop failure due to the flood) and an average of 82 472 ha of paddy fields were struck with drought (8 497 ha of which experienced crop failure due to the drought).

Agricultural insurance

There are no government agricultural insurance programmes operating in Indonesia.[18] Motivated by the potential impact of climate change on agriculture, two **pilot insurance projects** in the rice and cattle sectors have been trialled since 2008 (Pasaribu, 2010). These have been developed in association with an insurance company. The purpose of the projects is to demonstrate to farmers the possibility and applicability of insurance as a risk management tool (Box 2.2).

The cattle project covers the main risks (loss due to illness/poor health, lost, or stolen) for 45 participants/beneficiaries in West Java and another 97 participants/beneficiaries in Central Java. The premium is 3.5% of the total purchasing value of the cow per year and is paid by the government. The rice project covers the risk of harvest failure due to pests and diseases for 100 ha of paddy in Central Java Province with 600 participants/beneficiaries. The premium is 3.5% of the total production cost per ha per season, and is again paid by the government. The implementation of these pilot projects has been a positive experience for some farmers. For example, when a cow died because of disease, the owner was able to make an insurance claim and received IDR 12 million (USD 1 300) in compensation.

Extension services

The institutional arrangements for agricultural extension have undergone a myriad of changes and several policy reversals in the last three decades. In 1983, the management of agricultural extension was centralised under the BIMAS Control Agency. This centralisation of extension management was later deemed to be inefficient, and in 1991 the government returned the responsibility for managing agricultural extension activities to each of the Directorate Generals in the MoA. This reversal of policy after eight years resulted in the agricultural extension workers moving from a multi-crop orientation to their old functions as sector-specific extension workers. In 1993, this was changed again, with responsibility for agricultural extension activities given to the Centre of Agricultural Extension, under the Secretary-General of the MoA. In 1996, MoA modified the structure of extension institutions by establishing an Agricultural Extension Office (*Balai Penyuluhan Pertanian*, BPP) in every district. This action was based on the belief that farmers required a more comprehensive agricultural extension; one that is more people and system-oriented rather than commodity-oriented (World Bank, 2007).

Box 2.2. **The role of insurance on risk management in agriculture**

Agricultural insurance is a market based tool to manage production risk in agriculture. Farmers pay a premium and they will receive an indemnity only if an extreme event (risk) and/or some minimum losses occur. The premium is calculated on the basis of an actuarial estimation of the risk and value of the indemnities. Agricultural insurance can help farmers to manage production shocks, but it cannot protect them from price risks. Its attractiveness for farmers will depend on the risk profile of the farmer, including all the sources of risk. Many farmers in several countries buy hail insurance. However, purely private agricultural insurance is unattractive for many farmers for which their perception and aversion to risk is not enough to be willing to pay the price (or premium) of the insurance (OECD, 2009). Production risk is often systemic (it occurs across many farms at the same time) and, therefore, the premiums have to be expensive to keep the solvency of insurance companies. Farmers and insurance companies have asymmetric information that can also increase the price of insurance: farmers who take greater risks tend to demand more insurance (adverse selections), and farmers tend to be less proactive in managing their risks once they are insured (moral hazard). Ad hoc disaster assistance and other support measures from the government also reduce insurance demand.

There are different types of insurance. Multi-peril crop insurance provides indemnities after individual yield or production losses due to any peril in a list. This is the most widely available type of insurance across countries, and it is the one proposed for cattle and rice in the pilot projects in Indonesia. Area or weather index based insurance provides indemnities that are not calculated through an estimation of individual loses; they use the estimated average production loss in the location of the farm, or an index of local rainfall or temperature. Index insurance has the advantage of reducing information asymmetries because indemnities are triggered by indexes that are out of the control of the farmer and this can reduce the administration costs. Despite its simplicity and great potential there are only few cases of widespread programmes, in particular the area-yield index National Agricultural Insurance Scheme (NAIS) in India.

The arguments for government intervention in insurance markets are the existence of market failure or a social demand for disaster assistance. These arguments are not valid for normal frequent variations in yields or production, but for catastrophic risks that have low probability of occurrence and generate high and systemic damages (OECD, 2011a). Covering normal risks with government support programmes crowds out farmers' pro-active management of risks and creates moral hazard. The most appropriate policy response to market failure is the investment in information and databases. However, most often government intervention takes the form of premium subsidies that typically go beyond 50% of the market value of the premium. Several OECD countries have subsidised agricultural insurance programmes delivered by private insurance companies (like in the United States or Spain) or by a government agency (like in Canada). In most cases they are developed as disaster assistance programmes, but they have not fully deterred the use of *ex post* payments and they have not succeeded in neatly differentiating the catastrophic layer of risks that deserves government support. They are often part of a broader set of agricultural support programs that cover normal risks such as countercyclical payments in the United States, income stabilisation programmes in Canada and remaining price support programmes in several countries.

Box 2.2. **The role of insurance on risk management in agriculture** *(cont.)*

Developing and emerging economies have also agricultural insurance programmes that are supported by the government (World Bank, 2010). India has a particular long history and has received technical support from the World Bank. The NAIS area-yield insurance reaches around 100 million farmers. One of its main weaknesses is that most of the support is not provided through the premiums but through financial liabilities that expose the government to big *ex post* budgetary outlays. In Brazil, multi-peril individual insurance is subsidised since 2004 with the objective of avoiding large-scale credit defaults by farmers and *ex post* disaster assistance. In China agricultural insurance was marginal up to 2007, when the Chinese government tripled the subsidy rate and the uptake expanded very rapidly, becoming the second largest agricultural insurance market after the United States. Insurance programmes in emerging economies are confronted with several challenges such as developing information and expertise, ensuring the financial long run viability and refraining from subsidising insurable risks.

Sources: OECD, 2009; OECD, 2011a; Mahul and Stutley, *Government Support to Agricultural Insurance: Challenges and Options for Developing Countries*, World Bank, 2010.

In 2001, as part of the decentralisation process, the central government **transferred responsibility and funding** for extension services to the district level and, to a lesser extent, provincial level governments. The intention was to replace the traditional top-down, input and technology dissemination approach and its linear research-extension-client farmer relationship with a bottom-up, participatory approach responsive to farmers' needs (Herianto, 2010). To demonstrate the potential benefits from such a paradigm change, the World Bank initiated the Decentralized Agriculture and Forestry Extension Project (DAFEP) in 2001-06, which provided an impetus for demand-driven extension and for institutional reforms at the local government level. The pilot project helped farmers by providing grants to allow them to link to information sources, markets, surprisingly to many non-farm opportunities, not only through government services but by access to the private sector, NGOs and other farmers, sometimes by travelling between islands. The DAFEP project was implemented in 16 districts in 9 provinces between February 2000-March 2005. The total cost of the project was USD 23.6 million, of which USD 18 million comprised the World Bank loan. A review of the project found that households involved with DAFEP experienced a 5% increase in household income, although there was no significant change in rice yields (World Bank, 2007).

However, regional governments gave **inadequate attention** to their agriculture extension function, largely ignoring their legislative responsibilities. The number of field extension workers fell from 36 626 persons in 2000 to 19 636 persons in 2003 (MoA, 2006), with extension workers transferred to other tasks by local governments. The quality of the service also fell because of the weak relations between researchers, extension workers and farmers. Poor governance undermined the structure of the extension system built up over 20 years. Management, professionalism, mobility, and administration of the agricultural extension system, as well as respect among farmers, almost disappeared in many districts (World Bank, 2007).

A major change in policy direction came with the issuance of Law 16/2006 on Extension System for Agricultural, Fishery and Forestry. The Law re-established a **unified extension service** for the three primary sectors, establishing a hierarchy for the service:

from national level (an extension centre within each of the three ministries), provincial level (extension co-ordination agency – *Bakorluh*), district/city level (executing extension agency – *Bapeluh*), sub-district level (agricultural extension office – BPP), and down to the village level (village extension post). The goal is for every one of the almost 70 000 villages to be supported by one extension worker and one voluntary (*swakarsa*) extension worker. MoA has taken a number of steps to implement this new direction, including the following:

- funding a component of the extension workers' operational costs at the provincial and district levels to address the issue of limited resources for mobility and implementation of extension activities – IDR 200 000 per month is provided per permanent extension worker;
- recruiting additional extension workers on contract – by 2011 MoA had contracted 25 802 additional extension officers to support the 27 922 permanent extension staff, with an additional 9 628 voluntary workers providing extension services in their local community;
- reopening and improving the previously neglected BPP – 3 941 units of BPP were developed during 2005-09;
- broadening the emphasis of extension methods and systems – from a focus on how to increase crop production to developing an agribusiness-oriented to improve the welfare of the farm household.

Reflecting the growing role of central government in extension services, the MoA Agency for Agricultural Human Resource Development was changed to the **Agency for Agricultural Extension and Human Resources Development**.[19] The tasks undertaken by this agency are to develop reliable systems for: agricultural extension; training in management, leadership and entrepreneurship; agricultural education; and the empowerment of farmers, farmer institutions, and competitive farming. The Agency consists of 19 technical implementation units (*Unit Pelaksana Teknis*, UPTs): ten focus on training and nine on education.[20] These UPTs are relatively autonomous, as they are granted the authority to manage their staff, finance, and equipment. They are responsible for co-ordinating 100 programme implementation units (PIUs) in provincial agricultural offices, and also supervise the Centre for Self-Reliance Agricultural and Rural Training (P4S), which provides a platform to involve farmers in the design of the curriculum. The World Bank has continued its involvement in trying to improve extension services to farmers by establishing the Farmer Empowerment through Agricultural Technology and Information (FEATI) project to extend the work of DAFEP from 16 to 68 districts (Box 2.1).

Integrated Crop Management Field Schools (*Sekolah Lapang Pengelolaan Tanaman Terpadu*, SL-PTT) have been an important method for transferring knowledge to farmers since the late 1980s. Field schools provide farmers with the opportunity to learn the latest technologies regarding seeds, cultivation, integrated pest management, post harvest, etc. Learning takes the form of training, plot demonstration, testing new varieties and printed material. Limiting the distribution of free fertilisers and seeds, through the BLP and BLBU programmes respectively, to farmers who attend field schools has been used as an incentive for participation. Crops covered are rice, maize, soybean, other beans and sweet potatoes, although the focus is primarily on rice. During the 2009 cropping season, 85 000 farmer groups participated in field schools.

Despite the efforts of the MoA, **implementation of the extension law** has not been complete. As at the end of 2011: 86% of the 4 600 sub-districts had an extension office; 76%

(380 out of the 498) districts/municipalities had an executing agency; and just 66% (22 out of 33) provinces had established extension co-ordination agencies. Furthermore, in some districts, the MoA's involvement has generated conflicting directions in the advice provided, for the agriculture priorities set by the central government sometimes differ with the planning objectives of districts. Others are welcoming the move because it means that they have to spend less money on providing an extension service (World Bank, 2012). Further, despite the initial attempt to broaden the focus of the extension provided to farmers, the training provided to extension workers and the advice given to farmers is dominated by the drive for rice self-sufficiency.

Research and development

The State Ministry of Research and Technology (RISTEK) is responsible for formulating all national policies for research, science, and technology in Indonesia. Although it has little control over the allocation of research funds, which is undertaken at the ministry level, it does operate a number of competitive grants and other funding programmes. RISTEK has formulated six-focus programmes, including one for food and agriculture: food resilience through agricultural systems, aquaculture, agro-industry and agribusiness. The **Indonesian Agency for Agricultural Research and Development** (IAARD) of the MoA is responsible for the allocation of public sector research and development spending on agriculture**.** There are also five research centres focusing on commercial estate crops (oil palm, cocoa, coffee, tea, rubber and sugar) managed and financed by state-owned enterprises.

IAARD comprises 14 work units conducting research and development programmes on priority commodities and cross commodity subjects. IAARD's research and development activities during 2005-09 resulted in successful innovations in technology including 196 high-yielding rice varieties, 46 high-yielding corn varieties, 64 high-yielding soy varieties, 15 new high-yielding sugar cane varieties, 7 new strains for goats, sheep, chicken, and ducks, 13 vaccine technologies, 10 diagnostic kits and disease test techniques. In addition, there are 32 provincially based **Assessment Institutes for Agricultural Technology** (AIATs), established in 1994. AIATs are responsible for testing the research findings in their province so that they are able to adapt technologies to suit each location. AIATs account for around 30% of the total IAARD budget (World Bank, 2012). The network of AIATs covers all regions in Indonesia, so that development, diffusion, and use of research results as well as the provision of location-specific information and technology are ensured (Stads *et al.*, 2007).

In an endeavour to further bridge the **diffusion process** of technology and innovation from research institutions to the farmers, IAARD launched the *Prima Tani* programme in 2005. This activity is the implementation of the new paradigm "research for development" (*penelitian untuk pembangunan*) from the previous one "research and development" (*penelitian dan pengembangan*). In this new paradigm, the role of disseminating research results on is considered parallel with research activities. Initially implemented in 21 locations/districts in 14 provinces, the programme rapidly expanded to 201 sites in 200 districts/municipalities in 33 provinces by 2007. Responsibility for further expansion was then given to the local governments. Another action taken to improve the dissemination of research was to establish the Indonesian Center for Agriculture Technology Assessment and Development (ICATAD) within IAARD. ICATAD's role is to co-ordinate and direct the

functioning of the 32 AIATs, and provide the central link between them and the IAARD research units, universities, etc.

A number of concerns have been raised regarding the performance of agricultural research and development in Indonesia. **Expenditure on research is relatively low**. After adding in private sector agricultural R&D spending, the intensity with which Indonesia invests in agricultural research (0.27%) is roughly the same as Lao PDR (0.24%) and much lower than Malaysia (1.92%) or the Philippines (0.46%) (World Bank, 2012).[21] Concerns have also been raised regarding the type of expenditure undertaken. The quality of research has been undermined by a significant increase in IAARD's salaries for non-research staff, and operational and maintenance spending (World Bank, 2012). A study in the mid-2000s found limited co-ordination in research between IAARD and universities, the private sector and international research providers (ADB, 2006). Since then IAARD, has taken steps, through ICATAD, to develop a research consortium programme with universities, establish partnership programmes with private companies such as PT DuPont Indonesia, and increase collaboration with local governments. Finally, although the AIATs are crucial to strengthen the linkages between research at the central level and extension agents in the districts, it is debatable whether each province needs such an agency. A system by which AIAT centres are positioned with agro-ecological zone specialisations, serving all provinces concerned, would foster cross-province co-operation, lead to less fragmentation and reduce the potential for duplication of efforts and functions at the provincial level (World Bank, 2012). Research in each province should be focused on two or three commodities having highest comparative advantages or potential.

Infrastructure

Along with fertiliser subsidies, the other **major budget component** of agricultural policy in Indonesia is expenditure on irrigation, including operation and maintenance, rehabilitation and expansion. Public expenditure on irrigation schemes has a long history in Indonesia, beginning at the end of the 19th century under Dutch colonial rule (Pasandaran, 2004). In the early 1970s, the rehabilitation and expansion of the irrigation systems was an essential part of the government's priority to intensify rice production through the use of high yield variety seeds. However, from the mid-1980s through to the early 2000s irrigation development and maintenance was gradually reduced, contributing to declining rice production (Simatupang and Timmer, 2008).

A major reform occurred with **Law 7/2004 on Water Resources**, which gives local communities a greater responsibility in the management of the irrigation system. The responsibility for different parts of the system is split between the public and private sectors. The public sector is responsible for operating, maintaining and building the main irrigation network, i.e. the primary (dams, reservoirs, etc.) and secondary (rivers, channels, canals, etc.) systems that bring the water to the farm. Farmers – through Water Users Associations (WUA) – are responsible for operating, maintaining and developing the tertiary systems, i.e. the irrigation channels that flow through farmland. There are 40 917 WUAs and around 8 000 Federations of WUAs (WUAF). Subject to mutual agreement with the responsible irrigation service, WUAs can also be partners in operation and maintenance of the main network. WUAs are increasingly assuming operations and maintenance tasks over large parts of the water system and are credited with driving the recent improvements in the management of irrigation systems (World Bank, 2012).[22]

The responsibility for the **main network** is shared across all three levels of government according to the size of the command area and cross-boundary occurrence. The central government (DG Water Resources of MoPW) is responsible for the main network in strategic basins and irrigation systems larger than 3 000 ha or cross provincial systems. The provincial government has jurisdiction over the management of main network with a command area of between 1 000 and 3 000 ha and across district systems. Finally, the district level manages irrigation systems smaller than 1 000 ha. Although responsible for smaller irrigation schemes, district governments are responsible for the main networks supplying almost 50% of the 7.2 million ha of irrigated paddy in Indonesia (Table 2.10).

Table 2.10. **Condition of irrigation infrastructure by level of government, 2010**

Level of government	Irrigated area responsible for (000 ha)	Condition (% of area responsible)			
		Good %	Lightly damaged %	Medium damaged %	Heavily damaged %
Central	2 315	54	13	28	5
Provincial	1 423	39	12	37	12
District	3 492	48	20	20	12
Total	7 230	48	16	26	10

Source: Ministry of Public Works, 2011.

In terms of **funding at the central level**, MoPW funds the operations and maintenance, and rehabilitation of its networks through the national budget, and utilises *Tugas Pembantuan* transfers to assist provincial irrigation services for operations and maintenance. Provincial systems are also partly funded by the provincial budget and the deconcentration fund, which is not exclusively earmarked for irrigation. At the district level, the operations and maintenance budget comes from the district budget. This may include a small amount of funding from DG Water Resources for the WUAs, as well as from the province to conduct maintenance activities and carry out this mandate.

The direct involvement of central government agencies in carrying out irrigation investment projects decreased after 2006, because of an increase in funding transferred to the regions in the form of DAK earmarked for irrigation. The allocation of **DAK for irrigation** to regions is based on a formula taking into account the region's fiscal capacity, specific characteristics (such as remoteness, post-disaster areas and tourism) and the extent of irrigated land and highly damaged water networks. The DAK transfers for irrigation are earmarked to provincial and district governments for capital expenditure, to deepen investment in rehabilitation and expand irrigation coverage, and cannot be used for O&M activities (World Bank, 2012).

Farmers are required to **contribute to the cost** of running the WUA that they belong to, i.e. farmers contribute to the upkeep of the on-farm tertiary systems that are within the group's responsibility. This may be in cash or in kind, with the rate determined by the area of land used by the farmer. For example, on Java, the cost is approximately 40-60 kg of wet paddy per ha. Unfortunately, there is no information on whether farmers are paying the WUA fee or not. Most farmers are probably not because only 28% (11 261 of the 40 917) WUAs are legally developed enough to charge farmers. In addition, farmers are not charged

for any expenditure relating to the maintenance or rehabilitation of tertiary and secondary channels.

Since 2005, MoA has provided financial support to WUAs for rehabilitation work on farm level irrigation channels through the Farm Level Irrigation Network (*Jaringan Irigasi Tingkat Usahatani*, JITUT) and the Village Irrigation Network (*Jaringan Irigasi Desa*, JIDES) programmes. While the work carried out under the programmes is the same, the source of the water is different. JITUT supports the rehabilitation of irrigation channels connected to the main network system while JIDES supports those that are supplied by water collected and stored at the village level. Approximately 70% of water used for irrigation is supplied through the main network and 30% through village level schemes. Assistance is paid out at a rate of IDR 700 000/ha (USD 77/ha) under JITUT and IDR 1 million/ha (USD 100/ha) under JIDES. Factors considered when allocating funding among WAUs requesting assistance include the current state of the irrigation channels, the proposed rehabilitation work, the anticipated production increase and the management capability of the applicant. Over the six years 2005-10, the JITUT and JIDES programmes have supported the rehabilitation of farm level channels irrigating 433 137 and 276 819 ha respectively.

Despite these changes in management and funding, **the irrigation network needs a lot of attention**. The poor condition of the existing network and the lack of new development means irrigation is providing less and less benefit for agriculture. Only half of the current irrigation system is considered to be in good condition, with about one-third being medium to heavily damaged and in need of rehabilitation (Table 2.10). By comparison, 78% of the network was in good condition in 1999, with only 2% heavily damaged. Factors contributing to the deterioration include the lack of maintenance across all levels of the system, forest destruction and sedimentation, and natural disasters (Azdan, 2011). The damage is more acute across the largest rice-producing provinces (Sumatra and Java) where more than half of the smaller water systems are damaged (World Bank, 2012). It is also in greater need of repair at the local government level. The provision of central government funding for rehabilitation work reduces the incentive for provincial and district governments and WUAs to carry out the operations and maintenance activities that they are responsible for.

While irrigation is the largest category of infrastructure expenditure, MoA assists the development of other forms of infrastructure. In terms of water resources used by farmers, it builds rainwater reservoirs, absorption wells and ditch dams. By conserving upstream river flow areas, it helps ensure a flow of water into the irrigation system. In terms of land used by farmers, the Micro Water System (*Tata Air Micro*, TAM) programme provides money for draining swamp and tidal areas. Between 2005-10, 122 815 ha of land was drained at a cost of IDR 1 million (USD 110) per ha. MoA also builds roads and facilities to enable the processing and marketing of agricultural products. Between 2005-09 it built 32 farmer markets, 61 agribusiness sub-terminals and 74 cattle markets. It developed processing facilities for horticulture product (116), plantation products (40), livestock feed (78), milk (27) and meat (88), and established 300 units of artificial insemination (MoA, 2010).

Since 2005, the Ministry of Finance has provided local governments with DAK funding specifically targeting **agricultural projects** in addition to those specifically earmarked for irrigation. DAK for agriculture has increased greatly, from IDR 156 billion (USD 16 million) in 2005 to IDR 1.4 trillion (IDR 154 million) in 2010. The amounts comprised in the DAK funding for agriculture cannot be directed to other programmes that are not related to

agriculture. The types of programmes that are funded mostly relate to infrastructure, although priorities change every year according to the needs identified by districts. MoA has a role in providing guidance about which projects DAK funding should be directed towards. For example, the Agency for Food Security through its Community Empowerment for Food Stores (*Pemberdayaan Lumbung Pangan Masyarakat*, PLPM) programme, assists villages to access DAK funding to build storage facilities to improve their reserve of food stocks. Some 1 040 food stores have been built through this initiative. There appears to be no monitoring on what the DAK funding is spent on or any other assessment of the programme.

Consumer support

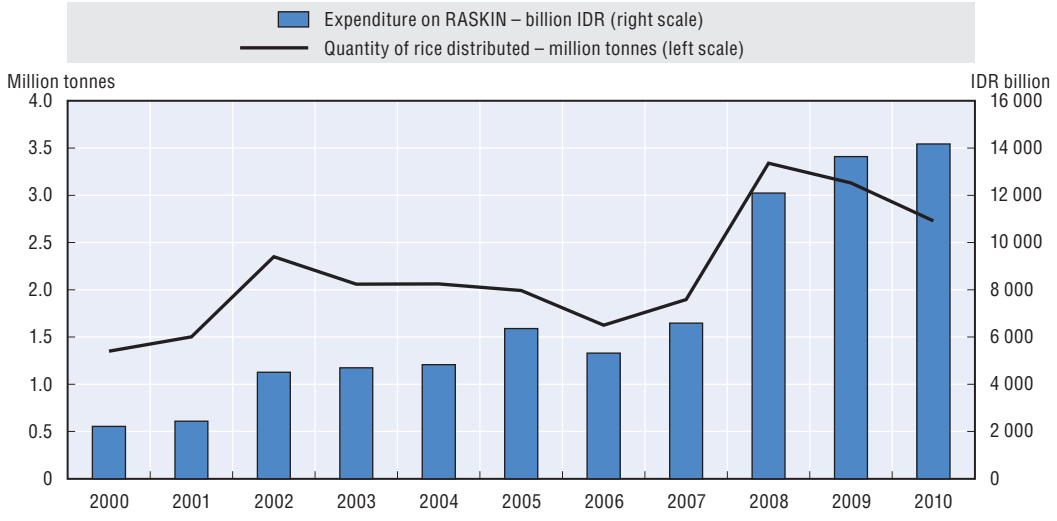
In response to the 1997-98 economic crisis and drought, the government introduced a targeted rice subsidy programme in July 1998 to deal with the increasing number of the poor. As a benefit-in-kind programme, **RASKIN** plays an important role in the government's poverty reduction strategy as one of the five social assistance programmes (Suryahadi *et al*., 2010).[23] BULOG was given responsibility for acquiring and transporting the rice to distribution points throughout the country. The programme aims to make available a set quantity of rice at a subsidised price to the poorest households on a monthly basis during the year.

The programme variables – the quantity of rice per household, the subsidised price, the number of months, and the classification of the poorest households – have been altered over the period of the programme. For example, monthly allocations per household have been set at 10, 15 or 20 kg per household. Initially, based on National Family Planning Agency (BKKBN) data, 8 million poor households were identified as beneficiaries. During the first half of the 2000s, the number of poor households remained relatively constant at this level. A change in the source data used to determine the number of poor households in 2006, from the National Family Planning Board to the Central Bureau of Statistics led to an increase in the number of poor households targeted by RASKIN to around 11 million. This was compensated for in that year by a reduction in both the quantity of rice distributed per household from 20 to 10 kg and a reduction in the number of months from 12 to 10. Over 2000-07, an average of 1.9 million tonnes of rice was distributed each year through RASKIN (Figure 2.8).

The steep rise in market prices for rice that began in 2007 led to a large increase in the number of poor households, which peaked at 19 million in 2008. The number has since fallen to 17.5 million in 2010. Over the three years 2008-10 around 3 million tonnes of rice has been distributed annually. Despite raising the subsidised price for the first time since implementation, from IDR 1 000/kg (USD 103/tonne) to IDR 1 600/kg (USD 166/tonne) in 2008, the **budgetary cost of the programme has doubled** since 2007, rising from IDR 6.5 trillion (USD 711 million) to IDR 14 trillion (USD 1.5 billion) in 2010. The rise in price resulted in the subsidised price rising from around 20% to about 33% of average retail prices.

While poor households obtain direct benefit from the programme, a number of **weaknesses** have been identified. Most of the beneficiaries received only a fraction of the allotment that they were supposed to receive. Two main factors explain this. A comparison between administrative data on the amount of rice distributed and survey data on the amount actually received by households showed that at least 18% of the subsidised rice disappeared. The extent of corruption was also found to be greater in ethnically fragmented and in sparsely populated areas (Olken, 2006). Second, in many cases the

Figure 2.8. **RASKIN rice distribution and budgetary cost, 2000-10**



Source: MoA, 2011.

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programme has not distinguished between rich and poor in providing low-priced rice. In East Indonesia, for example, where subsidised rice rations are distributed equally to all in villages or subdistricts, the average amount of subsidised rice received by the poor was about 4 kg rather than 10 kg. This is because within village society there is a strong tradition of treating everyone equally, and the local officials responsible for implementing the programme in the villages cannot ignore this tradition (or wish to minimise the occurrence of social friction in community) (Yonkura, 2005).

In addition to rice, the government actively intervenes in the domestic market for **wheat flour, maize and cooking oil** when it considers retail prices are reaching unacceptable levels for the poor. A broad range of measures can be used, from simply asking manufacturers/wholesalers to be socially responsible with their pricing to direct market operations where product is either released onto the general market or distributed directly to poor households (Table 2.3). One policy often used is the government covered valuation tax (*Pajak Pertambahan Nilai Ditanggung Pemerintah*, PPN-DTP) under which the government takes on the obligation of paying the 10% VAT. For example, the government has used this policy to reduce the price of non-branded cooking oil since 2007 at the fiscal cost of IDR 500 billion (USD 52 million) in 2008, IDR 800 billion (USD 77 million) in 2009 and IDR 250 billion (USD 28 million) in 2010.

The MoA operates a number of programmes for improving food security at the household and village level through its Agency for Food Security. The two most important are Village Food Independence (*Desa Mandiri Pangan*, DEMAPAN) and Acceleration of Household Food Diversification (*Percepatan Penganekaragaman Konsumsi Pangan*, P2KP). DEMPAN provides extension support (workers, field schools, etc.) to help villages, who have more than 30% of their population defined as poor, improve their food production based on what grows best in the local situation. Since commencing in 2006, around 3 800 villages have been assisted. P2KP has been implemented in 6 000 villages, operating through a women's group in each village. It provides IDR 2 million and extension advice to each group for the purposes of encouraging home gardens as a source of consumption, a grant of

IDR 16.5 million to help develop small-scale businesses, and education advice to elementary school children on the importance of a balanced diet.

2.3. Trade policies affecting agro-food trade flows and agricultural commodity prices

Trade in agricultural products, both in and out of Indonesia, is heavily influenced by government policy. Although significant steps were taken to liberalise agricultural trade in the late 1990s, various trade measures have been introduced since 2000 to control the volume and pricing of certain "strategic" commodities. This section outlines the major objectives for agro-food trade policy and key developments in trade policy since the mid-1970s. It details the important trade measures currently affecting imports and exports of agro-food products, including price based instruments (e.g. tariffs and other import duties, and export taxes), quantitative restrictions (e.g. import quotas and export bans) and regulatory requirements (e.g. licensing and quarantine arrangements). Multilateral, regional and bilateral trade relations are also discussed.

Main objectives of agro-food trade policy

Trade policy measures affecting agro-food trade are used to achieve three main objectives – with the relative importance of these objectives varying between agricultural products and over time. An important objective is to keep **domestic retail prices** of essential, strategic commodities relatively stable in order to alleviate poverty and avoid antagonising the urban population. For import-competing products, such as rice and soybeans, this objective is usually sought through a combination of policy measures, in particular low tariffs and quantitative restrictions on imports. For export-competing products, such as palm oil and cocoa, export taxes are used to encourage the supply of product on the domestic market at prices below prevailing world price levels.

Trade policy instruments are also used to **support domestic agricultural production**. The MoA argues that the WTO multilateral commitment to eliminate trade barriers which distort markets, is not being applied by all nations, so domestic farmers are facing unfair competition with farmers from other nations who are benefiting due to tariff, non-tariff and subsidy protection, directly or indirectly (MoA, 2006). This has been used as a reason by MoA to lobby strongly with the Ministry of Finance for greater tariff protection for rice and sugar and to introduce non-tariff measures within its own control. As a member of cartels for coffee and rubber, Indonesia has on occasions placed quantitative restrictions on export volumes in order to restrict supply and increase world prices.

The third main objective is to assist the **downstream processing of farm products**. Up until the downfall of the Suharto government in 1988, this objective was primarily driven by a desire to support the processors themselves, who often had close political ties with the ruling government. Subsequent attempts to revitalise the processing sector have been motivated to a larger extent by the desire to improve farmer returns. The distribution of import rights within quantitative restrictions is an important trade policy measure used to achieve this objective.

Overall reforms of the trade system

The period from the mid-1970s to mid-1980s was one of **growing protectionism**. Tariff surcharges (*bea masuk tambahan*) were used to tax imports.[24] Restrictive import licensing requirements protected a large proportion of agriculture and non-oil manufacturing

production. For example, only two companies, the state-owned enterprises PT Dharma Niaga and PT Cipta Niaga, could import many food and drink items. BULOG was given the monopoly right to import and export an increasing range of commodities: rice, maize, yellow soybeans and soybean flour and soybean cake, sugar, wheat and wheat flour, and garlic. A mixing ratio policy for milk product imports, known as Busep, was introduced in 1977 to encourage domestic milk production.[25] Export policy for agricultural products centred mainly on supplying raw materials for processing industries in developed countries. The quantity of exports increased without significant improvement in quality or product differentiation.

In the mid-1980s, Indonesia began a **unilateral process of reducing import duties**. In particular, tariff surcharges were reduced to such an extent between 1985 and 1989 that they had become negligible, and were completely eliminated on 1 January 1996. The introduction of a reasonably effective VAT in the early 1980s freed policy makers from having to take revenue considerations into account when determining trade policy (Basri and Hill, 2008). Another factor influencing the decision to move away from tariff protection is the ease with which goods can be smuggled into Indonesia.[26] In contrast, export taxes were levied on some primary products – forestry (notably logs, sawn timber and rattan), mining and metal products (ores and concentrates of copper, lead, tin and platinum, etc.) and two agricultural products (CPO and coconut oil) – to encourage domestic processing industries.

While trade in maize was liberalised on 1 January 1990 to reduce the cost of inputs for livestock production, particularly for the growing poultry sector, **quantitative restrictions** on agro-food imports continued to be introduced. In 1991, the Clove Marketing and Buffer Agency (*Badan Penyangga dan Pemasaran Cengkeh*, BPPC), a semi-official private body controlled by Suharto's son, was given sole marketing, distribution, and importation rights for cloves.[27] A local content scheme was established in 1993 to support a domestic soybean crushing plant operated by a SOE. Domestic feed mills, which use soybean meal in the manufacture of animal feed, the majority consumed by the poultry sector, were required to source at least 40% of their total usage of soybean meal from domestic supplies, i.e. the crushing plant.

As a consequence of the unilateral tariff reform little adjustment was required to implement Indonesia's tariff reduction commitments under the **Uruguay Round Agreement on Agriculture** (URAA) (WTO, 1998). While 100% of agricultural lines were bound, rates were set significantly above the applied tariffs. Moreover, BULOG's operations, including its monopoly over the import of strategically important agricultural commodities, were covered by the Agreement on State-Trading. The only commitment to remove non-tariff barriers in agriculture concerned the local-content requirements applying in the soybean and dairy sectors by 1998 and 2003 respectively.

The ASEAN Framework Agreement on Enhancing Economic Cooperation, signed in January 1992, **accelerated the process of reducing tariff protection**. This established the Common Effective Preferential Tariff (CEPT) Scheme for achieving an ASEAN Free Trade Area (AFTA). Under the terms of AFTA, Indonesia applies tariffs of either 0%, 2.5% or 5% for all goods imported from ASEAN members that meet the AFTA rules of origin requirements which require at least 40% value added content produced or assembled in ASEAN countries. AFTA does not establish a common external tariff for ASEAN members. Instead, each ASEAN member determines tariff rates on imports from non-ASEAN countries

individually. It was initially agreed that CEPTs would be phased in over 15 years 1993-2008 for the ASEAN-6 – the five founding members plus Brunei, which had joined ASEAN in 1984.[28] The time frame for implementation was reduced to 10 years in September 1994 and by further year in July 1998, so that AFTA was fully realised on 1 January 2002.

However, special arrangements were made for **sensitive and highly sensitive agricultural commodities**, allowing higher tariff rates and longer implementation periods. For Indonesia, the sensitive agriculture products are garlic, cloves, wheat, flour and soybean, while rice and sugar are highly sensitive products (Table 2.A1.5).[29] All sensitive products have final tariff rates of 0-5%, but the final tariff for highly sensitive products is flexible, for example, 20% in the case of sugar. Sensitive and highly sensitive products did not have to enter the CEPT scheme until 1 January 2003 and 1 January 2005 respectively, and were given until 1 January 2010 to complete their phasing in. All quantitative restrictions on sensitive and highly sensitive products were eliminated on 1 January 2010 and member states are to take measures to encourage state trading enterprises to accord preferential treatment to ASEAN suppliers.

In addition to preferential tariff reductions, the government implemented a nine-year MFN tariff reduction programme in May 1995 – **the *Pakmei* schedule**. Under the programme tariffs up to 20% were to be reduced to 5% by the year 2000, and tariffs higher than 20% were to be reduced to 10% by 2003 (Table 2.A1.6). By that point, most tariff lines would fall within a three-tiered tariff structure of 0, 5 and 10% with a simple average of 7.2% for all tariff lines. Further decisions in December 1995, January 1996, June 1996 and July 1997 accelerated the *Pakmei* schedule of tariff reductions for certain items. However, the initial package and subsequent decisions contained important exceptions for automobiles, metals, chemicals and agriculture. This exemption covered some 300 agro-food tariff lines, approximately 20% of all agricultural lines, including those with highest applied tariff rates such as livestock products and fresh fruit and vegetables.

Although tariff protection was falling during the 1990s, little progress was made in reducing non-tariff barriers and export controls. A notable exception was the abandonment of the local content scheme for soybean meal in 1996 as a result of pressure from the increasingly powerful poultry industry to reduce feed costs. The 1997-98 financial crisis prompted much bolder measures and a re-acceleration of the reform process (Table 2.A1.1). In terms of agriculture, tariffs on all food items were reduced to a maximum of 5% and non-food agricultural tariffs to a maximum of 10% by 2003.[30] BULOG's monopoly over imports of wheat, wheat flour, soybeans and garlic were removed on 3 November 1997.[31] Its monopoly on sugar was removed on 1 February 1998, along with the dairy-mixing ratio. The import monopoly of the BPPC was eliminated in June 1998 and BULOG's monopoly on rice imports on 1 January 1999. Indonesia also committed to the removal by the end of the IMF programme period all remaining import restrictions, other than those justified on health, safety and environmental grounds, as well as non-tariff assistance to domestic production.

In 2004, following the end of the *Pakmei* tariff reduction programme, Indonesia adopted the ASEAN Harmonized Tariff Nomenclature (AHTN) as part of its commitments under AFTA. The revised tariff book categorises tariffs into ASEAN tariffs and MFN tariffs, increasing the number of tariff lines from 7 540 in 2003 to 11 161 in 2004. Further, but minor, changes to tariff rates have been made through a **tariff harmonisation programme** that was implemented in a number of phases over 2004-10. As a consequence, tariffs are

set at 5% for raw materials, between 5% and 10% for intermediate inputs, and 10% for final goods with the exception of certain sensitive sectors, including some agricultural products.

More importantly, protection through non-tariff measures has been rising (Basri and Hill, 2008; Bird *et al*., 2008). Many of the barriers have been in agriculture, with rice, sugar, wheat flour, and meat commonly targeted. This somewhat **discordant approach to trade policy** – generally low tariffs combined with ever-present pressure for NTBs – is in part an institutionalised feature of the country's trade policy regime. Specifically, tariff policy is under the control of the Ministry of Finance, which is generally predisposed towards open economic policies. However, line ministries have greater influence in setting NTBs. They are generally more protectionist and influenced by interest groups. Hence trade policy is a continuous battleground, and a change of key ministerial personalities can easily result in a more protectionist trade policy regime. This is the crux of Indonesia's trade policy challenge: no minister or agency has control over the full array of trade policy instruments, and is able to adopt an economy-wide public interest viewpoint.

Import policy measures

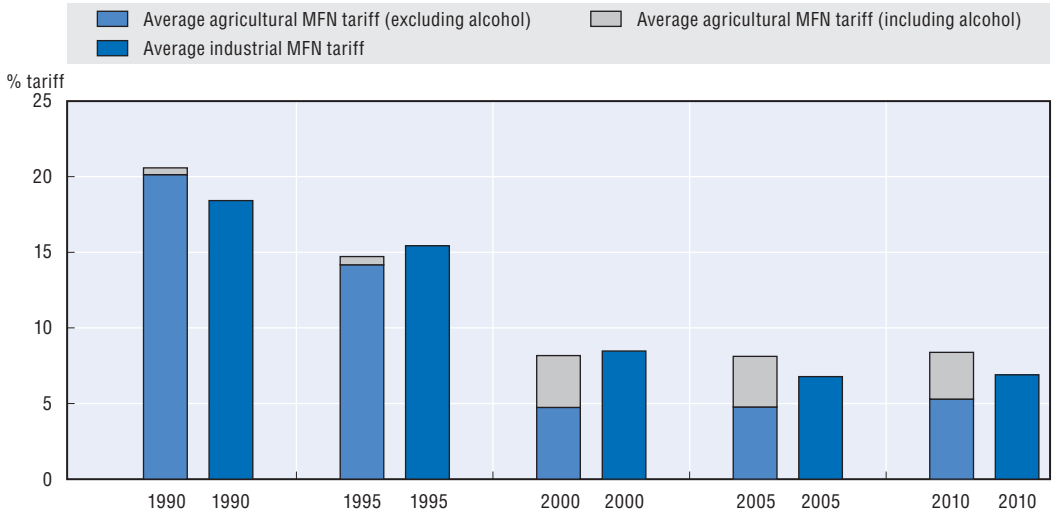
Tariffs

The average applied MFN **agricultural tariff**, including alcoholic beverages and spirits, decreased from 20.6% in 1990 to 8.2% in 2000 and has remained close to this level during the 2000s (Figure 2.9). This downward trend is very similar to that followed by industrial tariffs, and reflects the unilateral undertakings by Indonesia described above. The high tariff rates applied to alcoholic beverages and spirits contribute significantly to the overall agricultural average. Excluding alcoholic beverages and spirits results in an average MFN agricultural tariff of 5.3% in 2010, below the average MFN tariff for industrial products. The average applied MFN tariffs for agriculture and industrial goods are significantly lower than the average bound rates of 47% (45% excluding alcoholic beverages and spirits) and 35.5% respectively.

More than 85% of agricultural MFN tariffs fall within the range of 0-5% (Figure 2.10). Similarly, 85% of agricultural imports enter through tariff lines paying duty of 0-5%, with almost 66% entering duty-free. All agricultural tariffs are *ad valorem* except for rice and sugar, which have specific tariffs, making duty requirements relatively transparent. Only 2% of tariff lines have rates of duty above 100% and these relate to alcoholic beverages and spirits, and food preparations not elsewhere specified. All agricultural tariffs lines are bound in the WTO by an upper limit. Bound tariffs are much higher than actual applied tariffs, with the vast majority within the 25-50% range.

The average applied MFN tariff for alcoholic beverages and spirits in 2010 is 125% (Figure 2.11). This is a real outlier. The next highest average MFN tariff for a product grouping is 9% for non-alcoholic beverages and tobacco. There is little difference between bound and applied MFN tariffs for alcoholic beverages and spirits, but for other agricultural groupings **the applied MFN tariff is only about one-tenth the bound rate**. This is true even for the individual products with the highest bound rates (Annex Table 2.A1.7). The highest bound tariff is 210% for milk powders (HS 0402.10, 0402.21, 0402.29), which has an applied MFN rate of just 5%. Rice (HS 1006) has a bound tariff of 160% and an applied MFN specific rate of IDR 450/kg, equivalent to an *ad valorem* tariff of 10% using the average export price for 15% broken rice from Thailand in 2010. Sugar (HS 1701) has a bound tariff of 95%, with

Figure 2.9. **Average applied MFN tariff for agriculture and non-agriculture, 1990-2010**

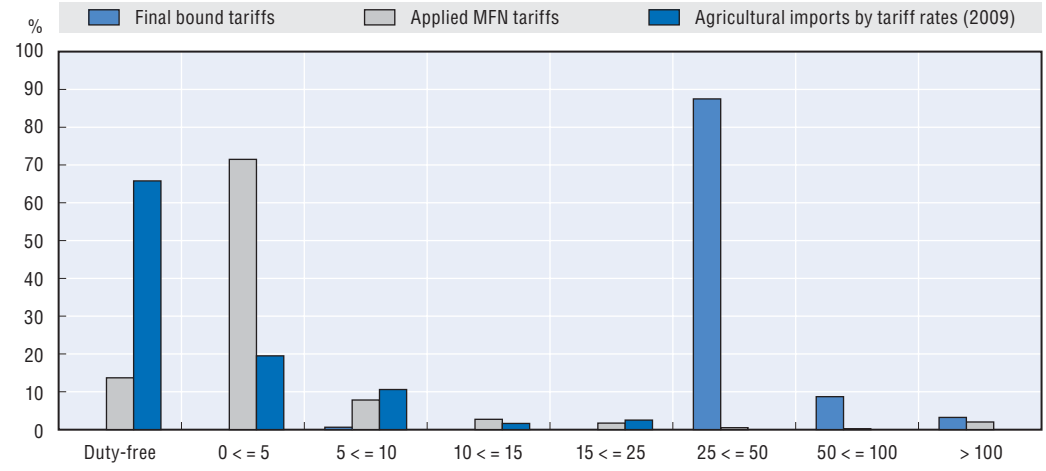


Note: All simple averages are based on pre-aggregated HS six digit averages. Pre-aggregated means that duties at the tariff line level are first averaged to six digit subheadings. Subsequent calculations are based on these pre-aggregated averages. To the extent possible, non-*ad valorem* duties are converted into *ad valorem* equivalents.

Source: WITS Integrated Database.

