Reviews of National Policies for Education

Higher Education in Kazakhstan 2017

OECD

Reviews of National Policies for Education

Higher Education in Kazakhstan 2017

Please cite this publication as:
OECD (2017), *Higher Education in Kazakhstan 2017*, Reviews of National Policies for Education, OECD Publishing, Paris.
http://dx.doi.org/10.1787/9789264268531-en

ISBN 978-92-64-26852-4 (print)
ISBN 978-92-64-26853-1 (PDF)
ISBN 978-92-64-26894-4 (ePub)

Series : Reviews of National Policies for Education
ISSN 1563-4914 (print)
ISSN 1990-0198 (online)

Revised version, December 2017
Details of revisions available at:
http://www.oecd.org/about/publishing/Corrigendum_Higher-Education-KZ.pdf

Photo credits: Cover © eabff/Shutterstock.com

Corrigenda to OECD publications may be found on line at:
www.oecd.org/about/publishing/corrigenda.htm.

Foreword

Kazakhstan's higher education system is at the forefront of the country's economic diversification challenge. While progress has been made over the past ten years, significant additional improvements will be required if Kazakhstan is to achieve its aims of developing high-quality, labour market relevant skills throughout the population, and establishing research and innovation as a key driver of economic growth. There are currently few measures of the current skills outcomes of the country's education and training systems available, and of how well these systems are positioned to meet the needs of the labour market. Furthermore, much of the evidence on skills outcomes that does exist is not encouraging. Four principal features characterise the nation's higher education system: low level of public funding, inefficient targeting of this funding, the legacy of central planning on the performance of higher education institutions, and information gaps that create obstacles to the implementation of evidence-based policy making and accountability.

In the past decade, Kazakhstani policy makers have recognised those key challenges and identified actions to address them. The country has embarked on an ambitious series of reforms which go some way towards addressing those challenges. A new State Programme for Education and Science Development 2016-2019 (SPESD) lays out the national strategy for the education sector in the coming years. It identifies priorities, targets, and indicators to be achieved by 2020 from preschool to higher education. Priorities range from developing new mechanisms of education financing such as per capita financing, to developing inclusive education with support for low-performing students. At the higher education level, the primary objectives of the SPESD include: equipping students with skills more relevant to the labour market; integrating Kazakhstan more fully into the European Higher Education Area; improving synergies between education, science and industry; stimulating the commercialisation of research; fostering national identity; and encouraging active citizenship and social responsibility.

Building on the 2007 joint OECD/World Bank report on Higher Education in Kazakhstan, this review examines how Kazakhstan can respond to current

challenges by strengthening its higher education system to ensure that it equips students with the skills, knowledge and potential for innovation that are essential for economic and social well-being. It identifies which aspects of the six key areas from the previous report-quality, access, internationalisation, research and innovation, funding and governance-still require improvement. It also makes a number of recommendations for further reform, drawing on international experience and best practices from high-performing systems around the world.

This report encourages Kazakhstan to focus on the following areas to prepare students from all backgrounds to become part of a highly skilled workforce, able to compete in the worldwide economic community:

- Build a strong quality assurance system that emphasises the high quality skills critical for labour market success and for social well-being, as well as on the quality of higher education ‘’inputs’’ (i.e. student and faculty qualifications) and ‘’processes’’ (i.e. instructional methods).
- Examine the affordability of higher education and explore ways to increase access and tackle problems of inequity such as improving data systems to better monitor performance in the areas of access and participation.
- Take a whole-of-government approach to international higher education, with a robust policy framework and national strategy that aligns with Kazakhstan’s goals for human capital development and ensure that all actors benefit-from higher education institutions to students.
- Build capacity for high-quality research and further develop engagement mechanisms between higher education and potential users of this knowledge.
- Increase public investment whilst making make sure that the allocation mechanisms put in place address the fundamental weaknesses in the system and give more autonomy to higher education institutions over their expenditure.
- Strengthen and improve the transparency of governance in all public and private higher education institutions, while clearly delineating the respective purposes of the public and private sectors.

Acknowledgements

This report is the result of a review of Kazkahstan's policies and practices in the field of higher education, informed by international experience and best practices. The review process draws from various sources, including a background report prepared by the JSC Information-Analytic Center (hereafter IAC), a pre-review visit to Kazakhstan to help define the actors and main policy issues, and a main review visit by a team of OECD, World Bank and international experts in November 2015.

The OECD review team is grateful for the support provided by: the Minister of Education and Science of the Republic of Kazakhstan, Mr. Erlan Sagadiev, and the staff of the Ministry; Serik Irsaliyev, President of the JSC Information Analytic Center, Yerlan Shulanov, Vice-President of IAC, and their staff. Kazakhstan's involvement in the OECD Review was co-ordinated by Meirgul Alpysbayeva, then Deputy Director, Department for Higher Education Development of the IAC and by Dana Abdrasheva, currently Deputy Director, Yeberkulan Sapargaliyev, Manager, Department for Higher and Professional Education of the IAC. We are also thankful to Alima Ibrasheva, Director, Department for Higher and Postgraduate Education, Zemfira Alyamova, Chief Analyst, Aida Akhmetzhanova, Chief Analyst, Bella Gazdiyeva, Kamila Manakova, Chief Analyst - authors of Country Background Report, which was very helpful to our work. The review team would also like to convey our sincere appreciation to the many participants in the review visits who gave time from their busy schedules to share their views, experience and knowledge. A range of actors at all levels of government and from nongovernmental and international organisations provided insights in the course of site visits to Astana, Almaty, Shymkent, Atyrau, Pavlodar and Karaganda. Notwithstanding such support, the review team encountered difficulties in accessing some information; these limitations affect the comprehensiveness of this report.

The members of the OECD review team were Andrew McQueen (OECD), Joint Team Leader; Elizabeth Fordham (OECD), Joint Team Leader; Paul Lingenfelter (external expert, United States); Alenoush Saroyan (external expert, Canada); John Hegarty (external expert, Ireland);

Denise Kirkpatrick (external expert, Australia); Jason Allen Weaver (Senior Education Specialist, World Bank); Marie-Amélie Doring Serre (OECD). The review team acknowledges the support from Andreas Schleicher, Director of the Directorate for Education and Skills (OECD); Paulo Santiago, Head of the Policy Advice and Implementation Division (OECD); Richard Yelland, Head of the Policy Advice and Implementation Division (OECD) until July 2016.

The review team is especially grateful to Mary Canning (adviser to the review team). Many people provided support, input and advice at different stages of the review process. We are grateful to Thomas Weko, Shane Samuelson, Philippe Larrue, Jean-Francois Lengelle, William Tompson, Kateryna Obvintseva, Daria Jarczewska. Christine Pizziol-Grière edited the report, and Sara Gouveia and Célia Braga-Schich organised the publication process.

Table of contents

Figures

Boxes

Acronyms and abbreviations

BARO	Bolashak Alumni Relations Office
CBR	Country Background Report
CIA	Central Intelligence Agency
CIS	Commonwealth of Independent States
CT	Complex Test
EACA	Education, Audiovisual and Culture Agency
EASA	External Assessment of Students Achievement
ECEC	Early Childhood Education and Care
ECTS	European Credit Transfer System
ENQA	European Association for Quality Assurance in Higher Education
GCI	Global Competitive Index
GDP	Gross Domestic Product
IAAR	Independent Agency for Accreditation Rating
IAC	JSC Information-Analytic Center
ICT	Information and Communications Technology
IEA	International Association for the Evaluation of Educational Achievement
IEU	Intelligence Economist Unit
IQAA	Independent Kazakh Agency for Quality Assurance in Education
IMF	International Monetary Fund
INQAAHE	International Network for Quality Assurance Agencies in Higher Education
ISB	International Student Barometer
MESRK	Ministry of Education and Science of the Republic of Kazakhstan
MNERK	Ministry of National Economy of the Republic of Kazakhstan

NAC	National Accreditation Center of the Ministry of Education and Science of the Republic of Kazakhstan
NATD	The Innovation Agency
NQF	National Qualifications Framework
NU	Nazarbayev University School of Graduation
NCESE	National Center for Educational Statistics and Evaluation
NGO	Non-Governmental Organisation
NEET	Not in Education or Training
NIS	Nazarbayev Intellectual Schools
NSSE	National Survey of Student Engagement
OECD	Organisation for Economic Co-operation and Development
ORLEU	National Center for Professional Development
PISA	OECD Programme for International Student Assessment
QAA	Quality Assurance Agency for Higher Education
QBBG	Quality Beyond Boundaries Group
QS	Quacquarelli Symonds
RK	Republic of Kazakhstan
SABER	Systems Approach for Better Educational Results
SEAS	The State Educational Accumulation Scheme
SES	Socio-Economic Status
SHEEO	State Higher Education Executive Officers
SPED	State Program for Education Development in the Republic of Kazakhstan for 2011-2020
SPESD	State Program for Education and Science Development in the Republic of Kazakhstan for 2016-2019
TDT	Targeted Development Transfer
TEQSA	Tertiary Education Quality and Standards Agency
UHEMS	Unified Higher Education Management System
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNT	Unified National Test
VET	Vocational Education and Training
VODE	External test of Academic Achievement
WOS	Web of Science

Executive summary

Kazakhstan finds itself at a crossroads. Recent market volatility has highlighted the risks of dependence on resources, and has put into relief a corresponding need for economic diversification. Various studies by the OECD and others have explored this issue from different perspectives. This review examines how Kazakhstan can respond to current challenges by strengthening its higher education system to ensure that it develops the skills, knowledge and potential for innovation that underlie economic and social well-being.

The OECD and the World Bank undertook a previous review of higher education in Kazakhstan in 2007. While progress clearly has been made since that time, much remains to be done in the areas of quality, access, internationalisation, research and innovation, funding and governance. Kazakhstan's State Programme for Education Development in the Republic of Kazakhstan 2011-2020, which was recently updated for 2016-19, recognises many of these challenges and has set ambitious targets and goals.

Kazakhstan needs to place additional emphasis on high-quality, relevant "21st century" skills – not just technical skills and knowledge (however important these may be) but also transversal skills that include, for instance, literacy, problem solving, teamwork and adaptability. Such skills are critical for labour market success and for social well-being more generally. To this end, Kazakhstan needs to enhance the quality of higher education "inputs" (e.g. student and faculty preparation). In addition, "processes" used in higher education also require improvement: things like instructional methods, faculty development opportunities, work-integrated learning and university/employer linkages to help shape curriculum. Finally, the absence of good, reliable data on skills outputs and labour market outcomes remains a key challenge for Kazakhstan, as does a related over-reliance on the state grant system to steer student choices.

Despite some positive measures, there is still comparatively little attention paid in Kazakhstan to equity of access to affordable higher education. The groups most affected in this respect include students from rural areas (despite a set-aside of study spaces), students with disabilities and

students of lower socio-economic status (about whom Kazakhstan lacks good data). Significant reforms are needed in the system of state grants, which is skewed towards students who are typically already somewhat privileged. Moreover, Kazakhstan needs a viable student loans programme to help students who face affordability challenges. It is perhaps especially important, though, to improve the quality of primary and secondary education so that students are prepared for higher education; and to work to raise the educational aspirations of students who would otherwise not consider further studies. Finally, an expanded use of technology-enabled learning, and better linkages between vocational education and training, could also enhance access and tackle problems of inequity.

Kazakhstan has made some impressive strides forward on internationalisation, in particular via the Bolashak scholarship programme. Nevertheless, limited academic autonomy still restricts institutions' ability to engage in partnerships and develop joint programmes, and gaps in quality assurance reduce other countries' (and other countries' students) interest in Kazakhstani higher education. Like many policy issues, internationalisation would be best dealt with in Kazakhstan from a whole-of-government perspective that aligns it with broader development goals. Moreover, additional efforts are needed to encourage collaboration across higher education institutions. Kazakhstan should also make more use of digital technologies to expand in-country "internationalisation through the curriculum"; take better advantage of the accomplishments of the Bolashak programme; and increase the English proficiency among the youth. Gaps in data hinder progress in many of these areas.

Kazakhstan has been quite active in promoting higher education research over the past decade – creating a new grants process, for instance, and providing faculty access to research materials. Nevertheless, the country still has little capacity for high-quality research. This challenge is linked to low public funding for higher education; to gaps in current funding instruments; and to poor supports at the institutional level. The low number of doctoral graduates and the absence of a post-doctoral stream are further concerns. Moreover, the government's focus on a single aspect of innovation (commercialisation) is problematic. While the commercialisation of university research clearly has its place in innovation systems, returns on investments are likely to be small. More emphasis should be placed on building engagement between higher education and the potential users of its knowledge. Finally, while Kazakhstan is right to seek a more differentiated higher education system, it needs to adopt a more strategic approach to this system change.

Low overall levels of public funding for higher education in Kazakhstan are aggravating the system's underperformance. The main vehicle by which

funding is directed to higher education institutions – the state grant system – has perverse effects on students, on the mix of programmes higher education offers and on the efficiency of public expenditures. Moreover, the formulae which drive funding do not appear to be well-matched to their purposes. Recent incremental investments in higher education have tended to be for new additions to the system that have not adequately addressed fundamental weaknesses in the system as a whole. Finally, controls on how Kazakhstan's higher education institutions spend their funding are both excessive and counter-productive. Reform in the area of funding is particularly challenging to undertake – but reforms here are key to progress on a whole range of fronts covered in other chapters.

There have been some significant shifts in the governance of higher education in the last ten years. For example, the government has sought a gradual movement towards more autonomy for institutions. Yet authority remains highly centralised. The new governing boards that have been created still play a predominately advisory role, and significant operational autonomy – even at the national research universities – is far from being realised. Shortcomings are evidenced in a variety of ways. The level of financial regulation of Kazakhstan's higher education institutions inhibits flexibility and responsibility; a lack of academic autonomy discourages faculty and institutional creativity, initiative and responsibility; the organisational autonomy of higher education is weak; and regulation of the public and private sectors is excessive and lacking in the strategic differentiation that should shape the distinctive roles of the two sectors.

True educational reform is very challenging for any country: there are always a variety of interests and path dependencies that stand in its way. Often, new funding is required for reforms to be effective. This review recommends that, given the critical role that investments in skills and innovation can play in building a well-diversified economy and in ensuring well-being, Kazakhstan find new incremental sources of funding for higher education. In addition, as it moves forward, the country should embrace a comprehensive reform process. It is important to tackle change in an inclusive way, working with civil society and all stakeholders to build a working consensus on the direction of change and on the reasons behind it. Concrete efforts to build trust and capacity are critical. It is also important to recognise that progress will typically be incremental – but if it is to gain momentum, progress requires an ability to act and learn quickly. Finally, as reforms progress, results need to be carefully monitored and used to make course corrections where necessary – or to further invest in approaches that can be shown to be working.

Assessment and recommendations

Kazakhstan finds itself at a crossroads. Recent market volatility has highlighted the risks of dependence on energy resources, and has put into relief the need for economic diversification and the importance of further developing the skills of its population. There are few measures of the current skills outcomes of Kazakhstan's education and training systems, and of how well these systems are positioned to meet the needs of the labour market. Much of the evidence on skills outcomes that does exist is not encouraging. This review examines how Kazakhstan can respond to current challenges by strengthening its higher education system to ensure that it develops the skills, knowledge and potential for innovation that underlie economic and social well-being.

Part One: The context of this review

Taking stock of progress since 2007

In examining the higher education system in Kazakhstan, this report builds on a 2007 joint OECD/World Bank review (OECD/World Bank, 2007). Each chapter includes an overview of progress made in the past decade across the main areas explored in the 2007 report, while at the same time examining policy responses to evolving dynamics in higher education and the wider socio-economic context.

Assessing the higher education system today

Kazakhstan's higher education system has made progress over the past ten years. However, there is wide scope for improvement in delivering high-quality, relevant labour market skills to all Kazakhstanis who might seek them, and in supporting economic growth through research and innovation. Kazakhstani policy makers have indeed recognised key challenges facing the nation's higher education system and identified actions to address them, but implementation has been incomplete or ineffective.

We begin our assessment by noting four principal features of the nation's policy making architecture for higher education that shape all aspects of its performance: its persistently low level of public spending, its inefficient targeting of public spending, the legacy of central planning on the performance of higher education institutions, and deficits in information that hamper evidence-based policy making and accountability.

Public spending on higher education is persistently well below international levels and that of peer nations

The level of public spending on higher education in Kazakhstan in 2007 relative to the size of the nation's economy – public spending as a percentage of Gross Domestic Product (GDP) – was low. It remained low at the time of this review. Kazakhstan's public spending on higher education in 2013 was 0.3% of GDP – compared to an average of 1.6% across OECD countries, and over 1% in many emerging economies, such as 1.4% in the Russian Federation. Low public spending has contributed to weak performance in both the teaching and the research and development missions of higher education institutions. This has also led to heavy reliance on private spending, which has adverse equity implications because it relies primarily on student paid tuition fees and revenues and generates competition, thus leaving students with an educational disadvantage behind.

Kazakhstan found it difficult in past to increase public spending relative to its GDP during a period of economic growth. More recently, low commodity prices and slow growth make additional public spending on higher education still more challenging. However, given the very substantial ambitions that recent national development strategies have laid out for Kazakhstan and its people, policy makers and stakeholders will need to work together to find ways to increase investments in higher education. A central issue will be moving towards a more equitable balance between public and private financing.

Public spending is poorly targeted, both with respect to students and higher education institutions

The inefficient targeting of public spending is a concern highlighted in various chapters. There are areas of public spending that appear to be consuming resources, but doing little to help Kazakhstan attain its policy objectives. The nation's limited spending on higher education might be able to achieve a good deal more if it were allocated differently.

State grants to students, typically awarded on the basis of academic merit, often pay the tuition and living costs of students who would likely be able to meet these costs using their family's or their own resources

(whether out of pocket or through borrowing). If adequate funding were available to meet the needs of those who cannot study without public support, then the current merit-based approach to state grants for higher education might be justifiable. Nevertheless, in the current context, and despite the apparent wide support they enjoy, state grants continue to disproportionately support those who could study without this public subsidy and thus represent an inefficient use of resources.

The current concentration of funding in a few priority areas of the higher education system provides another example of the potential for more productive resource allocation. In a resource-constrained environment, highly concentrated funding for "excellence" may be the enemy of widespread quality. In the area of research in particular, there is much to be said for concentrating resources to achieve economies of scale and scope. Yet recent policy has devoted substantial resources to a single higher education institution – Nazarbayev University – and given the limitations on the current public education budget, the university generates significant opportunity costs for the rest of the system.

Nazarbayev University is consuming a large portion of total public spending. At best, this is an experiment that carries substantial risks: it is an open question whether any excellence that the university may achieve can outweigh reduced funding for the rest of the system, and whether this excellence can be shared in a way that benefits the entire system of higher education. The review argues that, as new resources are allocated to higher education, these should be focused on improving the general quality of the entire system.

The persistence of practices from an era of central planning and control result in inefficiency and diminished performance by higher education institutions

The legacy of centralised planning and control is a third overarching area of concern identified by this review. Kazakhstan has made progress in opening up higher education and making use of student choice and local initiative by involving to some extent not only higher education institutions but also other stakeholders such as local employers and Supervisory Boards. However, too much of higher education is still subject to a centralised command and control approach, which generates inefficiencies, and reduces performance and interferes with higher education institutions' capacity to respond fully to students' or labour market needs. For instance, while the efforts that have been made to shift from a rigid regulatory institutional "attestation" process to a quality-enhancing "accreditation" system represent a good start, progress has been slow. The rigidities of institutional attestation undermine the potential of the quality assurance process to drive institutional

improvement processes. This system makes it difficult for institutions to raise standards, and further develop high-quality learning and research because they don't have the institutional autonomy to lead improvements.

Significant gaps in the availability and use of data inhibit evidence-based and improvement-oriented policy making

Finally, gaps in the availability and use of data are detrimental to higher education policy making and improvement in Kazakhstan. Data are collected, but little of this data appears to be used (or useable) for strategic policy purposes. Conversely, data that are important for evidence-based policy making are absent. For example, there are no reliable and current data on the revenues and expenditures of higher education institutions. There is limited data on the social and economic characteristics of students in state-funded higher education students and on the effects of socio-economic status (SES) on learning outcomes at the school and higher education levels. The absence of institutional data makes it difficult for higher education stakeholders to discuss and evaluate the government's spending priorities for higher education institutions. The absence of student data makes it difficult to assess who is benefitting (and not) from the government's merit-based grant system. Where data is collected, they may be rudimentary and unreliable, as those on graduate labour market outcomes have been – limiting the ability of students and institutions to respond to labour market information in making programme choices. Taken together these gaps in information have the effect of limiting the ability of stakeholders to engage in analysis and discussion that improve public policies and the performance of the higher education system.

Part Two: Key findings and recommendations

Below we review the key findings and recommendations offered in the report's principal chapters.

Quality and relevance

Chapter 2, with its focus on the quality and relevance of higher education in Kazakhstan, looks at how students acquire technical and professional skills and knowledge, as well as the broader skills they need to succeed. It is helpful to think of quality as the degree of "fit" between the skills and knowledge that higher education develops, and the goals that education's various stakeholders (e.g. students, governments and employers) have for it.

The chapter looks first at two key inputs to higher education in Kazakhstan: students and faculty members. While there clearly are pockets of excellence across the system, the skills and abilities that students bring to higher education are on average weak and the Unified National Test (UNT), which determines student entry to higher education, is not well designed to encourage or recognise higher order competencies such as problem solving and innovative thinking. Understandably, this has effects on how well higher education itself can perform. Moreover, despite the existence of regulations stating that faculty should hold at least a master's degree, too few faculty members hold the level of formal qualifications that would typically support the performance of a high-quality system.

The chapter next looks at a variety of processes surrounding how higher education admits entering students and then helps them develop into graduates. Kazakhstan is to be lauded for moving to implement the Bologna Process, which has brought welcome changes to the education system. These include the implementation of a system for translating national Kazakhstani credits into European Credit Transfer and Accumulation System (ECTS) credits, and changes to the duration of the bachelor's, master's, and doctoral degrees to make them into four-, two- and three-year cycles respectively; and increased engagement of Kazakhstani students and faculty members in mobility activities – including through enhanced support for travel both within and outside Kazakhstan. However, some barriers and implementation gaps, such as the difference of principles behind the system of the ECTS and the way the system works in Kazakhstan. For example, the Law on Education (2007) and associated regulations impede students from freely selecting courses or instructors, thus limiting the full potential of credit-based learning to promote mobility and flexibility.

Similarly, while it is promising that Kazakhstan has shifted towards an accreditation approach based on external quality assurance, the legacy of centralised control hampers progress. Internal institutional quality assurance and improvement mechanisms, as well as the broader accreditation system, still appear to be underdeveloped. The large number of programmes and institutions that have undergone formal accreditation by the two national agencies in a relatively short period of time raises concern about the thoroughness of the process, given the limited number of faculty in Kazakhstan who have the expertise needed to serve on review panels. Kazakhstani higher education institutions also undertake their own internal quality assurance activities. These primarily involve the preparation of self-studies in preparation for accreditation and attestation. Those self-studies may thus simply be bureaucratic exercises.

There are a variety of approaches to learning and teaching that can help students build the skills they need. Linking classroom instruction to

supervised work experience is one such way of helping students get ready for life after school. Though all students are reported to get work experience over the course of their studies, the effectiveness of these experiences appears to be uneven. More could also be done to provide them with the chance to do supervised research.

The curriculum structure of Kazakhstan's higher education system, and the processes that support curricular design, are not yet sufficient to generate academic programmes of consistently high quality. The remaining state controls on curriculum at the institutional level – and gaps in capacity for curricular planning – appear to put limitations on student learning. Employers are often involved in the curriculum on an ad hoc basis and such collaboration only involves local industries; but this involvement is not yet generalised and fully co-ordinated. Despite recent amendments, the National Qualifications System, which should be a main force guiding curricular development, is still in its early stages of development and requires further alignment with international benchmarks.

Faculty members are subject to high workload since they are required to carry out an excessive amount of administrative tasks and undertake a large number of classroom teaching hours. Together these demands risk displacing the effort that they need to put into course planning and student assessment. Gaps in professional development opportunities is another factor that hinders faculty in advancing their teaching practice and adopting more student-focused approaches that support the acquisition of higher order competencies.

The available data on students' learning and labour market outcomes of students are not sufficient to permit an extensive analysis of the quality of higher education outputs and outcomes. The final-year test that is given to students does not measure the broad range of skills that graduates need for success in a modern society and economy. By placing excessive emphasis on the acquisition of factual knowledge, it orients students towards superficial learning.

Data on the earnings levels of graduates and other key variables are lacking, and reliable data on basic questions such as employment status are only beginning to be collected. Employers report some dissatisfaction with the skills of graduates, which is a typical observation in most countries. The review team noted, though, the real concerns expressed by some international employers, which suggest that Kazakhstan may not be producing the skills it needs to succeed in a global marketplace.

Chapter 2 recognises the importance of ties between employers and higher education that can help align instruction with labour market needs. It concludes with observations on how these two partners might better collaborate to help ensure graduate success, while not losing sight of other

broad goals of higher education (e.g. educating informed citizens, enabling personal development).

Chapter 2 recommends that Kazakhstan:

- **Place greater emphasis on "21st century" graduate outcomes anchored by a qualifications framework.** It should be ensured that curricula, course content, teaching approaches and assessment methods employed by higher education institutions foster the skills required for success in a modern economy and society. The UNT should be revised in the same direction. The development of a modern and easy-to-use National Qualifications Framework, aligned with international benchmarks, will be important to ensuring coherence across these reforms.
- **Put in place decentralised support that enhance the qualifications and the professional experiences of academics, teachers and academic leaders**. Professional development opportunities should be provided locally to all core staff, and faculty workload reviewed to enable adequate time for other instructional and research duties. Faculty with the highest qualifications should be well distributed across the system and effective approaches to faculty development shared.
- **Put in place quality assurance processes that facilitate continuous improvement at both the institutional and system levels**. At the system level, accreditation processes should be strengthened in line with Bologna principles and standards, and clear targets agreed for monitoring performance. At the institutional level, emphasis should be placed on strengthening internal quality assurance processes such as peer review and student feedback.
- **Reinforce linkages between higher education institutions and employers**. Internships and other work-study programmes that actively expose students to authentic work-related situations should be encouraged, and policies put in place to pair academics with practitioners and reinforce faculty members' linkages to the labour market. A more structured approach to engaging employers will be important to the success of these reforms.
- **Develop a strong, reliable and well-disseminated system of labour market information that reports on the outcomes of higher education graduates.** This will empower students to make choices that reflect economic demand for skills. Better information will also enable more effective funding approaches to address specific labour market failures.

Access and equity

By building upon the recent expansion of access to higher education and enabling its benefits to be more widely spread, Kazakhstan will see wider benefits for individuals and society, from better health and life satisfaction to social cohesion and public safety. Economic growth and regional competitiveness will also be fostered.

Kazakhstan's main policy focus with respect to access has been on the recognition and encouragement of academically higher-performing students. Students from rural areas of lower socio-economic status appear to face challenges in gaining access to tertiary education. Though some positive measures targeted at disadvantaged populations (such as targeting a proportion of state grants to students from rural areas and lower socio-economic status) have been taken, data with which to monitor the effectiveness and progress of these measures as well as the recognition of the existence of such categories are insufficient. This weakens the ability to analyse equity issues and understand the factors impeding the progress of disadvantaged students.

Poor and uneven student preparation – which is linked to unequal access to good primary and secondary schooling – is an important driver of higher education's equity challenges. Policy interventions have primarily benefitted those schools whose mandate is to nurture academic excellence. The same can be said about the current admissions requirements for higher education which, for students coming from secondary school, are based on the Unified National Test (UNT). Although the UNT has increased the transparency of admissions measures, in its current form it has negative effects on both skills quality (see Chapter 2) and on equitable access to skills. It tends to favour students from better-resourced schools and those whose parents can afford tutoring. Alternative pathways to higher education, for example transfers from the vocational education and training (VET) sector, remain underdeveloped and undervalued. Furthermore, the Complex Test – aimed at students from VET colleges and those entering higher education via pathways other than direct post high school matriculation – not only shares many of the problems of the UNT but its implementation has created an additional barrier to higher education participation. Reforms are currently underway for both these tests but they do not address the fundamental issues to date.

The financial aid system (grants, scholarships, loans and savings incentives, social partnership arrangements) also has negative effects on equity of access. State scholarships are awarded based on measures of student excellence – but that approach is compromised by use of the UNT as the main criterion of excellence. Public loans for study expenses are underdeveloped and underused, while private loans typically come with high interest rates.

A new savings-for-education scheme, while potentially promising, has few participants and is unlikely to serve those who most need resources to enter higher education. Higher education institutions also provide some student financial assistance: expansion is warranted here. Social partnership arrangements, another source of financial aid, seem to be slow to develop despite the government's initiative to create incentive schemes for employers to provide support for employees who want to study at tertiary level.

The systemic challenge of lower-quality, less well-resourced schooling for rural and low SES students presents a significant barrier to equal academic achievement, but measures to address this remain limited. Rural and low SES students would be well served by a number of initiatives, such as increased outreach to overcome informational and aspirational barriers and expanded provision of academic programming through distance learning.

Chapter 3 recommends that Kazakhstan:

- **Reform the system of state grants and student loans to ensure that students from poorer families and rural areas of the country are adequately supported**. More grant funding should be allocated to means-tested financial support, and student loans should be made more accessible and affordable to students who are not in receipt of a grant.
- **Reform the relationship between state grants and tuition policy.** This implies decoupling higher education institutions tuition fees from state grant levels. The current situation whereby the university fee cannot be less than the state grant is not sustainable. Such an approach makes it impossible to increase per student public funding without at the same time generating new affordability burdens and creating further barriers to participation.
- **Improve the quality of primary and secondary schooling, and increase efforts to raise the educational aspirations of students in rural areas and from low socio-economic status (SES) backgrounds**. Schemes to enhance equity should be well documented to enable the scaling up of successful approaches.
- **Expand the use of technology-enabled learning and distance education methods (in particular e-learning) in order to provide high-quality learning opportunities for students in rural areas**. Pay particular attention to e-learning support for teachers as a means to enhance teaching and enrich the curriculum, equipping students for success in tertiary education.
- **Accelerate current efforts to reform the Unified National Test (UNT), so that it is an effective part of a higher education**

admissions system that equitably recognises the abilities of prospective students. Equity would be enhanced if there was a central mechanism to recognise and redress (for example through "bonus points") the ways in which educational disadvantage and adversity interact with the UNT.

- **Further develop mechanisms that recognise and provide credit for VET qualifications, in order to take better advantage of the training that occurs in VET colleges and better advantage of the potentially close relationship between technical and higher education**. These mechanisms include formalised credit transfer, recognised articulation pathways and partnerships between universities and VET colleges. Reform of the Complex Test will also be important to facilitate access to higher education for graduates from VET colleges.
- **Improve data systems to better understand system performance in the areas of access and participation**. Commit to establishing robust and reliable data regarding students of low socio-economic status and other vulnerable groups so that they can be clearly identified and their progress tracked throughout their studies and post-graduation.

Internationalisation

By internationalising higher education, Kazakhstan can help ensure that graduates develop the skills and knowledge they need to succeed in a globalised world. Internationalisation means sending students and faculty members abroad to study or work; bringing students and faculty to Kazakhstan from other countries; and broadening the curriculum for the majority of Kazakhstani students who do not have an international experience during their studies.

A small but stable number of Kazakhstani students study abroad (with heavy weighting towards universities in the Russian Federation), but the number of international students who come to Kazakhstan is very small, and the curriculum does not yet have a strong international perspective.

Kazakhstan has made significant recent efforts to promote the internationalisation of higher education. These include the Bolashak scholarship programme, the creation of Nazarbayev University and adoption of the Bologna Process. Bologna, for instance, has created opportunities for institutions and students within the context of the broader European higher education sphere and has stimulated staff and student mobility.

Nonetheless, the chapter identifies a number of challenges facing internationalisation. For instance, limited academic autonomy restricts institutions' ability to engage in partnerships and develop joint programmes. Meanwhile, the low level of English language proficiency in higher education and the limited English language competency of staff adversely affect the extent to which academics can engage in activities such as research collaborations, international research publication, programme collaboration and joint teaching. The lack of a fully operational and effective system of external quality assurance reduces other countries' (and other countries' students) interest in Kazakhstani higher education. In addition, the remaining rigidity in the curriculum can make it hard for students to gain credit for international experience. Whereas most countries with successful internationalisation strategies for higher education have taken an integrated approach, Kazakhstan still faces challenges regarding co-ordination across ministries.

This chapter also notes that international academic partnerships remain underdeveloped and declarative in nature, and that most institutions lack adequate capacity to prepare students for international experiences or to strategically plan for international engagement. There is currently little evidence of meaningful international co-operation resulting from these agreements; where tangible examples of collaboration do exist, they are primarily with institutions located in the Commonwealth of Independent States (CIS) countries. Deficiencies in the data needed for institutional and system planning are a key concern in that regard.

Nazarbayev University represents perhaps the most obvious exception to many of the concerns outlined above. The presence of international faculty on its campus is notable in comparison to other higher education institutions, which face challenges (low salaries, poor infrastructure, high instructional workloads) making them unattractive to foreign faculty. However, the higher education institutions' current reliance on course licensing agreements with foreign higher education institutions as part of its internationalisation strategy should give way to true partnerships, but bringing its model to other higher education institutions remains a challenge. The Bolashak scholarship programme has evolved somewhat with the creation of Nazarbayev University: it now focuses on post-baccalaureate[l] students. While quite expensive, Bolashak has enabled some 10 000 students to study abroad. As the programme continues to evolve, it should strive to make better use of its existing assets, and in particular of its alumni network.

Financial barriers remain for students who wish to study abroad – and low levels of knowledge of English constrain students' choice of possible destinations. Consequently, digital technologies hold real promise for helping

develop global skills and knowledge in students who are unable, or unwilling, to leave Kazakhstan.

Chapter 4 recommends that Kazakhstan:

- **Take a whole-of-government approach to international higher education, with a robust policy framework and national strategy that aligns with Kazakhstan's goals for human capital development**. The creation of an inter-governmental committee or group would help ensure a more integrated approach to internationalisation across sectors. Platforms for knowledge sharing and networking at the local and institutional level about the strengths and weaknesses of the higher education system would enable all stakeholders to gain a better understanding of the complexity and potential of internationalisation. These might include networking opportunities; facilitating exchanges between staff, student exchanges, joint graduate programmes; exchanging best practice and materials; participating in one another's conferences; and inviting one another to participate in major initiatives.
- **Within the broad framework, permit individual higher education institutions to determine the approach to internationalisation that is most appropriate to their aspirations and circumstances**. State initiatives such as the Bolashak programme, the adoption of the Bologna Process and the establishment of Nazarbayev University should be reviewed to ensure this impact is effective and supports system improvement.
- **Continue the current relaxation of curriculum and prescribed content to enable a more internationalised curriculum and enhance student mobility**. Professional development should be implemented to develop faculty knowledge in this area and foreign faculty encouraged to share their experience.
- **Encourage collaboration between higher education institutions and reinforce efforts to identify and disseminate lessons from Nazarbayev University and the national universities on the internationalisation of higher education**. This will require that they invest in rigorous approaches to evaluating their programmes.
- **Increase investments to exploit digital technologies in order to expand in-country "internationalisation through the curriculum**". Digital learning assets (such as MOOCs, i.e. Massive Open Online Courses, virtual classrooms and collaborative online course development) can enrich the curriculum, expand perspectives and connect faculty and staff with experts in other countries.

- **Establish indicators on student-, programme-, and institution-level mobility that allow international comparison**. Publish these regularly and use them to inform monitoring and evaluation. Longitudinal databases that collect information about international students, and about domestic students going abroad, would provide valuable insights on the impacts of international mobility for individuals and for the economy and society more widely.
- **Increase the English proficiency of the youth population and faculty members, to help them better seize on a wide variety of internationalisation opportunities**. The growing emphasis on English in schools is an important first step and needs to be expanded and adequately resourced. Targeting an allocation of Bolashak support to improve the English language skills of faculty members is one possible approach to enhancing the quality of teaching in universities; similar investment is needed to improve English language teaching in schools.
- **Expand the current scholarships scheme and introduce new forms of financial support for study abroad to increase the sector's capacity for international mobility**. Lower cost financial incentive schemes are needed that will support a larger number of students studying abroad. The state should consider establishing a mechanism to encourage private contributions to a mobility scholarship fund.
- **Better leverage the Bolashak programme**. Activities of the Bolashak Alumni Relations Office should be expanded, and the skills and international connections of Bolashak alumni used for in-country peer learning and strengthening of professional and diplomatic networks abroad.

Higher education, research and innovation

Higher education does not simply develop the knowledge and skills of graduates. It also generates new knowledge through research. In addition, it enables innovation processes outside higher education institution walls by providing partners with knowledge that they can apply, and with a skilled workforce that can find new approaches to operational challenges.

Recent developments in Kazakhstan's higher education research activities show promise. These include the establishment of new research grants streams, and the acceleration of investments at Nazarbayev University and the national universities. Nevertheless, key challenges remain.

Higher education in Kazakhstan still has a low capacity for research – and in particular, for high-quality research. This lack of capacity is linked to a variety of factors, including low public funding for higher education (both for research and for instruction); gaps in current funding instruments; and poor readiness at the institutional level to support research.

The low number of doctoral graduates, and the absence of a post-doctoral stream to help graduates establish their careers, is another concern. As faculty members retire over the coming years, it is an open question whether Kazakhstan will have the talented replacements it needs to develop research excellence and spur innovation.

The government's focus on a single aspect of innovation – commercialisation – is also problematic for Kazakhstan. Like many governments around the world, it has put a good deal of emphasis on indicators of commercialisation. However, while commercialisation of university research clearly has its place in an innovation system, returns on investments here are likely to be small. On the other hand, not enough emphasis is placed in Kazakhstan on building engagement between higher education and the potential users of its knowledge, and on building the broad foundation of academic excellence which is essential both for knowledge discovery and for the application of knowledge to commercial and other practical purposes.

Finally, while Kazakhstan is right to seek a differentiated higher education system, its current approach to diversification lacks strategic coherence. It is not clear how research and research funding is planned among higher education institutions. Some research institutes have merged with higher education institutions but many remain independent. Further concentration in the public system, beyond merging research institutes with some higher education institutions, is enhanced by the designation of eleven national higher education institutions with extra funding and the creation of Nazarbayev University as a new model with deep funding. While the initiative to merge, allocate special status and establish a new model is positive, much of it could be negated by the policy to have the large number of institutions with the title 'university' become research active. This gap in turn affects the quality and quantity of research that the higher education sector can produce.

Chapter 5 recommends that Kazakhstan:

- **Focus on building the research excellence of faculty through a two-pronged approach**. This would comprise: developing a broad base of frontier research where the primary criterion is excellence at the frontier of knowledge, and building a critical mass of research in areas of strategic importance to industry and other users of knowledge. The latter would require special initiatives to recruit and

train highly talented faculty with expertise in these strategic areas alongside investment in the creation of university-led science and technology centres (or equivalent) that are inter-disciplinary and inter-institutional and engage industry as partners.

- **Devise a carefully thought-out implementation plan to increase R&D investment to 1% of GDP over 5 years to 2021**. The efficiency of current and new investment should be reviewed by an international expert group.
- **Encourage higher education institutions to strive towards explicit and transparent policies on incentives and rewards related to research and innovation**. A first step would be the broad acceptance of the principle of flexibility in allocating teaching duties at institutional level. Where there is consensus on the weighting of teaching, research and innovation, promotion between academic grades should be encouraged.
- **Establish a special task force to address the PhD pipeline and postdoctoral career path.** Engaging higher education institutions in the task force will be important to ensuring that any solution gets implemented. The task force should revisit the one-size-fits-all policy for PhD graduation and formally establish the postdoctoral structure as a necessary stage of a career path in research and academia.
- **Foster a better balance between commercialisation and engagement**. Commercialisation Offices should be integrated into the strategic planning exercises of higher education institutions, and engage systematically and intensely with industry to develop mutual understanding of respective needs and concerns. Foreign companies with manufacturing operations in Kazakhstan and R&D operations in their home countries should be particularly targeted for engagement.
- **Review how diversity of mission can be rationalised, optimised and sustained, given limited resources and high expectations of the system as a whole**. Three types of mission might be developed: teaching only, research led to PhD level and local, needs-oriented teaching and research led to master's level. Each institution would be expected to perform to international standards according to its mission.

Financing

Chapter 6 examines financing of higher education. The analysis looks at total higher education spending in relation to the size of the economy and at the current public expenditures on higher education broken down by broad object (as they were reported to the team). Low overall levels of

public funding (with over a third of available resources going to Nazarbayev University and the Bolashak programme) suggest that other key areas of higher education are being comparatively under-resourced. Moreover, the main vehicle by which funding is directed to higher education institutions – the state grant system – has perverse effects for both students and programme mix. It also leads the government to spend scarce resources to encourage behaviour that would often have occurred without public investment. Finally, the formulas which drive funding do not appear to be well matched to their purpose.

Chapter 6 observes that recent incremental investments in higher education have tended to be for new additions to the system (e.g. the Bolashak programme, Nazarbayev University) while failing to deal directly and adequately with fundamental weaknesses in the system as a whole. One inherent disadvantage of the "concentrated new investment" approach that Kazakhstan has taken is that, in the context of finite resources, it is hard to achieve sufficient scale to take activity beyond a series of "one-off" initiatives. As Kazakhstan's public budget faces the pressures of unstable resource prices, that problem will only be aggravated.

Finally – and anticipating the arguments of Chapter 7 on governance – the analysis observes that controls on how Kazakhstan's higher education institutions spend their funding are excessive and counterproductive. This holds true of private institutions as well, even though they receive less public funding. The chapter concludes by briefly looking at these private institutions in Kazakhstan and by outlining key policy choices the government faces in dealing with them.

Chapter 6 recommends that Kazakhstan:

- **Increase the size of its public investment in higher education bringing it more in line with levels in peer countries that Kazakhstan seeks to emulate**. New public investments should be carefully allocated in ways that attract and retain the talent essential for a strong system of higher education; reduce financial and social barriers to higher education; and ensure that sound student assessment practices foster the development of skilled graduates.
- **Re-assess now and at regular intervals in the future financing strategies for higher education in the context of national goals**. This should engage a wide range of stakeholders to ensure that it is based on sound sectorial intelligence.
- **Re-evaluate the effectiveness and efficiency of the state grant system in serving national purposes**. Modifications to the system, including providing grants based on the financial need of qualified

students and expecting greater financial contributions from higher-income students, should be strongly considered.

- **Reduce significantly the level of financial controls on institutions**. Kazakhstan should emphasise post-audits rather than pre-audits, and allow institutions to retain and accumulate funds over time in order to strengthen their financial stability and flexibility and provide incentives for greater efficiency and effectiveness.

Governance

This chapter recognises positive shifts in higher education governance in Kazakhstan in the last ten years. For example, the government has sought a gradual movement towards more autonomy for institutions as seen in the creation of "supervisory boards" and the loosening of regulatory controls on the curriculum. However, authority still remains highly centralised. Where they exist, boards play a predominately advisory role. Significant operational autonomy, even for the national research universities, has not been attained.

The chapter then examines four areas where significant governance challenges remain. The level of financial regulation of Kazakhstan's higher education institutions is excessive; a lack of academic autonomy discourages faculty and institutional creativity, initiative and responsibility; the organisational autonomy of higher education is weak; and regulation of the public and private sectors is both excessive and lacking rational differentiation to reflect the distinctive roles of the two sectors.

Chapter 7 recommends that Kazakhstan:

- **Strengthen governance at the institutional level to enable deeper decentralisation and greater financial, academic and organisational flexibility**. This will entail developing within the public sector a system of governing boards with the power to select chief executives, provide oversight of institutional operations, and support the improvement and effectiveness of institutions in pursuing their missions.
- **Improve the transparency of governance in public and private higher education institutions**. Instead of depending heavily on regulatory and procedural controls, the government should shift towards an audit approach to assure financial integrity. Over time such a system will enhance trust and help institutions to build their capacity for self-governance.
- **Develop and implement a robust system of accreditation and a national qualifications framework as the basis for assuring and**

improving academic quality. As outlined in Chapter 2, this implies forming a quality assurance process that relies on "attestation" and inspections towards an institution-led accreditation approach that both ensures and, crucially, further develops high-quality learning and research.

- **Clearly delineate the respective purposes of the public and private sectors of the higher education system**. The government should promote governance arrangements in each sector that match its policy purpose. This includes regulatory and financial policies that assure quality in both sectors, and that enable both to thrive. One potentially effective division of labour between the public and private sectors might allocate primary functions to public higher education institutions which are not likely to thrive in private institutions, and ensure that affordable higher education opportunities are available to low- and moderate- income students in both sectors.

Conclusion

Recent volatility in resource prices have highlighted just how vulnerable the country is to dependence on a single high-value (but low value-added) activity. Policy makers in Kazakhstan recognise the need to diversify the national and regional economies. As other reviews have observed, this requires changes in broad framework policies (e.g. regulatory policies) and capacity building (e.g. enhancements to governance). It also means ensuring that Kazakhstanis have a forward-looking mix of skills and that the innovation system is working effectively.

Higher education has an important role to play in meeting the challenges that Kazakhstan faces. While there have been some clear improvements in Kazakhstan's higher education system since the time of the 2007 OECD/World Bank review, much remains to be done in the areas of quality, access, internationalisation, research and innovation, funding and governance. The following chapters lay out in detail what Kazakhstan might do to ensure that its higher education system is fit-for-purpose – that it is able to enhance individual and collective prosperity and well-being across the nation, now and in coming years.

Box A. **Methodology of the review**

This review builds on numerous resources, including:

- the 2007 OECD/World Bank Review of Higher Education in Kazakhstan
- a Country Background Report produced by the JSC Information-Analytic Center (IAC)
- a review of existing literature on higher education in Kazakhstan
- recent OECD studies of other sectors of education in Kazakhstan
- interviews during two visits: a "pre-visit" and a main visit.

The visit used semi-structured interviews, conducted both by the full team and in sub-teams, to drill down on specific topics:

- Interviews with Ministry officials and officials from other state agencies (the IAC, National Testing Center, etc.).
- Visits to over 20 higher education institutions in six cities.
  - Rectors and senior management of institutions, faculty members, employers and students.
  - The sample of institutions broadly representative of the entire sector (state and national institutions; public, private and mixed; comprehensive and more specialised).

References

MESRK(2016), The State Programme for Education and Science Development in the Republic of Kazakhstan 2016-19, RK Presidential decree as of 1 March, 2016.

MESRK (2010), The State Program for Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential decree as of December 7, 2010, Number 1118.