StatLink http://dx.doi.org/10.1787/888932650211

Figure 2.10. **Frequency distribution of agricultural bound and applied MFN tariff lines and imports by tariff rates, 2010**



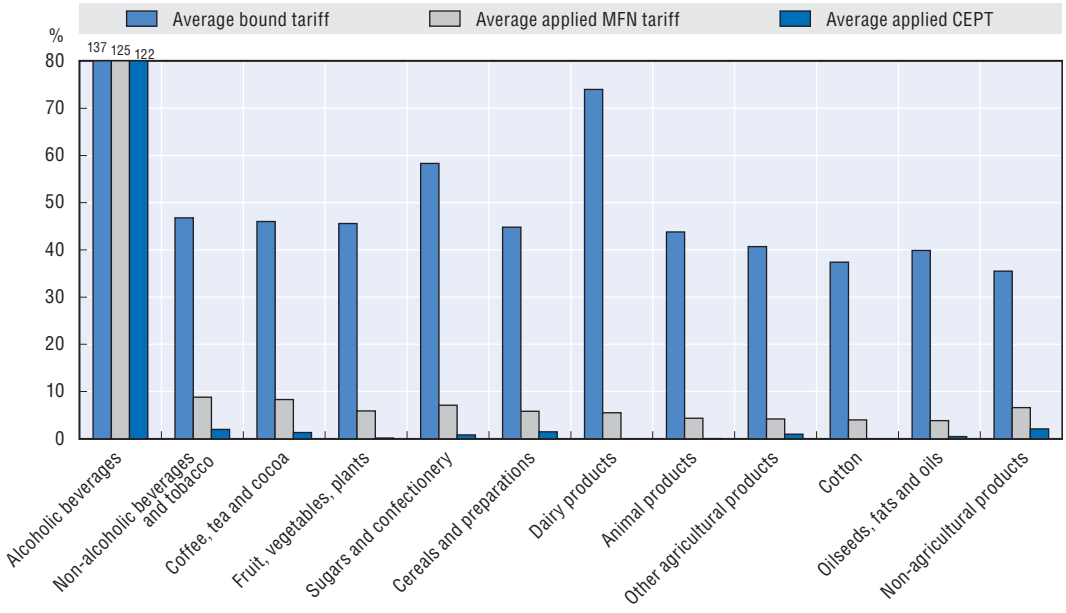
Source: WTO Tariff Profile of Indonesia, *http://stat.wto.org*.

StatLink http://dx.doi.org/10.1787/888932650230

a specific MFN tariff of IDR 790/kg applied to white and refined sugar. This equates to an *ad valorem* tariff of 18% using the International Sugar Association average daily price for 2010.

The exception of high tariffs for alcoholic beverages and spirits also applies in terms of preferential tariff rates given to ASEAN members under the CEPT. Despite this, the **average applied CEPT rate for agriculture,** including alcoholic beverage and spirits, is below 2%. While in principle AFTA is a preferential arrangement, in practice its discriminatory elements are relatively minor since its rules of origin threshold is lower than most preferential agreements. In addition, it is estimated that over 90% of trade

Figure 2.11. **Average bound, applied MFN and CEPT tariffs by product groups, 2010**



Note: All simple averages are based on pre-aggregated HS six digit averages. Pre-aggregated means that duties at the tariff line level are first averaged to six digit subheadings. Subsequent calculations are based on these pre-aggregated averages. To the extent possible, non-*ad valorem* duties are converted into *ad valorem* equivalents. Product groupings are ordered according to average applied MFN tariff.

Source: WITS Integrated Database.

StatLink http://dx.doi.org/10.1787/888932650249

within ASEAN does not avail of these preferences, owing to their limited value, in addition to the bureaucratic complexity of availing of such concessions (Basri and Hill, 2008). Nevertheless, the preferential tariff arrangements for ASEAN and China have promoted a strong presence of fruit and vegetables from these countries in Indonesia.

Aside from alcoholic beverages and spirits, there are two notable exceptions to the low tariff profile for agricultural products. On 1 January 2000, in response to pressure from farmers, **a specific tariff on rice and rice flour** of IDR 430/kg (USD 51/tonne) was introduced, replacing a 5% *ad valorem* rate.[32] This specific tariff was equivalent to an *ad valorem* rate of approximately 20% using the average export price for 15% broken rice from Thailand for 2000 and an exchange rate of IDR 8 395per USD. Responding to a dramatic increase in domestic rice prices, the tariff was reduced to IDR 200/kg (USD 22/tonne) between March and May 2007 at which point it was raised to IDR 450/kg (USD 49/tonne). It was raised further to IDR 550/kg (USD 60/tonne) between September 2007 and February 2008 to protect farmers before returning back to IDR 450/kg (USD 47/tonne). The import tariff was completely removed for the first three months of 2011 to reduce price pressure on the domestic market.

Also on 1 January 2000, the **tariff on sugar** was raised to protect the domestic industry from lower-cost imports: rising from 0% to 20% on raw sugar from cane and industrial-grade refined sugar for processing, and to 25% on raw sugar from beet and white sugar for human consumption.[33] On 3 July 2002, these *ad valorem* tariffs were replaced with specific tariffs of IDR 550/kg (USD 59/tonne) for raw sugar from cane and IDR 700/kg (USD 75/tonne) for raw sugar from beet, refined sugar and plantation white sugar to curb rampant under-invoicing.[34] These specific tariffs were equivalent to 30% and 35% *ad valorem* import duties according to

the WTO, or an average of about 45% according to the World Bank (Stapleton, 2006). In response to rising international prices for sugar, the import duty on raw sugar was removed for a maximum of 518 000 tonnes from May to October 2006.[35] Tariffs on all sugar imports were lowered from 1 October 2009 to 30 April 2010 to help stabilise domestic prices – to IDR 150/kg (USD 14/tonne) for raw sugar and IDR 400/kg (USD 39/tonne) for refined and plantation white. Tariffs returned to their previous levels on 1 May 2010.[36]

Tariff rate quotas

Indonesia has two **tariff-rate quota (TRQ)** obligations as part of its URAA market access commitments: a rice TRQ of 70 000 tonnes at an in-quota tariff rate of 90%; and a milk and cream TRQ of 414 700 tonnes at an in-quota tariff rate of 40%. In practice these TRQs have not been established because the MFN applied tariff rates for these products have been lower than the bound in-quota rates since the date of implementation.

VAT rates and other duties on imports

A value-added tax (VAT) of 10% was introduced in 1985 to replace the previous general sales tax. It is paid at all stages along the distribution chain – by manufacturers, importers, wholesalers and retailers of taxable goods and services – with the final cost being passed on to end-users. Farmers are exempt. Although it was levied on most imported and domestically produced goods and services, many products and services were exempt. For agriculture, this included crops, livestock, soybean feed for cattle, and sugar. Under the terms of the second IMF Letter of Intent, all exemptions where removed on 1 April 1998, except on imported capital goods. From that date, exemptions will be allowed only on an exceptional basis and will be reviewed regularly (WTO, 1998).

Effective 1 January 2007, **VAT was eliminated** on the import and delivery of certain goods having strategic importance including feed for animal, poultry and fish and/or raw material to make the feed; seed and/or parent stock for agriculture material, plantation, forestry, livestock, aquaculture and forestry; and a large number of agricultural products (various food crops, estate crops, and fruits and vegetables; meat, poultry, eggs and fresh milk).[37] VAT remains in place for milk products, sugar, and most processed agricultural products. For example, imports of cereals do not have VAT applied but processed cereals such as flour do. Similarly, raw fruit and vegetables do not have VAT applied but preserved products do.

The government also levies a **luxury sales tax**, ranging from 10 to 75%, on certain goods such as cosmetics, leather goods, home appliances, sports equipment and vehicles. In terms of agriculture related products, the only luxury tax levied is a rate of 10% on some milk products and 40% on alcoholic beverages. Alcoholic beverages and spirits are also subject to an additional excise tax of 40% or 70%. An excise duty of 4% is applied to imports of sugar (WTO, 2007).

Import licensing and state trading

The Ministry of Trade (MoT) is responsible for a number of different types of import requirements. At the broadest level, only companies holding an **importer identification number** (*Angka Pengenal Impor*, API) can import products into Indonesia.[38] As from 1 January 2010, there are just two types of API issued:

- General API (*API Umum*, API-U) – granted to companies involved in trading or transferring the imported goods to other parties; and,

- Producer API (*API Produsen*, API-P) – granted to companies that use the import goods in its production process. The goods may not be traded or transferred to other parties.

Previously there were two other types of API issued: Contractor API (*API Kontraktor*, API-K) – granted to companies importing goods which are used by contractors under co-operation agreements; and Limited API (*API Terbatas*, API-T) – granted to companies importing goods which are used by foreign investment companies. The new regulation shortens the time limit on the validity of these two types, at which point the holder must re-apply for either API-U or API-P.

In addition to an API, importers of certain critical products have been required since 2002 to obtain a **special importer identification number** (*Nomor Pengenal Importir Khusus*, NPIK).[39] The range of products includes four agricultural commodities – maize (HS 10.05), rice (10.06) soybeans (12.01) and sugar (17.01) – as well as textile and related products, shoes, electronics, and toys. This action was taken to stop large-scale smuggling of these products, which was hurting domestic producers. The holder of an NPIK is required to convey a monthly report to MoT on whether or not it imports the certain goods.

For most commodities, holding an API is all that is required to import. However, for a range of products, further approval by the MoT is required, ranging from appointment as an importer through to the approval of a particular shipment. For agriculture this concerns cloves, sugar, certain processed foods, and animals and animal products. The right to import cloves has been limited since 5 July 2002 to companies approved as clove importers by the MoT. To be approved, a company can only import cloves solely for use in a production process.[40] Furthermore, every shipment requires import approval from both the Ministry of Trade and the Ministry of Industry concerning the quantity, kind and timing of import.

Although BULOG's monopoly on **sugar imports** was lifted in February 1998 in line with the second LOI to the IMF, by August 1999 sugar imports were again tightly controlled, with import rights given to the sugar mills on Java.[41] The restriction lasted just a few months, and the trade was opened up once again to all traders on 1 January 2000. However, since September 2002 the MoT has severely limited the number of companies able to import sugar, replacing the estimated 800 private importers in operation before the decree was issued (Stapleton, 2006), and tightly controlled the import volume.[42] The importation of raw sugar and industrial-grade refined sugar is restricted to those companies approved by MoT as an Import Producer of Sugar (*Importir Produsen Gula,* IP-Sugar). These are companies that use imported sugar as a raw material in their own facilities, e.g. sugar millers/refiners in the case of raw sugar and food/beverage manufacturers in the case of refined sugar. IP-Sugar companies cannot sell imports to other parties or on the market. To be approved by MoT as an IP-Sugar, a company must obtain a recommendation from the Ministry of Industry, and provide details of the type and volume of sugar to be imported.

Only companies approved by MoT as a Registered Importer of Sugar (*Importir Terdaftar Gula*, IT-Sugar) are able to import white sugar for direct human consumption. To secure approval as an IT-Sugar, a company must procure at least 75% of their sugar requirement from domestic sugar cane farmers – in effect giving the ability to import final consumer product to sugar millers. Once appointed, an IT-Sugar is required to ensure that the farm gate price of sugar does not fall below a government-determined price that is set annually. Furthermore, the total quantity of plantation white sugar that can be imported by IT-Sugar companies is determined at a co-ordinating meeting of relevant government ministries

and agencies and the Indonesian Sugar Council. Imports will only be allowed if domestic supply is considered insufficient to meet demand. MoT and MoA are responsible for allocating this quote among the IT-Sugar companies. Finally, plantation white sugar cannot be imported one month before, during and two months after the milling season, effectively creating just a four-month period for import competition.

On 10 January 2004, **a seasonal ban on rice imports** from one month before to two months after the main harvest was introduced to support producer prices.[43] In principle rice imports were to be allowed during the off-season, with importation restricted to importers who gain approval by MoT as either a rice Import Producer of Rice (*Importir Produsen Beras*, IP-Rice) or a Registered Importer of Rice (*Importir Terdaftar Beras*, IT Rice). An IT-Rice licence holder must obtain prior approval from MoT for every shipment of rice with regard to the quantity and type of rice, port of entry and timing of shipment. Furthermore, every shipment of rice must first be verified or technically inspected in the country of loading. The policy applies to a wide range of rice categories (rough, brown, fragrant, PB, and whole), with the exception of paddy for sowing (HS. 1006.10.10.00) and glutinous rice (HS. 1006.30.30.00), which can be imported at any time. In practice, the regime effectively became a permanent ban. Even BULOG and its agents were only occasionally issued with special import permits. For example, MoT issued import permits to BULOG in November 2005 for only 70 000 tonnes of rice and a further 210 000 tonnes in December 2006. However, due to the sharp rise in domestic prices in 2007, BULOG was given greater freedom to import and distribute rice across Indonesia.

New regulations concerning the import and export of rice were issued in April 2008 and created three categories of rice importers.[44] Rice imported for the purpose of price stabilisation, mitigation of emergencies and food vulnerability can only be performed by BULOG and must occur outside the seasonal ban (unless an exemption is given). BULOG is required to submit its import intentions for approval by the Minister of Trade specifying the type and volume or rice, breakage level, country of origin, destination port and validity period of request. Only IP-Rice approved companies are able to import rice as raw materials for industry. Obtaining this approval requires the company to receive a recommendation from both MoA and the Ministry of Industry. Rice imported for other purposes (special health/dietary consumption and seeds) can be made by any company holding an NPIK for rice and a recommendation from MoA. For these two categories there is no limitation on the timing of the importation, i.e. a seasonal ban is not applicable. However, import approval from MoT must be received for each shipment.

On 31 October 2008, the Minister of Trade issued a regulation increasing the requirements for 505 imported products at the 10-digit harmonised tariff codes, including 188 lines for **certain processed foods including** preserved or prepared meats, sugar confectionary, chocolate and other food prepared from cocoa, and food prepared from cereals.[45] The regulations stipulate that only companies approved as a Registered Importer of Certain Products (*Importir Terdaftar Produk Tertentua*, IT-Certain Product) can import the products listed. To obtain this registration from MoT, companies must submit among other things an import plan for one year covering the number, type of goods and port of destination. The regulation also requires surveys by government-approved companies before export and limits the ports of entry. Furthermore, imports of the listed food and beverage products can only be conducted through the seaports at Dumai and Jayapura. While initially applying from 1 January 2009 to 31 December 2010, it has subsequently been extended.

In September 2011, similar MoT approval requirements were initiated for **animals and animal products**, including all types of fresh, chilled and frozen meat, dairy products and eggs.[46] Only companies approved by MoT as a Registered Importer of Animals and Animal Products (*Importir Terdaftar Hewan dan Produk Hewan*, IT-Animals and Animal Products) can import these products. To obtain approval, companies must, among other things, provide proof of ownership of, or contract with, slaughterhouses (in the case of live animals) and proof of ownership of refrigerated storage and transport equipment (for animal products). Once approved as an IT-Animals and Animal Product, a company must also obtain import approval from MoT. To obtain this a company must submit a six-month import plan and a recommendation from either the MoA or the National Agency for Drug and Food Control allowing the importation to occur. Furthermore, the regulation establishes an annual quota level for live cattle and beef based on the estimated shortfall between domestic supply and demand. This quota is allocated by MoT to importers in two six-month tranches: 1 January to 30 June and 1 July to 31 December, based on historical volumes. The quota has been introduced as one of the policy measures to achieve beef self-sufficiency. In practice officials have significantly overestimated domestic supply relative to demand and prices have risen sharply. This encouraged Indonesian farmers to slaughter their cattle, including pregnant cows, reducing long-term domestic supply and herd replacement capabilities.

Food safety and quarantine measures

Law 7/1996 on Food establishes the legal basis for the regulation, development, and control of the production, processing, the circulation, and/or trade in food and food products. It stipulates that any food entering or exiting into/from Indonesia's territory should comply with the prevailing regulations on food safety, quality and nutrition requirements. These provisions are elaborated in Government Regulation 28/2004 on Food Safety, Quality and Nutrition. The administration of these requirements is divided between the Indonesia Agricultural Quarantine Agency (*Badan Karantina Pertanian*, BKP) within the MoA and the National Agency for Drug and Food Control (*Badan Pengawasan Obat dan Makanan*, BPOM) within the Ministry of Health. BKP is responsible for fresh/raw and half-processed agricultural products and BPOM for all processed foods and feedstuffs.[47]

All **processed food** either produced domestically or imported into Indonesian territories for trade in retail packaging is required to obtain a registration number (ML) from BPOM prior to distribution.[48] The objective is to protect consumers from products that do not comply with the current regulations related to safety, quality, nutrition, and labelling, and may require certificates for the degree of radiation, standards of Islamic purity (Halal), food additives, food safety, and alcohol content. This has proven to be a very complex, time consuming, and costly procedure. Tests require foreign suppliers to provide extremely detailed information on ingredients and processing that may infringe upon proprietary business information. The testing fees are expensive, ranging from USD 120 to USD 1 200 per product, and are borne by foreign food suppliers (Bond *et al*., 2007).

In March 2008, BPOM released a regulation that stated all imported processed food, food raw materials, food additives, processing aids and food ingredients must obtain **import approval** from the head of BPOM for every shipment. This regulation reinforces the registration of imported food for retail purposes. Detailed requirements from the food manufacture and product samples are needed for the registration process. Typically, it takes longer than the officially reported time frame and costs more than the published rate (GAIN-ID1044, 2011).

While having responsibility under Government Regulation 28/2004 for the food safety of fresh/raw and half-processed agricultural products, it was not until 2009 that the BKP began operating in this area with the issuing of Minister of Agriculture Regulation 27/2009 concerning food safety control over the import and export of **fresh food of plant origin** (FFPO).[49] An important component of this regulation is the requirement that a sample from each FFPO shipment be tested to detect chemical contaminants. This applies to all FFPO shipments including those originating from countries whose FFPO safety control systems have been recognised by Indonesia. This requirement was introduced because of concerns over the chemical status of FFPO originating from China.

Prior to this the traditional focus of the BKP had been on **quarantine** matters, being the national enquiry point for sanitary and phytosanitary (SPS) matters.[50] Established in its current form in 2001, the agency employs around 3 000personnel and supervises the activities of 51 quarantine stations at entry and exit points throughout the country, two testing centres and one applied research centre. The agency ensures that **SPS requirements are strictly enforced** (WTO, 2007). For example, due to a case of Bovine Spongiform Encephalopathy (BSE) in the United States (USA) in June 2005, Indonesia banned imports of meat and other ruminant products from the USA on 1 July 2005. This ban was formally lifted in January 2008.

To reduce the risk of entry and spread of organisms harmful to plants, the government restricted the importation of 47 kinds of fresh fruits and vegetables (including avocados, grapes, apples, apricots, strawberries, mangoes, oranges, kiwi, onions and garlic) as well as fresh-layered tuber vegetables to eight seaports/airports in 2006.[51] In December 2011, the government reduced the list of entry points to just four – three seaports in Medan, Surabaya and Makassar, and the Sukarto-Hatta International airport in Jakarta – to initially take effect from mid-March 2012.[52] The implementation date was extended by a further three months in early March to give stakeholders time to prepare the necessary infrastructure. Officials explain that removing the four entry points is necessary due to the poor supervision of imported goods caused by overloading. One of the four points removed was the Jakarta seaport Tanjung Priok, the main or only entry for most companies exporting horticulture products to Indonesia. Under the new regulation, the closest seaport to Jakarta is Tanjung Perak, about 600 km east of Jakarta. Transporting a container from Tanjung Perak to Jakarta has been estimated to cost over USD 1 500. The added need for land transport will also increase the time taken to get goods to market, a key factor in product quality.

Since 2006, importers of **animal based food,** including fresh meat and processed meat products, eggs and dairy products, have been required to obtain a letter of import approval (*Surat Persetujuan Pemasukan*, SPP) issued by the Director General of Livestock Services within MoA.[53] This is in addition to meeting the applicable sanitary requirements. In applying for a SPP, importers needed to indicate the product being imported, the quantity and destination (restaurant, hotel, wet market, etc.), and demonstrate their capacity to manage these quantities in appropriate facilities. Once issued, an SPP is valid for a six-month period. This import requirement has been strengthen by the obligation that animal products can only be exported to Indonesia from MoA approved establishments, which require plant-by-plant audit inspection by MoA.[54] In 2010, the government began using this import approval to limit the volume of fresh, chilled and frozen beef that can be imported as part of the suite of policy measures introduced for the purposes of achieving beef self-sufficiency by 2014. This quantitative restriction has been made explicit with the issuing of

Minister of Trade Regulation 24/2011 under which the responsibility for issuing import approval for livestock products passed from MoA to MoT.

Standards and labelling

The National Standardization Agency of Indonesia (*Badan Standardisasi Nasional*, BSN) oversees the National Standardization System (*Sistem Standardisasi Nasional*, SSN), which is responsible for all stages of standard setting. Within the SSN, the *Standard Nasional Indonesia* (SNI) is the only national standard in Indonesia, as stipulated in Government Regulation 102/2000. Standards are formulated in harmony with international or regional standards or foreign national standards by means of adopting or adapting relevant standards. While SNI standards are primarily voluntary, those related to safety, security, and health, as well as environment conservation and/or for economic considerations can be made mandatory. Of the more than 6 000 SNI standards set only 86 are obligatory. In terms of agro-food products, **mandatory standards** apply to imports of sugar, wheat flour and cocoa powder.

Government Regulation 69/1999 on Food Labelling and Food Advertisement was released to guide the implementation of the food label and advertisement provisions of Law 7/1996. Under this regulation, effective from 1999, all packaged food products distributed in Indonesia must be labelled exclusively in the Indonesian language, Arabic numeric and Roman text, and must be pre-approved by BPOM. Mandatory information includes the product name, weight or volume in metric units, composition or a list of ingredients, expiry date, production code, BPOM registration number, and the name and address of the manufacturer or importer. Specific wording is required for the labels of certain food items, including milk products, baby food, alcoholic beverages, and *halal* food, to indicate their content. Food additives must be identified (GAIN-ID1044, 2011). These **labelling requirements** are applied to both consumer packs and bulk products for further processing. It results in additional administrative requirements, increased costs and reduced flexibility for bulk products that may ultimately be destined for a variety of uses (Bond *et al*., 2007). Another government regulation issued in 1999, requires labels and special logos to be on packaging of food containing transgenic ingredients but has not yet been implemented.

Halal certification

Islamic purity or "halal" is important to a large portion of the population. Imported meat products, except pork, must be accompanied by a **halal certificate** issued by an approved halal certifying body in the exporting country to ensure that they are produced in accordance with Islamic practices. The Indonesian Council of Ulama (*Majelis Ulama Indonesia* – MUI), Indonesia's top Muslim clerical body, is responsible for advising which Islamic authorities in the exporting country are competent to certify product as halal.[55] The requirement for MUI certification can add further costs to exporting to Indonesia. MUI have at times insisted on inspecting companies or factories in the exporting country before certifying product from the associated company. This is done at the exporters' expense. Since September 2000, imports of chicken leg quarters (CLQ) from the USA have been banned because it could not be assured that the slaughter was done according to halal. The MoA maintains that the ban is necessary because it is more difficult to monitor and control the origin of CLQ than whole chicken (WTO, 2007). The MoA was also under pressure to

protect domestic poultry producers from lower-priced imports of CLQ from the USA (Soesastro, 2004), which was the largest exporter of poultry meat to Indonesia at that time.

Export policy measures

Export licences and quotas

In terms of quantitative restrictions on exports, a distinction can be made between those imposed to support the domestic market and those imposed to maximise returns from exports. Certain agricultural, mineral and industrial products are classified as supervised exports to ensure an adequate domestic supply of these products at any time, and at reasonable prices. MoT approval must be given for each shipment. Agriculture products on this list are certain live bovine animals, rice, and palm nuts and kernels.[56] The government also supervises the export of urea fertiliser. The supply of urea is prioritised to ensure that domestic supplies are stable and that prices are lower than world market prices, particularly to support rice production. If there is a surplus of fertiliser production, urea exports are allowed up to a certain quantity as set out in a letter of permit issued by MoT.

Conversely exports of certain agricultural products are **regulated** in order to maximise returns from the market: coffee and rubber exports are controlled as part of intergovernmental arrangements, while manioc (to the European Union), and bananas and pineapples (to Japan) are regulated to maximise returns under country specific market access arrangement. Coffee exports are regulated to ensure conformity with commitments under the International Coffee Organization (ICO).[57] Only companies recognised by MoT as either a registered coffee exporter or temporary coffee exporter may export coffee. Each year these companies must also apply for a letter of export approval (SPKK) from the agency in charge of trade at the regional government level. There is no requirement to submit export plans in order to be registered or have approval. While no limits are placed on when, where and how much is traded, the exported coffee must comply with the **quality standards** stipulated by the Minister of Trade and be accompanied by a Certificate of Origin form as required by ICO.[58] Exporters must also submit a report every three months on their export levels to MoT so that Indonesia's reporting obligations to ICO can be fulfilled.

Since the early 2000s, exports of rubber have been subject to **licensing arrangements** from year to year in order to limit export volumes in accordance with its membership of the International Tripartite Rubber Council (ITRC). On 12 December 2001, responding to a 30-year low price and weak demand, the world's top three natural rubber producers, Thailand, Indonesia and Malaysia, signed a Joint Ministerial Declaration in Bali pledging to work collectively to ensure fair and remunerative income for rubber small holders of the three countries. These measures included agreed export volume limits and a supply management scheme aimed at cutting back annual production by 4% in 2002 and 2003. The ITRC was formed as the body responsible for co-ordinating and overseeing these supply control measures.[59] For 2002, Indonesia was allocated an export quota of 1.23 million tonnes, as part of the plan to reduce exports by 10%. Quotas were allocated to exporters on the basis of previous export sales. With the recovery of international prices, the quotas were soon lifted. When the price of rubber dropped to an all time low in 2008, the members of the ITRC agreed in December 2008 to reduce the amount they were exporting to increase

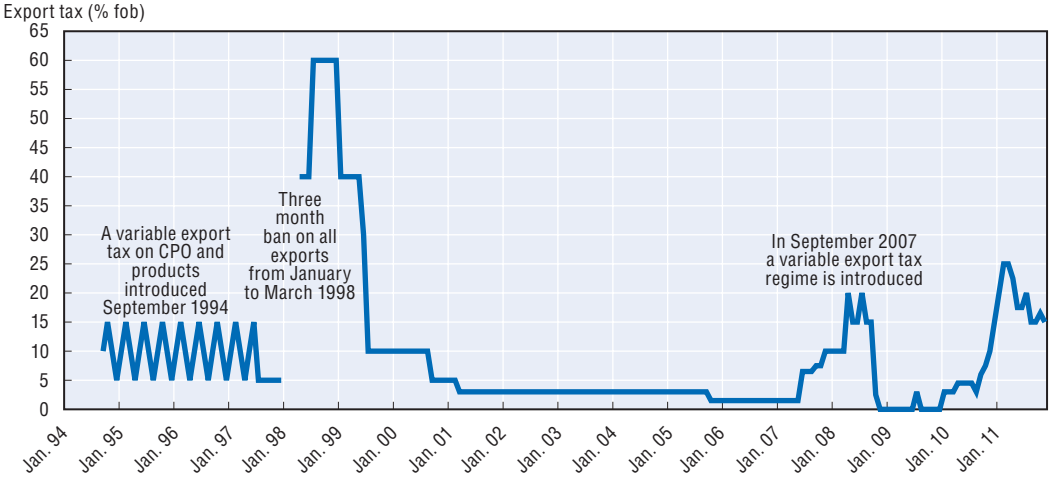
the price of rubber. Members agreed to cut exports by 915 000 tonnes in 2009 and not sell rubber at below USD 1 350 tonne.

In order to **maximise the use of the duty-free TRQ** for bananas and pineapple into Japan established under the Japan-Indonesia Economic Partnership Agreement (JIEPA), a quota allocation system has been implemented since 1 July 2008.[60] Export quotas are allocated for two 6-month periods (1 April-30 September and 1 October-31 March). Quota allocations are given to exporters as determined by the Director General of Foreign Trade within MoT. Similarly, and for a much longer period of time, export quotas have been used to control the trade of manioc (cassava in sliced and dried form, or pellet form) to the European Union to make best use of a preferential TRQ arrangement. Export quotas are allocated on a first-come, first-served basis.[61]

Export taxes, including VAT

Export taxes on palm oil products have been imposed, abolished and subsequently re-imposed a number of times**.** Export taxes were first introduced in 1979 because of the scarcity of palm oil as a raw material for cooking oil. Palm oil exports dropped significantly, in the first year alone falling from 84% of production in 1978 to 55% in 1979. In June 1991, the government abolished the tax in order to increase exports and attract more investments to the palm oil sector. However, concerned by a large increase in the price of cooking oil, the government imposed an export tax on palm oil products (CPO, RBD PO, CRD olein and RBD olein) in September 1994 (Figure 2.12). At this time the export tax payable was calculated by multiplying the difference between a domestic target price and a monthly-determined FOB price, based on average world market prices, by an export tariff rate that ranged from 40-60%. According to this formula, the export tax payable increases as the difference between the target price and the FOB price increases. Consequently, the effective export tax rate of CPO varied from month to month, ranging from 0% in August 1996 to 22% in December 1994 (Rifin, 2010). In July 1997, the calculation method was changed to a fixed rate of 5% of the export price.

Figure 2.12. **Export tax rates applied to crude palm oil, 1994-2011**



Source: Compiled from various GAIN reports, newspaper articles, etc.

StatLink http://dx.doi.org/10.1787/888932650268

In January 1998, an **export ban** on palm oil products was put in place to help restrain domestic price increases of cooking oil. The rapid depreciation of the rupiah during the Asian financial crisis was encouraging palm oil producers to export as much as possible. However, the ban lasted only three months, eliminated in the second LOI to the IMF. It was replaced by an export tax rate of 40% levied on a check price set by the government. The rate was raised to 60% in July 1998 in response to a shortage of oil on the domestic market. It was reduced back to 40% in January 1999, and lowered to 10% by the end of 1999. In September 2000, the export tax rate was set at 5% in view of Malaysia's decision to eliminate its CPO duty, and India's decision, the major importer, to raise taxes on edible oil imports. It was further cut to 3% in March 2001 and to 1.5% in October 2005 as the international price of palm oil gradually decreased. As international palm oil prices began rising in 2007, producers were motivated to export more rather than to supply the domestic market causing the price of cooking oil on the domestic market to rise. Concerned with this, the government increased the export tax to 6.5% in July 2007.

More significantly, in September 2007, a **variable export tax** regime for CPO and its derived products was introduced. The export tariff rate applicable in any month is determined by a sliding scale based on the international price of CPO in Rotterdam, a major market for vegetable oils. If the monthly average CIF price Rotterdam was less than USD 550/tonne then no export tax would be charged the following month; if between USD 550-649 then the rate would be set at 2.5%; between USD 650-749 at 5%; between USD 750-849 at 7.5%; and if above USD 850 at 10%. The regime was revised in February 2008 when the international price kept increasing, with new higher rates introduced. Under the revised regulation, if the monthly average CIF price Rotterdam is between USD 1 100-1 200/tonne, the tax rate is 15%; between USD 1 200-1 300 then 20%; and 30% if the price exceeds USD 1 300. With unprecedented CPO prices in 2008, and export tax rates of up 20%, this revenue source accounted for 2.1% of government revenue in 2008 (Barichello, 2010).

When international CPO prices fell dramatically in the final quarter of 2008 as a result of the international financial crisis, the government revised the regime in November 2008 as one of its measures to mitigate the impact of the crisis: increasing the minimum CIF value required to trigger the imposition of an export tax from USD 550 to USD 700/tonne, reducing the threshold ranges from USD 100 to USD 50, and the export tax steps from 5% to 2.5%, and lowering the top export tax rate from 30% to 25%. The export tax on derivatives of CPO was on a similar, but slightly lower, sliding scale. Further changes to the regime in 2010 and 2011 have increased the export tax on CPO relative to derived products in order to give greater incentive to further process CPO in Indonesia. The current variable export tax regime for CPO and derived products is set out in Table 2.A1.8.

A similar but simpler variable export tax regime has been applied to **cocoa** since April 2010. The tax rate fluctuates depending on the average monthly cocoa futures price in the USA market. If this price is less than USD 2 000/tonne, no tax will be imposed. If it is in the price range from USD 2 000-2 750/tonne, exports will be subject to a 5% tax. If the futures price reaches USD 2 750-3 500/tonne, the rate will rise to 10%. And if the price is more than USD 3 500/tonne, it will top out at 15% (Permani *et al.*, 2011).

Exporters are exempt from import duties, VAT and luxury tax on materials and intermediate goods used to manufacture products for shipment abroad. The Directorate-General of Customs and Excise offers a facility whereby eligible exporters can reclaim import duties within seven days (WTO, 2007).

Trade relations

WTO

Indonesia is an original and an active member of the WTO since its inception on 1 January 1995. It had previously become a contracting party to the GATT on 24 February 1950. As part of its URAA commitments, Indonesia agreed to bind 100% of its agricultural tariff lines. It has two tariff-rate quotas (TRQ) commitments: a rice TRQ of 70 000 tonnes at an in-quota tariff rate of 90%; and a milk and cream TRQ of 414 700 tonnes at an in-quota tariff rate of 40%. In practice these TRQs have not been implemented because the MFN applied tariff rates for these products have been lower than the bound in-quota rates. Similarly, while Indonesia's schedule allows the government to dispose of surplus rice stocks using export subsidies – bound at ceiling amounts of USD 28.3 million and 299 750 tonnes in 1995, declining to USD 21.5 million and 257 785 tonnes by 2004 – it has not subsidised exports of rice since the implementation of the URAA. In terms of domestic support, Indonesia did not take an aggregate measure of support to agriculture (AMS) commitment. Instead the developing country *de minimis* threshold applies to every product and to agriculture as a whole (10% of value of production by product and for all of agriculture). In its notifications to the WTO, which go up to the year 2008, Indonesia has reported support to be exempt from the reduction commitment as either green box measures (MoA and BULOG programmes) or as development programmes (input subsidies provided through Ministry of Finance). Indonesia at times does not meet its WTO obligations to notify of new trade distorting policies.

As a member of the Cairns Group, Indonesia lobbied strongly for agricultural trade liberalisation during the Uruguay Round of trade negotiations. However, in the current WTO Doha negotiations, Indonesia has taken a much more defensive position. As **co-ordinator of the G33**, it has endorsed the provision of a Special Products and Special Safeguard Mechanism for developing countries for a subgroup of agricultural products based on food security, rural livelihood, and employment objectives.[62] The government argues that it is important for countries like Indonesia to have recourse to special safeguard mechanisms when faced with import price and volume shocks, which can affect a large part of the rural population. Indonesia is also keen to ensure that special and differential (S&D) treatment remains at the heart of the negotiations and is made operational and effective, as mandated in the Doha Development Agenda. In agriculture this means a minimum package on S&D, including, inter alia, guaranteeing a different, higher threshold for tariff reduction, and adequate proportionality in reduction commitments (WTO, 2007).

Regional trade agreements

Along with Malaysia, Philippines, Singapore and Thailand, Indonesia is one of the five **founding members of ASEAN**, the developing world's most durable and successful regional grouping (Basri and Hill, 2008). Indonesia has the largest economy, population and territory within ASEAN by significant margins. Although initially established in 1967 with the intention of promoting peace and co-operation in the region, over time several important economic initiatives have been adopted, including the establishment of the AFTA with a CEPT among members.

In the terms of food and agriculture, the underlying objectives of co-operation between ASEAN countries have been to **strengthen food security and ensure food safety**

in the region. ASEAN Ministers of Agriculture and Forestry have established a Ministerial Understanding (MU) on ASEAN Cooperation in Food, Agriculture and Forestry, signed in October 1993, to facilitate and promote trade in the region. In response to the high fluctuation of food prices coupled with the global financial crisis that started in 2008, ASEAN Leaders adopted the ASEAN Integrated Food Security (AIFS) Framework and the Strategic Plan of Action on ASEAN Food Security (SPA-FS) at the 14th ASEAN Summit in 2009. The AIFS Framework and the SPA-FS, which are planned for 2009-13, provides measures, activities and timelines to facilitate co-operation in the implementation and monitoring process. In October 2011, the ASEAN Plus Three Emergency Rice Reserve (APTERR) agreement was signed between the ten members of ASEAN and China, Japan and South Korea. Under the APTERR, the 13 countries agree to maintain a combined rice stock of 787 000 tonnes – held in either rice or in-kind – to anticipate sudden instabilities in supply and production caused by natural disasters.[63] This stock level represents just under 0.5% of annual rice consumption in the ASEAN+3 regional grouping.

In addition to trade liberalisation among its own members, ASEAN has also been actively negotiating trade agreements with its major trading partners in the region in what are termed **ASEAN+ agreements** (Table 2.11 and Box 2.3). All the agreements contain clauses allowing sensitive products to be excluded from tariff reduction commitments or given a longer time period for implementation.

Table 2.11. **Time line of ASEAN trade agreements with partners**

	ASEAN-China Comprehensive Economic Cooperation Agreement	ASEAN-Japan Comprehensive Economic Partnership	ASEAN-India Comprehensive Economic Cooperation Agreement	ASEAN-Korea Comprehensive Economic Cooperation Agreement	ASEAN-Australia and New Zealand Free Trade Area
2001	November – Ministers agree to launch negotiations				
2002	4 November – Framework agreement signed	November – Ministerial announcement to pursue	November – Leaders agree to launch negotiations		
2003		8 October – Framework agreement signed		October – Leaders agree to launch negotiations	
2004	29 November – Agreement on Trade in Goods signed			30 November – Framework agreement signed	30 November – Leaders agree to launch negotiations
2005	1 July – entry into force		14 April – Framework agreement signed	13 December – Agreement on Dispute Settlement Mechanism signed	March – negotiations commence
2006				24 August – Agreement on Trade in Goods signed	
2007	14 January – Agreement on Trade in Services signed			1 June – TIG enter into force 21 November – Agreement on Trade in Services signed	
2008		14 April – AJECP signed			
2009	15 August – Agreement on Investment signed	1 January – entry into force	13 August – Agreement on Trade in Goods signed	2 June – Agreement on Investment signed	27 February – comprehensive FTA signed
2010			1 October – entry into force		1 January – entry into force[1]

1. 10 January 2012 for Indonesia.
Source: Information gathered from the official ASEAN website, *www.asean.org*.

Box 2.3. **ASEAN+ regional trade agreements**

At the 2002 ASEAN summit in Phnom Pehn, ***ASEAN members and China*** signed a framework agreement to create the world's largest FTA, with a combined market of 1.9 billion people. In addition to providing the legal basis to begin negotiations, the framework agreement included an "early harvest" programme of rapid tariff elimination on specified non-processed agricultural goods: live animals, meat and edible meal offal, fish, dairy produce, other animal products, live trees, edible vegetables and edible fruits and nuts (Harmonized System codes 01-08). "Early harvest" products with MFN rates of 15% or less in China and the ASEAN-6 entered each other's markets duty free starting in 2004. Products with MFN rates higher than 15% were subject to a 5% rate in 2005, and entered China/ASEAN-6 duty free starting in 2006. The Agreement on Trade in Goods between ASEAN and China was signed in November 2004 and set out the modalities for tariff reductions and elimination for tariff lines categorised in either the Normal Track or the Sensitive Track commencing on 1 July 2005. Tariff lines on the "Normal track", covering 40% of tariff lines, were gradually reduced and traded duty free from 1 January 2010 (for ASEAN-6 and China) or 2015 (for ASEAN-4). Products on the "Sensitive" track were further categorised into Sensitive and Highly Sensitive Lists. Tariffs on products on the Sensitive list will first reduced to 20% by 2012 followed by subsequent reductions to the 0-5% tariff band by 2018. For Highly Sensitive products, tariffs have to be reduced to no more than 50% by 2015. The Indonesian government has included 400 products on its sensitive and highly sensitive lists. The "highly sensitive list" includes rice, sugar, soybeans and maize, along with motor vehicles, motorcycles, ethyl alcohol and ceramics.

In November 2002, ***ASEAN and Japan*** announced in a Joint Declaration their intention to pursue a Comprehensive Economic Partnership. In 2005, they signed a Framework Agreement for Comprehensive Economic Partnership outlining intentions to establish a free trade area by 2012. After eleven rounds of negotiations, the ASEAN-Japan Comprehensive Economic Partnership (AJCEP) Agreement was signed in April 2008 and entered into force at the beginning of 2009. AJCEP is comprehensive in scope, covering such fields as trade in goods, trade in services, investment, and economic co-operation. Under the trade in goods, Japan has to eliminate 92% of its tariff rates based on tariff lines and trade value for goods in the Normal Track within ten (10) years of entry into force (EIF) of the Agreement. As an ASEAN-6 country, Indonesia has to eliminate 90% of its tariff rates based on the tariff lines and trade value for goods in the Normal Track within ten (10) years of EIF of the Agreement. For goods under the Highly Sensitive List, Sensitive List and Exclusion List, the modality varies and the tariff cuts were negotiated bilaterally between ASEAN member states and Japan, taking into account the sensitivities of the parties (ASEAN, 2010). However, the Indonesian government has still to ratify the agreement so the scheduled tariff reductions have not taken place.

At first ***ASEAN-India*** Summit in November 2002, India expressed a willingness to establish an FTA within a 10-year timeframe and committed itself to aligning its peak tariffs to East Asian levels by 2005. A Framework Agreement on Comprehensive Economic Cooperation (FACEC) between ASEAN and India was signed in October 2003 and provided for an Early Harvest Programme of tariff concessions as a confidence-building measure. The progressive tariff reduction under the Early Harvest Programme commenced on 1 November 2004, with elimination completed by 31 October 2007 for India and ASEAN-6, and by 31 October 2010 for the new ASEAN member states. The initial tariff reduction covers 111 tariff lines (eight agricultural tariff lines) at the HS six-digit level. The Trade in

Box 2.3. **ASEAN+ regional trade agreements** *(cont.)*

Goods (TIG) Agreement signed in August 2009 provides for a progressive reduction and/or elimination of tariffs on goods traded between ASEAN members and India, subject to compliance with rules of origin. Under the Normal Track, tariffs imposed by Brunei Darussalam, Indonesia, Malaysia, Singapore and Thailand and India on goods originating from these parties will be eliminated by 2016. The TIG also provides for different tariff rates for special products, i.e. crude and refined palm oil, coffee, black tea and pepper, covered under this Agreement. There are also goods placed under the highly sensitive lists that are subject to a different reduction schedule. An exclusion list is also provided although these are subject to an annual review with a view towards improving market access. India, Singapore, Malaysia, Thailand, Viet Nam, Brunei and Indonesia have implemented this agreement on 1 October 2010.

Korean President Roh Moo Hyun proposed the establishment of an ASEAN Korea Free Trade Agreement (AKFTA) in October 2003 at the ***ASEAN-Republic of Korea*** Summit held in Indonesia. In 2004, ASEAN and Korea signed the Framework Agreement on Comprehensive Economic Cooperation (Framework Agreement), and subsequently, signed four more agreements that form the legal instruments for establishing the ASEAN-Korea Free Trade Area (AKFTA). The ASEAN-Korea Agreement on Trade in Goods (AK-TIG), signed on 24 August 2006, sets out the preferential arrangement trade in goods between the ten (10) ASEAN member states and Korea, which principally, involves tariff reduction and elimination for all tariff lines over a transition period. Under this Agreement, ASEAN exports would enjoy greater market access to Korea starting from 2006 and have free market access (subject to meeting the ASEAN-Korea rules of origin) in 2010 as Korea eliminates tariffs for all tariff lines under the Normal Track. On a reciprocal note, the ASEAN-5 (Brunei Darussalam, Indonesia, Malaysia, the Philippines and Singapore) imports from Korea will be enjoying zero tariff rates as well for all tariff lines in the Normal Tack subject to limited flexibility. By 2012, tariffs imposed by ASEAN for all Korean products under the Normal Track would be eliminated.

At a Summit meeting in Laos on 30 November 2004, ASEAN, Australian and New Zealand leaders agreed to launch negotiations on an ***ASEAN-Australia and New Zealand FTA*** (AANZFTA). The first negotiating round was held in March 2005, and after 15 more rounds AANZFTA was signed on 27 February 2009. The AANZFTA Agreement is the first comprehensive single undertaking agreement negotiated and signed by ASEAN with a dialogue partner – it covers trade in goods and services, electronic commerce, movement of natural persons (MNP), investment, economic co-operation, dispute settlement mechanism and specific provisions on customs procedures, sanitary and phytosanitary (SPS) measures, standards and technical regulations, intellectual property rights and competition. AANZFTA includes a commitment to progressively liberalise tariffs from the entry into force of the Agreement and eliminate tariffs on at least 90% of all their tariff lines within specific timeframes over 2010-20. Under the agreement, Indonesia agreed to eliminate tariffs upon entry into force on a wide variety of Australian and New Zealand horticultural products such apples, kiwifruit and frozen vegetables, and dairy products including whole milk powder, butter and cheese. Skim milk powder from Australia and New Zealand will gain tariff free entry from 2019 and beef in 2020. The AANZFTA entered into force on 1 January 2010 for Australia, New Zealand, Brunei, Myanmar (Burma), Malaysia, the Philippines, Singapore, Thailand and Viet Nam, and on 1 January 2011 for Laos and on 4 January 2011 for Cambodia. Although the signed negotiated agreement was meant to enter into force on 1 January 2010 for Indonesia, the government delayed ratifying the agreement because of concerns it would negatively impact local producers. It was eventually ratified in late 2011 and came into force on 10 January 2012.

Source: Information gathered from the official ASEAN website, *www.asean.org*, and the Asia Regional Integration Center, *www.aric.adb.org*.

Bilateral trade agreements

In comparison to its active involvement in multilateral and plurilateral trade agreements, Indonesia has been involved in few bilateral trade negotiations. While discussion have occurred with potential partners such as the United States, the European Union and Chile, Indonesia has established only one bilateral trade agreement, with its largest trading partner Japan. Negotiations on the **Japan-Indonesia Economic Partnership Agreement (JIEPA)** began in July 2005; was signed on 20 August 2007; and took effect on 1 July 2008. JIEPA eliminates tariffs on approximately 92% of trade between the two nations. In the first phase of the agreement, Japan has provided Indonesia with duty-free access for 80% of its tariffs, including textiles and textile products, agricultural products such as tropical fruits (pineapple and bananas), shrimp and wood products. In return Indonesia has removed 35% of its tariffs, including steel, cars, automotive components and electronic goods. Further reductions will be made over the next 10 years. Perhaps the most prominent feature of the JIEPA is a provision that ensures the stable supply of energy – crude oil and natural gas – from Indonesia to Japan. Indonesia is the chief supplier of natural gas to Japan, accounting for about one-third of its natural gas supply, and its sixth-largest exporter of crude oil. However, the effect of JIEPA is diluted by the exclusion of certain items, particularly rice (ICTSD, 2008).

2.4. Evaluation of support to agriculture

This section presents a quantitative evaluation of support provided to Indonesian agriculture through the domestic and trade policies discussed in detail in the previous sections of this chapter. The evaluation is based on the indicators of agricultural support developed by the OECD, including the Producer Support Estimate (PSE), Consumer Support Estimate (CSE), General Services Support Estimate (GSSE) and Total Support Estimate (TSE) (Box 2.4).

Box 2.4. **OECD indicators of support to agriculture**

INDICATORS OF SUPPORT FOR PRODUCERS

Producer Support Estimate (PSE): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

Percentage PSE (%PSE): PSE as a share of gross farm receipts (including support).

Producer Nominal Assistance Coefficient (producer NAC): The ratio between the value of gross farm receipts (including support) and gross farm receipts valued at border prices (measured at farm gate).

Producer Nominal Protection Coefficient (producer NPC): The ratio between the average price received by producers at farm gate (including payments per tonne of current output), and the border price (measured at farm gate). The NPC is also available by commodity.

Producer Single Commodity Transfers (producer SCT): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures directly linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the transfer.

Box 2.4. **OECD indicators of support to agriculture** *(cont.)*

Producer Percentage Single Commodity Transfers (producer %SCT): The commodity SCT as a share of gross farm receipts for the specific commodity.

INDICATORS OF SUPPORT TO CONSUMERS

Consumer Support Estimate (CSE): The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products.

Percentage CSE (%CSE): CSE as a share of consumption expenditure (measured at farm gate) net of taxpayer transfers to consumers.

Consumer Nominal Assistance Coefficient (consumer NAC): The ratio between the value of consumption expenditure on agricultural commodities (at farm gate) and that valued at border prices (measured at farm gate).

Consumer Nominal Protection Coefficient (consumer NPC): The ratio between the average price paid by consumers (at farm gate) and the border price (measured at farm gate).

Consumer Single Commodity Transfers (consumer SCT): The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures directly linked to the production of a single commodity.

INDICATORS OF SUPPORT TO GENERAL SERVICES FOR AGRICULTURE

General Services Support Estimate (GSSE): The annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture regardless of their nature, objectives and impacts on farm production, income, or consumption. The GSSE does not include any transfers to individual producers.

Percentage GSSE (%GSSE): GSSE as a share of Total Support Estimate (TSE).

INDICATORS OF TOTAL SUPPORT TO AGRICULTURE

Total Support Estimate (TSE): The annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture, net of associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

Percentage TSE (%TSE): TSE as a share of GDP.

A detailed description of the methodology applied by the OECD to estimate agricultural support (the "PSE Manual"), as well as comprehensive databases for OECD countries and a number of non-OECD countries including Indonesia, are available from *www.oecd.org/tad/support/psecse*. The methodology applied in this study is fully consistent with that used for other countries as presented in OECD reports that monitor and evaluate agricultural policies (OECD, 2011b). Box 2.5 provides basic information on how this methodology has been applied in the case of Indonesia.

Box 2.5. **Indonesia's PSEs: What and how?**

Period covered: 1990-2010

Products covered: Rice, maize, soybeans, sugar, palm oil fruit, natural rubber, cocoa bean, coffee, cassava, bananas, milk, beef, poultry meat, pigmeat and eggs. These 15 commodities account for 70% of the total value of gross agricultural output (GAO) in Indonesia during 1990-2010. The ten crops account for 67% of the value of total crop production. The five livestock products represent on average 85% of total livestock production. For the purposes of calculating market price gaps, six are treated as exportables: palm oil fruit, natural rubber, cocoa bean, coffee, cassava and banana. The remaining nine commodities are considered importables.

Market Price Support

Producer prices: Average prices received by producers, sourced from Statistics Indonesia (*Badan Pusat Statistik* BPS).

Price gap estimates: For all the above listed products, relevant data have been collected and price gaps calculated. For five exportable products (natural rubber, cocoa bean, coffee, cassava and banana), no export subsidies nor other market price policies either supporting or taxing producers have been identified. Consequently, in line with OECD methodology, and as applied for other countries, the price gaps for these products have been set to zero. For the other exportable product, palm oil fruit, export taxes applying to CPO were used to estimate a price gap. For soybeans, the annual average tariff rate was used to estimate the price gap because of the difference between the domestic product, which is used for human consumption, and imported product, which is used for animal feed. External reference prices were therefore used for the remaining eight: rice, maize, sugar, beef, milk, poultry meat, pigmeat and eggs.

External reference prices: The average import unit values registered at the Indonesian border are used for maize, sugar and milk products. For beef, the average price of imports of fresh or chilled beef from Australia was used as this gave the most consistent series of reference prices across the period. For poultry meat, pigmeat, and eggs, Indonesian imported quantities were either small or trade data not sufficiently consistent across the period to allow for the calculation of import unit values. Instead, average import unit values for Singapore were used for pigmeat and eggs, and for Japan in the case of poultry. To ensure a consistent and comparable reference price for rice, the Thailand Milled Rice Price from Bangkok for Thai 15% Broken was used, to which the shipping cost from Bangkok to Singapore was added.

Marketing margins: The marketing margin indicates processing, handling and transportation costs for a given commodity. In general, margins were calculated as the absolute difference between the farm gate price and the average wholesale price provided by BPS (ensuring that prices are expressed on the same product weight terms). In the case of maize and poultry, the marketing margin was assumed to be 15% and 20% of the farm gate price respectively. In the case of milk, the processing margin of butter and SMP from one tonne of raw milk in four major exporters (Australia, New Zealand, EU and USA) was used in making the adjustments. Once calculated these all these marketing margins were subtracted from the relevant border reference price.

Quality adjustments: A quality adjustment was made for sugar in recognition of the difference between the output from the milling and refining process in Indonesia and that traded internationally.

Box 2.5. **Indonesia's PSEs: What and how?** *(cont.)*

Budgetary Support

Budgetary information for 1990-2010 was provided by MoA and covers budgetary expenditure undertaken by MoA, MoPW and the Ministry of Finance, including funding from external donors (bilateral and from international banks). It incorporates transfers to provincial and district governments for agriculture programmes. However, it does not include local co-financing, as there is no data on this. The implicit subsidy arising from the debt write off in 1998 is also not included. Neither is the un-paid debt arising from the termination of the KUT credit programme.

Support to agricultural producers

Level of producer support

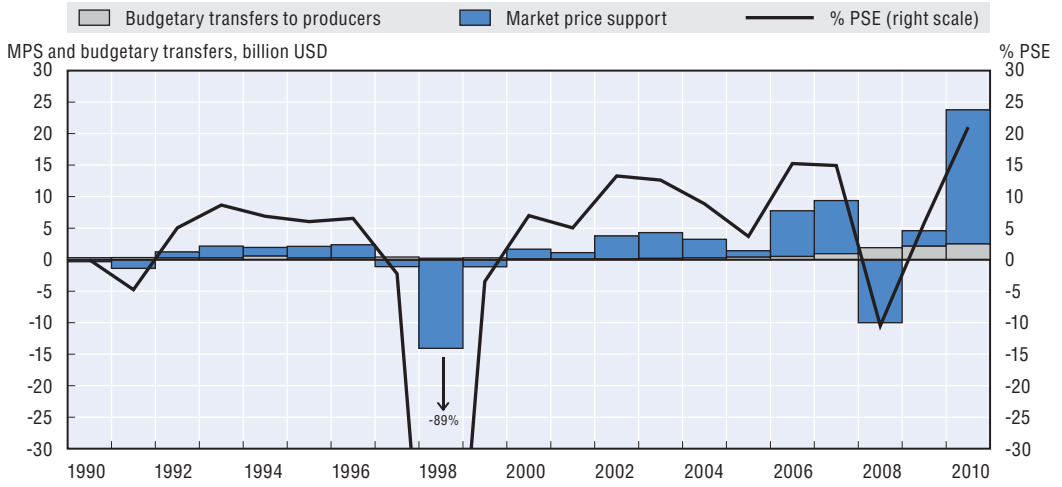
The monetary value of transfers from policy measures supporting producers expressed as a share of gross farm receipts is the **%PSE** and is a key measure of the level of support provided to the agricultural sector. Because it is not affected by inflation or the size of the sector, it allows comparisons in the level of support to be made over time and between countries. The level of support is important because it provides insights into the burden that agricultural support policies place on consumers (MPS) and taxpayers (budgetary transfers). Like a lot of other countries, changes in the level of support in Indonesia are driven by changes in MPS as the relative importance of transfers from taxpayers is small. However, these swings are relatively greater in the case of Indonesia and often produce negative values because of the government's efforts to balance the interests between producers and consumers. On the one hand, the government wishes to increase prices received by producers to encourage production and improve farmer incomes. On the other, it wants to keep prices paid by final consumers at an affordable level to help alleviate poverty and avoid social tensions.

Prior to the Asian financial crisis, the level of support to producers was **relatively low**. It averaged 3% over the five-year period in 1990-94, fluctuating within a range of -5% to 9% between 1990 and 1997 (Figure 2.13 and Tables 2.12 and 2.13). The low and sometimes negative level of support to producers during the 1990s reflects the priority given to ensuring stable and affordable domestic prices for consumers. Factors associated with the Asian financial crisis caused a sharp one-off drop in support in 1998. The sharp depreciation of the rupiah meant that world prices in rupiah equivalents increased strongly against domestic prices, which needed time to adjust to such an abrupt variation in the exchange rate. Moreover, for important strategic commodities, government actions sought to purposely limit price rises on the domestic market.

Since 2000, the level of support to producers has **increased**, averaging 9% in 2006-10. This increase is due to both higher output prices at the farm gate level (MPS) and increased budgetary expenditure. The sharp drop in support during 2008-09 results from policy responses taken to prevent rises in international commodity prices being transmitted into the domestic market to protect poor consumers. Other studies have calculated a similar upward trend in support between the 1990s and the 2000s (Orden *et al.*, 2005; Fane and Ware, 2007).

In comparison with OECD and selected non-OECD countries, the average level of producer support in Indonesia measured over 2006-10 is around ***half the OECD average*** of 22.4% (Figure 2.14). It is slightly lower than the level of support provided to producers in China (11%) and much lower than the other two Asian economies Japan (50%) and Korea (51%), which are among Indonesia's major trading partners.

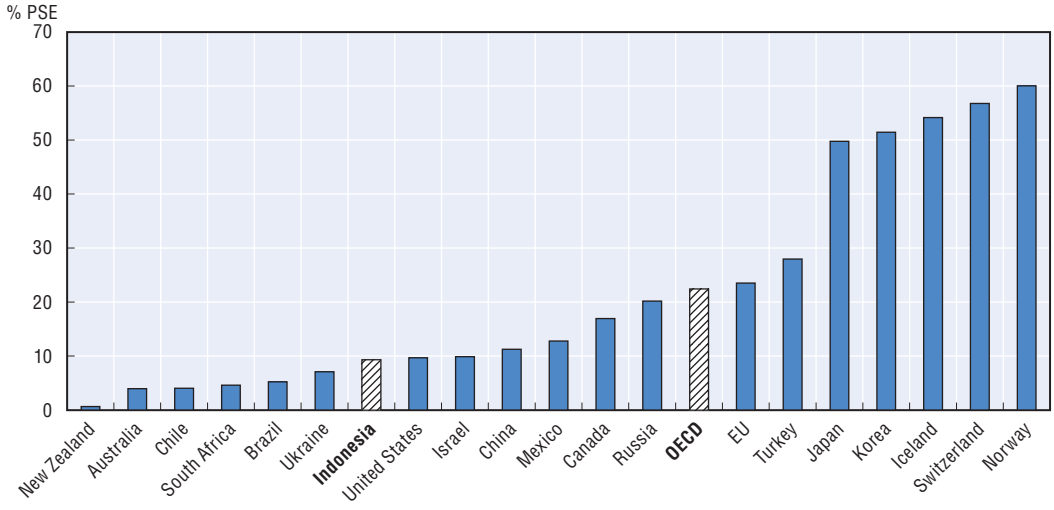
Figure 2.13. **Level and composition of Producer Support Estimate, 1990-2010**



Source: OECD, PSE/CSE database, 2012.

StatLink http://dx.doi.org/10.1787/888932650287

Figure 2.14. **Producer Support Estimate in Indonesia and selected countries, 2006-10 average**



Note: EU25 for 2006 and EU27 from 2007.

Source: OECD, PSE/CSE database, 2012.

StatLink http://dx.doi.org/10.1787/888932650306

Table 2.12. **Indonesia: Estimates of support to agriculture, IDR million**

	1990-94	2006-10	2006	2007	2008	2009	2010
Total value of production (at farm gate)	**48 043 299**	**711 697 005**	**461 976 325**	**565 406 603**	**729 369 932**	**797 916 786**	**1 003 815 380**
of which share of MPS commodities (%)	*70*	*70*	*71*	*74*	*71*	*71*	*65*
Total value of consumption (at farm gate)	**45 568 650**	**580 632 262**	**385 806 688**	**475 394 653**	**560 769 612**	**644 789 532**	**836 400 827**
Producer Support Estimate (PSE)	**1 825 433**	**68 392 948**	**71 192 139**	**85 661 986**	**–78 400 759**	**47 685 280**	**215 826 092**
Support based on commodity output	1 120 621	53 131 971	66 606 162	76 951 152	–96 648 453	25 492 046	193 258 949
Market Price Support	*1 120 621*	*53 131 971*	*66 606 162*	*76 951 152*	*–96 648 453*	*25 492 046*	*193 258 949*
Payments based on output	0	0	0	0	0	0	0
Payments based on input use	700 274	14 953 652	4 440 371	8 571 701	18 053 448	21 748 987	21 953 750
Based on variable input use	411 423	13 792 989	3 539 680	7 657 416	16 645 463	20 415 235	20 707 149
with input constraints	0	0	0	0	0	0	0
Based on fixed capital formation	*262 575*	*1 082 407*	*831 278*	*839 472*	*1 327 583*	*1 254 307*	*1 159 396*
with input constraints	*5 420*	*24 824*	*16 433*	*15 960*	*16 547*	*39 149*	*36 033*
Based on on-farm services	*26 275*	*78 256*	*69 413*	*74 814*	*80 402*	*79 445*	*87 205*
with input constraints	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Payments based on current A/An/R/I1,							
production required	4 538	307 325	145 606	139 133	194 246	444 246	613 393
Based on Receipts/Income	4 538	307 325	145 606	139 133	194 246	444 246	613 393
Based on Area planted/Animal numbers	0	0	0	0	0	0	0
with input constraints	0	0	0	0	0	0	0
Payments based on non-current A/An/R/I,							
production required	0	0	0	0	0	0	0
Payments based on non-current A/An/R/I,							
production not required	0	0	0	0	0	0	0
With variable payment rates	0	0	0	0	0	0	0
with commodity exceptions	0	0	0	0	0	0	0
With fixed payment rates	0	0	0	0	0	0	0
with commodity exceptions	0	0	0	0	0	0	0
Payments based on non-commodity criteria	0	0	0	0	0	0	0
Based on long-term resource retirement	0	0	0	0	0	0	0
Based on a specific non-commodity output	0	0	0	0	0	0	0
Based on other non-commodity criteria	0	0	0	0	0	0	0
Miscellaneous payments	0	0	0	0	0	0	0
Percentage PSE	**3**	**9**	**15**	**15**	**–10**	**6**	**21**
Producer NPC	**1.02**	**1.12**	**1.19**	**1.18**	**0.90**	**1.04**	**1.28**
Producer NAC	**1.04**	**1.12**	**1.18**	**1.18**	**0.91**	**1.06**	**1.27**
General Services Support Estimate (GSSE)	**1 206 970**	**12 805 244**	**11 721 090**	**10 662 390**	**13 312 350**	**14 162 953**	**14 167 438**
Research and development	63 170	350 223	387 004	385 889	280 868	359 242	338 111
Agricultural schools	129 050	483 478	394 690	481 965	444 735	530 888	565 113
Inspection services	43 611	411 581	293 771	378 657	478 621	458 852	448 006
Infrastructure	968 830	10 319 302	9 420 480	7 912 640	11 135 796	11 563 796	11 563 796
Marketing and promotion	2 002	43 126	37 980	41 329	66 258	37 395	32 670
Public stockholding	0	1 014 738	1 078 020	1 225 010	697 830	1 000 287	1 072 541
Miscellaneous	307	182 796	109 145	236 900	208 242	212 492	147 200
GSSE as a share of TSE (%)	**39.8**	**14.0**	**13.3**	**10.4**	**–25.4**	**18.7**	**5.8**
Consumer Support Estimate (CSE)	**–1 213 712**	**–58 334 978**	**–67 418 916**	**–86 152 618**	**86 575 617**	**–18 428 790**	**–206 250 181**
Transfers to producers from consumers	–1 069 171	–65 389 320	–72 437 241	–87 108 906	81 278 203	–31 572 229	–217 106 430
Other transfers from consumers	–92 958	–6 765 297	–3 720 229	–9 072 384	–4 459 740	–5 139 109	–11 435 025
Transfers to consumers from taxpayers	0	10 492 500	5 320 200	6 584 300	12 595 900	13 787 000	14 175 100
Excess feed cost	–51 583	3 327 140	3 418 355	3 444 372	–2 838 746	4 495 548	8 116 174
Percentage CSE	**–2**	**–10**	**–18**	**–18**	**16**	**–3**	**–25**
Consumer NPC	**1.02**	**1.16**	**1.25**	**1.25**	**0.88**	**1.06**	**1.38**
Consumer NAC	**1.02**	**1.13**	**1.22**	**1.23**	**0.86**	**1.03**	**1.33**
Total Support Estimate (TSE)	**3 032 403**	**91 690 692**	**88 233 429**	**102 908 676**	**–52 492 508**	**75 635 232**	**244 168 630**
Transfers from consumers	1 162 129	72 154 618	76 157 470	96 181 290	–76 818 463	36 711 338	228 541 454
Transfers from taxpayers	1 963 231	26 301 371	15 796 188	15 799 771	28 785 695	44 063 004	27 062 200
Budget revenues	–92 958	–6 765 297	–3 720 229	–9 072 384	–4 459 740	–5 139 109	–11 435 025
Percentage TSE (expressed as share of GDP)	**0.91**	**1.87**	**2.64**	**2.60**	**–1.06**	**1.35**	**3.80**
GDP deflator 1995-97 = 100	**71**	**617**	**483**	**538**	**635**	**688**	**743**

NPC: Nominal Protection Coefficient. NAC: Nominal Assistance Coefficient.
A (area planted), An (animal numbers), R (receipts), I (income).
Note: MPS commodities for Indonesia are: Rice, maize, soybeans, sugar, palm oil fruit, natural rubber, cocoa bean, coffee, cassava, bananas, milk, beef, poultry meat, pigmeat and eggs. Market Price Support is net of producer levies and Excess Feed Cost.
Source: OECD, PSE/CSE database, 2012.

StatLink http://dx.doi.org/10.1787/888932650800

Table 2.13. **Indonesia: Estimates of support to agriculture, USD million**

	1990-94	2006-10	2006	2007	2008	2009	2010
Total value of production (at farm gate)	**23 721**	**75 044**	**50 412**	**61 865**	**75 474**	**76 894**	**110 576**
of which share of MPS commodities (%)	*70*	*70*	*71*	*74*	*71*	*71*	*65*
Total value of consumption (at farm gate)	**22 500**	**61 283**	**42 100**	**52 106**	**58 027**	**62 137**	**92 135**
Producer Support Estimate (PSE)	**854**	**7 480**	**7 769**	**9 373**	**–8 113**	**4 595**	**23 775**
Support based on commodity output	507	5 886	7 268	8 420	–10 001	2 457	21 289
Market Price Support	*507*	*5 886*	*7 268*	*8 420*	*–10 001*	*2 457*	*21 289*
Payments based on output	0	0	0	0	0	0	0
Payments based on input use	345	1 561	485	938	1 868	2 096	2 418
Based on variable input use	202	1 439	386	838	1 722	1 967	2 281
with input constraints	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Based on fixed capital formation	*130*	*114*	*91*	*92*	*137*	*121*	*128*
with input constraints	*3*	*3*	*2*	*2*	*2*	*4*	*4*
Based on on-farm services	*13*	*8*	*8*	*8*	*8*	*8*	*10*
with input constraints	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Payments based on current A/An/R/I1,							
production required	2	32	16	15	20	43	68
Based on Receipts/Income	2	32	16	15	20	43	68
Based on Area planted/Animal numbers	0	0	0	0	0	0	0
with input constraints	0	0	0	0	0	0	0
Payments based on non-current A/An/R/I,							
production required	0	0	0	0	0	0	0
Payments based on non-current A/An/R/I,							
production not required	0	0	0	0	0	0	0
With variable payment rates	0	0	0	0	0	0	0
with commodity exceptions	0	0	0	0	0	0	0
With fixed payment rates	0	0	0	0	0	0	0
with commodity exceptions	0	0	0	0	0	0	0
Payments based on non-commodity criteria	0	0	0	0	0	0	0
Based on long-term resource retirement	0	0	0	0	0	0	0
Based on a specific non-commodity output	0	0	0	0	0	0	0
Based on other non-commodity criteria	0	0	0	0	0	0	0
Miscellaneous payments	0	0	0	0	0	0	0
Percentage PSE	**3**	**9**	**15**	**15**	**–10**	**6**	**21**
Producer NPC	**1.02**	**1.12**	**1.19**	**1.18**	**0.90**	**1.04**	**1.28**
Producer NAC	**1.04**	**1.12**	**1.18**	**1.18**	**0.91**	**1.06**	**1.27**
General Services Support Estimate (GSSE)	**602**	**1 350**	**1 279**	**1 167**	**1 378**	**1 365**	**1 561**
Research and development	31	37	42	42	29	35	37
Agricultural schools	64	51	43	53	46	51	62
Inspection services	22	43	32	41	50	44	49
Infrastructure	484	1 087	1 028	866	1 152	1 114	1 274
Marketing and promotion	1	5	4	5	7	4	4
Public stockholding	0	108	118	134	72	96	118
Miscellaneous	0	19	12	26	22	20	16
GSSE as a share of TSE (%)	**39.8**	**14.0**	**13.3**	**10.4**	**–25.4**	**18.7**	**5.8**
Consumer Support Estimate (CSE)	**–548**	**–6 464**	**–7 357**	**–9 426**	**8 959**	**–1 776**	**–22 720**
Transfers to producers from consumers	–470	–7 905	–7 905	–9 531	8 411	–3 043	–23 916
Other transfers from consumers	–44	–723	–406	–993	–461	–495	–1 260
Transfers to consumers from taxpayers	0	1 099	581	720	1 303	1 329	1 561
Excess feed cost	–31	357	373	377	–294	433	894
Percentage CSE	**–2**	**–10**	**–18**	**–18**	**16**	**–3**	**–25**
Consumer NPC	**1.02**	**1.16**	**1.25**	**1.25**	**0.88**	**1.06**	**1.38**
Consumer NAC	**1.02**	**1.13**	**1.22**	**1.23**	**0.86**	**1.03**	**1.33**
Total Support Estimate (TSE)	**1 455**	**9 928**	**9 628**	**11 260**	**–5 432**	**7 289**	**26 897**
Transfers from consumers	517	7 920	8 310	10 524	–7 949	3 538	25 175
Transfers from taxpayers	982	2 732	1 724	1 729	2 979	4 246	2 981
Budget revenues	–44	–723	–406	–993	–461	–495	–1 260
Percentage TSE (expressed as share of GDP)	**0.91**	**1.87**	**2.64**	**2.60**	**–1.06**	**1.35**	**3.80**
GDP deflator 1995-97 = 100	**71**	**617**	**483**	**538**	**635**	**688**	**743**

NPC: Nominal Protection Coefficient. NAC: Nominal Assistance Coefficient.
A (area planted), An (animal numbers), R (receipts), I (income).
Note: MPS commodities for Indonesia are: Rice, maize, soybeans, sugar, palm oil fruit, natural rubber, cocoa bean, coffee, cassava, bananas, milk, beef, poultry meat, pigmeat and eggs. Market Price Support is net of producer levies and Excess Feed Cost.
Source: OECD, PSE/CSE database, 2012.

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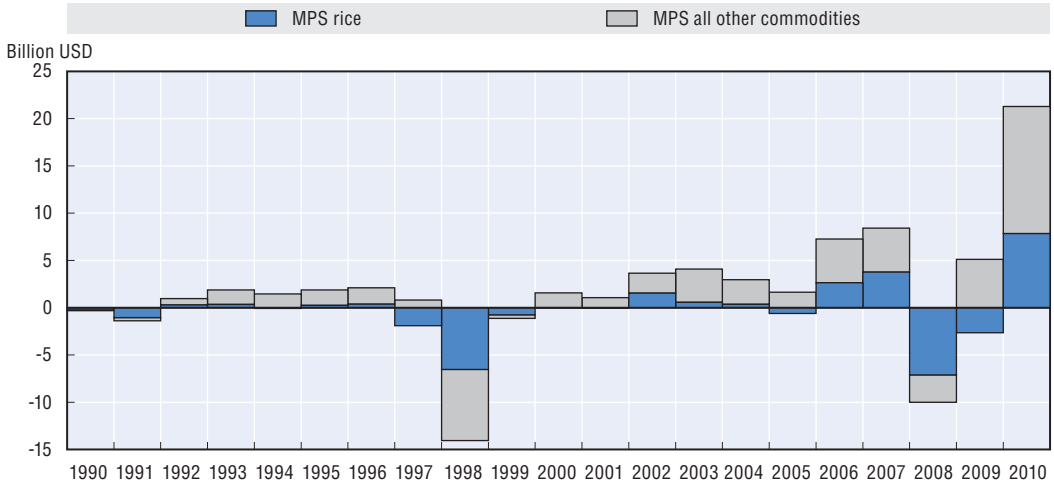
Composition of producer support by policy category

In addition to the level of support, it is also necessary to analyse the way in which that support is provided to producer. The **composition of support** is important because how support is provided determines its impact on the agricultural sector and the distribution of benefits to society as a whole. For example, support provided as market price support can have a large effect on production and trade and has been a source of friction with trading partners, imposes additional and regressive costs on domestic consumers, while doing a poor job of addressing objectives farm income, environmental protection and preservation of rural areas. On the other hand, income support not based on current commodity production is much more effective at improving farm income with less spill-over effects. Policies that directly target non-commodity criteria such as landscape elements, environmental performance or traditional breeds of animals are also typically more effective at reaching these societal objectives, although concerns have been raised over the budgetary and transactions costs involved in some cases.

Figure 2.15. **Level and composition of Market Price Support, 1990-2010**



Source: OECD, PSE/CSE database, 2012.

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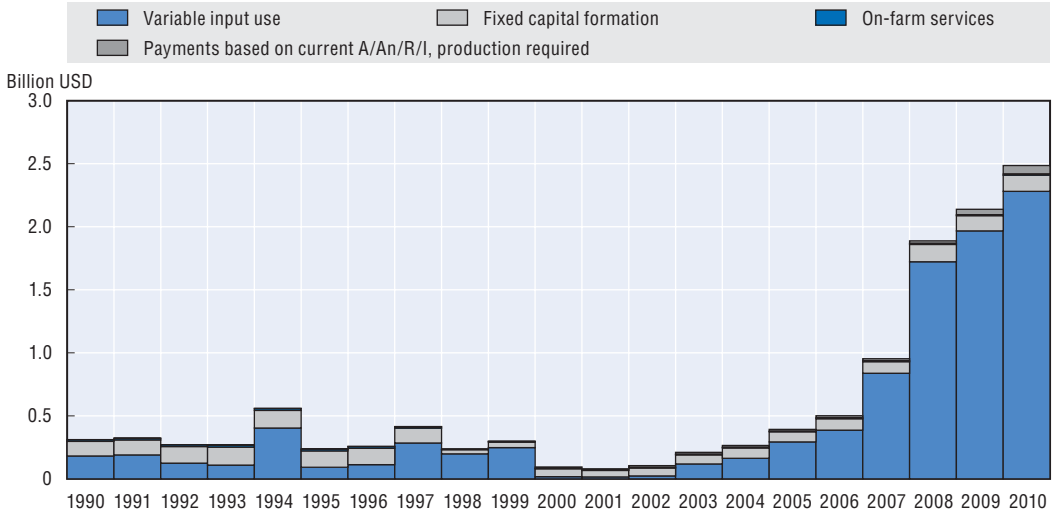
MPS is the dominant **component of producer support** in Indonesia (Figure 2.13). Annual variations depend on movements in world prices, domestic prices and exchange rates as well as changes in production levels. For example, MPS increased dramatically in 2010 because domestic market prices rose and border prices fell, increasing the gap between them. A stronger rupiah in relation to the USD was one reason why border prices fell. The most important commodity is rice (Figure 2.15). Its importance in the overall value of production means that changes in the MPS for rice have a significant influence on annual changes in total MPS.

Budgetary support to agriculture has increased since 2000, rising from less than 0.5% of gross farm receipts in the early 2000s to around 2.0% at the end of the decade (Figure 2.16). This support is primarily given in the form of payments based on variable input use. The huge increase in expenditure on the fertiliser subsidy is the main factor behind this development. Indonesia provides little support to producers paid on the basis

Figure 2.16. **Level and composition of budgetary transfers, 1990-2010**



Source: OECD, PSE/CSE database, 2012.

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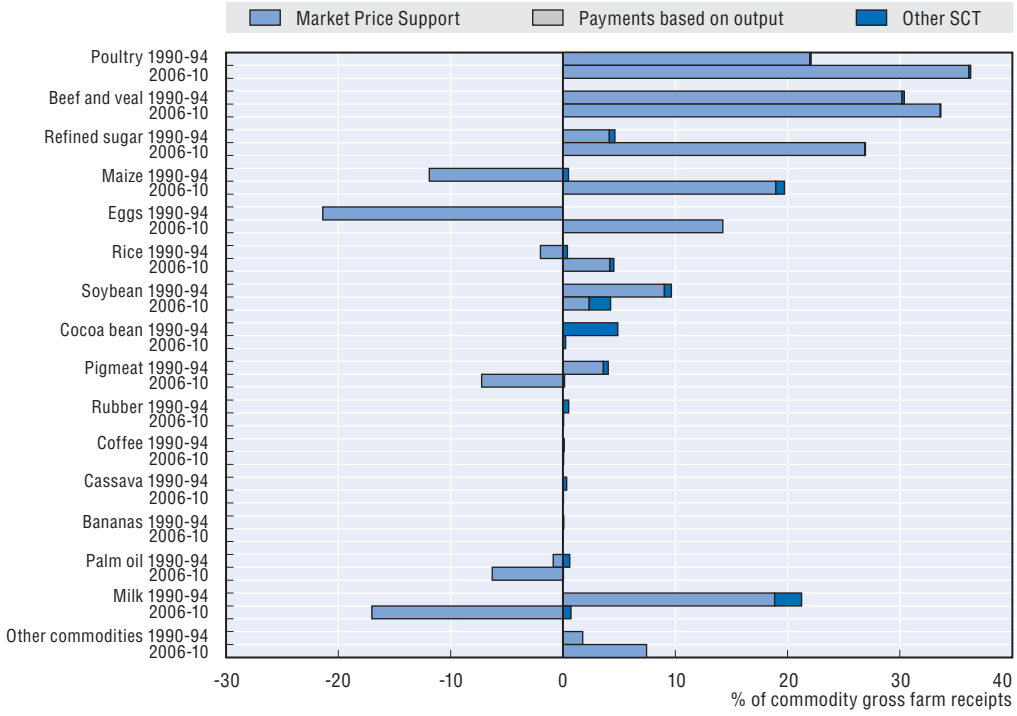
of area, animal numbers or income/revenue, limited to assistance given in response to adverse events. It is administratively difficult to introduce such transfers on a larger scale because of issues surrounding land ownership, data collection and institutional capacity, in addition to the large number of farmers that would be covered.

Commodity profile of producer support

Producer Single Commodity Transfers (SCT) is an indicator that shows to what extent agricultural policies are **commodity specific**. It sums up commodity specific transfers, such as MPS and payments linked to the production of a given commodity. A figure of 33%, for example, indicates that the value of transfers that are specific for that commodity is equivalent to one-third of gross farm receipts for that commodity. Producer SCT as a share of commodity gross farm receipts (%SCT) is highest for poultry, beef and sugar (Figure 2.17). For all three commodities, the %SCT has increased between 1990-94 and 2006-10. Producers of these commodities have benefited from increased transfers through MPS. In all three cases, steps have been taken to limit competition on the domestic market by imposing import restrictions.

The negative producer SCT for maize and rice in 1990-94 indicates that during this period the policy emphasis favoured consumers over producers, with domestic prices kept below world prices. In 2006-10 the emphasis has reversed, with producers of rice and maize being supported at the expense of consumers. The relatively low %SCT value for rice during 2006-10 compared to other commodities such as beef and sugar is the direct result of policy efforts to limit the transmission of international price rises to the domestic market during 2008 and 2009. The %SCT for rice was 21% and 25% in 2006 and 2007, –40% and –14% in 2008 and 2009, and 30% in 2010. Furthermore, while rice production is the dominant beneficiary of fertiliser subsidies this support is not apportioned to rice, or any other single commodity. For soybeans, another important staple crop food, the situation is slightly different. During 1990-94, producers were supported through a local content

Figure 2.17. **Producer SCT by commodity, 1990-94 and 2006-10 averages**



Note: Commodities are ranked according to 2006-10 levels.

Source: OECD, PSE/CSE database, 2012.

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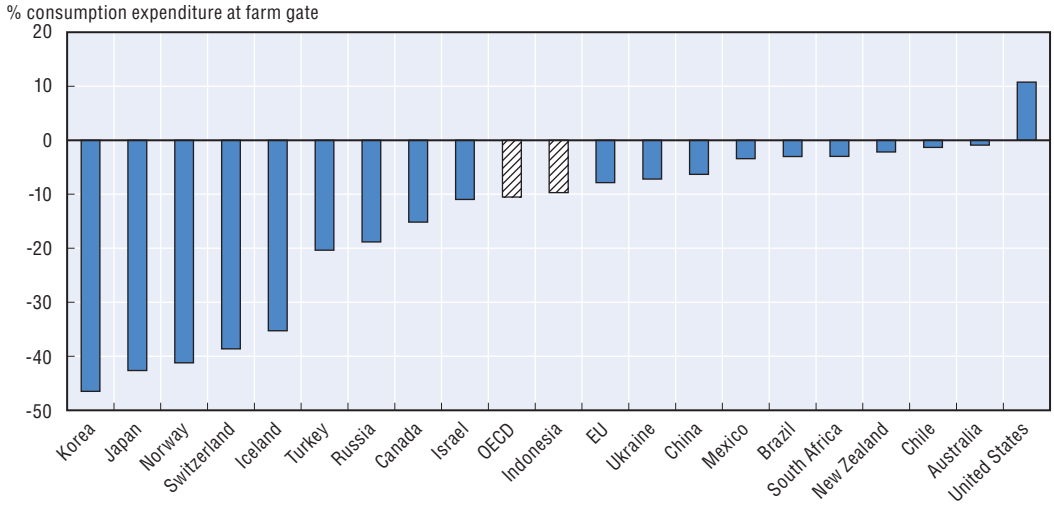
scheme, which has since been removed. A similar scheme existed for dairy imports, which explains the high producer SCT for milk in 1990-94. The %SCT indicator also shows the impact of export taxes on palm oil, which have pushed returns to growers in 2006-10 below what they would have been in the absence of the tax. In contrast to other livestock products, the producer SCT has most significantly decreased for milk reflecting the removal of the import restrictions associated with the mixing ratio.

Support to consumers of agricultural products

The Consumer Support Estimate (CSE) is a related indicator measuring the **cost to consumers** arising from policies that support agricultural producers by raising domestic prices. A negative CSE indicates an implicit tax on consumers, i.e. they are paying more than they need to in comparison with border prices; when it is positive, consumers are in effect being supported, i.e. able to purchase product cheaper on the domestic market. In the OECD methodology, the consumer is understood as the first buyer of these products. In the absence of consumer support policies, CSE generally mirrors the developments in MPS (Table 2.12). In 1990-94, consumers were implicitly taxed through agricultural policies at a relatively low level, as indicated by a %CSE of –2%. By 2006-10, the cost imposed on consumers had risen, with a %CSE of –9.7%, resulting from policy actions to support producer prices. However, this average hides the steps taken in 2008 and 2009 to shield domestic consumers from rising world prices by reducing price transmission on the domestic market through both border measures, such as export prohibitions and export

Figure 2.18. **Consumer Support Estimate in Indonesia and selected countries, 2006-10 average**



Note: EU25 for 2006 and EU27 from 2007.
Source: OECD, PSE/CSE database, 2012.

StatLink http://dx.doi.org/10.1787/888932650382

taxes, and budgetary transfers, primarily the RASKIN programme. The implicit tax of –9.7% is slightly lower than the OECD average of –10.5% (Figure 2.18).

Support to general services for agriculture

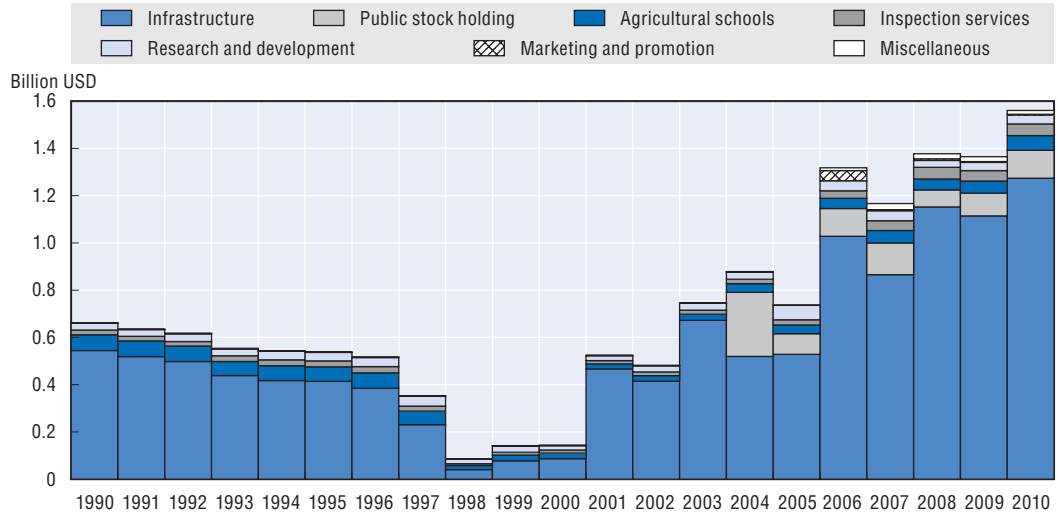
The General Services Support Estimate (GSSE) measures the value of transfers provided through the public financing of services such as agricultural research and development, training, inspection, infrastructure, marketing and promotion and public stockholding. In Indonesia, the most important category of GSSE is i**nfrastructure**, which is dominated by expenditure on developing and maintaining irrigation systems (Figure 2.19). The increase in the relative importance of other GSSE expenditure such as research, field schools and inspection services during the 1990s had more to do with a reduction in expenditure on irrigation during this period rather than an increase in expenditure on these items. Similarly, the increase in expenditure on irrigation since 2000 has decreased the relative importance of other categories rather than there being a decrease in expenditure on them. In fact, expenditure on these categories has also steadily increased over the period.

The share of GSSE in total support (%GSSE) indicates the **relative importance** of these transfers within support to the agricultural sector. The growing share of support that is provided to the agricultural sector as a whole rather than to individual producers is an important re-orientation of agricultural support spending to forms that can bring significant benefits to producers and consumers, with potentially less production and trade distortions. Despite recent increases in expenditure on agricultural schools and irrigation, the %GSSE has remained small at 14% in 2006-10 (Table 2.12).

Support to the agricultural sector as a whole

The Total Support Estimate (TSE) is the broadest indicator of support, representing the sum of transfers to agricultural producers individually (PSE) and collectively (GSSE), and

Figure 2.19. **Level and composition of General Services Support Estimate, 1990-2010**



Source: OECD, PSE/CSE database, 2012.

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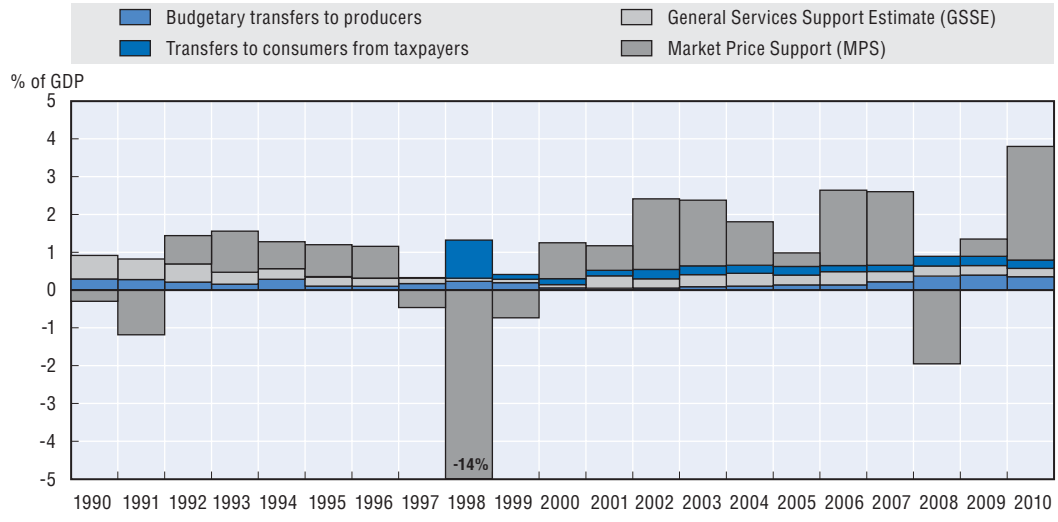
Figure 2.20. **Level and composition of Total Support Estimate, 1990-2010**



Source: OECD, PSE/CSE database, 2012.