OECD/World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan 2007*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Chapter 1

Higher education in Kazakhstan

Prior to 2014, Kazakhstan's story had been one of dramatic economic expansion. However the benefits of growth have not been shared equally and there are significant wealth disparities, especially between urban and rural areas. Kazakhstan performs better on the dimensions of well-being that are more closely associated with income. Recent market volatility has emphasised the risks of resource dependence, highlighting the need for economic diversification. Development of the higher education sector is crucial for Kazakhstan to address its diversification challenge. Its highly centralised top-down system of governance is reflected in the education system. A new State Programme for Education and Science Development 2016-2019 (SPESD) for 2016-19 lays out the current strategy for the education sector. While basic education is quasi-universal and the level of educational attainment is comparable to OECD levels, the average quality of schooling is low, and funding remains below international standards. Despite the significant reforms that Kazakhstan has undertaken, there remains substantial room to improve its effectiveness and thereby enhance learning outcomes.

Economic and political context

The Republic of Kazakhstan is a landlocked middle-income country spanning Europe and Asia. It is the ninth-largest country in the world by land surface, but its population density is low given that it has only 17.5 million inhabitants (estimation of the population in 2016). The Republic is bordered by the Russian Federation to the north, the Caspian Sea to the west, People's Republic of China to the south-east, the Kyrgyz Republic and Uzbekistan to the south, and Turkmenistan to the south-west.

Kazakhstan achieved independence in 1991. With its long history of centralised planning, the country's transition to a more market-oriented economy was unstable and disruptive. During the 1990s, it experienced hyperinflation, the loss of more than 1.5 million jobs and a dramatic decline in real gross domestic product (GDP) (OECD, 2016a). This was accompanied by significant emigration.

Recent economic performance

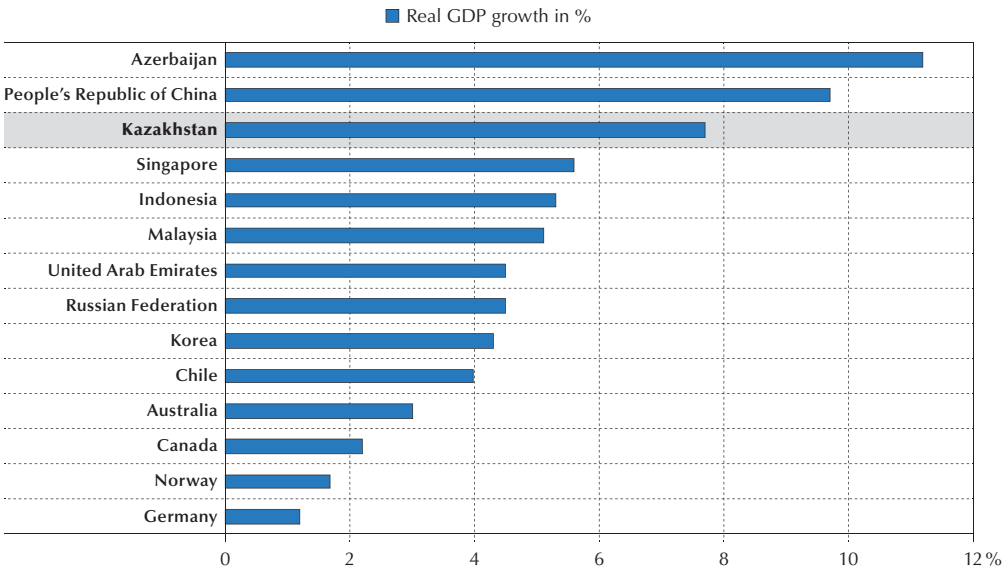
For most of this century, Kazakhstan's story has been one of dramatic economic expansion. As demonstrated in Figure 1.1, GDP growth from 2000 to 2014 averaged an impressive 8% per year. Between 2001 and 2013, Kazakhstan more than doubled its GDP per capita to around USD 13 000 at current market exchange rates. This growth can largely be attributed to rising prices for Kazakhstan's leading exports – mainly oil, metals, and grain. In 2013, the largest sectors of Kazakhstan's economy (in terms of share of GDP) were wholesale and retail trade, natural resource extraction, real estate, transportation and storage, construction and agriculture. Together these six sectors made up more than 50% of Kazakhstan's GDP (OECD, 2016a).

The benefits of growth have not been shared equally and there are significant wealth disparities among Kazakhstan's regions. In 2014, the national GDP per capita at USD 13 154 was three times higher in the western, oil-rich region of Atyrau (USD 39 072) and more than twice lower than the national average in Almaty city (USD 29 286). However, South Kazakhstan's GDP per capita (USD 4 775) was just one-third of the national average (OECD, 2016a).

Dependence on natural resources

The importance of extractive industries in Kazakhstan's economy cannot be overstated. Due to increases in both production and prices, the oil and gas sector and related activities came to make up 25% of GDP during the early 2000s and almost 35% during 2005-08. In recent years the sector's share of GDP has fallen, but it still accounts for roughly two-thirds of exports and approximately one-third of budget revenues (OECD, 2016a).

Figure 1.1. **Kazakhstan and comparator countries' real annual GDP growth (2000-2014)**



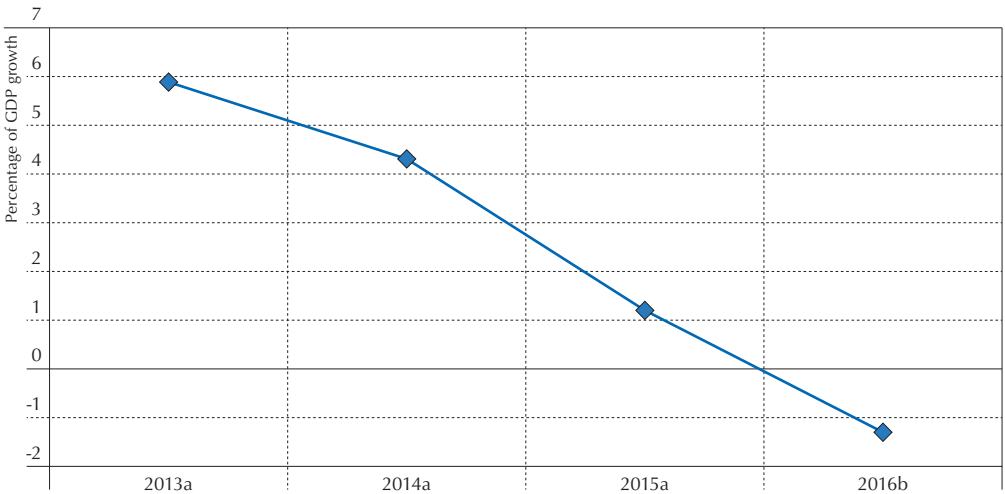
Sources: World Bank (2014), *World Development Indicators* (database), http://data.worldbank.org.

Kazakhstan's government has used resource-related public revenues to establish a sovereign wealth fund, Samruk-Kazyna, whose goals are to enhance economic competitiveness and sustainability, and to mitigate the impact of external shocks on domestic development. Yet even with the fund in place, Kazakhstan's economy has felt the effects of external shocks – and in particular, of the recent dramatic decline in the price of oil (from USD 110 per barrel in June 2014 to under USD 50 in June 2016) (OECD, 2016a). GDP growth slowed from 5.9% in 2013 to 4.3% in 2014 and to 1.2% in 2015. The economy is expected to contract in 2016 (Figure 1.2). This would be the first annual fall in real GDP since the Russian financial crisis of 1998 (Intelligence Economist Unit, 2016). An economic slowdown in the People's Republic of China and the Russian Federation, two of Kazakhstan's primary trade partners, has highlighted the structural weaknesses in Kazakhstan's economy. Reflecting this economic turmoil, the value of the country's currency, the tenge, has fallen sharply.

Kazakhstan's reliance on natural resources has taken a toll on the environment. With water shortages and considerable pollution, Kazakhstan's fragile ecology is vulnerable to the effects of climate change. Over 75% of the country's land is used for agriculture, making reliable access to water an ongoing concern – especially in regions like Central Kazakhstan.

In recognition of its economy's reliance on natural resources, and of the impact this reliance has on the environment, Kazakhstan has recently been investing in sustainable, renewable energy sources and in better management of its water, land, air and other natural resources (OECD, 2016a).

Figure 1.2. **Kazakhstan's real GDP growth (2013-2016)**



Notes: Rates from 2013 to 2015 are the actual rates (a); rates for 2016 are The Economist Intelligence Unit's forecasts (b).

Sources: International Monetary Fund (2016), International Financial Statistics; Intelligence Economist Unit, http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42.

Other sectors

Kazakhstan has long recognised that its significant dependency on oil and other extractive industries means that it needs to diversify its economy. In recent years, growth in manufacturing and knowledge-intensive services has helped with diversification. However, manufacturing in Kazakhstan is not as developed as in many other emerging economies or in many advanced resource-rich countries: manufacturing accounts for just 11% of GDP and employs 5% of the labour force. The fastest-growing manufacturing sectors include transportation equipment, chemicals and pharmaceuticals, rubber, refined petroleum and food processing. Employment in knowledge-intensive services –including information and communications technology (ICT), finance and professional services – has also increased in recent years (OECD, 2016a).

In Kazakhstan, public and state-owned entities still account for approximately one-third of GDP. Since independence, privatisation efforts have led to a larger private sector, but this contains many big conglomerates stretching across multiple areas of activity. As a result, there is a powerful business class with enough political influence to oppose market reforms that threaten its interests (OECD, 2016a).

Kazakhstan's weak financial sector is a significant constraint on private business development. Bank lending is an important source of financing for firms, but lending growth has been modest. Compared to similarly situated countries, Kazakhstan ranks low on key financial indicators such as the size of the stock market and local capital markets.

Small-and medium-sized enterprises (SMEs) account for roughly 20% of GDP, a comparatively low share by international standards. They nonetheless play an increasing role in job creation, accounting for 30% of total employment as compared to 26% a decade ago (OECD, 2016a). Business climate constraints and limited access to finance raise challenges for the further development of Kazakhstan's SMEs. However, a number of programmes have recently been implemented to increase SMEs access to finance.

Kazakhstan has taken many steps to improve its business climate and lower regulatory burdens. On the "ease of doing business" measures, Kazakhstan ranks 77th out of 189 countries but has lost 27 places since 2014 (World Bank, 2016). There remains ample room to encourage entrepreneurialism and private sector growth.

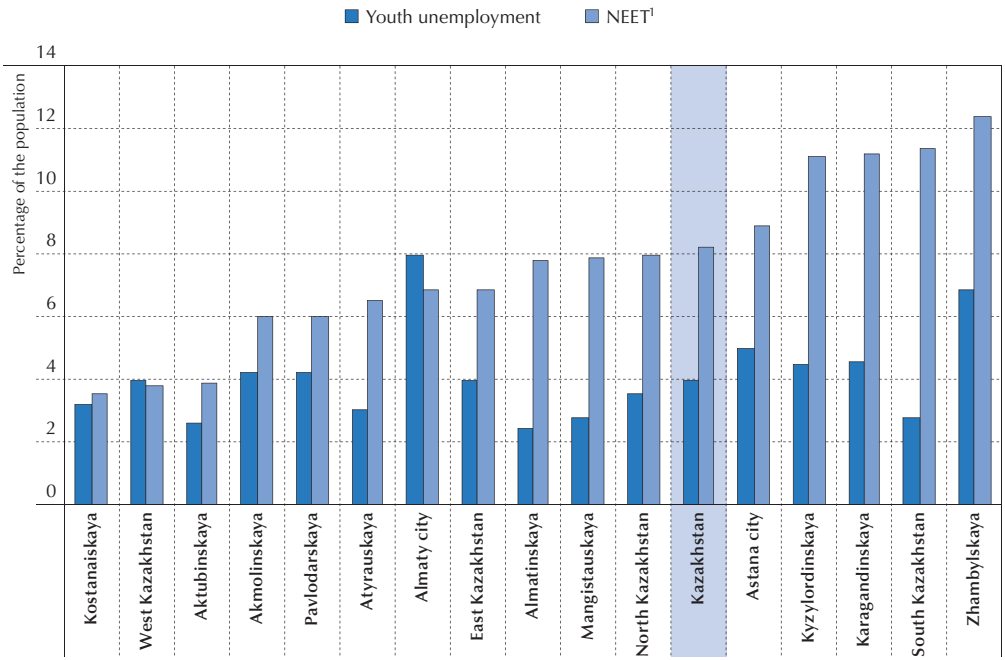
The labour market

Kazakhstan's labour force utilisation has increased considerably over the course of this century, and is in line with rates in many advanced economies. From 2000 through 2013, the labour force participation rate rose from 77% to 80% and the unemployment rate dropped from 10% to 4% (OECD, 2016a). Since there is little room for further increases in labour force participation rates, economic growth is more likely to come from a shift towards more productive jobs and more productive sectors.

Kazakhstan's agricultural sector employs almost one-quarter of the labour force but only contributes 5% of total GDP. Another quarter of all workers are employed in the wholesale and retail trade, and another quarter in the construction sector. Though the extractive sector has a significant impact on GDP, it employs just 3% of all workers. Manufacturing employs approximately 5%, while the knowledge-intensive services such as ICT, finance, insurance, and professional, scientific and technical services collectively employ around 8% (OECD, 2016a).

There are substantial regional differences in industrial growth and employment. For example, although the country enjoys relatively low overall levels of youth unemployment, the percentage of youth who are "Not in Employment, Education or Training" (NEET) varies significantly across regions (see Figure 1.3). Of particular concern are southern regions such as Kyzylorda, and South Kazakhstan (OECD, 2016a).

Figure 1.3. **Regional disparities in youth labour market performance (Q4 2014)**



1. NEET= Neither employed nor in education and training

Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK, 2014), www.stat.gov.kz.

Job quality also varies within Kazakhstan. The recent shift in employment from agriculture to services, and the growth of certain sectors such as education, has led to a decrease in self-employment. In 2001, salaried workers made up 58% of total employment; by 2013, this had increased to 69% (OECD, 2016a). However, just under half of the remaining self-employed are concentrated in the southern regions of South Kazakhstan, Zhambyl and Almaty (OECD, 2016a).

In 2013, approximately one-quarter of Kazakhstan's workers were informally employed. This is comparable to the number in other countries with similar levels of development, and whose economy has a similar sectorial composition (OECD, 2016a). The large share of the young as part of Kazakhstan's informal workforce suggests that informal employment may serve as an initial entry point into the labour market, or that it may be an employment opportunity of last resort.

Though labour productivity in Kazakhstan has increased steadily over the years, it is still low in comparison to more advanced countries. Certain sectors pose particular challenges. In the agriculture sector, for instance, the self-employment rate is extremely high (approximately 50%). For sustained growth, Kazakhstan must continue increasing the productivity of jobs in agriculture, while shifting employment from agriculture to other more productive sectors. Productivity has increased considerably in some sectors such as transport equipment manufacturing, and chemicals and pharmaceuticals (OECD, 2016a).

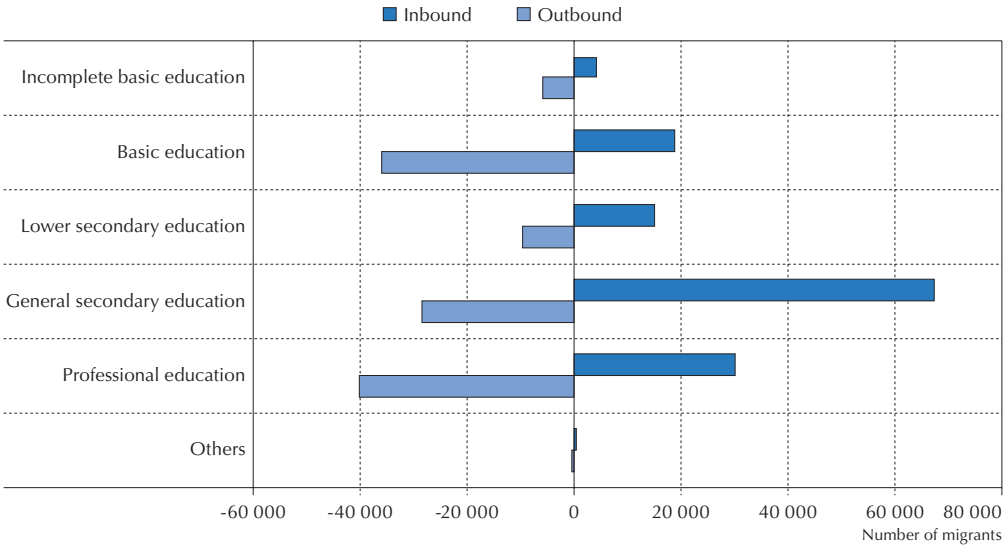
The diversity of Kazakhstan's people and regions

Kazakhstan is a large and diverse country. It is divided into 14 provinces (oblasts) and two municipal districts, Almaty and the capital, Astana. With just nearly 10% of the country's total population (1.5 million), Almaty, the largest city and the financial centre of the country, served as the capital for several years after independence.

Kazakhstan is a bilingual country with Kazakh designated as the "state" language and Russian as an "official" language. Roughly one out of every six people understands some English (CIA, 2016). Kazakhs account for approximately 63% of the population. There are many other ethnic groups in the country though. These include Russians, Uighurs, Ukrainians, Koreans, Uzbeks, Tatars, and Germans (CIA, 2016).

Migration flows are still significant in Kazakhstan. Emigration has been mostly directed towards the Russian Federation and other Commonwealth of Independent States (CIS) countries, with the most popular non-CIS destinations being Germany, Israel, the United States and Canada. Immigration is primarily from the Russian Federation and other CIS countries. Kazakhstan's migration pattern poses skills challenges, since approximately 25% of immigrants have less than a secondary education (see Figure 1.4). Meanwhile, a relatively large portion of those who leave the country have a professional education; this signals a potential brain drain. With immigrants largely concentrated in the south, migration flows create a bigger challenge for some regions than others (OECD, 2016a).

Figure 1.4. **Kazakhstan migration flows by level of education (2009-2014)**



Sources: Economic Research Institute, Astana, in OECD (2016a), *Multi-dimensional Review of Kazakhstan: Volume 1. Initial Assessment*, http://dx.doi.org/10.1787/9789264246768-en.

Kazakhstan has a significant urban-rural divide, with incomes and consumption expenditures higher in urban areas. In 2013, urban poverty rates were one-fourth the rates in rural areas (OECD/The World Bank, 2015). The most urbanised regions are Karaganda (where 79% of the population is urban), Pavlodar (70%), Aktobe (62%) and East Kazakhstan (59%). The most rural regions are Almaty (where 77% of the population is rural), South Kazakhstan (61%), Zhambyl (60%), North Kazakhstan (58%) and Kyzylorda (57%).

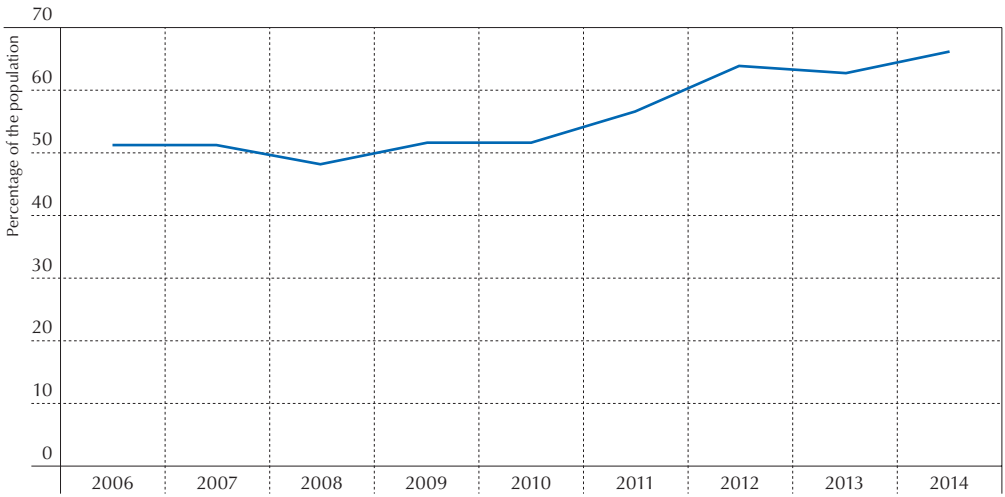
From 1999 through 2009, the population declined in the regions of East Kazakhstan (-8.8%), Kostanay (-12.9%), Karaganda (-4.8%), West Kazakhstan (-2.9%), Akmola (-10.8%), Pavlodar (-8.0%) and, most dramatically, in North Kazakhstan (-17.8%). By way of contrast, other regions increased their population significantly during this period: Mangystau (+54.2%), South Kazakhstan (+24.8%), and the cities of Astana (+86.7%) and Almaty (+20.7%) (OECD and the World Bank, 2015).

Kazakhstan is implementing programmes to encourage labour flows across regions as a way of fostering more equitable growth and increasing overall productivity. For example, the "Serpin-2050" project aims to support the mobility of youth away from southern regions and some western regions where jobs are lacking. The state provides these youth with scholarships to study at higher education institutions in the regions that are experiencing labour and skills shortages (JSC Information-Analytic Center, 2015).

Beyond GDP: well-being in Kazakhstan

On balance, economic development has helped to improve the quality of the life of Kazakhstanis. Between 2000 and 2013, gross national income per capita (expressed in purchasing power parity terms) has more than doubled. Employment levels are high and, as depicted in Figure 1.5, two out of three Kazakhstani citizens report satisfaction with their living conditions (OECD, 2016a).

Figure 1.5. **Satisfaction with living conditions of Kazakhstani citizens (2006-2014)**



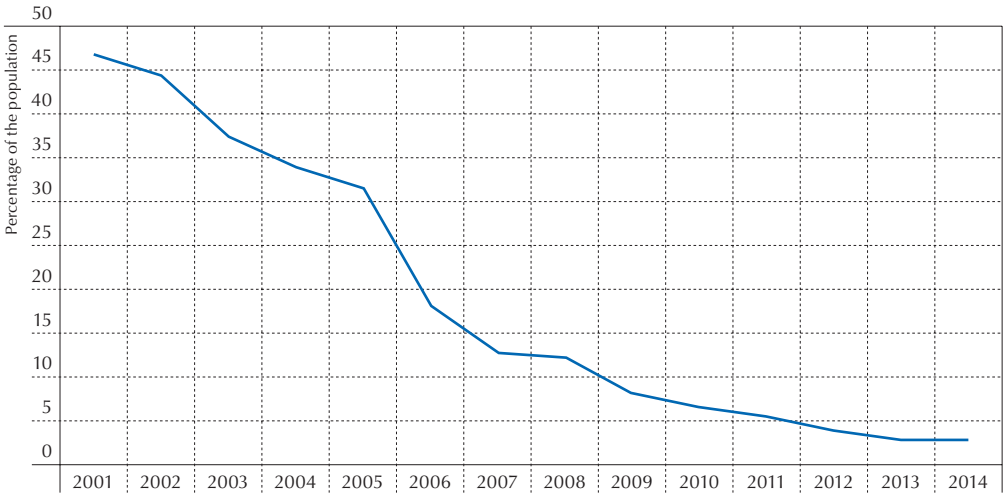
Sources: Gallup World Poll (database) in OECD (2016a), *Multi-dimensional Review of Kazakhstan: Volume 1. Initial Assessment*, http://dx.doi.org/10.1787/9789264246768-en.

While well-being indicators reflect substantial progress since 2000, many of Kazakhstan's outcomes are below what one might expect in comparison to countries with similar levels of economic development. For example, life expectancy at birth has increased considerably, but still remains lower than the average for upper middle-income countries and for developing countries in Europe and Central Asia[1] . Generally speaking, Kazakhstan performs better on the dimensions of well-being that are more closely associated with income (e.g. consumption possibilities, housing, infrastructure and life evaluation). On indicators where the correlation with income is weaker (e.g. environmental conditions, empowerment and vulnerability), Kazakhstan performs less well.

Although poverty rates increased dramatically in the 1990s, the economic growth of the 2000s subsequently lifted many out of poverty. Extreme or absolute poverty (defined as the state of those living below the international line of approximately USD 2 per day) has been virtually eliminated in

Kazakhstan. The share of the country's households with income below the national subsistence minimum has also decreased dramatically, falling from 46.7% in 2001 to 5.5% in 2011 and 2.8% in 2014 (Figure 1.6). Wage income – which doubled between 2003 and 2013 – has been the largest single contributor to poverty reduction over the past decade (OECD, 2016a).

Figure 1.6. **Percentage of the population below national minimum living standard (2001-2014)**



Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK, 2014), www.stat.gov.kz.

Gender inequality is comparatively low in Kazakhstan, although some challenges persist in the labour market. The labour force participation rate for men is 78%, while for women it is only 68% – a gap that is roughly consistent with the OECD average. Men outperform women in terms of income, but the gender pay gap (standing at less than 10%) is relatively low compared to some OECD countries. Access to primary and secondary education is near universal for both genders, but enrolment rates in tertiary education are higher for women (53%) than for men (37%) (OECD, 2016a). Kazakhstan has recently adopted several laws that prohibit discrimination based on gender.

Kazakhstan's economic diversification challenge and the role of higher education

Emerging market economies have lost momentum as global growth prospects have failed to improve substantially. In recent years, these economies have found it harder to continue closing the income gap with more advanced economies (OECD, 2016a).

As noted above, Kazakhstan's policy makers recognise that strong future economic growth requires reduced reliance on the natural resources sector and a move towards higher value-added activities and sectors. However, economic diversification policies have proven challenging to implement in Eurasian countries (Gill et al., 2014). Recent research suggests that these countries may best approach diversification by "try[ing] to create the conditions for accumulating a balanced portfolio of national assets, exploiting natural resources responsibly, building infrastructure and human capital, and instituting mechanisms that manage resource rents, provide public services and regulate private enterprise" (Gill et al., 2014).

This review focuses on higher education in Kazakhstan and its potential to support the diversification of the country's economy, both through the development of a broad and advanced skills mix, and through the creation and application of knowledge.

Governance, infrastructure, regulation and the rule of law are all important areas where Kazakhstan needs to keep making progress if its economy is to successfully diversify, seize on the potential of promising sectors such as ICT and other forms of advanced manufacturing, and enjoy sustainable long-term growth. Just as important for growth, though, are the skills and knowledge resources of Kazakhstanis, and the nation's capacity for research and innovation (World Bank, 2015).

To build on recent economic progress, Kazakhstan needs a well-functioning innovation system that supports productivity growth and helps develop a broad, sustainable mix of economic activity that has significant strengths in high value-added economic activities. Such activities tend to be technology- and knowledge-intensive and require smart investment in research and development (R&D) and innovation.

To ensure continued growth in prosperity, Kazakhstan will also need to ensure that its population builds and reinforces a mix of skills and knowledge that:

- meets the needs of the current economy
- allows the country to seize on – and indeed, shape – the opportunities and challenges of a future economy whose outlines are still uncertain.

Human capital is a vital component of economic growth. It is a key source of innovation and productivity that enables the transfer of wealth across generations, and brings together the other factors of production in ways that drive prosperity. The pace of human capital's growth depends on the quantity and quality of education provided to each individual, and provided to all individuals collectively, over entire lifespans.

It also depends on other factors such as the quality of health care and the broader social environment (Gill et al., 2014). A social system where corruption is widespread, for instance, will lower individuals' incentive for investing in knowledge and skills – and perhaps also limit their ability to make such investments.

Policy makers across the world face the challenge of ensuring that their citizens and residents develop the skills they need for success. The OECD defines skills as "the bundle of knowledge, attributes, and capacities that enable individuals to successfully and consistently perform an activity or task, and that can be built up and extended through learning" (OECD, 2012c). In broad terms, there are three sets of skills and knowledge that are critical for economic growth and social well-being. Higher education, just like the other parts of the skills and knowledge system, plays an important role in developing each of these.

Good ***technical, professional and discipline-specific knowledge and skills*** reflect a solid theoretical and/or practical understanding of subject matter; at the higher education level this subject matter is typically codified by academic disciplines. These kinds of skills are not developed solely to meet labour market ends. Employers often use these credentials – which will vary widely of course in different contexts – as a first lens to screen individuals for jobs. In fact, for many jobs a given level of a concrete set of technical and professional skills is an essential requirement (e.g. in Kazakhstan's current natural resources sector). At the level of the overall labour market, an adequate supply and mix of these skills is an important precondition for economic growth.

Generic cognitive skills include for example literacy, numeracy, problem solving, critical thinking and digital competencies. They support individuals' ability to acquire knowledge, thoughts and experience – and to interpret, reflect and extrapolate based on knowledge that they have acquired (OECD, 2015a).

Generic cognitive skills are needed to perform a wide range of tasks. They also support adaptability in the face of a changing economy – in part because they enable further learning. These skills also support workplace productivity by allowing individuals to effectively deal with non-routine challenges.

Social and emotional skills encompass skills like initiative, teamwork and leadership. They are manifested in consistent patterns of thoughts, feelings and behaviours, and play an important part in achieving goals, working with others and managing emotions. Like other kinds of skills, they can be developed through both formal and informal learning experiences (OECD, 2015c).

Good levels and mixes of these various skills, combined with a sound innovation system, are critical if countries are to support growth and seize on the potential of new production technologies.

Kazakhstan's social challenges, and its need to diversify its economy in ways that ensure sustainable long-term growth, have substantial implications for the country's innovation system and its skills needs. The remainder of this chapter will look at skills outcomes in Kazakhstan today, after first situating higher education within Kazakhstan's broader education landscape.

Kazakhstan's education and training systems

Kazakhstan's level of educational attainment is comparatively high, approaching average levels of OECD countries. Of the adult population aged 25 and above, approximately 40% have upper secondary education as their highest level of attainment, 30% have a post-secondary degree and 25% have completed higher education.

Main institutions and underlying principles

Kazakhstan's central government plays a very important role in the country's education and training system:

- The Executive Office of the President defines key education strategies and develops major initiatives such as the network of Nazarbayev Intellectual Schools that cater to gifted students. The Office also monitors progress towards the objectives that are laid out in education strategies.
- The Ministry of Education and Science of the Republic of Kazakhstan (MESRK) manages, implements and monitors work in education, science, protection of children's rights and youth policy. The MESRK is mandated to: define and execute educational policy; draft regulations with regards to funding education; prepare educational standards and curricula; organise and implement assessment systems; set requirements for teacher education; support the educational process in Kazakh language; and sign international agreements on education.
- The MESRK has several subordinate organisations that operate in specific areas (e.g. quality assurance, statistics or managing international projects). For instance, the Information Analytic Center provides analytical support the MESRK and is responsible for a variety of things, such as the Ministry's international projects (including reviews of the education system like this one). The National Center for Professional Development (ORLEU) provides

a second example. It is responsible for the design and provision of professional development opportunities for teachers and school leaders.

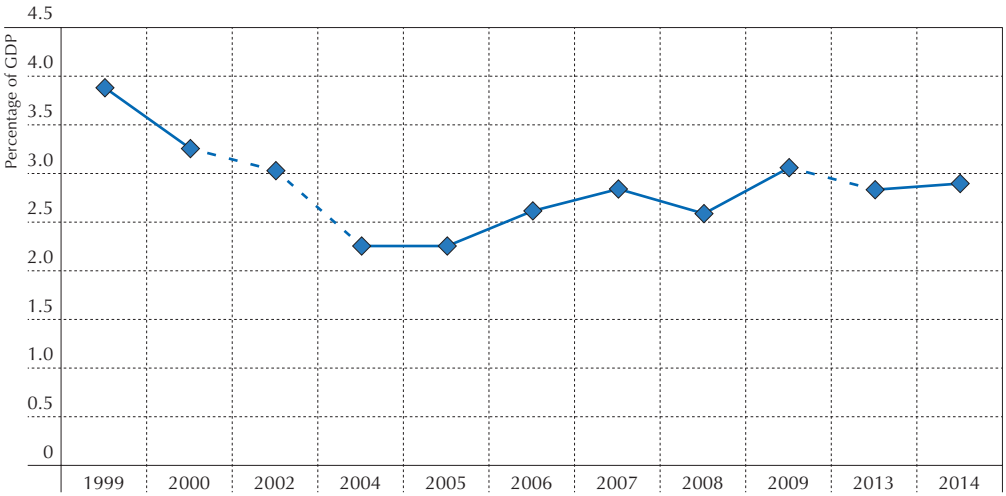
- The MESRK reports to the Executive Office of the President, is assessed by the Ministry of National Economy of the Republic of Kazakhstan (MNERK) for performance, and is monitored by the Ministry of Finance on the execution of its budget.

The underlying principles of Kazakhstan's education system are defined by the Constitution of the Republic of Kazakhstan (1995) and the Law on Education (2007). Among its main provisions, the Law on Education (2007) determines the objectives and principles of education, outlines the educational administrative structure and stipulates different administrative and financial aspects of education institutions' operations.

Funding

Figure 1.7. **State spending on education as % of nominal GDP**

1.7.a. Trends in Kazakhstan (1999 - 2014)

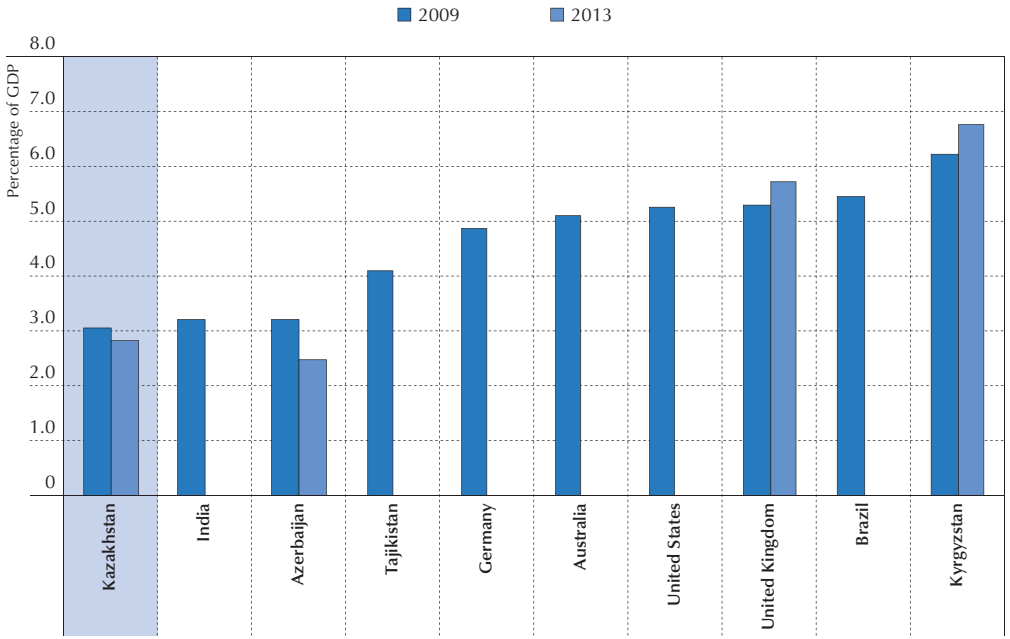


Notes: Data for the years 2001, 2003, 2010, 2011 and 2012 are not available for Kazakhstan.

Sources: UNESCO Institute for Statistics (UIS) database, http://data.uis.unesco.org (accessed on 18 May 2016).

Figure 1.7. **state spending on education as % of nominal GDP** *(continued)*

1.7.b. Kazakhstan and comparator countries



Notes: Some countries did not have data available in 2013 (Australia, Brazil, Germany, India, Tajikistan, the United States).

Sources: UNESCO Institute for Statistics (UIS) database, http://data.uis.unesco.org (accessed on 18 May 2016).

As Kazakhstan's overall economy has expanded in recent years, nominal public spending on education has also increased (JSC Information-Analytic Center (2015). However, growth in spending as a percentage of GDP has been modest over the past ten years, and indeed fell from 3.1% of GDP in 2009 to 2.9% in 2014 (UNESCO, 2016) (Figure 1.7a). This puts Kazakhstan below the 4-6% international benchmarks for public expenditure on education (Figure 1.7b).

Kazakhstan's reported public investment in higher education is also low by international standards, with the government spending only about 0.3% of GDP on higher education. Higher education accounts for 8.6% of the total state budget for education (Nazarbayev University Graduate School of Education, 2014).

In 2014, approximately 70% of Kazakhstan's total expenditure on higher education came from private rather than public sources (MNERK, 2014) – primarily from tuition fees (see chapters 3 and 6). By way of comparison,

across all OECD countries in 2012, 69% of expenditures on tertiary education came from public sources and 31% from private sources (OECD, 2015b). Thus, low public spending on education in Kazakhstan is partially offset by a heavy reliance on private spending. This private/public balance has equity implications that chapter 3 will explore in more detail.

Policy priorities

Kazakhstan has formulated the goal of improving the quality of its education system, with international standards and practices serving as key points of reference. Building on the State Programme for Education Development in the Republic of Kazakhstan 2011-2020 (SPED), the updated State Programme for Education and Science Development 2016-2019 (SPESD) for 2016-19 lays out the current strategy for the education sector. The SPED identifies priorities, targets, and indicators to be achieved by 2020 from preschool to higher education.

At the level of primary and secondary education, key policy objectives include: developing new mechanisms of education financing such as per capita financing; providing education staff with more preparation, support and incentives; improving student assessment methods; transitioning to a 12-year education model; updating curricula; and developing inclusive education with supports for low-performing students.

At the higher education level, the primary objectives of the SPED include: equipping students with skills more relevant to the labour market; integrating Kazakhstan more fully into the European Higher Education Area; bolstering synergies between education, science and industry; stimulating the commercialisation of research; fostering national identity; and encouraging active citizenship and social responsibility.

Primary and secondary education

In Kazakhstan, primary education is compulsory and spans the first four years of schooling. Children typically enrol at age seven, but six-year-olds can be admitted through an entrance exam. Secondary education has two levels: the basic lower level covers grades 5 through 9 and the general or vocational upper secondary level covers grades 10-11. A small minority of schools also have a grade 12 (e.g. the Nazarbayev Intellectual Schools) (see Annex 1.A1).

The net enrolment rate for primary and lower secondary education (ages 5-14) is 99%, and for upper secondary education (ages 15-19) it stands at 86%. The enrolment rates of boys and girls are similar to each other. The most gifted students can attend the Nazarbayev Intellectual Schools: 0.4% of the total general secondary student population is enrolled at these special

schools, which receive much more funding than mainstream schools (OECD and the World Bank, 2015).

Upon completion of the upper secondary level, students can enter technical vocational schools (colleges) or higher education institutions.

Technical and vocational education

Students can choose to enter vocational education and training (VET) institutions at upper secondary level (currently after 9th grade) or after upper secondary schooling (currently after 11th grade) (OECD, 2013a).

Since 2012, both kinds of institutions are referred to as "colleges". In 2013, Kazakhstan had a total of 888 VET institutions and the enrolment rate in 2015 was 16.1%. There has been a decrease over the past years in the number of students enrolling in VET, although the government recently announced measures to encourage enrolment through a free tuition scheme. There are also concerns about poor co-ordination and interaction between VET schools and employers, and about poor quality assessment and certification processes (Álvarez-Galván, 2014).

Higher education

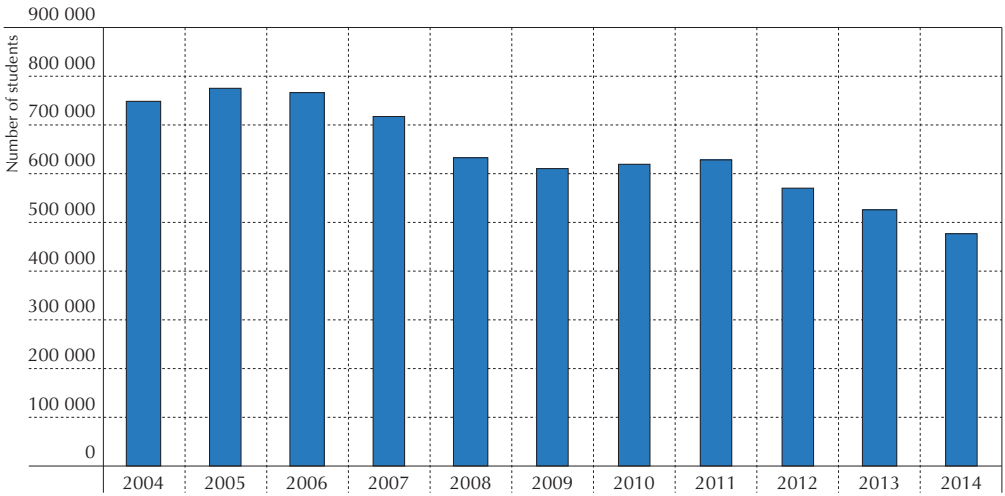
In 2015, Kazakhstan had a total of 125 higher education institutions[2]. This represents a significant decline from the more than 180 institutions that were operating in 2000. Like many post-Soviet economies, Kazakhstan saw rapid growth in the number of private providers in the 1990s in response to high student demand. Over the past several years, Kazakhstan has been seeking to reduce this number (a process, known as "optimisation", which has led to mergers and sometimes closure of institutions).

In 2015, Kazakhstan's network of higher education institutions included 64 private institutions (including 10 joint-stock companies or "JSCs"[3]) and 61 public institutions. Of these institutions, 85 operate as universities, 21 as academies, 18 as institutes and one as a conservatory. These distinctions are made as part of institutional licensing procedures, and are based on a variety of factors including the number of graduate programmes, the institution's research profile, and its certifications and accreditations. There is one autonomous university in Kazakhstan: President Nazarbayev established Nazarbayev University in 2010, directing it to become a world-class university with a strong research programme (JSC Information-Analytic Center, 2015).

Kazakhstan's higher education enrolment rate[4] currently stands at approximately 48%. However, over the past ten years, the absolute number of students entering higher education (including post-secondary technical

and vocational education) has declined by 36% (Figure 1.8). In 2014, 477 387 students were enrolled in higher education – a decline of nearly 50 000 from 2013 levels. Falling student numbers over time are linked to the low fertility rates that characterised Kazakhstan's transition period post-independence and to falling enrolment in part-time education.

Figure 1.8. **Enrolment in higher education (2004-2014)**



Sources: Ministry of Education and Science of the Republic of Kazakhstan (MESRK), statistics (2004-2014).

The role of research in Kazakhstan's higher education system has evolved considerably in recent years. In the immediate post-Soviet period, much of the country's research activity remained concentrated in institutes that operated under the Academy of Sciences. Over time, however, many research institutes have been merged or aligned with universities, while others have been newly created within universities. These changes, which are still underway, are meant to better integrate science and education.

Though most universities still report some level of research activity, the Law on Science in 2011 and the State Programme of Education Development for 2011-2020 introduced two new designations for selected higher education institutions –"research university" and "national research university". These institutions enjoy access to enhanced funding for research and they are expected to integrate teaching, learning and research at all levels of study.

Skills outcomes in Kazakhstan

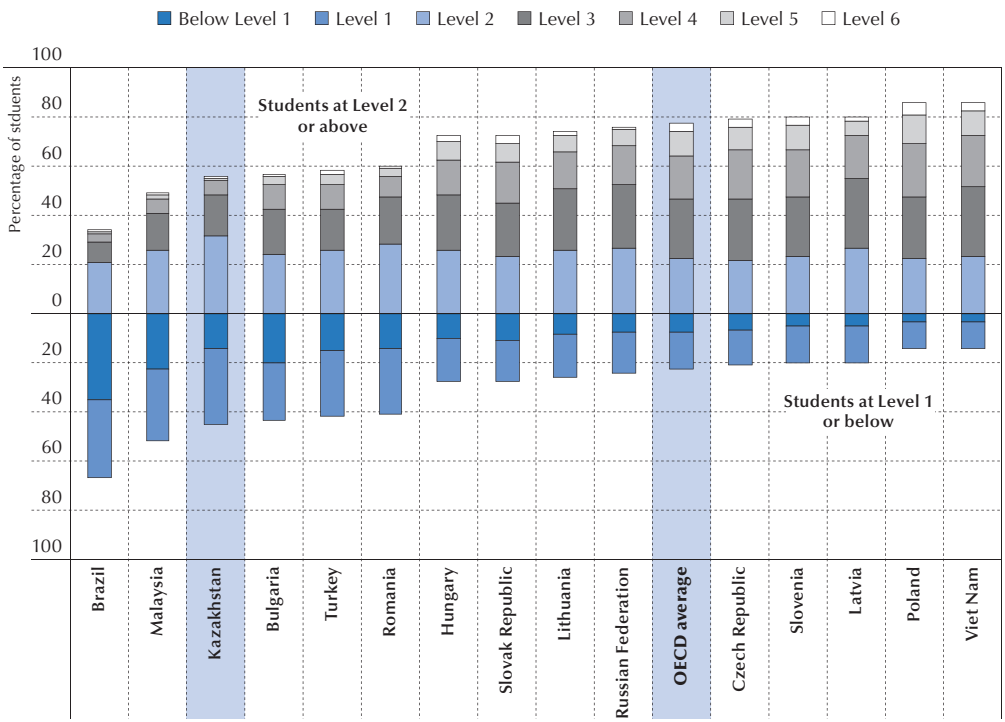
There are few measures of the current skills outcomes of Kazakhstan's education and training systems, and of how well these systems are positioned to meet the needs of the labour market. This data gap is broadly consistent with other data challenges that the OECD review team observed in Kazakhstan – and has serious negative consequences for policy making. Much of the evidence on skills outcomes that *does* exist is not encouraging.

While basic education is quasi-universal, international comparisons such as the Programme for International Student Assessment (PISA) suggest that the average quality of schooling is low. In PISA 2012, the performance of 15-year-olds in Kazakhstan rose compared to 2009 levels, and showed a narrowing achievement gap among students (OECD, 2013b). Math and science performance improvements equivalent to more than half a year of schooling were registered (OECD, 2014). Despite this apparent improvement, countries with income per capita levels similar to Kazakhstan's (e.g. Turkey and the Russian Federation) still performed significantly better in mathematics, science and reading. Furthermore, Kazakhstani PISA reading scores continue to lag (by the equivalent of about one year of schooling) behind the Europe and Central Asia average, and by almost two years of schooling behind the OECD average. The percentage of low performers (45%) is significantly above the OECD average (23%) (see Figure 1.9). Those students can extract relevant information from a single source and use basic algorithms, formulae, procedures or conventions to solve problems involving whole numbers. Whereas top performers, who represent 0.9% of the population, have more problem-solving skills that are more developed when working with mathematics models – they use their thinking and reasoning skills. This percentage is much smaller than on average across OECD countries (13%). School location, the language of instruction, the socio-economic background of students and schools make a difference in student performance. The quality of school educational resources registers at one of the lowest levels among PISA countries (OECD, 2013b). Other national and international assessments also suggest that students from urban areas have better educational outcomes than students in rural areas.

Kazakhstan has national tests of graduating secondary school and higher education students. However, these tests are of questionable validity and fail to measure many of the most important skills that workers and citizens need in a modern society, such as problem-solving skills, creativity and independent-thinking skills. There is little systematic follow-up of graduates, but employers in Kazakhstan do report gaps in employees' skills (World Bank, 2013a and b). Following the "shock" of the country's poor performance in PISA 2012, the government focused on high-ability students. Kazakhstan's

policy has concentrated on recognising and encouraging academically talented students, with little attention paid to ensuring equity. Chapter 2 of this report examines these issues in more detail.

Figure 1.9. **Levels of mathematics achievement in PISA 2012**



Sources: OECD (2014), *PISA 2012 Results: What Students Know and Can Do (Volume I, Revised edition, February 2014): Student Performance in Mathematics, Reading and Science*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264208780-en.

More generally, despite the significant reforms that Kazakhstan has undertaken in recent years to improve the quality of its primary and secondary education systems, there remains substantial room to improve the overall effectiveness of the education system and enhance learning outcomes (OECD and the World Bank, 2015). Potential areas of intervention include reviewing the organisation of the school network, lengthening the school day, supporting disadvantaged students and schools, and improving teacher quality and school leadership (see also Chapter 3 of this review). However, these initiatives will only succeed if evaluation and information systems are used to foster improvement and accountability (OECD and the World Bank, 2015).

Notes

1. Developing countries in Europe and Central Asia include: Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, the Kyrgyz Republic, Azerbaijan, Croatia, Georgia, Kazakhstan, the Former Yugoslav Republic of Macedonia, Republic of Moldova, Montenegro, Poland, Romania, the Russian Federation, Serbia, Tajikistan, Turkey, Turkmenistan, Ukraine, and Uzbekistan.
2. A total of 126 including Nazarbayev University.
3. JSCs are legally registered entities that issue stock in order to attract funding for their operations. JSC shareholders can be of different kinds. In case of JSCs that are linked to the MESRK, the main shareholder is usually the ministry or government itself. JSCs are for-profit organisations, but non-profit units can be established within them.
4. Gross enrolment rates in higher education are defined as the ratio of the number of students, (regardless of age) to the total population in the typical enrolment age range (e.g. 18-22 in many countries).

References

Álvarez-Galván, J.-L. (2014), *A Skills beyond School Review of Kazakhstan*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264221826-en.

Central Intelligence Agency (2016), *The World Factbook: Kazakhstan*, www.cia.gov/library/publications/resources/the-world-factbook/geos/kz.html.

Gill, I.S., I. Izvorski, W. van Eeghen and D. De Rosa (2014), *Diversified Development: Making the Most of Natural Resources in Eurasia*, World Bank, Washington DC, documents.worldbank.org/curated/en/124481468251373591/Diversified-development-making-the-most-of-natural-resources-in-Eurasia, License: Creative Commons Attribution, CC BY 3.0.

JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

International Monetary Fund (2016), International Financial Statistics; Intelligence Economist Unit, http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42.

Law on Education (2007), Law on Education of the Republic of Kazakhstan, of 27 July 2007, No.319 –III ZRK, About education, last edition of 09 April 2016.

MESRK (2016), The State Programme for Education and Science Development in the Republic of Kazakhstan 2016-19, RK Presidential decree as of 1 March, 2016.

MNERK (2014), Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics, http://kyzylorda.stat.gov.kz/eng/ (accessed 25 February and 04 March 2016).

MESRK (2010), The State Program for Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential decree as of 7 December, 2010, Number 1118.

MESRK (2004-2014), Ministry of Education and Science of the Republic of Kazakhstan, Statistics, http://edu.gov.kz.

Nazarbayev, N.A. (2012), Address by the President of the Republic of Kazakhstan, Leader of the Nation, N.A. Nazarbayev: "Strategy Kazakhstan-2050": New political course of the established state, www.inform.kz/en/address-by-the-president-of-the-republic-of-kazakhstan-leader-of-the-nation-n-nazarbayev-strategy-kazakhstan-2050-new-political-course-of-the-established-state_a2346141.

Nazarbayev University Graduate School of Education (2014), Development of Strategic Directions for Education Reforms in Kazakhstan for 2015-2020, Diagnostic Report, Indigo Print, Astana.

OECD (2016a), *Multi-dimensional Review of Kazakhstan: Volume 1. Initial Assessment*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264246768-en.

OECD (2015a), *Skills for Social Progress: The Power of Social and Emotional Skills*, OECD Skills Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264226159-en.

OECD (2015b), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2015-en.

OECD (2014), *PISA 2012 Results: What Students Know and Can Do: Student Performance in Mathematics, Reading and Science*, (Volume I, Revised edition, February 2014) PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264208780-en.

OECD (2013a), *Developing Skills in Central Asia Through Better Vocational Education and Training Systems*, Private Sector Development Policy Handbook, OECD Publishing, Paris, www.oecd.org/globalrelations/VocationalEducation.pdf.

OECD (2013b), *PISA 2012 Results: What Makes Schools Successful (Volume IV): Resources, Policies and Practices*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264201156-en.

OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, OECD Publishing, http://dx.doi.org/10.1787/9789264177338-en.

OECD/The World Bank (2015), *OECD Reviews of School Resources: Kazakhstan 2015*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264245891-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan* 2007, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

The Economist (2016), "Economic Intelligence Unit Report on Kazakhstan", *The Economist*, http://country.eiu.com/kazakhstan (accessed 24 February 2016).

UNESCO Institute for Statistics (UIS) database, http://data.uis.unesco.org, (accessed 18 May 2016).

World Bank Group (2016), "Ease of doing business in Kazakhstan (ranking data for 2014 and 2015)", *Doing Business*, www.doingbusiness.org/data/exploreeconomies/kazakhstan (accessed 15 February 2016).

World Bank (2015), "Kazakhstan - Low Oil Prices, an Opportunity to Reform", *Economic Update* Spring 2015, World Bank, www.worldbank.org/en/country/kazakhstan/publication/kazakhstan-economic-update-spring-2015 (accessed on 5 February 2016).

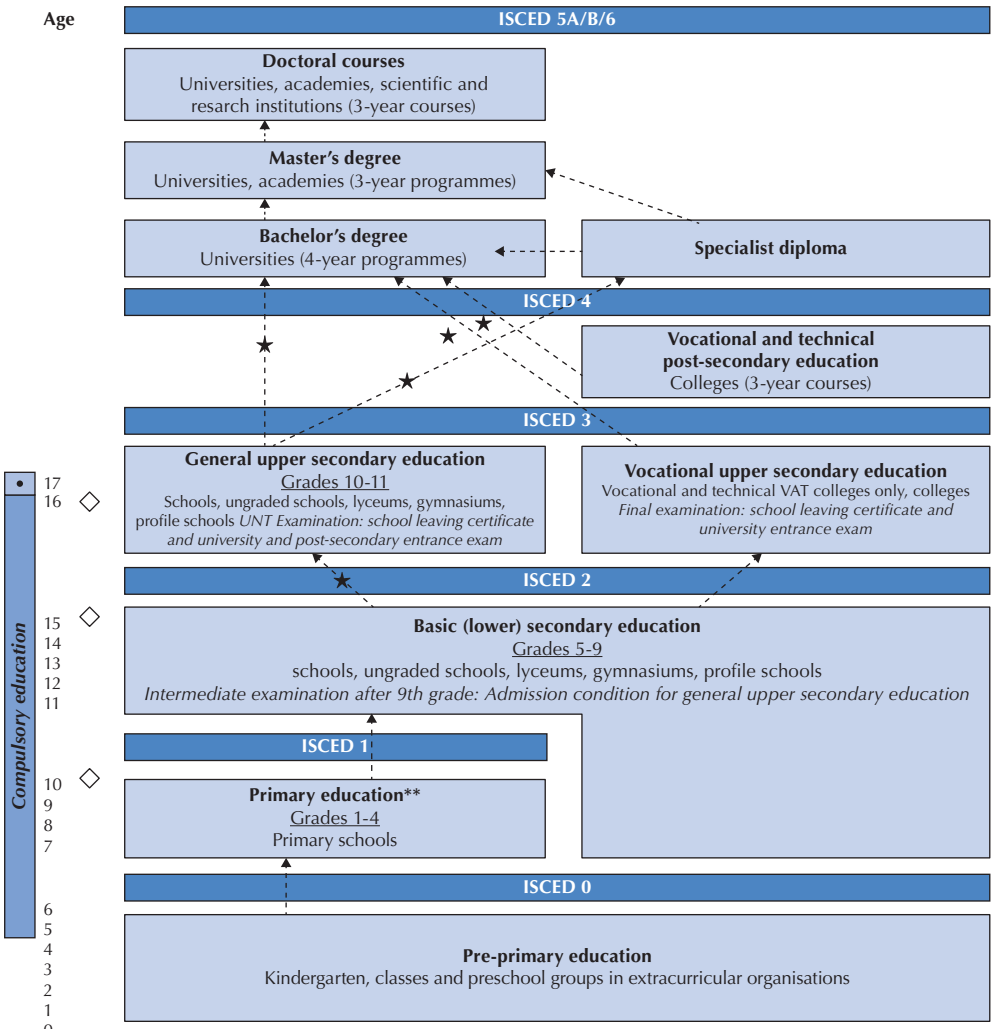
World Bank (2014), *World Development Indicators* (database), http://data.worldbank.org.

World Bank (2013a), *Kazakhstan Country Economic Memorandum: Beyond Oil: Kazakhstan's path to greater prosperity through diversifying,* Report No. 78206 Volume 1: overview, June 2013 Poverty Reduction and Economic Management Unit, Europe and Central Asia Region.

World Bank (2013b), www.worldbank.org/en/results/2014/10/15/in-kazakhstan-better-training-for-a-better-economy (accessed 12 April 2016).

Annex I.A1

The education system of the Republic of Kazakhstan



* Current transition to 12-year model

** The Ministry of Education of Kazakhstan does not differentiate between primary and lower secondary education. Only a few "primary education only" schools offer grades 1 to 4. Primary education can start at the age of 6 or 7.

★ Specific entrance conditions

◇ Diagnostic test or entrance examination

Source: OECD review team.

Chapter 2

Quality and relevance of higher education in Kazakhstan

This chapter focuses on the quality and relevance of higher education in Kazakhstan. It deals with the quality of student and faculty qualifications, faculty workloads and professional development, pedagogy, curriculum design and regulatory processes. It also discusses the overall outputs of higher education in light of the needs of the 21st century economy. Priority areas identified for Kazakhstan include resolving the barriers and implementation gaps in the Bologna Process and targeting inefficiencies in the current quality assurance system. Faculty development opportunities are scarce and instructional methods require improvement, while curriculum and the processes that support curricular design are not yet structured well enough to generate academic programmes of consistently high quality. The chapter stresses that the available data on student learning and the labour market outcomes of students are not sufficiently detailed to permit an extensive analysis of the quality of higher education outputs and outcomes.

Kazakhstan's aspirations, challenges and achievements

Kazakhstan's aspirations for its education system are clearly reflected in a number of policy statements that link education to the broader goal of becoming a world-leading nation. Three of these statements have direct implications on the way Kazakhstan conceives higher education quality:

- *The 2050 Strategy*, which highlights the critical role higher education plays in preparing a skilled workforce.
- *The State Programme for Education Development (SPED) for 2011-2020 and the State Programme for Education and Science Development 2016-2019 MESRK (2010)*, which stress (among many things) the need to prepare undergraduate and graduate students to meet the demands of industrial-innovative development; the importance of independent assessment of the qualifications of graduates; and the value of integration into the European Higher Education Area.
- *The Plan of the Nation: The 100 Concrete Steps*. From the perspective of this chapter, highlights of that document include the creation of a group of ten leading higher education institutions which receive extra resources and autonomy, with a view towards eventual transfer of their experiences to other institutions; the gradual devolution of the currently centralised control of education; and the gradual adoption of English as a widely used language of instruction.

The targets outlined in these documents are ambitious, but often primarily favour the "excellence" dimension of quality. They include an aspiration to be ranked among "the top 30 countries" in the Global Competitiveness Index (GCI) and to have two higher education institutions appear in the top tier of international university rankings. While such targets define quality narrowly, they may still be useful in helping countries identify weaknesses and enhance their focus on inputs and processes that require improvement.

In the 2016 GCI, Kazakhstan was ranked 42nd out of 140 countries. It stood in 60th place on the index's fifth pillar (related to higher education and training) and 67th on the quality of the education system indicator. Elsewhere, an "inadequately educated workforce" was identified as the fifth most problematic factor for doing business in the country (World Economic Forum, 2016). These rankings suggest gaps in the alignment between academic programmes, graduate outcomes and the needs of the labour market.

The Quacquarelli Symonds World University Rankings use six performance indicators (academic reputation, employer reputation, faculty/student ratios, international faculty, international students and citations per faculty) to rank universities worldwide. In the 2016 QS World University Rankings, nine Kazakhstani universities appeared in the list of the top 800 universities. These rankings use six performance indicators (academic reputation, employer reputation, faculty/student ratios, international faculty, international students

and citations per faculty) to rank universities worldwide. The best-performing Kazakhstani university in 2016 was Al Farabi Kazakh National University, which ranked 275th. Again these rankings can point to specific areas for improvement – in particular towards potential to further:

- develop and deliver academic programmes that satisfy employers and thus bolster institutional reputation
- significantly increase faculty members' research output in international indexed journals
- increase the presence of international faculty and students on campus.

However, Chapter 6 of this review cautions against overreliance on the comparative dimension of international rankings: quality improvements should be measured primarily in absolute terms. Furthermore, improving performance on these and similar metrics requires overcoming significant challenges, some of which are beyond the control of higher education institutions.

Improvement means, for instance, enhancing a variety of inputs and processes; raising the performance of educational institutions that feed students into higher education; and reforming a heavily centralised, statist approach to governance that relies too much on control mechanisms to quality. Improvement also means building the capacity of academics and academic leaders to foster learning and to run institutions; reconceptualising curricula to emphasise the development of the cognitive, social and emotional skills that students and employers both value; and teaching and assessing in ways that encourage active student engagement, shifting away from the simple memorisation of facts towards the development and application of cognitive and social skills to existing and emerging problems.

Since the 2007 OECD/World Bank Review of Higher Education in Kazakhstan, and in the face of persistent challenges, Kazakhstan has made some noteworthy strides towards meeting strategic targets for education quality. For instance:

- In 2010, the country became a signatory to the Bologna Process, indicating its willingness to reform the structure of its higher education institutions to conform to European standards. Since then, it has implemented a number of initiatives to bring practices in line with Bologna standards.
- It has expanded quality assurance practices. The National Registry for Accreditation Agencies now includes two national agencies that perform reviews of institutions and programmes (see figure 2.1), and eight international agencies that review programmes.
- It has begun a gradual shift toward institutional autonomy. Ten universities have been given greater leeway in designing curricula and in training doctoral students.

Figure 2.1. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD Recommendations	Implementation Status
Conduct a comprehensive review of the Quality Assurance (QA) system and the role that each agency plays.	Such a review has not taken place. Both national agencies accredit HEIs.The ''Independent Kazakh Agency for Education Quality Assurance in Education'' (IQAA or HKAOKO) ranks educational programmes, and the "Independent Agency for Accreditation Rating'' (IAAR or HAAP) ranks fields and levels of training. International agencies accredit only programmes.
Decentralise QA control mechanisms; move towards a stakeholder based QA control.	Accreditation remains highly centralised and QA activities are primarily to prepare institutions for accreditation. Accreditation teams should include members of the academic community, representatives of employer groups, a student, and international experts. However, it is unclear whether this has become standard practice.
Phase out classification of the HE courses and State Standards.	The State Standards have been slightly relaxed to give HEIs greater autonomy in designing curriculum. National Research Universities are given latitude for 70% of their content while National HEIs, 55%.
Entrust QA to independent accrediting agencies and professional associations.	The name of both accreditation agencies includes the term "independent" but more time will be needed to establish the practices and capacity required for full functional autonomy. Professional associations have no accrediting responsibility and are not involved in the process.
Government role should be more strategic management of quality control.	The Government remains hands on. The Attestation exercise and administrative compliance reports that faculty have to submit are examples of micro-management.
National Accreditation Centre of the Ministry of Education and Science of the Republic of Kazakhstan (NAC) should become an independent institutional accreditation agency.	Since 2012, the NAC has been reorganised into the Bologna Process and Academic Mobility Center.
Attestation should be phased out.	Attestations still continue to take place. MESRK's plan to use the results of accreditation by one of the two nationally registered accreditation agencies in lieu of attestation is still being phased in. The potential of corrupt practices in accreditation appears to be the reason for not proceeding to eliminate attestation.
Strengthen internal QA processes and focus on outcomes and competencies rather than inputs.	Internal QA (self studies) place greater emphasis on inputs and some processes. Outcome based indicators, other than publications are not emphasised. The VODE test items are in Multiple Choice format and assess mastery of facts related to subject matter rather than skills and competencies. They thus, emphasise the acquisition of facts as the most important and valued learning outcome.
Rely on reliable data to make informed decisions and make reports on institutional performance available to the public.	Even though large volumes of data are collected, there is little evidence that data undergo any analysis to guide decision-making and promote evidence-based practice. Reports on institutional performance are now more readily available on accreditation agency websites.
Reexamine value of the national test, administered during the 2nd year.	The VODE, administered during the 4th year, continues to be used to measure quality.
Take steps to ensure the quality of programs offered by international enterprises.	Accreditation is voluntary even for international enterprises.
Require fewer mandatory hours and administrative compliance duties of faculty and offer more profession development opportunities.	Faculty are given reduced teaching hours if they are engaged in research. The demands on reporting still remain a major source of complaint.

Sources: OECD/World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan*, http://dx.doi.org/10.1787/9789264033177-en.

A summary of the recommendations made in the 2007 OECD/World Bank review and their implementation status is presented in Figure 2.1.

The quality of educational inputs

In Kazakhstan's highly centralised governance system, the Law on Education (2007) and associated regulations play a major role in determining the inputs and processes of higher education. These include for instance levels of funding; who accesses higher education institutions; which students receive state grants; and which higher education institutions can offer doctoral level programmes to how many students.

The government has taken steps towards the devolution of power from the Ministry of Education and Science of the Republic of Kazakhstan (MESRK) to higher education institutions. For example, supervisory boards have been established at some institutions; the degree of required adherence to state standards for curriculum design has been reduced (especially at National Research Universities); and the National Accreditation Center has been replaced by the Bologna Process and Academic Mobility Center. However, the devolution of control has been slow due to regulatory constraints that are linked to issues of funding and governance (see Chapters 6 and 7) as well as to perceived gaps in institutions' capacity to assume full responsibility for curriculum and programme design. For example plans made in 2010, which would have given full autonomy to the National Research Universities and replaced state attestation by 2015, have not been realised.

As was reported to the OECD review team during the meetings with senior university administrators, higher education institutions would like to acquire full autonomy. This desire is also indicated by the large number of Kazakhstani higher education institutions (66) which are now signatories to the Magna Charta Universitatum. The Magna Charta is an internationally supported document that promotes good governance of universities, and is predicated on the principles of academic freedom and institutional autonomy. By signing on to this charter, higher education institutions express their commitment to academic values and purposes that are held in high international regard.

Delays in regulatory change draw attention to the interdependence between inputs, processes and outputs/outcomes in higher education. If higher education institutions lack real autonomy, they can neither be fully responsible nor fully accountable for their overall performance. In particular, if institutions are expected to perform at internationally benchmarked levels – generating outputs and outcomes that are comparable to those of

high-performing global peers – then in the areas of inputs and processes, they need to be on a level playing field with these peers.

Students

Knowledge has replaced physical capital as the most important resource for advanced economies; it has become a critical driver of economic performance and of the competitiveness of nations (OECD, 2008; The Task Force on Higher Education, 2000). The "knowledge revolution" makes it imperative that individuals engage in lifelong learning so that they remain current and are able to succeed in a changing economic environment. Participation in the knowledge economy requires not just up-to-date knowledge of specific domains, but also a broader set of skills.

The preparation, performance and outcomes of students who enrol in higher education – for example, their ability to apply higher-order thinking skills such as problem solving and analytical thinking – will depend in part on the extent to which, throughout their education, these skills have been emphasised and developed. It also depends on the extent to which they perceive that higher education, and society more generally, values these skills.

All levels of education in Kazakhstan need to break away from an emphasis on memorisation and rote learning, and move towards an approach that fosters the knowledge and skills that enable graduates to be innovative and independent thinkers, problem solvers, and collaborators. The most recent performance of 15-year-olds shows that there is still some progress to be made when it comes to basic skills (see chapter 1). Kazakhstan's 15-year-olds score much lower than the OECD average and lower than most PISA-participating countries when it comes to translating a problem into a form that is amenable to mathematical treatment; employing mathematical concepts, facts, procedures and reasoning; and interpreting, applying and evaluating mathematical outcomes (OECD, 2014a). In fact, PISA reports that 45% of Kazakhstani students are unable to understand and solve simple math problems.

PISA results on reading show a similar level of underperformance (OECD, 2014a). Almost six out of every ten students lack basic reading skills. Kazakhstani youth are able to "follow and understand continuous text" better than non-continuous text, and are on average only able to "locate one or more independent pieces of explicitly stated information" or make "simple connections." They perform better when dealing with traditional texts, and less well when relating their own experiences to the text. As in the case of math results, this suggests a disconnect between what students learn and their ability to apply knowledge in real-life situations (Inoue and Gortazar,

(2014). These findings are consistent with the review team's observation that, both at the higher education level and in the years that lead up to entry to that level, the development of broad cognitive skills is less of a focus than the memorisation of facts.

At the end of grade 11, students are assessed using the Unified National Test (UNT). This high stakes assessment serves as a school-leaving exam, but is also the pathway of entry to higher education for the majority of students who have completed grade 11. Importantly, it also determines who is eligible to receive a state grant to study.

The UNT's impact on the quality of students admitted to higher education institutions, and on student readiness to engage in learning, is a relevant factor affecting the overall quality of higher education. The test is a powerful driver of learning and teaching behaviour. However, the type of learning it values does not reflect what is expected of students at higher education institutions across the world that are increasingly oriented towards producing graduates who can excel in evolving labour markets where "book learning" is no longer enough.

Reports from the JSC Information-Analytic Center (IAC) and the media, combined with input provided by students and faculty members during interviews with the OECD review team, indicate that UNT test items primarily assess students' ability to memorise facts. However they do not appropriately measure the knowledge, skills and competencies that are outlined for example by the European Qualifications Framework, and that comparable exams such as the Irish Leaving Certificate Examination and the German *Abitur* successfully measure (OECD and the World Bank 2007). Teaching and learning efforts during the last two years of high school appear to be very much oriented towards preparing students to pass the UNT (OECD, 2014b). This means that valuable time that could be spent developing a host of cognitive, emotional and social skills is lost to the students.

Moreover, the UNT's predictive value for academic success, and its validity as an instrument to match students to a programme of study that corresponds with their interests and background knowledge, are other points of weakness. The OECD review team was able to consult a study on financial aid that was carried out by one of Kazakhstan's higher education institutions using a relatively small sample of 529 students. Among other things, this study looked at the correlation between UNT scores and students' grade point average (GPA) in their second year of study. The correlation between GPA and UNT scores was only modest ($p = 0.32$). One of the conclusions of this study was that "a 10% increase in the UNT score increases the probability of a better GPA by two hundredths of a percent to three thousandths of a percent" (Taylor, L. personal communication,

February 12, 2016). Other tests, such as the Scholastic Aptitude Test (SAT) report a higher correlation with educational outcomes (e.g. GPA, principled reasoning, career success) that is in the range of $p = 0.85 - 0.95$ (Gibbs, 2010; The Economist, 2015). To be meaningful, a high-stakes test such as the UNT would require, at the very minimum, rigorous analysis using cross-sectional data to ascertain its psychometric properties, including its predictive value for academic success.

Kazakhstan's higher education drop-out rates also potentially point to the inadequacy of the UNT in predicting academic success. In 2014-15, almost 60 000 students (12%) dropped out of their respective programmes. Of these, 24% dropped out either voluntarily or because of poor academic performance, and 29% transitioned to other forms of education. These percentages are high enough to warrant further in-depth exploration of the reasons that lead to drop-out, for example, financial barriers, poor academic preparation or low student motivation (MESRK,2014-2015). In any case, UNT scores do not seem to appropriately model how students will persist in their studies once admitted to higher education.

It is fair to conclude that the current UNT may be a good measure of students' ability to recognise correct answers and to memorise facts. However, its role as the primary gateway controlling higher education access requires careful review (OECD, 2014b; The World Bank, 2012; Winter et al., 2014a, 2014b). At a minimum, the test needs to be adjusted to ensure that it measures the knowledge and skills that are valued in modern economies and societies.

Faculty qualifications

Highly qualified and motivated faculty members are critical for the quality of higher education at the undergraduate and, in particular, the graduate level. Faculty with higher qualifications typically have more in-depth domain knowledge, and are better able to keep abreast of advances in their field. Advanced research training, which is typically acquired through doctoral-level studies, develops the ability to foster an inquiry-based approach to learning – an approach that is instrumental in building transversal skills. Well-qualified faculty tend to be more adept at the use of innovative pedagogical approaches, particularly with respect to course design, active engagement of students in the learning process and assessment (Christensen Hughes and Mighty (eds.), 2010; Svinicki and McKeachie, 2014; Weimer, 2013).

The Task Force on Higher Education and Society, convened by the World Bank and UNESCO in 2000, highlighted faculty qualifications as a serious problem in developing countries. It attributed deficiencies to:

- inadequate graduate-level training
- a tendency to use approaches that reinforce rote and passive learning
- inadequate remuneration, coupled with incentive structures that reward years of service rather than performance.

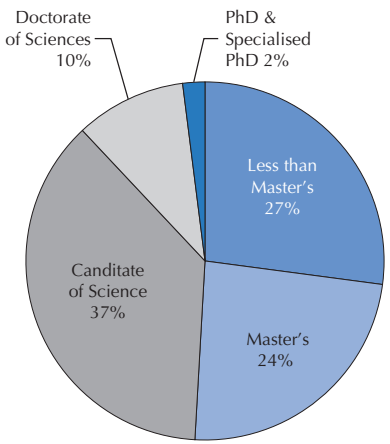
Statistics on faculty and teaching staff suggest that these problems also prevail in Kazakhstani higher education institutions, despite several initiatives aimed at bolstering the credentials and professional capacity of faculty.

Faculty appointments in Kazakhstan are made at the institutional level, although salary scales are regulated centrally. A minimum degree-level is not required as part of the academic appointment process. Appointments can be either full- or part-time, and faculty members may be assigned to teach either face-to-face or distance education courses. Despite the Minister's Order according to which faculty must hold at least a master's degree, it seems that some of them who hold less than a master's degree could be simultaneously enrolled as graduate students. A number of higher education institutions rely on visiting international faculty to bolster the overall quality of their teaching force.

Of the 40 320 individuals who made up the core teaching staff in 2014-15, nearly half had an advanced degree equivalent to a level 8 of UNESCO's International Standard Classification of Education, 2011 (ISCED). These include holders of a PhD or a specialised PhD, the Doctor of Science or the Candidate of Science degrees. Nearly a quarter of the core teaching staff (24%) held a master's degree as their highest credential. The exact qualifications distribution of the remaining 27% was not clear to the OECD review team, but this group likely includes many individuals who are in the process of obtaining their master's degree (Yergebekov and Temirbekova, 2012).

When holders of master's degrees and those with lesser qualifications are put together (Figure 2.2), the higher education system's gaps in the area of qualifications of academics become more apparent. Only 12% of faculty members hold a degree equivalent to a PhD, and the majority (51%) hold qualifications equivalent to a master's degree or less. The pattern of distribution of faculty by qualification is similar in public and private institutions (Figure 2.3).

Figure 2.2. **Faculty qualifications by degree in higher education institution in Kazakhsthan**



Sources: Ministry of Education and Science of the Republic of Kazakhstan (MESRK), Statistics (2014-2015).

Figure 2.3. **Distribution of faculty in public and private higher education institutions in Kazakhsthan, by highest degree obtained**

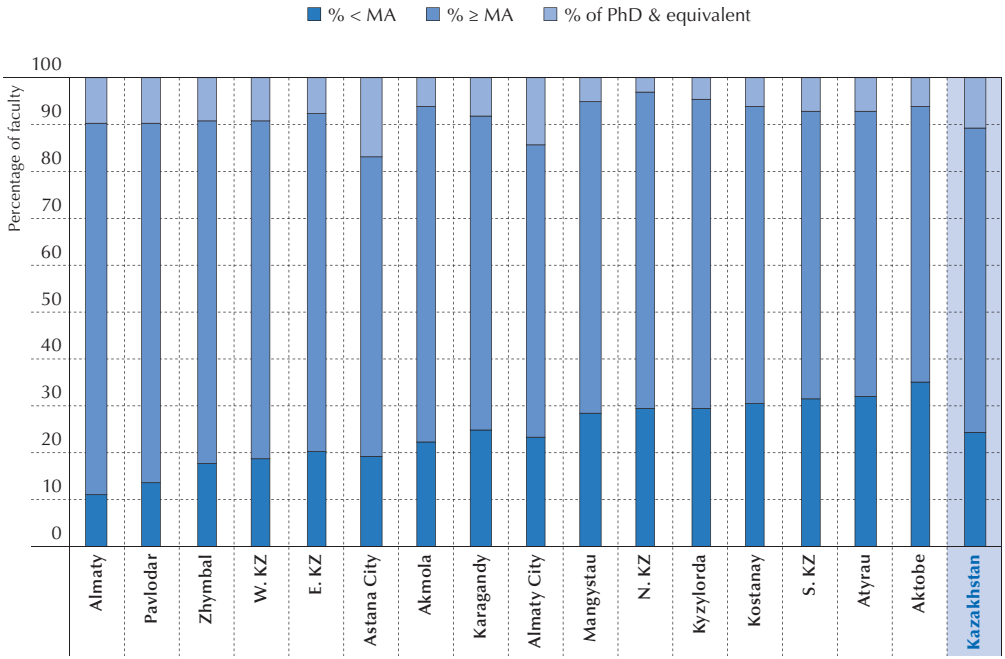
Total *	Master's or higher (%)	Master's (%)	PhD** (%)	Doctorate of Science (%)	Candidate of Science (%)	< Master's (%)
Overall (40 320)	29 394 (72.9)	24	2	10	37	27.1
Public (23 118)	16 646 (72.0)	23.4	2.3	9.9	36.2	27.9
Private (16 948)	12 561 (74.1)	24.3	2.6	9	38	25.8

* Foreign-owned institutions and those that are operated under another Ministry are not included.
**Includes specialised PhD degree.

Sources: Ministry of Education and Science of the Republic of Kazakhstan (MESRK), Statistics (2014-2015).

The distribution of faculty members' qualifications varies significantly by region, though, with implications for the uniformity of quality of instruction in Kazakhstan. Three oblasts (Aktobe, Atyrau and South Kazakhstan) have the highest percentage of faculty who hold less than a master's degree. On the other hand, Almaty, Pavlodar and Zhymbal have the lowest percentage of such faculty. North Kazakhstan, Kyzylorda and Mangystau have the lowest percentage of faculty with a PhD or a Dr. of Science degree. Astana City and Almaty City have the highest proportion of such faculty members (Figure 2.4).

Figure 2.4. **Regional distribution of faculty by highest degree obtained**



Sources: Ministry of Education and Science of the Republic of Kazakhstan (MESRK), Statistics (2014-2015).

Representatives of Kazakhstan's accreditation agencies reported to the OECD review team that inadequate faculty qualifications are one of the consistent weaknesses identified by the accreditation process. In light of these shortfalls, it has been reported that higher education institutions sometimes make temporary appointments of individuals with higher qualifications so that they can present themselves in a better light for accreditation (Yergebekov and Temirbekova, 2012).

As Kazakhstan moves to improve the performance of its higher education system, it will be important to ensure a supply of potential faculty members who are adequately prepared to advance the core mission of teaching and learning. This can only happen if the training of master's and doctoral-level students is made a top priority, and if the obstacles that currently impede access to graduate education and its completion are removed. For example, the requirement that students have one publication in international indexed scholarly journals before receiving a PhD degree represents an obstacle – in particular given that mastery of English in Kazakhstan is still very low (Chapter 5 explores this question in more detail).

It is important to recognise, though, that any increase in the number of graduate students would also require a greater number of faculty members with doctoral degrees to provide good supervision.

Quality in educational processes

Appropriate process indicators need to take into account difference in the contexts in which higher education institutions operate and the diversity of their missions. Only indicators for which the OECD review team was able to compile evidence are discussed in this section of the report. These include two regulatory processes (i.e. the adoption of the Bologna Framework, and the implementation of accreditation and quality assurance processes) and processes related to the delivery of education (i.e. the provision of student learning experiences, the curriculum and its complementary processes, and faculty and academic development).

Regulatory Processes

The Bologna Framework and its implementation in Kazakhstan

The Bologna Process was initiated to foster co-operation, support student mobility and employability and strengthen the competitiveness of European higher education. To these ends, it has worked to:

- implement a three-cycle system of credentials (bachelor's/master's/doctorate)
- improve quality assurance
- facilitate the recognition of qualifications and periods of study.

Bologna calls for signatory nations to develop their national qualifications framework in ways that correspond to the overarching Framework for Qualifications of the European Higher Education Area, and to adopt standards that embody that framework's principles.

When Kazakhstan became a signatory to the Bologna Process in 2010, it indicated its willingness to reform the structure of its higher education system to conform to European standards. Since then, it has gradually been implementing changes to better adhere to Bologna principles. Notable advances include:

- The implementation of a system for translating national Kazakhstani credits into European Credit Transfer and Accumulation System (ECTS) credits, and changes to the duration of the bachelor, master's and doctoral degrees to make them into four-two and three-year

cycles respectively. This work has been carried out with support from the European Commission's Tempus Programme (Education, Audiovisual and Culture Agency, 2010).

- Increased engagement of Kazakhstani students and faculty members in mobility activities – including through enhanced support for travel both within and outside Kazakhstan. In 2014 about 1.6% of students studied abroad for at least one semester. Kazakhstan has also supported mobility for international students and faculty coming to the country.

Despite this progress, major challenges still persist in the implementation of Bologna principles. These are apparent in the delays in building a coherent national qualifications framework and in granting full autonomy to institutions.

In interviews with faculty, the OECD review team heard both positive and negative comments about the implementation of Bologna. Younger faculty typically had more positive attitudes towards Bologna, and reported that it had forced them to focus on learning outcomes rather than on simply teaching "content". However, the team also heard that Kazakhstan's adhesion to Bologna has not led to substantive changes, because the education system continues to be heavily centralised.

Other studies have similarly observed that Kazakhstan's embrace of Bologna and its values has sometimes been more one of form than of substance (Soltys, 2014; Yergebekov and Temirbekova, 2012). The lack of substantive change has for instance been attributed to the legacy of centralised planning, which favours control and monitoring as the primary mechanism for quality control. The absence of a strong civil society has been cited as another reason why real change has not happened.

An illustrative example of the implementation gap can be observed in Kazakhstan's deployment of the European Credit Transfer and Accumulation System (ECTS). There is a substantial difference between the principles behind the system and the way it actually works in Kazakhstan. An approach which is meant to offer students flexibility in course selection appears to be dysfunctional in Kazakhstan because the Law on Education (2007) and associated regulations, impede students from freely selecting courses or instructors.

Another gap in implementing Bologna can be observed: at the time of the OECD review visit in November 2015, neither of the country's two national accreditation agencies had been able to acquire "full member" status with the European Association for Quality assurance in Higher education[1]. This reflects the fact that the principles underlying governance in Kazakhstani

higher education institutions do not entirely conform to those advocated in the European Higher Education Area, and which are outlined in the 2015 Standards and Guidelines for Quality Assurance in the European Higher Education Area. Points of divergence between the standards and the current situation in Kazakhstan include (but are not limited to):

- levels of academic integrity and freedom
- the processes by which programmes are designed and approved, their linkage with a Kazakhstani qualifications framework for higher education, and ultimately their linkage with the Framework for Qualifications of the European Higher Education Area (EHEA)
- the extent of student-centred learning
- teaching and assessment practices
- the qualifications of teaching staff
- the ongoing monitoring and cyclical review of programmes.

Even though Kazakhstan's adoption of Bologna is incomplete, the OECD review team heard concerns about some of the unintended effects that certain elements of Bologna are having on quality. For instance, it was reported to the review team that reductions in the number of years of study (e.g. to conform to the Bologna model of an undergraduate education) had harmed higher education quality. Interview participants cited mathematics and engineering as examples of where reductions in programme duration (down from five years to four) have led, in their view, to a more superficial treatment of subject matter. This complaint likely reflects a combination of student-preparation and curricular-design issues: better-prepared students, and better-designed curricula could help overcome it.

The team also observed an apparent tension regarding the value that is attributed to newly created academic credentials. Specifically, that *Kandidat Nauk* (Candidate of Science) and *Doktor Nauk* (Doctor of Science) obtained in the Soviet tradition are now perceived, at least by some, to be of a lesser value than the new PhD degree. Senior faculty appeared to be particularly sensitive to this issue. Such sentiments have also been reflected in the literature (Pak, 2010).

The tensions brought on by Bologna related-reforms, and the assertions in the academic literature about the dangers of "artificial or hasty institutionalisation" (Satpayev, 2014), suggest that the MESRK should as soon as possible undertake a careful analysis of potential barriers to the full implementation of Bologna and unintended consequences of current implementation efforts. The Ministry should then design interventions to address both sorts of issue. One possible strategy might involve marshalling

compelling and reliable data to better communicate to the public the positive impact of the Bologna reforms. Otherwise, there is the danger that an already fragile public trust may further erode and thus endanger progress towards full reform.

Accreditation and quality assurance processes

The higher education landscape has changed dramatically in the last few decades. Governments' interest in quality assurance measures, and in the potential of these to monitor, maintain and improve quality, have been heightened by a number of trends: mass participation in higher education; increased pressure on national budgets; greater emphasis on accountability, deregulation and expanding the range of providers; concerns about the relevance of education to the needs of a knowledge economy; growing internationalisation; and challenges to social cohesion (OECD, 2008).

Organisations such as the International Network for Quality Assurance Agencies in Higher Education (INQAAHE), the European Association for Quality Assurance in Higher Education (ENQA), the United Kingdom's Quality Assurance Agency for Higher Education (QAA), and Australia's Tertiary Education Quality and Standards Agency (TEQSA) have made significant contributions to systematising processes and developing quality assurance standards in ways that support both accountability and improvement. The "improvement" function underscores the value of the quality assurance process as a formative and developmental exercise. These processes will vary, of course, recognising how institutions, traditions and cultural norms differ across countries. A typology of quality assurance activities and their scope (Figure 2.5), and recommendations for designing a quality assurance framework (Box 2.1), are provided here as a reference (OECD, 2008).

Figure 2.5. **Typology of quality assurance**

Activity	Question	Emphasis	Outcomes
Accreditation	Are you good enough to be approved?	Comprehensive (mission, resources, processes)	Yes/No or Pass/Fail decision
Assessment	How good are your outputs?	Outputs	Grade (including Pass/Fail)
Audit (review)	Are you achieving your own objectives?	Processes	Description/Qualitative

Sources: OECD (2008), "Typology of quality assurance", in *Tertiary Education for a Knowledge Society, Volume 1, Special Features: Governance, Funding, Quality*, OECD Publishing, Paris, www.oecd.org/education/skills-beyond-school/41266690.pdf.

Box 2.1. **Designing a good quality assurance framework**

- Design a quality assurance framework consistent with the goals of higher education.
- Build consensus on clear goals and expectations of the quality assurance system.
- Ensure that quality assurance serves both the improvement and accountability purposes.
- Combine internal and external quality assurance mechanisms.
- Build capacity and secure legitimacy.
- Make stakeholders such as students, graduates, and employers visible in the evaluation procedures.
- Increase focus on student outcomes.
- Enhance the international comparability of the quality assurance framework.

For internal evaluation

- Develop a strong quality culture in the system.
- Put more emphasis on internal quality assurance mechanisms.
- Ensure that internal accountability is guided by key principles.
- Undertake the external validation of internal quality assurance systems.

For external evaluation

- Commit external quality assurance to an advisory role as the system gains maturity but retain strong external components in certain contexts .
- Implement adequate follow-up procedures and view quality assurance as a continuous process.
- Allow for selected assessment to be initiated by an external quality assurance agency.
- Avoid direct links between assessment results and public funding decisions.

Practical arrangements for quality assurance systems

- Avoid fragmentation of the quality assurance organisational structure.
- Avoid excessive costs and burdens.
- Improve information base about quality.
- Improve information dissemination.

Sources: OECD (2008), *Tertiary Education for the Knowledge Society, Volume 1, Special Features: Governance, Funding, Quality,* OECD Publishing, Paris, www.oecd.org/education/skills-beyond-school/41266690.pdf.

Kazakhstan established its two national accreditation agencies, the "Independent Kazakh Agency for Quality Assurance in Education (IQAA)" and the "Independent Agency for Accreditation Rating (IAAR)" in 2008 and 2011 respectively. Their mandate is to accredit both higher education institutions and academic programmes. While the titles of both agencies qualify them as "independent", more time will be needed to establish the practices and capacity required for full functional autonomy.

International accrediting agencies are also active in Kazakhstan, although their remit is limited to the accreditation of individual programmes. Eight are currently listed in the National Register for Accreditation Agencies (Kalanova, 2015). Professional associations, comparable to professional accrediting or licensing bodies in western countries, are not developed or organised enough to play a role in accrediting programmes for licensure purposes.

Accreditation in Kazakhstan stands in contradistinction to the "attestation" process, which is an older and more rigid form of quality assurance. Accreditation is performed on a voluntary basis using an institution's agency of choice. Attestation consists of reviews that are conducted at least every five years to control quality on the basis of state standards, and on the basis of which higher education institutions are authorised to operate (see Chapter 7). Attestation lacks the formative dimension of accreditation.

Based on data available at the time this report was being prepared, the two national accreditation agencies have accredited 78 higher education institutions – that is roughly 60% of all higher education institutions in Kazakhstan. Of these, 47 are public and 31 are private. The two agencies have also accredited just over 2 000 programmes, with four-fifths of these in public institutions. Also, by 2014, 139 undergraduate and graduate programmes in 22 Kazakhstani higher education institutions had been accredited by the registered international agencies.

The OECD review team heard reports about the composition of accreditation teams. These are said to be typically made up of six academics, four representatives of the Chamber of Commerce, one student and one international member. However, the team was not able to verify that international disciplinary experts are now a standard feature of accreditation panels nor that student representatives are able to convey student points of view in confidence and without fear of reprisal.

Kazakhstani higher education institutions also undertake their own internal quality assurance activities. These primarily involve the preparation of self-studies in preparation for accreditation and attestation. Given the limited information available to it, the OECD review team was unable to

discern the extent to which these activities have actually made a difference in the quality of education – other than perhaps raising some awareness in the academic community, and informing the members of that community about how they might better present themselves for accreditation. It was reported to the team that pre-attestation self-studies may simply be bureaucratic exercises.

The review team found no evidence that higher education institutions have embraced and internalised a culture of quality assurance, or that they have mechanisms in place to improve inputs, processes, and ultimately outputs and outcomes. The prevalence of a monitoring culture in Kazakhstan, coupled with the number of other concurrent activities undertaken by the MESRK to verify compliance (licensing, the still active attestation process, recurring inspections, ad hoc inspections, the EASA External assessment of students achievement test, etc.), may have undermined the potential of quality assurance to drive institutional improvement processes.

Furthermore, the large number of programmes and institutions that have undergone formal accreditation by the two national agencies in a relatively short period of time raises concern about the thoroughness of the process, given the limited number of faculty in Kazakhstan who have the expertise needed to serve on review panels. If senior and highly qualified faculty members are being seconded constantly to the accreditation agencies for this purpose, higher education institutions themselves may be deprived of one of their most important quality assurance resources. If less qualified individuals are being invited to join accreditation teams, this raises a question about their ability to express an informed opinion about quality, that is, one that goes beyond simply verifying inputs named on a checklist.

The OECD review team was also told of other capacity constraints within the accreditation process. For instance, national accreditation agencies are said to lack sufficient resources to meet effectively all requests for the review of research programmes which are an important part of the functions of an accreditation agency.

Finally, based on reports the OECD review team heard during its interviews, international accreditation team members might sometimes be participating only "at a distance". This raises questions about the extent to which Kazakhstan's accreditation process goes beyond merely the verification of compliance with standards. The ability to interact with students, faculty and academic administrators, and to directly share an outsider's perspective about programme elements and institutional policies and practices, are important advantages of on-site international participation in accreditation visits. International team members also help informally

benchmark internal practices with international norms. Kazakhstan appears to be not fully benefitting from this potential.

Clearly accreditation is still developing in Kazakhstan, and it is limited in its development by a persistent "control" approach to quality assurance. Given this, the OECD review team is concerned that the plan to have accreditation replace the old state attestation has been postponed. This postponement suggests that full trust in the work of designated accreditation agencies is still lacking. Until such trust is developed, it will be difficult to meet the very first standard of quality assurance outlined by European Association for Quality Assurance in Higher Education, which relates to the trust that institutions and the public place in accreditation agencies.

Putting greater emphasis on the improvement dimension of quality assurance through internal mechanisms will be important in developing a strong quality culture and commitment to uphold its principles. Ensuring that Kazakhstan's quality assurance framework is aligned with the goals of higher education institutions and their diverse missions, and that institutions develop the capacity to credibly engage in quality assurance, will also be important steps towards fostering a culture of quality and trust.

Student learning experiences

Many factors contribute to successful student learning. While all are important, three strike the OECD review team as especially relevant in the Kazakhstani context: student-focused approaches to learning; measures that promote active student engagement; and exposure to authentic contexts where students can apply theoretical knowledge.

Student-focused approaches to learning

The educational literature makes a distinction between a "surface" and "deep" approach to learning. This distinction separates learning where learners memorise and *reproduce* content from learning where learners *internalise* content. A surface approach yields very limited learning, whereas a deep approach fosters the kind of learning that lasts a lifetime (Gibbs, 2010; Marton and Säljö, 1976).

Students' approaches to learning are context-dependent, and are motivated by their perception of what the education system and society at large value. This makes it important that learning environments be designed in ways that foster not just the acquisition of facts and theories but also the application of knowledge. These environments also need to develop cognitive skills such as problem solving, critical and analytical thinking, reasoning;

social and emotional skills such as teamwork, leadership, and conflict resolution; and competencies that combine a variety of skillsets, such as entrepreneurship.