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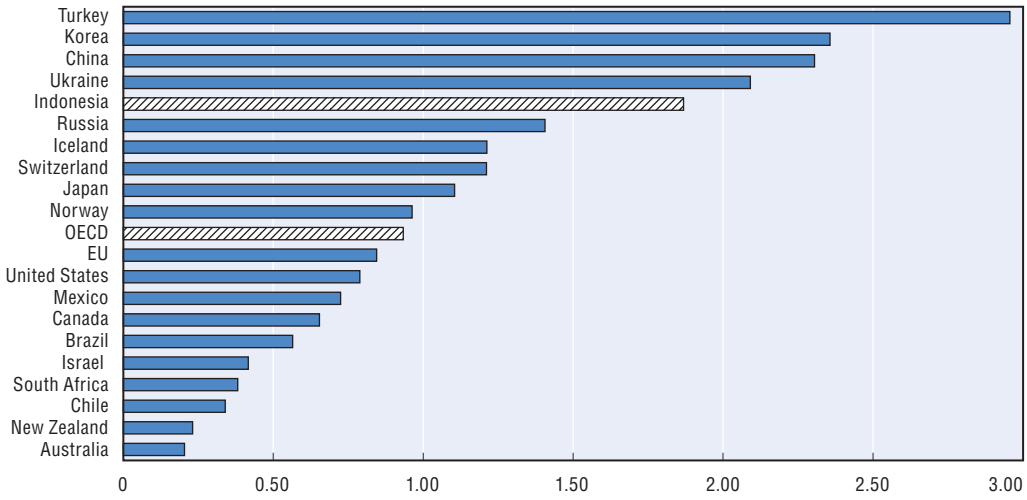
direct budgetary transfers to consumers. Expressed as a percentage of GDP, the %TSE provides an indication of the cost that support to the agricultural sector places on the overall economy. Between 1990 and 2010, the %TSE has fluctuated within the range of –1.1 and 3.8%, excluding 1998 (Figure 2.20). This large variation is due to fluctuations in MPS. During 1990-2010, the %TSE has grown, indicating an increase in support for the sector as a whole. The aggregate TSE for Indonesia averaged nearly IDR 92 trillion (USD 9.9 billion) in 2006-10, ranging from negative IDR 52 trillion (IDR 5.4 billion) in 2008 to IDR 244 trillion (USD 26.9 billion) in 2010 (Tables 2.12 and 2.13).

Figure 2.21. **Total Support Estimate in Indonesia and selected countries, 2006-10 average**

As per cent of GDP



Note: EU25 for 2006 and EU27 from 2007.

Source: OECD, PSE/CSE database, 2012.

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The level of total support provided to agriculture in 2006-10, equivalent to 1.9% of GDP, is around twice the OECD average (Figure 2.21). It is slightly lower than in China and Korea but much higher than in Japan. Given that Indonesia had a relatively low %PSE for this period it shows that for a developing country with a large agricultural sector, even if the level of agricultural support as measured by the PSE is low, the cost of support to the economy can be relatively high. A %TSE of 1.9% shows the potential burden of the current policy mix and the need to ensure that the money is spent effectively.

2.5. Summary

The main priorities of Indonesia's agricultural policy are in the areas of ***self-sufficiency in essential foods, food diversification, value-added and competitiveness, and farmers' welfare***. The dominance given to food self-sufficiency creates conflicts with the other objectives and competition for resources. Moreover, the government walks a tight line between supporting producers and ensuring prices for essential food items remain affordable for poor households. This is seen in the adjustments made to tariff rates – increasing to protect farmers and then decreasing to help consumers – and export taxes – decreasing to promote exports and then increasing to bolster domestic supplies.

A tight fiscal situation during the 1990s led the government to cut back the input subsidies programmes used to promote agricultural development during the previous two decades. However, marketing controls over trade and the domestic market were retained. These were finally dismantled as part of the reforms initiated by the government to secure loan funding from the IMF during the 1997-98 Asian financial crisis.

While ***the MoA has a primary role in developing and implementing policies*** to achieve these objectives, the national importance given to agriculture means that a large number of other central government ministries and agencies also have significant roles. As a result of ***the decentralisation in 2001***, sub-national governments and village level groups are also

involved in developing and implementing policies. The emergence of a more democratic environment has increased the lobbying power of producers and led to a proliferation of farmer organisations. National farmer bodies are strongly anti-import.

Producers of rice and sugar cane benefit from government determined prices set for purchases of rice by BULOG and sugar cane by millers and traders. They also gain from trade restrictions that prevent imports occurring during the main harvest periods. The operation of the ***targeted rice for the poor programme (RASKIN)*** since 1998 has allowed the government to steadily increase the producer price of rice because it reduces the impact of rising prices on poor households. But raising producer prices comes at the cost of increasing the budgetary outlay required for RASKIN.

The increased political power of producers is one reason behind the ***increase in input subsidies on fertiliser and seeds***. The number and budgetary cost of these measures have grown rapidly since the mid-2000s as part of the government's effort to achieve self-sufficiency in essential foods. Fertiliser subsidies account for nearly 40% of budgetary expenditure provided to support agriculture. Moves are being made to improve the effectiveness on input subsidy programmes by providing support directly to farmers rather than channelling the money through input producers.

Credit subsidy programmes have also expanded during the 2000s. However, subsidised interest rate facilities have not been fully taken up by farmers because of difficulties in gaining approval from lending institutions. The lack of collateral because of the absence of land titles is the major difficulty. Some farmers have difficulty because of unpaid debt from previous credit schemes. The government has also tried credit guarantees. A more recent initiative involves providing capital grants to federations of farmers groups (*Gapoktan*) at the village level so that they can lend money to members within each group. A significant amount of money is being directed through this programme with little monitoring in place.

The quantity and quality of extension services to farmers fell during the 1990s and early 2000s. On-going restructuring and decentralisation programmes were a contributing factor. Recent attempts have been made to increase the number and education of extension workers, but the government has a long way to go to achieve its target of one extension worker per village. The emphasis of extension advice has recently shifted back to rice production from a broader focus on agri-business development. New initiatives are being explored to improve extension services and linkages between farmers and research and development. ***Expenditure on research and development is relatively low***. While efforts are being made to adapt research to local production conditions, the initial research is driven by national priorities rather than by consideration of local comparative advantage.

Local communities have been given a greater responsibility in the management of the irrigation system. Farmers, through WUAs are responsible for operating, maintaining and developing the tertiary systems, i.e. the irrigation channels that flow through farmland. Farmers are required to pay a fee to their WUA to cover this, although information on whether this is actually charged and paid is not available. Further, the cost of delivering water to the tertiary channels is not charged to farmers. Central government has increased its expenditure on maintaining, rehabilitating and expanding the irrigation network under its responsibility. It also provides financial

support to both regional governments and WUAs for rehabilitation work. However, this reduces the incentive for regional governments and WUAs to undertake operation and maintenance activities. About one-third of the irrigation system is medium to heavy damaged and in need of rehabilitation.

Tariffs have fallen significantly over the period as a result of unilateral tariff reduction programmes and commitments made to secure funding from the IMF during the Asian financial crisis. The average tariff on agriculture (excluding alcoholic beverages) has fallen from 20% in 1990 to 5% in 2010. Only 7% of agricultural tariff lines have an MFN applied rate above 10%, and these are mainly on alcoholic beverages and spirits. Rice and sugar are two significant exceptions, with specific tariffs introduced on both sectors in 2000 to protect domestic producers. Tariff policy is under the responsibility of the Ministry of Finance, which is generally predisposed toward open economic policies.

Non-tariff barriers are controlled by other ministries, which are generally more protectionist. Import monopolies and licensing requirements, and export restrictions on agricultural products were removed in 1997-98 as part of the IMF reform programme. However, ***quantitative import restrictions*** were reintroduced for cloves and sugar in 2002 and rice in 2004. These limit imports to certain time periods, place restrictions on who can import product, and link import approval to producer prices. Since 2008, the importation of an extensive range of processed agricultural products has been limited to registered importers only, who become registered by submitting among other things a one-year import plan. Similar controls were put on live animals and animal products in 2011. Quantitative limits on beef imports are imposed as part of the suite of measures introduced for the purposes of achieving self-sufficiency in beef by 2014.

Import requirements for food safety, quarantine, and standards and labelling purposes, including halal certification, are becoming more stringent. They are often implemented in a non-transparent manner, with little consultation, and add to the cost of importing. For example, every shipment of fresh food of plant origin must be tested for chemical content in Indonesia before being released; imports of chicken leg quarters from the USA are still banned for halal reasons since trade was halted in 2000; importers of animal products require import approval for shipments; and ports of entry are being reduced in number.

Export approval is required for the shipment of certain live bovine animals, rice, and palm nuts and kernels, and urea fertiliser. This is done to ensure an adequate supply of these products on the domestic market. Exports of coffee, rubber, manioc (to the EU) and bananas and pineapple (to Japan) are controlled to meet international obligations or to maximise returns from the market.

A variable export tax regime on CPO and its derived products was introduced in 2007 to replace a fixed rate system requiring constant adjustment. This allows the export tax rate to rise when world prices rise, and fall when world prices fall. Recent changes have increased the marginal rate of export tax on CPO compared to derived products in order to give greater incentive to further process CPO in Indonesia. A similar export tax regime for cocoa began in 2010. Export taxes reduce farmer returns.

Regional trading arrangements are used to pursue the objective of food security. The recently agreed ASEAN Plus Three Emergency Rice Reserve (APTERR) being an obvious example. Where possible, Indonesia has sought to remove sensitive agricultural products from tariff reduction commitments under regional trade agreements. For many non-sensitive agricultural products, the difference between MFN and preferential rates is very

marginal. Indonesia has not been active in negotiating bilateral agreements outside ASEAN+ agreements.

The level of support to producers as measured by the %PSE averaged 9% in 2006-10, varying between –10% in 2008 and 21% in 2010. This level of support is similar to that received by producers in China, about half the OECD average, and significantly less than in Japan and Korea. Overtime, the level of support to producers is increasing. In 1990-94, the %PSE was just 3%, reflecting the policy regime that ensured prices of essential commodities such as rice and maize remained affordable for poor households.

Although budgetary expenditure on input subsidies has increased significantly, ***MPS remains the dominant form of support for producers***. This explains the large annual variations in the level of support. This natural variation is exacerbated by the government's policy desire to protect producers when prices fall and support consumers when prices rise. Support levels are highest for beef, poultry and sugar (and potentially rice).

The most important category of GSSE expenditure is infrastructure, which is dominated by expenditure on ***developing and maintaining irrigation systems***. Despite recent increases in expenditure on GSSE type programmes such as irrigation and farmer field schools, the %GSSE remained low at 14% in 2006-10.

The size and volatility of MPS caused the %TSE to fluctuate within the range of –1% and 4% over 1990-2010, excluding 1998. ***The total value of transfers to producers and for general services to agriculture was equivalent to 1.9% of GDP in 2006-10***. Although the level of support to producers as measured by the %PSE is relatively low in Indonesia compared to other countries, the cost of the policies to taxpayers and consumers is relatively high. There is a strong need to ensure that the policies creating these transfers work effectively to meet the intended objectives.

Notes

1. The statement was reported to have been made during Suharto's visit to the Food and Agriculture Organization headquarters in Rome in 1985, at which time Indonesian rice imports were temporarily zero (Fane and Warr, 2008).
2. Suharto made extensive use of foundations (*yayasan*) to accumulate wealth both for personal benefit as well as for patronage funds. Through a network of such foundations, Suharto and his family held stakes and a share of profits in dozens of large enterprises, including rice, textiles cloves and flour milling.
3. Law 22/1999 and Law 25/1999 were later judged inappropriate as a process of development, and were replaced by Law 32/2004 on Regional Government and Law 33/2004 on Fiscal Balance.
4. Obligatory functions of districts covered: public works, health, education and culture, agriculture, communication, industry and trade, capital investment, land, co-operatives and labour affairs. In line with the expanded responsibilities, 2.5 million civil servants from the central and provincial governments were shifted to the districts during the transition period 2000-01 (WTO, 2007).
5. The largest budgetary transfers by value do not flow through the MoA budget. Instead transfer relating to fertiliser and credit subsidies and RASKIN are funded via the Ministry of Finance budget, and a large proportion of the irrigation expenditure occurs via the MoPW budget.
6. Overall budgetary transfers in the PSE database (Section 2.4) include, in principle, central budget transfers and funding from external donors (bilateral and from international banks) but does not include local co-financing as there is no data on this.
7. The allocation of DAK funds has not been entirely transparent. The allocation mechanisms set forth in the regulations are not yet well understood by many regional governments (ADB, 2010).

8. Plantation SOEs were originally established in 1958 when the government nationalised the Dutch plantation companies. The current number of 15 is the result of a series of mergers, based on geographical location, undertaken by the government to improve the efficiency and effectiveness of the SOEs.
9. Perum is the abbreviation for *perusahaan umum*, meaning public corporation.
10. Originally called Federation of Peasant's Union (*Federasi Serikat Petani Indonesia*, FSPI) until it changed its name in 2003.
11. Urea constitutes around 70% of fertiliser produced and used in Indonesia. Urea and ZA (zinc ammonia) are nitrogen fertilisers; TSP (triple super phosphate) and its later replacement SP-36 (superphosphate) are phosphate fertilisers; KCl (potassium chloride) is potash fertiliser. NPK fertiliser combines nitrogen, phosphate and potash.
12. Minister of Industry and Trade Decree 70/2003 and Minister of Industry and Trade Decree 356/2004.
13. There is some flexibility around this territorial division of distribution. If a manufacturer fails to exercise its supply obligations, for example due to production difficulties, the Department of Industry can reallocate supply to other manufacturers.
14. It is estimated that approximately 70% of this "nonperforming" portfolio amount was paid back by farmers to KUDs but not subsequently repaid to BI (World Bank, 1999).
15. Originally set out in Minister of Finance Decree 345/2000 which has since been amended a number of times.
16. Minister of Finance Regulation 117/2006.
17. Minister of Finance Decree 131/2009.
18. There are also no private sector financial products available to farmers by which they may insure their operation against bad weather or natural disasters. If farmers hold commercial bank credit, the impact of bad weather or natural disasters may be covered by credit insurance should this be held.
19. Presidential Regulation 24/2010.
20. "Training" UPTs aim to develop a training system to improve competencies of agricultural and non-agricultural officers, through technical agricultural trainings, non-technical trainings (leadership, agribusiness entrepreneurship, and administration), internships, and study tours. "Education" UPTs are responsible for developing an education system producing competent officers with standardised and certified diplomas.
21. R&D expenditure as a share of total agriculture output.
22. Since 2005, the MoPW has given a recognition award to the best performing WUA and WUAF. This has not only created an incentive for farmers groups to do a better job in their O&M of the tertiary systems, but it has shown that there are certain characteristics that inherently make some associations more successful than others (World Bank, 2012).
23. The other four social protection programmes are *Jamkesmas* social health insurance, BKM/BSM poor student scholarship, BOS school operational support fund and PKH conditional cash transfer for households.
24. The term "tariff surcharge" is a misnomer in the sense that the base to which the rates of the tariff surcharge applied was not the tariff, but the border value of the imports subject to the tariff surcharge; for example, in the case of live animals (other than pure bred) in 1985, the tariff was 30% and the tariff surcharge was 15%, giving a total rate of import duty of 45% of the border value. The only difference between a tariff surcharge and a tariff was that the rate of the surcharge could be changed by administrative decree, whereas tariff rates could be altered only by an act of the legislature.
25. Under this measure, domestic dairy processors were permitted to import material inputs (such as skimmed milk powder) only after they have absorbed all domestically produced milk. When first introduced the ratio was 1:25, which means that for every 1 litre of domestic production that is absorbed, processors were permitted to import 25 litres of milk (or milk equivalent), indicating that the local content was only 4%. The ratio was gradually strengthened over time and was 1:1.7 for the second half of 1997 just prior to its removal.

26. With its 6 000 inhabited islands, proximity to the very open economies of Singapore and Malaysia, and a corruption-prone customs service, smuggling has been an ever-present feature of Indonesian commercial life. While accurate estimates are by definition not available, a widely adopted rule of thumb in the business community is that tariffs in excess of 15-20% will attract illegal trade (Basri and Hill, 2008).

27. The arrangement yielded substantial profits to the BPPC at the expense of users and farmers, as its government-sanctioned market power allowed it to maximise the spread between the purchase price to clove farmers and the selling price to consumers (WTO, 1998). Cloves are an essential ingredient in the manufacture of *kretek* cigarettes.

28. Subsequent to establishing the CEPT, four countries have joined ASEAN: Viet Nam in 1995, Laos and Myanmar in 1997, and Cambodia in 1999. As a requirement of joining ASEAN, all four countries joined AFTA, but were accorded longer time frames for implementing the preferential trading agreement: by 2006 for Viet Nam, 2008 for Laos and Myanmar, and 2010 for Cambodia.

29. Although wheat is not produced in Indonesia, wheat and whear flour is considered a sensitive product because of its importance in domestic consumption.

30. Chemicals and metals were also brought into the *Pakmei* programme of tariff reduction, thereby leaving automobiles and alcoholic beverages as the only exceptions.

31. As part of the November 1997 liberalisation of wheat imports, the government retained the domestic monopoly position of BULOG for the distribution of flour for a 3-5 year transition period. In the January 1998 package, the government eliminated this requirement, with flour millers permitted to sell or distribute flour to any agent, both effective 1 February 1998.

32. Minister of Finance Decree 568/1999.

33. Minister of Finance Decree 568/1999. The finished product of the Indonesian sugar milling industry using domestically grown sugar cane, known as "plantation white sugar", is not comparable with either the refined or the raw sugar traded on the world market. While it has undergone some of the bleaching processes that separate refined from raw sugar in more technologically advanced sugar industries, it still contains a relatively high level of impurities, mainly molasses, in comparison with internationally traded raw sugar. As a result most firms in the food and beverage sectors cannot use plantation white sugar as an input. Their needs are met partly by imports of refined sugar, and partly by imports of raw sugar that are then refined domestically (Fane and Warr, 2008).

34. Minister of Finance Decree 324/2002.

35. Minister of Finance Decree 240/2006.

36. Minister of Finance Regulation 150/2009 and Minister of Finance Regulation 239/2009.

37. Government Regulation 7/2007.

38. Minister of Trade Regulation 45/2009 and Minister of Trade Regulation 17/2010.

39. Minister of Industry and Trade Decree 141/2002 and Minister of Trade Regulation 7/2008.

40. Minister of Industry and Trade Decree 528/2002.

41. Minister of Industry and Trade Decree 364/1999.

42. Minister of Industry and Trade Decrees 643/2002 and 527/2004.

43. Minister of Industry and Trade Decree 9/2004.

44. Minister of Trade Regulation 12/2008.

45. Minister of Trade Regulation 44/2008; Minister of Trade Regulation 56/2008; Minister of Trade Regulation 60/2008; Minister of Trade Regulation 23/2010 and Minister of Trade Regulation 57/2010. Food and beverages products covered by these import licensing procedures are: HS No. 1601, 1602, 1603, 1604, 1605, 1704, 1806, 1901, 1902, 1904, 1905, 2007, 2008, 2009, 2101, 2104, 2105, 2201, 2202 and 2402.

46. Minister of Trade Regulation 24/2011. Animals and animal products covered by these licensing procedures are: HS No. 0101, 0102, 0103, 0104, 0105, 0201, 0202, 0203, 0204, 0206, 0207, 0208, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 1601, 1602 and 1603.

47. Under Government Regulation 28/2004, the Ministry of Fisheries is responsible for the safety, quality and nutrition of fish products.

48. Law 9/1999. Processed food exempted from the obligation to possess a registration number shall be the food that has 7 days shelf life in a room temperature and/or imported into Indonesian territories in small quantities for the purpose of requesting the registration approval letter, scientific research, or self-consumption.
49. Minister of Agriculture Regulation 27/2009 was replaced by Minister of Agriculture Regulation 88/2011 in December 2011.
50. Operating under Law 16/1992 concerning animal, fish and plant quarantine, and subsequent Government Regulations 82/2000 concerning animal quarantine and 14/2002 concerning plant quarantine.
51. Minister of Agriculture Regulation 37/2006.
52. Minister of Agriculture Regulation 89/2012.
53. Minister of Agriculture Regulation 64/2006.
54. Law 18/2009 on Livestock and Animal Health.
55. The Council comprises all Indonesian Muslim groups. It was founded in 1975 as a body to produce *fatwã* and to advise the Muslim community on contemporary issues.
56. During the 1990s more than 100 tariff lines were supervised. Other agricultural products included wheat or meslin flour, rice flour, other flour, soybeans, flour and meal of soybean, and cane or beet sugar and chemically pure sucrose in solid form (WTO, 1998).
57. Minister of Trade Regulation 41/2009.
58. As a member of the Association of Coffee Producing Countries (ACPC), quantitative restrictions were sometimes imposed on coffee exports. For example, for the 1999/00 harvest year (1 October 1999 to 30 September 2000), Indonesia's coffee export quota was 5.68 million 60 kg bags in accordance with an ACPC agreement in an attempt to prop up coffee prices in the world market. However, the cartel terminated in January 2002 because of its inability to control international price, and no such voluntary coffee quotas have applied since then.
59. On 8 August, 2002, the three countries met again in Bali, Indonesia to sign a MOU on setting up of the International Rubber Consortium Limited (IRCo) to carry out Strategic Market Operation (SMO) to complement the supply control schemes of the ITRC.
60. Minister of Trade Regulation 24/2008.
61. Minister of Industry and Trade Decree 516/1998.
62. Special Products are proposed to be exempt from the formula tariff reductions. The Special Safeguard Mechanism allows a developing country to take action based on the condition of price or volume triggers without following the procedure of a regular safeguard.
63. China, Japan and South Korea will prepare 300 000 tonnes, 250 000 tonnes and 150 000 tonnes of rice respectively. Among ASEAN countries, Thailand will contribute 15 000 tonnes; Viet Nam and Myanmar 14 000 tonnes; Indonesia and the Philippines 12 000 tonnes; Brunei, Laos and Cambodia 3 000 tonnes; while Malaysia and Singapore provide 6 000 tonnes and 5 000 tonnes respectively.

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ANNEX 2.A1

Policy tables

Table 2.A1.1. **Agricultural components of the 1997-98 Letters of Intent to the IMF**

	Measures affecting trade	Domestic competition
31 October 1997 (First Letter of Intent)	Effective 3 November 1997: ● Eliminated BULOG's import monopoly over wheat and wheat flour, soybeans and garlic, with trade opened up to general importers[2] ● Raised tariffs on soybeans and dried garlic (20%) and wheat flour (10%), and to be reduced to 5% by 2003 ● Reduced export taxes on leather	
15 January 1998 (Second Letter of Intent)	Effective 1 February 1998: ● Reduced tariffs on all food items to a maximum of 5% ● Reduced tariffs on non-food agricultural products by 5 percentage points and gradually reduced to a maximum of 10% by 2003 ● Abolished local content regulations on dairy products ● Eliminated BULOG's import monopoly over sugar, with trade opened up to general importers ● Eliminated export tax on leather Committed to removing the export ban on CPO and derived products from the end of March 1998 and imposing an export tax not exceeding 20%[3]	Effective 1 February 1998: ● Allowed any trader the freedom to buy, sell and transfer all commodities across district and provincial boundaries, including cloves, cashew nuts, oranges and vanilla. In particular, traders are able to buy and sell cloves at unrestricted prices to all agents effective immediately, while producers are free to join any co-operative or to sell directly through a trader. ● Allowed all traders to import sugar and market it domestically ● Released farmers from the formal and informal requirements for the forced planting of sugar cane ● Prohibited provincial governments from restricting interprovincial or intra-provincial trade ● Removed restrictions on foreign investment in palm oil plantations, and in the wholesale and retail trade of CPO Committed to eliminating the Clove Marketing Board by June 1998. Committed to abolishing the system of quotas limiting the sale of livestock by September 1998
10 April 1998[1] (Third Letter of Intent)	Replaced the export ban on CPO and derived products with an export tax of not more than 40% by 22 April 1998. The level of the export tax will be reviewed regularly for possible reduction, and reduced to 10% by end-December 1999.	

1. A fourth Letter of Intent to the IMF was signed in June 1998. There were no new agricultural related commitments.
2. At this point BULOG's monopoly right over the domestic distribution these commodities was still retained. These were subsequently removed in the second Letter of Intent.
3. The export ban had been introduced on 1 January 1998.

Source: IMF.

Table 2.A1.2. **Ministries with responsibilities relating to agriculture**

Ministry	Responsibilities relating to agriculture
Ministry of Public Works	Involved with the development and maintenance of water resources infrastructure, dams and water reservoirs, and primary and secondary irrigation networks; responsible for the development of the state road network and storage warehousing at markets and seaports; overall responsibility for the General Land Use Plan under which agricultural land use plan is developed.
Ministry of Trade	In charge of management of marketing co-operation both at domestic and international levels; regulation of tax and procedures for export/import including non-tariff regulations for imported agricultural products; price protection for local products; co-operation in promotion, diplomacy, negotiation, market intelligence.
Ministry of State Owned Enterprises	Responsible for improving the performance of SOEs and minimising corruption, collusion and nepotism in the more than 20 SOE involved in agriculture (Table 2.A.3).
Ministry of Environment	Responsible for planning, budgeting, implementation and monitoring and evaluation on strategies, policies, and programmes of the whole environmental development. One of the agencies within the MoE is the Environmental Impact Agency (EIA) mainly responsible for evaluating and analysing environment impact from every economic activities conduct by companies or business entities.
Ministry of Forestry	Responsible for regional water flow to guarantee the supply of water; improving the production of agriculture commodities from productive forests and community forest; facilitating the release of forest land for agriculture land.
National Land Agency	Manages the conversion of agriculture land to non-agricultural land use and the certification of agriculture land.
Ministry of Transportation	Responsible for maintaining good transportation flow and managing transportation tariffs applied at the local and inter-island level.
Ministry of Home Affairs	Formulates policies and monitors the distribution and prices food; co-ordinates local government efforts in supporting food diversification; supervises regional regulations especially those that generate high costs and result in reduced agricultural production.
Indonesian Meteorological, Climatological and Geophysical Agency	Provides weather forecasts and information on climate abnormalities and natural disaster.
Central Bureau of Statistics	Co-operates in the development of food security and food vulnerability and sets up a balance of food supply and demand.
Ministry of Health	Implements food safety standards through the National Agency of Drug and Food Control (BPOM).
Ministry of Industry	Development of the core competencies of national and regional industry which supports primary products and processed agricultural products.
Ministry of Small and Medium Enterprises	Management and institution of farming businesses into co-operatives, processing business, trading, various services and capitalising businesses.
Ministry of Energy and Mineral Resources	Formulates policies relating to the development of alternative energy supply that use agricultural commodities and waste.

Table 2.A1.3. **SOEs involved in the agricultural sector**

SOE	Involvement	Products/commodities
PT Pertani	Inputs	Seeds
PT Sang Hyang Seri		Seeds
PT Pupuk Sriwijaya		Urea
PT Petrokimia Gresik		Ammonium sulphate, phosphate, urea and NPK
PT Pupuk Kujang		Urea and NPK
PT Pupuk Kalimantan Timur		Urea and NPK
PT Pupuk Islandar Muda		Urea
PT Perkebunan Nusantara I	Agriculture production, processing and marketing	Palm oil, rubber and tea
PT Perkebunan Nusantara II		Palm oil, rubber, sugar
PT Perkebunan Nusantara III		Palm oil and rubber
PT Perkebunan Nusantara IV		Palm oil
PT Perkebunan Nusantara V		Palm oil and rubber
PT Perkebunan Nusantara VI		Palm oil, sugar, tea
PT Perkebunan Nusantara VII		Palm oil, rubber, sugar, tea
PT Perkebunan Nusantara VIII		Palm oil, rubber, cocoa, tea, quinine
PT Perkebunan Nusantara IX		Rubber, sugar, cocoa, coffee, tea
PT Perkebunan Nusantara X		Sugar
PT Perkebunan Nusantara XI		Sugar
PT Perkebunan Nusantara XII		Rubber, cocoa, coffee, tea
PT Perkebunan Nusantara XIII		Palm oil and rubber
PT Perkebunan Nusantara XIV		Palm oil, rubber, sugar, cassava, cocoa, coffee, copra and cattle and horses
PT Rajawali Nusantara		Palm oil, sugar, tea
PT Berdikari		Beef cattle
Perum BULOG	Distribution	Rice

Note: PT: *Perseroan Terbatas* (Private Limited), a form of business incorporation in Indonesia similar to a limited liability company. Perum is the abbreviation for *perusahaan umum*, meaning public corporation.

Table 2.A1.4. **Farmers ceiling prices of fertilisers, paddy floor price and paddy/urea ratio, 1987-2010**

Year	IDR/kg							Ratio of paddy floor price to urea
	Fertilisers						Paddy floor price (Dry paddy, GKG)	
	Urea	ZA[2]	TSP/SP-36[1,2]	KCl[2]	NPK	Organic		
1987	135	135	135	135			190	1.41
1988	165	165	170	170				
1989	185	185	210	210			250	1.35
1990	210	210	260	260			270	1.29
1991	220	220	280	280			295	1.34
1992	240	240	310				330	1.38
1993	260	260	310				340	1.31
1994	260	295	480				360	1.38
1995	260						400	1.54
1996	330						450	1.36
1997	400						525	1.31
1998	450	506	675	850			1 000	2.22
1999							1 500	
2000							1 500	
2001							1 500	
2002							1 500	
2003	1 150	1 000	1 500		1 750		1 725	1.50
2004	1 050	950	1 400		1 600		1 725	1.64
2005	1 050	950	1 400		1 600		1 740	1.66
2006	1 200	1 050	1 550		1 750		2 280	1.88
2007	1 200	1 050	1 550		1 750		2 575	2.15
2008	1 200	1 050	1 550		1 750	1 000	2 800	2.33
2009	1 200	1 050	1 550		1 750	500	3 000	2.50
2010	1 600	1 400	2 000		2 300	700	3 300	2.03

1. TSP from 1990 to 1998; SP-36 from 2003 to 2010.
2. KCl was phased out in October 1991, and TSP and ZA in October 1994 before all three were reinstated for 1998.

Source: MOA, 2011.

Table 2.A1.5. **Agricultural commodities classified as sensitive and highly sensitive by Indonesia under AFTA**

Commodity	HS Code	Description
Sensitive products		
Garlic	0703.20.000	Fresh
	0713.90.100	Dried (white, cut, sliced, broken, powder)
Cloves	0907.00.100	Fruit
	0907.00.900	Other
Wheat	1001.10.100	Durum wheat seeds
	1001.10.900	Durum wheat other than seeds
	1001.90.190	Wheat other than Durum wheat
Flour	1101.00.000	Wheat of muslin flour
	1102.30.000	Rice flour
	1102.90.000	Other cereal flour
Soybean	1201.00.100	Yellow
	1208.10.000	Flour and meal of soybeans
Highly sensitive products		
Rice	1006.10.000	Rice in the husk
	1006.20.000	Husked (brown) rice
	1006.30.000	Milled rice
	1006.40.000	Broken rice
Sugar	1701.11.000	Raw, no flavour/colour
	1701.12.000	Sugar cane, beet sugar
	1701.91.000	Other than raw, with flavour/colour, other
	1701.99.110	Refined white sugar packed for retail
	1701.99.191	Refined white sugar pharmaceutical purpose
	1701.99.199	Refined white sugar for other purposes
	1701.99.000	Other than refined white sugar

Source: Trewin, 1999.

Table 2.A1.6. **Pakmei tariff reduction schedule, 1995-2003**

Tariff before May 1995	%								
	1995	1996	1997	1998	1999	2000	2001	2002	2003
0	0								0
5	5								Max. 5
10	5								Max. 5
15	10		5						Max. 5
20	15		10		5				Max. 5
25	20	15		10					Max. 10
30	25	20		15		10			Max. 10
35	30	25		20		15		10	Max. 10
40	30	25		20		15		10	Max. 10
> 45	30	25		20		15		10	Max. 10

Source: MoA, 2011.

Table 2.A1.7. **Average applied MFN and WTO bound tariffs for selected agricultural commodities**

HS Tariff line	Group/Product	Applied MFN					Final bound
		1990	1995	2000	2005	2010	
02	**Meat and edible meat offal**	**29.8**	**20.7**	**5.0**	**5.0**	**5.1**	**46.2**
0201	Meat of bovine, fresh and chilled	30.0	30.0	5.0	5.0	5.0	50.0
0202	Meat of bovine, frozen	30.0	25.0	5.0	5.0	5.0	50.0
0203	Meat of swine, fresh, chilled and frozen	30.0	25.0	5.0	5.0	5.0	50.0
0206	Edible offal of bovine animals, swine, sheep, goat	30.0	25.0	5.0	5.0	5.0	40.6
0207	Meat and edible offal of poultry	30.0	19.0	5.0	5.0	5.3	42.5
04	**Dairy products, eggs, honey**	**27.1**	**21.7**	**4.9**	**4.9**	**5.4**	**65.9**
0401	Milk and cream, not concentrated	30.0	25.0	5.0	5.0	5.0	40.0
0402	Milk and cream, concentrated	32.5	28.3	5.0	5.0	5.0	142.0
0405	Butter	17.5	15.0	5.0	5.0	5.0	68.3
0406	Cheese	20.0	13.0	5.0	5.0	5.0	40.0
040700	Birds' eggs, in shell, fresh, preserved or cooked	10.0	10.0	3.3	2.5	5.0	40.0
040811	Birds' eggs, dried	30.0	20.0	5.0	5.0	5.0	40.0
07	**Edible vegetables**	**23.5**	**18.0**	**4.9**	**4.9**	**4.9**	**46.5**
070100	Potatoes, fresh and chilled, other than seed	30.0	25.0	5.0	5.0	20.0	50.0
070310	Onions and shallots	10.0	5.0	5.0	5.0	6.3	40.0
070610	Carrots and turnips	30.0	25.0	5.0	5.0	12.5	50.0
071410	Manioc (cassava)	30.0	21.7	5.0	5.0	5.0	40.0
08	**Edible fruit and nut**	**29.9**	**16.3**	**5.0**	**5.0**	**5.4**	**48.4**
080300	Bananas, including plantains, fresh or dried	25.0	20.0	5.0	5.0	5.0	40.0
080450	Guavas, mangoes and mangosteens	30.0	25.0	5.0	5.0	10.0	50.0
080520	Mandarins	30.0	23.3	5.0	5.0	20.0	50.0
09	**Coffee, tea, malt and spices**	**25.8**	**20.3**	**4.9**	**4.8**	**5.0**	**43.5**
090111	Coffee, not roasted, not decaffeinated	15.0	12.5	3.3	2.5	5.0	46.7
10	**Cereals**	**4.3**	**3.4**	**2.0**	**2.7**	**3.3**	**68.4**
100590	Maize (corn), other than seed	15.0	10.0	0.0	0.0	5.0	40.0
100630	Rice, milled	0.6	0.6	IDR 430/kg	IDR 750/kg	IDR 450/kg	160.0
12	**Oilseeds**	**7.4**	**7.5**	**3.4**	**3.5**	**3.6**	**39.6**
120100	Soya beans, whether or not broken	10.0	2.5	0.0	0.0	2.5	27.0
120210	Soya beans, shelled	30.0	25.0	5.0	5.0	5.0	40.0
15	**Animal/vegetable fats and oils**	**20.5**	**9.1**	**4.3**	**4.7**	**4.3**	**40.3**
151110	Palm oil (crude oil)	10.0	0.0	0.0	0.0	0.0	40.0
17	**Sugars and sugar confectionary**	**16.2**	**12.0**	**3.8**	**5.0**	**5.0**	**58.3**
170111	Raw sugar (from cane)	10.0	10.0	20.0	IDR 550/kg	IDR 550/kg	95.0
170191	White sugar	10.0	10.0	25.0	IDR 700/kg	IDR 790/kg	95.0
170199	Refined sugar	10.0	10.0	20.0	IDR 700/kg	IDR 790/kg	95.0
18	**Cocoa and cocoa preparations**	**26.4**	**13.2**	**5.0**	**5.0**	**8.8**	**40.0**
180100	Cocoa beans, whole or broken, raw or roasted	10.0	5.0	5.0	5.0	5.0	40.0
180500	Cocoa powder, not containing sugar or other sweetener	30.0	15.0	5.0	5.0	10.0	40.0
40	**Rubber and articles thereof**	**12.5**	**13.8**	**9.7**	**7.8**	**7.5**	**39.4**
400110	Natural rubber latex, whether or not prevulcanised	5.0	5.0	5.0	5.0	5.0	40.0
400121	Smoked sheets	5.0	5.0	5.0	5.0	5.0	40.0
400122	Technically specified natural rubber	11.8	9.6	7.0	5.0	5.0	40.0

Note: All simple averages are based on pre-aggregated HS six digit averages. Pre-aggregated means that duties at the tariff line level are first averaged to six digit subheadings. Subsequent calculations are based on these per-aggregated averages. Non-*ad valorem* duties have not been converted into *ad valorem* equivalents.
Source: WITS Integrated Database.

Table 2.A1.8. **Variable export tax for CPO and its derivatives**

CPO Price CIF Rotterdam (USD/tonne)	Fruit and palm kernel	Coconut oil	Crude palm oil[2]	Crude palm olein[3]	Refined Bleached Deodorised (RBD) palm olein[4]	Refined Bleached Deodorised palm oil[5]	Biodiesel[6]
Up to 750	40.0	20.0	0.0	0.0	0.0	0.0	0.0
751-800	40.0	20.0	7.5	3.0	2.0	0.0	0.0
801-850	40.0	20.0	9.0	4.0	3.0	0.0	0.0
851-900	40.0	20.0	10.5	5.0	4.0	2.0	0.0
901-950	40.0	20.0	12.0	6.0	5.0	3.0	0.0
951-1 000	40.0	20.0	13.5	7.0	6.0	4.0	2.0
1 001-1 050	40.0	20.0	15.0	8.0	7.0	5.0	2.0
1 051-1 100	40.0	20.0	16.5	9.0	8.0	6.0	2.0
1 101-1 150	40.0	20.0	18.0	10.5	9.0	7.0	2.0
1 151-1 200	40.0	20.0	19.5	12.0	10.0	8.0	5.0
1 201-1 250	40.0	20.0	21.0	13.5	11.5	9.0	5.0
Over 1 250	40.0	20.0	22.5	15.0	13.0	10.0	7.5

1. The threshold ranges and export tax rates in this table were established by Minister of Finance Decree 128/2011 and applicable from 15 August 2011.
2. The same export tax rates apply for Crude Palm Kernel Oil.
3. The same export tax rates apply for Crude Palm Stearin, Crude Palm Kernel Olein, Crude Palm Kernel Stearin, Palm Fatty Acid Distillate, Hydrogenated Palm Oil (Bulk) > 20 kg, Hydrogenated Palm Kernel Oil (Bulk) > 20 kg, Hydrogenated Palm Olein (Bulk) > 20 kg, Hydrogenated Palm Kernel Olein (Bulk) > 20 kg, Hydrogenated Palm Kernel Stearin (Bulk) > 20 kg, and Hydrogenated Palm Stearin (Bulk) > 20 kg.
4. The same export tax rates apply for Hydrogenated RBD Palm Olein.
5. The same export tax rates apply RBD Palm Kernel Oil, RBD Palm Kernel Olein, RBD Palm Kernel Stearin, RBD Palm Stearin, Hydrogenated RBD Palm Olein, Hydrogenated RBD Palm Oil, Hydrogenated RBD Palm Kernel Oil, Hydrogenated RBD Palm Kernel Olein, Hydrogenated RBD Palm Kernel Stearin, and Hydrogenated RBD Palm Stearin.
6. The Biodiesel export tax has been in place since 1 January 2009: Energy and Mineral Resource Minister Decree 32/2008.

Chapter 3

Promoting sustainable investment in agriculture

This chapter highlights key challenges to be addressed to attract sustainable investment in agriculture, drawing from the OECD Policy Framework for Investment in Agriculture (Annex 3.A1).

While total domestic and foreign investment have steadily increased in Indonesia since the Asian crisis in 1997-98, investment in agriculture has remained relatively low compared with the importance of the sector in terms of GDP and employment.

Access to land is still a long and difficult process for companies, due to low land registration levels and complicated land rights. Unclear legislation following the decentralisation process has generated higher uncertainty for investors. While significant efforts have been made in recent years to streamline licensing procedures, companies still need to obtain numerous permits and licenses from the central and local governments. Infrastructure development can effectively contribute to increasing agricultural productivity and enhance the development of competitive value chains, but Indonesia lags behind most Southeast Asian countries. Investment by smallholders is also constrained by a limited access to credit. Finally, foreign investment is constrained by increasing restrictions on foreign ownership.

The policy framework must ensure that new investments generate not only higher but also sustainable growth. Promoting environmentally and socially responsible investment in agriculture remains a major challenge. Although efforts have been made to strengthen environmental legislation, its enforcement is still weak. Agricultural extensification led to deforestation, and confusing forest classifications and vested interests undermine the efforts to curb high deforestation rates. Due to the complex land tenure system and the weak recognition of customary land rights, land rights of smallholders and local communities are often ignored by large-scale investors, leading to an increasing number of land conflicts. Business partnerships between large investors and local communities have the potential to bring inclusive development if existing land rights are respected.

Promoting sustainable private investment in agriculture is crucial to enhance agricultural growth, maximise the development benefits of investments, and achieve food security. This chapter highlights key challenges to be addressed to attract more and better investment in the agricultural sector. Section 3.1 examines the key trends of domestic and foreign investment in agriculture since the early 1990s. Section 3.2 provides an overview of Indonesia's investment policy, focusing in particular on the regime for foreign direct investment, the land tenure system, business licensing procedures, and investment incentives. Section 3.3 examines specific sectoral policies that can encourage investment in agriculture, such as infrastructure and human resource development. Section 3.4 identifies key challenges to promote responsible investment in agriculture that can effectively contribute to sustainable economic and social development. Finally, Section 3.5 summarises key findings.

3.1. Trends in investment in agriculture

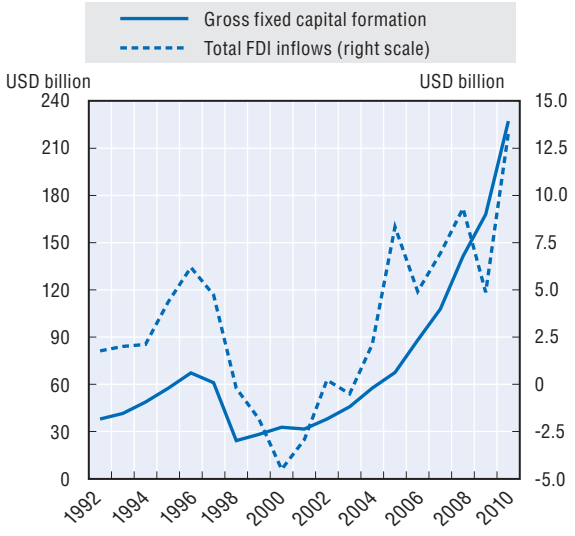
First, this section examines overall trends of domestic and foreign investment since 1960. Second, it analyses investment in agriculture over the last decade as well as investment in specific agricultural sub-sectors, in particular palm oil, biofuels, rubber, and the broiler industry. Finally, it reviews investment in agriculture per source country and destination region.

Domestic and foreign investment since 1960

Over the past five decades, the government has made considerable progress in creating a **policy environment conducive to domestic and foreign investment**. Both domestic and foreign investments have significantly increased since 1960. Total investment flows, as measured by gross fixed capital formation (GFCF),[1] quadrupled between the mid-1960s and the mid-1980s, and then quadrupled again over the following decade. The Asian financial crisis in 1997-98 and its aftermath caused a considerable fall in GFCF, but since then investment has steadily recovered both in value terms and as a share of GDP (Figures 3.1 and 3.2). GFCF has been multiplied by six, reaching 32% of GDP in 2010, its highest level in the last two decades. This level is significantly higher than for most OECD countries (around 25%) and close to the level of China and Viet Nam (35-40%).

Foreign direct investment (FDI) remains more volatile than GFCF. The recovery in terms of FDI inflows has been relatively slow since 2000 compared with other crisis-afflicted Asian countries, but in 2009 FDI inflows reached similar levels as before the Asian crisis and increased even further in 2010. Investor confidence has finally been picking up, despite the recent global crisis, and Indonesia now features **among the most attractive countries for FDI** in international rankings (UNCTAD, 2010).[2] As a result, FDI inflows have averaged USD 9.5 billion per year over the period 2005-10. This is higher than the 2005-10 average for South Africa (USD 5.5 billion) but remains much lower than the 2005-10 average for India (31.2), Brazil (37.6), or China (107.5) (UNCTAD, 2011). FDI flows as a share of GDP have also recovered to similar levels as before the 1997-98 Asian crisis, but they have

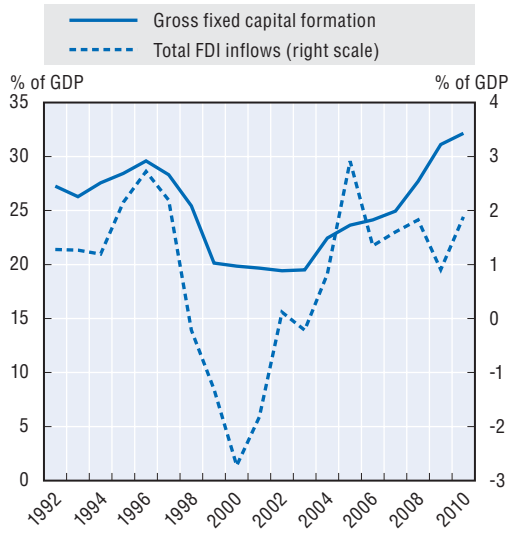
Figure 3.1. **Gross capital formation and FDI inflows, current USD billion, 1992-2010**



Source: Bank of Indonesia.

StatLink http://dx.doi.org/10.1787/888932650458

Figure 3.2. **Gross capital formation and FDI inflows, % of GDP, 1992-2010**



Source: Bank of Indonesia.

StatLink http://dx.doi.org/10.1787/888932650477

remained under 3% from 1997 to 2008 (Figure 3.2), a relatively low level compared with Malaysia (3.9%), Thailand (4.2%) or Viet Nam (6.5%). FDI's contribution to GFCF has also remained relatively small, especially since the Asian crisis, and has never matched the performance of the rest of ASEAN countries (OECD, 2010). Domestic savings have been the most important source of GFCF over the period 1950-2007, representing 87% of GFCF financing (Van der Eng, 2008).

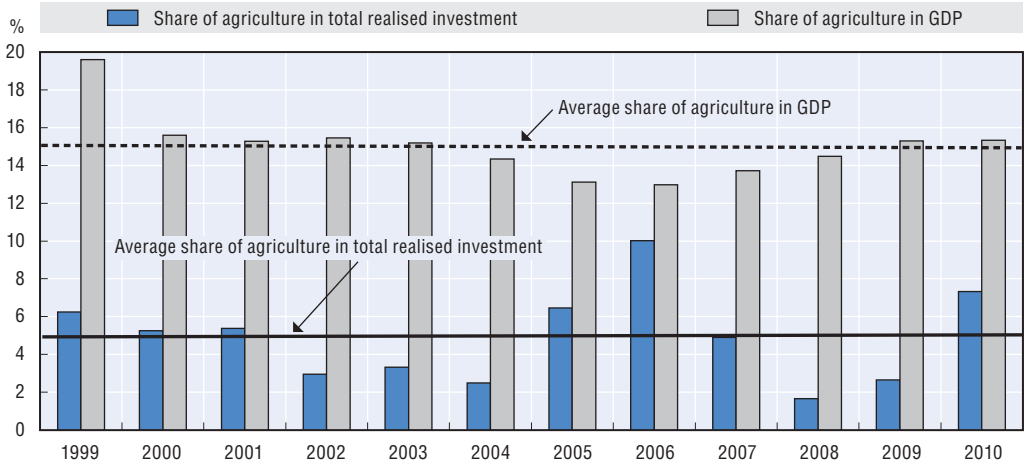
Investment in agriculture

Existing datasets on domestic and foreign investment in agriculture are not comprehensive and display discrepancies. First, data from the Indonesia Investment Co-ordinating Board (*Badan Koordinasi Penanaman Modal,* BKPM), which issues business licences to investors, contain records of relatively large investment projects only. Thus, investment made by micro, small or medium enterprises, having net assets worth less than USD 1 093 000, is excluded as well as domestic investment administered by provincial and district governments. As a result, BKPM data may underestimate investment in agriculture more than in other sectors of the economy as smallholders constitute a dominant share of agricultural production. Second, data on foreign investment in agriculture is compiled both by BKPM and Bank of Indonesia (BI). Significant discrepancies exist between these two data sets due to the differences in reporting FDI statistics, in particular in the definition of FDI projects. BKPM categorises investments as FDI (*Penanaman Modal Asing,* PMA) if foreign equity represents 1% or more of total shares of a company. Thus FDI as measured by BKPM includes equity contributions from domestic partners and investments financed by domestic sources. This practice tends to inflate BKPM's FDI figures. BI instead follows the standard FDI categorisation of equity investment,

retained earnings and other capital flows. On average, BKPM figures for FDI exceeded those from BI by 236% over the period 1990-2009. This discrepancy indicates that FDI projects licensed by BKPM have a significant local capital contribution from joint venture partners.[3]

GDP statistics do not disaggregate GFCF by sector which makes it difficult to assess the investment performance of the agricultural sector versus other sectors. Thus BKPM is the only source providing the sectoral distribution of domestic and foreign investment. BKPM data aggregate food crops, perennial crops (often referred to as "estate crops" in Indonesia), livestock, fisheries, and forestry within agriculture. Agro-processing is included in another category. While BKPM data show that total investment has been multiplied by six since 1999, they indicate that the share of **investment in agriculture has remained low** over this period, accounting for an average of only 5.5% of the total investment, whereas agriculture accounted for more than 15% of GDP during the same period (Figure 3.3). With the above caveats, available data suggest that the share of agriculture in realised investment is not only lower than the share of agriculture in GDP but also lower than its share in imports, exports and employment (Figure 3.4).

Figure 3.3. **Share of agriculture in realised investment and in GDP, 1999-2010**



Note: Agriculture includes fisheries and forestry.
Source: BKPM, 2011 and BPS, 2011.

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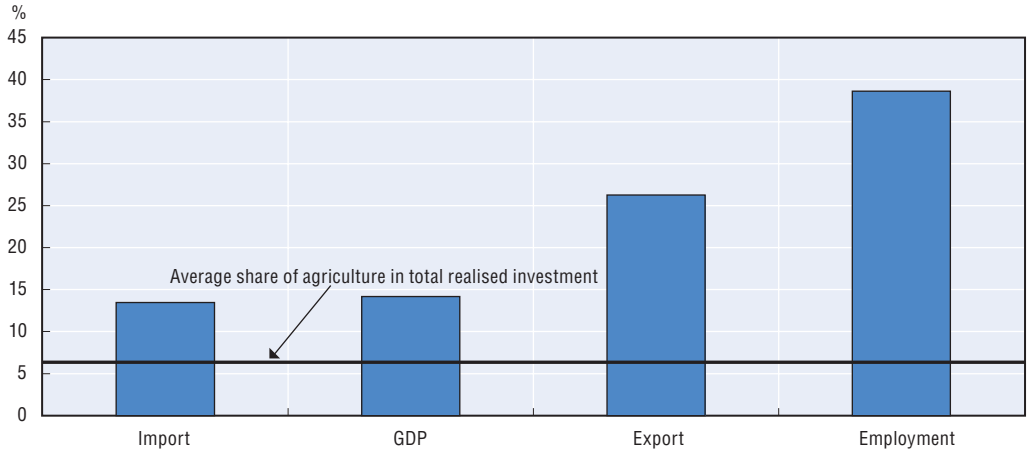
While investment in agriculture has increased over the period 1999-2010, **it has kept fluctuating** both in absolute value and as a share of total investment (Figure 3.5). The sharp increase in both domestic and foreign investment in 2010 can be explained mostly by a change in data collection. Up to 2009, BKPM recorded only planned investment according to licenses provided. Starting in 2010, BKPM obliged investing companies to provide activity reports every three month to record realised investment. Investment data starting in 2010 is thus much more accurate. The share of FDI in total investment in agriculture over the period 1999-2010 was significantly lower than the share of FDI registered for all sectors. Over the same period, only 3% of FDI was allocated to agriculture, while 9% of domestic investment was channelled to this sector.

Figure 3.4. **Share of agriculture in various economic variables, 2005-10 average**



Note: Agriculture includes fisheries and forestry.

Source: BI; BKPM, 2011; BPS, 2011.

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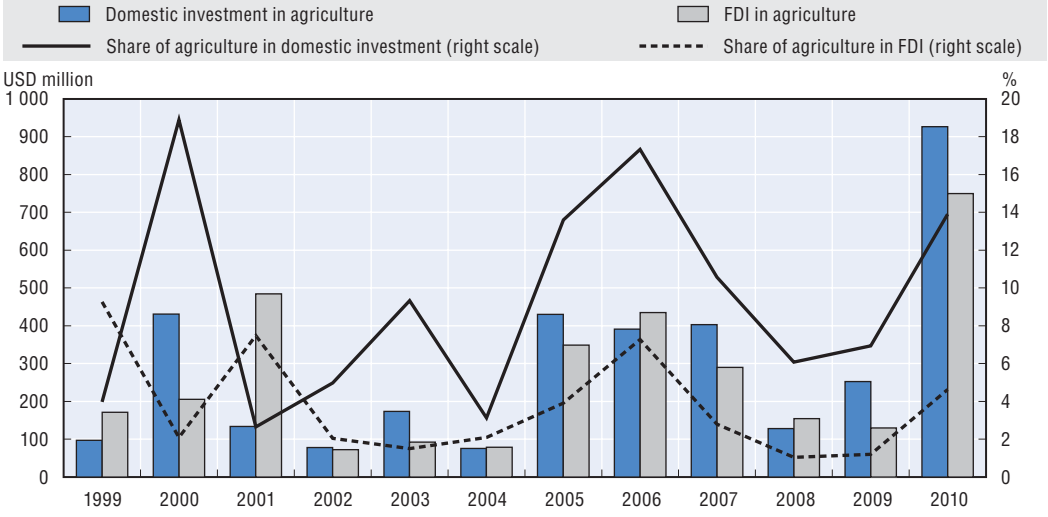
Figure 3.5. **Realised domestic and foreign investment in agriculture, 1999-2010**



Note: Agriculture includes fisheries and forestry.

Source: BKPM, 2011.

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Investment in agriculture is now relatively more productive than investment in manufacturing or services, as measured by ICOR (Incremental Capital Output Ratio) – the investment required to generate an additional unit of output (Table 3.1).

The **lower ICOR in agriculture** can indicate both a low level of capital stocks resulting from under-investment and a surplus of labour. Any investment in the sector is now relatively efficient in increasing agricultural output, which offers an untapped potential for investors. In many Asian countries, people are now exiting agriculture and moving towards other higher value-added sectors, a process typical of industrialising countries. In contrast, Indonesian agriculture continues to be highly labour intensive and to make little use of

Table 3.1. **Incremental Capital Output Ratio (ICOR) by sector, 2006-10 average**

Agriculture sector	**0.04**	**Services sector**	**0.16**
Food and perennial crops	0.06	Electricity, city gas and water supply	0.23
Livestock	0.02	Construction	0.04
Forestry	0.02	Trade, hotel and restaurant	0.06
Fisheries	0.01	Transport and communication	0.90
		Real estate and business services	0.06
Manufacturing sector	**0.30**	**ALL SECTORS**	**0.17**

Note: The ICOR for each sector is equal to the investment ratio divided by the GDP growth rate in the sector, where the investment ratio is the share of realised investment in the sector's GDP. Investment data corresponds to BKPM's definition of realised investment (both domestic and foreign).
Source: Calculated from BKPM and BI data (2006-10).

capital investments (Chapter 1). The latter may result from a constrained access to capital, poor business climate, various restrictions on investment and poor infrastructure as discussed in greater detail in Sections 3.2 and 3.3.

Investment per agricultural sub-sector

Between 2006 and 2010, 92% of the investment in agriculture (including fisheries and forestry) was made in food and perennial crops, while the share of these two sectors in agricultural GDP was only 63% between 2006-09, including 49% for food crops and 14% for perennial crops (BPS, 2009). In contrast, the shares of investment realised in livestock (3.5%), fisheries (2.2%) and forestry (2.6%) were much lower than their respective contributions to agricultural GDP equal to 12% for livestock, 19% for fisheries and 6% for forestry in 2006-09. **Investment in food and perennial crops** as well as in the food industry increased sharply in 2010 and 2011, which could be partly explained by the change in data recording (Table 3.2). It should be noted that investment in the food retail sector has also been increasing rapidly since 1998 (Section 1.3).

Table 3.2. **Realised investment per agricultural sub-sector, 2005-10**

USD million

	2005		2006		2007		2008		2009		2010		2011*	
	P	I	P	I	P	I	P	I	P	I	P	I	P	I
Domestic investment														
Food and perennial crops	19	316	20	376	18	386	4	122	16	222	202	909	316	1 001
Livestock	3	11	7	13	1	16	2	5	7	28	43	17	41	12
Food industry	35	463	19	347	27	588	49	845	34	555	208	1 805	280	914
Foreign investment														
Food and perennial crops	17	172	13	352	16	219	10	147	6	122	186	727	243	1 031
Livestock	3	53	7	19	7	46	1	5	4	3	8	5	3	0.9
Food industry	46	603	45	354	53	704	42	491	49	552	250	1 026	223	783

Note: P: Number of projects; I: Total value of projects. (*) Only first three quarters for foreign investment in 2011.
Source: BKPM, 2011.

Public spending targets mostly food crops (Chapter 2). For example, spending on rice, maize, cassava, and irrigation infrastructure, accounted for 80% of the total sub-national expenditures on agriculture in 2009, reflecting the priority given by local governments to the production of food crops (WB, 2012). In contrast, **most private investment, and in particular FDI, targets perennial crops**. Palm oil and biofuel production are the most

attractive sectors. Palm oil production almost doubled between 2004 and 2010, driven by high oil prices, and palm oil plantations alone covered an area of 8.1 million ha in 2009 (Table 3.3).

Table 3.3. **Production structure of perennial crops, 2009**

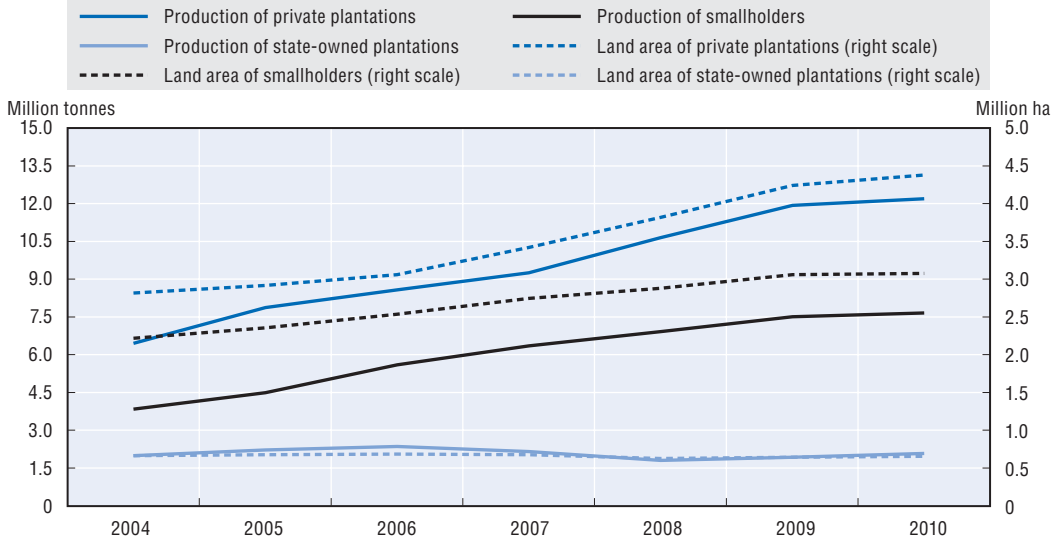
Commodity	Area (million ha)	Smallholders (% of land area), 2007 data	Production (thousand tonnes/year)	Yield (tonne/ha)	Yield in other countries (tonne/ha)
Palm oil	8.1	40	22 000 (crude palm oil)	3.6 (crude palm oil)	4.4 (Malaysia)
Rubber	2.9	85	2 790 (natural rubber)	0.9 (natural rubber)	1.6 (Thailand)
Cocoa	1.0	90	800 (cocoa beans)	0.8 (cocoa beans)	0.9 (Malaysia)
Coffee	0.9	95	700 (coffee beans)	0.7 (coffee beans)	2.0 (Viet Nam)
Sugar	0.4	54	26 500 (sugar cane)	63 (sugar cane)	70 (Thailand)

Source: FAOSTAT, 2011; Indonesia Palm Oil Commission, 2010; Fuglie, 2010.

Palm oil

In contrast to other perennial crops, palm oil is produced mostly by large-scale private companies. In 2010, private companies represented 55% of palm oil production against 35% for smallholders and 10% for state-owned companies (*Perusahaan Terbatas Perkebunan Nasional,* PTPN). They represented 54% of palm oil land area against 38% for smallholders and 8% for state-owned companies (Figure 3.6). These shares indicate that yields on smallholders' farms are only slightly lower than those on large private farms (Chapter 1). The major private palm oil companies operating in Indonesia are Indonesian, Malaysian, or located in Singapore under Chinese capital control (Tables 3.4 and 3.5). Western industries have withdrawn from direct control of palm oil plantations and are more active in processing and distribution. In 2010, ten companies owned 67% of the palm oil plantations. While the existing production is concentrated in Sumatra and to a lesser extent in Kalimantan, expansion is likely to occur in Sumatra, Kalimantan, Papua, and Sulawesi.

Figure 3.6. **Palm oil production and land area by type of producers, 2004-10**



Note: Preliminary figures for 2010.

Source: International Palm Oil Commission, 2010.

StatLink http://dx.doi.org/10.1787/888932650553

Table 3.4. **Large private palm oil companies operating in Indonesia**

Company/Group	Origin	Area (ha)
Sime Darby	Malaysia	530 000
Astra Agro Lestari	Indonesia	263 281
Gutrie Berhad (Minamas)	Malaysia	220 204
Wilmar	Singapore	198 285
Sinar Mas	Indonesia	98 000
Kulim Berhad	Malaysia	97 263
Golden Hope Plantations Berhad	Malaysia	96 000
Kuala Lumpur Kepong Berhad	Malaysia	91 170

Source: Mandiri report, 2011.

Table 3.5. **Foreign direct investment in palm oil plantations by origin, 2009-11**

Excluding processing, USD million

	2009	2010	2011 (up to Sept.)
Thailand	0	22.6	51.5
United Kingdom	0	91.4	91.0
Malaysia	4.4	203.2	112.8
Singapore	82.3	287.9	540.1

Source: BKPM, 2012.

Biofuels

While oil production has been decreasing since 2001, the government plans to increase the share of energy production from renewable sources from 17% in 2006 to 25% in 2025. In 2006, the government announced the **National Energy Policy** (Presidential Regulation 5/2006), a strategic plan for energy security, which envisages that liquid biofuels meet at least 5% of Indonesia's energy needs by 2025. The government also issued Presidential Instruction 1/2006 regarding the Provision and Utilisation of Biofuel as Alternative Fuel which states that the government is to provide a policy package of incentives and tariff exemptions for biofuel development.

Mandatory requirements for the use of ethanol and biodiesel in the transportation, industry and power generation sectors have come into effect on 1 October 2008 (Table 3.6), and the government has introduced a subsidy so that blended fuel for transportation is sold at the same subsidised retail price as non-blended fuel. VAT exemption, investment tax incentives, and a simplification of licensing procedures for biofuel businesses have also been introduced to incentivise biofuel development. Following the Finance Minister's Regulation 117/PMK.06/2006 on the Credit for the Development of Biofuel Energy and Plantation Revitalisation, a loan interest subsidy for biofuel energy development and plantation revitalisation (KPEN-RP) started in 2006 targeting among other commodities palm oil (Table 2.9). Finally, the energy-independent village programme was launched in 2006 to construct small biofuel plants with capacity around 4 400 litres per day, and 20 plants have been constructed since then (Kusdiana, 2011).

While bioethanol production has remained relatively low, biodiesel production has been multiplied by 16 within four years (Table 3.7). In Indonesia, bioethanol is produced from sugar cane molasses and biodiesel from jatropha and palm oil. In the future, bioethanol could also be produced from cassava and biodiesel from coconut oil. Palm oil-based biodiesel has been leading biofuel production. Bakrie Sumatra Plantation, London Sumatra, Astra Agro Lestari, SMART and Darmex, are important players in this sector. According to BKPM

Table 3.6. **Minimum obligations for biofuel utilisation**

Sector	2008	2009	2010	2015	2020	2025
Ethanol (% of total gasoline consumption)						
Transport, PSO	3	1	3	5	10	15
Transport, non PSO	5	5	7	10	12	15
Industry and commerce		5	7	10	12	15
Biodiesel (% of total diesel consumption)						
Transport, PSO	1	1	2.5	5	10	20
Transport, non PSO		1	3	7	10	20
Industry and commerce	2.5	2.5	5	10	15	20
Electricity generation	0.1	0.25	1	10	15	20

Note: PSO refers to the Public Service Obligation – subsidised consumer fuels (Section 3.3.1).
Source: Regulation of Minister of Energy and Mineral Resources, 32/2008 – Appendix 29/2008, 26 September 2008.

data, 49 private companies have been granted investment approval in the biofuel sector with a total investment of USD 1.5 billion and combined production of 96.5 million tonnes in 2011.

The **sales performance of biofuels in the domestic market has been weak**, with transportation being the only sector using biofuel. A programme introduced in 2009 to use biofuels in power plants had to be scaled back for economic and technical reasons (GAIN, ID1033, 2010). Furthermore, PERTAMINA, the state-owned petroleum production company who has been given the monopoly to purchase biofuel from manufacturers for sale in the transportation sector, stopped selling bioethanol in 2010 because it could not secure supply from producers at the price it was setting. Consequently, in 2010 the production capacity use was at 9.4% for biodiesel and just 0.7% for bioethanol.

Table 3.7. **Biofuel production in Indonesia, 2006-10**

	2006	2007	2008	2009	2010
Bioethanol					
Refineries	2	2	4	5	5
Capacity (million litres)	10	13	102	153	153
Production (million litres)	0.3	1.0	1.2	1.72	1.0
Biodiesel					
Refineries	2	7	14	20	20
Capacity (million litres)	215	1 709	3 318	4 277	4 277
Production (million litres)	24	35	110	350	400

Source: GAIN-ID1033, 2010.

In terms of **export markets**, Indonesia exported up to 62% of its biodiesel production in 2011. It encouraged biodiesel exports by a lower export duty than on crude palm oil. Exports have targeted in particular European countries as the EU Renewable Energy Directive (RED) initiated in 2003 sets a target of 20% for renewable energy share in EU energy mix by 2020 and insufficient European biofuel production provides room for biodiesel exports to EU (GAIN-ID1033, 2010). However, EU concerns over indirect land use change resulting from palm oil expansion and the lack of competitiveness of EU rapeseed biodiesel industry may lead to a ban on imports of biodiesel derived from palm oil. Thus, the future of biodiesel exports from Indonesia remains uncertain.

Rubber

In 2010, Indonesia accounted for 28% of the world's natural rubber production, being **the second largest producer** just after Thailand (Masterplan, 2011). Rubber production has almost doubled since 2000 (Figure 1.8). Exports and production of natural rubber are heavily influenced by the International Tripartite Rubber Council (ITRC) created in December 2001 by Thailand, Indonesia and Malaysia and consisting of two price-stabilising schemes, the Supply Management Scheme (SMS) and the Agreed Export Tonnage Scheme (AETS). SMS is an ongoing scheme aimed at balancing long term supply and demand for natural rubber. Mechanisms employed can either reduce or increase the supply of natural rubber through replanting, diversification to other crops, tapping holidays, use of higher yielding clones, or improved plantation techniques. AETS, on the other hand, is aimed at addressing only transient imbalances between supply and demand for natural rubber by withholding sales of export tonnage.

In August 2002, a joint-venture International Rubber Consortium Limited (IRCO) was established by the three member countries to complement the existing two schemes and to undertake strategic market operations (SMO) encompassing buying, selling and managing excess rubber. A Committee on Strategic Market Operations constituted under the IRCO reviews the market situation and advises IRCO on appropriate SMO for implementation; monitors the implementation of the agreed market operations; and analyses the impact of IRCO's performance. In October 2008, the three participating countries agreed to increase their total annual replanting of 112 000 ha to 169 000 ha in 2009 while decelerating new planting by encouraging diversification to other crops and control of licenses for new plantations. The 2009 agreement was to reduce exports by 915 000 tonnes, of which 700 000 tonnes had to be executed through AETS and the rest through SMS. Exporters were also instructed not to sell rubber if the price was below USD 1.35 per kg. In November 2011, the ITRC agreed to take appropriate measures to maintain the rubber price above USD 3.50 per kg, such as by delaying tapping, limiting exports and increasing stocks. As a result of these agreements, total land area for rubber production in Indonesia decreased from 4.3 million ha in 2005 to 3.5 million ha in 2009 (BKPM, 2010).

Broiler industry

According to BKPM data, investment in livestock remains small, but has significantly increased from 2010 to 2011: from USD 17 to 27 million for domestic investment and from USD 5 to 21 million for foreign investment. This has been driven partly by the **rapid expansion** of the broiler industry, mainly in West Java, responding to an increasing domestic demand for meat (Section 1.3). The chicken population, including pure bred and free range chickens, has been growing at a rate of 7% per year on average, increasing from 1.2 billion in 2004 to 1.5 billion in 2008. Over the same period, the production of broiler DOC (Daily Old Chicken) surged from 1 to 1.2 billion while the production of egg layer DOC increased from 55 to 68 million. However, while the total installed capacity is of 40 million DOC per week, the current production reaches only 26 million per week (ICN, 2009).

The broiler industry is becoming increasingly vertically integrated with industrial farms dominating the market. A few **multinational companies** integrating breeding, feed industry, rearing, and processing, have oligopolistic market positions. They are also involved in input distribution and act as contractors with small commercial producers (Patrick, 2008). Independent producers are being required to work together to maximise

market access and access to inputs. Most of these companies are foreign companies and dominate up to 70-80% of the domestic market (ICN, 2009). The eight largest companies include the Thailand-based Charoen Pokphand Indonesia (CPI), Japfa Comfeed Indonesia (JCI), Wonokoyo, Malaysia's Sierad Produce (SP), Super Unggas Jaya (SUJ), Cibadak, Malindo-Leong, and Shinta (Patrick, 2008). CPI has a production capacity of 607 million DOC per year and its slaughterhouses can process up to 105 000 tonnes a year. In 2009, its market share for broiler DOC reached 72% in modern markets and 91% in traditional markets (ICN, 2009). As regards DOC breeding business, CPI occupied 30% of the market, followed by JCI and Malindo with 26% and 4% respectively. As for poultry feed, CPI had the biggest market share in 2007 (34%), followed by JCI (29%), SP (7%) and Malindo (4%) (*www.bisnis.com*).

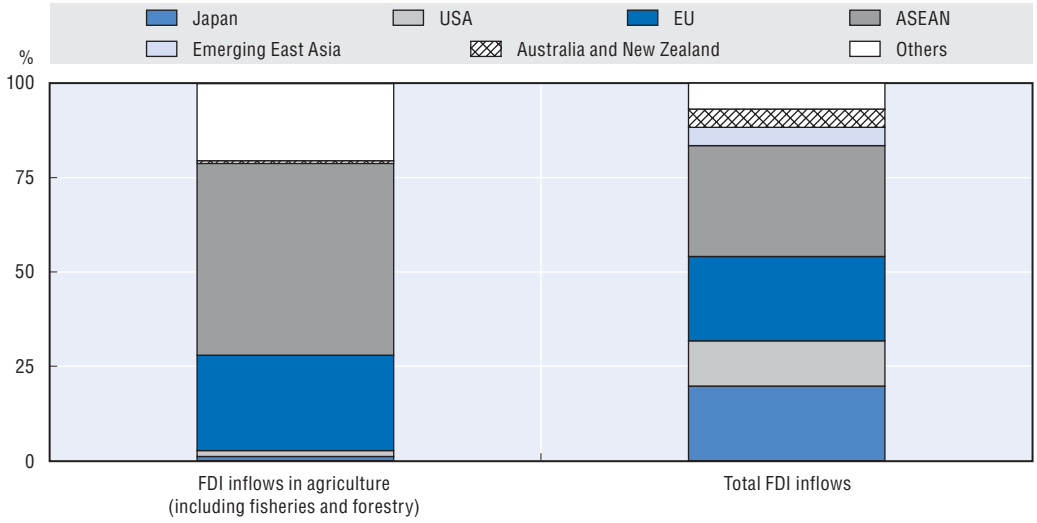
These large companies have established **partnerships with smallholders** by providing them with capital to start their business in livestock farming and by supplying them with maintenance and production facilities including DOC, feed, and medicines. For instance, CPI has developed partnerships since 1987 based on contract prices. Smallholders signing a contract with CPI are required to have at least 5 000 chickens. SP produces 1.5 million DOCs a week out of which 900 000 are distributed to smallholders that are part of a partnership (ICN, 2009).

Investment in agriculture per source country and destination region

ASEAN countries are the main source of FDI in Indonesian agriculture, providing 51% of total FDI in this sector in 2004-10 (Figure 3.7). Singapore acts as a channel for other South-East Asian investors in agriculture with USD 633 million invested in food and perennial crops in 2011. Several Malaysian companies are investing significantly in the palm oil sector, in particular due to increased labour costs and limited opportunities for

Figure 3.7. **FDI inflows to Indonesia by source country/region, 2004-10**

Average share 2004-10



Note: Emerging East Asia includes South Korea, Hong Kong (China), Taipei (China) and China.

Source: BI, 2010.

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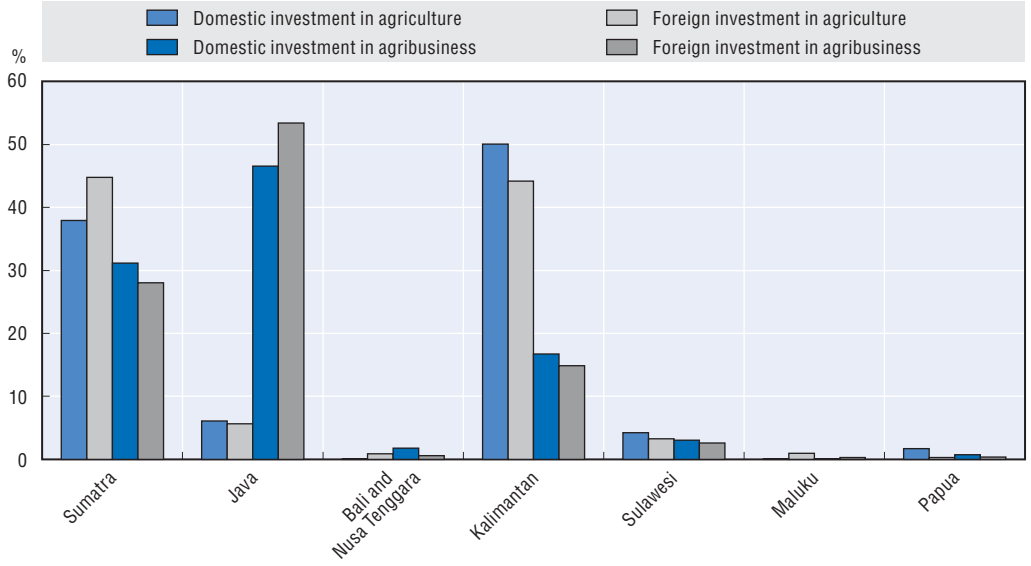
expansion of agricultural land in Malaysia (TradeData, 2010). These companies usually open palm oil estates and crude palm oil (CPO) refineries in Indonesia and then export CPO to Malaysia to process it into refined palm oil for export (Rifin, 2010). ASEAN free trade agreements with regional partners (Chapter 2) can play a major role in attracting FDI from neighbouring countries. EU countries are the second most important source of FDI in agriculture, representing 24% of total FDI inflows to agriculture. Japan, representing 19% of total FDI inflows, has targeted mostly the manufacturing sector and represents less than 1% of FDI in agriculture. The United States have also targeted mostly non-agricultural sectors, accounting for 11% of total FDI inflows but only 2% of FDI inflows in agriculture.

The geographical pattern of investment in agriculture and agribusiness does not vary much between domestic and foreign investment (Figure 3.8). Over the period 2005-10, **Sumatra and Kalimantan received the largest shares of investment in agriculture**, while Java attracted the highest share of investment in agribusiness. This reflects the industrialisation process led by Java. Regions off-Java are characterised by a higher share of agriculture in their regional GDP (Figure 1.3). While Sumatra and Kalimantan have been successful in attracting significant investment in their agricultural sector, other regions such as Papua still offer significant resources for agriculture but investment in these regions remains low.

Figure 3.8. **Realised investment in agriculture and agribusiness by region, 2005-10**



Note: Agriculture includes fisheries.
Source: BKPM, 2010.

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3.2. Investment policy in agriculture

This section provides an overview of Indonesia's investment policy. First, it focuses on the regime for foreign direct investment. Then, it examines challenges faced by investors

related to land tenure and business licensing. Finally, it reviews existing investment incentives offered to agricultural investors.

Background

Indonesia has a large inventory of laws and regulations that are often overlapping and inconsistent, which may deter investors. Efforts are being made to streamline existing legislation and ensure consistency. As mandated by the annual priorities for the implementation of the current Medium-Term National Development Plan 2010-14 (*Rencana Pembangunan Jangka Menengah Nasional*, RPJMN), the Ministry of Home Affairs is responsible for the harmonisation and synchronisation of laws. It is also in charge of the review of sub-national regulations in partnership with Ministry of Finance, as stated in Law 32/2004 on Sub-National Government. Finally, according to Law 12/2011 and its implementing regulations, the Ministry of Law and Human Rights has the responsibility for the analysis of national laws and regulations.

The **decentralisation process** launched in 1999 resulted in the transfer of the control over large amounts of public expenditure and service delivery from the central government to 33 provinces, 399 districts and 98 municipalities. Greater local control resulted in greater accountability, more effective policy implementation, increased interagency collaboration, and community empowerment.

However, because of weak administration and unclear legislation, decentralisation also led to trade-distorting and revenue-raising measures by local governments which compartmentalised the economy and **raised transaction costs for investors**. A business survey found that about 85% of sampled local regulations were incomplete, inconsistent or distorted local economic activities (KPPOD, 2007). Another survey estimated that around 72% of all the regulations examined had outdated juridical references and that the local level regulations failed to refer to the most recent versions of the higher level regulations (KPPOD, 2011). Microeconomic studies also found evidence that the number of licences imposed by local governments was positively correlated with the amount of bribes paid by firms and the correlation was higher in poorly funded jurisdictions (OECD, 2010). Finally, local governments spend a significant share of their increased fiscal resources on government administration, thereby constraining their ability to provide good quality public services (WB, 2012).

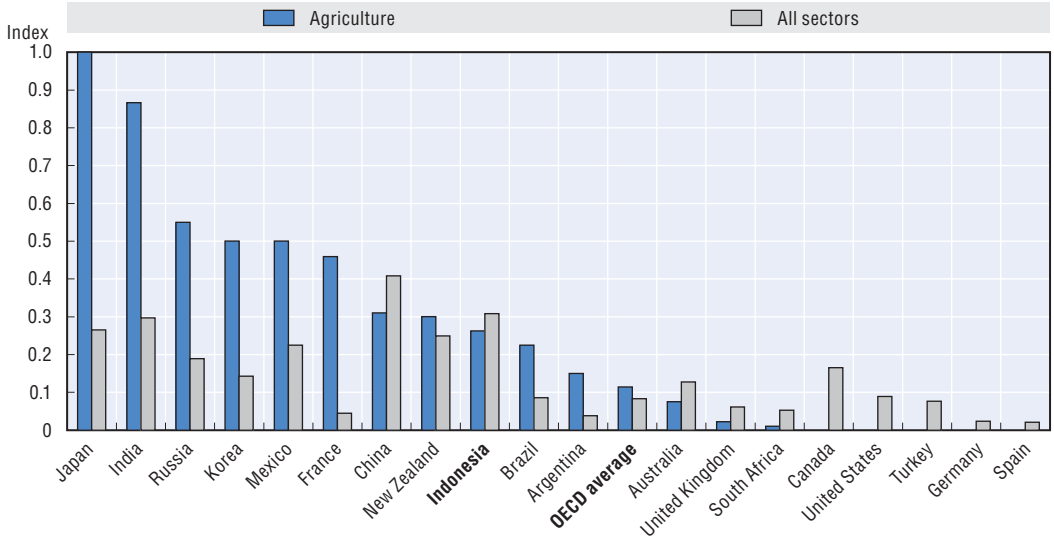
The FDI regime

Following declines in oil prices, a deteriorating balance of payments and large budget deficits in the 1980s, a series of reforms eased regulations on foreign investment. The lack of strong investor response to these changes, FDI liberalisation in other parts of Southeast Asia, and greater ASEAN co-operation led to further wide ranging reforms in 1994-96. These reforms opened more sectors to foreign participation, relaxed foreign ownership restrictions and divestment requirements, and introduced fiscal and regulatory concessions for investment. The Asian financial crisis damaged Indonesia's economic and political stability, causing many foreign investors to withdraw their capital, but it also led to a substantial further **liberalisation of investment policies** as part of agreements with the IMF (OECD, 2010). For instance, imports of sugar, wheat, soybeans and garlic were no longer controlled by BULOG (Chapter 2), and the ban on foreign ownership in the retail sector and in plantations, including palm oil, was partially lifted in 1998.

Since 1998, **investment climate reform has been one of the top government priorities** and three economic reform packages have been implemented (OECD, 2010). In March 2007, the Parliament passed a new Investment Law 25/2007 which consolidated previous separate laws on foreign and domestic investment. It provides national treatment for established enterprises, more extensive land use rights, and longer work permits for key personnel, and offers compensation based on market values if the government nationalises or takes ownership rights. This Law also clarifies the investment policy framework by stipulating the obligations and rights of investors and the roles of the central and local governments for investment licensing, and by setting up a one-stop service system (*Pelayanan Terpadu Satu Pintu,* PTSP) implemented by BKPM. In order to facilitate PTSP even further, the National Single Window for Investment (*Pelayanan Sistem Informasi dan Perizinan Investasi Secara Elektronik*, SPIPISE) was launched in January 2010 as an electronic platform for investors to apply for license and non-license services online (BKPM Chairman's Decree 14/2009). However, some implementing regulations of this Law are still being developed, and its implementation remains limited.

Despite gradual liberalisation, Indonesia remains **more restrictive towards FDI than OECD countries** on average, as measured by the OECD FDI Regulatory Restrictiveness Index. This index captures four areas of FDI regulations: 1) foreign equity restrictions, 2) screening, 3) restrictions on key personnel, and 4) other restrictions related to land, branching and reciprocity conditions (Annex 3.A2 provides further details on the methodology used to compute the index in agriculture). In agriculture, Indonesia imposes more restrictions to FDI than OECD countries on average, but less than other emerging and middle-income countries, such as India, Mexico or China (Figure 3.9).

Figure 3.9. **FDI Regulatory Restrictiveness Index by country, 2012**



Note: Countries are ranked by decreasing FDI regulatory restrictiveness index in agriculture.
Source: OECD Investment Division, 2012.

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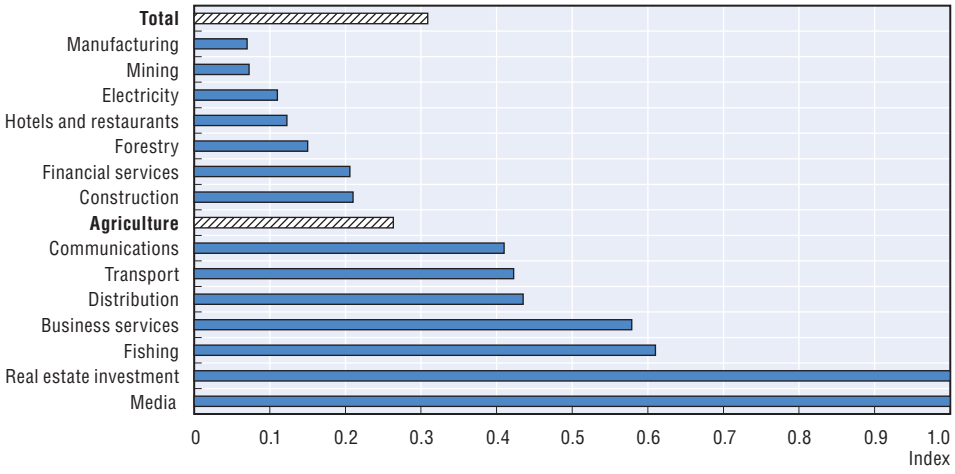
While foreign investors are now granted national treatment and do not need to comply with a separate screening mechanism at BKPM, **foreign equity ownership remains limited** in many sectors. The FDI regulatory restrictiveness index per sector shows that

Indonesia imposes high restrictions on the media, real estate and business services, and relatively high restrictions on agriculture (Figure 3.10). The Investment Negative List (DNI)[4] – issued as Presidential Regulation 76/2007 and revised as Regulation 36/2010 as a List of Business Fields Closed to Investment and Business Fields Open with Conditions to Investment – specifies the restrictions on foreign investment and equity ownership, the reservations for micro, small and medium enterprises (MSMEs), and the requirements related to partnerships, locations and special licenses by sector. The DNI is an improvement over the positive list used until 1989 where investors could invest only in sectors included in the list. However, changes to the DNI are often made independently by different Ministries without proper consultation of affected stakeholders. This practice is not consistent with Presidential Regulation 76/2007 which aims to establish a fixed legal ground for the formulation of regulations related to investment, ensure transparency in the process, and provide guidelines for the formulation, determination and review of items on the list (OECD, 2010).

Figure 3.10. **FDI Regulatory Restrictiveness Index[1] by sector, 2012**



1. Index based on the 2010 Investment Negative List.

Source: OECD Investment Division, 2012.

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Agriculture is one of the few sectors for which FDI restrictions increased in the 2010 DNI as compared with the 2007 DNI. For example, the maximum share of foreign ownership in farms above 25 ha producing main food crops and breeding of these crops was diminished from 95% in the 2007 DNI to 49% in the 2010 DNI (Table 3.8). Such investments now require a recommendation from the MoA. This change is consistent with Law 41/2009 on the Protection of Agricultural Land and Sustainable Food. According to this Law, corporations operating in regions defined as sustainable food farming land should be co-operatives and/or companies with the majority of shares held by Indonesian citizens. Furthermore, a controversial Horticulture Law 13/2010 reduced foreign equity in horticulture businesses to 30% (Box 3.1), which highlights the unpredictability of the legal environment for foreign investors.

Table 3.8. **Agricultural sub-sectors with investment restrictions**

Restriction	Sector
Reserved to domestic MSMEs*	***Food crops:*** ● Main food crops (including corn, soybean, peanut, green beans, rice, cassava, sweet potato) and other food crops for an area less than or equal to 25 ha. ● Seed/nursery business of main food crops and other food crops for an area less than or equal to 25 ha. ***Perennial crops:*** ● Perennial crops (including palm oil, coffee, cocoa, rubber, jatropha, sugar cane, tobacco, cotton, coconut, etc.) for an area less than 25 ha. ● Seed/nursery business for perennial crops for an area less than 25 ha. ● Processing industry below a certain capacity. ***Livestock:*** ● Pig breeding and farming with less than or equal to 125 units, free-range chicken and its cross breeding and farming. ● Breeding and farming of local chicken and cross-breeding.
Maximum foreign equity of 49%	***Food crops:*** ● Main food crops for an area above 25 ha. ● Seed/nursery business of main food crops and other food crops for an area above 25 ha. ● Utilisation of agricultural genetic resources and genetically modified crops. ***Perennial crops and livestock:*** ● Utilisation of agricultural genetic resources and genetically modified crops.
Maximum foreign equity of 95%	***Food crops:*** ● Other food crops for an area above 25 ha. ***Perennial crops:*** ● Perennial crops for an area equal to or above 25 ha without processing unit or integrated with a processing unit. ● Seed/nursery business of perennial crops for an area equal to or above 25 ha. ● Processing industry exceeding a certain capacity. ● Sugar industry (refined and raw crystal sugar).

* Law 20/2008 on Micro, Small and Medium Enterprises defines MSMEs as follows: micro enterprises are enterprises with net assets not more than USD 5 464 or sales volume not more than USD 32 800; small enterprises are enterprises with net assets between USD 5 464 and USD 54 640 or sales volume between USD 32 800 and USD 273 200; and medium enterprises are enterprises with net assets between USD 54 640 and USD 1 093 000 or sales volume between USD 273 200 and USD 5 464 500.
Source: 2010 DNI and Minister of Agriculture's Regulation 26/2007.

Box 3.1. **The Horticulture Law 13/2010**

The new Horticulture Law was drafted and passed by the Parliament abruptly without conducting an adequate consultation process. This Law aims to reduce foreign ownership in the sector and increase the involvement of domestic companies. The limit to foreign equity previously set at 95% has been reduced to 30%. Moreover, the Law does not include a grandfather clause as all investors have to comply with this reduction within four years, including those being in the business before the Law was passed. It contrasts with the 2010 DNI which includes such a clause, meaning that the 2007 DNI continues to apply for investment projects made before the 2010 DNI was adopted. The implementation of this Law is likely to slow access to innovation and productivity growth in the horticulture sector. Following the complaints raised not only by investors but also by government agencies, this Law is being revised.

The main requirements introduced by this Law for foreign investors are as follows:

- Business actors are required to prioritise the use of domestic human resources. Foreign human resources may be used where there are no domestic human resources available with certain skills and expertise in the horticulture sector (Article 15).