As this chapter has already observed, Kazakhstan's regulatory context and its high stakes UNT-based admission process push students to focus on memorisation long before they enter higher education institutions. This approach continues to be reinforced in higher education through an emphasis on knowledge retention, and by the ways in which the fourth-year VODE test (the "External Test of Academic Achievements") measures the quality of education. Like the UNT, the VODE test items normally have a multiple-choice format and assess factual knowledge related to the subject matter. The results of the VODE do not directly affect students themselves, but have important consequences for higher education institutions themselves (e.g. as part of the attestation process), and so shape instructional processes. When a high-stakes test such as the VODE focuses on the retention of facts rather than on higher-order thinking skills, it is unlikely to encourage deep learning.

On a more positive note, tests like the VODE can be adapted to shift learning approaches from surface to deep. This requires re-orienting questions to tap into higher-order learning, including advanced cognitive skills. Such changes should not, of course, be limited to just summative exams such as the VODE. They should be applied to all assessments, including assignments and classroom tests, as the higher education culture shifts to one of deep learning.

The OECD review team had a positive impression of the various social and sports clubs available to students in Kazakhstan, and of the emphasis that administrators place on the overall well-being of students. However, the team did not develop sufficient evidence to allow conclusions about the extent of active learning practices or the quality of student engagement.

The National Survey of Student Engagement (NSSE), conducted primarily in the United States, is one approach to tracking student engagement in learning. The survey seeks to determine how much time and effort students put in their studies and other complementary activities, and whether institutional support and resources are invested in activities that are known to foster student learning. Institutions use the results of this survey to develop new policies, practices and resources to make their institutional climate more conducive to student learning (Figure 2.6).

Active student engagement

Figure 2.6. **National Survey of Student Engagement themes, indicators and high-impact practices**

Engagement themes & indicators
Academic challenge
Higher-order learning; Reflective & integrative learning; Learning strategies; Quantitative reasoning
Learning with peers
Collaborative learning; Discussion with diverse others
Experiences with faculty
Student faculty interaction; Effective teaching practices
Campus environment
Quality of interactions; Supportive

High impact practices
• Learning community or some other formal programme where groups of students take two or more classes together
• Courses that include a community-based project (service-learning)
• Work with a faculty member on a research project
• Internship, co-op, field experience, student teaching, or clinical placement
• Study abroad
• Culminating senior experience (capstone course, senior project or thesis, comprehensive examination, portfolio, etc.)

Sources: NSSE (National Survey of Student Engagement), http://nsse.indiana.edu/pdf/EIs_and_HIPs_2015.pdf.

Student engagement indicators used by NSSE point to ways in which undergraduate education can be improved. While some of the included indicators such as "study abroad" fit into current national strategic directions and institutional objectives, other indicators used by NSSE could inspire positive change in Kazakhstan.

Authentic work-related experiences

Structured learning experiences that expose students to real life situations, and encourage them to apply theoretical and conceptual knowledge to concrete problems, can go a long way towards developing lifelong learners. Some effective programmes from around the world make formal, supervised opportunities a required component of the curriculum and ensure that all students are exposed to these experiences. This can be accomplished through

a variety of approaches such as internships, co-op programmes, project and problem-based learning, and research projects (Donovan et al.,1999; Sawyer, 2006) (see Box 2.2 on examples of programmes).

Box 2.2. **Effective approaches to work-integrated learning**

Waterloo University's co-op programmes

Co-op options include study/work sequences starting either in the first or second year of study. They typically involves four months of study on campus, followed by four to eight months working full time in a job related to area of study. This option is available for a range of programmes offered by the faculties of Arts, Applied Health Sciences, Engineering, Mathematics, and Science. It allows students to see how classroom learning can be applied in the workplace – thus enriching both classroom and workplace learning. It helps students develop certain skills (e.g. negotiation, conflict resolution) which are comparatively hard to teach in the classroom.

Community Service Work Study at the Massachusetts Institute of Technology

This programme provides MIT students with the opportunity to earn a pay cheque while giving back to the community. Students who qualify for Federal work-study are able to add to their work experience, hone their skills, and explore a career while helping non-profit organisations find creative solutions to the problems they face.

At the national level, the United States' Community Service Federal Work-Study Program supports learning experience like that at MIT at a wide range of institutions.

Sources: Priscilla King Gray Public Center (n.d.), http://web.mit.edu/mitpsc/whatwedo/work-study/; University of Waterloo, https://uwaterloo.ca/find-out-more/co-op/study-work-sequences.

In principle, all higher education students in Kazakhstan have work experiences as part of their programmes. This is a positive feature of higher education in Kazakhstan, giving students the chance to see how coursework can link up to the world of work. Internships in Kazakhstan are often facilitated through satellite offices that academic departments set up in enterprises.

Nonetheless, in interviews with the OECD review team, students sometimes expressed a desire to have more opportunities to gain practical experience through work placements. This suggests that there may be room to improve the work experience process. Reports from students and faculty members led the OECD review team to conclude that on-site educational activities, while widespread, are likely to differ in quality. Internships are varied and last anywhere between a few weeks to several months. Students in the second year of their programme, for instance, often get short placements where they primarily "observe" the workplace; it is unclear how much value is derived from this low-contact approach, nor how active supervision is. In other cases reported to the team, students appeared be engaged in what might primarily be characterised as seasonal labour. In upper years, though,

student work is organised around a final project that may provide a good deal of work-related experience.

The OECD review team did not come across any evidence of co-op or study/work options where formal periods of study alternate with paid internships. Many countries are experimenting with approaches to work-integrated learning using insights about how experience in the workplace can best be harnessed to develop a range of technical and transversal skills. Kazakhstan may wish to explore models from other countries as it seeks to modernise its approval to work-integrated learning. Box 2.3 outlines examples of international good practice.

Box 2.3. **Good practices in work-based learning and the Canadian Association for Co-operative Education**

Principles of the Canadian Association for Co-operative Education

Among the principles that the Canadian Association for Co-operative Education lays out for effective co-operative work-integrated learning are the following:

- Each work situation needs to be developed or approved by the university or college as a suitable learning situation.
- The co-op student needs to be engaged in productive work rather than merely observing.
- The co-op student needs to receive remuneration for the work performed.
- The co-op student's progress on the job needs to monitored by the university or college.
- The co-op student's performance on the job needs to be supervised and evaluated by the student's employer.

Best international practices in work-based learning in VET

The OECD recommends that work-based learning in vocational education and training should be:

- Systematic and mandatory: work-based learning has to be an integrated part of the vocational programme, and needs to build a culture of partnership between training providers and employers. Teachers need to work more closely with employers and help design the curriculum locally.
- Quality-assured and credit bearing: quality standards and a clear legal framework are necessary to encourage work placement arrangements. Quality assurance should play a decisive role in the accreditation of new programmes. Placements should be as useful as possible for both vocational programmes and employers, and they should be closely linked to learning outcomes.

These recommendations apply equally well to higher education.

Sources: OECD (2014), *Skills Beyond School: Synthesis Report*, OECD Reviews of Vocational Education and Training; www.cafce.ca/_Library/_documents/coopmanual.pdf.

Research experience opportunities for students have become institutionalised in many higher education institutions across the world, in part because of recommendations made by the Boyer Commission's Report on Reinventing Undergraduate Education in 1998 (see Box 2.4). Benefits of research experience for undergraduate students include greater confidence in understanding research-related issues and increased interest in careers in research and the natural sciences (Jenkins, 2004). In interviews with the OECD review team, students in some programmes (e.g. in medicine) expressed the desire to gain more research experience during their studies. It does not appear that research involvement at the undergraduate level is a deliberate focus of higher education institutions in Kazakhstan (although it may happen in some final projects). However, if Kazakhstan were to seize more extensively on the benefits of this approach, it would be important to ensure a sufficient supply of faculty members who are actively engaged in research (see Chapter 5).

Curriculum design and complementary processes

High-quality programmes intentionally develop outcomes-based curricula that follow specifications outlined in national qualifications frameworks; they design learning environments that seek to develop these outcomes. Qualifications frameworks themselves are typically built with input from the labour market, and they target knowledge and skills at different levels of education. One of their roles is to specify how different types of educational institutions articulate with each other in an education system. They thus help to determine equivalencies for the purposes of credit transfer and to identify work-related experiences for which credit can be granted.

The National Qualifications Framework

Kazakhstan's National Qualifications Framework is the blueprint that should guide the development of curricula. Kazakhstan is to be commended for taking initial steps to develop and formalise the Qualifications Framework – but this work remains in its very early stages. For instance, specific frameworks for sectors, and the standards and competencies that correspond to these, have yet to be developed.

The European Commission's Tempus review, conducted in 2012, gave Kazakhstan a score of 1 out of 5 for its work on the Qualifications Framework, noting that the process had just started. The recent first volume of the OECD *Multi-dimensional Review of Kazakhstan* also concludes that: "there is little indication to suggest that the National Qualifications Framework is now being used systematically to guide the design of curricula and to align graduate outcomes with employer needs, both in higher education institutions and VETs" (OECD, 2016).

Box 2.4. **The Boyer Commission's recommendations for changing undergraduate education in research universities**

The Boyer Commission was created in 1995 (under the auspices of the Carnegie Foundation for the Advancement of Teaching) to examine the undergraduate education offered in research universities in light of changes to the United States' higher educational landscape. The Commission began with an acknowledgement that the American higher education system had become less elite, and that there were greater demands of accountability on the part of students and parents. It also observed that the number of undergraduate professional degrees had expanded widely, and that the freshman year was often reduced to a repetition of high school curricula.

The Boyer Commission argued that unless research universities made an explicit effort to introduce students to inquiry-based learning, they would be denying them the education that they were promised. The Commission's recommendations were to:

- Make research-based learning the standard.
- Construct an inquiry-based first year of study.
- Build on the first-year foundation.
- Remove barriers to interdisciplinary education.
- Link communication skills and course work.
- Use information technology creatively.
- Culminate with a capstone experience.
- Educate graduate students as apprentice teachers.
- Change faculty reward systems.
- Cultivate a sense of community.

Sources: www.as.wvu.edu/~lbrady/boyer-report.htm.

The OECD review team was also unable to find evidence of progress. In interviews with the team, faculty members, academic administrators and students never spontaneously raised the issue of the Qualifications Framework. It seems likely that the state standards for the mandatory portion of the curricula have not followed Qualifications Framework guidelines, or that perhaps the existence of the Qualifications Framework has not been publicised widely in academic circles. It could also be that faculty simply lack the pedagogical know-how required to design outcomes-based curricula and courses. Finally, it is possible that the format of Kazakhstan's National Qualifications Framework, which clusters knowledge, skills and competencies together rather than presenting them separately (and thus

differs from the European Qualifications Framework), is not clear enough to help programmes target specific outcomes.

Certain other aspects of the Qualifications Framework also appear to undermine its potential to support high-quality education. A comparison of Kazakhstan's framework with the European Qualifications Framework reveals important differences. Level 4 of the Kazakhstani National Qualifications Framework emphasises "ability to take directions". In contrast, the European framework refers to items such as "cognitive and practical skills", "problem solving" and "autonomy" from as early as Level 2[2], and adds more complex skills and competencies at each subsequent level. The higher-order skills that are expected at Level 6 (comparable to the first cycle of higher education) include "advanced knowledge of a field", "critical understanding of theories and principles", "advanced skills demonstrating innovative approaches to solving unpredictable problems", "reflection" and "self-regulation". None are targeted directly in Kazakhstan's Framework. Clearly, much work remains to be done to bring the Qualifications Framework to a level that would be comparable to the European framework, and thus enable it to serve as the primary blueprint in developing academic curricula, courses and assessment.

Since March 2016, within the context of the State Program on Education and Science Development 2016-2019, the government approved a new National Qualifications Framework. In this framework, reference is made to concepts such as complexity, autonomy and creativity, rendering it better aligned with the European Qualifications Framework. Since these amendments were implemented after the team's visit, it is difficult to appreciate how the framework is being received and used by various stakeholders.

Curriculum design processes

The 2007 OECD/World Bank review observed the negative impact that a centralised and highly regulated education system has on curriculum design and delivery. This remains a problem, although institutions now have somewhat more freedom to deviate from state standards in curriculum design. The amount of leeway varies by institutional type: the ten institutions recently designated as National Research Universities are reportedly allowed 70% freedom in designing their bachelor's level curriculum (i.e. only 30% of the curriculum is centrally prescribed). The remaining higher education institutions have control over 55% of their curriculum. Regulation is looser at the master's level (where only 30% of the curriculum is prescribed) and at the PhD level (just 10% is prescribed).

The OECD review team was interested in finding out whether institutions are taking advantage of their new freedom to introduce varied

and innovative elements into their programme content. To this end, the team sought – but was unable to acquire – substantial documentation that would show how different institutions are structuring the "same" programme (e.g. education programmes) across the country. Nonetheless, based on the very limited information that the team was able to access, and consistent with reports during interviews, the team concludes that there is as of yet little deviation from state standards. Higher education institutions are apparently not yet making extensive use of their limited freedom to orient curricula to better reflect their mission, to meet the diverse needs of their student body, and to be more responsive to labour market needs. If this is indeed the case, the team surmises that breaking with a structured and controlled framework is a difficult step for higher education institutions to make. It seems likely that a long-standing habit of being told what and how to teach may not have permitted the development of sufficient internal expertise in curricular design.

The review team did hear a number of concerns about the curriculum that go beyond those, mentioned earlier, that were related to the effects of the Bologna Process. It was reported that Kazakhstan's higher education curriculum has a very rigid structure; that programmes have heavy (some said "excessive") credit loads; that alternative pathways to programme completion are not available; and that students have little opportunity to select their courses (electives). Many of these problems could be addressed by taking advantage of the flexibility that Bologna promotes through a carefully developed national qualifications framework. In addition, universities around the world demonstrate other potential approaches to building flexible curricula that respond to students' unique contexts (see Box 2.5 for the example in Canada).

The academic literature provides insights to support the development of a coherent and relevant 21st century curriculum. Key considerations include:

- Co-ordinate efforts with the labour market to align curriculum with the requirements of the range of professions the programme is intended to serve as well as secure supervised internships for graduate students in the private sector.
- Specify programme outcomes with respect to knowledge, competencies and skills as well as academic and professional ethics.
- Increase the use of English in courses offered at the graduate level to prepare graduates for a global context and to attract and retain international talent.
- Detail supervisory and mentorship responsibilities of faculty and offer structured mentorship in teaching for graduate students headed towards academic careers. (Douglass, 2015; Nerad and Evans, 2014).

Box 2.5. **McGill University's flexible and responsive bachelor's programme in Arts**

Students in McGill University's Bachelor of Arts degree are normally admitted to a four-year programme requiring the completion of 120 credits. However, "advanced standing" of up to 30 credits may be granted if satisfactory results are obtained in Québec's Diploma of Collegial Studies, the International Baccalaureate, the French Baccalaureate, Advanced Levels or Advanced Placement exams.

To recognise the diversity of student backgrounds and interests, the Faculty of Arts offers a 90-credit multi-track system that includes a major concentration complemented by at least one minor concentration. It may be completed in one of the following ways:

a. Major Concentration (36) + Minor Concentration (18) + 36 credits of electives

b. Major Concentration (36) + Minor Concentration (36) + 18 credits of electives

c. Major Concentration (36) + Minor Concentration (18) + Minor Concentration (18) + 18 credits of electives

Sources: www.mcgill.ca/study/2015-2016/faculties/arts/undergraduate/ug_arts_program_reqs#topic_C1AC51F9F8024453B327E7BEBD67FEE9.

Employer involvement in curriculum development

The OECD review teams spoke with employers and Chamber of Commerce representatives about the extent to which higher education institutions have ties with the labour market. The conversations confirm what has also been observed in the literature: such ties do exist, but not yet on a national, co-ordinated scale. They most often develop on an *ad hoc* basis and involve local industries (Sagintayeva et al., 2015). Some employers reported a substantial gap between student knowledge and the curriculum on the one hand, and the expectations of the labour market on the other. This is explored in more detail in the next section of this chapter.

Collaboration between employers and higher education has recently been reinforced by increased representation of the private sector on the supervisory boards of higher education institutions (i.e. at the minority of institutions where these have been implemented). It was reported to the review team that this governance change has led to the design of "over 3 000 programmes" using input from the private sector; that it has created supervised internship positions, using industry-based laboratories and equipment; and that it has generated opportunities for invited lectureships. These types of collaboration need to be tracked and evaluated to establish effectiveness – so that best practices can be replicated across the system (see Box 2.6 for two examples of effective collaboration between education and employers).

Box 2.6. **Effective collaboration between employers and education**

The Business Higher Education Round Table (B/HERT) in Australia

Since 1990, the B/HERT has stressed the importance of knowledge exchange and cross-sector collaboration in the knowledge-based economy. It has strengthened the relationship between business and the tertiary education sector by establishing strategic partnerships to develop programmes that advance education, research and innovation.

The B/HERT's main activities revolve around promoting policy debate and discussion on issues such as the training agenda as well as the importance of innovation and entrepreneurship. It also produces publications that reach a wide audience of thought leaders in education, science, research, business and civil society.

The Sectors Skills Council (SSCs) in the United Kingdom

The SSCs are employer-led organisations working with over 550 000 employers. They are licensed by the government through the United Kingdom Commission for Employment and Skills. By covering specific industries, they contribute to the development of National Occupational Standards, the design and approval of apprenticeship frameworks and the New Apprenticeship Standards, and Sector Qualification Strategies.

The SSCs' main goals are to support employers in developing and managing apprenticeship standards; to reduce skills gaps and shortages and improve productivity; to boost the skills of their sector workforces; and to improve learning supply. There are currently 21 SSCs in the United Kingdom covering in total approximately 90% of the United Kingdom workforce.

Sources: Business Higher Education Round Table, (n.d.), www.bhert.com/about.html; Federation for Industry Sector, (n.d.), http://fisss.org/sector-skills-council-body/directory-of-sscs/.

The Bologna Framework itself encourages collaboration among public authorities, universities, teachers, students, stakeholder associations, employers and quality assurance agencies. This level of harmonisation is critical for the delivery of education that is relevant to the labour market. In addition to participation of employers on boards, the development of strong national-level professional bodies is a promising approach that Kazakhstan could take to ensure that higher education programmes reflect required professional competencies.

Faculty workloads, pedagogy and professional development

Faculty workloads

Faculty members play an important role in each of the three core missions of higher education: teaching, advancing knowledge through research, and service and community engagement. The percentage of time that faculty are expected to spend on each function depends on institutional type and mission. There can be wide variation even within the same

country. For example, in North American research-intensive universities, teaching and graduate supervision typically account for 40-50% of academic responsibilities (around three or four courses per year or 135-180 classroom contact hours), with the remainder of faculty time devoted to research or, to a lesser extent, academic service and community engagement. However, in universities primarily focused on teaching, faculty might be expected to teach as many as eight courses per year, that is, four courses per term, which means 12 classroom contact hours per week.

In the United States, as in many other countries, the main mechanism for assessing faculty performance and productivity is typically an annual review. In some contexts, evidence of academic performance (e.g. student course ratings and teaching portfolios, evidence of pedagogical innovations, awards and patents, research productivity, service contributions, etc.) can also serve as the basis for calculating annual salary increases.

In Kazakhstan, faculty members are fittingly referred to as "teaching staff", since most of their time is in fact dedicated to instruction. The formal teaching load is calculated on the basis of the number of students that a faculty member is responsible for in his/her academic setting. In practice, this load can translate into to anywhere between 20 and 25 hours of contact time per week. Classes last between 50-110 minutes, and the term is 15 weeks long. Faculty members who have higher degrees or who are engaged in research are typically assigned a lighter teaching load (between 20%-50% lower). Teaching loads can thus range from approximately 400 to 750 hours per year.

A higher education institution's mission quite naturally determines both the distribution of faculty members' workload and the key performance indicators to assess faculty performance. Teaching loads of 20-25 hours per week should normally require at least an equal amount of time for preparation, grading and student engagement. This would thus effectively leave no additional time for other academic activities such as research – or it would lead to faculty members short-changing the instructional function and thus reducing the quality of student learning.

In addition to their teaching and other academic functions, faculty members are required to spend time regularly preparing monitoring reports about their activities and performance. For instance, one university rector with whom the OECD review team spoke reported requiring full weekly reports from his division heads; the work-generating effects of these reports presumably cascade down through the faculty. In interviews, the review team heard that reporting takes up a large amount of a faculty member's time, but generates little benefit for instructional quality. The 2007 OECD/World Bank review recommended reducing the reporting burden, but it appears that Kazakhstan has made little progress in this regard.

Kazakhstan needs to think carefully about its expectations of faculty members, and how these relate to its strategic objectives for higher education. For example, if the intent is to raise the research productivity of faculty, then faculty members will need time, tools and resources to engage in publishable research. High teaching loads or added responsibilities that do not directly advance the mission of the institution – for instance record-keeping requirements that generate little incremental benefit and could be effectively replaced with an annual reporting system – should be reviewed in light of Kazakhstan's overarching goals for a high-quality, responsive system of higher education.

Approaches to teaching

Around the world, greater access to higher education has resulted in more diversity in the student body. At the same time, there has been a shift in what is expected of graduates as they enter a world of employment which is characterised by rising uncertainty, speed, risk and complexity – and where interdisciplinary collaboration is increasingly the norm (Fadel, 2014; Hénard, 2010).

Effective teaching is no longer defined in terms of competent use of didactic approaches, for example, an ability to deliver well-organised lectures. Modern teaching requires innovative and multiple approaches that support different learning styles and engage all students in active learning and develop a range of skills. It also requires ongoing reflection that uses feedback from students and peers (Schön, 1983, 1987).

Higher education institutions around the world have recognised the challenges of "learning and teaching for the 21st century", and are moving to ensure that faculty members and students have the supports and experiences they need. The OECD/IMHE's survey of 29 higher education institutions in 20 countries gives a broad perspective on the main kinds of commitments that higher education is making to enhance the quality of learning and teaching (Hénard, 2010). These include:

- structures and support units (dedicated teaching and learning units; programme leaders; curriculum officers)
- incentives (teaching excellence awards; opportunities for personal and professional development)
- curriculum-related projects (fast track programmes; instruction delivered in foreign languages)
- quality assurance (course ratings; cyclical reviews; internal quality assurance for teaching and learning effectiveness)
- other innovations (e-learning platforms; learning communities; conducive learning environments).

The OECD review team was able to speak with a wide range of people (students, faculty members, employers and administrators) at over 20 higher education institutions, although it did not have the opportunity to observe actual classes is session. Based on its interviews with many students and faculty members, the team concludes that the typical higher education teaching approach in Kazakhstan remains primarily didactic, relying mainly on a lecture format. Interactive participation occurs in study groups that follow the lectures and is often led by assistants. While these groups provide an opportunity for students to process material differently, there is a risk (given what the team observed regarding professional development) that assistants lack the pedagogical fluency to foster deeper learning. Moreover, despite the OECD review team's inquiries, no specific examples were reported that would suggest that technologies are being used innovatively to support teaching that fosters deep learning, self-regulation, reflection and independence.

Teaching appears to be evaluated primarily by means of student course ratings although neither the students nor faculty were able to explain the consequences of unsatisfactory ratings. There is however an annual recognition process for excellent teaching. Each year, the "200 best teachers" across the system receive a monetary award of up to KZT 4 million. For these and other practices to have greater impact on quality, there needs to be follow-up in the form of teaching development initiatives to redress poor evaluations and to track the impact of teaching awards. For instance, empirical evidence suggests that relatively small investments in the form of grants targeted for teaching development can have a direct impact on improving the quality of curricula and teaching, and help develop a community of practice (Hum et al., 2015). Some of the funding required to support such an approach might reasonably be identified by reducing the size of the annual teaching awards.

Academic development opportunities

To remain relevant in a changing world, higher education institutions need to ensure that faculty and academic leaders have the ability to make ongoing changes to curricula and instructional processes. Dedicated teaching and learning development units based within higher education institutions are the primary supports for academic development. The academic literature explores models of both centralised and decentralised units, and examines the expertise required to foster quality learning and teaching (Saroyan and Freney (eds.), 2010). There is also much to be learned both from successful national programmes and teaching development units within institutions (see Box 2.7).

Box 2.7. **National and institutional activities targeting professional development**

Ireland's National Forum for the Enhancement of Teaching and Learning in Higher Education offers a good example of promising practices at the national level. It was established by Ireland's Minister for Education and Skills to bring together leaders, administrators and teachers and to draw on their expertise to shape best practices across all higher education institutions.

The Forum's activities include for instance "Pre-Specified Nationally Coordinated projects" which address specific sectoral-level priorities. Four projects are currently underway or planned on higher education infrastructure, data mining, digital education and open access education. Other activities include seminars, professional development, awards and a fund (the "Teaching and Learning Enhancement Fund") that seeks to build capacity to transform higher education.

The University of Sydney's Institute for Teaching and Learning provides professional learning opportunities which are based on an Academic Professional Learning and Development Framework, and are delivered through online programmes and courses. The Institute also provides a range of e-learning services to teaching staff. These include supports for communication, assessment and collaboration, as well as learning materials and objects. Faculty members can also share practical advice on teaching with colleagues through a portal "Teaching Insights".

Sources: The National Forum for the Enhancement of Teaching and Learning in Higher Education, (n.d.), www.teachingandlearning.ie; Higher Education Research and Development Society of Australasia, (n.d.), http://herdsa.org.au/; The University of Sydney, (n.d.), www.itl.usyd.edu.au/.

Academic development is typically delivered within institutions or by a cluster of institutions that have similar faculty profiles, share the same mission and are located close to each other. This allows interventions to target the competencies that are most relevant to specific educational contexts. Sustainable and nimble models focus on developing a particular expertise within a group, and using members of that group as trainers who go on to train others.

In Kazakhstan, faculty members are required by law to participate in professional development activities every five years. Such development does not take place within higher education institutions themselves, though. Rather, it is co-ordinated or offered centrally by the National Center for Professional Development (ORLEU). The standard training for higher education faculty includes four modules on innovative methods, independent learning for students, information technology, and management and new criteria for assessment. The courses are offered on-line for their first two weeks, followed by a test. The remainder of the programme is offered face-to-face. Trainers are typically Kazakhstanis, though occasionally international experts are used. ORLEU also partners with a number of foreign universities and

organisations – including the University of Valencia, New Castle University and Pearson Publishing – to deliver academic development to faculty in international settings; 933 individuals have benefited from this opportunity.

The number of individuals who have benefited from ORLEU training programmes was reported to the team as being between 4 000 and "more than 7 000". In other words, between 9% and 17% of current or recent faculty members may have benefited from some academic development activity. In addition, the Graduate School of Education of Nazarbayev University is also involved in academic development, in particular of leadership capacity in senior academic management. The scope of this project, and its impact on quality, were not evident to the review team.

Making continuing academic development mandatory is an important achievement, and represents a potentially powerful mechanism for ensuring much-needed professional capacity in academics, teachers and academic leaders. However, Kazakhstan's centralised model, offering a fixed set of training modules, may not be optimal. Faculty members in Kazakhstani higher education institutions are very diverse with respect to their academic and pedagogical qualifications. This means that they will often require different types of interventions. In the face of the urgent challenge of raising overall levels of faculty proficiency and qualifications, a centralised model – which lacks the multiplier effect of a "teach trainers to train others" approach – is unlikely to be an adequate response.

Higher education and Kazakhstan's school teachers

A related issue is the quality of the "pre-service" and "in-service" training that Kazakhstani higher education provides to primary and secondary school teachers. Roughly one-quarter of all higher education students are enrolled in education programmes, and the majority of these are in teacher education programmes. Previous OECD research has raised concerns with respect to teacher education in Kazakhstan (OECD and the World Bank, 2015; OECD, 2014c). While the present review did not analyse in depth teacher education programmes, various factors signal that the professionalisation of teachers would likely require an overhaul in their design and delivery.

Currently, the lack of national standards for teachers - an important element of professionalisation - presents an obstacle to high and consistent quality in initial and continuous teacher education in Kazakhstan. Having clear and concise standards would certainly help to clarify expectations and serve as a framework for the selection of candidates, enable better judgement of competences and provide guidelines for professional development and career progression. It seems that the current framework for teacher professional development is not in phase with teachers' needs. This is due

to the high level of specialisation of degrees limiting the flexibility of the teacher on the labour market, the lack of assessments identifying the competences to teach, and the limited autonomy of institutions designing their teacher education programmes.

One way to free up considerable resources, which might then be invested in modern programmes and the professionalisation of teachers, would be for education programmes to stop providing coursework in disciplinary areas (e.g. math, science, Kazakh language). Based on its observations, it is the opinion of the OECD review team that this coursework risks being an inferior replication of similar programmes offered in the more comprehensive universities. Instead, education programmes could take in students who already have a degree in a subject area, and enrol them in a one- or two-year graduate-level programme whose sole focus would be developing professional and pedagogical capacities. Greater time and emphasis on developing teachers' pedagogical skills will be critical to effecting a transition towards more student-focused approaches to teaching and learning. Alternatively, education programmes could team up with faculties at other institutions to offer a joint programme that might lead to three kinds of degree: an undergraduate degree, a Bachelor of Education degree, and a professional teacher education which entitles a graduate to teach in schools (see box 2.8 for an example from Ontario).

Box 2.8. **The Ontario Institute for the Study of Education's Teacher Education Undergraduate Program**

The Concurrent Teacher Education Program is a five-year programme in which students complete the requirements for an undergraduate degree, a Bachelor of Education degree and a professional teacher qualification simultaneously. The undergraduate degree programme provides students with the necessary knowledge for their teaching areas, along with several introductory education-focused courses and field experiences. The Bachelor of Education degree is focused on developing essential skills to effectively apply the subject-specific knowledge gained in the undergraduate degree programme to the teaching profession. It connects theory to practice.

Sources: Ontario Institute for Studies in Education (n.d.), Program Strucuture, www.oise.utoronto.ca/BEdConcurrent/About_CTEP/Program_Structure.html.

Quality of outputs and outcomes

There are multiple possible indicators of quality outputs and outcomes. These might include completion and dropout rates, time to completion, measures of skills gained, graduate employability, graduate labour market outcomes (including employer satisfaction measures) and graduate satisfaction. Indicators can also be linked to each other. For instance,

linkages between input and output indicators can be used to measure efficiency. If data is reliable and its time series are robust, many output and outcomes indicators can be quantified and tracked over time to explore trends and changes in patterns.

In this section, one key outcome will be explored: graduate employment (which itself presupposes the instructional skills output, "graduate employability").

Overall outputs of higher education in Kazakhstan

Among others, policy makers face two key questions when evaluating higher education systems:

- Is the system producing a sufficient number of graduates overall?
- Does the mix of graduates correspond to the skills needs of the economy?

The mix of enrolments by field of study is one aspect of a response to the latter question – although analysis also needs to take into account the mix of (and level of) cognitive, social and emotional skills developed in students. In the absence of reliable measures of these transversal skills in Kazakhstan, the OECD review team has focused its analysis on the issue of disciplinary mix.

In the 2014-2015 academic year, a total of approximately 475 000 students enrolled in higher education institutions. As Chapter 3 explains in greater detail, government-issued grants (provided to roughly one-quarter of students) are the mechanism used to draw students into disciplines where there is projected need for growth.

If the government's intent is not merely to ensure a minimum number of graduates in certain fields, but rather to encourage more students to enrol in these disciplines through signals about their relative importance, then it is unclear that it is succeeding (Figure 2.7). The fields where state grants are most numerous are not necessarily the fields of highest enrolment.

However, even assuming the public policy intention is merely to ensure that there are a minimum number of graduates in any given field, the mechanism by which that State determines these quotas, and the actual quota mechanism itself, face several challenges. Leaving aside issues raised in Chapter 3 (regarding the equity implications of the state grant) and Chapter 6 (regarding the deadweight losses that the grant system incurs, since it presumably pays individuals to do something they would themselves do without incentive), if the State Order approach is to be effective in a market or mixed market (rather than a planned) economy, it would need to be based on exceptionally good labour intelligence about future labour markets.

Figure 2.7. **Educational grants (2014-15) and enrolment patterns (2015-16)**

Educational grants awarded in 2014-15 (%)		Proportion of students in disciplines in 2015-16 (%)	
Technical Sciences	41.70	Education	28.00
Education	19.30	Technical Sciences and Technology	23.60
Health (doctors)	13.50	Social Sciences, Economy, Business	16.60
Agriculture	6.80	Law	12.80
Science	4.80	Services	4.20
Service sector	3.20	Arts	4.20
Social Sciences, Economics	2.90	Humanities	3.40
Humanities	2.70	Agricultural Sciences	2.30
Veterinary Sciences	2.10	Natural Sciences	2.30
Law	1.50	Medical Services and Healthcare	1.30
Arts	0.80	Military Science Security	0.50
Military Sciences	0.20	Veterinary Sciences	0

Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK) (2014-2015), www.stat.gov.kz

To a certain extent, the State does have some intelligence – but only (and even here, imperfectly) on the demand side, that is, regarding its own hiring decisions and its planning assumptions. It is the OECD review team's understanding that the State Order is based largely on input from various ministries across the government who are using information derived from their own business plans, any assumptions they might make about the effects of large-scale public initiatives (e.g. an industrialisation programme), and perhaps (to an unclear extent), input from the sectors that they must often work with.

The risks of this approach are fourfold and interrelated:

- Insofar as it can forecast labour market needs, the model can primarily only forecast them in the shorter term – whereas higher education trains students (at least youth, who make up most of the Kazakhstani student body) to prepare them for a life of work.
- The model is focused on an instrumentalist view of higher education disciplines – e.g. embodying the assumption that certain occupations neatly correspond to certain fields of study. In truth, though, in many OECD countries even graduates from highly "specialised" fields of study, such as engineering, end up working in a wide range of occupations. This is because individual fields of study build a range of skills beyond narrow technical ones.
- The supply side of the labour market – i.e. who will be available to take up what kind of job – cannot be modelled by ministries based on

their information about their own demand, and their related sector's demand, for labour. There is a constant churn in labour markets as individuals (not just new graduates) enter and exit them.

- There appears to be a lack of data in Kazakhstan to reliably model private sector (i.e. market) needs.

This latter point is worth some elaboration. A limited argument might be made for planning a State Order of some student spaces based on recent trends in employment outcomes data, if students are not acting on this information. For instance, if the relative wages of graduates of one discipline are consistently high, or consistently rising, that could be a market signal that such graduates are in demand (whether or not they are working in an occupation which "matches" their field of study). Such a signal would then, in theory, be picked up by students entering higher education, who would then "vote with their feet" for the most desirable disciplines (at least until these disciplines became saturated, at which point returns to their investments would begin to fall). Of course, markets do not typically work in this idealised way: students will lack information or may, for other reasons, show little interest in certain "in demand" fields of study. In that case, a limited argument might be made for public intervention (e.g. via grants) to address the market failure by encouraging enrolments.

The OECD review team also learned of work to develop a labour market anticipation model in Kazakhstan. The status of this model, and its inner workings, were not clear to the team. It is the review team's understanding, though, that this model is not used to inform the state order of higher education spaces.

Looking forward, then, Kazakhstan needs to ensure that it invests in the kinds of labour market data that can help it understand how employers are using, and demanding, the skills graduates. Such data would include indicators such as employment and wages – but would also need to look at self-employment income and, ideally, at indicators in areas such as job quality and skills match. Surveys of employers to determine their level of satisfaction with the quality of graduates would also be very valuable were they to be systematised – as would be surveys of recent graduates. Such surveys, if conducted regularly, can provide ongoing and up-to-date input to institutions about their curricula and their quality of teaching. They can also provide governments and individuals with information about current and emerging labour market demands.

In the end, good information about graduate labour market outcomes should have students themselves, not governments, as its primary customer. Some version of a "State Order" (i.e. public support targeted at specific fields) will doubtless always be necessary to ensure that market failures do

not distort the production of graduates – and that the upfront costs of certain less well-remunerated occupations are low enough to allow students to expect to make a reasonable return on their educational investment. Over time, though, Kazakhstan needs to shift *towards* a model where informed students are able to make good decisions about their studies based on reliable and *well understood* labour market information.

The needs of 21st century economies

As noted above, the state order system appears to be based on an instrumentalist view of higher education that focuses on vocational and professional knowledge and skills. Employers, however, are focused on a broader range of skills. For instance, using the database "Labor Insights", Georgetown University's Center for Continuing and Professional Education (CCPE) had identified the 15 key skills sought by employers. The top six are communication skills, organisational skills, writing, customer service, information processing and problem solving (CCPE, 2016). Similar findings are reported by surveys in a variety of countries. All this explains the growing focus of governments and higher education on ensuring that higher education students develop key cognitive, social and emotional skills that are transferrable across jobs. It is thus a matter of concern that important subjects which contribute to the development of imagination, creativity and collaborative skills do not figure after 7th grade in the Kazakhstani secondary curriculum, and are not being emphasised in higher education curricula (OECD, 2014c).

The 2016 OECD Multi-dimensional Review of Kazakhstan points to similar gaps. It argues that, despite Kazakhstan's high literacy rates, individuals entering the workforce often do not possess the types of skills and competencies that would help propel growth in a range of sectors. It also highlights the need for an approach to skills development that takes into account what is needed by small and medium-sized enterprises – suggesting that such a strategy could also reduce brain drain and attract talent to the country (OECD, 2016).

In this light, a survey of employers carried out in 2014 by the "Sange" Research Center on Competitiveness (Sange Research Center, 2014) is revealing. It found that employers' perceptions of the quality of education were not particularly positive. The general view was that programmes had a limited applied component, that there was a gap between the knowledge of students and curricula and the expectations of the labour market, and that graduates had to be retrained once they were hired fresh out of Kazakhstani higher education institutions. Employers stressed underdeveloped leadership qualities, poor communication skills especially in English, limited analytic and problem-solving abilities, and shortfalls in the ability to think and work

independently and to take risks. They acknowledged, though, that graduates of certain institutions consistently stood out as being much better prepared. It should be noted that Kazakhstan is not alone here. According to the World Bank Business Environment and Enterprise Performance (BEEPS) Survey in 2008, more than 40% of firms were dissatisfied with the availability of skilled workers in the middle-income CIS countries (World Bank, 2012).

In the 2014 "Sange" survey, employers also pointed to attitudinal issues affecting graduates: unrealistic expectations in terms of position and pay vis-à-vis their qualifications and competencies; an expectation to be constantly awarded and acknowledged for the work they do; and overconfidence bred in them by their institutions about the types of employment they were likely to secure following graduation. Some suggested that shortcomings were partly due to low levels of co-operation between employers and higher education institutions, and the unwillingness of higher education institutions to receive feedback from employers. The group suggested that by investing time in building relationships with employers and creating networks of alumni, higher education institutions could significantly enhance quality.

The findings of this survey are in many respects consistent with what the OECD review team heard when meeting with employers (who were convened by higher education institutions themselves) across the country. It would be fair to report that many of the Kazakhstani employers indicated they were happy with the technical skills of graduates, if not necessarily with the other "transversal" skills identified above. Informants who represented international firms were rather less sanguine: they expressed concerns about levels of both technical and transversal skills.

Reports from international firms as employers do suggest that higher education is not training graduates to internationally benchmarked levels of skills – and that Kazakhstani employers do not necessarily expect or demand these levels of skills. This in turn suggests the danger of Kazakhstan falling into a "low-skills equilibrium", where low expectations become a self-fulfilling prophecy. This would impede the further productivity gains that Kazakhstan needs to meet its ambitious targets for economic growth.

The shortcomings highlighted above once again underscore that outcomes are very much dependent on processes. The targeting and intentional development of cognitive, social and emotional skills at all levels of education stands out as one area of some urgency.

The clear message from employers is that they want graduates who not only have good domain knowledge, but can apply their knowledge and lifelong learning skills, can use language and technology effectively, can innovate and think outside the box, and can learn on the job (see Box 2.9).

Box 2.9. **What skills outcomes to target?**

Drawing on decades of educational, psychological, sociological and economic research, policy-oriented organisations such as the OECD, The Conference Board of Canada, Canada's National Research Council, and the United States' National Center on Education and the Economy have recommended that educational institutions foster the development of cognitive competencies (e.g. reasoning, creativity, intellectual openness); fundamental skills (e.g. the ability to use tools such as language and technology effectively, information management, the ability to use numbers, thinking and problem solving); team work skills (e.g. interacting in heterogeneous groups, participating in projects and tasks, leadership); and personal management skills (e.g. acting autonomously and conscientiously, demonstrating positive attitudes, being responsible, being adaptable, learning continuously and working safely). They have also recommended that curricula and complementary educational experiences, teaching approaches and pedagogies, and assessments all be aligned to foster these learning outcomes.

Sources: Conference Board of Canada (2000), www.conferenceboard.ca/topics/education/learning-tools/employability-skills.aspx (accessed 25 April 20106).
Pellegrino, J. (2006), "Rethinking and Redesigning Curriculum, Instruction, and Assessment: What Contemporary Research and Theory Suggests", National Centre on Education and Economy for the New Commission on the Skills of the American Workforce, Pennsylvania.
Pellegrino, J. and M. Hilton (eds.) (2012), *Education for Life and Work: Desirable Knowledge and Skills for the 21st Century*, National Research Council and National Academic Press, Washington DC.
Pellegrino, J., N. Chudowsky and R. Glaser (eds.) (2001), *Knowing what students know: the science and design of educational assessment*, National Academic Press, Washington DC.
OECD (2008), *Tertiary Education for the Knowledge Society, Volume 1, Special Features: Governance, Funding, Quality*, www.oecd.org/education/skills-beyond-school/41266690.pdf.

Recommendations

This review recommends that Kazakhstan:

Place greater emphasis on "21st century" graduate outcomes. Make systematic modifications to the inputs that higher education uses and to the processes it employs, in order to help students better develop the skills, knowledge and competencies that prepare them for lifelong learning, and that help them succeed in a changing world.

- Actively orient academic programmes towards the knowledge, skills and competencies that will be relevant in the face of continuous social and economic change in the 21st century (i.e. not just specific vocational skills). Ensure that curriculum and course content, teaching approaches and assessment methods are aligned to produce these outcomes. Build approaches that develop analysis, application, creativity and divergent thinking into all programmes.
- Make certain that complementary learning experiences, such as internships and extra-curricular activities, also help students acquire a broad range of skills.

- Fully develop a useful, modern and easy-to-use National Qualifications Framework – with employer input playing an important role in this process. Align the specifications of knowledge, skills and competencies for each level of the framework with international benchmarks (e.g. those found in the European Qualifications Framework). Institutions should rigorously apply the framework when designing and implementing the curriculum, and when assessing and determining credit equivalencies.
- Orient the UNT towards assessing specified outcomes that correspond to those outlined in the modern National Qualifications Framework. Supplement the UNT with other tools (e.g. a separate entrance examination, grade point averages at the secondary level, personal statements) that are appropriate for controlling student admissions into higher education.
- Enhance flexibility in course selection and encourage cross-disciplinary course choices.

Reinforce linkages between higher education institutions and the employer community.

- Ensure that higher education programmes and institutions – and the higher education system as a whole – further develop their collaborative links with employers. Move from the current local *ad hoc* approach of employer engagement to a more structured one.
- Ensure that internships and other work-study opportunities *actively* expose students to authentic work-related situations. Explore alternative approaches (e.g. co-ops). Evaluate the impact of work experiences.
- Consider offering undergraduate students formal research and inquiry approach experiences.
- Reinforce faculty members' linkages to the labour market, so that they keep abreast of current practices and needs. Encourage team teaching that pairs academics with practitioners.

Put in place decentralised structures and mechanisms that efficiently and effectively enhance the qualifications and the professional experiences of academics, teachers and academic leaders.

- Provide academic and professional development opportunities *locally* for all core academic staff and academic leaders. Use qualified experts to deliver this training. Focus in particular on developing expertise in programme and course design, student-centred teaching approaches, and the assessment of cognitive, social and emotional skills.

- Formalise mechanisms to systematically transfer any existing faculty development approaches employed at Nazarbayev University and the national universities to other higher education institutions. Evaluate the impact of these approaches.
- Ensure that faculty members with the highest qualifications are well distributed across the higher education system.
- Review the current faculty workload structure, ensuring that total classroom contact hours are not so high that they detract from faculty members' performance of other instructional and research duties.
- Conduct a careful analysis of teacher education programmes, with a view towards modernising their curricula and design, and thus better professionalising future and current teachers. Consider the option of offering a teacher education programme at the graduate level.

Put in place robust mechanisms to facilitate continuous quality improvement.

At the system level:

- Create conditions that will enable higher education institutions, the accreditation process, and other quality assurance processes to conform fully to Bologna principles and standards.
  - Shift from monitoring for control to a formative evaluation approach that supports improvement.
  - Engender trust in processes such as accreditation that have been put in place for quality assurance: ensure that these processes are reliable, and that the responsibilities and accountabilities of the entities that oversee them are clear.
- Set achievable and realistic targets and metrics for assessing the quality of different types of higher education institutions. Reward improved performance.
- Embrace evidence-based practice. Use data analytics to make informed policy decisions. Ensure that data and their interpretation are reliable and publicly available.

At the institutional level:

- Strengthen internal quality assurance. Conduct cyclical reviews of academic programmes, engaging faculty in the peer review process. Reduce reliance on rote reporting.
- Actively use feedback from student course ratings as well as other inputs (e.g. self-reflection, teaching portfolios, etc.) to improve teaching and learning.

- Benchmark programme content and outcomes against peer programmes at an *international* level.

Support higher education with a strong and well-disseminated system of labour market information that reports on the outcomes of higher education graduates.

- Over time, shift away from a central planning approach (embodied in the current state order system), and move towards one that provides students with sophisticated labour market information that empowers them to make choices that reflect economic demand for a broad range of skills.
- Retain, as necessary, targeted funding approaches that specifically address labour market failures. Move away, though, from approaches that merely fund students to do what they otherwise would have done on their own initiative.

Note

1. IQAA became a full member of the European Association for Quality Assurance in Higher Education on 13 February 2017. IAAR became a full member of the European Association for Quality Assurance in Higher Education on 30 November 2016.
2. This refers to students below level 2 of proficiency in mathematics according to the PISA 2012 framework.

References

Boyer Commission on Educating Undergraduates in the Research University (1998), *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*, Carnegie Foundation for the Advancement of Teaching, US, www.adelaide.edu.au/rsd/evidence/related-articles/Boyer_Report.pdf (accessed 10 February, 2016).

Business Higher Education Round table (n.d.), www.bhert.com/about.html

Christensen Hughes, J. and E. Mighty (eds.) (2010), *Taking Stock: Research on Teaching and Learning in Higher Education*, School of Policy Studies, Queen's University, McGill-Queen's University Press, Kingston, Canada.