Box 3.1. **The Horticulture Law 13/2010** *(cont.)*

- Micro, small- and medium-scale horticulture business units may only be undertaken by Indonesian citizens or by business entities wholly owned by Indonesian citizens (Article 53).
- Large-scale business actors must enter into partnership with micro, small-scale and medium-scale business actors (Article 56).
- The amount of foreign capital investment is limited to 30%. Foreign capital investors may only invest in large-scale horticulture businesses. They must deposit the full amount of capital owned in a domestic bank and are prohibited to utilise credit from a bank or finance institute owned by the government and/or regional government (Article 100).
- Foreign capital investors must provide opportunities for apprenticeships and transfer technology to local business actors (Article 101).
- In conducting their research, foreign individuals and/or legal entities must: co-operate with a local research institute; transfer technology and knowledge during research activities; and submit a report on their research findings to the government at the latest three months after the research is completed, together with the research results (Article 108).
- Results of research conducted by foreign individuals and/or legal entities for their own purposes are jointly owned by the co-operation partner and the government (Article 109).

Note: Horticulture includes fruits, vegetables, medicinal herbs, floriculture, as well as fungus, moss, and aquatic plants that function as vegetables.
Source: Horticulture Law 13/2010.

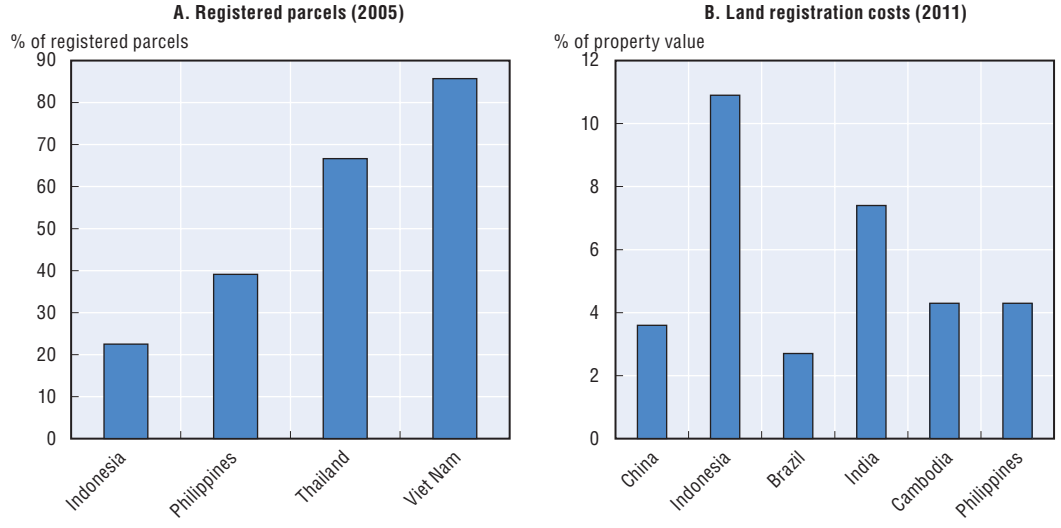
Land tenure

Land ownership is regulated by the 1945 Constitution stipulating that 'the land, the waters and the natural resources shall be controlled by the State and exploited to the greatest benefit of the people' and by the Basic Agrarian Law (BAL) 5/1960 which divides all land into either state land or certified land owned exclusively by Indonesian citizens (Section 1.3). The Basic Forestry Law 5/1967 transferred the management of 'forest land' from the National Land Agency (*Badan Pertanahan Nasional,* BPN) to the Ministry of Forestry (MoF). Thus, the BAL regulates only 'non forest land' covering 30% of total land and managed by BPN.

As a result of different waves of legal changes, **land legislation includes many overlapping or contradictory, and even unimplemented, regulations.** Currently, there are 585 legal documents related to land tenure, comprising 12 laws, 48 government regulations, 22 presidential decrees, 4 presidential instructions, 243 ministerial/head of BPN regulations, 209 circular letters of Minister/Head of BPN, and 44 instructions of Minister/Head of BPN. Forest classification in particular is confusing as 32 million ha (24%) of the state-claimed 'forest land' is not forested but still regulated as forest. Customary land rights (*ulayat* rights) must coexist with the legal notion of private individualistic land titles; these rights are often not legally proved with land certificates although they have been recognised traditionally among community members. This complexity deters investors.

Secure and sustainable land rights are a necessary condition of any investment in agriculture. They are critical to ease the process of land acquisition, incentivise sustainable land management and long-term investment in land, and facilitate access to credit by allowing land to be used as collateral. However, **less than 25% of the privately-owned land parcels had been registered by 2005** (Figure 3.11). BPN has been constrained in its efforts by limited evidence of ownership, particularly concerning *ulayat* rights, as well as by a limited budget and the scarcity of surveyors and measuring equipment (OECD, 2010). In addition, registration fees are often quite high for smallholders. It becomes even more difficult for land registration to catch up with the ongoing land fragmentation and the growing number of parcels. Furthermore, most of the registered parcels are not yet mapped and, with cadastral records not centralised and a lack of co-ordination between government agencies, government authorities can issue overlapping licenses.

Figure 3.11. **Land registration**



Source: World Bank, 2005.

Source: Doing Business Survey, 2011.

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Significant efforts are being made to accelerate land registration and facilitate access to land. Government Regulation 24/1997 requires land holders to register their land. Since 1997, the government has increased BPN capacity and carried out a comprehensive review of the policy and legal reforms needed to modernise the land system under democratic, pro-poor principles. To increase public awareness of land registration procedures, BPN has conducted land law counselling on television, radio and brochures, printed media and direct counselling to the community (OECD, 2010). The programme 'Build and improve land mapping and land information system' aims to establish spatial data and the latest information to support BPN services. The number of land certificates issued almost tripled from 919 319 in 2005 to 2 691 167 in 2007. Under Presidential Instruction 3/2006, the Ministry of Co-operatives and SMEs was ordered to produce 10 250 ownership titles for land owned by MSMEs by the end of 2006. As a result, 64 663 certificates have been issued between 2003 and 2009 (OECD, 2010). Regulation 6/2008 aims to reduce the time spent to register land through the 14 specific land services within a maximum of 15 working days. In December 2008, a Community Service for Land Certification (*Layanan Rakyat untuk*

Sertifikasi Tanah, Larasita) composed of mobile units was established to register land in remote regions and reduce registration fees, but its capacity remains insufficient to register all land. Finally, a Law on Land Procurement for Public Interest has been passed by the People's House of Representatives (*Dewan Perwakilan Rakyat*, DPR) on 16 December 2011 to facilitate access to land for public and private interests.

The BAL defines several types of land rights (Section 1.3). The ownership right (*Hak Milik*, HM) can be attributed only to Indonesian citizens (natural persons). Hence, **domestic and foreign enterprises are required to obtain other land use rights** which include the right to cultivate (*Hak Guna Usaha*, HGU), the right to build (*Hak Guna Bangunan*, HGB) and the right to use (*Hak Pakai*, HP).[5] For these three rights, the land can be used as collateral and transferred to other parties. The BAL limits the periods for which these three rights are granted, and the Investment Law 25/2007 has extended these periods to 70-95 years, bringing them in line with periods granted by countries such as Malaysia, Singapore, Viet Nam, and China (Section 1.3). However, such extensions have been rejected by the Constitutional Board (*Mahkamah Konstitusi*) following pressure of civil society organisations. Land rights are thus granted for periods as stated in the BAL. Transfers of land rights imply long processes. For example, under the current system, to give an enterprise a HGU on a land owned by a farmer with a HM, the farmer has to relinquish its HM to the state by executing a deed of land relinquishment before the enterprise can obtain its HGU. When the HGU expires, the land returns to the state and not to the farmer who owned the land initially.

As indicated in the World Bank's Doing Business surveys, while **the number of days to acquire land** has been reduced from 39 to 22 between 2006 and 2011, the number of procedures has remained equal at 6 and the cost close to 10.5% of the land value, which is much higher than the East Asia and Pacific regional average. The average time to obtain a land certificate is of 8 weeks, with the longest average time in Sarmi, Papua at nearly 7 months and the shorter at only 2 weeks in some districts of Central Kalimantan, Bengkulu and East Nusa Tenggara (KPPOD, 2011). Indonesia ranks poorly particularly owing to the time it takes to register the land deed at the local land office under the name of the buyer, which can be attributed to the backlog in registering land.

Investors usually need to complete **several steps before being able to acquire land rights**. This includes among others: providing information on the extent and the location of the plantation area and/or processing units owned by the company; receiving a recommendation of the head of district or the local mayor on the availability of land; and developing a work plan which includes the development stages of plantations and/or processing industrial units, and total financing. Decentralisation has complicated the process of land acquisition even further: with Law 32/2004 on Sub-National Governments, these governments can impose additional requirements to companies applying for land rights.

Before applying for any land rights, **an investor must obtain a location license** from the local land office for food and perennial crop plantations above 25 ha (under 25 ha, registration by the Regent or Mayor is sufficient). The Regulation 2/1999 of the MoA and BPN on Location Licenses limits the maximum land area per palm oil company to 20 000 ha in one province and to 100 000 ha in the entire country. However, the MoA's Regulation 262007 on Guidance on Licensing Plantation Business stipulates that the maximum area per palm oil company can be up to 100 000 ha and twice this size in Papua (Table 3.9), except for state-owned enterprises (SOEs). In practice, a large conglomerate can establish any number of independent entities to own plantation land beyond this limit.

Table 3.9. **Maximum land area per company**

Crop	Sugar cane	Palm oil	Jatropha	Coconut	Cotton	Rubber	Tea
Area (hectare)	150 000	100 000	50 000	25 000	25 000	25 000	10 000
Crop	**Cashew**	**Cocoa**	**Coffee**	**Tobacco**	**Cloves**	**Pepper**	
Area (hectare)	5 000	5 000	5 000	5 000	1 000	1 000	

Source: 26/Permentan/OT.140/2/2007, 28 February 2007.

There are **numerous documents** required to apply for a location license, including: a recommendation of the Regent or Mayor to ensure conformity with the regional spatial plan, technical considerations from the local forestry office on land availability if located in a forest area, plantation development work plans, results of the environmental impact assessment, willingness to build a community garden and establish partnership with local smallholders. However, the Governor must answer any request for a location license within 30 days. The acquisition of land rights by investors must be completed within the period of the location license – equal to 1 year for areas less than 25 ha, 2 years for 25-50 ha, and 3 years above 50 ha. If this is not the case, the location license can be extended for one year only if more than 50% of the land has been acquired. If the acquisition of land rights cannot be completed within the period of the location license, the investor does not receive any land rights.

If a dispute arises between the government or local communities and the investor, Investment Law 25/2007 provides for a dispute settlement mechanism based on mutual understanding through discussion (*musyawarah*) and arbitration with the consent of both parties. Any appeal with regards to land acquisition is settled through BPN. As **dispute resolution through negotiation or mediation** saves time and money, BPN has developed and implemented specific programmes, such as land dispute settlement operations (*Operasi Tuntas Sengketa*) and land dispute investigation operations (*Operasi Sidik Sengketa*) which give priority to the mediation process in a systematic, consistent and co-ordinated way and have already solved about 1 778 cases (BPN, 2009). However, 25 out of the 33 provinces had not reached their targets in terms of the number of cases and time of completion by 2008.

In order to **accelerate land dispute resolution**, a Deputy for Land Dispute Resolution Affairs was established (Perpres 10/2006) and has resolved 1 878 cases of land disputes in the past four years (OECD, 2010). In addition, BPN Regulation 3/2011 on Land Dispute Resolution aims to facilitate dispute resolution when other alternative dispute resolution mechanisms have failed. While it states that dispute resolution must be handled within three months, it remains a long and complicated process.

The BAL mentions that land acquisition for public interest necessitates **proper compensation**, but ambiguities in the legislation make the process inconsistent in practice. Presidential Regulation 36/2005 on Land Procurement for Development for Public Purposes requires that compensation be paid to any person who has a right to it. However, it remains unclear whether and on what grounds compensation of immaterial loss/damage can be claimed. It states that relinquishment of land rights should be carried out based upon a consensus and amicable negotiation (*musyawarah*) over the form and amount of compensation between the rights holders, the Land Procurement Committee

(responsible for verifying land rights and making proposals regarding the amount of compensation), and the government.

The Law on Land Procurement for Public Interest approved on 16 December 2011 also provides for compensation. According to this Law, an independent body will be established to rule on compensation on a case-by-case basis, and compensation will be provided through cash, land swaps, assisted relocation, shares and other means. However, if any dispute arises, the government may unilaterally set the compensation and entrust the compensation money to a district court. In case there are numerous land rights holders who are unlikely to reach an effective consensus, land right holders should appoint representatives to negotiate.

There are still **many problems in practice**. While the compensation should be based on market price following a discussion within a Committee looking at cultural and social aspects, one of the major complaints today seems to be that the amount of compensation is almost always below the market price and often arbitrary as land is faced with speculation. In addition, the existing legislation does not require payment of compensation to those without documentary evidence of rights (USAID, 2010).

Business licensing

Significant efforts have been made to **accelerate the business licensing process**. Indonesia was the most active reformer in the region in 2008-09 according to the Doing Business indicators, and successfully reduced the time it took to start a business and to transfer property. While getting a BKPM business license took 58 days on average in 2005, it took only between 3 and 5 days in 2011 (BKPM, 2011). In 2011, BKPM was selected as the institution with the highest integrity by the Corruption Eradication Committee. In addition, around 76% of business operators feel that licensing services in their regions are free from collusion practices and illegal levies (KPPOD, 2011).

A flagship effort has been the establishment of a **one-stop integrated service for investors** (PTSP) in 2007. Presidential Regulation 27/2009 instructed government departments and institutions to delegate all investment-related authorities, including their licensing authority, to BKPM at the national level or to local investment administration agencies at the local level. As of February 2009, all 16 Ministries involved had signed the necessary decrees, including the MoA. However, the MoA still holds the authority to provide a technical recommendation for important investment projects in the agricultural sector, and each agricultural sub-sector, including the investment aspects, is still regulated under different MoA's Regulations – including regulations 39/2010 for food crops, 26/2007 for perennial crops, 48/2009 for horticulture, and 18/2009 for livestock (MoA, 2011). As of November 2011, PTSP had been set up in all 33 provinces, allowing investors to register at the provincial level only. However only 15 of them had already set up a National Single Window for Investment. The main impediments to further developing PSTP at the district level are the lack of human resources and information and communication infrastructure.

Despite PTSP, investors in agriculture are still required to **obtain various sector-specific technical licenses and/or recommendations**:

- For large-scale farming, investors must first obtain a ***technical recommendation from the MoA*** before applying for a BKPM business license and a business permit (Decree of the Director General of Estate Crops 129.1/Kpts/HK.320/12/07). Technical information must

include: area covered and/or capacity of the processing unit; plant species and seeds to be used; soil type and rainfall per year; action plan signed by the applicant including stages of the development of plantation, community garden and/or unit processing industry as well as the annual budget.

- A ***business license*** issued by BKPM is required for any large investment by domestic enterprises (SP-PMDN) and any investment by foreign enterprises (SP-PMA). Relatively small domestic investors can establish a business without a BKPM license and need to register at the local government only.
- After getting the business license, a ***business plan*** should be developed and approved by the local government to demonstrate compliance with local spatial plans.
- An ***environment impact assessment*** (*Analisis Mengenai Dampak Lingkungan,* AMDAL) is mandatory for the development of plantations covering 500 ha or more 1) of primary or secondary forests; 2) involving the resettlement of 100 families or more; or 3) requiring a modification in land use and the conversion of peat soil and other wetland areas into agricultural estates in certain conditions. It must be conducted by the investor and approved by the regional environment office.
- Investors must follow land acquisition procedures and obtain a ***location license*** as described above.
- The investor can then apply for a ***business permit*** from the provincial governor, the regent or the mayor, depending on the area covered by the investment. Law 18/2010 on cultivation systems aims to harmonise the procedures, but regulations still vary across crops:
  - MoA's Regulation 39/Permentan/OT.140/6/2010 regarding Guidelines of Food Crops Business Permits regulate the permits for food crops (IUTP *Izin Usaha Tanaman Pangan*, IUTP-P, or IUTP-PP). Investors in food crops above 25 ha or employing more than 10 permanent workers must get this permit which limits the cultivated area, as mentioned above.
  - MoA's Regulation 26/Permentan/OT.140/2/2007 about Plantation Business Licensing Guidelines regulates permits for perennial crops (IUP *Izin Usaha Perkebunan*, IUP-P, or IUP-B) and also imposes limits on land areas. Companies with an IUP or IUP-B must build partnerships with smallholders on at least 20% of the plantation area owned by the company.
  - MoA's Decree 348/Kpts/TP.240/2003 on Guidelines on Horticulture Business Permits regulates permits for horticulture but does not limit cultivated land areas.
  - Furthermore, various licenses/permits may be required by the local government for specific activities. For example, commodity permits may be required to transport agricultural products and may differ across commodities and regions.

Investment incentives

Legislation in investment incentives started with the 1967 Foreign Investment Law and the 1968 Domestic Investment Law. Indonesia has been actively **expanding its investment incentives** since 2005 as part of the overall investment climate reforms (OECD, 2010). Investment Law 25/2007 clarifies the possible forms of investment incentives and eligibility criteria.

Government Regulation 52/2011 on income tax for investment in specific business fields or regions (amending Government Regulations 1/2007 that had already been amended by Regulation 62/2008) provides details on these incentives in agriculture that **target generally large integrated businesses** in several business fields and regions perceived by the government as offering unexploited potential. These include for instance: seedling industry of rice ranging over 2 000 tonnes per year in Papua, South Kalimantan, and South Sumatra; rice cultivation over 3 000 ha with integrated processing in Papua, South Kalimantan, South Sumatra, Centre Kalimantan, South Sulawesi, Centre Sulawesi and Lampung; bananas over 500 ha in Aceh, East Kalimantan, North Sulawesi, West Java and Lampung; and pineapples over 500 ha in Lampung, West Java, West Kalimantan. The investment incentives are as follows: 30% net tax deduction of total investment over 6 years (5% annually), accelerated depreciation and amortisation, loss carry forward for more than 5 years but not more than 10, and a lower income tax rate (10%) on dividends paid to foreign entities or lower tariff according to the Double Taxation Avoid Agreement.

In addition, VAT on cocoa beans and palm oil were removed in 2006 and 2007 respectively (Government Regulation 7/2007) to provide incentives for local processing. Finally, seven provinces have been selected as Regional Champions based on their potential, and can benefit from investment incentives, such as improved infrastructure, enhanced business environment, and accelerated procedures by local governments, in sectors that can be a catalyst for economic development (MoA, 2011).

The government **monitors the impact of these incentives** to ensure their efficiency. Government Regulation 62/2008 concerning income tax benefits for investment in certain business fields or certain regions includes a clause to mandate the evaluation of the regulations within two years of implementation. More broadly, the Co-ordinating Ministry for Economic Affairs conducts regular reviews of fiscal incentives against their expected objectives. Proposed fiscal incentives are also evaluated by the Director General of Taxes, and a working group set up under the National Team on Export and Investment Promotion (PEPI) can serve as an inter-ministerial forum to analyse and discuss proposed investment or trade incentives. Estimates of the impact of tax incentives on the national budget are carried out annually by the government and the continuation of certain tax incentives is possible only if the budgetary impacts are justified *vis-à-vis* potential benefits (OECD, 2010).

The government has pursued **zone-based investment promotion**, which is now strengthened through the Master Plan 2011-2025. The first export processing zone (EPZ) was created in the greater Jakarta area in 1986, but the flexibility of businesses located in EPZs in importing, hiring and selling was rather restricted, and export promotion was the main emphasis (OECD, 2010). To develop broader economic zones and attract investors, the government enacted the Law on Special Economic Zones 39/2009 which encourages more diverse economic activities by eliminating the export requirement. As the Law does not restrict business fields, Special Economic Zones (SEZ) can potentially focus on agricultural production and agribusiness that can benefit from both non-fiscal (simplified administrative procedures, relaxed labour and immigration regulations, and exemption from the DNI) and fiscal incentives (tax and custom duty reduction or elimination). However, implementing regulations have not been developed yet.

The Master Plan for Acceleration and Expansion of Indonesia Economic Development 2011-2025 (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*, MP3EI) has identified six economic corridors as growth centres expected to boost

economic development. These corridors will offer specific investment incentives and develop as industrial clusters and SEZ. As regards agriculture, palm oil and rubber will be the main target sectors in Sumatra; palm oil and timber in Kalimantan; food (rice, corn, soybean, and cassava) and cocoa in Sulawesi; animal husbandry in Bali and Nusa Tenggara; and food in Papua.

These corridors aim to increase agricultural productivity and value-added through the expansion of sustainable upstream and downstream activities. They will benefit from an improved investment climate, including through debottlenecking, ease of regulations and licensing, fiscal and non-fiscal incentives, infrastructure development, and optimum public services from central and local governments. Another key element of the MP3EI is to strengthen national connectivity locally and internationally, particularly between the centres of economic growth, and strengthen human resource capacity and science and technology to support the development of the main programmes in each corridor. An Implementation Team and a Monitoring Team will be established through a Presidential Decree.

Large estates are being promoted to enhance food and energy production. For example, the Merauke Integrated Food and Energy Estate (MIFEE) in Papua aims to occupy 1.6 million ha and to produce mainly sugar to meet domestic demand in addition to other perennial crops, livestock and fish products. Domestic investors have already started investing and discussions are ongoing with foreign investors. By promoting partnerships between investors and local communities as well as investments in rural infrastructure and local human resources, this estate aims to increase food and plant-based energy stock, improve community welfare, create employment opportunities, and accelerate the development of the province. The MoA has decided recently to select East Kalimantan as another priority area for food and energy production, as East Kalimantan offers more advanced infrastructure facilities than Papua. This new project will focus mainly on rice and soybean production (MoA, 2011). 200 000 ha are to be allocated for food crops with 50 000 ha already occupied by domestic and foreign investors, including South Korean investors. Finally, the current five-year plan 2010-14 has a target to provide for 2 million ha of new agricultural land, including 250 000 ha for rice fields, 400 000 ha for new dry-land opening, 400 000 ha for horticulture, 585 430 ha for smallholder estates, 351 000 ha for the development of forage for animal husbandry, and 13 570 ha for grazing land (MoA, 2010). This should mostly benefit small scale farmers as they will be given free long-term land use rights over these areas. But it is not entirely clear from where this land would come.

The relative importance of BKPM functions is expected to shift further from investment registration to **investment facilitation and promotion**. BKPM already identifies investment opportunities in agriculture and disseminates the information through booklets, websites, exhibitions, workshops, including a website listing possible ventures in all sectors by region (BKPM, 2012). The MoA collaborates with BKPM by supplying information and organising investment promotion events, such as exhibitions and investment forums, and by promoting the online Agribusiness Investment Information System (SIIATRON) which provides information on investment opportunities per regency and per commodity as well as a comprehensive list of regulations related to investment in agriculture. More broadly, SIIATRON aims at enhancing the use of information technology within the MoA to increase work efficiency and transparency as well as public accessibility to the data and information (MoA, 2011).

3.3. Sectoral policies supporting investment in agriculture

Sustainable investment in agriculture relies on an integrated policy environment where a wide range of sectoral policies contribute to a sound investment climate. The section above showed that, while FDI is constrained by limits to foreign equity ownership, both domestic investment and FDI face several regulatory constraints, including a weak implementation of the decentralisation process, a complex land tenure system resulting in low appropriability, and long business licensing procedures. In addition to these failures, investment in agriculture can be constrained by low social returns due to weak infrastructure and low human capital, and by high costs of finance due to disfunctioning international or local financial markets (Hausmann, 2008). This section aims to identify existing constraints related to infrastructure, human capital, access to finance, and trade that can explain low investment levels in agriculture.

Infrastructure development

As the OECD Investment Policy Review of Indonesia (OECD, 2010) provides a comprehensive picture of infrastructure development in Indonesia, this section focuses mainly on the infrastructure specific to agriculture.

First, it examines the status of infrastructure in Indonesia. Second, it provides an overview of the policy context for infrastructure development. Finally, it analyses challenges related to specific infrastructure sub-sectors critical for agricultural investment, including irrigation, transport, information and communication technologies, and electricity.

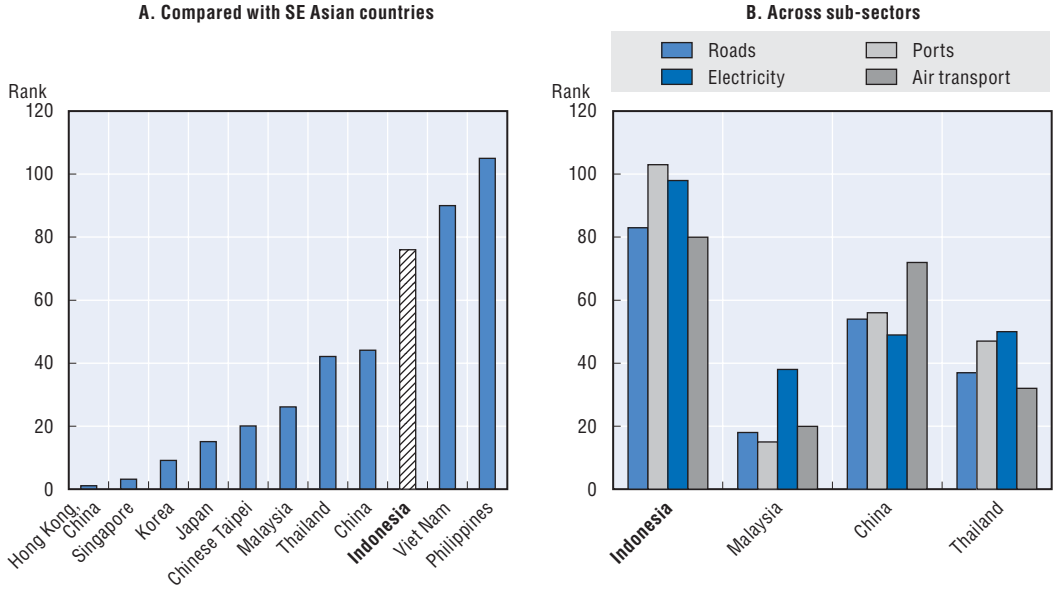
Status of infrastructure

Indonesia once outperformed many of its regional peers in infrastructure provision but since the 1997-98 crisis, it has lagged behind many of the Southeast Asian countries (OECD, 2010). With the exception of its mobile phone network, **both the quality and the coverage of infrastructure networks are poor.** Indonesia ranked 84 out of 133 countries in terms of infrastructure development in 2009-10 (World Economic Forum, 2009). When compared with other Southeast Asian countries for overall infrastructure, Indonesia scores only better than Viet Nam and the Philippines (Figure 3.12). In fact, there has been a severe drop in its relative rank from 46 out of 134 countries surveyed in 2008 to 96 out of 133 countries in 2009.

This large drop is an indication that Indonesia's infrastructure development is being outstripped by the improvements in infrastructure of many other countries. This assessment is consistent with surveys of **business perceptions**. While inefficient government bureaucracy still seems the most important hurdle to doing business, infrastructure is reported as the second most important: almost 15% of respondents cited poor infrastructure as an important obstacle to competitiveness (World Economic Forum, 2009). Poor quality or inadequate infrastructure affect all firms, but usually hits smaller firms hardest. As a result, the agricultural sector comprising 80% of the MSMEs is particularly affected.

Since the 1997-98 crisis, infrastructure has deeply suffered from **public under-investment**, and local administrative capacity constraints. Currently, total investment in public infrastructure – public, state-owned enterprises and private sector combined – stands at 3.4% of GDP, which is still significantly below pre-crisis levels of around 5-6% of GDP (WB,

Figure 3.12. **Infrastructure quality rankings in Indonesia, 2011**



Note: Figures are based on ranking of 142 countries.
Source: World Economic Forum, 2011.

StatLink http://dx.doi.org/10.1787/888932650667

2008). Budget constraints meant that public funding of new infrastructure has been significantly reduced since the Asian crisis.

Private investments in infrastructure have also declined sharply after the crisis, particularly in the water, energy, and transport sectors (Table 3.10). Before the crisis, private sector investment commitments were on average 30-40% of government spending for infrastructure but declined to less than 25% in 2003-04. Since 1990, over 50% of total investment in Public-Private Partnerships (PPPs) has been in the telecommunication sector and 33% in the energy sector. Since 2000, about 90% of private sector investment in infrastructure has been in the telecommunication sector (WB, 2008).

Table 3.10. **Private sector investments in infrastructure, 1994-2004**

USD million

Year	Energy	Water and sanitation	Transport	Telecommuni-cations	Total
Annual average 1994-96	2 054	66	125	1 587	3 833
Annual average 1997-99	483	157	482	273	1 395
Annual average 2000-04	66	8	134	949	1 157
Cumulative average 1994-2004	**369**	**56**	**233**	**814**	**1 472**
As per cent of total	**25%**	**3.8%**	**15.8%**	**55.3%**	**100%**

Source: IFC, 2008.

Policy context

The government has built **considerable momentum for infrastructure reform** since 2000. New laws have been enacted in all major infrastructure sectors to clarify the regulatory framework for investors. The key drivers for change have included regional autonomy, the desire to eliminate quasi-government powers of SOEs and allow more

private participation, improve the regulatory quality, and separate more clearly government policy-making, regulatory, and ownership roles (OECD, 2010). In particular, the government has taken the following steps:

- ***Public funding:*** The government budget allocation for infrastructure in 2009 was twice the level of 2005. While Law 32/2004 states that the development of basic infrastructure is the responsibility of local governments, the central government continues to finance partially infrastructure investments locally in regions facing budget constraints (MoA, 2011). In particular, DAK funding (*Dana Alokasi Khusus*) for infrastructure development in agriculture was multiplied by nine between 2005 and 2009 (Chapter 2).
- ***Public and Universal Service Obligations:*** The government has reformed and implemented the Public Service Obligation (PSO) and Universal Service Obligation (USO) to address regional imbalances in infrastructure provision. Commercialisation of the PSO services through competitive bidding has started with the State Electricity Company (*Perusahaan Listrik Negara*, PLN), and the USO system has already been implemented in the telecommunications sector where investment in rural or isolated areas and border areas is often not commercially viable. The government has also established an inter-ministerial Policy Committee for the Acceleration of Infrastructure Provision which contributes to the evaluation process for infrastructure investment needs (OECD, 2010).
- ***Regulatory framework for the private sector:*** Presidential Regulation 67/2005 on Public-Private Co-operation in the Provision of Infrastructure clarifies the rules for the private sector and empowers the central government to provide direct support for projects justified on economic and social grounds but not financially viable, as well as government contingent support or guarantees for certain risks. Several institutions have been created to mobilise private investment and share risks, including an Indonesia Infrastructure Financing Facility, an Infrastructure Guarantee Fund, a Centre for Government-Private Co-operation, a Risk Management Unit, and a Project Development facility. Government Regulation 8/2007 provides the private sector with the ability to lead project implementation (OECD, 2010). Finally, Presidential Regulation 56/2011 addresses various issues identified as constraints by investors, such as government support and procurement procedures. In particular, bids for PPP projects can now be conducted before the government and companies acquire 100% of the land, although the price of the land is settled before the bid is held.

The government has now put in place a legislative and institutional framework to accommodate private investment in infrastructure, and the competence of regulatory authorities is improving. However, **the implementation of the new laws is still quite recent.** While a number of implementing regulations have already been issued, revisions of many other regulations to increase private participation are still under preparation (OECD, 2010).

Irrigation

Irrigation is an efficient channel to intensify agricultural production and increase productivity. Most irrigation network goes to rice of which 76% is grown under irrigation (BPS, 2010). **Only 20% of the total crop land was irrigated in 2007**, compared with 36% in India, 40% in China, and 47% in Viet Nam (Table 3.11). In addition, irrigation coverage varies greatly across provinces, with most irrigated land located on Java.

Table 3.11. **Irrigation as percentage of crop land in selected Asian countries, 2000-07**

Countries/Year	2000	2005	2007
Indonesia	21.6	20.5	20.5
Malaysia	19.9	20.3	20.3
Philippines	30.8	28.0	28.0
Thailand	29.7	32.8	32.8
Viet Nam	48.4	47.2	47.2
India	32.6	36.0	36.1
China	37.4	40.2	39.6

Source: FAOSTAT, 2011.

The water network is in poor conditions due to a lack of incentives for operations and maintenance (O&M). About 36% of the irrigation system is either broken or badly damaged (Table 2.10). The damage is more acute across rice-producing provinces, including North and West Sumatra, Jambi, Bengkulu, and Central Java, which report 85% or more of damaged network area. In contrast, West and South Sulawesi, South Sumatra, Riau, and East Nusa Tenggara, have above 80% of their larger systems in good condition.

The Water Resources Law 7/2004 and the Government Regulation 20/2006 state that planning, construction, and O&M activities of irrigation infrastructure should be participatory and involve **Water User Associations** (WUAs). This legislation also clarifies the division of responsibilities for the development and management of irrigation infrastructure (Section 2.2). The WUAs are increasingly assuming O&M tasks over large parts of the water system and contribute financially and in-kind to the operational costs.

However, **local governments are under-investing in O&M**. Current increasing transfers of funds from the Ministry of Public Works (MoPW) to local governments for rehabilitation are substituting rather than complementing O&M spending by local governments. Local governments are anticipating these funds by reducing their spending on O&M, redirecting it to other activities, and waiting for a rehabilitation "bail-out" by the central government. As a result, irrigation schemes under their management are more damaged than larger schemes under central government authority, and the quality of the network has deteriorated in recent years (WB, 2012).

Significant **government spending for irrigation development** in the late 1970s and early 1980s resulted in rapid food crop expansion, but it slowed down in the mid-1980s and fell drastically in the late 1980s (Chapter 2). Provincial governments are playing a more prominent role now as their budget allocations for irrigation development have increased significantly since 2001 (WB, 2012). In 2006-08, the share of the agriculture budget allocated by local governments for water systems grew from 29% to 38%, with spikes in spending for the years when the central government increased transfers to the regions, in particular in 2001 and 2006. For 2010-14, the MoPW plans to rehabilitate irrigation systems over 1.34 million ha, out of a total of 2.31 million under its responsibility, and develop new infrastructure over 0.5 million ha (Chapter 2).

Transport

Good **transportation and logistics systems** are critical to build efficient agricultural value chains. Fresh agricultural products in particular require vertically integrated investment to link agricultural production with post harvest handling, storage, processing

and marketing. However, the road density is low and a large share of roads is not always in good conditions (Chapter 1). Indonesia has some well-functioning container ports, such as those in Jakarta (Tanjung Priok), Surabaya, Makassar and Medan. However other ports are under-developed and lack container-handling facilities and the port of Tanjung Priok is functioning well beyond capacity and suffers from congestion.

Logistical costs are estimated to reach up to 14% of total production costs against only 5% in Japan (OECD, 2010). Indonesia ranked 75 in 2010 on the International Logistics Performance Index (LPI)[6] compared with 43 in 2007 (out of a total of 155 countries). Viet Nam, India, and the Philippines all have higher LPI scores than Indonesia despite lower income levels. The biggest gap with average for the ASEAN+6[7] relates to border procedures.

The domestic LPI 2010[8] indicates that the major sources of delay are related to **maritime transhipment** and solicitation of informal payments. Nearly one-third of all shipments are not delivered in time according to Indonesian logistics operators. Shipping a 40-foot container from Padang to Jakarta costs USD 600, while shipping the same container from Jakarta to Singapore costs only USD 185 despite the longer distance. In East Nusa Tenggara, ferry costs represent 72-77% of total transportation costs (LPEM, 2010). Productivity in eastern Indonesia ports is so low that ships find it more attractive to return empty than waiting to be loaded.

In addition, following the decentralisation process, **regional charges and taxes** imposed by local governments have multiplied and affected inter-regional trade, with some of them being only illegal exactions. Official levies accounted for around 12% and unofficial levies for around 5% of total transportation costs on nine routes recorded in East Nusa Tenggara. Some of these levies conflict with national regulations such as Law 28/2009 on regional taxes and retributions (LPEM, 2010). For inter-region movement of goods, roughly one out of two business operators pay official levies, and around one out of four pay unofficial levies (KPPOD, 2011). A recent unpublished World Bank survey in Aceh found that goods in transit encountered barriers at each district boundary, and that a consignment on a cross-province trip had to stop at 12 checkpoints and pay levies equivalent to 11% of the value of the goods (Bird, 2008).

Poor logistics and transportation systems cause delays in delivery and reduce the quality of the delivered product, thereby **undermining the development of agricultural value chains**. For instance, palm oil producers harvest the beans green, which means lower oil quality, to avoid them rotting due to low transport frequency and delays. Poor logistics are also an impediment to agricultural diversification in remote areas. Farmers specialise in tubers rather than in higher value added horticultural products, as they are not as perishable and withstand better long transport times. As a consequence, although the retail sector has rapidly expanded since large foreign supermarkets were allowed to increase their activity in the country in 1999, a large portion of fresh food products sold in modern supermarkets are still imported despite burdensome import regulations – including registration, labelling and certificate requirements (WB, 2007). High transport costs and the lack of adequate cold storage transport for shrimps from eastern Indonesia to processing centres in Java, make them too expensive to export. Similarly, it is cheaper to import oranges from China than to ship them from Kalimantan to Java (WB, 2011a).

As rapid urbanisation and a growing middle income class provide **new business opportunities to the retail and distribution sectors,** it seems all the more important to increase the competitiveness of food supply chains, in particular by enhancing transport

systems. Growth in per capita income is increasing the demand for fruits and vegetables (Section 1.2). Their production is growing rapidly and should be supported by efficient value chains linking producers to the existing markets. It should be noted that there are significant regional disparities. Java and urban areas in Sumatra, Bali, and Sulawesi have relatively good distribution infrastructure. Large domestic and foreign modern retailers, such as Indofood, Carrefour, and the Dairy Farm Group, are located in urban areas equipped with high quality cool chain management and storage facilities. But in the rest of the country, the lack of good transport infrastructure results in fragmented food supply chains consisting of many actors with few distributors with national reach and a mesh of formal and informal actors, sub-wholesalers, wholesalers and middlemen.

Weak transport infrastructure can be explained partly by Indonesia's vast and segmented surface area – an archipelago comprising above 17 000 islands and spanning an area of 2 000 km from north to south and 5 000 km from east to west – which means transport must often be operated by air and sea. But a **poor investment climate** for private investors undermines investment further. Transport is the only area where the investment climate was perceived by investors to have deteriorated between 2003 and 2007. Local governments, particularly in rural areas, continue to spend only a small share of their budgets on road maintenance, and private investment in transport infrastructure is so far largely confined to toll roads and, to a lesser extent, ports (OECD, 2010).

Despite various measures undertaken by the government and discussed in detail in the Investment Policy Review of Indonesia, investment in transport infrastructure is still struggling to keep up with demand (OECD, 2010). The most recent initiative is a long-awaited **Law on Land Procurement for the Public Interest** approved by the Parliament on 16 December 2011 which should facilitate the land acquisition process for infrastructure construction. According to this Law, all legal proceedings pertinent to land acquisition for a government-commissioned infrastructure project should be completed within 436 working days. Local governments are empowered to decide on the location of projects and district courts are responsible for hearing appeals. A Presidential Regulation must be signed for this Law to be implemented; this is expected to take place in 2012.

Information and Communication Technologies (ICTs)

Access to ICTs contributes to strengthening agricultural value chains by providing regular and reliable market information to agricultural producers and linking them with existing markets and potential buyers. Indonesia lags behind its neighbours in both fixed and mobile telephony (Table 3.12). However, at current growth rates, **the gap between Indonesia and other countries in the region will close soon**. Mobile phone subscriptions have roughly doubled every two years since 1998 to reach an estimated 190 million in the first quarter of 2010 for a population of 238 million people, while fixed line subscribers have been growing by 30% per year since 2003.

The Telecommunications Law 36/1999 set the stage for liberalisation, with the state phasing out exclusive rights and moving towards cost-recovery pricing. However, private investors are still deterred by a **partial and progressive liberalisation process**, the imposition of USOs, and constant changes in the rules of the game, such as the foreign ownership limit as stated in the DNI. While the Telecommunications Law prohibits monopolistic practices, only three operators (Telkomsel, Indosat-Satelindo and Excelcomindo) controlled 94% of the market in 2008, roughly the same share as five years earlier. The Indonesian Telecommunications Regulatory Body (BRTI) was established in

2003 to act as an independent agency and ensure a transparent and competitive telecommunications sector, but its degree of independence has been questioned (OECD, 2010).

Table 3.12. **Telecommunications: Subscribers/users per 100 inhabitants**

2008 or latest year

	Fixed	Mobile	Internet users	Broadband
Indonesia	**13**	**63**	**8**	**0.2**
Philippines	5	75	6	1.2
Viet Nam	34	80	24	2.4
Thailand	10	92	24	1.4
Malaysia	16	103	56	5.0
Singapore	40	138	73	22.0

Source: International Telecommunication Union.

Both the government and the private sector have launched initiatives to provide information on agricultural markets. The Farmer Empowerment through Agricultural Technology and Information Project (FEATI) 2007-12, supported by the World Bank, aims to develop demand-driven and market-oriented agricultural services based on partnerships between farmer groups, public agencies, and private enterprises at all levels (Chapter 2). Its main components include: strengthen farmer-driven extension by supporting farmers' organisations and facilitating PPPs via farmer-managed grants at village, district, and provincial levels; enhance technology assessment and dissemination; and provide knowledge and information services through the Centre for Agricultural Data and Information (Box 3.2). Private initiatives also provide high quality information. For instance, Pinsar (*Pusat Informasi Pasar*) is run by the Indonesian Poultry Farmer Association. It is one of the most prominent market information systems providing information on poultry meat and eggs prices, available at *www.pinsar.com*.

Box 3.2. **The Centre for Agricultural Data and Information (Pusdatin)**

The *Pusdatin*, operated by the central government, is the central institution for agricultural data and information. It has links with local governments through agricultural offices at provincial, district, and city levels. The centre comprises 115 staff members, including 89 structural staff, 19 statisticians, and 7 computer programmers.

Its functions include: 1) provide data and information on agricultural and non-agricultural commodities; 2) manage MoA's information system development; and 3) administer the agricultural data and information system. It provides beneficiaries, mostly farmers, with data and information on production, consumption, trade and marketing of agricultural products at the domestic and international levels, including daily market price information and market surveys for various food crops. The information also includes updated information on existing agriculture-related regulations, and on issues related to human resources, administration, and institutions. The information is available on Internet via the MoA's website (at *www.deptan.go.id* and *http://pusdatin.deptan.go.id/*), as well as in agricultural statistic books, bulletins, newsletters, and radio broadcasts.

Source: MoA, 2011.

Electricity

Only relatively large businesses can afford to generate their own electricity. Small firms involved in food processing and distribution cannot afford the necessary

investments, and the availability of electricity is therefore particularly important to promote their development. A reliable access to electricity is a **necessary condition** for the development of agricultural value chains and food processing which would increase rural incomes. Cold storage systems for fresh agricultural products, such as fruits and vegetables, would enable producers to sell their products on national, regional and international markets.

However, with an electrification rate of only 64.5% in 2009, **Indonesia lagged far behind** the Philippines (89.7%), Viet Nam (97.6%) and Thailand (99.3%) (IEA, 2011). In Aceh in 2009, the lack of reliable electricity supply was identified indeed as one of the two binding constraints to investment and growth, along with security (WB, 2009a). On average, blackouts occur around 3 times a week in Indonesia. In Maluku, East Nusa Tenggara, West Kalimantan and West Sulawesi, they range between 5 and 7 times a week (KPPOD, 2011).

Indonesia's unique geography can explain part of the difference with other countries, but another part stems from a **decade of under-investment**. Unprecedented activity in the years leading up to the Asian crisis was followed by a decade of low private investment. Between 1998 and 2004, no new power plants were built, and PPPs in electricity followed an erratic trend (OECD, 2010).

The government has taken the following **measures to increase electricity supply**:

- ***Capacity:*** The government plans to double generating capacity by 2014 through annual investments of almost USD 9 billion and thereby achieve coverage of 77% of the population. To develop geothermal power, the government has proposed a generic power purchase agreement between PLN and geothermal Independent Power Producers (IPPs) that gives IPPs the right to sell geothermal electricity at the full cost of electricity, with the Ministry of Finance reimbursing PLN for the difference between this price and the price paid for conventional electricity (OECD, 2010).
- ***State Electricity Company:*** PLN used to have a monopoly over electricity transmission and distribution. The new Electricity Law 30/2009 stipulates that PLN is now in charge of transmission and distribution only in its designated operating areas, and that private power producers can participate in generation activities in these areas. Outside of these areas, all parts of the electricity business from generation to distribution are open to private power producers. In addition, the 2010 DNI allows foreign investors to partner with local SMEs to produce between 1 MW and 10 MW and above that level, 95% foreign ownership is permitted. Electricity tariffs continue to be set by the government and approved by Parliament, but the new Law allows for regional variations (OECD, 2010).
- ***Tariffs and subsidies:*** Electricity tariffs remain uniform which does not provide incentives to connect consumers in the high-cost areas of eastern Indonesia. In 2008, electricity subsidies accounted for 28% of all subsidy costs and largely benefited better-off Indonesians (WB, 2009b), and in 2009, these subsidies reached almost USD 6 billion. The government has already ceased paying subsidies to large industrial electricity consumers. Under the PSO mechanism, input subsidies for electricity are being replaced by direct compensation to the infrastructure provider based on the difference between prevailing tariffs and the cost of supply, and PLN was the first to use this mechanism. But the increased costs incurred by PLN resulting from reduced input subsidies have not been passed on through electricity tariffs yet (OECD, 2010).

These measures have **not brought the expected benefits**. While the government has sought to end the state monopoly over distribution and to create a new regulatory

environment suitable for private participation, it has faced setbacks, including judicial ones, and the new Electricity Law still awaits implementing regulations. Private participation is discouraged by continuing, albeit declining, subsidies to consumers. In addition to the financial cost of these outlays, they discourage private investors in the electricity sector by preventing cost recovery pricing (OECD, 2010).

Human resource and skills development

Indonesia has a high adult literacy rate of 95.4% and trends in other indicators reveal significant progress in education. In 2009, 95% and 69% of children from the relevant group were enrolled in primary and secondary education respectively. Over the 1961-2006 period, human capital enhancement, in the form of the spread of literacy and education in the farm labour force, has **contributed steadily to agricultural productivity growth** and its contribution has increased over time (Table 3.13). Over this period, the increase in average farmer education accounted for about 10% of the total growth in agricultural labour productivity (Fuglie, 2010).

Table 3.13. **Sources of agricultural growth, 1961-2006**

Average annual growth rate (%)

	Instability 1961-67	Green Revolution 1968-92	Stagnation 1993-2001	Liberalisation 2002-06	Average 1961-2006
Output per worker	1.23	4.53	1.51	4.59	3.49
Land per worker	0.15	0.21	0.24	0.61	0.26
Education	**0.19**	**0.35**	**0.31**	**0.41**	**0.33**
Total Factor Productivity	0.54	2.35	0.58	2.95	1.82

Source: Fuglie, 2010.

As agricultural employment is likely to start falling in absolute terms in a near future, raising the educational level of agricultural workers becomes even more important to offset this decline so that the transfer of labour from agriculture to other sectors is not a drag on agricultural growth (Fuglie, 2010). In this respect a lot remains to be done. Section 2.2 provides a comprehensive overview of the situation in Indonesian agricultural **extension services** and major policy initiatives to improve their effectiveness. It may be concluded that despite a 62% increase in spending on extension services from 2006 to 2009, extension workers are uncertain about their roles, are poorly paid, and have little support for their activities. In fact, most farmers interviewed state that the extension workers were unable to help in solving their problems under the current autonomy system (Herianto *et al.*, 2010).

Beyond extension services, other programmes exist to support human resource development in agriculture. For example, the **Community Base of Self-reliant Institutions** (LM3) is an effort to develop agribusiness through the empowerment of human resources and the provision of greater access to resources and technology. LM3 funding is channelled through religious institutions, such as Islamic boarding schools, churches, and Hindu temples, with a long term involvement in social development. Since 2007, the government has provided capital for 4 292 LM3s comprising 569 involved in food crops, 984 in horticulture, 1 726 in animal husbandry, and 994 in the processing and marketing of agricultural products.

Moreover, according to **Investment Law 2007**, any investment company is required to improve the competence of Indonesian workers through trainings and to ensure

technology transfers, even if it employs foreign experts. In addition, the government is encouraging economic partnerships between large-scale investors and local smallholders, including technology and skills transfers (Section 3.4). Experience sharing between farmers' organisations could be promoted further to enhance technology diffusion and access to market information, drawing from the successful experience of some producers' organisations such as API (*Aliansi Petani Indonesia,* Indonesian Farmers' Alliance) which is collaborating with Dutch producers to strengthen its capacities in market access.

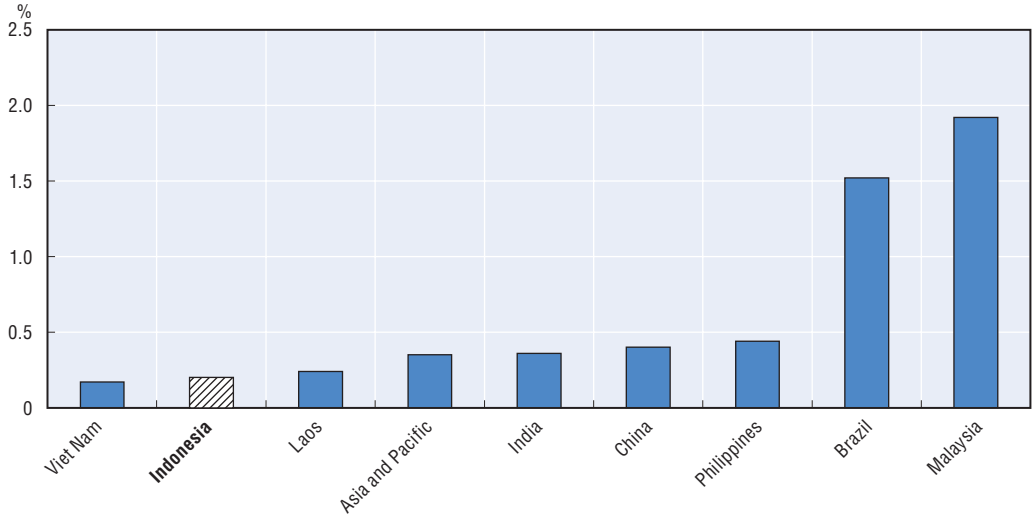
Three legal instruments regulate labour **standards** and standards in agricultural extension services, namely: Law 16/2006 on extension services in agriculture, fisheries and forestry; Government Regulation 43/2009 on the financing, development, and supervision of extension services in agriculture, fisheries, and forestry; and the Decision 29/2010 of the Minister of Manpower and Transmigration on national standards for labour competence in agricultural extension (MoA, 2011).

Research and innovation

The use of low quality seeds and poor agricultural practices lead to low levels of productivity, especially for perennial crops whose productivity remains significantly lower than in neighbouring countries (Table 3.13). R&D in agriculture is critical to improve existing productivity levels.

However, while **public spending on agricultural R&D** increased in real terms between 2001 and 2007, it stagnated in 2008 and 2009. Agricultural research intensity – defined as the ratio of R&D expenditure over total agricultural output – remained at 0.2% in 2005, lower than for other Asian countries (Figure 3.13). After adding in private agricultural R&D spending, this ratio stood at only 0.27% in 2009. The low level of spending is exacerbated by an ineffective spending structure, which emphasises non-research staff salaries. Spending for salaries of non-research staff and for O&M at the Indonesian Agency for Agricultural

Figure 3.13. **Public agricultural R&D spending as a share of agricultural GDP, 2005**



Source: World Bank staff calculations based on Agricultural Science and Technology Indicators (ASTI) database, WB, 2012.

StatLink http://dx.doi.org/10.1787/888932650686

Research and Development (IAARD), Indonesia's central agricultural R&D agency, has increased significantly in recent years. In 2008, only 19% of the staff was classified as researchers and this ratio has declined since then (WB, 2012). Agricultural R&D also suffers from a highly fragmented effort, the limited involvement of universities, and weak linkages with the private sector (Chapter 2).

The **IAARD** constitutes 61% of total public agricultural R&D spending. In addition, the Indonesian Research Institute for Estate Crops (**IRIEC**) is a semi-public R&D agency linked to IAARD but not formally part of it. It conducts research on main perennial crops and is by far the largest agricultural R&D agency in the country in terms of research spending. Agricultural research on food and horticulture crops and livestock is heavily reliant on government funding, while IRIEC is mostly financed through the sale of perennial crops and contract research, which cover 75% of its internal income. Finally, the Forestry Research and Development Agency (**FORDA**) is the principal forestry R&D agency, and the Agency of Marine and Fisheries Research (**AMFR**) at the Ministry of Marine Affairs and Fisheries is responsible for research on fisheries (Stads, 2007).

The government follows a precautionary approach as regards **biotechnology**, taking into consideration environment, food and feed safety based on scientific analysis as well as religious, ethical, and socio-cultural dimensions. Several regulations and guidelines have been issued,[9] with timeframes pushed back on several occasions, to avoid the possible negative consequences of biotechnology utilisation. Indonesia has not yet produced any genetically modified (GM) crops, but it has carried out confined field-testing on several GM crops including rice, potato and tomato (resistant to biotic stress), sugar cane (tolerant to a-biotic stress and modification of high glucose content), and cassava (modification of amylase).

In particular, GM rice has already been field tested in 22 locations, but it requires **testing** in another 16 locations before receiving approval from the National Seed Agency for licensing. Seeds of BT corn, "Round up Ready" (RR) corn, RR cotton and RR soybeans, have all passed the biosafety assessment process and are awaiting food safety approval. The MoA has given approval since 2001 for the limited sale – in terms of time and location – of BT cotton, but has yet to approve GM crops for general planting. The MoA has also issued Regulation 61/Permentan/OT.14D/10/2011 regarding Variety Testing, Assessment, Release and Withdrawal, which facilitates GM crop approval: already-approved events transferred to already-approved varieties do not need to go through the full multi-locational trials, and confined field trials and multi-locational trials can be done concurrently so long as all locations are treated as confined field trials.

A large quantity of GM crops is imported for processing and **consumption**, and no trade constraint has been introduced, with the exception of soy flour. While a government regulation issued in 1999 requires labels to be on packaging of food containing GM crops, it has not been implemented yet as a tolerance level has not been defined and verification capability must be strengthened (GAIN-ID1018, 2010).

Access to finance

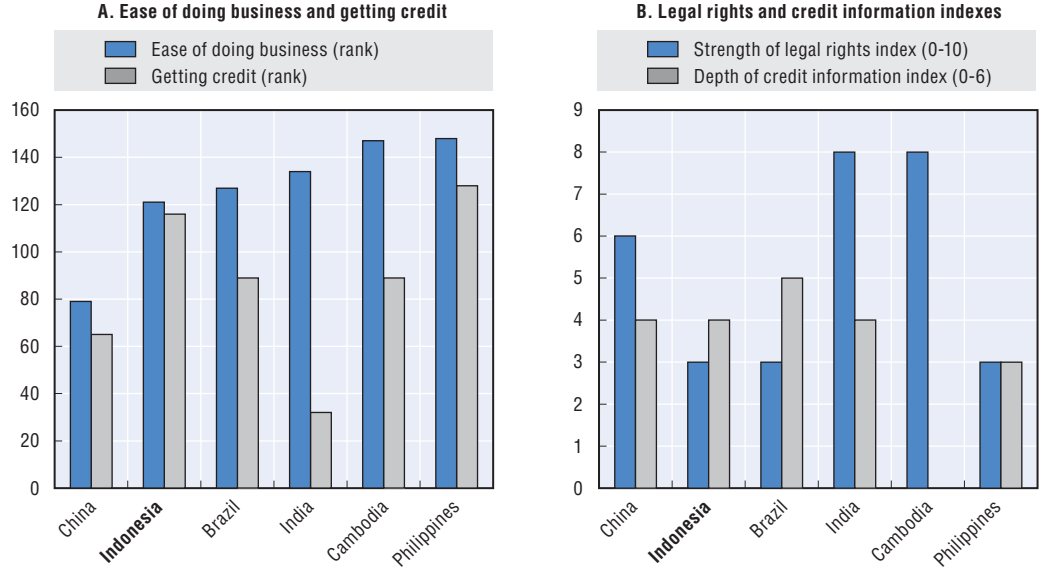
This section provides an overview of the challenges faced by large and small-scale agricultural investors to access credit by first highlighting the state of access to finance and by subsequently examining existing policies to facilitate access to credit, in particular policies aiming to subsidise loans, ease collateral requirements and provide credit guarantees, insurance, and business development services.

The state of access to finance

Weaknesses in the financial sector were one of the principal causes of the 1997-98 crisis. Through restructuring and regulatory improvements since the mid-1980s, the banking system – which accounted for more than 80% of the financial sector assets and was the largest source of domestic financing for the corporate sector at about 48% in 2008-09 – has improved its health and performance. The average capital adequacy ratio has been maintained above 15% in recent years and non-performing loans accounted for only 3.8% at the end of 2008. Simultaneously, **loan expansion has decreased** and is low in relation to the country's economic size: the loan to deposit ratio fell from above 100% before the Asian crisis to 45% in 1999, and has never recovered to pre-crisis level, being equal to 69% in 2007. The availability of long-term financing in the banking sector is still limited as more than 90% of deposits have short term maturities of less than six months. In addition, banks have channelled more credits to consumption or working capital than to investment (OECD, 2010).

The efficiency of Indonesia's domestic financial intermediation is among the lowest in Southeast Asia. Indonesia has the highest spread between the lending and deposit rates in the region, which was equal to 5.1 in July 2011. Average lending rates for consumer loans, working capital and investment capital stand at 13.4%, 12.1% and 11.7% respectively at present, approximately double the benchmark interest rate (EIU, 2012). As a result, compared with countries having a similar score on the ease of doing business, Indonesia is **poorly ranked in terms of access to credit** by the World Bank Doing Business Report, being ranked 116 while India is ranked 32, China 65, and Brazil 89, out of a total of 183 countries. This seems to be explained partly by relatively weak legal rights. As calculated by the Doing Business report, the strength of legal rights in Indonesia is only 3, while it reaches 6 in China and 8 in India and Cambodia (Figure 3.14).[10]

Figure 3.14. **Getting credit in Indonesia, 2010**



Note: In panel A, the higher the country's rank, the less performing the country (out of a total of 183 countries). In panel B, the higher the strength of legal rights and the depth of credit information, the more performing the credit market. Notes range from 0 to 10 for the strength of legal rights and from 0 to 6 for the depth of credit information.

Source: Doing Business 2011, World Bank.

StatLink http://dx.doi.org/10.1787/888932650705

Access to credit is a necessary condition for agricultural businesses to invest and generate productivity and output growth. Credit access is limited for all businesses, but **agribusinesses face even higher constraints to access credit** due to the risks related to agricultural production and their location in rural and often remote areas. While the agricultural sector employed 40% of the labour force and represented 15% of GDP in 2010, crops, livestock, fisheries, and forestry combined received only 8% of bank loans (Table 3.14). Local private banks represent only 7% of the banking sector (OECD, 2010). As MSMEs depend mostly on the banking sector compared with larger enterprises that are able to access financial markets, they face high financing costs.

Existing credit institutions are unable to provide sufficient finance to farmers, particularly smallholders.[11] An IMF study notes that the global economic crisis' impact on SMEs was disproportionately large, with new lending for them declining more significantly than that for larger investors (IMF, 2009). In East Java, 95% of farmers have never obtained credit. Of those who obtained a credit, only 14% received it from a bank, while 62% received it from individual lenders and another 24% from non-bank institutions (WB, 2011b). The repayment of non-bank credit is in kind or in cash, and interest rates reach 3-4% per month in Java and 4-6% in off-Java (ICASEPS, 2008).

Existing policies

Several programmes and regulations are in place to facilitate access to credit by MSMEs and smallholders. The **regulatory framework** of the financial market is designed by the Indonesian Banking Architecture (API), declared under Presidential Decree 5/2003 and part of the implementation of the Law regarding the Banking System. The API outlines the direction and the development strategy of the banking industry for the following 5-10 years, and aims to build the necessary infrastructure for effective banking operations, such as a credit bureau and a loan guarantee scheme. Financial services to agriculture are to be provided by commercial, state-owned, Islamic, and SME banks.

Specific programmes include:

- ***Government-subsidised loans,*** targeting in particular the agricultural sector, and managed by state-owned banks (SOBs) (Table 3.14). To be eligible for such loans, the applicant must be a farmer with entitled land, a member of a farmer group or co-operative recognised by the local government, and must have received a recommendation from

Table 3.14. **Bank loans by sector of the economy, 2006-10**

Shares in per cent, 2006-10 average

	Investment loans	Working capital loans	Total
Crops, livestock, fisheries, and forestry	**13**	**6**	**8**
Mining and quarrying	5	3	3
Manufacturing industry	22	30	29
Electricity, gas and water supply	6	0	2
Construction	7	6	6
Trade, hotel, and restaurant	16	34	29
Transport and communication	13	4	6
Financial, ownership and business services	15	14	14
Services	5	4	4
Total	**100**	**100**	**100**

Source: Bank of Indonesia, 2011.

the local agricultural office. Farm size, location, and income are rarely formal eligibility criteria. These government-subsidised loans in agriculture represent only 5% of the loans, which is too low to facilitate credit access by farmers on a large scale. While most of these subsidised loans are directed at food crops and livestock for purchasing inputs, most commercial loans for agriculture target perennial crops, including related processing activities. Microfinance institutions also offer special loan conditions but their products for agriculture target mainly input supply and marketing.

- ***Relaxed regulations for SMEs and small-scale farmers:*** Bank of Indonesia (BI) has implemented policies to stimulate bank lending since the mid-2000s by relaxing bank regulations, particularly for SMEs. The risk-weight attached to loans to SMEs and to loans to SMEs guaranteed by a state-owned guarantee institution has been lowered respectively to 85% and 20% (instead of 100%), which resulted in a 30% growth of lending in 2008. Asset quality has also been relaxed for SMEs: quality classification for small-scale business credit is based only on repayment capability, and not on business prospects and debtor performance (BI Regulation 7/2/PBI/2005). The legal lending limit for commercial banks has been relaxed for plasma-nucleus schemes: plasma farmers for which loans are guaranteed by the nucleus are not considered as a borrower group which allows them to access higher amount of credits (BI Regulation 7/3/PBI/2005). Finally, BI has developed a Linkage Programme to strengthen relations between rural banks, commercial banks, microfinance institutions, and Islamic microfinance.
- ***A Credit Bureau*** (*Biro Informasi Kredit*, BIK) established by BI in 2006 to collect, record and distribute credit/loan information and display all information related to the repayment history during the last 24 months on all credit/loans (BI Regulation 9/14/PBI/2007). Known as the Debtor Information System (DIS), this Credit Bureau can reduce dependence on conventional collateral as the reputation of borrowers can replace collateral. It can also lower operational costs and speed up the time required to obtain loan approval.
- ***Grants intended as seed money,*** such as the rural financing scheme called Rural Agribusiness Development Programme (*Pengembangan Usaha Agribisnis Perdesaan*, PUAP) started by the MoA in 2008 (Section 2.2).

However, the **lack of collateral** is the major constraint faced by farmers to access to credit, and government-subsidised credit cannot be effective if this bottleneck is not addressed first. For agriculture-related loans from both state-owned and commercial banks, collateral requirements represent around 70-80% of total credit, either in investment or working capital. There is no exception, and this obligation also applies to microfinance schemes. Most farmers do not have such collateral. Their land has often not been registered and they do not have land certificates required by the banks. While the legal basis for using moveable and immoveable property as collateral exists in the legislation, including in the Civil Code, farmers possess little fixed capital or durable goods equivalent to the land value, such as automobiles, buildings, or tractors, that could act as a collateral.

By acting as collateral, **the warehouse receipt system**[12] allows some MSMEs involved in agribusiness to receive credit from the banks. Within the scheme, the agribusiness owner and the bank sign a Financing Facility Agreement and the agribusiness owner, the bank, and the warehouse manager sign a Collateral Management Agreement. Upon receipt of the commodities and after checking their quality and quantity, the warehouse manager

issues a warehouse receipt to the bank which disburses the funds to the agribusiness owner, equal to the value of the commodities delivered. The agribusiness owner must then repay the credit and interests to the bank. However, warehouse receipts are usually accepted as collateral only for specific commodities, in particular perennial crops.

The concept of **a registration system for collateral** is contained in various laws,[13] but there is no well-functioning centralised registry system yet to trace whether a property is used as collateral. Rather, collateral registration is made by various institutions, depending on the type of collateral: a mortgage is registered at BPN office, a fiduciary guarantee at a fiduciary registration office under the Ministry of Law and Human Rights, and a warehouse receipt at the Registration Centre. These registration mechanisms are deemed to provide legal certainty for the use of property as guarantee or collateral of debtors' liabilities by withholding certificates of ownership when a property is used as collateral for loans. Recovering collateral in full in cases of borrower defaults may nevertheless still be difficult and time-consuming through the court system, due to the fragmented or incomplete registration and information on collateral (OECD, 2010). The DIS has increased transparency on the use of collateral by enabling financial institutions to find whether a particular property has already been used as collateral by a debtor.

Credit guarantees are provided by some SOBs, such as Askrindo and Jamkrido. Private insurance companies (such as *Penjamin Kredit Pengusaha Indonesia*, PKPI) also provide credit guarantees covering much smaller portions of the credit. These guarantees are commonly applied to large commercial loans granted to large and medium-scale farmers involved in plantations and/or horticulture, but rarely to smallholders involved in food crop or livestock production who cannot afford such costly guarantees. Plasma farmers can benefit from credit guarantees through the nucleus estate. Exports of agricultural products are undertaken mostly by traders and medium and large companies who can benefit from export credit guarantee schemes.

To facilitate access to credit guarantees, the MoA has developed since 2005 a guarantee scheme for smallholders. In addition, Presidential Instruction 6/2007 on Real Sector and MSMEs Development Policy – followed by Presidential Regulation 2/2008 on Guarantee Corporation and Regulations 222/PMK.010/2008 and 99/PMK.010/2011 of the Ministry of Finance concerning Credit Guarantee Corporation – aimed to strengthen the **credit guarantee system for MSMEs**. As a result, BI launched the People's Business Credit (*Kredit Usaha Rakyat*, KUR) in 2008 to provide insured loans to MSMEs. It is operated by six state-appointed banks using their commercial resources, and may be in the form of working capital or investment loans with a maximum amount of IDR 500 million (Table 2.9). KUR loans have rapidly expanded, resulting in better access to finance for small enterprises. BI is also developing regional credit guarantees corporations (*Pelaksana Pola Pengelolaan Keuangan,* PPK). Two of them have already been established in 2010 – Jamkrida Jatim and Jamkrida Bali Mandara – reaching a total of 6 773 debtors and having provided around USD 17 000 of credit guarantees as of November 2011.

Insurance is the second largest financial sector after banking. Total assets of insurance companies accounted for 5% of GDP in 2008. However, private insurance companies do not cover the agricultural sector. But if farmers hold credit from a commercial bank and have a credit insurance, climatic risks may be covered by the credit insurance (Chapter 2). In the event of bad weather or natural disasters, farmers with government-subsidised loans may be able to have their repayments either rescheduled or

even written-off. To be granted such treatment, they are required to follow procedures set out by the government. Motivated by the potential impact of climate change on agriculture, the government has also introduced two pilot insurance projects in the cattle and rice sectors (Section 2.2).

Small farmers can ask for **business development services** (BDS) from local extension officers when applying for credit, and banks' credit officers can offer BDS to farmers and farmer groups, in close co-operation with local extension workers. Microfinance schemes always include BDS training and education programmes, but programmes conducted by non-governmental organisations (NGOs) and donors often lack specialised BDS providers. Several Ministries – including the MoA, the Ministry of Cooperative and Small-Medium Enterprise, the Ministry of Marine and Fishery, and the State Ministry of State Owned Enterprises – offer specialised training programmes on agricultural loans to farmers and farmer groups. While trainings are planned to be provided annually in almost all regions, national coverage is undermined by the dispersion and the size of the country which increases operating costs.

Trade

Trade policy can facilitate the integration into global food supply chains and boost productivity and rates of return on investment. Significant steps have been taken to **liberalise agricultural trade** since the late 1990s. More than 85% of agricultural applied tariffs fall within the range of 0-5% (Figure 2.10) and are much lower than bound tariffs ranging in most cases within 25-50%. The government has also been pursuing various efforts to streamline border procedures, including a customs reform which reduced corruption and simplified procedures (OECD, 2010).

However, various **trade measures** have been introduced since 2000 to control the volume and pricing of certain strategic commodities, sometimes in an unpredictable manner (Section 2.3). For instance, the Minister of Finance enacted a new Decree on palm oil export taxes in August 2011 to replace Ministry of Finance Decree 23/2008 (Table 3.15). Export taxes on cocoa beans have been introduced in April 2010 to promote downstream processing. The MoA has requested the Ministry of Finance to use export taxes on palm oil to fund R&D on palm oil, Indonesian Sustainable Palm Oil (ISPO) certification and promotion activities. Although export taxes can indeed be used to invest in public goods and thus foster local processing, export restrictions send a wrong signal to potential foreign investors and may negatively impact investment in perennial crops in the short term.

Table 3.15. **Export tax regulations on palm oil products**

Comparative items	Ministry of Finance Decree 23/2008	Ministry of Finance Decree 2011
Number of palm oil based products subject to tax	15 products	29 products
Tax free palm oil price threshold	USD 700 per tonne	USD 750 per tonne
Tax rate range:		
• Crude products	1.5-25%	7.5-22.5%
• Pure refined products	1.5-25%	3-15%
• Mixed refined products	1.5-23%	2-10%
• Biodiesel	2-10%	2-7.5%

Source: GAIN-ID1139, 2011.

Before the Asian financial crisis, the government intervened strongly in production, marketing and processing of staple food commodities (Section 2.2). Since 1997-98, reforms have been undertaken to liberalise these markets but **significant state control remains in place** for rice and sugar. The Food Logistic Agency (*Badan Urusan Logistic,* BULOG) maintains a high degree of influence over the domestic market of rice, and the sugar market is dominated by state-owned sugar mills. In September 2002, import licenses for sugar were re-introduced and given to a limited number of sugar mills. The Commission for the Supervision of Business Competition (*Komisi Pengawas Persaingan Usaha,* KPPU) acknowledged that this policy change had the potential to trigger cartel activities. Quantitative import restrictions have also been reintroduced for beef, and technical requirements for Sanitary and Phyto-Sanitary Standards (SPS) and halal certification are often been implemented in a non-transparent manner and have added to the import costs (Section 2.3).

These trading arrangements often benefit a limited number of traders, hence enhancing their monopolistic market position. In this context, investors cannot benefit from marketing and pricing flexibility and are deterred from making any large investments in these sectors.

3.4. Responsible investment in agriculture

Large-scale private investments in agriculture can bring the necessary expertise, financing capacities, and marketing networks to enhance the competitiveness of agricultural production and value chains. They can lead to employment creation, particularly through backward and forward linkages and multiplier effects. However, these large-scale investments can also have adverse environmental and social impacts. Policies, laws, and regulations must be well-designed and effectively implemented to ensure that investors behave responsibly and bring both economic and social benefits to the host country at the national and local levels, while guaranteeing a sustainable use of natural resources.

This section starts by providing an overview of the status of responsible business conduct in Indonesia. Then it analyses three major inter-related challenges faced by Indonesia to encourage responsible investment in agriculture: environmental sustainability, forest management and social sustainability. Corruption is also a critical issue as Indonesia is ranked 100 out of 183 countries in the Corruption Perceptions Index 2011 of Transparency International. However, this challenge, along with labour rights, has been addressed by the OECD Investment Policy Review of Indonesia (OECD, 2010) and will not be developed here.

Responsible business conduct

RBC entails **compulsory compliance** with internationally recognised standards and domestic laws and regulations, such as those on human rights, environmental protection, labour rights, financial accountability, competition and taxation. It also implies responding to societal expectations communicated by channels other than the law, e.g. via non-governmental organisations, local communities, and trade unions. Private voluntary initiatives addressing this latter aspect of RBC are often referred to as corporate social responsibility (CSR).

In order to promote recognised RBC concepts and principles, such as those recommended in the OECD Guidelines for Multinational Enterprises, public policies should provide an enabling environment which clearly defines the respective roles and promotes dialogue between government, business and the civil society. **Improved business conduct can help address domestic challenges**, including environmental pollution and occupational health and safety. RBC can also facilitate sustainable overseas investment by Indonesian enterprises and support export industries by improving product quality and relieving concerns of international consumers, such as those over product safety, environmental sustainability and social and human rights' protection.

The shift to a democratic society has provided the **policy space** to promote and adopt RBC. All investors are required to apply the principle of good corporate governance, to implement RBC, and to respect the cultural traditions of the community around the location of their business activities – although there is no sanction specified for violating these obligations (Investment Law 25/2007).

RBC is now an obligation for companies operating in the natural resource sector (Company Law 40/2007). In addition, all publicly-listed companies are required to submit to Bapepam information on RBC activities related to local communities and the environment (Decree 134/BL/2006), and several enterprises have already submitted RBC reports which have been made public. RBC reporting has also been made mandatory for all limited liability companies. As a result, awareness of RBC standards and principles among enterprises has been gradually increasing albeit from a low base (Box 3.3), and Indonesia is ahead of many countries in making non-financial reporting compulsory.

However, **implementing regulations of the existing legislation are still lacking**, which hampers a clear understanding of business responsibilities among stakeholders. For instance, regulations clarifying the standards of RBC reports and the sanctions for non-compliance by limited liability companies have not been published yet. Disclosure is an important step to mobilise public pressure on business conduct but ineffective if the quality of reports is not assured and if companies use it only as a public relations tool (OECD, 2010).

Public participation forms the basis of good governance and environmental and social sustainability. RBC can be effectively enforced only if the civil society can participate in the regulation-making process and law enforcement. Law 12/2011 on Formulating Laws and Regulations (revising Law 10/2004) allows for the participation of the general public in the regulation making process. However, it does not provide guidelines on what constitutes effective participation and the appropriate mechanisms required to support it. This Law leaves the decision about whether to involve non-government stakeholders and whom to invite to the Minister/Head of Agency initiating the Law or Regulation. In terms of law enforcement, communities can provide inputs on judges' performance and conduct through Judicial Commission (OECD, 2010). The Environmental Management Act 23/1997 also acknowledges public participation and grants NGOs the standing to sue in the name of the environment.

Public access to participate in the policy-making process is strong in legislation, but participation at the project and licensing levels remains weak, which indicates **limited public awareness of RBC**. While a number of NGOs have been formed, some of whom are active in RBC, law enforcement and voluntary initiatives by enterprises are not well monitored by the civil society. Consumer awareness is also not high enough to influence

Box 3.3. **Successful examples of RBC implementation**

- ***Indonesia Business Link*** was formed in 1998 to promote ethical business practices and build capacities of SMEs, particularly through knowledge and skills transfers. It comprises now 50 national and multinational enterprises operating in Indonesia (see *www.ibl.or.id*).
- ***The National Centre for Sustainable Reporting*** was launched in 2005 by five major Indonesian organisations to promote voluntary principles for sustainability. It provides: training and education courses in sustainability management and reporting and RBC; management consultancy in implementing RBC policies; research and surveys regarding the status of sustainability practices in Indonesia; and standards/guidelines on sustainability practices.
- The number of registered ***ISO 14001 certificates*** in Indonesia reached 381 by the end of 2006 – the fourth largest among ASEAN member countries after Thailand, Singapore and Malaysia.
- ***The Global Compact*** was launched by the Employer's Association of Indonesia (APINDO) in 2004 which set up a team to familiarise the business community with the Compact's principles through training and workshops. Since 2006, the Indonesian Marketing Association has promoted the Compact, and the number of Indonesian enterprises signing up has increased to 34 in 2012, which exceeds the number in Thailand and South Africa.
- Indonesia launched its first ***socially responsible investment index*** in 2009 which is owned by the Kehati Biodiversity Foundation and calculated by the Indonesia Stock Exchange to help investors select enterprises with RBC acceptable performances. As a result, equity investors and fund managers place an increasing importance on RBC-related performance of enterprises in making their investment decisions.
- The ***Sustainability Reporting Framework*** provides guidance on how organisations can disclose their sustainability performance. It has been used by thousands of organisations worldwide as the basis for producing their sustainability reports. The number of Indonesian enterprises making reports in this framework increased from none in 2005 to 22 in 2009.

business conduct by increasing the risk of decreasing sales on products and services provided by enterprises operating irresponsibly. As a result, various studies indicate that there are relatively low levels of non-financial reporting and disclosure.

However, civil society groups are becoming **more vocal and more skilled** in investigative reporting and in focusing attention on key cases and reforms needed. NGOs have initiated most of the landmark environmental cases and played a leading role in raising awareness of environmental issues, conducting environmental educational and research activities, lobbying the government and the international community, and enforcing environmental law. At the local level, these groups are increasingly successful in pointing out corruption and poor practice and encouraging authorities to take action. The Centre for International Forestry Research (CIFOR), the World Agro-forestry Centre and the Ford Foundation, are supporting civil society organisations and wider dialogue processes through their technical analyses. Some NGOs, such as the World Wildlife Fund (WWF), and the International Finance Corporation (IFC) have developed partnerships with some private companies to work on issues such as certification of high conservation value forest.

Access to information is a right entrenched in the Constitution. Law 11/2008 on Freedom of Public Information supports the freedom of press and civil society activism. However, its implementation became effective only in 2010 and is reported as poor and difficult. A Commission of Information is to be established to hear appeals from the public on access to particular information (Law 14/2008). Ahead of the national legislation, some local governments have already issued regional regulations to guarantee access to government information and community participation in development planning and budgeting within their respective jurisdiction. In response, community members in several regencies have formed a committee to oversee implementation of the regulation. The Chief Justice of the Supreme Court has also issued decree 144/KMA/VII/2007 to ensure the freedom of information on court activities (OECD, 2010).

As regards the environment, AMDAL results are published and released on the AMDAL website accessible to the public every year (Regulation 27/1999 and Decree 8/2000 provide for public participation and access to information related to AMDAL). While detailed AMDAL results can only be provided by following a formal procedure, most results are also available in the offices of the Environment Impact Management Agency (*Badan Pengendalian Dampak Lingkungan,* BAPEDAL) and its local agencies BAPEDALDA (MoA, 2011).

In practice, **public access to information often proves to be difficult** due to the complex bureaucracy, the absence of well defined mechanisms to obtain information, the lack of explicit standards for exemptions to disclosure requirements, the lack of human resources available to support information management and service to the public, and the lack of public awareness on the right to access information. In addition, only 45 days are allocated for the development of the AMDAL and related documents which restricts public participation. The upholding of the legislation varies greatly by case and geographical area.

Environmental management

The environment is threatened by a growing population, increasing urbanisation rates, and rapid economic development, which put pressure on natural resources. Agriculture is a critical sector that can either increase or mitigate negative environmental impacts. Achieving the self-sufficiency targets for five food commodities (rice, corn, soybean, sugar and beef) requires agricultural intensification and the expansion of agricultural land to the detriment of soil preservation and forest conservation.

Annual **deforestation** rates decreased from 1.9 million ha in the 1990s to 0.3 million ha in the first half of the 2000s, but then increased again to 0.7 million in the second half of the 2000s (FAOSTAT, 2011). In 2009, 228 614 ha of forest were converted into agricultural land, including 108 618 ha in Papua and 49 149 ha in South Sumatra, and in 2010, 248 503 ha were deforested in East Kalimantan and 158 130 in Riau (Directorate General of Forestry Planning, 2010). The palm oil sector has long been criticised for causing deforestation and has been identified more recently as a leading contributor to greenhouse gas (GHG) emissions. The area of palm oil plantations is projected to increase from 8.1 million in 2009 to over 11 million ha in 2020 (McCarthy, 2009).

Deforestation contributes to climate change and leads to wildfires, floods, soil erosion, desertification, declining water quality, and downstream sedimentation. As a consequence of logging over the period 1998-2003, 70% of the sampled communities indicated a decline in drinking water quality and 65% indicated an increase in flooding since 1998 (Engel and Palmer, 2008). Indonesia accounts for one third of deforestation-related carbon emissions,

making it one of the world's largest greenhouse gas emitters, with 75% of its emissions resulting from deforestation. The economic consequences of climate change represent the highest potential cost to the economy in the long term, amounting to annual losses of between 2.5% and 7% of GDP by the end of the century (WB, 2009b).

In a context of weak law enforcement, the environment is also threatened by the development of agro-processing industries generating **soil and water pollution**. For instance, palm oil mill effluents (POME) can contaminate rivers if mills dumped excess liquid waste material instead of using an efficient treatment of the waste and effective disposal techniques (Section 1.2).

Stronger environmental protection has been legislated. Law 23/1997 on Environmental Management supports the principles of environmentally sustainable development, promotes the precautionary principle, inter-generational equity and the polluter-pays principle, and sets rules and obligations to perform the AMDAL. Law 32/2009, revising Law 23/1997, upgrades the authority of the Ministry of Environment (MoE) by giving it the power to issue environmental licenses for large-scale priority projects, revoke environmental licenses, arrest and detain persons in co-ordination with the police, and sue persons or companies for causing a loss to the state. It also increases sanctions on environmentally damaging activities and stipulates sanctions for government officials who issue licenses or undertake supervision inappropriately or illegitimately. Furthermore, Law 41/2009 states that every person who has land rights should maintain and improve soil fertility, prevent land degradation, and maintain environmental sustainability (OECD, 2010).

Several other laws regulate specific sectors and state that the provision of licenses requires an **AMDAL**.[14] More recently, Government Regulation 27/2012 on Environmental Permits states that any business having an impact on the environment must perform an AMDAL or a environmental management and monitoring analysis (*Upaya Pengelolaan Lingkungan Hidup dan Upaya Pemantauan Lingkungan Hidup,* UKL-UPL) to be granted an environmental permit. Regular evaluations of business environmental performance must be conducted. Finally, regulation 9/2011 of the Minister of Environment introduced strategic environmental assessments (*Kajian Lingkungan Hidup Strategis,* KLHS) to be conducted by central and local governments as comprehensive and participatory self-assessments to ensure that the principles of sustainable development are respected and implemented.

The MoA facilitates or mediates any **disputes** related to investment in plantation, horticulture, or livestock, and supports local governments and agriculture offices to settle disputes against investors and negotiate any matters disputed. If facilitation, mediation, or negotiation is ineffective, the investor can file the case to the arbitration court in Jakarta, and if there is no consensus, the case can be resolved through the Indonesian National Board of Arbitration (BANI). The MoE measures and supervises the negative impact of investment projects, and can provide administrative support and help negotiate compensation to neighbours for materials expelled from sites or plants, such as smoke, fog, contaminated water, or noise.

Existing institutions do not allow for effective law enforcement. Law 32/2009 has strengthened the enforcement power of the MoE by giving it the authority to introduce environmental licenses and taxes, but implementing regulations are yet to be issued which delays its enforcement. In addition, while non-compliance with environmental-related regulations should be punished with a written warning, government coercion, or

environment permit freeze or withdrawal, this is rarely enforced as neither the courts nor the MoE are authorised to cancel an operational license. The courts may mete out traditional punishments such as fines or jail, but only the Ministry responsible for issuing the license can withdraw concession rights (WB, 2009b). This is a constraint as the authorities issuing permits and licenses can receive gratuities in exchange for a waiver of environmental obligations.

Breaking of environmental laws is therefore very difficult to punish. For example, pesticides and herbicides used to spray plantations creating toxic run off and toxic effluents from the milling process must be stored in special ponds, but this is not always properly implemented. As a result, reports of pollution incidents are common, with effluent regularly discharged into rivers killing fish and contaminating drinking water (Sawit Watch, 2008).

The **decentralisation process** has given local governments a major role in environment protection and management. Presidential Decree 196/2008 provided more authority to the MoE and created local agencies BAPEDALDA. The MoE is responsible for policy development and implementation, license delivery, and administering the AMDAL through BAPEDALDA, while BAPEDALDA are responsible for measuring and supervising the AMDAL. This should ensure an efficient monitoring of environmental policy implementation and community empowerment.

However in practice, the decentralisation process has been **slow and confusing** which creates uncertainty and results in weak law enforcement. The respective jurisdictions of the MoE and other sectoral ministries as well as the division of responsibilities between national, provincial, regional and local agencies, are not clearly defined and overlap, which can lead to none of them taking action in case of environmental violation. For example, even though national laws and regulations include a list of prescribed activities required by AMDAL, local assessments are still not consistently conducted as local agencies are directly responsible to the governors and district heads, and not to the central government.

Indonesia has launched ISPO to enhance the environmental sustainability of palm oil production. At the eighth annual Roundtable Sustainable Palm Oil (RSPO) conference in November 2010, Indonesia announced its own Indonesian Sustainable Palm Oil (ISPO) scheme which is actively supported by the government. This scheme has been implemented voluntarily since February 2011 and will become mandatory for all Indonesian palm oil producers in 2012 (as detailed in the Decree 19/Permentan/OT.140/3/2011 of the Minister of Agriculture of March 2011).[15] The emergence of ISPO has been motivated by concerns of the government and the Indonesian Palm Oil Producers Association (GAPKI) regarding the RSPO scheme, including: a) certification costs prohibitive for small and medium-sized enterprises and smallholders – the ISPO scheme would waive certification fees for these specific groups; b) departure of the RSPO scheme from its original objectives to evolve into a non-tariff trade barrier on palm oil imports; and c) lack of consideration of the conditions specific to domestic laws and regulations. ISPO certification fees for smallholders should be covered by the government, in particular by using exports taxes on palm oil as requested by the MoA.

This scheme is still at an early stage of implementation. The MoA is now co-ordinating ISPO certification but competencies should be transferred to the National Standardisation Agency after three years. ISPO auditors are being trained until July 2012. ISPO standards for

large companies have already been piloted in 20 different locations but have not yet been published for smallholders. Thus, it is unlikely that the actual certification of palm oil producers will be completed before 2015. International recognition of the ISPO scheme is critical to ensure that sustainability measures are effectively implemented, but it remains a major challenge.

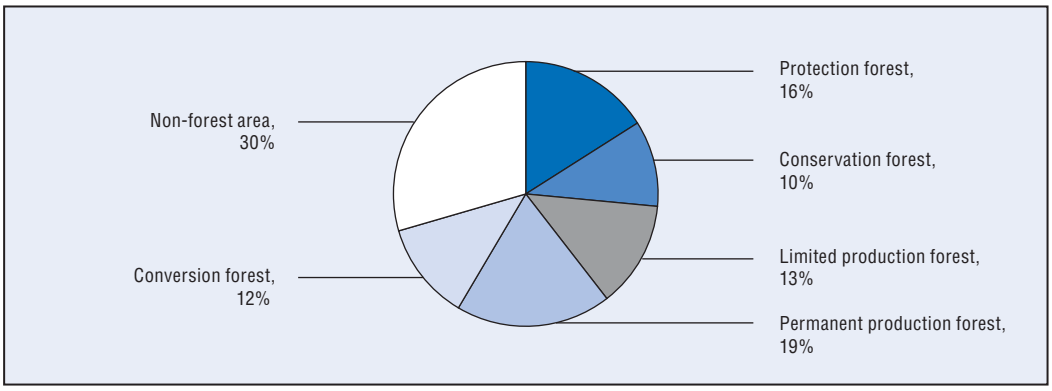
Significant efforts are also made by the government to **promote green growth** and reduce GHG emissions. A National Commission for Clean Development Mechanism has been set up, referred to as the Designated National Authority (DNA) as stated by the MoE's Decree 522/2009. A total of 133 projects have been approved between 2005 and 2011. A plan to reduce GHG emissions has also been developed (Presidential Regulation 61/2011 regarding the Inventory of National GHG Emissions) and agriculture has to play a major role. This 2010-14 Plan aims in particular to: manage 300 500 ha of agricultural land without burning; use organic fertilisers and bio-pesticides on 250 000 ha; increase the productivity of perennial crops on 860 000 ha of palm oil, 105 200 ha of rubber, and 687 000 ha of cocoa; use cattle manure/urine and agricultural waste for biogas to develop cattle-based biogas (BATAMAS) in 1 500 communities; and rehabilitate 250 000 ha of abandoned and degraded peat lands. Finally, the Debt for Nature Swap (*Rekening Induk Dana Lingkungan Bergulir*, RIDLB), managed by the Ministry of Finance, is an earmarked soft loan for environmental preservation purposes, operating as a revolving fund and that amounted to USD 1.4 million in 2010.

Forest management

With more than 100 million ha of forested land, Indonesia contains the world's third largest area of tropical forests after Brazil and Congo. While timber exploitation and cropland expansion in these forests provide economic benefits to the government and to large estate companies and local communities, they also result in **deforestation** and can cause substantial environmental damage. The 1945 Constitution and the Basic Forestry Law 5/1967 grant control over forests to the State. It should be noted that forests are regulated by Forestry Laws and not by the BAL. Under the New Order, the state allocated timber harvesting rights over large areas of state forests to domestic companies, and in 1998, 422 concessionaires controlled 51.5 million ha of forest. This rapid expansion of commercial logging resulted in the decline of the forest cover by 40% from 1950 to 2000. The annual deforestation rate increased from 1.8 million ha in 1990-97 to 2.83 million ha in 1997-2000.