Conference Board of Canada (2000), www.conferenceboard.ca/topics/education/learning-tools/employability-skills.aspx (accessed 25 April 2016).

Donovan, S., J. Bransford and J. Pellegrino (1999), *How People Learn: Bridging Research and Practice,* National Academy of Sciences, Washington DC.

Douglass, J. (ed.), (2016), *The New Flagship University: Changing the Paradigm from Global Ranking to National Relevancy*, Palgrave MacMillan, New York, http://dx.doi.org/10.1057/9781137500496.

EACEA (2010), *State Program of Education Development in the Republic of Kazakhstan for 2011-2020*, European Commission, Tempus, http://eacea.ec.europa.eu/tempus/participating_countries/overview/Kazakhstan.pdf. (accessed 25 April 2016).

European Association for Quality Assurance in Higher Education (ENQA) et al. (2015), Standards and Guidelines for Quality Assurance in the European Higher Education Area, Brussels, www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf.

Fadel, C. (2014), "21st century education", presentation made at the OECD "What Works" Conference on fostering quality teaching in higher education, Paris, 8-9 April.

Georgetown University's Center for Continuing and Professional Education (CCPE, 2016): http://scs.georgetown.edu/departments/5/center-for-continuing-and-professional-education/news/5504/top-skills-job-seekers-in-2016

Gibbs, G. (2010), *Dimensions of Quality*, The Higher Education Academy, York, United Kingdom.

Hénard, F. (2010), *Learning our Lesson: Review of Quality Teaching in Higher Education*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264079281-en

Hum, G., C. Amundsen and E. Emmioglu (2015), "Evaluating a scholarship of teaching and learning grants program: Our framework, process, initial findings, and reflections", *Studies in Educational Evaluation,* Vol. 46, pp. 29-38.

Inoue, K. and L. Gortazar (2014), *Strengthening Kazakhstan's education systems: An analysis of PISA 2009 and 2012*, World Bank Group, Washington DC, http://documents.worldbank.org/curated/en/453571468050713745/Strengthening-Kazakhstans-education-systems-an-analysis-of-PISA-2009-and-2012.

Jenkins, A. (2004), *A Guide to the Research on Teaching-Research Relations*, Higher Education Academy, York, United Kingdom.

Kalanova, S. (2015), "Kazakhstan: A higher education system opening to Europe", presentation made at a seminar organised by the *Agencia de Calidad y Prospectiva Universitaria de Aragon*, 17 April, Zaragoza, Spain.

Law on Education (2007), Law on Education of the Republic of Kazakhstan, of 27 July 2007, No.319 –III ZRK, About education, last edition of 09 April 2016.

Marton, F. and R. Säljö (1976), "On Qualitative Differences in Learning: 1- Outcome and Process", *British Journal of Educational Psychology,* Vol. 46, pp. 4-11.

MCGILL University's (2015), www.mcgill/study/2015-2016/faculties/arts/undergraduate/ug-arts-program.

MESRK(2016), The State Programme for Education and Science Development in the Republic of Kazakhstan 2016-19, RK Presidential decree as of 1 March, 2016.

MESRK (2014-2015), Statistics, Ministry of Education and Science of the Republic of Kazakhstan, http://edu.gov.kz.

MESRK (2010), The State Program for Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential decree as of 7 December, 2010, Number 1118.

MNERK (2014-2015), Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics, www.stat.gov.

National Center on Education and the Economy (2008), *Tough Choices or Tough Times: The Report of the New Commission on the Skills of the American Workforce*, Jossey-Bass, San Francisco.

NSSE (2015), " Engagement Indicators and High-Impact Practices", National Survey of Student Engagement, http://nsse.indiana.edu/pdf/EIs_and_HIPs_2015.pdf.

Nazarbayev University Graduate School of Education (2014), *Development of Strategic Directions for Education Reforms in Kazakhstan for 2015-2020,* Diagnostic Report, Indigo Print, Astana.

Nerad, M. and B. Evans (eds.) (2014), *Globalization and Its Impacts on the Quality of PhD Education: Forces and Forms in Doctoral Education*, Global Perspectives on Higher Education, Sense Publishers, Rotterdam, http://dx.doi.org/10.1007/978-94-6209-569 -4.

OECD (2016), *Multi-dimensional Review of Kazakhstan*: *Volume 1. Initial Assessment,* OECD Development Pathways, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264246768-en.

OECD (2014), *Skills Beyond School: Synthesis Report*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264214682-en.

OECD (2014a), *PISA 2012 Results: What Students Know and Can Do: Student Performance in Mathematics, Reading and Science* (Volume I, Revised edition, February 2014), PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264208780-en.

OECD (2014b), *Reviews of National Policies for Education: Secondary Education in Kazakhstan*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264205208-en.

OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264177338-en.

OECD (2008), *Tertiary Education for the Knowledge Society, Volume 1, Special Features: Governance, Funding, Quality*, OECD Publishing, Paris, www.oecd.org/education/skills-beyond-school/41266690.pdf.

OECD/The World Bank (2015), *OECD Reviews of School Resources: Kazakhstan 2015*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264245891-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan,* http://dx.doi.org/10.1787/9789264033177-en.

Pak, N. (2010), "Integration of the Republic of Kazakhstan into Global Educational Scenario: from Reforms in Education to Quality Assurance Enhancement and World Ranking Participation", *Global Management Journal*, Vol. 3, No. 2, http://globalmj.eu/?s=Natalya+Pak (accessed 20 February 2016).

Pellegrino, J. (2006), "Rethinking and Redesigning Curriculum, Instruction, and Assessment: What Contemporary Research and Theory Suggests", National Centre on Education and Economy for the New Commission on the Skills of the American Workforce, Pennsylvania.

Pellegrino, J. and M. Hilton (eds.) (2012), *Education for Life and Work: Desirable Knowledge and Skills for the 21st Century*, National Research Council and National Academic Press, Washington DC.

Pellegrino, J., N. Chudowsky and R. Glaser (eds.) (2001), *Knowing what students know: the science and design of educational assessment,* National Academic Press, Washington DC.

Priscilla King Gray Public Center (n.d.), http://web.net.edu/mitpsc/whatwedo/work-study/.

Sagintayeva, A. et al. (2015), "University-Industry Partnerships in Kazakhstan as a Strategy for Higher Education Reform", presentation at the European Educational Research Conference, Berlin, 8-11 September.

Sange Research Center (2014), "Education and Research Assessment in Kazakhstan through GCI indicators" (in Kazakh).

Saroyan, A. and M. Frenay (eds.) (2010), *Building Teaching Capacity in Universities: From Faculty Development to Educational Development*, Stylus, Sterling, VA.

Satpayev, D. (2014), "Corruption in Kazakhstan and the Quality of Governance", IDE Discussion Paper No. 475, *Institute of Developing Economies,* Chiba, Japan, www.ide.go.jp/English/Publish/Download/Dp/pdf/475.pdf (accessed 30 January 2016).

Sawyer, K. (2006), *The Cambridge Handbook of the Learning Sciences,* Cambridge University Press, New York.

Schön, D.A. (1983), *The Reflective Practitioner: How Professionals Think in Action*, London, Temple Smith, London.

Schön, D.A. (1987), *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions,* Jossey-Bass Publishers, London.

Soltys, D. (2014), "Similarities, divergence, and incapacity in the Bologna Process reform implementation by the former socialist countries: the self-defeat of state regulations", *Comparative Education,* Vol. 51, No. 2, pp. 179-195. http://dx.doi.org/10.1080/03050068.2014.957908.

State program on Education and Science Development 2016-2019 (SPESD), http://adilet.zan.kz/rus/docs/U1600000205/.

Svinicki, M. and W. McKeachie (2014), *McKeachie's Teaching Tips*, 14th ed. Wadsworth Cengage Learning, Belmont, CA.

Task Force on Higher Education and Society, (2000), *Higher Education in Developing Countries: Peril and Promise*, The World Bank, Washington DC.

The Economist (2015), "The value of University: Where's the best?" www.economist.com/news/united-states/21677231-new-federal-data-reveal-which-colleges-do-most-their-graduates-pay-packets-they-are.

University of waterloo, https://uwaterloo.ca/find-out-more/co-op/.

Weimer, M. (2013), *Learner-Centered Teaching: Five Key Changes to Practice*, 2nd ed., Jossey-Bass, San Francisco.

Winter, L. et al. (2014a), "The Culture and Practice of Assessment in Kazakhstan: The Unified National Test, Past and Present", in *Educational Reform and Internationalisation: The Case of School Reform in Kazakhstan* (pp. 106-132), Cambridge University Press, Cambridge.

Winter, L. et al. (2014b), The Culture and Practice of Assessment in Kazakhstan: An Alternative Model and the Future", in *Educational Reform and Internationalisation: The Case of School Reform in Kazakhstan* (pp. 133-151), Cambridge University Press, Cambridge.

World Bank (2012), *Kazakhstan - Student Assessment*, Saber Country Report, www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/08/12/000356161_20130812163634/Rendered/PDF/799380WP0SABER0Box0379795B00PUBLIC0.pdf. (accessed 25 April, 2016).

World Bank (2002), *Constructing Knowledge Societies: New Challenges for Tertiary Education*, The World Bank, Washington DC.

World Economic Forum (2016), *The Global Competitiveness Report, 2015-2016*, Geneva, www3.weforum.org/docs/gcr/2015-2016/Global_Competitiveness_Report_2015-2016.pdf. (accessed on 25 April 2016).

Yergebekov, M. and Z. Temirbekova (2012), "The Bologna Process and Problems in Higher Education System of Kazakhstan," *Procedia - Social and Behavioral Sciences,* Vol. 47, pp. 1473-1478.

Chapter 3

Access and equity in higher education in Kazakhstan

This chapter looks at access, student preparation and admissions requirements for higher education. It also discusses the financial aid system and its effects on equity of access, as well as the barriers to equal academic achievement. The system in Kazakhstan places particular focus on high-performing students and there is a lack of data and monitoring processes to support disadvantaged students. Poor and uneven student preparation as well as current admissions requirements tends to favour students from better-resourced schools and those whose parents can afford tutoring. The systemic challenge of lower-quality, less well-resourced schooling for rural students and students from low socioeconomic groups acts as a significant barrier to equal academic achievement. Measures to address this issue remain limited, and the current financial aid system negatively affects equity of access.

Access and equity in higher education from an international perspective

Good access to higher education is generally taken to mean that all people with the desire and capability to attend university have the opportunity to do so, and to succeed in their studies, regardless of their background. It is linked to equity which requires that opportunities be "equally available to all citizens." (Reisberg and Watson, 2011). Greater access does not necessarily lead to enhanced equity: to ensure equity, it is necessary to "address the underlying factors that determine who enrols and who persists to graduation." (Reisberg and Watson, 2011).

The OECD identifies two key dimensions of equity: fairness and inclusion. Personal or social circumstances (such as gender, ethnic origin or family background) should not be obstacles to achieving educational potential, and all individuals should reach at least a basic minimum level of skills. In education systems that achieve fairness and inclusion, the majority of students will have the opportunity to attain high-level skills, regardless of their personal and socio-economic circumstances (OECD, 2012a).

Approaches to ensuring equity in higher education are thus informed by principles such as the following:

- Everyone who has the ability to study at a higher education institution should be able to do so.
- Selection for higher education places should occur without discrimination on the basis of social class, gender, religion or ethnicity.
- All individuals should be afforded the same opportunity to develop their talents (James, 2007).

Different interpretations of these principles influence national policies and strategies, and determine how effectiveness in achieving objectives is measured. Notably, different countries have adopted different strategies for expanding higher education access. These variations shape both how higher education is financed overall and how much financial support is provided to individuals seeking an education. The highest-performing education systems are those that combine fair access with high-quality student outcomes.

The skills and knowledge that higher education develops have positive effects on economic growth and regional competitiveness and, just as importantly, on individual employment and career prospects.

Higher education is also associated with wider benefits for individuals and society, from better health and life satisfaction to social cohesion and public safety (Department for Business Innovation and Skills, 2015) (see Figure 3.1).

Figure 3.1. **The benefits of higher education for individuals and society**

Sources: Department for Business Innovation and Skills, UK, (2013), www.gov.uk/government/uploads/system/uploads/attachment_data/file/254101/bis-13-1268-benefits-of-higher-education-participation-the-quadrants.pdf.

Importantly, higher education has the potential to reduce social inequalities, and thus lessen the social and economic costs (lower growth, lower investment) that come with inequality (OECD, 2015). Nonetheless, increasing *overall* levels of education does not necessarily lead to increases in social mobility and more equitable outcomes.

Sometimes, if opportunities are not equitably distributed, higher education simply reproduces social stratification. This occurs for instance when "merit" criteria for access to higher education heavily reflect the advantages that young people derive from their family's socio-economic status (e.g. access to better schools and to tutoring, access to more powerful social networks). Across the world, the expansion of higher education has often failed to narrow wide disparities in the rates at which students from higher and lower income families enter and complete their studies. Indeed, there is growing evidence that higher education has, in some instances, widened rather than narrowed social disparity – and that imbalances in access

to higher education have had a negative effect on intergenerational mobility (Department for Business Innovation and Skills, 2015; Redmond et al., 2014).

Low socio-economic status (SES) involves more than narrow economic disadvantage: it is characterised by gaps in social capital (i.e. the links, shared values and understandings in society that enable individuals and groups to trust each other and work together) and cultural capital (i.e. the ideas and knowledge that people draw upon as they participate in social life, including understanding of socially appropriate behaviour and the capacity to communicate effectively). In most countries, social class is the single most reliable predictor of the likelihood that individuals will participate in higher education at some stage in their lives and that, if they participate, they will have access to more prestigious institutions and fields of study. This is particularly true in developing countries, where lower SES students often have little chance of gaining entry to higher education.

Delivering equity in (higher) education is one of the most challenging problems facing policy makers (see Box 3.1). Despite widespread acknowledgement of the positive role and contributions of higher education to a broad range of social and economic goals, there is great variation in the extent to which countries invest in this area and in the way these investments support individual opportunities.

Box 3.1. **Higher education and social mobility**

OECD research finds that:

- Only one in five students from families with low levels of education attains a tertiary degree. By way of comparison, on average across OECD countries, two-thirds of students who have at least one parent with tertiary education graduate from tertiary education.
- Young women are more successful than young men in attaining levels of education that are higher than their parents.
- On average across OECD countries, approximately half of 25-34 year-old non-students have achieved the same level of education as their parents, while more than one-third have surpassed their parents' educational level.

Sources: OECD (2012b), *Education at a Glance 2012: Highlights*, OECD Publishing. http://dx.doi.org/10.1787/eag_highlights-2012-en.

Policies to address barriers to access and equity

At a time when many OECD countries are experiencing increased higher education enrolments that are accompanied by significant budget constraints, there is a real challenge of identifying the most effective and equitable

approach to promote higher education access and good student outcomes. The challenge for all systems in pursuing equity is twofold:

- Provide the best opportunities for all students to achieve their full potential.
- Address instances of disadvantage which limit educational achievement.

Raising aspirations and providing active support

There is overwhelming evidence that the condition of primary and secondary schooling is the main impediment to achieving equitable outcomes in higher education (OECD, 2012a, 2014a and b). Practices in pre-tertiary education, and in particular during the early years of schooling, affect students in ways that have profound consequences for their later years (Ferguson et al., 2007). The under-representation of people from low SES backgrounds in higher education is typically a consequence of the effects of lower school completion rates and lower levels of skills attainment in basic education (limiting opportunities when competitive entry is based on academic achievement). It is also a consequence of lower levels of educational aspiration, lower perceptions of the relevance of higher education and a lack of affiliation with the culture of universities (Bowes et al., 2013).

In many countries the idea of "first in family" or "first generation" students has been a useful device for identifying and addressing the particular needs of these students. Programmes that tackle social disadvantages, raise aspirations and change expectations about education have been shown to make a measurable difference in access to and success in higher education. Such initiatives are most effective when centrally co-ordinated and supported (Bowes et al., 2013).

In many education sectors there are strong, centrally financed schemes that work with schools in disadvantaged and low SES areas to raise aspirations, and familiarise students with the idea of higher education. These schemes may involve visits from faculty who will talk about higher education and teach school students. Summer or vacation schools on campus for rural and disadvantaged school students expose them to higher education and give them additional instruction. Peer mentoring schemes, where higher education students work with school students, have been very effective at raising aspirations (Garranger and MacRae, 2008). For instance, the Australian Indigenous Mentoring Experience (AIME) programme has successfully utilised peer mentoring strategies with indigenous secondary school students to raise aspirations, improve school completion and attainment rates and enhance employment outcomes (KPMG, 2013). In Canada, joint university/school programmes that focus on the aspirations of disadvantaged youth, such as the University of Winnipeg's Wii Chiiwaakanak Learning Centre, have also been shown to be effective in exposing students to higher education and in encouraging them to think of higher education as a real future for them.

Box 3.2. **Government strategies: Australia's Higher Education Participation and Partnerships Programme**

In 2009, the Australian government introduced the Higher Education Participation and Partnerships Programme (HEPPP) aimed at improving access and retention among students from lower socio-economic backgrounds. The "participation" component offers universities a financial incentive to enrol and retain low SES students. The funds can be used by institutions to finance outreach activities.

Partnership projects funded by the HEPPP have led to collaboration among universities. For instance, Bridges to Higher Education is a collaborative project among five universities in the state of New South Wales. It is aimed at dramatically improving the participation rate of students from communities that are under-represented in higher education in the state. The programme has delivered positive results as measured by external evaluations. Projects have been focused on:

- students' academic preparedness and outcomes (e.g. academic skills sessions, and mentoring and tutoring by current university students)
- access to higher education (e.g. student visits to university campuses, community events, and focus groups for parents)
- school community and capacity – projects creating partnerships with schools, communities and universities (e.g. via teachers' professional development workshops and community events)
- awareness, confidence and motivation – projects improving students' awareness of higher education possibilities
- engaging Aboriginal and Torres Strait Islander peoples – projects centred on aspiration-building, addressed to students' unique and cultural needs.

Sources: Bridges to Higher Education (2016), www.bridges.nsw.edu.au/home; Gale, T. and S. Parker (2013), *Widening Participation in Australian Higher Education*, Report submitted to HEFCE and OFFA, www.ncsehe.edu.au/publications/widening-participation-australian-higher-education/.

Government policies in countries such as the United Kingdom and Australia (see Box 3.2) that have been aimed at widening access or participation have been particularly effective in increasing participation rates of students from low SES backgrounds (Higher Education Funding Council for England, 2015). For instance, "positive discrimination" measures, such as allocating places in higher education specifically for students from disadvantaged backgrounds, has played a major role in widening participation in Australia.

In Spain, the state is responsible for guaranteeing the uniformity and unity of the tertiary education system, including equality of opportunities and treatment within and across autonomous communities. It achieves this through the provision of financial assistance for low-income students through

a national scholarship system and complementary schemes at regional level. Public universities have low tuition fees and higher vocational education institutions charge no fees. The creation of tertiary education institutions in each autonomous community provides increased access by expanding the supply of education. Active policies of positive discrimination target mature and disabled students. Complementary policies generate awareness of equity issues, particularly in the area of gender equality.

Addressing financial barriers

Sometimes, barriers to higher education stem from students' limited financial resources. Growing up in a disadvantaged family where parents have low levels of education often means having less financial support available for studies. Furthermore, some young adults may have to enter the labour market early in order to support themselves and their families. Challenges are heightened if the education system does not provide support for students from disadvantaged backgrounds.

The answer to this problem is not necessarily "free tuition for all", as that approach can lead to inefficient use of scarce public funds: it heavily subsidises not just those who cannot afford higher education, but also those who can. Instead, charging a moderate level of tuition fees – while simultaneously giving students opportunities to benefit from comprehensive financial aid systems – is an effective way for countries to increase access to higher education, stretch limited public funds, and promote equity by acknowledging the significant private returns that students receive from higher education. Gale and Parker (2013) found for instance that Australian students from certain target groups (particularly low SES students) appear to benefit from three forms of financial support: support to repay tuition fees, such as a deferred and income-contingent loan repayment schemes; income support while studying at university, which is means-tested and sufficient to reduce or eliminate the need to engage in paid work while studying; and funding schemes, which institutions can access to address the specific needs of target groups.

One promising approach is embodied in financial aid systems that combine means-tested grants with loans whose later repayment levels are contingent upon a graduate's income (see Box 3.3). Australia and New Zealand have used this approach to mitigate the impact of high tuition fees, encourage disadvantaged students to enter higher education and reduce the risks of high student loan debt.

Box 3.3. **Income contingent loans**

At least eight countries around the world have adopted versions of Australia's Higher Education Contribution Scheme (HECS). The scheme typically requires students to pay some of the cost of their degrees, with the remainder funded through a government loan.

HECS was introduced in 1989 by the Australian government. The loan component is repaid through the tax system, and repayment is dependent on the borrower's income. This arrangement is known as an income contingent loan or an ICL. The fundamental difference between ICLs and "normal" loans is that repayments occur if and only when the borrower's income reaches a pre-determined level. If their salary never reaches that level, then no payments are ever required.

ICLs now underpin the student loan mechanism in countries such as Australia, New Zealand, Ethiopia, England, Hungary, South Africa, South Korea and Chile, with most of these countries providing finance for both tuition fees and to cover living costs. Interest rate subsidies are usually provided. It is generally agreed that these policies have worked effectively in equity, efficiency and the administrative sense.

ICL arrangements reduce repayment difficulties and provide protection against default – a potential risk with university financing because of students' lack of collateral. If loans are not income contingent, many students will face considerable repayment burdens, and some may default.

Sources: Chapman, B. (2015), "Taking income contingent loans to the world", *University World News*, 06 March 2015, Issue No. 357, www.universityworldnews. com/article.php?story=20150305123821344.
Chapman, B. (2006), *Income Contingent Loans as Public Policy*, The Academy of the Social Sciences in Australia, Occasional Paper 2/2006, Policy Paper # 5, www.assa.edu.au/publications/occasional/2006_No2_Income_contingent_loans.pdf.
Chapman, B. (2005), *Income Contingent Loans for Higher Education: International Reform*, The Australian National University, Centre for Economic Policy Research, Discussion Paper No. 491, www.cbe.anu.edu.au/researchpapers/cepr/DP491.pdf.

Higher education equity and access in Kazakhstan

Socio-economic status and participation in higher education

Kazakhstan has had difficulty in developing reliable SES information. This reflects a more general lack of data about the income levels of the population, linked in part to the presence of a substantial "grey" economy. As a consequence, there is a paucity of data related to the SES distribution of students and on the effects of SES at the school and higher education levels. Data from the Ministry of Education and Science (based on a survey of higher education institutions, to which 80 institutions replied) do indicate though that roughly two-thirds of "students from poor families" study without any financial support (i.e. pay fees) – compared to 10 percentage points fewer students in the overall student population.

Despite the lack of good SES data in Kazakhstan, there is clearly a correlation between the geographic location of students, their SES and their academic performance. In Kazakhstan, most students enter higher education – and qualify for state support – based on the results of the Unified National Test (UNT) which they sit at the end of upper secondary school. The relationship of UNT mean scores to income levels confirms a link between levels of poverty and the urban-rural divide. Rural students in Kazakhstan are more likely to be of low SES status and to perform less well on the UNT (MESRK, 2014a).

The state grants approach to financing higher education thus has a negative effect on participation in higher education by students from rural areas. Even though there is a 30% set aside of state-funded spots for rural youth, the UNT/state grant system – combined with poorer-quality rural schools that make students less prepared for the UNT – creates an inequitable financial barrier. A study by the National Center for Educational Statistics and Evaluation (NCESE, 2014) shows that UNT scores (the primary determinant of an individual's eligibility for free university education) are correlated with regional poverty levels: in regions with high numbers of people living below subsistence level, the UNT scores were considerably lower. By way of contrast, the high-income cities of Almaty and Astana achieved the highest scores on the UNT in 2012 (NCESE, 2012).

Differences in UNT scores are also related to the language of instruction in schools – in ways that appear to be related to the rural/urban divide. In 2014, the average score on the UNT for candidates from Russian-language taught schools was 81.7%, while for students from Kazakh-language taught schools it was only 74.84% (NCESE, 2014). Those students in schools where Kazakh, Russian and English are taught appear to be comparatively advantaged over students from schools where only Russian and Kazakh are taught.

Students with a disability and other vulnerable groups

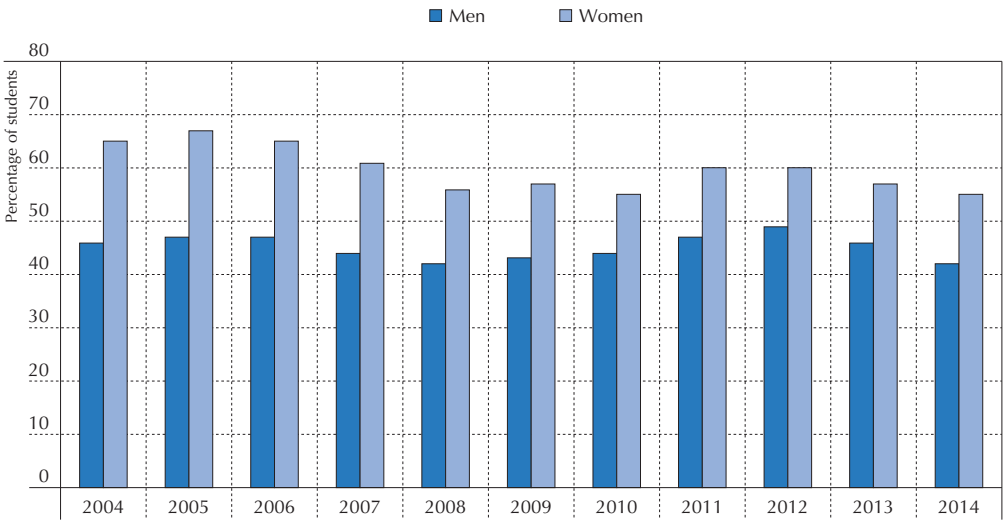
The State Program for Education Development (SPED) 2011-2020 acknowledges that inclusive education has not been well developed in Kazakhstan. About 3% of all minors in Kazakhstan are classified as having a disability (MESRK, 2010). However, according to data received from the MNERK, in 2014 students with disabilities over 18 years of age made up only about one-third of one percent of all higher education students, and two-thirds of one percent of students who were studying on a state grant. In principle, 1.2% of state-funded spaces are set aside for students with disabilities (MNERK, 2014-2015).

The higher education institutions that the OECD review team visited were poorly equipped to deal with the needs of students with disabilities. Teaching spaces were frequently inaccessible and there was little in the way of specialist equipment or facilities. Education plays a special role in assisting socially vulnerable segments of society to adapt to the expectations of modern society. According to the MNERK, approximately 98% of orphanage and foster care leavers aged 18-28 years old are enrolled in technical and vocational, higher and postgraduate education (MNERK, 2014-2015). This category of students is eligible for subsidised higher education and constitutes 1.9% of the total of all students eligible for benefits. In practice, based on data provided to the OECD review team by the Ministry of Education and Science, these students appear to make up about 0.7% of the total student population and 1.3% of students studying on state grants. They are comparatively unlikely to be studying as fee-paying students.

Gender

Over the period 2004 to 2014, the gross enrolment ratio[1] of women in higher education in Kazakhstan was greater than that of men; it ranged from 65.18% in 2004 to 54.7% in 2014 (MNERK, 2014-15). This change needs to be seen in the context of an overall decline of 36% in higher education enrolments over the same time period (see Figure 3.2).

Figure 3.2. **Participation in higher education: gender**

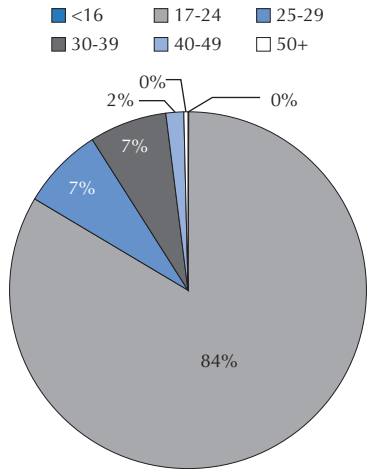


Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK) (2014-2015), www.stat.gov.kz.

Adult and mature-aged students

Youth between 17 and 24 years of age represent the greatest number of participants in higher education in Kazakhstan (see Figure 3.3). This reflects admissions practices that recently favour school leavers. These data do not distinguish level of study, so it is not possible to comment on the proportion of older students studying at undergraduate level.

Figure 3.3. **Age distribution of higher education enrolment (2014)**



Sources: JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

The OECD review team has not been able to identify the age or gender distribution of part-time students or whether part-time students are concentrated in particular institutions or locations. The MESRK reports that 75.5% of students study full time, which is in accordance with the prescribed ratio of full-time to part-time students of 4 to 1. It appears that this ratio is applied across the sector rather than at the level of individual institution. The state prescription of a ratio of full-time to part-time study across the sector likely limits the capacity of students who face financial barriers to support themselves while studying part time. The restriction on part-time enrolment numbers also militates against older students returning to study while working full or nearly full time.

Access and equity: policy issues for Kazakhstan

Kazakhstan's policy relating to access to higher education has emphasised the expansion of overall enrolment, with less of an effort being made to ensure equity of access and participation. Beyond the admissions set-asides for certain classes of students (people with disabilities 0.5%, rural youth 30%, people of the Kazakh nationality who are not citizens of the Republic 2%, orphans and children left without parental care 1%), little attention appears to have been paid to differences in participation rates as broken down by socio-economic background, region of residence, cultural background or disability. As a result, there have been only limited initiatives to tackle these challenges.

The Law on Education (2007) guarantees free public higher education on a competitive basis in accordance with the state educational order. However, the law's emphasis on competition results in inequality of access in higher education: it overlooks just how important it is to have had an opportunity to participate in the kind of schooling that makes students academically competitive. The law fails to acknowledge the underlying causes and the cumulative effects of educational disadvantage, as well as issues surrounding the measurement of achievement that complicate a merit-based approach.

In 2014, the MESRK proposed reforms to improve access to higher education for all social groups. It set an ambitious target of 55% participation of the eligible population by 2016 (JSC Information-Analytic Center, 2015). Without a dramatic expansion of scholarship funds and more active improvement of the school sector, it will be some time before the 2016 target is reached. In recognition of equity challenges inherent in a merit-based admissions system, the government has also stated its intention to introduce socio-economic criteria as a determinant of eligibility for free higher education (JSC Information-Analytic Center, 2015). At the time of writing, no further detail was available on these changes.

Figure 3.4 outlines recommendations made by the 2007 OECD/World Bank Review of Higher Education in Kazakhstan. Many of these respond to issues identified in the previous section of this chapter. The table also briefly outlines responses to these recommendations.

Addressing the effects of prior schooling

The recent OECD Review of Secondary Education in Kazakhstan found that Kazakhstan has invested considerable effort in improving the capacity and the learning conditions of its primary and secondary schools (OECD, 2014b).

Yet, there is still much to be done to eliminate persistent inequities in access to quality schooling and to ensure that all students have an equal chance of being prepared to enter higher education.

Figure 3.4. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD Recommendations	Implementatioxn Status
Introduce university tuition grants for low-income family students.	Introduced but limited in number.
Reform the Unified National Test (UNT).	Reform has commenced, but there has been limited progress towards a new exam. The recommendations of the 2014 OECD Review of Secondary Education in Kazakhstan (OECD, 2014b) relating to the reform of the UNT have not been adopted.
Develop access programmes for rural and low-income students.	The OECD review team noted no such programme.
Develop a national thinking skills test.	The IAC reports that this is under expert consideration, but to date no sample test has been developed.
Develop access programmes for rural and low-income students.	The OECD review team noted no such programme.
Flexibility to change field of study or institution (holders of state grants).	State grant holders still have no flexibility in this regard.
Develop and disseminate new teaching materials.	During site visits, the OECD review team noted some development of materials. Technology based approaches are limited by infrastructure, though.
University faculty to teach school students.	The IAC reports that this has not been implemented and is not considered expedient.

Sources: OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan* 2007, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

To date, policy interventions have primarily benefitted those schools whose mandate is to nurture academic excellence. This focus has to some extent crowded out investments in meeting the needs of students who struggle academically and underachieve, and it has reinforced uneven levels of quality across the system. For instance, the distribution of teachers among schools is not well balanced. Well-qualified and highly effective teachers are less likely to work in disadvantaged schools, and more likely to work in schools for gifted students where additional resources and support are available.

The team that authored the Review of Secondary Education in Kazakhstan also judged that the biggest problem facing Kazakhstan schooling was the absence of education stakeholders' knowledge and concern about the level of under-achievement. The report recommended actions that would tackle the "long tail" of under-achievement that is, the many students who fall in the lower part of the academic distribution. The team found little evidence of specific initiatives aimed at students who were struggling academically, who were falling behind their peers or were below average ability. All this suggests that there is a systemic problem in secondary schools that has had a significant effect on the academic achievement of many students, negatively influencing their ability to later gain entrance to – or succeed in – higher education.

A 2009 OECD review of the provision for students with special needs and disabilities identified a number of concerns relating to the extent to which these students experienced equal access to quality education (OECD/JRC, 2009). The 2014 Review of Secondary Education in Kazakhstan recognised that there was still some way to go before the country realised its aims for inclusion (OECD, 2014b). Indeed, many students with special needs and disabilities are still educated in special classes, in separate "correctional" schools or via home learning schemes rather than in mainstream schools. This has the effect of amplifying disadvantage, providing limited support and resources, inadequately accommodating their needs and restricting opportunities for social and academic development.

Kazakhstan has very few programmes and resources targeting the needs of students from a disadvantaged background or with learning difficulties. The current concept of disadvantage focuses narrowly on disabilities and extreme socio-economic disadvantage, and consequently identifies only a small number of students as eligible for support. In addition, the lack of standards for minimum school size and teacher quality mean that students in small schools and rural locations, particularly secondary students, are disadvantaged (OECD, 2014b).

At the "high" end of the education system, in 2011 there were 115 specialised secondary schools for gifted children. There is also a range of other schools for gifted children in Kazakhstan including the Nazarbayev Intellectual Schools (NIS). Kazakhstan's emphasis on preparing top-performing students for participation in academic Olympiads and prioritising gifted children is detrimental to other students. When emphasis is placed on high performance and the elite, schools and teachers will frequently focus on enhancing the performance of the "best" students, rather than meeting the needs of lower-performing students.

Schools that cater to gifted students, such as the Nazarbayev Intellectual Schools, receive considerably higher levels of funding than mainstream schools. However, the very notion of "giftedness" that underlies these schools is somewhat problematic in the Kazakhstani context. Students from less advantaged backgrounds have limited access to extracurricular classes to prepare for admission to elite schools. This makes it likely that "gifted" schools do not necessarily attract the most academically able in the country, but rather tend to disproportionately meet the needs of a subset – those from more advantaged backgrounds.

Kazakhstan could benefit from the introduction of programmes that use university students as peer mentors who can share their discipline knowledge and experience with secondary students, support their learning and help raise their aspirations. Such programmes might include structured visits to higher education institutions that allow secondary students to experience a university class and get a sense of campus life. An example of this sort of approach, which has been used effectively with students from disadvantaged schools in Scotland, is described in Box 3.4. To be successful, such approaches require the active engagement of higher education – the support of the senior management and involvement of faculty.

Box 3.4. **The University of Edinburgh's efforts to widen higher education participation**

The University of Edinburgh in Scotland has made widening participation one of the six themes of its strategic plan. The university is aiming to raise all school students' awareness about the possibilities that university studies hold. To this end, it has developed a range of programmes that seek to raise awareness, builds aspirations and help students get ready for university. These include:

- Information provision for students from targeted schools to raise their awareness of particular disciplines.
- "Educated Pass" – a programme that works with local boys' football teams to raise aspirations and awareness of higher education though passion for football.
- Peer mentoring programmes for students once they enter university to help them adjust and study successfully.

The university has also developed an extensive Widening Participation website with resources and information.

Sources: The University of Edinburgh, www.ed.ac.uk/student-recruitment/widening-participation/projects.

While they are only part of a bigger solution to the problems facing many Kazakhstani schools, properly implemented digital technologies do provide numerous possibilities for delivering high-quality "just-in-time" and "just-in-case" resources to students and teachers. The proliferation of freely available, quality-assured open education resources represents a key means to upskill teachers, develop discipline-based content knowledge and provide students with access to high quality, contemporary instruction. As reported by the 2014 review, current "e-learning" practices do not extend beyond computer drill and instruction with a focus on memorisation.

Kazakhstan should expand its use of technology-enabled learning and distance education methods (in particular e-learning): at present, distance-learning often seems to take a traditional approach of students completing paper assignments and sending them back for assessment. Particular attention should be given to developing e-learning support for teachers, as well as resources that teachers can integrate into their teaching. Centrally supported repositories of digital learning assets that are curated, and that are accompanied by teachers' guides, would provide a sustainable approach to upskilling rural teachers and enriching the curriculum. However, if digital resources are to be used effectively, then issues associated with poor access, lack of speed, and low connectivity at school and home have to be addressed.

Admission to higher education

As described above, the Unified National Test is a high-stakes examination that regulates not just admission to university but also access to state student grants. The UNT was introduced to address the risks of corruption endemic in the previous system of individual university admissions systems. However, it was frequently reported to the OECD review team that many students now focus almost exclusively on preparing for this test during their final two years of secondary school. They may strategise and look for opportunities to "play the system" – losing valuable learning time at secondary school as they focus on achieving high scores on the UNT. Moreover, it was reported to the review team that students sometimes choose courses on the basis of the availability of grants rather than on the basis of interest, passion or talent.

Coaching for the UNT is a common practice. While in principle there is nothing wrong with tutoring, in this case it has important implications for equity. Not all families are financially able to afford to pay for coaching and tutoring. The review team heard that students and families from urban areas spend more on education, including on private tutoring, than rural families. UNT preparation materials are available for sale to the public, but

students must be able to afford to buy them, and they are unlikely to prepare a candidate to the same level as private or group tutoring. Staff of the National Testing Center reported that the Center offers free preparatory sessions for students. Trial testing is also available, but while helpful, these services are once again unlikely to match the benefits of private tutoring.

Redevelopment of the test to a more open UNT would help minimise the effect of coaching and teaching to the test, and thus create a fairer and more equitable playing field. The Ministry of Education's proposed changes to the UNT that were reported to the OECD review team – and which include the use of more open-ended questions, essays and a move towards multiple-choice questions that assess higher-order thinking skills – would likely contribute to a more credible and valid instrument. The National Testing Center also told the review team that they anticipate the UNT will become completely computer-based and have the capacity to allow re-testing within the year following completion of year 11.

It has been previously reported (OECD, 2014b) that Kazakhstan intended to develop separate school leaving and university entry tests starting in 2015, but the OECD review team did not hear any further detail about this. Because of the effect of high stakes exams on the behaviour and learning of students, it is important that any high-stakes exam (such as university entrance exams) assess the types of thinking and skills that a student needs to be competitive in fast-changing modern economies and societies. If Kazakhstan moves, as reported to the review team, toward the introduction of the twelfth year of schooling, it could take that opportunity to introduce a school-leaving exam that is distinct from the separate university entrance exam. In any case, Kazakhstan should seek to implement a more valid, reliable assessment that more effectively regulates university entrance and that is more fair for students from disadvantaged backgrounds.

Although improvements to standardised testing would be a positive step, it would be desirable to supplement testing with alternative entry schemes that recognise and compensate for disadvantage and unequal schooling conditions (see Box 3.5). Such schemes might include the provision of bonus points to address disadvantage caused by rural or remote school location; alternative testing to select students from particular disadvantaged groups or locations; or recommendation schemes that identify students with academic potential who have experienced adversity during their school years. Of course, such approaches would need to include rigorous checks and balances to ensure fairness and prevent corruption. There are examples of such approaches in other countries, and there is an urgent need in Kazakhstan to implement an entry scheme that actively addresses systemic disadvantage and recognises academic potential (World Bank, 2012).

Box 3.5. **Alternative methods of entry to higher education**

In Australia, alternative entry methods include consideration of disadvantage identified by postcode (applicants can be awarded "bonus points" depending on their home postcode); the set-aside of places in highly competitive programmes for students from disadvantaged backgrounds; and means-tested scholarships.

Australia also has a programme that allows secondary schools to identify students with academic potential, but who may have experienced adversity; it gives these students special entry. This programme is managed by a central university admissions centre. Aboriginal and Torres Strait Islander students may sit a specially designed alternative entry test. Students who are admitted via alternative schemes are provided with additional academic and social support.

In Sweden, higher education institutions can use alternative selection criteria for up to one-third of available places. These are normally used to select among candidates who already have the necessary formal qualifications. Special tests other than the standard university entrance exams, relevant knowledge, professional or vocational experience and other criteria relevant to the programme can be considered in these cases.

Sources: The University Admission Centre (n.d.), Alternative Entry, www.uac.edu.au/undergraduate/admission/alternative-entry.shtml; Higher Education and Research (31 May 2016), https://sweden.se/society/higher-education-and-research/

The complex test and alternate pathways to higher education

Technical and Vocational Education (VET) has a key role to play in providing the viable educational pathways and specialist training that countries need for sustainable economic development. In 2014, approximately one in every six Kazakhstanis aged 14-24 was enrolled in technical and vocational education institutions. However, rates of enrolment vary substantially by region. With only 20% of VET institutions located in rural areas, the access of rural youth to technical and vocational education is severely restricted (MESRK, 2014).

Barriers to VET access have negative consequences for their employment prospects, and are an important impediment to social and economic development. Between 2011 and 2013, the number of VET graduates decreased by more than 15% (Álvarez-Galván, 2014). Part of the challenge is that post-secondary VET in Kazakhstan has traditionally been seen as a fallback for young people who have not completed compulsory education, or who have been unsuccessful in general or higher education. The role of post-secondary VET in the education system remains somewhat unclear, and would benefit from being positioned as a stronger and more prestigious higher-level vocational option (Álvarez-Galván, 2014).

The Complex Test (CT) is the mechanism that Kazakhstan uses for managing admission to higher education, as well as eligibility for state grants

for people who failed the UNT on their first attempt; for graduates of VET; and for school leavers who were not able to complete their studies or who studied in foreign schools. A student who fails the UNT must wait until the following year to attempt the CT.

The number of students sitting the Complex Test rose from 29 141 in 2011 to 78 248 in 2015. The success rate on the CT is generally low because of the reported difficulty of the test, and because most students are poorly prepared for it. In 2015, substantially fewer than half of the candidates who sat the CT scored a passing grade (NCESE, 2014). Like the UNT, the CT would benefit from an overhaul that makes it into a more meaningful assessment of higher-order thinking and skills, and better able to measure a range and depth of practical and theoretical knowledge.

The CT is a particularly important pathway into higher education for students with VET qualifications who wish to transfer into higher education. Higher education currently provides little recognition or credit transfer for students who have studied at VET colleges, so they must achieve success on the CT to enter higher education institutions. Under a former arrangement, applicants from VET who were prepared to fund their own tuition could be admitted on the basis of an interview at the higher education institution at which they wished to study; when they wished to study in an area closely related to their VET studies, they could be admitted to the second year of the undergraduate degree programme. There do not appear to be any substantial benefits from the closure of this pathway, which (according to reports make to the OECD review team) seems to have functioned effectively as a viable route from VET to university study.

The OECD review team was not able to locate any data that could conclusively show whether or not the introduction of the CT requirement has had any impact on the rates of transfer to higher education. Nevertheless, it is clear that its implementation has raised an additional barrier to higher education participation and that it sends a message which undervalues technical education. The CT itself needs reform. At the same time, development of alternative admission schemes would create a more equitable environment for VET students – and also allow individuals who are older or have missed out on education in some way, to demonstrate their potential and thus gain admission to higher education.

In summary, Kazakhstan should explore ways to promote expanded and systematised recognition of VET qualifications in higher education; the recognition and formalisation of credit transfer; and, in particular, it should consider the removal of the requirement that students sit the CT when they are already successful graduates of a relevant or similar VET course. To this end, more could be done to encourage higher education and VET institutions to develop partnerships across sectors and regions, and to put in place articulation agreements that facilitate transfer between institutions and sectors.

Financial aid

The absence of needs-based financial aid is a major barrier to access to higher education in Kazakhstan. Students primarily pay for their education through personal funds and state grants. However, state grants only provide funding for around one-quarter of higher education students.

Grants

As Chapters 2 and 6 also discuss, Kazakhstan's state grants are a voucher-type system. Funds for higher education places are allocated to the recipient (the student), rather than the supplier of education services (the institution). The state contribution to higher education in Kazakhstan is low: in 2013 public expenditures on higher education in Kazakhstan were just 0.3% of GDP (NCESE, 2014). There is thus a heavy reliance on private sources of funding to support higher education.

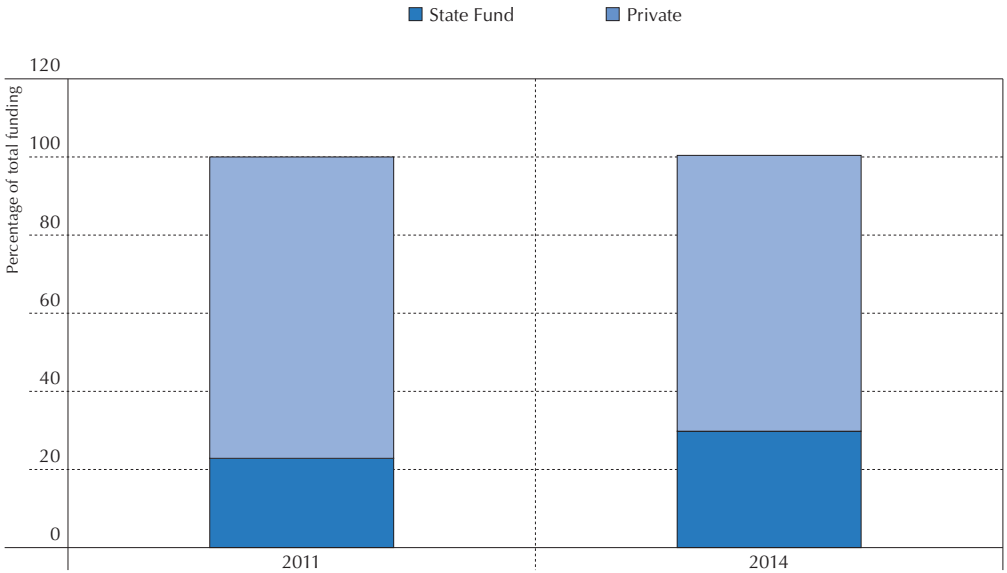
In 2014, an estimated 73% of Kazakh higher education students funded their participation in higher education using their own or family funds (see figure 3.5) (MNERK, 2014-2015). Meanwhile, tuition rates have increased at a faster rate than income levels across the population (Nazarbayev University School of Graduation, 2014). Institutions are required to ensure that the tuition levels do not fall below those of the state education grant. This has a perverse effect: the state cannot increase public funding of higher education without raising new affordability challenges for students who must pay for their studies.

Minimum grant/tuition fee levels are specified by the relevant ministry, and vary somewhat across institutions and disciplines. Typical tuition levels at public institutions range from roughly KZT 300 000 to KZT 700 000 or roughly USD 900 to USD 2 000 at mid-2016 conversion rates. Some private institutions charge as much as three times the upper end of that scale, though.

Free higher education is available on a competitive basis only when the individual is participating for the first time at a particular level. Public educational grants give selected students access to the institution of their choice, and the major share of grants are allocated to state education institutions.

In order to regulate the training of specialists, the state (through the MESRK) draws up an order each year, to fund the number of places required to educate specialists in areas the state determines to be in demand. Thus in certain fields, such as law, as few as one in ten bachelor-level students studies on a state grant. In other fields, such as engineering and technology, roughly six in ten students hold a grant – and in agricultural sciences (a small field of study), as many as eight in ten do (data provided by the JSC Information-Analytic Center based on a survey of higher education institutions).

Figure 3.5. **Sources of funding for higher education of higher education in Kazakhstan**



Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK) (2014-2015), www.stat.gov.kz.

Special grant set-asides have been introduced for students from a range of backgrounds: rural students; those in priority social and economic disciplines; Kazakh ethnic minorities; Kazakhs who are citizens of another country; students with a disability; and orphans and children without parental support. In the case of equal scores on the UNT and CT, orphans and children who need support are given preferential treatment.

Planning is reportedly underway for the development of new special programmes to provide additional access to higher education for students from rural areas and low-income families; planning for measures like this, that somewhat counterbalance the equity effects of the UNT, should be accelerated. Such measures need to be complemented, though, by approaches designed to improve the quality of teaching and schooling in rural and regional areas.

The government's "Serpin 2050" educational grant programme began in 2014 and currently supports education at seven higher education institutions (with plans to expand this number). Serpin provides incentives for student mobility which are designed to reduce unemployment in the southern regions (which have a young, growing and often poorer population), and to address skills and labour shortages in certain western, eastern and northern regions. Serpin's success will depend on the willingness of students from the South

to remain, over the longer term, in the areas to which they move for their studies. As Serpin is quite new, its success remains to be seen. The OECD review team was not able to determine whether the policy model behind the programme has adequately estimated the long-term willingness of Kazakhstanis to resettle in other parts of the country.

Other grants and discounts

Many higher education institutions have introduced their own discounts for various groups of students. Fees may be reduced by between 15% and 50% for high-achieving students, elite athletes, students with dependents, and where two or more students come from the same family. Data provided by the JSC Information-Analytic Center in May 2016 suggest that nearly one in twelve students may be in receipt of such discounts – with students from poor families somewhat more likely to receive them.

Employers provide grant funding for students – with these grants by far the most common in the fields of engineering and technology. Higher education institutions themselves currently have only limited opportunities to raise revenue and to use this to offer additional financial support to students in need. Kazakhstan's highly centralised financial regulations do not, for instance, allow higher education institutions to establish endowments – which, with appropriate safeguards, have proven to be an effective approach for funding targeted initiatives in a number of countries. The restrictions in Kazakhstan limit higher education institutions' ability to access philanthropy and to develop active partnerships with industry that could support disadvantaged students.

Student loans and savings schemes

Student aid schemes are very limited in scope, volume and impact. The introduction of a student loans scheme in 2005 has failed to gain real traction. Only 6 000 students have taken up the loan option in the ten years since its introduction (Nazarbayev University School of Graduation, 2014).

Loan availability is dependent on a risk assessment that includes measures of academic performance. Educational loans are provided by second-tier banks and the loan principal is guaranteed by the JSC Financial Center of the Republic of Kazakhstan (JSC Information-Analytic Center, 2015). In practice, this guarantee process means that many students cannot meaningfully apply for "official" student loans, as they would be seen as too great risk. The public student loan system is still tainted by a policy initiative in the 1990s which had the state directly provide loans to students. This programme had extremely high default rates; the bad debts are still being actively collected.

Those who are approved for a state-guaranteed loan still need co-signers. It was reported to the OECD review team that a significant percentage of

"guaranteed" borrowers do not in the end receive loans. Sometimes the bank breaks off contact with the borrower, and sometimes a co-signer cannot be found. It was also reported to the review team that the typical credit recourse of students who need to borrow is to private loan markets, where interest rates may be upwards of 25%.

The State Educational Accumulation Scheme (SEAS) introduced in 2013 may hold promise but suffers from design defects. Under the SEAS, the government pays an additional interest premium on educational savings accounts thereby encouraging parents to accumulate savings to pay future tuition fees for their children. Where the amount accumulated is insufficient to pay the tuition fee, an educational loan can be provided for the balance. In 2015 there was a minimum introductory contribution of KZT 5 946 and a maximum term of twenty years. The state premium is currently 5% per annum. There is a small additional premium of 2% for orphans, people with disabilities, children from large families and students from families with income below the subsistence minimum.

The Finance Center of the Ministry of Education and Science reported to the OECD review team that, since the inception of the SEAS in 2012, only 11 000 people have created deposits under the scheme – a figure which is far below the 500 000 depositors predicted at the programme's outset. Kazakhstanis' uncertainties about the economy (given rising inflation and the risk of further currency devaluation) reduce the appeal of a savings vehicle denominated in tenge.

There is also a cultural bias implicit in this scheme: it will be more attractive to those families who have the financial capacity to save and a predisposition towards doing so – and it will thus use public funds to encourage behaviour that may well have happened anyway. However, it will be less attractive for lower SES households – both because they often lack funds to save and because they are less likely to aspire to higher education for their children. Yet it is precisely these families that stand to benefit the most from an effective targeted allocation of incremental public funding.

Other financial supports

To promote lifelong learning, the government has created incentive schemes for employers to provide support for employees who want to study at higher education level. This involves companies developing their own educational and training programmes. These social partnership arrangements seem to be slow to develop. As reported by faculty and employer groups to whom the OECD review team spoke, there appears to be either a lack of trust between institutions and employers or a lack of understanding of each other's perspectives. In some countries, programmes such as these have had a substantial positive effect on participation in higher education, particularly

in encouraging older learners to engage in study. Approaches have included tax breaks for employers who support staff in formal study, and formal educational collaborations between industry and universities.

In developed countries such as the United States and Australia, for instance, there are a range of emerging partnerships in which universities work with employers to develop specialised qualifications for staff. For example IBM has partnered with 28 universities and business schools to develop a curriculum on big data. In Australia, the financial services firm AMP and Griffith University have collaborated to create university-industry postgraduate degrees that combine theoretical coursework with experience as a financial adviser (Griffith University, 2016).

Schemes to encourage participation

While financial barriers to participation are substantial, the influence of attitude and aspirations cannot be underestimated. Educational inequity has become entrenched in Kazakhstan. The systemic impediments of lower quality, and less well-resourced schooling for rural and low SES students have a direct effect by limiting opportunities for academic achievement. These impediments also have reduced individuals' opportunity to develop a mindset that understands the potential benefits of higher education.

The OECD review team observed very little systematic attempt in Kazakhstan to address this issue of low aspirations. It does not help that the current method of managing admission to higher education fails to recognise or address adversity or disadvantage in a young person's life. There are few if any enabling and bridging courses that might allow students to address gaps in their knowledge and develop knowledge and skills that are a pre-requisite for their course of study.

The team also observed few examples of study and learning skills support available for students at higher education institutions, and students with whom the team spoke noted that there was little formal provision of study support. The lack of additional support schemes can only further reduce the educational achievement of young Kazakhstanis.

Flexible study

The dominant approach to higher education is through full-time study. This can discourage participation of students from disadvantaged and low SES backgrounds who may, for instance, not be able to pay the "opportunity cost" of foregone wages if they engage in full-time study.

Kazakhstan's state classification of full-time, part-time and evening, distance education and external studies does not align with the definitions

applied to such terms outside the country. In Kazakhstan, "part-time education" is intensive training of around one month per year followed by an examination; school leavers are excluded from this option. Enrolments in this form of study have fallen sharply over the last several years.

In many other countries, the concept of part-time study involves a student carrying a subject load that is less than that required to complete a qualification in the minimum period of time. Part-time study may be offered by classes in the evenings, weekend study and intensive periods of study often over a summer. Alternatively, students may simply carry a lighter subject load. These options all provide a student with opportunity to balance university study with work or family commitments. However, not all countries recognise part-time study, and there is no universal definition. Many government policies apply different definitions of part- or full-time study for the purposes of funding decisions.

Initiatives that offer increased opportunities for Kazakhstani students to study part-time could increase the accessibility of higher education. These might be enabled by new technologies, in the form of open universities for example (Box 3.6), but that does not necessarily have to be the case. Changes to the funding of higher education places (including financial aid initiatives for part-time study) could also facilitate increased levels of participation in higher education by students from disadvantaged and low SES backgrounds.

Box 3.6. **Open universities**

Open Universities such as the Open University of the United Kingdom, Turkey's Anadolu University, Indira Ghandi National Open University (India) and Athabasca University (Canada) have demonstrated how distance education and open entry can dramatically expand access to higher education. Drawing on the expertise of domestic and foreign faculty from quality institutions, these institutions make education available at a reasonable cost through print and digital resources supplemented by tuition. They make use of techniques such as credit transfer from other institutions, assessment and recognition of prior learning and challenge for credit. Quality higher education is provided at scale to all who wish to participate.

Sources: ICDE (International Council on Distance and E-learning), www.icde.org/. Athabasca University www.athabascau.ca/; www.universityadmissions.ca/open-distance-universities-in-canada/.

The availability of data for policy purposes

To design and implement approaches that address inequalities in access to higher education, policy makers first need good data and information on these inequalities. However, given the difficulties that the OECD review

team had in obtaining reliable data that it required for this chapter's analysis, it appears that Kazakhstan is not systematically tracking, monitoring and analysing the performance of students on the basis of their geographic and socio-economic backgrounds. It is not following students through primary and secondary education, and into any post-secondary studies they may engage in. Policy makers thus lack reliable analysis of the higher education participation and completion rates of students from low SES or disadvantaged backgrounds, and of the factors that contribute to these outcomes. This represents a major limitation on the business intelligence of the higher education system and of the education system more generally. It is enough, in itself, to substantially hinder efforts to enhance access and equity.

Recommendations

This Review recommends that Kazakhstan:

Reform the system of state grants and student loans. Ensure that there are viable mechanisms for supporting students from poorer families and from rural areas, from all parts of the country.

- The amount of funding available to support higher education participation should be increased. The number and value of grants is small compared to the number of students who might benefit from higher education. This creates a sharp discontinuity between a minority of students who are able to access higher education free of charge and a majority who pay full tuition fees.
- A significant amount of grant funding should be allocated to means-tested financial support, in order to enhance equitable access to higher education. The current system advantages those who are already in a comparatively privileged position, and wastes public funds in ways that are particularly problematic given Kazakhstan's fiscally constrained environment.
- A shift in grant funding policy should be complemented by student loan systems reforms to make loans more accessible and affordable to students who are not in receipt of a grant. Kazakhstan should, in particular, consider the potential for modified terms of loan repayment, including incremental repayment through an income contingent loans programme. Such lending should include a component for living expenses: students need realistic amounts of funding to cover their living costs while in higher education.
- Reform of state policy could encourage the establishment of endowments at higher education institutions. This could, over time, provide institutions with a potential source of funds that they might

use to support disadvantaged students. This approach would help systematise the role of employers in supporting students. State incentives could encourage these contributions.

- The various approaches detailed above are unlikely to be cost neutral. However, given Kazakhstan's low level of public funding of higher education, and given the fact that public funding mostly flows to higher education institutions via students themselves, these changes to student financial assistance are not unreasonable. To scale back costs, more emphasis could be put on affordable loans with innovative repayment conditions, as opposed to grants.
- Effective implementation of many of the above courses of action will require better measurement of socio-economic status in Kazakhstan. Current tax data only provide partial information, and the state should develop a more comprehensive approach to measuring SES (e.g. parental occupation and education or postal code equivalent).

Reform the relationship between state grants and tuition policy.

- Decouple university tuition fees from state grants levels. The current situation whereby the university fee cannot be less than the state grant (i.e. if the grant is raised, fees must also be raised) is not sustainable. Such an approach makes it impossible to increase per student public funding without at the same time generating new affordability burdens and creating further barriers to participation.

Improve the quality of primary and secondary schooling.

- Expand incentives to attract and retain quality teachers to rural and disadvantaged schools. These may include travel and housing subsidies, sign-on and retention bonuses, salary enhancements, and educational scholarships for family members.
- Improve conditions in rural and disadvantaged schools – including physical infrastructure, educational resources, and social support for staff and students.

Increase efforts to raise the educational aspirations of students in rural areas and from low SES backgrounds.

- Public investments will be required, but incentives should also be directed towards employers to encourage their contribution to these schemes.
- Any publicly funded schemes should be required to develop and share full documentation about their procedures and the resources they use. This would help enable the scaling up of successful approaches.

- Align these outreach measures with scholarship programmes to multiply their effect.

Expand the use of technology-enabled learning and distance education methods (in particular e-learning) in order to provide high-quality learning opportunities for students in rural areas.

- Pay particular attention to e-learning support for teachers, including tools that teachers can integrate into their teaching. Centrally supported repositories of digital learning assets that are curated and accompanied by teachers' guides could provide a sustainable approach to help upskill rural teachers, enrich the curriculum, and thus better prepare students for higher education.
- Expansion of e-learning in higher education institutions would provide greater flexibility for students who must work while studying, and help ensure that students who are encountering difficulties have access to supports and remedial resources.

Continue to reform the Unified National Test (UNT), so that it is an effective part of a higher education admissions system that equitably recognises the abilities of prospective students.

- Current efforts at revision, aimed at making the UNT a more reliable and valid test, should be accelerated.
- Pursue the development of separate tests to assess school completion and university admission.
- Equity would be enhanced if there were a central mechanism to take account of the ways in which educational disadvantage and adversity interact with the UNT. For instance, to address the issues created by a universal test, an agreed upon table of "bonus points" might be applied to the UNT score of candidates from low SES areas and specified disadvantaged backgrounds. Alternative ways of assessing preparedness for higher education might be considered as well.
- An expanded system of financial supports should also be provided (based on need) for successful students from these special categories.

Further develop mechanisms that recognise and provide credit for VET qualifications, in order to better take advantage of the training that occurs in VET colleges and to benefit from the potentially close relationship between technical and higher education.

- Approaches should include formalised credit transfer, recognised articulation pathways and partnerships between universities and VET colleges. These will enable movement and minimise barriers

to the transition from one sector to another. They can also be used to facilitate greater access to higher education for students who may not have performed well on the UNT, as well as mature students.

Improve data systems to better understand system performance in the areas of access and participation. Commit to establishing robust and reliable data regarding students of low socio-economic status.

- Measures of employment, starting salaries and career progression will provide valuable information about the performance and effects of higher education.
- In particular, students of low SES and other equity groups should be clearly identified, with their progress tracked throughout their studies and post-graduation.

Note

1. A gross enrolment ratio is the ratio of the number of students enrolled in technical, vocational and university education to the total population aged 18-22.

References

Álvarez-Galván, J. (2014), *A Skills beyond School Review of Kazakhstan*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264221826-en.

Athabasca University, www.athabascau.ca/.

Bowes, L. et al. (2013), *International Research on the Effectiveness of Widening Participation*, Higher Education Funding Council for England, www.hefce.ac.uk/media/hefce/content/pubs/indirreports/2013/WP,international,research/2013_WPeffectiveness.pdf.

Bridges to Higher Education (2016), www.bridges.nsw.edu.au/home.

Canning, M. et al. (2013), *Roadmap for the Development of Education in Kazakhstan. Higher Education Roadmap Recommendations,* www.gse.upenn.edu/pdf/irhe/roadmap_kazakhstan.pdf.

Chapman, B. (2015), "Taking income contingent loans to the world", *University World News*, 06 March 2015, Issue No. 357, www.universityworldnews.com/article.php?story=20150305123821344.

Chapman, B. (2006), *Income Contingent Loans as Public Policy*, The Academy of the Social Sciences in Australia, Occasional Paper 2/2006, Policy Paper # 5, Canberra, www.assa.edu.au/publications/occasional/2006_No2_Income_contingent_loans.pdf.

Chapman, B. (2005), *Income Contingent Loans for Higher Education: International Reform,* The Australian National University, Centre for Economic Policy Research, Discussion Paper No. 491, Canberra, www.cbe.anu.edu.au/researchpapers/cepr/DP491.pdf.

Chapman, B., T. Higgins and J. Stiglitz (eds.) (2014), *Income Contingent Loans: Theory, practice and prospects*, Palgrave Macmillan, Basingstoke and New York.

Department for Business Innovation and Skills (2015), *The Contribution of Further Education and Skills to Social Mobility,* Research Paper No. 254, October 2015, London, www.gov.uk/government/uploads/system/uploads/attachment_data/file/466420/BIS-15-579-contribution-of-further-education-and-skills-to-social-mobility.pdf.

Department for Business Innovation and Skills (2013), *The Benefits of Higher Education Participation for Individuals and Society: Key Findings and Reports "The Quadrants"*, Research Paper 146, October 2013, www.gov.uk/government/uploads/system/uploads/attachment_data/file/254101/bis-13-1268-benefits-of-higher-education-participation-the-quadrants.pdf.

Ferguson, H. B., S. Bovaird and M.P. Mueller (2007), "The impact of poverty on educational outcomes for children", *Paediatrics and Child Health,* October, Vol. 12, No. 8, pp. 701-706, www.ncbi.nlm.nih.gov/pmc/articles/PMC2528798/.

Gale, T. and S. Parker (2013), *Widening Participation in Australian Higher Education,* Report submitted to HEFCE and OFFA, www.ncsehe.edu.au/publications/widening-participation-australian-higher-education/.

Garranger, M. and P. MacRae (2008), *Building Effective Peer Mentoring Programs in Schools: An Introductory Guide*, Mentoring Resource Center, Folsom, CA, http://educationnorthwest.org/sites/default/files/building-effective-peer-mentoring-programs-intro-guide.pdf.

Griffith University, "AMP financial planning degrees" www.griffith.edu.au/business-government/finance-financial-planning/what-can-i-study/amp-financial-planning-degrees.

Higher Education Funding Council for England (2015), *Delivering Opportunities for Students and Maximising their Success: Evidence for Policy and Practice 2015-2020,* www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201514/HEFCE2015-14.pdf.

Higher Education and Research (31 May 2016), https://sweden.se/society/higher-education-and-research/.

JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

International Council on Distance and E-learning, www.icde.org/.

James, R. (2007), "Social Equity in a Mass, Globalised Higher Education Environment: The Unresolved Issue of Widening Access to University", Centre for the Study of Higher Education, Melbourne, http://web.education.unimelb.edu.au/news/lectures/pdf/richardjamestranscript.pdf.

KPMG (2013), *Economic Evaluation of the Australian Indigenous Mentoring Experience Program Final report*, Australian Indigenous Mentoring Experience (AIME), Government Advisory Services, http://files.aimementoring.com/pdf/aime-2013-kpmg-report.pdf.

Law of the Republic of Kazakhstan, of 27 July 2007, No. 319-III ZRK, About education, last edition, 9 April 2016.

MESRK (2014), *Youth of Kazakhstan*, National Report Ministry of Education and Science of the Republic of Kazakhstan, Council for Youth Policy, Science Research Centre "Youth", Republic of Kazakhstan, http://ortcom.kz/media/upload/1/2015/10/31/b9a9b0397ae4c967b709463b1bab063e.pdf.

MESRK (2010), The State Program of Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential Decree as of 7 December 2010, Number 1118.

MNERK (2014-2015), Committee on Statistics (2014-2015), www.stat.gov.kz.

NCESE (2014), "Statistics of education system of the Republic of Kazakhstan", *National Collection*, National Center for Educational Statistics and Evaluation http://iac.kz/en/analytics/statistics-education-system-republic-kazakhstan-national-collection.

(NCESE) (2012), "Statistics of education system of the Republic of Kazakhstan", National Collection, National Center for Educational Statistics and Evaluation, http://iac.kz/en/analytics/statistics-education-system-republic-kazakhstan-national-collection.

Nazarbayev University Graduate School of Education (2014), *Development of Strategic Directions for Education Reforms in Kazakhstan for 2015-2020, Diagnostic Report*, Indigo Print, Astana, http://nur.nu.edu.kz/bitstream/handle/123456789/335/DIAGNOSTIC%20REPORT.pdf.

NSW Education Department (2015), "Benefits of teaching in rural and remote NSW", www.teach.nsw.edu.au/exploreteaching/high-demand-locations/benefits-of-teaching-in-rural-and-remote-nsw.

OECD (2016), *Low-Performing Students: Why They Fall Behind and How To Help Them Succeed*. PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264250246-en.

OECD (2015), *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264235120-en.

OECD (2014a), *Education at a Glance 2014: OECD Indicators,* OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2014-en.

OECD (2014b), *Reviews of National Policies for Education: Secondary Education in Kazakhstan,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264205208-en.

OECD (2013), *OECD Education at a Glance: Highlights 2013,* OECD Publishing, Paris, http://dx.doi.org/10.1787/eag_highlights-2013-en.

OECD (2012a), *Equity and Quality in Education: Supporting Disadvantaged Students and Schools,* OECD Publishing Paris. http://dx.doi.org/10.1787/9789264130852-en.

OECD (2012b), *OECD Education at a Glance: Highlights*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag_highlights-2012-en.

OECD (2008), *Tertiary Education for the Knowledge Society*, Volume 2, Special Features: Equity, Innovation, Labour Market, Internationalisation, OECD Publishing, Paris, www.oecd.org/education/skills-beyond-school/41266759.pdf .

OECD/JRC (2009), Students with Disabilities, Learning Difficulties and Disadvantages in the Baltic States, South Eastern Europe and Malta: Educational Policies and Indicators, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264076860-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan* 2007, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Open and Distance Universities in Canada, www.universityadmissions.ca/open-distance-universities-in-canada/.

Redmond, G. et al. (2014), *Intergenerational mobility: new evidence from the Longitudinal Surveys of Australian Youth,* National Centre for Vocational Education Research (NCVER), Adelaide, www.ncver.edu.au/publications/publications/all-publications/intergenerational-mobility-new-evidence-from-the-longitudinal-surveys-of-australian-youth.

Reisberg, L. and D. Watson (2011), "Access and Equity" in P. Altbach (ed.), *Leadership for World-Class Universities: Challenges for Developing Countries*, pp. 187-204, Routledge, New York.

The University Admission Centre (n.d.), Alternative Entry, www.uac.edu.au/undergraduate/admission/alternative-entry.shtml.

The University of Edinburgh, www.ed.ac.uk/student-recruitment/widening-participation/.

World Bank (2012), *Kazakhstan - Student Assessment*, Saber Country Report, www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/08/12/000356161_20130812163634/Rendered/PDF/799380WP0SABER0Box0379795B00PUBLIC0.pdf (accessed 25 April, 2016).

Chapter 4

Internationalisation and higher education in Kazakhstan

This chapter focuses on policies to help ensure that graduates develop the skills and knowledge they need to succeed in a globalised world. It deals with the benefits of and effective practices in, internationalisation before looking at the policy implications for Kazakhstan in terms of governance, quality assurance, student and staff mobility and curriculum. It also traces how the Bologna Process, the Bolashak programme and Nazarbayev University have influenced the system. The chapter places particular emphasis on areas of priority for Kazakhstan in dealing with barriers to this internationalisation process. These include increasing the currently limited academic autonomy of higher education institutions and improving the level of English language proficiency of students, faculty and staff. The chapter points out the lack of an effective system of external quality assurance and the weakness of international academic partnerships. It also highlights gaps in data for institutional and system planning and the financial barriers facing students who wish to study abroad.

Internationalisation is the process by which an international, intercultural or global dimension is integrated into higher education's purposes, functions and modes of delivery (Knight, 2003). Various factors explain why higher education has become increasingly internationalised in recent years. These include the phenomenon of globalisation[1]; the increasing importance of information and communications technology; nations' pursuit of high-ranking research universities; reductions in public budgets for higher education institutions; and the increasingly entrepreneurial nature of modern academia (Gao, 2015).

The benefits of internationalisation

Internationalised higher education delivers benefits for individual students, higher education institutions and staff, and economies and societies more broadly.

For students

In the contemporary world, individuals benefit from interconnected networks and global awareness. Internationalisation is the major means by which higher educational institutions can ensure that graduates develop the international, foreign language and intercultural skills required to interact successfully in a global setting.

International higher education provides opportunities for students to learn in new situations and with people from different backgrounds, to develop global networks, and to acquire a broader understanding of the world. This helps them build the advanced skills and competencies that modern economies require. Outwardly mobile students experience all these benefits, but students who remain in their home countries can also reap the benefits of internationalisation through their interactions with international students, and through a more internationalised curriculum.

For higher education institutions and staff

The benefits of internationalisation for higher education institutions are also extensive. It allows them to develop a global reputation and attract high-quality staff and students; to expand their academic community; to leverage institutional strengths through strategic partnerships; to develop stronger research groups; to benchmark their activities on a global scale; to mobilise internal intellectual resources; to incorporate valuable, contemporary learning outcomes into the student experience; and to generate revenue and share infrastructure (Hénard et al., 2012).

Internationalisation through student mobility can also help mitigate some of the effects that demographic changes have on higher education institutions.

Many countries are experiencing stagnation or even a decline in the size of their 18 to 25-year-old cohort, and there is a growing understanding that foreign students can help address the challenges posed by declining domestic enrolments (OECD, 2008).

For the economy and society more broadly

The internationalisation of higher education serves the public interest by delivering substantial short- and longer-term economic benefits; enhancing international relationships and understanding at home and abroad; and attracting talent and building capacity.

Public funding to support internationalisation helps promote national participation in the global knowledge economy and brings economic benefits from trade in education services. The exchange of students and staff can help develop long-lasting diplomatic ties between countries. Internationalisation also helps governments ensure the development of a skilled domestic workforce with global awareness and multicultural competencies (Hénard et al., 2012). In addition, governments are increasingly recognising that it is an effective way to develop intercultural understanding (Fielden, 2011). While recognising the challenges of "brain drain", many countries are also using internationalisation to attract talented workers (students who stay on in their host country, at least temporarily, after graduation).

While some countries are grappling with declining traditional student cohorts, other countries and regions – especially People's Republic of China India and Southeast Asia – are experiencing a growing domestic demand for higher education that is beyond the current capacity of their higher education systems. Internationalisation can be a cost-effective alternative to national provision of higher education.

Internationalisation approaches in higher education

The internationalisation of higher education is achieved through a variety of approaches including inbound and outbound student mobility; inward and outward staff mobility; offshore delivery, including transnational education; and "internationalisation at home".

Student mobility, characterised by students studying for the short or long term at a foreign university, is the most common form of internationalisation. The number of higher education students studying outside their country of citizenship nearly doubled between 2000 and 2010, and there is little suggestion that this trend will slow any time soon (OECD, 2012a). It is projected that with demographic changes, international student mobility is likely to reach 8 million students per year by 2025 (OECD, 2012b) and that

by the same date at least 20% of all graduates from the European Higher Education Area will have spent a period of time studying or training abroad (European Commission, 2014).

Staff mobility or exchange programmes are also common and fulfil an important knowledge-sharing and capacity-building role. They facilitate professional development, teaching collaborations and research linkages.

Offshore delivery or transnational education has been adopted by a number of countries including Australia, Canada, the United Kingdom and the United States. Higher education institutions in all these countries have established campuses in foreign countries. In addition to establishing campuses, institutions may teach part or all of a programme in a foreign country – either face-to-face, or supported by technology or distance education practices. There are about 220 campuses worldwide that provide free courses open to all participants via Massive Open Online Courses (MOOCs) (University of Oxford, 2015).

"Internationalisation at home" is an expanding area of activity. This can take the form of joint teaching and research programmes, in which domestic students and researchers collaborate with peers in other countries. It can also include the internationalisation of the curriculum, which incorporates intercultural and international perspectives into coursework and extra-curricular activities. This approach develops students' international and intercultural skills without them needing to leave their home country (Wächter, 2003).

Effective practices in internationalisation

International higher education involves more than just universities and their students: it goes beyond the exchange of students or the signing of Memoranda of Understanding between governments and higher education institutions (Gallagher et al., 2009). A truly effective approach embeds internationalisation in all dimensions of teaching, research and institutional practice, as well as in national policy. It requires engagement between higher education institutions, employer groups, social partners and government agencies.

Well-formed public policy

Governments can contribute to the internationalisation of higher education by developing national strategies that attract international research initiatives, support corporate partnerships, and facilitate the mobility of student and faculty talent (see Box 4.1). However, while many governments implement national strategies to deliver the benefits of internationalisation, not all have clear strategies that also address the challenges of international higher education and support its expansion.

Box 4.1. **Examples of national international higher education strategies**

In 2014, Canada launched its first International Education Strategy. The goals of this strategy include attracting more international researchers and students to Canada, deepening the research links between Canadian and foreign educational institutions, and establishing a pan-Canadian partnership across provinces and territories that includes all key education stakeholders. The strategy seeks to double the number of international students in Canada by the year 2022.

The strategy for the "Internationalisation of Higher Education Institutions in Finland 2009-2015" (Finnish Ministry of Education, 2009) aims at creating an international higher education community in Finland, increasing the quality and attractiveness of Finnish higher education institutions, exporting Finnish educational expertise, supporting a multicultural society and promoting global responsibility.

The "Internationalisation Policy for Higher Education Malaysia" (Ministry of Higher Education Malaysia, 2011) was adopted in 2011. The policy addresses core aspects of internationalisation such as student mobility, staff mobility, academic programmes, research and development, governance and autonomy, social integration and cultural engagement.

Sources: Matross Helms, R., and L. E. Rumbley (2016), National Policies for Internationalization - do they work? International Higher Education, No. 85, pp. 9-11, http://ejournals.bc.edu/ojs/index.php/ihe/article/view/9236/8292.

Since they can have an impact on a number of different areas of society and on the economy more broadly, higher education internationalisation strategies cannot be developed in isolation from other government policies. An effective internationalisation policy is typically a whole-of-government approach which ensures the alignment of higher education policy with dimensions of immigration policy (e.g. student and faculty visas and conditions around remaining in the country after graduation); trade policy (e.g. coherence with commitments on education services in bilateral and multilateral agreements); development policy (e.g. consistency of aid and development policy in higher education); and labour market policy (e.g. co-ordination between professional bodies, industries and higher education institutions). Inter-governmental committees that have policy makers representing areas such as education, research, immigration, science and technology, labour and foreign affairs can help ensure a whole-of-government approach to internationalisation. Australia, for instance, has a well-established whole-of-government approach (Box 4.2).

Inward and outward mobility can be stimulated by a range of policy instruments that span a number of different government portfolios:

- *Mobility scholarships* can support both the outward and inward mobility of students. Outward mobility can be encouraged through means-tested scholarships which are sufficiently generous to encourage mobility for less affluent students. Merit-based

scholarships are particularly effective when targeting inward mobility, especially when countries have an underlying migration-attraction agenda.

- *Internationally accessible information* on domestic programmes can help potential international students decide where to study. Such information might include for instance data on the quality of learning and teaching (e.g. the results of student experience and satisfaction surveys, and information about the labour market outcomes of graduates).
- *International education trade fairs* can help countries attract international students. Presence at these fairs is effectively complemented by a central national access point for mobility-related information.
- Simple and quick *visa application processes* can also reduce barriers for students hoping to enter the host country, and thus help a country establish a competitive advantage.

Support for student mobility

Student participation in mobility programmes can be influenced by factors such as concerns about living in a new environment, financial constraints, family influences and logistical obstacles.

For many students, especially those who have not travelled abroad, the idea of international study may be daunting. This can particularly be the case if such study involves learning in a foreign language. Students may feel that they will be vulnerable in unfamiliar environments, where they risk falling prey to unscrupulous education agents and higher education providers. As well, some students will be discouraged from international exchange if there are too many barriers (e.g. travel and visa policy, or difficulties accommodating another institution's curriculum).

Students may also be unable to afford the costs of travel and living associated with an international experience, and those who are working are often unable to give up their job and income in order to study abroad. If a student's family members have not travelled overseas, and do not understand the value of international study, they are less likely to support a student's engagement in such activities. In fact, many of these limiting factors are linked to socio-economic status either directly (as a consequence of affordability and capacity to pay) or indirectly (through expectations and aspirations).

Box 4.2. **Case study: Aligned policies in Australia**

The Australian Government recognises the need for policy aligned across government departments. This is reflected in the National Strategy for International Education 2025 which sets out a ten-year plan for developing Australia's role as a global leader in education, training and research. The strategy provides a framework of priorities for the Australian international education community to help develop the sector.

Starting in 2016-17, the Australian Government will provide AUD 12 million over four years to support implementation of the National Strategy. The strategy aligns with the National Innovation and Science Agenda, which will further enhance Australia's global reputation as a leader in research and education into the future. It is also part of a suite of Australian Government initiatives to support international education.

The Australian Government Department of Foreign Affairs and Trade introduced the Colombo Plan in 2013. This is a targeted scholarship programme designed to enhance knowledge of the Indo-Pacific in Australia by helping Australian undergraduates study and undertake internships in that region. It includes a scholarship programme for study; internships and mentorships; and a flexible mobility grants programme for short- and longer-term study, internships, mentorships, practicums and research. The Plan's aim is to build long-term relationships across countries and to develop stronger ties between strategic partner countries in the region. It is directly aligned with efforts of higher education institutions to increase outbound student mobility.

Australia has signed free trade agreements with People's Republic of China, Korea and Japan, and is also a signatory to the Trans-Pacific Partnership. Trade agreements assist the free flow of higher education students in and out of Australia, and facilitate Australian higher education institutions' engagement in trans-national education.

The Department of Immigration and Border Protection's Simplified Student Visa Framework supports student mobility by simplifying the visa process for international students wishing to study in Australia. The framework allows international students on a visa to work part-time while studying, an approach that can improve graduate outcomes.

Sources: Australian Government (2015), National Strategy for International Education 2025.

There is, however, much that can be done through policy initiatives, funding schemes and structured support programmes to address these challenges:

- Scholarship schemes can minimise the direct financial impact of travel.
- Government policies can streamline visa policy settings to explicitly support student mobility. Governments can also set up systems to protect international students.

- On the "receiving end", higher education institutions can support international students by offering services such as academic advice and guidance, language support, technical assistance, welfare provision and accommodation (Gao, 2015). Such measures are important in helping students adapt to their new environment.
- Institutions can also organise the timing of international experiences so that they have minimal impact on students' capacity to work.
- Technologies can assist in extending the international experience pre- and post-travel to create opportunities to deliver highly effective shorter-term mobility experiences.
- Internationalisation of the curriculum can make a major contribution to developing international perspectives and understanding without the need to travel.
- Collaborative articulation pathways that provide a formal route for international students to undertake part of a qualification at their home institution before transferring to a foreign partner institution can also facilitate student mobility.
- Articulation arrangements can allow a student to transfer from a lower level qualification at his or her home institution to a higher-level programme in the foreign partner institution.

Joint degree and twinning arrangements

The 'brand' of individual institutions – and of a country's higher education more generally – can be enhanced through partnerships and joint degree programmes with high-quality international partner institutions. Joint programmes can make a substantial contribution to an internationalised curriculum, allowing international perspectives to be explicitly integrated into the programme. As staff of the institutions work together to decide on areas of alignment and credit agreement, they can build in cross references to regional content. Because they require substantial collaboration in the process of design, development and accreditation, such partnerships can also function as a major capacity-building exercise, exposing staff to international thinking and pedagogic expertise.

These kinds of collaborations may be referred to as joint programmes, articulation agreements, twinning programmes or by other names. While there are some variations, in general these kinds of arrangements provide credit transfer and recognition for study completed in one institution, which is then counted for the completion of study in another foreign institution. Twinning and articulation arrangements between institutions provide clear pathways for students and allow institutions to partner with another organisation to mutual advantage.

Box 4.3. **Articulation between the China University of Mining and Technology-Beijing and Pennsylvania State University**

The China University of Mining and Technology-Beijing and Pennsylvania State University have a collaborative undergraduate degree programme in Engineering (otherwise described as a 2+2 programme) that specifies majors that students may take at the two institutions. Under this arrangement, CUMTB students first complete two years of undergraduate studies at their home institution. After successful completion of this initial period of study, and provided they meet all programme and Penn State admission requirements, CUMTB students may transfer to Penn State where they complete their undergraduate studies in engineering. Students who successfully complete the Programme will earn a Bachelor of Science degree from the Penn State College of Engineering or from the College of Earth and Mineral Sciences.

Sources: University approved articulation agreements, www.psu.edu/dept/enrmgmt/artic_agrmnts.html.

Staff engagement and collaboration

Staff collaborations can play an important part in the development and teaching of internationalised programmes. The development of joint curricula, the re-use and adaptation of teaching and learning resources, and collaborative teaching development activities are all common forms of international collaboration. Information communications technologies support visiting lecture and seminar contributions from the faculty of foreign institutions, and e-learning techniques make it possible for students from different institutions to collaborate on projects and join in discussions supported by learning management systems and web-based collaboration software. The potential contributions of virtual classrooms to collaborations between staff and students are far from being fully realised.

Furthermore, collaborative activities can extend well beyond these approaches. They can for instance include exchanges and shadowing programmes for management and administrative staff, as well as joint work on business processes and governance. Such programmes may involve informal arrangements between partner institutions or other partners, semi-formal arrangements (e.g. activities supported by professional organisations such as the Knowledge Network Institute of Thailand and the United Kingdom-based Leadership Foundation) or government-to-government initiatives.

International research collaborations are also becoming increasingly important. These help develop expertise, and they enable the shared use of scarce or expensive research infrastructure and shared data sets. Traditionally, international research collaborations have been driven by relationships and shared research interests between individual staff researchers. However, as institutions have become more strategically focused on their research

enterprise, they have found that the identification of strategic research themes and priorities, linked to the identification of international partner institutions, can maximise research output and performance. Consequently many institutions are now providing targeted funding incentives to support the establishment and growth of international research collaborations. Their strategic research plans identify partners, and it is common for national research funding schemes to require or incentivise international partnerships.

International research partnerships can also develop as a result of the supervision of international research higher degree (PhD) students, when the graduating student returns to his or her home country. Joint PhD supervision between faculty members of partner institutions is a growing means by which research collaborations are encouraged. These sorts of collaboration make a valuable contribution to institutions' international standing and are rewarded by national research funding mechanisms.

Internationalisation of the curriculum

Academic staff can also be engaged through internationalisation of the curriculum (Leask, 2012). This approach is guided by a belief that all students should learn about the world in which they live and should develop the skills they need to function effectively in an internationally connected society. Internationalising the curriculum has been shown to develop a global awareness within the context of learning discipline content (Jones and Brown (eds.), 2007). All educational programmes can have an international dimension.

Internationalisation of the curriculum may involve the inclusion of international case studies and extended examples, rather than a simple focus on local examples. Approaches to an internationalised curriculum explicitly capitalise on the experiences of international staff and students, valuing and using their experiences in the formal learning component of the programme. They seek to develop intercultural competence and the skills and understanding that allow individuals to function in a global society (Mak et al., 2013). Some forms of internationalised curriculum may include an embedded international experience such as an internship, practicum, study experience or research project – but this is not a necessary feature.

Data collection and analysis

Education systems need robust, high-quality data if they are to effectively develop and assess policy. Informed policy-making requires information about the impact of "international experience" on individuals (e.g. through graduate or destination surveys) and the value-add of internationalisation for research capacities.

Longitudinal databases are the gold standard. They collect information about international students and about domestic students going abroad, improve knowledge about the impacts of international mobility on those who participate and also measure broader economic impacts. Data-informed analysis can focus on issues such as quality of delivery and capacity building in priority subject areas; enhancements to the innovation and research systems; the retention and subsequent migration of highly trained workers; equity of access to opportunities for mobility; and the impact of internationalisation on higher education finance.

The benchmarking of activity and performance is most effective when there is alignment with international standards. In recent years there has been substantial work towards harmonising systems and qualifications around internationally recognised standards. The International Student Barometer (ISB) (i-Graduate and Universities Australia, 2013) is used by many universities across the world to track and compare the decision-making, expectations, intentions and perceptions of international students.

Higher education initiatives such as the Bologna Process have sought to establish international standards as a point of reference and comparison. UNESCO and the OECD developed guidelines for quality provision in cross-border higher education in 2005 to protect students and other stakeholders from low-quality provision and disreputable providers (i.e. degree and accreditation mills), and to encourage the development of quality cross-border higher education that meets human, social, economic and cultural needs. The recommended practices have largely been implemented by governments and higher education institutions, and have also been integrated in major policy guidelines and declarations related to quality assurance (Vincent Lancrin et al., 2015).

Internationalisation in Kazakhstan

Kazakhstan clearly recognises that a more globally aware and engaged workforce will make important contributions to the economy and society, and that higher education plays a key role in developing this workforce. It also acknowledges the longer-term value of relationships and networks that are established as a consequence of the international experiences of Kazakhstani citizens. Kazakhstan has made some progress towards greater internationalisation since the 2007 OECD/World Bank Review of Higher Education in Kazakhstan (see Figure 4.1 for an overview).

Figure 4.1. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD recommendations	Implementation status
Prioritise the preparation of globally minded, internationally competitive students.	Implementation of the Bologna Process has taken place, but with limited focus on global orientation. Activities have focused on mobility rather than on understanding other countries' courses. There has been limited focus on the skills and competencies required by the knowledge economy.
Internationalise the curriculum.	The OECD review team observed very limited inclusion of international examples and content.
Increase English language competence.	There is limited progress here, but tri-lingual approaches are being introduced (e.g. at some universities and at the Nazarbayev Intellectual Schools).
Increase the international mobility of staff and students.	Short-term initiatives have been introduced.
Increase the number of foreign students and faculty members in Kazakhstani universities.	The new Nazarbayev University has a primarily foreign teaching staff. Otherwise, only a few higher education institutions (e.g. KIMEP) have a significant number of international faculty members. There has been only limited growth in the numbers of inbound students and staff.
Enlarge and improve the Bolashak programme.	There is a network for Bolashak alumni, and a state data centre on the Bolashak programme has been established.
Link Bolashak programme to national and institutional priorities.	The allocation of Bolashak scholarships is linked to national discipline priorities but does not explicitly identify target countries.
Focus Bolashak programme on graduate programmes.	With the creation of Nazarbayev University, Bolashak has been refocused on mobility at the graduate programme level.
Build system-level capacity to support internationalisation.	There is no network for international education officers. There is limited joint degree development.
Quality assurance of international providers operating in Kazakhstan.	An institutional optimisation programme is underway (see Chapter 3), and has led to the merger or closure of many private institutions. A voluntary accreditation system has been introduced.
Implement the UNESCO/OECD Guidelines for Quality Provision in Cross-border Higher Education.	Some aspects of these are reflected in current activities.

Sources: OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Governance

As noted above, countries with successful internationalisation strategies for higher education have taken an integrated approach. They use intergovernmental committees or groups, and ensure a whole of-government approach to internationalisation. While strategic direction in Kazakhstan is clearly provided by the Office of the President (as evidenced in number of documents), the OECD review team observed that co-ordination across ministries faces challenges. It was reported, for instance, that the different the ministries responsible for different higher education institutions – for instance the Ministry of Industry and Agriculture for the agricultural universities and the Ministry of Finance for Financial Academies – do not necessarily fully co-operate on an integrated approach to higher education.

Quality assurance

In the 1990s, legislation in Kazakhstan enabled the creation of private providers and opened the doors to international higher education providers. This resulted in a rapid rise in levels of internationalisation. However, the opening up of higher education was not matched by an appropriate level of quality assurance.

From 2006 on, the government has been taking active steps to improve quality by reducing the number of higher education institutions (the so-called "optimisation policy") and by putting in place a voluntary system of accreditation. While these initiatives may have to some extent slowed internationalisation, they were nonetheless essential to improve public confidence in the quality of the higher education sector and to enable the country to compete successfully on the international stage.

Student and staff mobility

Mobility – particularly outbound staff and student mobility – has been a defining feature of Kazakhstan's international education efforts. The SPED for 2011-2020 envisages that one in five students will be engaged in academic mobility. The Strategy for Academic Mobility in the Republic of Kazakhstan for 2012-2020 is the primary policy informing the internationalisation of higher education.

Outbound students

Outbound academic mobility is the primary component of Kazakhstan's internationalisation strategy. In 2015, 48 875 students studied abroad (UIS, 2 016). Their primary destinations included the Russian Federation (35 106), Kyrgyzstan (4 357), the United Kingdom (1 725) and the United States (1 884) (see Figure 4.2).

Figure 4.2. **International students in Kazakhstan and destination countries of Kazakhstani students**

Country of origin		Destination country	
Georgia	6 639	Russian Federation	35 106
Uzbekistan	5 588	Kyrgyzstan	4 357
Russian Federation	1 644	United States	1 884
Turkmenistan	1 090	United Kingdom	1 725
Kyrgyzstan	963	Czech Republic	1 174
People's Republic of China	897	Malaysia	1 089
Mongolia	656	Germany	695
Tajikistan	476	Poland	401
India	392	United Arab Emirates	377
Afghanistan	334	Ukraine	350
Turkey	262	France	346
Azerbaijan	147	Saudi Arabia	291
Korea	48	Korea	211
Ukraine	32	Belarus	206
Pakistan	28	Australia	142
Armenia	24	Italy	132
Germany	23	Canada	126
Syrian Arab Republic	14	Tajikistan	123
Belarus	12	Latvia	116
Iran	6	Austria	105

Notes:
1. Data are for reference year 2014.
2. When data for the reference year are not available, the latest data within three years prior to reference year are presented. For the year-specific, country-specific and time-series data, please consult the UIS Data Centre.
3. Data for students abroad shown in Key Indicators are for reference year 2013.

Sources: UNESCO International statistics database (2016), www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx .

The predominance of the Russian Federation may be explained by a number of factors. These include geographic proximity, linguistic compatibility, the volume of scholarships provided by the Russian Federation to Kazakhstani students (in particular to students from areas bordering the Russian Federation) and similarities between the educational systems of the two countries. However, the recent entry of Kazakhstan into the European Higher Education Area may lead to a comparative increase in student mobility to and from other countries.

Outbound student mobility is heavily dependent on foreign funding (e.g. from Erasmus Mundus) and on self-financing by students. However, the Ministry of Education and Science reports that its international mobility funding programme supported 52 universities to send 805 students to study abroad for at least one semester in 2014 (JSC Information-Analytic Center, 2015).