In 1997-98, forest fires undermined the legitimacy of this system of forest management and in response to calls for reforms and IMF conditions, **several legislative changes were made.** The Forestry Law 41/1999, revising Law 5/1967, classified forest areas into conservation, protection, production, and conversion forests (Figure 3.15), and stated that forest management should not only promote economic growth but also provide equitable benefits to society and sustain environmental services. Although no private land right can be granted in forest areas, Law 41/1999 also provided several options for access rights in forest areas, in particular community forests (*Hutan Kemasyarakatan,* HKM), village forests, and forests for specific purposes such as for conducting research and preserving cultural heritages. Regulation PP (*Peraturan Pemerintah*) 6/1999 on Forest Utilisation and the Harvesting of Forest Products from Production Forest strengthened these rights further by granting adat communities the right to take forest products for their daily needs within concession areas. It also obliged concession holders to allow the widest possible

Figure 3.15. **Land use structure, 2009**



Note: Out of total land area. *Conservation forest* is a forest that preserves plant and animal biodiversity and its ecosystem; *protection forest* protects life-supporting systems such as hydrology, flood prevention, erosion control, seawater intrusion prevention, and soil fertility maintenance; *production forest* is used to produce forest products to be selectively harvested, but to retain a forest cover through long periods of re-growth; and *conversion forest* can be converted into other land use such as agricultural expansion (FAO, 2009).

Source: Directorate General of Forestry Planning, 2009.

StatLink http://dx.doi.org/10.1787/888932650724

participation of communities. Finally, Law 19/2004 states that islands, provinces, districts or watersheds should have a minimum forest cover of 30% of the total land area.

However, **the legal framework for forest management remains inconsistent** and allows for unsustainable practices:

- ***Land classification*** is confusing. Non-forest land should be managed by BPN and, as detailed above, the land tenure system is very complex due to the numerous pieces of legislation, regulations and norms governing land use and tenure. Forest land should be managed by the MoF, but the classification of forest area versus non-forest area is confusing. For example, only 77% of conservation forest, 77% of protection forest, 76% of limited production forest, 62% of production forest, and 49% of conversion forest, are forested, while 15% of APL (APL is calculated as the land area remaining after excluding forest area) is forested (Directorate General of Forestry Planning, 2009). In addition, BPN and the MoF have different data: according to BPN, there would be 69 million ha of unforested land (APL) while, according to the MoF, there would be only 55 million ha of unforested land. This means that around 14 million ha of forest areas have been converted into arable land but are not reported by the MoF.
- ***The decentralisation process*** created further ambiguity on the rights to control forest resources, generating disputes between actors at different government levels. For example, the Regional Autonomy Law 22/1999 assigns authority over natural resources management to regional governments, while the Government Regulation 34/2002 on the Management, Exploitation and Use of Forest gives authority for deciding on lucrative timber concessions contracts to the central government. As a result, national, provincial and district offices issue overlapping and conflicting timber licenses. For instance, districts issue licenses on lands already granted to concessionaires by the MoF, or issue location licenses in forest areas that cannot be used for agricultural activities. The MoF recently sent a letter to Corruption Eradication Commission (KPK) to prosecute district heads in Kalimantan for issuing plantation permits without the proper approval from the MoF from 2000 to 2007. The MoF reported in early 2011 that nearly 6.8 million ha of

land allocated for plantation in Kalimantan was illegal and subject to revocation. The enactment of Law 26/2007 on Spatial Organisation is not sufficient for solving such challenges. The MoF is under continual pressure from the private sector and local governments to release forests for conversion, and the main tool that local governments have used to facilitate access to land is to revise their Spatial Plans.

- The ***Forestry Law*** encourages logging companies to maximise short-term profits without considerations to sustainability by prohibiting any private land right in forest areas. In fact, many land areas that have been licensed for agricultural production are not in production because timber exploitation is profitable enough. It is estimated that 18 million ha of forests have already been cleared for palm oil plantations in the past 25 years, while only about 6 million ha have actually been planted. The remaining 12 million ha have been exploited for timber and abandoned (Sawit Watch, 2006). Furthermore, the Forestry Law and Presidential Regulation 3/2008 on Forest Governance, Management Planning, and Utilisation both leave room for the exploitation of primary forests.
- ***Law enforcement remains very low*** in the forestry sector. Since the President issued a Decree on Illegal Logging and formed a high level-working group under the Coordinating Minister for Political, Legal and Security Affairs, the MoF is becoming more forceful in prosecuting the campaign against illegal logging and corruption. For instance, the MoF has referred the names of illegal timber producers to the Attorney General's office. The MoF has a long-term capacity-building programme that seconds staff to NGOs and international organisations for several years. As a result, constructive partnerships with several NGOs, such as Indonesian Corruption Watch, have been developed on critical governance issues (FAO, 2009). However, before any proceeding, the modus includes the changes of purpose and function of forest area. Various cases have shown that law enforcement agents protected the perpetrators, which results in high rates of illegal logging and extensive forest damages.

REDD (Reducing Emissions from Deforestation and Forest Degradation) is a carbon market mechanism launched by the UN in 2008 to create a revenue stream that offsets the costs of preserving the forest. Following the Letter of Intent signed with Norway in May 2010, which came with a pledged provision of USD 1 billion for Indonesia, the government established a REDD Task Force in September 2010 whose mandate is to set up a special agency reporting to the President and co-ordinating the efforts pertaining to REDD development and implementation. Central Kalimantan has been recommended by the Task Force as a pilot province for REDD implementation. The government was expected to start implementing REDD in January 2011.

However, **the REDD scheme is still being drafted** because the stakeholders, including the MoF, the MoA, palm oil and mining companies, and NGOs, are still debating whether the scheme should prohibit the conversion of primary forests, peatlands and other terrestrial ecosystems only, or whether the prohibition should be extended to secondary forests. The palm oil industry has expressed its concern that the implementation of REDD+ (including REDD as well as activities related to increasing carbon stocks and sustainable forest management) may lead to reforestation programmes on degraded land already planted with palm oil trees (GAIN-ID1139, 2011).

Yet, **REDD development is ongoing**. The Indonesian Forest Carbon Alliance (IFCA) team has been established under the leadership of the MoF, and some programmes have

started, such as the National Carbon Accounting System (NCAS) and the Forest Resource Information System (FRIS). The FRIS emerged from the Forest Monitoring and Assessment System (FOMAS) launched in 2006 and aims to provide systematic, accurate, and timely information on forest and timber resources by developing a national system for monitoring changes in forest cover, rates of forest degradation, and progress of plantation and rehabilitation projects. A Measurement, Reporting and Verification (MRV) system has also been launched to assess the carbon stock of forests, through satellite mapping and a National Forest Inventory, and thereby develop a GHG Inventory. The annual deforestation rate must be reduced to 400 000 ha by 2020 to reach the emission reduction goal of 26%, and 14% of this total should come from REDD. Indonesia has the potential of earning USD 0.5-2 billion per year through REDD depending on how well it performs in reducing deforestation and land degradation (WB, 2009b).

In May 2011, the President declared **a two year Forest Moratorium** on more than 44 million ha of natural primary forest and 21 million ha of peat land, i.e. central and local governments are not allowed to issue new forestry, agriculture and mining business permits on natural primary forest and peat land over the next two years (Presidential Instruction 10/2011). However, this moratorium will likely not stop palm oil expansion as it will respect plantation permits already issued by the MoF which cover 11.4 million ha in Kalimantan and Sumatra, including 6.6 million ha not yet under production (GAIN-ID1127, 2011).

Social sustainability

Social sustainability relies on a fair distribution of the economic benefits generated by investments between private companies and local communities. It is critical to guarantee social stability as it allows investors to harvest long term benefits of their investments.

Social sustainability relies not only on the active involvement of local communities but also on the growth of MSMEs. Most MSMEs operate in the agricultural sector (80%). As part of a continuum in terms of firm size, they are a necessary component of the development of value chains and play an important role in maintaining a balance of negotiation power along the food supply chain from the producer to the consumer, especially in an environment where most producers operate at a small scale. Access to land is a determining factor to ensure that MSMEs involved in agricultural production, and in particular smallholders, can indeed secure benefits from the presence of large-scale investors. When land rights are clearly defined and protected, economic partnerships between these investors and MSMEs can be an effective mechanism to ensure that local communities benefit from capital inflows, technology transfer and backward and forward linkages brought by these investors to enhance their growth.

This section looks at the policies in place to support MSMEs, and then analyses issues related to land rights. Finally, it examines existing business partnership models between large-scale investors and smallholders.

Micro, small and medium enterprises[16]

Indonesia has **a long tradition of protecting MSMEs** comprising 51 million units and representing 97% of the labour force and 55% of the GDP (BPS, 2009 and BI, 2011). Certain industries are reserved to MSMEs and partnerships with MSMEs are required in certain sectors, as specified in the 2010 DNI (Section 3.2). This policy has never been withdrawn. The government also provided direct assistance programmes to MSMEs, including credit

programmes, subsidies for raw materials, marketing, promotion and export support, technical training, and extension services. The effectiveness of these programmes was often undermined by the lack of capacity of government agencies in providing services, a supply-driven approach without a mechanism for responding to the actual needs of MSMEs, and co-ordination problems among government agencies.

In the early 1990s, the government turned to more **indirect assistance programmes** to foster business partnerships between large enterprises and MSMEs in which large enterprises were required to assist MSMEs in building capacity and accessing loans. The impact of this approach was also disappointing as it did not offer commercial incentives (OECD, 2010).

Recently, the government has been making its MSME support programmes more market-oriented and demand-driven, and passed the **following legislation**:

- Law 32/2004 on Sub-National Government and Government Regulation 38/2007 mandate local governments to empower MSMEs through programmes providing BDS, such as management and business trainings, promotion of local products to investors, and facilitation of linkages between small and large businesses (OECD, 2010).
- The government launched in 2008 a successful programme to provide insured loans to MSMEs, the People's Business Credit (*Kredit Usaha Rakyat,* KUR) mentioned above.
- Presidential Instruction 6/2007 includes 29 actionable measures to support MSMEs, covering four areas: access to financial resources, private entrepreneurship and human resources, market opportunities, and regulatory reform (OECD, 2010).
- The 2007 Investment Law mandates the government to establish business sectors reserved for MSMEs and opened to large businesses on condition that they co-operate with MSMEs. These sectors, listed in the DNI, include agriculture (Table 3.8). For example, cultivation of most crops for an area under 25 ha is reserved to MSMEs.
- Law 20/2008 on MSMEs represents the government's commitment to prioritise support to MSMEs. It mandates the government to: improve the business climate; facilitate the business development capacity of MSMEs; provide financing and loan guarantees; and facilitate partnerships between large enterprises and MSMEs through subcontracts, mentorship programmes and trading arrangements (OECD, 2010).
- The State Ministry of SOEs mandates all SOEs to implement a small enterprises programme and an environmental establishment programme. The small enterprises programme should empower small enterprises by providing soft loans, free training opportunities on business skills and subsidies to participate in international trade exhibitions. The environmental establishment programme is meant to support community development and can take the form of community infrastructure projects, education and health services, and aid for natural disasters.

Land rights

While the BAL recognises local customary ***adat* land rights**, known as *hak ulayat* (Section 1.3), it imposes many restrictions to their full recognition. It recognises such rights only as long as they 'evidently still exist' and are 'in line with the national and the state's interest based on the unity of the nation'. In addition, *ulayat* rights can only be registered after having been rendered into one of the seven land rights mentioned in the BAL – thereby submitting them to the concept of individualistic rights – and after the right-holder has

purchased a 'stipulation' required by BPN confirming that the land is not state land. From 1969 to 1997, around 2.2 million ha were redistributed to 1.1 million families on various transmigration schemes while most of this land area was in fact *adat* land (Wiradi, 2011). Subsequent regulations to the BAL have strengthened the right of the government to control and manage land and natural resources. Neither the Basic Forestry Law nor the Basic Mining Law recognise *ulayat* rights.

The Regulation 5/1999 issued by the Minister for Agrarian Affairs and BPN regarding Conflict Resolution for Ulayat Rights was the first legislative piece that made some substantive **provisions on *ulayat* rights** and opened opportunities for registering customary land as communal but non-transferable property. The legislation also allows for community-based forest management (*Hutan Kemasyarakatan,* HKM). However, according to Ministerial Decree of Forestry 31/2001, a HKM group wanting formal recognition and the right to use the state-owned forest land is required to present at least three major documents – written group's working rules and regulations, participatory and community-based maps of village land boundaries, and sensible five-year working plans. The permit is evaluated after five years, and groups performing satisfactorily can be granted more permanent tenure for 25 years (Arifin, 2005). More recently, Regulation 01/2004 provided principles of social forestry, introducing new possibilities for community-based forest management, in particular PHBM (*Pengelolaan Hutan Berbasis Masyarakat*).

But in practice, **the protection of customary land rights remains very weak**. Ulayat rights are not yet fully recognised, particularly in forest areas. They are often violated in the expansion of perennial crops because of contradictory laws, unclear regulations, weak institutional capacity, and a search for increased revenues from the conversion of forests into plantations (Sawit Watch, 2006). 50-60 million Indonesians live in state forest areas with insecure rights of access to forest resources. In areas with forest cover, the poverty incidence is relatively high – 22% versus 17% for the country as a whole (FAO, 2009).

The registration of ulayat rights is now the decision of local governments, and **provinces vary greatly** in the extent to which such rights are accepted. In West Kalimantan, ulayat rights are given little recognition. In Lampung, they are accepted in court adjudications but the administration rarely recognises community rights, preferring to issue individual titles to villagers. In West Sumatra, by contrast, the provincial government recognises collective land rights and the jurisdiction of customary institutions as self-governing authorities (Nagari), and communities are treated as rights holders (Sawit Watch, 2006).

The complex land tenure system exacerbates tenure insecurity for communities and lead to abuses by large investors, as proved by the **increasing number of land conflicts**. Though exact data are difficult to obtain, cases of land conflict have increased and are prevalent in plantations controlled by large corporations. In practice, some companies are operating without a HGU. For instance, the Head of the Provincial Plantation Authority of Riau Province indicated that around 21% of 161 large-scale plantations operated in Riau province without holding a HGU (Wiradi, 2011).

Between 1971 and 2009, 27% of the 2 163 agrarian conflicts recorded in the Consortium for Agrarian Reform (KPA) database were related to large-scale plantations and 11% to forestry. According to this database, not less than 10.5 million ha of land were disputed, involving more than 1 million households (Wiradi, 2011). In 2006, 1 423 land conflicts, 322 land disputes, and 1 065 court cases had been raised according to BPN, and 31% of these

conflicts were related to palm oil plantations (Sawit Watch, 2007). In addition, there were 2 810 large cases pending nationwide in 2006, most of which started in 1970s and 1980s.[17] In 2007, the number of land disputes and conflicts increased to 7 491 cases covering almost 608 000 ha (BPN, 2009).

This increase in land conflicts can be partly explained by the **slow decentralisation** process. As the roles and responsibilities of local governments are not clearly defined, each government level makes decisions which deny the authority of other government levels, and can undermine the role and rights of local communities.

Partnerships between large companies and smallholders

The **nucleus-plasma model** was initiated by the MoA in 1978 to expand perennial crop production, especially in Kalimantan, Sulawesi and Sumatra (Box 1.2). It has been used mostly for palm oil, but also for rubber, sugar cane, horticulture crops (flowers and fruits), and livestock (broiler and layer farms). The programme provided large companies (nucleus) with both subsidised capital and long-term leases to state land for crop production, under the condition that these companies provide inputs, credit, and technical and marketing services to smallholders (plasma) surrounding the company plantations (Fuglie, 2010).

In the palm oil sector, the government introduced **the PIR-Trans in the 1980s** based on the nucleus-plasma model.[18] The PIR-Trans or 'transmigration' programme resettled families from densely populated Java to the sparsely populated regions of Sumatra, Kalimantan, Sulawesi, and Papua. A subsistence allowance was provided during the first year of resettlement. This programme required the nucleus enterprise to develop and manage plantations to plasma farmers, while plasma farmers had to sell their products to the nucleus. Plasma farmers had to give around a third of their land to the nucleus, while the rest of their land was returned to them after three years if they had paid back the nucleus for the investment made on this land. Under the PIR-Trans programme, the nucleus entered into a contract with individual plasma farmers and continued to provide plasma farmers with management assistance for a fee after the land transfer.

KKPA was introduced in the 1990s and replaced the PIR-Trans programme. To be eligible to KKPA subsidised interest rate, farmers had to own their land and be a co-operative member. Under this scheme, the nucleus entered into a contract with a group of plasma farmers and usually stopped providing assistance after the transfer.

Over the last decade, **the government has played the role of a regulator** rather than being actively involved in partnership schemes. In 1997, the MoA issued the Decree 940/Kpts/OT.210/10/1997 to regulate economic partnerships, stating that partnerships should assume a principle of equity and synergy among the parties involved and could follow five basic models: *i)* nucleus-plasma model; *ii)* sub-contract within which the farmer group produces material needed by the company; *iii)* general trading within which the company markets products of the farmer group, or the group supplies products required by the company; *iv)* agency within which the farmer group is granted with a special right to market goods or services produced by the company; *v)* other models, such as the Agribusiness Operational Partnership, within which the farmer group supplies land, infrastructure, and labour, while the company provides finance and capital to cultivate certain commodities (MoA, 2011).

More recently, Law 18/2004 on Perennial Crops and the MoA's Regulation 26/Permentan/OT.140/2/2007 on Licensing Plantation Business oblige investors in plantations to establish

business partnerships with local planters and communities for a minimum of three years on **at least 20% of the land area**, based on mutual benefit and respect. Estate companies must provide planters and communities with some of the following: means of production, processing and marketing, transportation, operational co-operation, ownership of shares, other support services. The Ministry of Agriculture can also be involved in setting the purchase price from smallholders by the company, based on a specific formula, by setting tripartite team composed of the government, the company and smallholders.

New programmes based on nucleus-plasma models have also been launched in 2006, including:

- ***The Plantation Revitalisation Programme*** KPEN-RP (Ministry of Finance Regulation 117/PMK.06/2006 on the Credit for the Development of Biofuel Energy and Plantation Revitalisation, and MoA's Regulation 33/2006 on Plantation Revitalisation) to support plantation development and revitalisation by developing 1.5 million ha of palm oil plantations under a credit scheme implemented by commercial banks (Table 2.9).
- ***The energy-independent village programme***, based on a nucleus-plasma partnership between farmers and biofuel companies, and limited to SOEs – such as PT Perkebunan Nusantara, Perum Perhutani, and PT Rajawali Nusantara – for the time being. Each village would cultivate around 50 ha of biofuels, including jatropha, palm oil, coconut, cassava or sugar cane, depending on its agro-climatic and social-economic conditions. SOEs play the role of the nucleus processing facility by producing fuel that can be blended with petroleum fuels and used locally. PLN acts as a standby buyer for any excess blended biodiesel. Energy-producing villages should fulfill their energy needs first and sell their significant surplus to industries. In Grobogan district in Central Java, SOEs are already facilitating jathropa development. The factory supplies jathropa oil not only to low-income families of the village as a substitute to kerosene, but also to other industries, such as PT Rajawali Nusantara Indonesia's sugar factory in West Java.

Several **examples of successful partnerships** can be mentioned. In a variation of the nucleus-plasma scheme, the *Pola Patungan Scheme* (Joint Venture Model) gives smallholders shares in the company based on the amount of land they give to the company. Shareholders are then given the choice of working either in the co-operative trained by the plantation company or in the nucleus staff. This model aimed to pre-empt conflicts arising from the variable performance of individual blocks, but another outcome was greater efficiency. Anecdotal evidence suggests that the standard of living is relatively high among participants in this share certificate scheme (IEED, 2006).

As for specific companies, a partnership has been developed between PT Syngenta Seed Indonesia and local farmers in East Java to produce corn seeds. Farmers can become partners if they have sufficient skills and experience in breeding corn seeds. Then PT Syngenta trains them to be highly qualified breeders while they have to sell their seed production to the company (MoA, 2011). Indofood Fritolay Makmur (IFM) provides another interesting example of such a partnership for potato production (Table 1.10). The development of a black soya bean supply chain by Unilever is also a successful example of a company working with smallholders to secure supplies of raw materials and to build its own brand, while benefiting farmers in terms of improved incomes and a guaranteed market for their products (Box 3.4). These successful examples should be better leveraged to increase awareness and incentivise new investors to implement them. The OECD

Guidelines for Multinational Enterprises can also provide a valuable framework to request enterprises to encourage local capacity building through close co-operation with local communities and MSMEs (OECD, 2011).

Box 3.4. **Unilever – Building a black soybean supply chain in Java**

To ensure a reliable supply of black soybeans, Unilever set up *the Black Soybean Farmers Development Programme* to encourage Javanese smallholders to grow the crop. Smallholders set up seven legally registered co-operatives with Unilever's help. To create an incentive to participate in the programme, Unilever's processing factory has committed to buying all production supplied by the co-operatives that meets Unilever's quality standards, at a price agreed annually, based on the market price, before the crop is planted.

The Unilever Indonesia Foundation was set up in 2000 to provide business development support to farmers' co-operatives and develop community initiatives. It has funded the provision of financial services and low-cost credit to farmers. These loans enabled farmers to manage the increased costs of buying high-quality inputs recommended by the company. These inputs are purchased and distributed by the co-operatives, and farmers repay the loans after they have sold their crops. The Unilever Foundation also supports the co-operatives through mentoring and has developed an individual business plan for each one. In addition, Gadjah Mada University provides technical support, including trainings and extension services.

Due to improved agricultural practices, farmers reach bean yields of 1 to 2 tonnes per hectare, while untrained farmers typically reach 0.7 tonnes. In 2010, the programme has involved the participation of some 7 000 smallholders who grow approximately 30% of the black soybeans used to produce the Bango brand, and farmers' incomes have increased by approximately 10-15%. The seven co-operatives are now professional enterprises that manage production, train new producers, and supply low-cost finance. As for Unilever, it has secured a guaranteed supply of quality raw materials that has helped it to expand production and sales of its Bango brand, a major part of its business in Indonesia. Sales of the Bango brand have increased nearly nine-fold since 2001.

Unilever has plans to replicate the model in coconut sugar and black tea in Indonesia. While this model can be replicated by other multinational companies, it requires a company to have an existing local presence, established networks, and partnerships with professional institutions and investors capable of delivering the various components of the programme to smallholders.

Source: Oxfam, 2009 and Unilever Indonesia, 2012.

However, **most existing partnerships do not promote inclusive development**. In most partnership models, smallholders do not acquire land unless they pay back the costs of setting up the perennial crop plantation, which includes the costs of pesticides, fertilisers and technical expertise. Smallholders unable to pay their debts to the plantation company must provide labour in exchange for their debt. Once they have paid off their debt, they get a land certificate, but often plantations have then become unproductive and should be renewed. This means that smallholders must contract a loan from the company once again to be able to rehabilitate their newly acquired land. While many of the smallholders in mature nucleus-plasma schemes receive relatively good incomes, control over land must be addressed as a priority to promote inclusive development. In addition, dependence on a

single crop commodity increases the vulnerability of smallholders. As regards palm oil, farmers are tied into 25-year production cycles, and although prices are still rising, the boom may end, especially as competition increases from other countries.

Partnerships have the potential to **leverage the complementarities between large companies and smallholders.** Large companies can access capital at lower cost than smallholders and thus have cost advantages initially in tree crops for which a significant capital investment with a long payoff period is required.[19] As a result, large companies, with better access to capital and technology, often dominate the early stages of perennial crop development, but over time, smallholders catch up. Presently, smallholders dominate the production of sugar cane, rubber, coffee, cocoa, and coconut, and are gaining market shares in palm oil (Fuglie, 2010). Yield gaps between smallholders and large estates have also diminished over time, and by 2007, average smallholder yields in palm oil, sugar cane, and cocoa approached or exceeded average yields of large estates (Figure 1.37). Only in rubber and tea production did large estates obtain consistently better yields than smallholders. However, the lower average yield of smallholders for rubber partly reflects lower tree density on these farms rather than yield per tree, as smallholders use a mixed cropping system whereas large estates emphasise monocropping (Tomich *et al.* 2001).

Therefore, large companies have an important role to play in the initial stages of plantation development by bringing the necessary capital and technologies, while smallholders should remain owners of the land to ensure the involvement of local communities and promote inclusive development in the long term.

3.5. Summary

This chapter has highlighted key challenges to be addressed to attract more and better investment in the agricultural sector. Section 3.1 examined the key trends of domestic and foreign investment in agriculture since the early 1990s. Section 3.2 provided an overview of Indonesia's investment policy, while Section 3.3 examined specific sectoral policies that can contribute to strengthening the enabling environment for investment in agriculture, such as research and innovation and access to finance. Finally, Section 3.4 identified key challenges to promote responsible investment in agriculture that can bring both economic and social benefits while ensuring a sustainable use of natural resources. This Section summarises key findings.

Investment in Indonesia has increased over the past decades. Both domestic and foreign investments have significantly increased since 1960. Total investment flows, as measured by gross fixed capital formation, quadrupled between the mid-1960s and the mid-1980s, and then quadrupled again over the following decade. They have steadily recovered from the downturn caused by the Asian financial crisis in 1997-98 and have been multiplied by six between 1998 and 2010.

Investment in agriculture remains relatively low. While total investment in agriculture has increased over the last decade, it remains low compared with the economic importance of this sector in terms of its share in GDP, exports and employment. FDI inflows in agriculture have remained low compared to FDI inflows in other sectors. The low Incremental Capital Output Ratio (ICOR) indicates that the investment required in agriculture to generate an additional unit of output is low compared to other sectors of the economy. Investment in the sector is thus relatively efficient in increasing its output, which offers an untapped potential for investors.

Large-scale private investment in palm oil and biofuels is increasing rapidly. While public spending targets mainly food crops, most private investment is channelled to perennial crops. Investment in palm oil plantations by large-scale private companies has increased rapidly over the last decade. The total area of palm oil plantations owned by both companies and smallholders expanded from 5.7 in 2004 to 8.1 million ha in 2009 and is expected to increase further with rising demand. In contrast to other perennial crops such as rubber and sugar cane mostly produced by smallholders, up to 65% of total palm oil production is produced by private and state-owned companies. Investment in biofuels has been driven by subsidies and mandatory requirements for the use of biofuels in the transportation, industry and power generation. However, demand remains weak and investment will depend on energy prices on domestic and international markets.

The government is actively promoting zone-based investment. Investment incentives in agriculture target mainly large integrated businesses in specific regions. In particular, the government is focusing on six economic corridors as growth centres through its Master Plan 2011-2025. Palm oil is one of the main target sectors in Sumatra and Kalimantan, while food estates will be developed in Sulawesi and Papua. These growth centres will benefit from an improved investment climate, including ease of regulations and licensing, fiscal and non-fiscal incentives, and infrastructure development.

A poor business climate hinders domestic and foreign investment in agriculture. The existing regulatory framework is complex and changes to the legislation are unpredictable, as demonstrated by the issuance of the Horticulture Law limiting foreign ownership to 30% and requiring compliance by companies within four years. The decentralisation process empowered local governments, but it has also increased transaction costs and uncertainty for investors. While investment climate reform has been one of the top government priorities since 1998 and the FDI regime has been liberalised, Indonesia remains more restrictive towards FDI than OECD countries on average. In fact, agriculture has become more restrictive towards FDI over the last few years with upper limits to foreign equity for food crops decreasing from 95% in 2007 to 49% in 2010.

The land tenure system is still complex and inconsistent. Access to land remains a long and unclear process, in particular due to low land registration rates. Investing companies can be granted only limited land rights and location licenses are compulsory for land acquisition. The government has worked continuously on simplifying and speeding up business licensing and investment procedures, but investors are still required to obtain various sector-specific technical licenses from different government agencies.

Inadequate infrastructure is a major bottleneck discouraging investment in agriculture. Indonesia suffers from insufficient and poor quality infrastructure as a result of decades of public and private under-investment. While the government has built considerable momentum for infrastructure reform since 2000, the implementation of the new legislative framework is still at a relatively early stage. The irrigation network is in poor conditions due to a lack of incentives for operations and maintenance, which limits possible rice productivity increases. High transport and logistics costs are a serious constraint on business operations and undermine the competitiveness of agricultural value chains. Finally, the lack of reliable electricity remains a binding constraint to investment and growth, particularly for small firms operating in the agricultural sector.

Extension services have suffered from decentralisation, and research and development funding could be better used. While improvements in human capital have contributed to

agricultural productivity growth, decentralisation has undermined the effectiveness of extension services, and thereby human capital enhancement in agriculture. Spending for agricultural extension has increased recently and various programmes have been launched to support skills development to address this issue. Public spending in research and development in agriculture is still low compared with other Asian countries and it is used mainly to finance non-researchers.

Access to long term investment loans is a major constraint for MSMEs. Several programmes and regulations are in place to facilitate access to credit by MSMEs and smallholders, including relaxed collateral requirements which remain the major obstacle to farmers' access to credit. The Debtor Information System has increased the transparency on the use of collateral. Still, in East Java for instance, 95% of farmers have never obtained credit. While some credit guarantee schemes target specifically SMEs, these services are granted mainly to medium and big enterprises. Only limited insurance services are available in the agricultural sector.

As regards trade policy, Indonesia remains relatively restrictive compared with other Asian developing countries, and the rice and sugar markets are still highly controlled by the state. Export taxes have been imposed on crude palm oil and more recently on cocoa beans to incentivise investment in processing industries but this may rather deter investors in perennial crops.

Large-scale investments in agriculture pose environmental risks, particularly in a context of weak law enforcement. Large-scale investments in agriculture can bring the necessary expertise, financing capacities, and marketing networks to enhance the competitiveness of agricultural production and value chains, but they can also have adverse environmental and social impacts. These adverse impacts are particularly salient in the Indonesian context. While RBC principles, public participation, and access to information have been enshrined in the legislation, implementing regulations are still lacking and enforcement remains weak. Similarly, stronger environmental protection has recently been legislated, but existing institutions and an unclear decentralisation process do not allow for effective law enforcement.

Forest management remains one of the main challenges in terms of responsible investment in agriculture. Agricultural growth has been relying to a large extent on agricultural extensification by converting forested areas into agricultural land, leading to deforestation and thereby generating not only carbon emissions but also soil erosion, declining water quality and downstream sedimentation. Several legislative changes were made after the 1997-98 forest fires, but the legal framework for forest management remains inconsistent and allows for unsustainable practices. The government launched the REDD initiative in 2010 and the President declared a two-year Forest Moratorium in 2011, but deforestation rates are likely to remain high if the legal framework is not significantly revised and capacities for law enforcement strengthened.

Large-scale investments in agriculture can have a positive social impact only if effective policies to support MSMEs and to secure the land rights of smallholders and local communities are in place. The government is supporting actively MSMEs, in particular by reserving certain industries and requiring partnerships with MSMEs in certain sectors. However, the recognition of customary land rights remains a critical and sensitive issue to be addressed. While customary land rights are mentioned in the legislation, they are often ignored in practice. As a result, an increasing number of land conflicts between local communities

and large-scale plantations are reported. Business partnerships between large agricultural investors and smallholders can be part of the solution. The government has actively promoted such partnerships since the 1970s, and plays now the role of regulator. For these partnerships to be successful and promote inclusive development, land rights of smallholders should be respected and officially recognised.

Notes

1. Gross domestic fixed capital formation (GFCF) is defined as procurement, manufacturing and purchasing of new capital goods originating from within the country and new or used capital goods from abroad. Capital goods are equipment used in production process usually for one year or more. GFCF can be divided into capital formation in the form of: *a)* construction; *b)* machinery equipment and tools; *c)* transport equipment; and *d)* goods and other capital (BPS, 2011). GFCF can be financed by domestic savings of households and private companies, government savings including savings by state-owned enterprises, external borrowing for private investment, and foreign investment.
2. The UNCTAD World Investment Prospects Survey 2010-12 places Indonesia in the top 15 of the most attractive countries for the location of FDI.
3. See *OECD Investment Policy Review of Indonesia 2010* for further details.
4. A Negative List provides a list of sectors where private investment is not permitted or where foreign investors are subject to restrictions.
5. HGU and HGB can be issued to Indonesian citizens and corporate bodies incorporated under Indonesian law and domiciled in Indonesia, including foreign capital investment companies (PMA companies). HP is a subsidiary land right which may be granted by holders of a HGU or HGB. It can be granted to Indonesian citizens, foreign individuals domiciled in Indonesia, corporate bodies incorporated under Indonesian law and domiciled in Indonesia, and foreign corporate bodies having representation in Indonesia.
6. International LPI is based on the assessment of foreign operators located in the country's major trading partners. It is a weighted average of six components, including: efficiency of the customs clearance process; quality of trade and transport-related infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and frequency with which shipments reach the consignee within the scheduled or expected time.
7. ASEAN+6 include the 10 ASEAN countries plus China, Japan, Korea, Australia, New Zealand, and India.
8. Domestic LPI is based on logistics professionals' assessments of the country where they work, and contains detailed information on individual aspects of logistics performance, including: quality of trade-related infrastructure; competence of service providers; efficiency of border procedures; and time and cost of moving goods across borders.
9. Regulations and guidelines include: Law 21/2004 on Biosafety which ratifies the Cartagena Protocol; Government Regulation 21/2005 on Biosafety of Transgenic Products establishing procedures for environmental releases; Guidelines for Food Safety Assessment on Transgenic issued in 2008 and setting out the protocol for risk assessment of GM food for human consumption; and Presidential Regulation 39/2010 which establishes the Biosafety Committee for Transgenic Products.
10. Legal rights include among others the use of movable assets as collateral, non possessory security rights, the possibility of providing general description of debts and obligations in collateral agreements, the existence of a unified collateral registry, and the rights of secured creditors.
11. See *OECD Economic Survey of Indonesia 2012* (OECD, 2012), chapter on SMEs, for more information on access to finance by Indonesian SMEs.
12. As stated in Law 9/2006 on systems of warehouse receipts and in BI Regulations 9/6/PBI/2007 and 11/2/PBI/2009.
13. Including in Law 4/1996 on mortgage, Law 42/1999 on fiduciary guarantees, and Law 9/2006 on systems of warehouse receipts.

14. Including laws on farm cultivation (12/1992), plantation (18/2004), livestock and animal health (18/2009), and horticulture (13/2010).

15. This system has defined 7 principles, 39 criteria, and 128 indicators against which the sustainability of palm oil plantation practices is monitored once a year by an independent certification body, such as the National Accreditation Committee (NAC). The certificate has to be renewed every five years. Indicators include: responsible plantation management; implementation of best practices in plantations and mills; enforcement of environment regulations; conservation of natural resources; responsibility upon employees, individuals and communities affected by growers and mills; and commitment to long term economic empowerment.

16. See *OECD Economic Survey of Indonesia 2012* (OECD, 2012) for a detailed description of the MSME sector in Indonesia and for recommendations on ways to spur SME productivity growth in Indonesia.

17. *http://serikat-tani-nasional.blogspot.com/2007/06/kuasa-negara-derita-petani.html*.

18. The PIR-Trans programme (*Perkebunan Inti Rakyat Trans*) and the KKPA programme (*Kredit Kepada Koperasi Primer untuk Anggotanya*) are regulated respectively by Regulation 222/Kpts/KB.510/6/1986 of the MoA and Regulation 73/Kpts/OT.210/2/98 of the MoA and the Minister of Cooperative and Management of Small Entrepreneurs.

19. For example, plantation companies invest between USD 2 500-3 500 per ha of palm oil (Chalil *et al.*, 2005). As palm oil is not productive for the first three years and reaches peak production only between the 6th and the 12th year after planting, capital can only be repaid after some years. Thus companies need to borrow around 77% of the total establishment costs (McCarthy and Cramb, 2009).

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ANNEX 3.A1

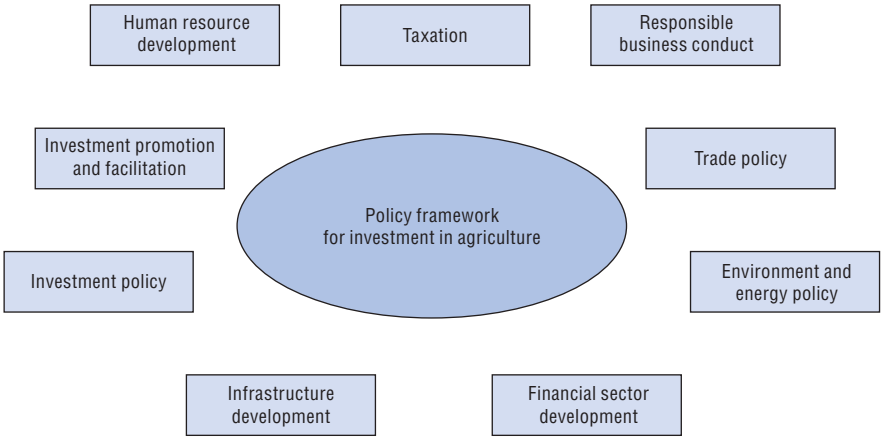
The Policy Framework for Investment in Agriculture

The Policy Framework for Investment in Agriculture (PFIA), developed in 2010, aims to support countries in mobilising private investment in agriculture for steady economic growth and sustainable development of the sector. It provides a checklist of policy issues to be considered by any government interested in creating an environment attractive to all investors and in enhancing the development benefits of agricultural investment to society, especially the poor.

The PFIA is a flexible instrument that governments can use in evaluating and designing policies for agricultural investment. It has been adapted to the Indonesian context and the Ministry of Agriculture used it to gather information that forms the cornerstone of the third chapter of this review.

Sustainable growth in agriculture relies on a wide set of policies that go beyond agricultural policy strictly speaking. The PFIA proposes guidance, in the form of questions for governments, in nine policy areas for improving the quality of a country's environment for investment in the agricultural sector (Figure 3.A1.1).

Figure 3.A1.1. **The nine policy areas of the PFIA**



The PFIA draws on the Policy Framework for Investment (PFI) which was developed at the OECD in 2006 by 60 OECD and non-OECD countries. It has been developed by the NEPAD-OECD Africa Investment Initiative, the OECD Sahel and West Africa Club (SWAC) and the Office of the Special Adviser on Africa (OSAA) of the UN Secretary General. It benefited from the discussions on Responsible Investment in Agriculture held at the OECD within the framework of the Freedom of Investment Process (FOI Process). The PFIA has already been used by Burkina Faso and is being applied to Tanzania.

ANNEX 3.A2

Methodology for the 2012 FDI Regulatory Restrictiveness Index

Data

For OECD countries, measures taken into account by the index are limited to statutory regulatory restrictions on FDI, such as those reflected in the countries' lists of reservations under the OECD *Code of Liberalisation of Capital Movements* and their lists of exceptions under the National Treatment Instrument (part of the OECD *Declaration and Decisions on International Investment and Multinational Enterprises*), as well as measures notified for transparency. The actual enforcement of statutory restrictions is not assessed and therefore not factored into the scoring.

For the ten non-member countries adhering to the *Declaration*, measures taken into account derive from countries' lists of exceptions to national treatment and measures notified for transparency, as well as additional sources of information when necessary gathered by the Secretariat in the preparation of OECD *Investment Policy Reviews*. For non-adhering countries, greater use has been made of OECD *Investment Policy Reviews* when available (e.g. China, India, Indonesia and Russia), official national publications and information made available by other international organisations.

Measures covered

Four types of measures are covered by the *FDI Regulatory Restrictiveness Index: i)* foreign equity restrictions, *ii)* screening and prior approval requirements, *iii)* rules for key personnel, and *iv)* other restrictions on the operation of foreign enterprises. The highest score for any measure in any sector is 1 (full restriction on foreign investment in the sector) and the lowest is 0 (no regulatory impediments to FDI in the sector).

The score for each sector is obtained by adding the scores for all four types of measures, with the constraint that their sum is capped at a value of 1. An attempt has been made to gauge scores according to the scope of measures. Thus, if a measure is not applied for partners in regional integration agreements or if a foreign equity restriction does not apply to greenfield investments, the score is reduced.

Coverage by sector and weighting system

The 2012 FDI Index covers the following 22 sectors:

- *Primary:* agriculture, forestry, fisheries, and mining;

- *Secondary*: food and other manufactured goods, oil refining and chemicals, metals/machinery and other minerals, electrics/electronics and other instruments, transport equipment, electricity, and construction;
- *Tertiary*: wholesale trade, retail trade, transport, hotels and restaurants, media, telecommunications, banking, insurance, other finance, business services, and real estate.

The overall restrictiveness index is obtained by averaging the score of 14 sectors and 5 manufacturing sub-sectors. A simple average has been used for keeping with the methodology employed more broadly in the calculation of the product market regulation (PMR) indicators.

Table 3.A2.1. **Scoring of restrictions, FDI index 2012**

I. Foreign equity limits	**Scores**
Start-ups and acquisitions	
No foreign equity allowed	1
Foreign equity < 50% of total equity	0.5
Foreign equity > 50% but < 100% of total equity	0.25
Acquisitions	
No foreign equity allowed	0.5
Foreign equity < 50% of total equity	0.25
Foreign equity > 50% but < 100% of total equity	0.125
II. Screening and approval[1]	
Approval required for new FDI/acquisitions of < USD 100 mn if corresponding to < 50% of total equity	0.2
Approval required for new FDI/acquisitions above USD 100 mn if corresponding to > 50% of total equity	0.1
Notification with discretionary element	0.025
III. Restrictions on key foreign personnel/directors	
Foreign key personnel not permitted	0.1
Economic needs test for employment of key foreign personnel[2]	0.05
Time bound limit on employment of key foreign personnel[2]	0.025
Nationality/residence requirements for board of directors	
Majority must be nationals	0.075
At least one should be national	0.02
IV. Other restrictions	
Establishment of branches not allowed/local incorporation required	0.05
Reciprocity requirement	0.1
Restrictions on profit/capital repatriation	1-0.1
Access to local finance	0.05
Acquisition of land for business purposes[3]	0.1
Land ownership not permitted but leases possible	0.05-0.01
TOTAL	**Up to 1**

1. Excludes reviews of foreign investment based solely on national security grounds.
2. If both restrictions (economic needs test and time bound limit) apply, 0.05 is added to score.
3. Score scaled by a factor of 5 for agriculture and forestry.

Agriculture: The case of Indonesia

Measures taken into account in the Indonesia's 2012 FDI Regulatory Restrictiveness Index in agriculture are as follows:

I. **Foreign equity limits:**. Under 25 ha, land is reserved to SMEs. Above 25 ha of land used for main crop cultivation (corn, soy, peanuts, green beans, rice, cassava, and sweet potato), foreign equity is limited to 49%. Above 25 ha of land used for other plant cultivation (cashew, coconut, palm, tea, coffee, cocoa, peppercorn, and clove), foreign equity is limited to 95%. Although rice and other food crops are far more important

within the economy as a whole, the more open sectors are those of most interest to foreign investors, so it is assumed that a foreign equity limit of 49% applies to 1/4 of the sector only.

II. **Screening and approval:** No screening and approval process.

III. **Restrictions on key foreign personnel/directors:** The score relates to a horizontal measure affecting all sectors. According to the Manpower Act 13/2003, BKPM approves expatriate employment in foreign companies based on a test of economic needs. In addition, the Personnel Director must be Indonesian.

IV. **Other restrictions:** Foreigners may not own land but may receive long-term leases (99 years) for business purposes.

For further details: www.oecd.org/investment/index.

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OECD Review of Agricultural Policies

INDONESIA

This Review, undertaken in close co-operation with the Indonesian Ministry of Agriculture, assesses the performance of Indonesian agriculture over the last two decades, evaluates Indonesian agricultural policy reforms and provides recommendations to address key challenges in the future. The evaluation is based on the OECD Committee for Agriculture's approach that agriculture policy should be evidence-based and carefully designed and implemented to support productivity, competitiveness and sustainability, while avoiding unnecessary distortions to production decisions and to trade. Conducted in partnership with the OECD Investment Committee, the Review comprises a special chapter highlighting key challenges to be addressed to attract sustainable investment in agriculture, drawing from the OECD Policy Framework for Investment in Agriculture.

Contents

Further reading

OECD Reviews of Regulatory Reform: Indonesia 2012 (2012)
OECD Economic Surveys: Indonesia (2012)
OECD-FAO Agricultural Outlook 2012-2021 (2012)
Agricultural Policy Monitoring and Evaluation 2012: OECD Countries (2012)
OECD Investment Policy Reviews: Indonesia (2010)

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