Inbound students

As Figure 4.2 shows, inbound students come mainly from Georgia and countries in Central Asia. Countries that are eligible to send foreign students are identified each year by a ministerial order. Foreign students applying to Kazakhstani higher education institutions do not normally have to pass the Unified National Test or the Complex Test, and can be admitted on the basis of the receiving institution's admissions criteria.

Figure 4.3 shows that the number of foreign higher education students who study in Kazakhstan institutions has varied over the last seven years, ranging from 10 458 in 2008 to 9 077 in 2014 (Committee on Statistics of the MNE RK, 2014-2015). The level of inbound student mobility has been consistently low: in 2014 it stood at roughly 2.1% of higher education enrolment.

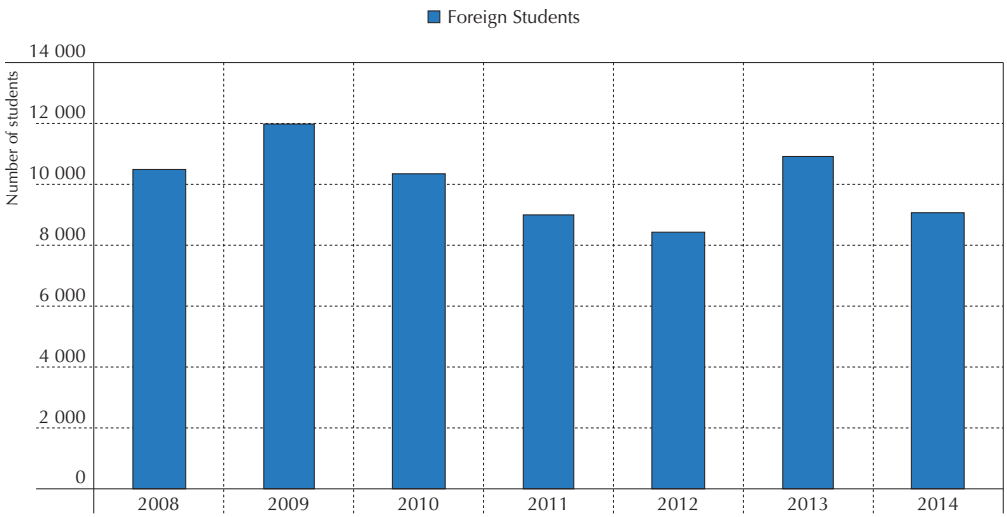
Outbound faculty mobility

Since the introduction of the Strategy for Academic Mobility in the Republic of Kazakhstan, outbound faculty movement has been increasing. In the period between 2011 and 2015, more than 2 600 faculty travelled abroad for internships, study and professional development (including 1 472 faculty who were in receipt of Bolashak scholarships). This represents over 5% of the total number of faculty members in Kazakhstan.

Unfortunately, based on the data available, it is not possible to determine which institutions were represented in these instances of staff mobility, nor the nature and duration of the activity. Similarly, Kazakhstani data do not allow for direct comparisons between Kazakhstan and other countries. However, to provide a very rough comparison: data on staff mobility supported by the European Commission's Erasmus Programme indicate that in the period 2013-2014, a total of 2 327 United Kingdom staff participated in

outbound mobility programmes. In Spain 5 727 staff were outwardly mobile during that same period, and in Turkey 5 838 staff engaged in an outward mobility experience (European Commission, 2015).

Figure 4.3. **Foreign students in higher education in Kazakhstan**



Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (2014-2015), www.stat.gov.kz.

Inbound faculty mobility

The Ministry of Education and Science reports that between 2010 and 2014, a total of just under 7 000 foreign scholars and faculty visited Kazakhstani higher education institutions. These visits are frequently of short duration, consisting of guest lectures or seminars that are often given in translation. There has been little assessment of the effect of these visits.

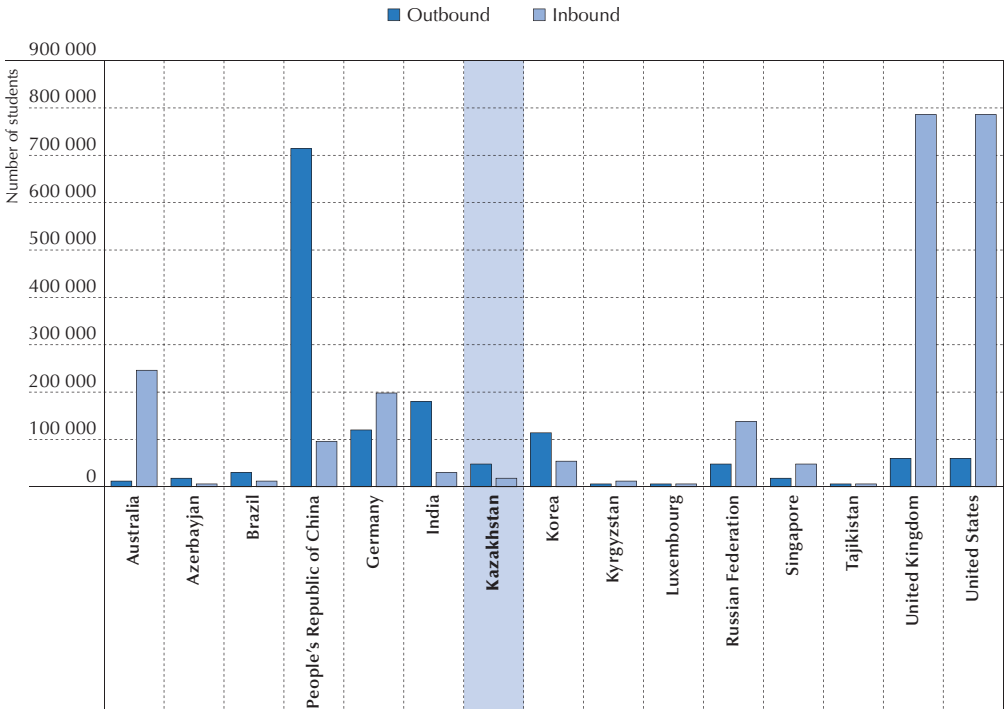
Within the framework of the Bologna Process, the volume of visiting professor and researcher activity has been increasing. In 2011, around 1 500 professors spent time in-residence at 27 Kazakhstani institutions (European Commission, 2012); in 2014, 1 726 foreign experts visited 52 Kazakhstani universities (Center for Bologna Process and Academic Mobility).

International mobility in Kazakhstan compared to other countries

Two figures in this section compare inbound and outbound student flows for a range of countries. These comparisons include total numbers of students (Figure 4.4), as well as mobility rates – which are defined as the number of

students from abroad studying in a given country, or the number of students from that country studying abroad, expressed as a percentage of total tertiary enrolment in that country (Figure 4.5). Kazakhstan performs reasonably well on outbound measures. This reflects the attention that has been paid to supporting a range of initiatives such as short-term exchanges.

Figure 4.4. **Outbound and inbound student mobility (total number of students) in 2015**



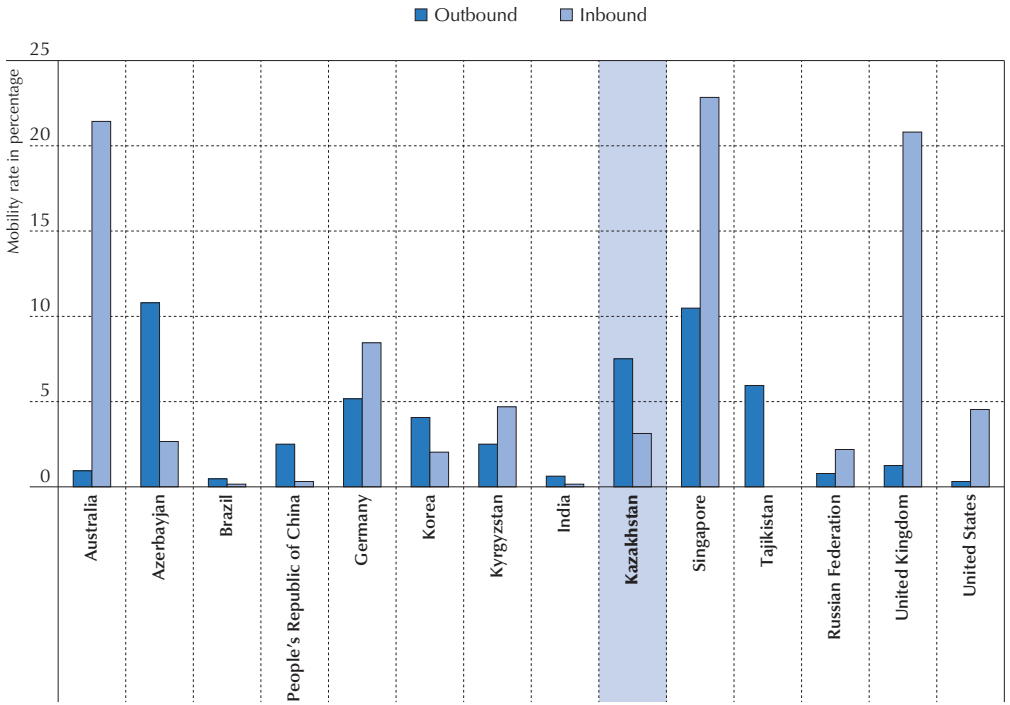
Sources: UNESCO International Statistics database (2016), www.uis.unesco.org/EDUCATION/Pages/international-student-flow-viz.aspx.

Australia, Singapore and the United Kingdom all have high inbound mobility rates. This reflects active government policies encouraging inbound international mobility, as well as the attractiveness of these countries' education sectors. Countries such as Brazil, People's Republic of China, and India, which lack adequate capacity to meet domestic demand for higher education and are considered by many to have higher education systems of variable quality, have low rates of inbound mobility.

Kazakhstan's rate of inbound mobility is comparable to that of the Russian Federation, Azerbaijan and the Republic of Korea. Kazakhstani universities are not competitive in international ranking schemes, which

are one of the key factors that influence international students' choice of destination. In addition, the generally low standard of facilities, services and infrastructure in Kazakhstani higher education institutions, their limited capacity to provide instruction in English language, and restrictive visa conditions all contribute to a lack of competitiveness.

Figure 4.5. **Outbound and inbound international mobility (rates) in 2015**



Sources: UNESCO International statistics database (2016), www.uis.unesco.org/EDUCATION/Pages/international-student-flow-viz.aspx.

Anecdotal evidence provided in interviews suggests that external media coverage of corruption in Kazakhstani higher education, and in the country more generally, has also had a negative effect on international student interest (Rumyantseva, 2004). The State Program of Educational Development 2011-2020 acknowledges that corruption in higher education remains a problem that must be addressed. While it may be possible to increase inbound student numbers by working more closely with aid agencies, until the quality and integrity of higher education are demonstrably improved, substantial increases are unlikely.

Inbound student mobility has not been a priority for Kazakhstan, and the reasons for this are somewhat understandable. The higher education

system derives greater benefit from inbound mobility of faculty than that of students: the former make a direct contribution to the capacity of the higher education system. Outbound student mobility, because of the way it develops the intellectual capacity and the skills base of the population, will tend to be a higher priority than inbound mobility in countries like Kazakhstan. However, it should be remembered that internationalisation is not only about direct financial and economic benefits: foreign students also bring new perspectives, and they can contribute to improved cultural competence while enabling longer-term relationship building and networking. These long-term indirect benefits of the diplomatic and economic relationships that inbound material builds can prove extremely valuable.

The internationalised curriculum

Little attention has been paid to developing an internationalised curriculum in most Kazakhstani institutions. The OECD review team observed scarce evidence of explicit development of international examples, case studies, or the development of global perspectives in curricula. The key pillars of Kazakhstan's internationalisation strategy have rather been the implementation of the Bologna Process, the Bolashak Scholarship Programme, and the establishment of Nazarbayev University.

The Bologna Process

Kazakhstan has made substantial efforts to reform its higher education system along the lines of the Bologna framework, though significant challenges remain (see Chapter 2). The three cycle-system of bachelor-master's-doctorate (PhD) was introduced in 2004, and a special centre was established to manage the Bologna process and academic mobility initiatives. In 2010 Kazakhstan became the first Central Asian country to join the EHEA. Kazakhstan has also taken steps to align national qualifications and credits with the European Qualifications Framework and the European Credit Transfer Scheme (ECTS).

The implementation of the Bologna Process has provided substantial stimulus for international student mobility in Kazakhstan. However, academic staff with whom the OECD review team spoke reported that mobility credits have not always transferred easily – if at all – between institutions. This functions as a disincentive to mobility for staff, students and institutions within Kazakhstan and beyond.

The adoption of the Bologna Process has also created opportunities for Kazakhstani universities to implement joint education projects such as double diplomas, mutual recognition of academic courses and international accreditation. Double diploma programmes have been implemented by 37 Kazakhstani higher education institutions. More generally, in 2013

Kazakhstani higher education institutions had 2 704 international education agreements with institutions in 46 countries.

However, the OECD review team heard concerns that the vast majority of these agreements are declarative in nature and do not result in real partnerships. There is currently little evidence of meaningful international co-operation or activities that have resulted from these agreements. Analysis conducted in 2013 by the Centre for the Bologna Process and Academic Mobility indicates that few institutions were able to specify how many of the signed international agreements had been operationalised.

Where tangible international co-operation is occurring between Kazakhstani higher education institutions and foreign institutions, it appears to be primarily with those located in Commonwealth of Independent States countries. Nonetheless, engagement in Bologna has expanded the range of potential partner countries and international partnerships, increasing opportunities for wider collaboration.

The Bolashak programme

Perhaps the most significant state policy initiative to encourage internationalisation has been the presidential Bolashak scholarship programme that was established in 1993. The Bolashak programme is designed to train future leaders in economics, public policy, science, engineering, medicine and other key fields. Bolashak scholarships have been awarded for bachelor's, master's and (since 2005) for PhD degree studies – as well as, since 2008, for research activities. Support for study at bachelor's level was discontinued in 2011; the focus is now clearly placed on master's and PhD-level study programmes.

Bolashak scholarships cover all study-related costs: tuition fees, accommodation expenses, book allowances, medical insurance, travel expenses, entry visas and other registration costs, and application fees. The programme is administered by the Center for International Programmes, a government owned-entity that was created specifically to manage the scholarships and is overseen by the Ministry of Education and Science. Despite the current slump in resource prices, the government reports that Kazakhstan will continue this high-cost but potentially promising programme – although the numbers of students who are supported may vary.

Since its inception, around 10 000 students have benefitted from Bolashak scholarships. They have studied in more than 200 universities in 23 countries, including Canada, the United Kingdom and the United States. The annual number of scholarships awarded increased in the years following 2005. In 2014, a total of 1 297 young people aged between 18-28 were Bolashak recipients.

The most popular specialisations are information technologies and systems, management and administration, electronics and radio engineering,

and construction and architecture (JSC Information-Analytic Center, 2015). Male and female applicants are equally represented in the Bolashak programme (51% men and 49% women). The programme has been most influential at master's level, with half of Bolashak recipients graduating from master's programmes, as opposed to one-third from undergraduate programmes. The remainder graduated from doctoral and specialist programmes, or held research fellowships.

Upon their return to Kazakhstan, the majority of graduates have taken jobs in the civil service. Bolashak alumni work in a variety of other sectors though, such as manufacturing and financial services. The programme has also had a major impact in the higher education sector workforce, with over 1 000 of its graduates employed at higher education institutions.

Bolashak has also been focused on meeting the needs of the oil, gas and power industries. Historically, less attention has been paid to other areas that may play an important role in the country's future development (e.g. biology, biotechnology and the automotive industry). But a state priority, identified in President Nazarbayev's Address to the Nation in 2012 as "Strategy Kazakhstan 2050" (Nazarbayev, 2012), is to build a "science-intensive economy". Thus the priorities of the Bolashak Scholarship Programme are now directed to the support and development of graduate students in specific fields of study who will contribute to the achievement of the second five years of the State Industrial and Innovative Development Programme.

There has been considerable concern about the "brain drain" that may occur as a consequence of Bolashak recipients' experiences abroad. Award conditions require that a scholarship only be given to an applicant who provides collateral property equivalent to the value of the scholarship, or provides up to four guarantors who will assume financial liability for the government's investment should the recipient not return to Kazakhstan. Upon completion of their study abroad, recipients must work in Kazakhstan in the discipline of their degree for five years. Their collateral guarantee is then released (Sagintayeva and Jumakulov, 2015).

Nazarbayev University

There are high expectations for Nazarbayev University, which was established in 2010 as a model institution with a dual mission: to integrate science, education and industry to support the development of the country, and to spearhead the implementation of international best practices. The University currently has around 200 faculty members (85% of whom are from other countries), just under 2 000 students, seven schools and 16 undergraduate programmes. It has a selective admissions process.

Nazarbayev University utilises a model of strategic partnerships with foreign institutions, and currently has 12 foreign partners including institutions such as Duke University, Cambridge University, University College London, the University of Pennsylvania, and the University of Wisconsin. It appears though that many of these partnerships are still simply course licensing agreements. It was also far from clear to the OECD review team to what extent these relationships have been evaluated, that is, to what extent the learning they generate and their rate of return on public investment, has been assessed. It will be a sign of maturity when the university moves beyond service agreements to true international partnerships such as joint research centres or jointly developed curricula.

Nazarbayev University is clearly Kazakhstan's most internationalised higher education institution – with a high proportion of international staff and several joint and collaborative teaching programmes. It is arguably the institution that is best positioned to attract international students from beyond the country, as it has a high proportion of English-speaking staff with international qualifications (although the annual faculty turnover rate of 15% is high). Nazarbayev University is also extraordinarily well resourced compared to other universities in the country, with high-quality infrastructure and facilities. Its operations are unencumbered by the state requirements regarding curriculum and content that affect other universities.

Policy makers intend that the experience of Nazarbayev University, for example with its internationalisation processes, will be "translated" to the rest of the system. However, to date there appears to have been insufficient support and structure for capturing the learning from this experiment, and for translating it in ways that can be applied by higher education institutions that are less well resourced. There is currently little publicly available documentation of the performance of Nazarbayev University: some of the supported research projects are yet to report their findings, and the OECD review team's discussions with staff of other institutions identified a lack of awareness of the university's initiatives, its achievements and any lessons learned.

According to some stakeholders with whom the OECD review team spoke, the competitive advantage associated with the special status of Nazarbayev University may also be a factor preventing co-operation and knowledge transfer. Moreover, five years into operation, much of the university's governance and policy are still under development. It is likely that it will take some time for the Nazarbayev University to fully establish itself and analyse its performance in ways that make it possible for other institutions to draw on its experience.

Supporting increased internationalisation of higher education in Kazakhstan

The previous section outlined some of the recent initiatives surrounding internationalisation in Kazakhstan, and the challenges that Kazakhstan faces. This section will examine in more detail ways in which Kazakhstan might make further progress.

Academic autonomy and institutional partnerships

Recent state initiatives to allow greater levels of academic autonomy are a welcome and necessary step towards a mature higher education system. As Chapters 2 and 7 note, the State Programme for Education 2011-2020 and State Programme for Education and Science Development 2016-2019 have substantially increased notional academic autonomy, decreasing the proportion of the curriculum that is centrally specified. Nevertheless, student mobility is still limited by the high level of prescription in the undergraduate curriculum, and there is a relatively low level of institutional readiness for autonomy in programme design and curriculum. In short, the rigidity of the current programmes and curricula, still governed in part by specified state standards, hinders the achievement of mobility goals. Students report that they sometimes find it difficult or impossible to gain credit for their international experience.

More academically autonomous institutions could help inspire confidence in the overall quality of higher education in Kazakhstan. Autonomy, though, requires a robust external and internal quality assurance and accreditation processes. Increased academic autonomy also needs to be accompanied by appropriate levels of staff development and training. Such training should be extensive, accessible and focus on more than pedagogic practice: it should address programme and curriculum design, assessment, evaluation, new technologies and delivery approaches.

Kazakhstan's limited academic autonomy has other negative consequences beyond restricting student flows. It also discourages the development of joint international programmes, in part because it makes it hard to accommodate the programme requirements of other universities. To be effective, joint programmes need to take the form of partnerships – rather than simply be the acquisition of another institution's programme (at Nazarbayev University, despite its higher levels of academic autonomy, the latter approach still prevails). It will take time, despite the loosening of academic restrictions, for institutions and staff to develop confidence in the quality of their academic programmes. It is essential that Kazakhstani university staff have the freedom, along with the requisite knowledge and skills, to work in a reciprocal manner with partner institutions to develop shared educational programmes.

Partnerships between institutions within Kazakhstan can also support internationalisation. Institutions can, for instance, share credit recognition arrangements and other procedures, and they can provide each other with support for strategically targeted engagement with institutions in other countries. Kazakhstan has made some progress towards establishing a mechanism that encourages and supports universities in their development of international partnerships and co-operative programmes that are aligned with state priorities. Chances of success will be increased, though, if strategies for the development of educational priorities are integrated with other activities and strategies across government.

Box 4.4. **An example of partnership in internationalisation: Quality Beyond Boundaries**

The Quality Beyond Boundaries Group (QBBG) is a network of international quality assurance agencies that has been formed to address the growing quality assurance challenges and opportunities associated with cross-border higher education. Members of QBBG include:

- The Knowledge and Human Development Authority of Dubai
- The Quality Assurance Agency for Higher Education from the United Kingdom
- Singapore's Council for Private Education
- Hong Kong (China)'s Council for Accreditation of Academic and Vocational Qualifications
- The Malaysian Qualifications Agency
- The New England Association of Schools and Colleges from the United States
- The WASC Senior College and University Commission from the United States
- Australia's Tertiary Education Quality and Standards Agency.

The QBBG is meant to better address common challenges by creating a platform to collaborate, share information and best practices, and work together to improve quality assurance systems for cross-border higher education.

Sources: Australian Government, Tertiary Education Quality Standard Agency, www.teqsa.gov.au/about/international-engagement.

Ensuring institutional strategy and support

In countries that have extensive internationalisation activities, the administrative processes, procedures and systems supporting student and staff mobility are well established and professionally and strategically run. For example in Australia, a country with a strong international student sector, each university has a large international division that is responsible for a

wide range of activities such as marketing, recruitment, enrolment quality assurance and student support. Umeå University in Sweden offers another example of a strategic approach to internationalisation (see Box 4.5).

Box 4.5. **An Institutional Strategy for Internationalisation: Umeå University, Sweden**

Umeå University in Sweden has developed a high-level *Internationalisation Strategy for Education*. This comprehensive strategy addresses six key goals:

- Improve the range of programmes.
- Develop the campus into a distinctly international environment.
- Be a bilingual university.
- Develop the organisation based on an international approach.
- Strengthen the university brand based on an international perspective.
- Prioritise certain geographical areas.

The strategy identifies the reasons for engaging in international activities, and targets groups of students and forms of internationalisation. It identifies key performance indicators and targets, identifies the activities that will deliver these and emphasises the role of data. A feature of the strategy is its inclusion of target regions and countries, and of the reasons for focusing on these.

Sources: UMEA University (2014), www.umu.se/digitalAssets/153/153864_ume-universitys-internationalisation-strategy-for-education.pdf.

Australia also has a national network of senior International Office leaders under the auspices of the apex national body for Australian universities, Universities Australia. The International Education Association of Australia provides professional development, conferences, resources and networking for professionals engaged in international education – while also taking on an advocacy role vis-à-vis government. Finally, agencies such as Australia's Tertiary Education Quality and Standards Agency belong to cross-country networks on internationalisation (see Box 4.4).

Compared to many countries, international co-operation activity in Kazakhstani higher education is still in its infancy: it lacks strategic vision and the level of resourcing needed to make a real difference. For instance, a number of Kazakhstani universities have established "Offices of International Co-operation" to build international ties and support staff and student mobility. However, the OECD review team observed that these units are in general poorly funded, understaffed and often located within linguistics departments rather than operating as self-standing offices.

It was also reported to the review team that the staff members in the international co-operation offices have limited networking and knowledge-sharing opportunities. This leads to reduced opportunities for relevant professional development.

Gaps in the strategic capacity of Kazakhstan's higher education institutions doubtless explain in part the low impact of international co-operation offices. Higher education institutions in Kazakhstan need to be more strategic in their international engagement. They need, for instance, to ensure that they set targets; identify strategically important partnerships; target appropriate institutions and regions; provide professional development for staff; and create structures that facilitate student exchange. Networking opportunities for staff (including at international events), as well as the use of data, performance measures, benchmarking and metrics, can all contribute to a strategic approach.

The OECD review team also observed extensive variation in the extent to which institutions prepare students for international experiences, and help them make later use of their experiences once they have returned to Kazakhstan. The mechanisms by which students can participate in international mobility activities should be clearly described, widely disseminated and transparent.

Improving data and intelligence

Higher education institutions in Kazakhstan appear to collect a variety of different data about internationalisation and to manage it in different ways. Reports made to the OECD review team suggest that there is not a consistent framework for developing institutional datasets relating to international activities. Different institutions indicated that the collection of data on these activities is determined by the institution itself; frequently this appears to be a decision made at the level of an international co-operation unit.

Kazakhstan consequently has little in the way of nationally co-ordinated data on internationalisation, and thus undertakes little evaluation of various internationalisation initiatives. Data in itself is of course not sufficient: to be useful, it also requires the capacity for analysis and action. However, the establishment of rigorous state data collection on international co-operation activities would be an important contribution towards a better-managed approach to internationalisation. Without reliable long-term data, informed decision making and robust evaluation are problematic. Data need to be openly available, accessible and shareable if they are to have any effect. Countries such as the United Kingdom and Australia, which have strong international education traditions, provide comprehensive national data sets on line.

Enhancing financial support for students

Some stakeholders whom the OECD review team spoke with – in particular, at private higher education institutions – reported that financial barriers are the greatest impediment to the success of mobility programmes. While an increasing number of institutions require students at master's level to go abroad, their experience may be restricted to a very short visit due to limited funding. Financial considerations play an essential role in decisions about choice of country and institution.

Kazakhstan needs to provide sufficient financial support for outbound mobility of students and staff available, with this funding made available via scholarships and low-cost loans. Furthermore, this funding should be targeted. As noted above, Kazakhstan already targets priority discipline areas. By also using enhanced student support to target specific countries, Kazakhstan could achieve greater alignment between its development priorities and international education activity. There are longer-term consequences of students studying abroad: it develops relationships and networks that can endure as students move into the workforce. If funding were also able to identify realistic priority institutions abroad (rather than simply seeking to send all students to "tier one" universities), this would enable Kazakhstani higher education institutions to develop stronger relationships with international partners and make outbound mobility schemes more efficient.

A number of institutions reported to the OECD review team that they could not afford faculty mobility. This situation has been exacerbated by the devaluation of the tenge, which has made the cost of living in foreign countries very high for faculty members from Kazakhstani higher education institutions. Given the longer-term benefits that accrue from internationalisation, additional state investments are also warranted here.

Institutions have little scope to raise their own funds, philanthropic activity is limited, and there is limited support from business and industry to sponsor students who study abroad. However, where institutions could develop or already have strong relationships with employers, there is potential to attract industry funding for student mobility in areas of economic demand. This could also be one part of the endowment strategy discussed in Chapter 3.

Capitalising on the Bolashak programme

The British Council, which supervises exchanges of students to and from the United Kingdom, described the Bolashak initiative as the "best scholarship programme in the world" at its Going Global international conference in 2014 (Washington Times, 2016). However, while the programme has been the object of substantial investments (see Chapter 6),

there are as of yet no rigorous evaluations of the effectiveness of this spending. Indeed, it is difficult to find any direct or indirect measures of the effects of Bolashak on the country. It is very likely though that other public investments in internationalisation, with lower price tags and more short-term in nature, will need to complement the Bolashak programme if Kazakhstan is to achieve its development goals.

Despite the positive informal comments that the OECD review team heard about Bolashak, there were also concerns about the programme. For instance, official descriptions of the selection criteria and processes of the programme suggest that the highly competitive nature of the selection process ensures that only the best students, representing Kazakhstan's most promising young leaders, are named Bolashak Scholars. However, the review team heard that there may at times be a lack of transparency, and perhaps even undue favouritism, in the selection process. This warrants further investigation: if it is the case, it could undermine the effectiveness of the programme.

Also, more could be done to derive value for Kazakhstan from Bolashak recipients' international experiences. The Bolashak Alumni Relations Office (BARO) at the Center for International Programmes is a relatively new initiative that helps graduates realise their potential within their specialty. To date it appears that BARO activities have focused on helping Bolashak alumni find employment through job fairs and meetings with major companies. BARO also gathers feedback from graduates about ways to improve the programme. These are worthwhile activities, but Bolashak graduates return with substantial and valuable knowledge, and with extensive professional networks, that could be made use of more intensively. Structured projects and events could play an important role in harnessing this untapped potential.

Attracting foreign staff

It is difficult to obtain reliable data on the number of foreign academic staff in Kazakhstani higher education institutions. Although the Unified Higher Education Management System (UHEMS) does provide some information on foreign teaching staff and consultants, such data does not appear to be collected systematically across the sector. The OECD review attempted some calculations and found incomplete and imperfect counts. The largest numbers of foreign faculty members are clearly at Nazarbayev University, which has been given a mandate to recruit international faculty and administrative staff who are paid at internationally competitive levels; a few other exceptions, such as KIMEP in Almaty, are also able attract a fair number of international faculty. Most other Kazakhstani universities, however, are poorly funded. They have low salaries, low levels of

infrastructure and high instructional workloads, making them inherently unattractive to foreign faculty members.

The widespread use of Kazakh and Russian, and absence of English as a true medium of business and instruction at most universities, further restricts the regions from which foreign faculty can be recruited. Low levels of academic autonomy are also a disincentive, as are concerns about integrity, and immigration laws and employment regulations. Finally, the current low-level reputation of the Kazakhstani higher education system is a powerful disincentive to foreign staff. Until the status and reputation of institutions is improved, it will be difficult to attract high-quality academic staff to work in Kazakhstani higher education. The recommendations found in other chapters of this report can all help Kazakhstan arrive at a point where international faculty more actively seek out employment at Kazakhstani higher education institutions.

Improving English-language skills

Anglophone nations dominate global academic mobility: four English-speaking countries deliver more than 50% of programmes involving students studying abroad. Without staff who have good English-language skills, and without programmes taught in English, institutions will find it difficult to attract and retain the "brightest and best" international students. While capacity building and reputation enhancement involve long-term change, changing the medium of instruction can occur relatively quickly and can have substantial positive short-term effects. For instance, large increases between 1998 and 2003 in international student enrolments in Iceland, Norway and Sweden appear in part to be the result of these countries' adoption of a policy promoting greater English-medium instruction (Hénard et al., 2012).

The low level of English-language instruction in higher education, and the limited English language competency of staff, adversely affects the extent to which academics can engage in activities such as research collaborations, international research publications, programme collaboration and joint teaching. English remains the primary language for academic publication – particularly in high citation journals which have traction in rankings schemes. If Kazakhstani faculty members lack sufficient English to research and publish internationally, then their capacity to engage in the research arena will be limited.

As observed above, English-language proficiency (and to a lesser extent, proficiency in other commonly spoken languages) is also a significant impediment to staff and student mobility. Potential exchange participants are often restricted to countries where Russian is a language of instruction. If they choose to go elsewhere, then their ability to engage and interact will

be limited. In the recent Youth Survey, 35% of respondents aged 14-17 and 45% of 26-27 year olds reported that they believed that they "lack knowledge of English language" (MESRK, 2014). The OECD review team's interaction with Kazakhstani students suggests this figure may be an underestimate.

A more active and better-resourced multilingual approach could equip Kazakhstani students with the skills and confidence to study abroad, and create an environment that facilitates foreign academics teaching, researching and publishing collaboratively with Kazakhstani faculty. President Nazarbayev has remarked that the new generation of Kazakhstanis should be fluent in three languages, Kazakh, Russian and English. He has described Kazakh as the official language, Russian as the language of interethnic communication and English as the language of successful integration into the global economy (Isaeva and Sultaniarova, 2013, MESRK, 2014). The school sector will face real challenges as it seeks to develop graduates fluent in three languages using its already stretched resources. Clearly, though, the development of better English competencies needs to be a key priority for Kazakhstan.

Making better use of digital technologies

Digital technologies present a number of significant opportunities for expanding internationalisation in Kazakhstan at a reasonably low cost. Technologies could be used to create virtual classrooms, allowing Kazakhstani students at home to interact with foreign faculty and students. The vast range of digital learning assets (such as MOOCs, i.e. Massive Open Online Courses) can enrich curriculum, bringing international perspectives and examples into Kazakhstani curricula and teaching. Virtualised experiments and instrumentation can support international research and teaching collaborations and allow access to equipment that may be beyond the means of individual institutions.

The MESRK (2015) reports that digital technologies are in limited use in higher education; the observations of the OECD review team would support this view. Some learning materials may be available on the web, but these tend to be static rather than interactive. As a result, such materials only generate low levels of engagement, and they do not support the synchronous learning activities that characterise contemporary distance and e-learning.

Technologies could be harnessed to support international teaching co-operation by having international staff teach virtually in Kazakhstani programmes, run seminars, and even lead combined classes of foreign and Kazakhstani students. Technologies might also enhance mobility programmes, supporting Kazakhstani students as they prepare for

educational experiences abroad and helping them stay connected with their home institution while away. Finally, upon their return to Kazakhstan, students and faculty members might use technologies to build on the knowledge, skills, connections and networks that they gained while abroad.

Enhancing research capacity and quality

The internationalisation of advanced degree studies has been encouraged by recent requirements that a foreign co-supervisor support PhD students. Similarly, changes to the requirements for state research grants now specify the need for a foreign co-director and for international participation. If successfully implemented, these initiatives will strengthen the quality of research, contribute to the development of international partnerships and collaboration, assist in brain circulation and building internal capacity. These aspects are described in detail in Chapter 5.

Recommendations

Further internationalisation could improve the quality and relevance of the higher education sector, and enhance Kazakhstan's competitiveness. Internationalisation is primarily an institutional activity, but one that is located within a broader higher education environment in which the state plays a major role. Consequently the recommendations below relate both to the higher education system and to higher educational institutions themselves.

This review recommends that Kazakhstan:

Take a whole-of-government approach to international higher education with a robust policy framework and national strategy that aligns with Kazakhstan's goals for human capital development.

- Kazakhstan has focused its internationalisation for higher education policy on outbound student and staff mobility to increase the skills and capacity of its population.
- Real benefits will accrue from a more consistent and integrated approach to internationalisation, harmonising policies across portfolios such as education, trade, immigration and labour. Sharing of data across these areas, combined with complementary policy development, will contribute to a more effective system that is working towards shared goals. For example, "brain gain" from higher levels of inbound staff mobility will be difficult to achieve until issues relating to immigration, visas and employment laws are resolved.

- The creation of an inter-governmental committee or group would help ensure a whole-of-government approach to internationalisation. The provision of platforms for knowledge sharing and networking about the strengths and weaknesses of the national higher education system would allow all stakeholders to gain a deep comprehension of the complexity and potential of internationalisation.
- It is important that the state continue to strengthen the convergence between national policies and institutional interests. However, key partners come not only from the world of academia. They include other regional and national stakeholders, as well as stakeholders in the international settings where institutions operate.

Allow institutions to determine the approach to internationalisation that is most appropriate to their aspirations and circumstances.

- With a strong government framework, there is much that individual institutions can do to achieve effective internationalisation. Greater institutional autonomy will allow institutions to develop appropriate responses to the internationalisation agenda.
- Institutions should be encouraged to engage progressively in mobility activities, in line with their mandate and capacities. Not all institutions are well positioned to fully develop strong inbound programmes; they will first need to address gaps in quality, reputation and language of instruction.
- State initiatives such as the Bolashak programme, the adoption of the Bologna Process and the establishment of Nazarbayev University have all had an impact on the level of internationalisation in higher education. They should be reviewed to ensure this impact is effective and supports system improvement.
- Kazakhstani institutions should be encouraged to develop more joint degrees and twinning programmes with targeted institutions in priority countries. These sorts of programme offer the potential for institutions to leverage the expertise of their partners, and thus help better assure quality and build capacity.

Continue the current relaxation of curriculum and prescribed content to enable a more internationalised curriculum and enhance student mobility.

- A less rigid curriculum would facilitate the development of joint and dual programmes, and reduce some of the current barriers to student mobility.
- Institutions should encourage curriculum development that increases opportunities for mobility (e.g. that embeds an outbound experience into the curriculum).

- The state should provide greater incentive for initiatives that internationalise the curriculum. Professional development should be implemented to develop faculty knowledge in this area. Foreign faculty should be encouraged to share their experience and international examples.

Establish indicators on student, programme, and institution-level mobility that allow international comparison. Publish these regularly. To enhance comparability, adopt international standards for data and indicators on internationalisation.

- Central government agencies and higher education institutions need to collect data about all aspects of internationalisation in a systematic manner, and make this publicly available.
- Longitudinal databases that collect information about international students, and about domestic students going abroad, will improve knowledge of the impacts of international mobility on those who participate, and on the economy and society more widely. This will allow for the effective evaluation of internationalisation strategies.
- Kazakhstan should adopt a broad view of what it means to measure the impact of mobility and internationalisation. Evaluation should focus on areas such as quality of delivery and capacity building in priority fields of study; enhancements to the innovation and research systems; the retention and subsequent migration of highly trained workers; equity of access to opportunities for mobility; and the impact of internationalisation on higher education finance.
- Another key priority is better information on the impacts of "international experience" on individuals (gathered for example through graduate or destination surveys) including the "value-add" that such experience brings.
- Data and indicators should allow Kazakhstan to compare itself to other countries. To this end, Kazakhstan might draw for instance on ongoing international initiatives regarding diploma recognition and credit transfers.

Expand the current scholarships scheme, and introduce new forms of financial support for study abroad to increase the sector's capacity for international mobility.

- State incentives such as the Bolashak programme have been very effective in encouraging outbound mobility; recent changes to the programme will help ensure that it results in "brain circulation" rather than "brain drain". In particular, the 2011 decision to remove bachelor degree study from Bolashak support, and to focus on master's level scholarships, is a positive move. Further growth is needed at PhD level.

- However, Bolashak is not sufficient on its own. Kazakhstan also needs lower-cost financial incentive schemes that will support a larger number of students studying abroad for the shorter or longer term. Industry may sponsor some outbound schemes that support study in associated disciplines. The state should consider establishing a mechanism to encourage private contributions to a mobility scholarship fund.
- Scholarships for outbound mobility should be targeted, identifying particular priority countries with which Kazakhstan wishes to further existing ties or develop new trading relationships.

Better leverage the efforts of the Bolashak programme.

- Activities of the Bolashak Alumni Relations Office should be expanded and the skills of the Bolashak alumni used for in-country peer learning. For instance formal mentoring relationships between alumni and current Bolashak scholars will enhance the preparedness of new scholars for their experience.
- The Alumni Relations Office should also establish a mechanism to support the continued development of relationships formed by the scholars while they are abroad. This will stimulate the development of professional and diplomatic networks. It could take the form of newsletters, assistance with networking opportunities or reciprocal visits and exchange.
- The careers of returned Bolashak scholars should be formally tracked over the long term to better identify the benefits of the programme for educational institutions and for the country.

Encourage collaboration between higher education institutions, and reinforce efforts to identify and disseminate lessons from Nazarbayev University and the national universities for the internationalisation of higher education.

- A more active and proactive approach that builds networks and supports collaboration will have greater chance of success. There are real economies of scale to be seized if institutions can work collaboratively to share their internationalisation practices (and their evaluation of these practices) with each other.
- The national universities, and Nazarbayev University in particular, could play a convening role here. They can also take a leadership role by making available the results of their approaches to internationalisation and highlighting lessons learned. This will require that they invest in rigorous approaches to evaluating their programmes.

Increase the English proficiency of the youth population and faculty members, to help them seize a wide variety of internationalisation opportunities.

- The growing emphasis on English language in schools is an important first step. This initiative needs to be expanded and adequately resourced to ensure its impact. Changes will take time to work through the population before their influence is fully felt. Initiatives to improve the level of English must be directed at the whole system of education.
- Improved language skills will make transitions easier for Kazakhstani students who are studying at foreign universities. It will also enhance student demand for internationalisation experiences.
- Until the English-language proficiency of teaching staff in universities and schools is improved, student progress will be held back. Investments in improving the English-language skills of faculty members will support increased international collaboration. Targeting an allocation of Bolashak support to improving English-language skills of faculty members is one possible approach.

Increase investments that exploit digital technologies to expand in-country "internationalisation through the curriculum".

- Leveraging technologies to access resources from elsewhere will allow Kazakhstani students to benefit from an international curriculum without having to travel abroad. It will help them develop a global perspective by engaging, for instance, with international case studies and experts.
- Collaborative educational programmes such as joint curriculum development and the use of technologies to bring foreign staff and students virtually to Kazakhstan will give students the opportunity to learn from foreign staff and students.

Note

1. As Harvey writes: "The concept of globalization emphasizes 'integration', an internationally viable and globally acceptable standard, or the establishment of a sole standard". On the other hand "internationalisation indicates exchange among or between nations based on the unit of a geographical or sovereign nation". These two notions are of course linked though: "both transcend the scope and/or framework of nations or national borders, targeting the expansion and promotion of an exchange among or between nations/regions other than their own and enabling the process and achievement of exchange on a world scale." (Harvey, 2016: pp).

References

Arabkheradmand, A. et al., (2015), *An Introduction to the Internationalization of Higher Education: Essential Topics,* University Press of America, Lanham, Maryland.

Australian Government (2015), *National Strategy for International Education 2025*, https://nsie.education.gov.au/.

Bolashak Students at MIT (2016), http://bolashak.mit.edu/bolashak.php (accessed 06 March 2016).

Bologna Process (2015), *Bologna Process: European Higher Education Area*, www.ehea.info/.

Center for Bologna Process and Academic Mobility (2013), "Analytical note on The Monitoring of International Activities of HEIs", Ministry of Education and Science of the Republic of Kazakhstan.

Center for Bologna Process and Academic Mobility (n.a.), "Information-Analytical Note on the Effectiveness of External and Internal Academic Mobility of Students and Faculty of Kazakhstan HEIs", Ministry of Education and Science of the Republic of Kazakhstan.

Education, Audiovisual and Culture Executive Programme (2012), *Higher Education in Kazakhstan*, European Commission, Brussels, http://eacea.ec.europa.eu/tempus/participating_countries/overview/Kazakhstan.pdf (accessed 6 March 2016).

European Commission (2015), "A new skills agenda for Europe – The role of education", http://ec.europa.eu/education/library/index_en.htm?page=2&mxi=5#_themes=higher_education.

European Commission (2014), *Erasmus - Facts, Figures and Trends, European Commission*, http://ec.europa.eu/dgs/education_culture/repository/education/library/statistics/erasmus-plus-facts-figures_en.pdf. (accessed 13 June 2016).

European Union (2011), "Commission Communication on a strategy for the internationalisation of higher education", *Roadmap* No. 1.

Fielden, J. (2011), *Getting to Grips with Internationalisation: Resources for UK Higher Education Institutions*, Leadership Foundation for Higher Education, London.

Gallagher, M. et al. (2009), *OECD Reviews of Tertiary Education – China*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264039346-en.

Gao, Y. (2015), "Toward a Set of Internationally Applicable Indicators for Measuring University Internationalization Performance", *Journal of Studies in International Education*, May 2015, Vol. 19, No. 2, pp. 182-200.

Harvey, L. (2016), *Analytic Quality Glossary, Quality Research International,* www.qualityresearchinternational.com/glossary/ (accessed on 08 June 2016).

Hénard, F., L. Diamond and D. Roseveare (2012), *Approaches to Internationalisation and Their Implications for Strategic Management and Institutional Practice*, IMHE, Paris, www.oecd.org/edu/imhe/Approaches%20to%20internationalisation%20-%20final%20-%20web.pdf (accessed 6 March 2016).

i-Graduate and Universities Australia (2013), *Making the Most of Your International Student Barometer Data: A Guide to Good Practice*, www.i-graduate.org/assets/2012-Making-the-Most-of-ISB-Data.pdf.

Isaeva, A. and A. Sultaniarova (2013), "N. A. Nazarbayev and Peculiar Features of Ethnic Language Processes in Kazakhstan", *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, Vol. 7, No. 8, http://waset.org/publications/16065/n.-a.-nazarbayev-and-peculiar-features-of-ethnic-language-processes-in-kazakhstan.

Jones, E. and S. Brown (eds.) (2007), *Internationalising Higher Education: Learning, Teaching and Assessment*, Routledge, London.

JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

Knight, J. (2003), "Updated Internationalisation Definition", *International Higher Education*, Vol. 33, pp. 2-3.

Leask, B. (2012), *Internationalisation of the Curriculum in Action*, Office for Learning and Teaching, Australian Government, www.olt.gov.au/resource-internationalisation-curriculum-action-2012.

Mak, A. et al. (2013), *Office for Learning and Teaching. Internationalisation at home: Enhancing intercultural capabilities of business and health teachers, students, and curricula, University of Canberra,* www.olt.gov.

au/project-internationalisation-home-enhancing-intercultural-capabilities-business-and-health-teachers-.

Matross Helms, R., and L. E. Rumbley (2016), National Policies for Internationalization–do they work? International Higher Education, No. 85, pp. 9-11, http://ejournals.bc.edu/ojs/index.php/ihe/article/view/9236/8292.

Matross Helms, R. et al. (2015), Internationalizing Higher Education Worldwide: National Policies and Programmes, American Council on Education (ACE), Washington, www.acenet.edu/news-room/Documents/National-Policies-and-Programs-Part-1-Global.pdf.

MESRK (2014), Youth of Kazakhstan, National Report, Ministry of Education and Science of the Republic of Kazakhstan, Council for Youth Policy, Science Research Centre "Youth", http://ortcom.kz/media/upload/1/2015/10/31/b9a9b0397ae4c967b709463b1bab063e.pdf.

MESRK (2012), Academic mobility Strategy in Kazakhstan 2012-2020, Astana.

MESRK (2010), State Program of Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential Decree as of 7 December 2010, Number 1118.

MNERK (2014-2015), Committee on Statistics (2014-2015), www.stat.gov.kz.

Nazarbayev, N. A. (2012), Address by the President of the Republic of Kazakhstan, Leader of the Nation, N. A. Nazarbayev: Strategy "Kazakhstan-2050": New political course of the established state, www.inform.kz/en/address-by-the-president-of-the-republic-of-kazakhstan-leader-of-the-nation-n-nazarbayev-strategy-kazakhstan-2050-new-political-course-of-the-established-state_a2346141.

OECD (2014), *Reviews of National Policies for Education: Secondary Education in Kazakhstan*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264205208-en.

OECD (2012a), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2012-en.

OECD (2012b), Assessment of Higher Education Learning Outcomes*: Feasibility Study Report* : *Volume 1*, *Design and Implementation*, OECD Publishing, Paris, www.oecd.org/education/skills-beyond-school/AHELOFSReportVolume1.pdf.

OECD (2008a), *Higher Education to 2030, Volume 1, Demography*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264040663-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan* 2007, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Rumyantseva N. (2004), "Higher Education in Kazakhstan: The Issue of Corruption", *International Higher Education,* No. 37, Fall 2004, https://ejournals.bc.edu/ojs/index.php/ihe/article/viewFile/7437/6634.

Sagintayeva, A. and Jumakulov, Z. (2015), "Kazakhstan's Bolashak Scholarship Programme", *International Higher Education,* No. 79, Winter 2015, http://ejournals.bc.edu/ojs/index.php/ihe/article/view/5846/5210.

The Washington Times (2016), "Kazakhs studying abroad in ambitious 'Future' program aim to lift former Soviet republic" www.washingtontimes.com/news/2016/feb/11/kazakhs-studying-abroad-in-ambitious-bolashak-prog/.

Umeå University (2014), "Umeå University's internationalisation strategy for education", www.umu.se/digitalAssets/153/153864_ume-universitys-internationalisation-strategy-for-education.pdf.

UNESCO (2016), "Global Flow of Tertiary-level Students", UNESCO Institute for Statistics (UIS), www.uis.unesco.org/EDUCATION/Pages/international-student-flow-viz.aspx (accessed 11 April 2016).

University approved articulation agreements, www.psu.edu/dept/enrmgmt/artic_agrmnts.

University of Oxford International Strategy Office (2015), "International Trends in Higher Education" www.ox.ac.uk/sites/files/oxford/International%20Trends%20in%20Higher%20Education%202015.pdf (accessed 5 June 2016).

Vincent-Lancrin, S., D. Fisher and S. Pfotenhauer (2015), "Ensuring Quality in Cross-Border Higher Education: Implementing the UNESCO/OECD Guidelines", OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264243538-en.

Wächter, B. (2003), "An Introduction: Internationalisation at Home in Context", *Journal of Studies in International Education*, Vol. 7/1, pp. 5-11.

Chapter 5

Integration of education, research and innovation in Kazakhstan

This chapter focuses on how higher education can generate new knowledge through research and enable innovation processes outside higher education institutions. After setting out a framework for research and innovation in higher education, it analyses how the research system in Kazakhstan and recent developments fare according to this framework. It examines the current research capacity of higher education institutions and the PhD pipeline problem. It also discusses policies which can strengthen collaboration between higher education institutions and users of knowledge, as well as strengthen the diversity of the institutional mission of higher education institutions and clarify their role as distinct from that of research institutes. The chapter places particular emphasis on areas of priority for Kazakhstan such as increasing the currently low capacity for high-quality research and low number of doctoral graduates, and modifying the government's too-narrow focus on a single aspect of innovation: commercialisation. The chapter also reviews approaches to diversification of the higher education system which lacks strategic coherence.

Framework for research and innovation in higher education

The triple mission of higher education

Countries or states that successfully compete in the global knowledge economy are generally those that value and implement innovation in every sphere. Research and Development (R&D) is an important component of an innovation ecosystem and higher education institutions carry increasing responsibility for the research part of R&D. Higher education institutions can create new knowledge underpinning innovation, and simultaneously train individuals to the PhD level who are skilled in innovation's production and deployment.

In recent times, higher education has been expected to take responsibility for translating new knowledge and skills to practical use (OECD, 2013). Most research universities embrace this third mission (which they normally term innovation, even though innovation has a much broader meaning). They look to the American research university as a successful model (Atkinson and Blanpied, 2008) given its success since the 1940s. However, the traditional emphases on instruction and fundamental research still dominate university culture. A number of questions invite constant debate:

- What is the most appropriate type of research for higher education?
- What impact should be expected from university research?
- How does innovation fit with the education and research mission more broadly?

Traditional and modern approaches to research

For many in the academic community, fundamental (or basic) research is central to the academic mission, as it advances knowledge for the public good. Many governments and users of knowledge, though, see applied research as the surest way to a return on investment. Higher education, by default, has almost exclusive responsibility for fundamental research, whose findings are openly disseminated by peer-reviewed publication and international networks. The new knowledge feeds into the curriculum and satisfies a basic human thirst to understand nature and what it means to be human. Fundamental research also underpins the future needs of a national innovation system (OECD, 2015) and is the basis for breakthrough technology (Lane, 2014).

Industry and other users of knowledge inevitably face complex challenges requiring solutions that transcend such simple distinctions as that between fundamental and applied research. Concentrated and co-operative effort by experts from different disciplines and application areas are often

needed. Indeed, the distinction between fundamental and applied is no longer really useful. Stokes (1997) defined a third way which he described as Pasteur's Quadrant and coined the term "use-inspired" where researchers simultaneously advance knowledge and solve specific problems. Others (Narayanamurti et al., 2013) have traced the intricate and cyclic connection between discovery (creating new knowledge) and invention (creating new technology). They cite historical evidence that advances in one depends on advances in the other over different timescales. They argue for public funding of both discovery and invention, taking a long-term view of a return or impact. They also argue that communication between scientists and engineers, and theorists and practitioners, should be deepened and sustained.

Two funding approaches have evolved in recent times which take these considerations into account, and which harness the advantages and strengths of research conducted in the higher education environment in particular.

One is the concept of frontier research which has become the mission of the highly regarded European Research Council (ERC). In the Council's founding paper (ERC, 2005) frontier research was defined as creating new knowledge about the world and generating potentially new useful knowledge at the same time. The Council has been successful at identifying the best individual talent and ideas in the EU.

The other approach is research inspired by its importance to the strategic needs of industry – for example, nanotechnology, data science, advanced materials and manufacturing, molecular design for new drugs, and other areas. To be effective, any one of these areas needs a critical mass of highly talented faculty and researchers who can command industry attention and engagement, and can compete with other countries with similar targets. Centres to support the collaboration of faculty in different disciplines and institutions with industry and other users of knowledge can add value beyond the sum of their parts. The concept is analysed in a report by the OECD (2014) as part of a broader discussion of Research Excellence Initiatives.

Research impact and innovation: a broad definition

The concept of the impact of higher education research is often controversial (Blank, 2016) but is not novel. Impact is of two kinds. The first is the traditional impact of higher education research in advancing and disseminating knowledge formally and informally, and distilling truths from it. The second is the impact on technology, services, industry, and ultimately on job creation and sustainability (Dowling, 2015). It can be further broken down into commercialisation and engagement. Commercialisation is generally about patents, licences and spin-off companies. Engagement concerns people-to-people interaction and mobility between academia and industry, whereby tacit and other forms of knowledge are transferred and used.

It is reasonable to expect all researchers to consider impact and to examine whether their research topics are addressing significant problems. It is also reasonable for funders to take broad impact into account in making decisions on applications for funding. Difficulties arise when impact is considered too narrowly.

There is evidence (OECD, 2015) that higher education institutions have focused too much on the commercialisation of intellectual property based on patents, licenses and spin-off companies, and far too little on dissemination by personal engagement of researchers with the users of knowledge. Perkmann et al. (2013) have similarly concluded that engagement is under-valued. Graham (2014) has gone further to describe the potential of university-based entrepreneurial ecosystems covering entrepreneurship and innovation. Based on empirical evidence, she finds universities following one of two models. One is a top-down approach driven by a Technology Transfer Office focused on realising income from intellectual property. The other is a bottom-up, more informal and dispersed approach involving students as well as faculty focused on regional development in partnership with alumni entrepreneurs. A balance between, and a coming together of, the two models is recommended. It needs to involve the whole of the university and not just one office. This process deeply integrates education, research and innovation/ entrepreneurship.

An OECD report on commercialising public research (OECD, 2013) puts commercialisation into perspective. Commercialisation or technology transfer offices are expensive to operate and require highly skilled people. Few patents filed generate a significant financial return. Ten percent of the EU's universities account for 85% of total licensing income. The number of spin-off companies from public research is small worldwide. The top 100 US research universities spin off an average of two companies per university annually or 1.1 per USD 100 million invested. The statistics are somewhat better in the European Union, at 2.4 per USD 100 million invested. This does not mean that patents, licenses and spin-offs lack importance, but that other forms of knowledge transfer are just as important. It is not surprising that funders and stakeholders are often frustrated at the low return of investment in research if commercialisation is their only yardstick of success.

The more complex and often informal engagement by researchers with the users of knowledge is rich in potential. It covers the mobility of researchers, staff and students, from academia to industry and *vice versa*, bringing with them both clearly defined new ideas but also tacit knowledge. It can happen by exchange for periods of time, creating and fostering alumni associations, informal meetings and so on. It can create a common language and can be the basis from which more useful intellectual property can emerge.

System design: concentrating versus distributing research

Research benefits from scale and concentration. There are two approaches to achieving it. The first is concentration in a few strong higher education institutions. Salmi (2009) has written of the world-class research university – a single higher education institution standing above the rest, characterised by excellent and highly motivated faculty, high levels of funding and strong governance. He also discussed three ways of establishing it: merging existing institutions, developing individual institutions or creating a totally new model. Altbach (2011) has also written extensively of the importance of the research university as part of a hierarchy, but questioned (Altbach, 2007) whether small countries can afford one and whether developing countries should perhaps have more modest aspirations.

The second approach is a distributed version of the world-class university, that is, distributed among a number of higher education institutions. In this case, each higher education institution could have one or more areas of critical mass and strength that train students to PhD level, and that would be national and sometimes international leaders. The attributes of the single research university could apply equally to this distributed concept. The approach does not lend itself to individual institutions competing well in world rankings, and there is a danger still of dilution when resources are scarce. However, it could have the advantage of spreading best practice and a sense of excellence to all parts of those higher education institutions which have at least one leading area of research.

Research and innovation in Kazakhstan

The research system

In the time of the former Soviet Union, research was largely carried out in research institutes, some of which were operated by the Academy of Sciences and some by various government ministries. Higher education institutes focused on teaching and learning. However, the Academy of Sciences is now an honorary membership-only body. The MESRK took over responsibility for the former academy institutes, and some of these have been merged with higher education institutions to build higher education competence in research.

Today there are 126 higher education institutions (including Nazarbayev University) with different designations and functions – 85 universities, 21 academies, 18 institutes and 1 conservatory. Even though only universities formally have research as part of their mission, it is estimated that 105 higher education institutions are currently engaged in research (JSC Information-Analytic Center, 2015). In practice, the vast majority of higher education

research is carried out in public institutions. Ten higher education institutions have been designated as national institutions with extra funding, autonomy and responsibilities, including for research and innovation.

The number of research institutes in 2014 was estimated to be 245. Their share of public research funding is greater than for higher education institutions. While research institutes were beyond the remit of this review, they must be taken into account when we consider the need for critical mass in research versus distribution across many institutions.

Recent developments

The evolution of research and innovation as part of the mission of higher education in recent years has been driven by a number of important national policies and laws. They include the State Programme of Educational Development 2011-2020, the Law on Science (2011), the Law on Commercialisation (2015) and the State Programme for Industrial-Innovative Development 2013.

The Law on Education (2007) and the State Programme for Education and Science Development 2016-2019 categorised higher education institutions into different types including universities, academies and institutes. Universities were defined as being able to carry out research and innovation alongside education. The policy made provision for independent research institutes to be incorporated into leading research universities. It outlined a number of key objectives for research universities which are central to the theme of this chapter:

- integration of education, research and industry
- creation of conditions for commercialisation of intellectual property and technologies
- training highly qualified research and pedagogical staff.

The programme set very specific targets. Those of relevance to research and innovation are shown in Figure 5.1.

Significant progress has been achieved towards some targets, little towards others, while some targets are very imprecise. We will discuss the level of investment in R&D, the number of PhDs in later sections. For the progress on other targets, it is worthwhile observing that:

- The number of higher education institutions in top world rank is a matter of interpretation. According to the QS world university ranking (QS, 2015), four higher education institutions were ranked in the top 700 universities, and the top two were ranked 275 and 371, respectively. Research performance was not a significant contributor.

Hazelkorn (2011) has assessed the value of international rankings and identified risks of distorting the higher education mission if they become strong drivers of behaviour (see also Chapter 7 of this report).

- According to state statistics for 2013 (NCESE, 2013), 3.25% of academic staff in higher education institutions published in non-zero impact journals in 2013, exceeding the target for 2015. The number of academic staff engaged in research increased from 8% in 2011 to 27% in 2014 (JSC Information-Analytic Center, 2015).
- For the two targets relating to innovation/commercialisation structures, higher education institutions have accepted that they are important. However, simple numerical targets are not very meaningful since the extent and quality of structures can vary enormously.

The Law on Science enacted in 2011 laid out the formal principles and procedures for research and innovation, defined more precisely the function of the research university, and enabled individuals and institutions to apply for funding. In particular, it defined three significant funding instruments for research to replace the older arrangement (see Figure 5.2). They are operated by competitive bidding, peer review with some international involvement, and selection by new research councils made up of Kazakh and foreign experts. Oversight and selection of priority areas are controlled by the cabinet-level Higher Science and Technology Committee chaired by the Prime Minister. Implementation is managed by the National Center for State Science and Technical Evaluation.

Figure 5.1. **Targets for higher education research and innovation**

	2015	2020
Investment in R&D, (% GDP)	1	1.5
Number of new PhD entrants	1 000	2 000
Number of HEIs in top world rank	1	2
Number of faculties publishing in non-zero impact journals, (% total)	2	5
Number of HEIs engaging in innovation/commercialisation, (% total)	2	5
Number of technical universities with innovation structures, (% total)	20	50

Notes: There are different targets for investment in R&D for 2020. For example, the new SPIID (2015-20) policy has a target of 2% GDP for 2020. In the Kazakhstan 2050 Strategy, the goal set for expenditures for R&D to be reached by 2030 is 3% of GDP.

Sources: adapted from State Program of Educational Development 2011-2020. JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

Figure 5.2. **Research funding instruments**

Name of funding instrument	Purpose
Basic	Support research infrastructure
Grant	Support research projects in priority areas
Programme	Support targeted programmes of research

Sources: JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

The State Programme of Industrial-Innovative Development 2015-19 referred to the innovation sector as the third sector for industrial development and diversification based on R&D, innovation clusters and techno parks.

The Law on Commercialisation enacted in 2015 strengthened the role of higher education institutions in translating research outcomes to use, and activated incentives for researchers to identify intellectual property from their research and engage in its application. In particular, the inventors of patents and creators of other intellectual property are now entitled to a share of any profit that might ensue. The Law provided the legal basis for the creation of companies by higher education institutions.

A very important development since 2011 was the provision of free access by all higher education institutions in Kazakhstan to the world's leading scholarly publications, and of the tools to mine databases of publications. Such databases are routinely used worldwide to find useful references, identify good journals and count the number of times a published paper is cited by other authors. The Ministry for Education and Science now covers subscriptions to two database resources – Thomson Reuters' Web of Science and Elsevier's Scopus – and to Springer's Springer Link online delivery platform.

It is useful to link this review to the OECD/World Bank review of the Kazakh higher education system carried out in 2007. The review had 16 recommendations on research, development and innovation, and many issues raised in the review are still relevant. Considerable progress has been made, but a few key recommendations have not so far been adopted. A summary of the status of the recommendations is shown in Figure 5.3.

The UNECE Innovation Performance Review of Kazakhstan (UNECE, 2012) made a number of recommendations relating to research and the engagement of higher education with industry. The National Center of State Science and Technology Evaluation has targeted implementation of some of the recommendations (Shevchenko, 2015) on the premise that funding should be for applied research with an emphasis on commercialisation.

Figure 5.3. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD recommendations	Implementation status
Set up implementation advisory group with Higher Education Institutions (HEIs) and international representations to advise government on increasing investment in R&D.	Research Councils have representation of HEIs and international academics. However, we did not see an advisory group like the one recommended.
HEIs should be more involved in the development of science and innovation policy.	Policy is largely centrally driven. A number of policy research groups exist in HEIs but feel excluded from any central planning.
Establish a competitive fund to support infrastructure for research.	Basic Fund established 2011.
Establish a competitive fund to support research teams.	Grant Fund established 2011.
Establish a fund to support HEI/Research Institute/enterprise consortia.	Programme Fund revamped in 2011 which has elements of this intent though HEI involvement is low.
Reduce teaching load of faculty.	Some local flexibility evident but a systematic workload model revision has not taken place.
Develop mobility schemes to improve the quality, relevance and international orientation of research in HEIs, such as HEI/industry exchanges, industry internships, consulting, international exchanges.	The relationship between HEIs and industry is developing in some areas but trust seems to be generally low. Still a big obstacle. International engagement is strong.
Incentivise researchers to engage in applied research, technology transfer, and development of products by sharing profits and removing legal obstacles.	Funding focus is on commercialisation; HEIs commercialisation offices focus on patents, licences and spin-offs; legal obstacles are considerably reduced. An issue is the balance between commercialisation focus here and the broader engagement focus of the previous recommendation.
HEIs should be allowed to establish spin-off companies.	Law of Commercialisation 2015 now allows this.
Revise requirements for higher scientific degrees and academic titles to give more weight to publications.	Much greater emphasis on publications and international involvement, but PhD graduation numbers dropped to low level.
The Bolashak Programme should focus more on areas of priorities in science and technology at all levels.	Programme only funds at Master's and PhD level now. More could be done for science and technology.
Promotion should take account of research output, quality and publications in reputed international journals.	Promotion procedures could be more transparent within HEIs as well as for the system as a whole. Main priority in HEIs remains teaching.
HEIs should encourage faculty to compete for national and international research funds.	The number of applications for national research funding has increased over time but there is an issue with spreading funding too thinly. International funding opportunities are few.
Technoparks should offer better support to researchers to transfer technology and commercialise products.	It is difficult to assess progress.
HEIs should introduce modular course delivery structure to reduce teaching loads.	Course structures and content seem to be still quite rigid.
HEIs should prioritise access to Internet information resources for staff and students.	Fully implemented.

Sources: OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Key research and innovation issues in Kazakhstan's higher education system

It is clear that Kazakhstan is ambitious for its higher education system and for the contribution that higher education research can make to the national innovation system. Based on the OECD review team's observations and discussions during its visit, analysis of data provided and further research, and mindful that a parallel OECD review of innovation in Kazakhstan is taking place, the team has identified a number of issues for attention. They are:

- The low capacity and quality of the current research base as measured by publication volume and quality, linked to the low level of national research funding, non-optimised funding instruments and poorly developed institutional support.
- Limitations on future capacity: the system is not producing enough doctoral graduates.
- The innovation focus is narrow, with over-expectation of commercialisation and under-expectation of the power of broader engagement with the users of knowledge.
- Unclear plan to create a system of diverse higher education institutions so that each can contribute to Kazakhstan's needs according to its specific strengths.

In the following sections, this chapter carries out a deeper analysis of current performance for each of these issues and makes recommendations for improvement. The intention is to identify actions that are feasible to implement given financial, organisational and cultural constraints. This review brings to light two weak features of implementation capacity in Kazakhstan. These are the absence of an independent group or body to monitor implementation progress, assess effectiveness of initiatives and advise government, and an under-developed data-gathering mechanism to help in planning and monitoring.

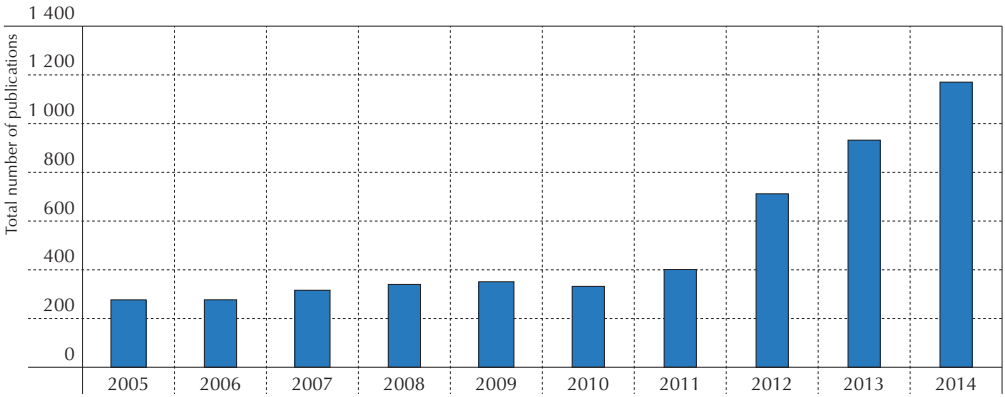
Current capacity for high quality research

Publications and citations as a measure of performance

Considerable bibliometric analysis has been carried out by government agencies in Kazakhstan, based on the Web of Science and Scopus databases described earlier. The OECD review team has used the results of this analysis along with its own independent analysis to determine trends over time, relative research strengths in Kazakhstan in different disciplinary areas, and its position internationally. It should be noted that there is an intrinsic delay between research and publication, and between publication and impact as measured by citations.

Figure 5.4 shows the total number of publications in Web of Science journals from 2005 to 2014 for all researchers in Kazakhstan – higher education institutions, research institutes and others. A welcome upward trend is evident. Since 2010 the number increased three times. Publication in Scopus journals also increased by almost two times in the same period.

Figure 5.4. **Total number of publications in Web of Science journals for all researchers in Kazakhstan, (2005-14)**



Sources: Ministry of Education and Science of the Republic of Kazakhstan *National Report on Science* (2014).

The OECD review team was impressed by the fact that almost 50% of publications have international co-authorship, mostly with the United States and the Russian Federation. The healthy networking by Kazakh researchers with international colleagues can be a very effective way to improve research quality and increase citations.

The total number of publications in the Web of Science journals in 2014 was 1 168. While on an upward trajectory, the number is low by the standards of developed countries. However if the publication rate is normalised by country size and GDP, a different conclusion is possible.

In Figure 5.5, a comparison of total Web of Science publications for the period 2011-14 is shown with different degrees of normalisation for Kazakhstan and three highly developed countries. It shows that when normalised by population, publication output is still very low. When further normalised by GDP, performance compares a lot better. Of course, normalisation of this type is crude and ignores other complex factors at play. Nevertheless it is reasonable to conclude that while output is low, it is as good as might be expected given the further constraints: the low level of investment in R&D as a percentage of GDP (0.17%), which this chapter considers later, the importance of proficiency in the English language and lack of time for research at higher education institutions.

Figure 5.5. **Publications in Web of Science (WOS) (2011-14)**

	Kazakhstan	United States	Germany	Australia
Population, million	16.2	310	81.67	23.5
GDP, USD billion at market prices	217	16 780	3 700	1 520
Percentage of GDP in R&D	0.17	2.8	2.84	2.5
Number of publications in Web of Science, 2011-14	3 215	2 308 638	547 785	278 083
Publications/1 million population.	198	7 447	6 707	11 833
Publications/100 million population/ USD 1 billion GDP	0.9	0.4	1.8	7.8

Sources: GDP data from World Bank Indicators Database, World Bank; Ministry of Education and Science of the Republic of Kazakhstan *National Report on Science* (2014).

The distribution of publications across disciplinary fields is shown in Figure 5.6 for Kazakhstan. Also shown is the average distribution of all publications worldwide. The physical sciences and social sciences have higher shares of Kazakhstan publications compared to the world average while the life sciences share is lower. Engineering follows the world pattern. Humanities are poorly represented in Kazakhstan by contrast. While many factors contribute to the balance across the disciplinary areas, careful thought should be given to how this balance might be changed in the long-term interests of Kazakhstan.

Figure 5.6. **Publications share by disciplinary fields (2011-14)**

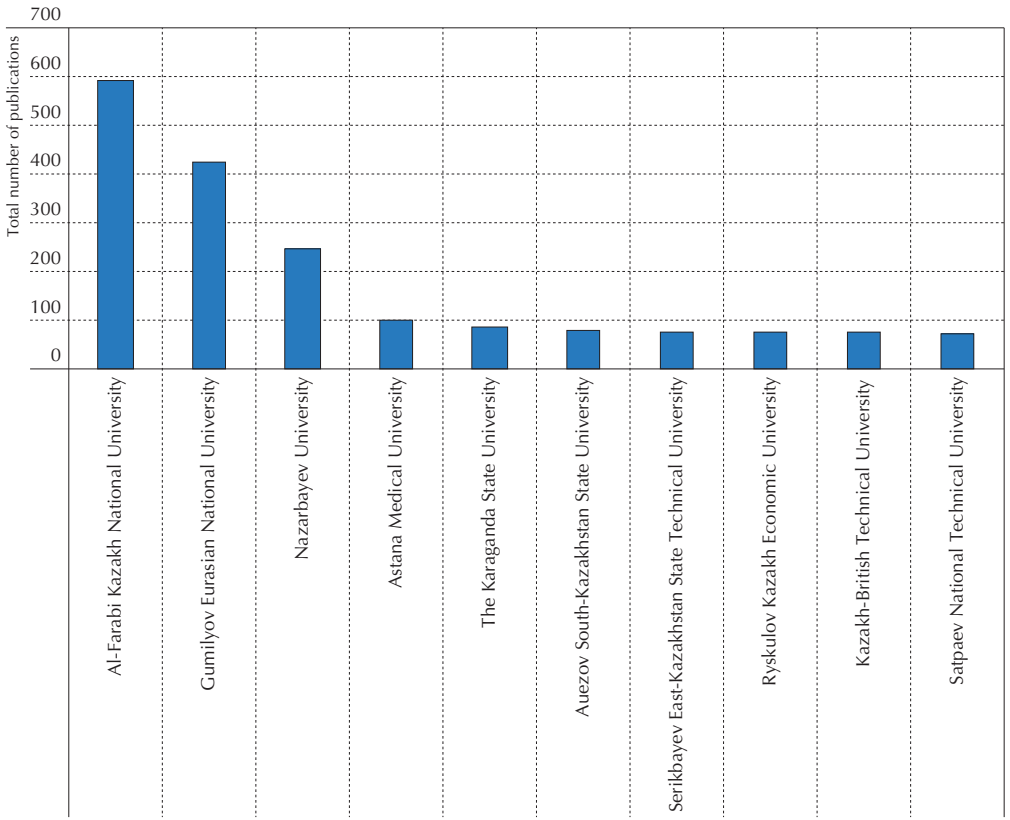
	Publication share in Kazakhstan, (% of total)	World average publication share, (%)	Citations/paper published in Kazakhstan
Physical sciences	35	21	2.56
Engineering	21	23	1.11
Life sciences	25	43	1.20
Social sciences	18	8	0.15
Humanities	1	5	0.12

Sources: Ministry of Education and Science of the Republic of Kazakhstan (2014), *National Report on Science*.

The spread of publishing across higher education institutions in Figure 5.7 shows that a small number of higher education institutions dominate the

publishing landscape with a long tail for the rest. The top-publishing higher education institutions are obvious candidates to evolve over time into world-class research universities if Kazakhstan so chooses.

Figure 5.7. **Total number of publications by institution in WOS Journals across higher education institutions in Kazakhstan (2011-14)**

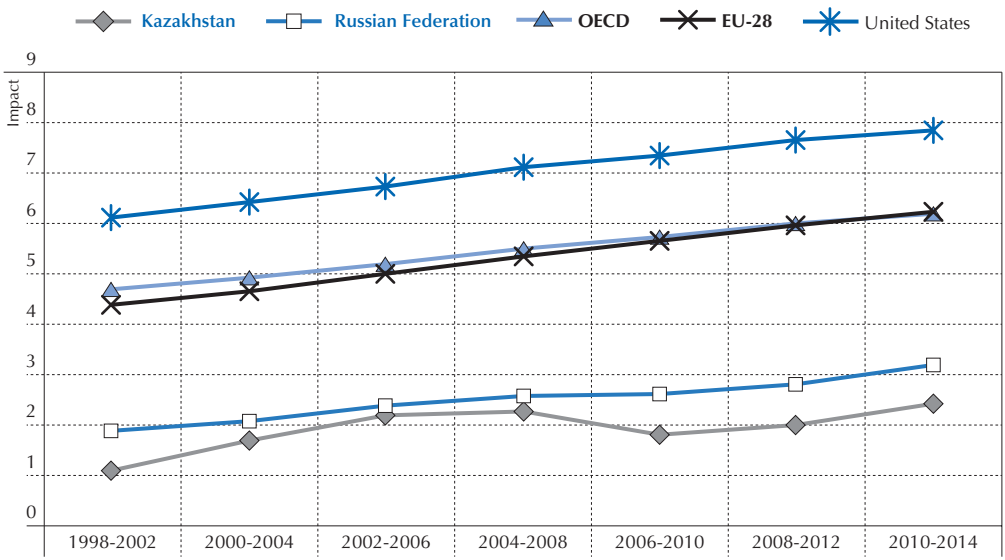


Sources: Adapted from Ministry of Education and Science of the Republic of Kazakhstan *National Report on Science* (2014).

Figure 5.8 shows the citation impact for Kazakhstan in comparison with the Russian Federation, the European Union average, the OECD average and the United States. The vertical axis is the total number of citations in any five-year period per paper published up to that period. The positive message is that Kazakhstan is competitive with its neighbour Russia. The less positive message is that the impact of Kazakhstani papers is about 40% that of the OECD and European Union blocks of countries. The increased investment in research in Kazakhstan in recent years may result in a narrowing of the gap with other countries in the future.

Figure 5.6 also includes the citation impact for the different disciplinary fields. The highest citations are unsurprisingly in the physical sciences. It is noteworthy that life sciences/biomedicine and engineering/applied sciences have roughly the same citation rates. It is not surprising that the social sciences and humanities feature low on citations relative to the other fields – this reflects the fact that citations as a measure of impact are more appropriate to the scientific and engineering disciplines, where journal and conference papers are the norm.

Figure 5.8**. Citation impact of publications by country/region in WOS Journals in a five-year period (1998-2014)**



Sources: InCites Global Comparisons: Compare Countries/Territories 5 Year Trends, Thomson Reuters. Report created: 11 April 2016; Data Processed 12 October 2015; Data source: Web of Science.

In summary, the high-level analysis of publication and citation data available to the OECD review team indicates that the scale of research and its quality are low by international standards. However, the system is performing as well as might be expected given funding and other constraints, and is on an upward trajectory. There is strong concentration of research activity in a relatively small number of higher education institutions. Citation rates are highest in the physical sciences. The OECD review team believes that priority should be given to building the scale and quality of the research base, while being patient about realising economic impact from the research.

Investment in R&D

Funding of higher education, and its many needs, are considered in Chapter 6 of this report. In the case of research and innovation, a useful country comparison is offered by the indicator "gross domestic spending on R&D as a percentage of GDP". This includes current and capital spending from all sources, public and private. Figure 5.9 shows the spending as a percentage of GDP for a range of countries and groups of countries. By this measure, Kazakhstan's investment in R&D at 0.17% of GDP is clearly very low. It has remained constant since 2010. It is almost seven times lower than that of the Russian Federation and almost twelve times lower than that of People's Republic of China. While it is also much less than the European Union average, it is to be noted that there is a large variation across the European Union countries, from very high in Sweden to low in some of the former Soviet group of countries such as Romania.

Figure 5.9. **Comparison of spending on R&D by country**

Country/block of countries	% GDP spent on R&D, 2013
United States	2.74
OECD average	2.37
People's Republic of China	2.01
EU-28 average	1.93
Sweden	3.31
Poland	0.87
Romania	0.39
Russian Federation	1.13
Kazakhstan	0.17

Sources: OECD (2016), Gross domestic spending on R&D (indicators), http://dx.doi.org/10.1787/d8b068b4-en (accessed 10 April 2016).

Figure 5.10 shows the public budget for R&D, including the portion available to higher education. The budget doubled in the 2010-14 period in line with the increase in GDP, while the higher education share increased three times to 2013 (with a small decline in 2014). The trend is moving in the right direction, even though the downturn in higher education institution share in 2014 is worrying. In the next section we will examine how expenditures on R&D have been used.

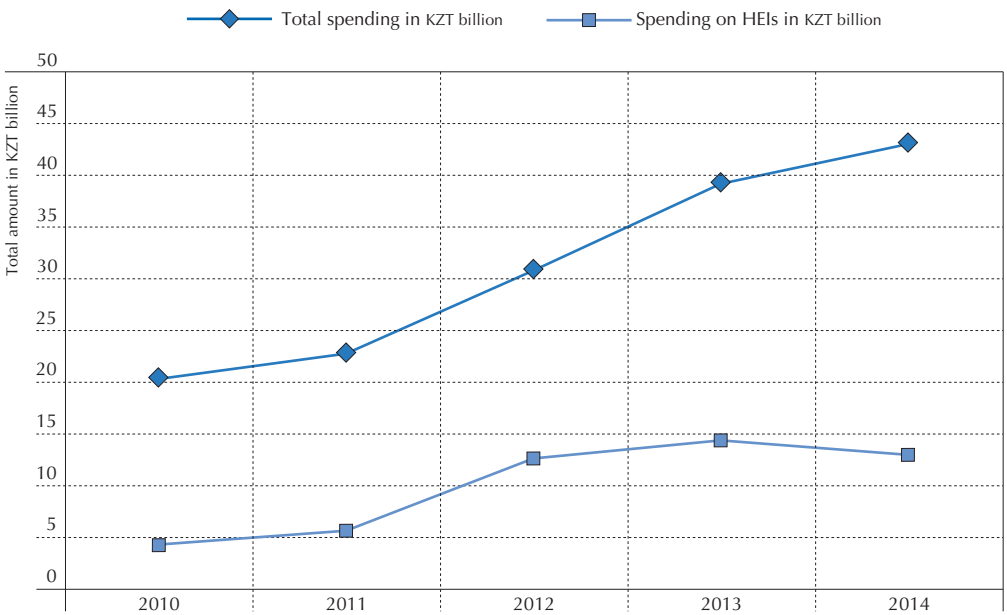
Observations from this pattern of expenditure are as follows.

- Overall expenditure on R&D as a percentage of GDP is low by international standards.

- Actual expenditure has increased significantly as GDP increased, but the amount is still very low.
- The share of public research funding available to higher education institutions is small at about 30%. Furthermore, a significant portion of the balance goes to research institutes. Many higher education institutions brought to the attention of the review team the poor state of facilities and laboratory equipment as a result of low funding levels.

If Kazakhstan hopes to develop into a knowledge economy with a strong innovation ecosystem, it will have to increase expenditure at a much faster rate than before, and ensure that the instruments used to invest its scarce resources are fully optimised.

Figure 5.10. **Public expenditure on R&D in Kazakhstan, KZT billion**



Sources: JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

Funding instruments as drivers for capacity building

From the policy statements and targets set by government, it is clear that public investment in research is focused on national priorities and the commercialisation of intellectual property. The priorities defined for the

period 2014-16 were: rational use of natural resources and processing of raw materials; information and communication technologies; life sciences; and energy and engineering. A fifth category called the "intellectual potential of the country" has been added to the list. This is a broad category covering fundamental and applied research in the social sciences and the humanities and fundamental research in the natural sciences (Chapter 5). Whether it is in fact a priority is unclear.

The three research funding instruments established in 2011, and described earlier, are currently operating under the five themes. The instruments are Grant schemes, Basic funding and targeted Programmes, covering small projects, infrastructure and large targeted programmes, respectively. The allocations for 2013 under the three instruments are shown in Figure 5.11, along with the breakdown between higher education institutions and research institutes.

Figure 5.11. **Grant and Programme spending (approximate amounts) (2013)**

	Grant funding	Basic funding	Programme funding	Total
Funding, 2013	18.02	4.25	12.49	34.75
HEI share	5.79	0.29	1.70	7.78
Research Institute share	11.42	3.96	9.92	25.30
Others' share	0.80	0	0.87	1.67

Sources: Ministry of Education and Science of the Republic of Kazakhstan (2013), *National Report on Science.*

Some key facts about Figure 5.11 include the following:

- All grants and programmes are for three years. While this is not unusual elsewhere, building up a critical mass of good research will require sustained funding, in some cases, over much longer periods of time.
- The share of overall funding for higher education institutions was 22% while the share for research institutes was over 70%.
- The Basic funding level is much lower than either Grant or Programme funding and particularly low for higher education. Since this funding supports research infrastructure and is the only such form of funding, higher education institutions are highly constrained in their ability to develop a reasonable research environment.

Since the Grant schemes represent the largest source of income for higher education institutions, Figure 5.12 shows a detailed breakdown of the funding since 2011. It does not distinguish between higher education institutions and

research institutes. Four competitions have been held. The figure shows the number of applications and awards for the five national priority areas for each funding round. Note that each project is funded for three years so that the latest round covers the period 2015-17. In total, 11 478 applications were submitted and 3 896 were funded, giving an overall success rate of 34%. While the average funding/grant was about KZT 8 million, the OECD review team does not have data on the breakdown among areas.

Figure 5.12. **Research grants: number of applications and awards, and success rates (2011-17)**

Area	2011-13	2012-14	2013-15	2015-17	Total
Energy					
Applications	150	120	182	473	925
Awards	86	38	59	128	311
Success, %	57.3	32	32	27	34
Natural resources					
Applications	297	275	450	1 300	3 822
Awards	133	56	64	638	891
Success, %	44.8	20	14	49	38
ICT					
Applications	161	131	226	547	1 065
Awards	84	44	63	94	285
Success, %	52	34	28	17	27
Life sciences					
Applications	371	285	416	997	2 069
Awards	219	48	111	367	745
Success, %	59	17	27	37	36
Intellectual potential					
Applications	1 011	1 048	1 470	1 567	5 096
Awards	652	320	138	554	1 664
Success, %	64.5	31	9	35	33
Total applications	1 990	1 859	2 744	4 884	11 478
Total awards	1 174	506	435	1 781	3 896
Success, %		27	16	36	34

Sources: For the 2011-15 data: Shevchenko (2015), *Innovations in Kazakhstan: Status and Directions for the Future Development,* International Conference on Better Policies for More Information, Minsk, Belarus, 17-18 November 2015. For the 2015-17 data: Ministry of Education and Science of the Republic of Kazakhstan (2014), *National Report on Science.*

A key issue arising from Figures 5.11 and 5.12 is the number of Grant projects awarded and the funding per project. By way of comparison, the United Kingdom Research Councils (RCUK, 2014) in 2014/15 funded

814 projects in engineering and natural sciences, a little less than the number (860) of projects in Kazakhstan for 2015 in the first three priority areas, and at an average project funding level of 780 000 pounds sterling. In life sciences, it funded 514 projects in biology/biotechnology, compared to 367 for Kazakhstan, and at an average project funding level of 475 000 pounds sterling. The project funding level is about ten times that in Kazakhstan. Comparison between two very different countries is fraught because of different purchasing powers, varying exchange rates and other factors. Nevertheless it appears that the Kazakhstan Grant fund is spread too thinly to achieve sustainable critical mass. The success rate of applications in Kazakhstan is comparable to that in the United Kingdom.

A number of further observations can be made from the information in Figure 5.12:

- Almost 50% of the applications were in the Intellectual Potential theme, suggesting that this category could be better served by broadening and redefining it more as frontier research.
- Most of the priority areas are also priority areas in countries across the world, leading to aggressive competition for talent. To compete, Kazakhstan may need to focus on a modest number of sub-areas and build a critical mass of talented faculty with concentrated resources in each of them.
- The area of ICT has the lowest number of applications, suggesting the need for special attention given its importance.

The criteria changed significantly across the four application rounds: from an open first call; to large involvement by industry in the second call; to a reduced requirement for industry involvement but greater international involvement in the latest round. Each project in the latest round requires a foreign partner and foreign project co-director. The rapid changes may account for the varying application success rates.

In summary, analysis of the data available on Grant funding indicates some good features: strong interest by researchers to apply for funding, good selection processes, and strong international collaboration. However, the expectation of commercialisation and industry engagement seems to take precedence over building a strong research base first. The spreading of scarce funding across a very large number of relatively small projects is unlikely to cultivate excellence or develop a critical mass of talented faculty in important areas. Rapid changes in criteria do not help institutional planning and prioritisation. Three-year funding cycles are too short to build sustainable critical mass (see Box 5.1 for the German example on five-year funding cycles). The co-existence of continual support for a large number of research

institutes and emphasis on building higher education institutions as the basis for education, research and innovation is confusing. Finally, the Programme Fund is mostly associated with research institutes and hence beyond the remit of this review.

Box 5.1. **Germany's Excellence Initiative 2006-2017**

Established in 2005 by the German federal and state governments and operated by the *Deutsche Forschungsgemeinschaft* (DFG) and the German Council of Science and Humanities, the Excellence Initiative aims to strengthen top-level research and to enhance international competitiveness. It has committed more than EUR 4 billion for this purpose in two phases (2006-17) over and above the regular budget. Funding is awarded for five years on the basis of competitive bids from universities in three areas:

- graduate schools to promote young scientists and researchers in PhD programmes
- clusters of excellence involving collaboration with other institutions including research institutes to promote excellence in disciplinary areas
- institutional strategies to develop whole institutions that compete internationally.

Even though there are winners and losers, the view of proponents in Germany is that the initiative has had a positive impact on all universities.

Sources: Deutsche Forschungsgemeinschaft (DFG), www.dfg.de/en/research_funding/programmes/excellence_initiative/general_information/index.html.

Each awarded programme may be in place for three years, but the whole programme itself has been funded since 2011 and thus has been in operation for five years. It is reasonable that this period should be a time for evaluation and learning. Given the concerns raised, it is timely to review the effectiveness of the instruments and see what can be changed for the better. In particular, consideration might be given to using the concept of frontier research, based on excellence, as a new instrument to overcome the divisive nature of the fundamental/applied approach. With its own funding stream it could replace and broaden the Intellectual Potential theme. Consideration might also be given to redesigning the balance of Grant/Programme instruments into a single instrument to realise a greater concentration of resources for longer periods in a small number of Centres for Science and Technology spanning disciplines, institutions and sectors, which could build critical and sustainable mass in a few important areas with impact (see Box 5.2 for Science Foundation Ireland's Research Centres Programme). These were described in the earlier section on approaches to research.

Box 5.2. **Science Foundation Ireland's Research Centres Programme**

Science Foundation Ireland was established in 2000 to develop a partnership between higher education, industry, and government and initially in two priority areas, ICT and biotechnology. It funded individuals to build capacity and new research centres to harness that capacity towards significant goals. Funding was for five-year periods with renewal based on new proposals.

The centres were modelled after the United States National Science Foundation Science and Technology Centres, and designed to build interdisciplinary, inter-institutional teams together with industry involvement, with this based on peer-review and driven by a mixture of open calls and targeted funding. Six centres were established in the early years. Initial industry interest was from the multinational sector. In the last five years, national policy has identified 14 priority research areas for economic and industry development, and new centres are being created of much greater scale and with greater contributions from industry (both financially and in terms of personnel).

Sources: Science Foundation Ireland (n.d.), www.sfi.ie.

Institutional culture and support for research and innovation

Researchers in higher education institutions can compete for external funding, can profit from commercialisation of research and are encouraged to collaborate internationally. However, some key instruments that higher education institutions use to recognise and incentivise research and innovation remain underdeveloped.

Academic salaries are not competitive in recruiting and retaining talented research faculty in the face of international competition (although Nazarbayev University is an exception). In some institutions the OECD review team did find financial incentives for faculty publishing or patenting. However, greater flexibility in salary seems necessary for Kazakhstan to develop a strong research capacity in higher education.

Promotion is a powerful motivator for most academics. The relative emphasis that institutions place on teaching and learning, publications, engagement with users of knowledge and commercialisation will drive the behaviour especially of young faculty. From information supplied to the OECD review team, neither the criteria nor the procedures for promotion are transparent. One highly active research higher education institution informed the team that teaching still has higher priority than research. We recommend that higher education institutions ensure that their promotion policy is transparent, and that it explicitly include performance in research and innovation.

The workload model for academics has changed little since the 2007 OECD/World Bank review, though the review team this time observed flexibility at some institutions. All institutions complained about the high teaching load and lack of time for research. While workload models are generally difficult to devise and implement, it should be possible to establish internal consensus to take time commitments to research and innovation into account when assigning teaching duties to individual academic staff. The OECD review team notes that in Kazakhstan the ratio of students to academic staff at 12:1 is well below the OECD norm which is currently at 17:1 (OECD, 2016). However, the ratio of academics to all other staff at 3:1 is well above the norm (JSC Information-Analytic Center, 2015). A low student/faculty ratio seems more than offset by the administrative burden on academic staff. This needs to be taken into account in freeing up time for research.

Two other observations are warranted:

- It was signalled to the review team that some higher education institution leadership has insufficient interest in engaging with industry or other users of knowledge. We deal with this and the broader culture of innovation and entrepreneurship in a later section on engagement with industry.
- Research seems to suffer in the internal allocation of institutional resources. While this is most likely for historical reasons, a matching between allocation of resources and the aspirations of the institution should be transparent and fair, as discussed in Chapter 6 on Finance.

The OECD review team concludes that there is a need for dedicated evaluations of the efficiency and effectiveness of the instruments supporting research and innovation in higher education institutions and in research institutes. Strong leadership and patient government support are essential to drive and oversee a change in cultural behaviour of this magnitude.

The PhD pipeline for the knowledge society

PhD students are the lifeblood of university research. They advance knowledge while they are being trained. They are also the future faculty in higher education institutions and the engine for research in research institutes, industry and other knowledge enterprises. The postdoctoral system is common in many countries as further training for academic positions.

Most developed countries produce more PhD graduates than are needed for the faculty ranks in higher education institutions. In some countries (Cyranoski, 2011), up to 80% of graduates will have careers outside of higher education. This is good for industry, but raises questions of over-supply in

some disciplines. The opposite situation holds in Kazakhstan. The pipeline of PhD graduates, though increasing, is insufficient to replenish faculty (Ibraev et al., 2015). Providing enough highly qualified researchers for research institutes and users of knowledge is a further challenge.

The two-stage Soviet system of training researchers (Candidate of Science and Doctor of Science) was replaced in Kazakhstan in 2011 by the PhD system in accordance with the European Bologna Process. At the same time, all PhD students were required to publish at least one paper in a non-zero impact journal before graduation. The Ministry now uses a licensing process to directly control the areas in higher education institutions that can offer PhD programmes, as well as the number of funded PhD places allocated to those areas each year. Institutions cannot take on PhD students unless they are funded by the state. The intention of this is to assure quality of the PhD experience. Furthermore, each PhD student has to have a foreign co-supervisor to improve the quality of supervision.

Figure 5.13. **Enrolment of doctoral students**

	2012	2013	2014	2015
Total number enrolled	1 296	1 892	2 063	2 228
Number of new entrants	565	638	729	794
Number of finishing thesis	257	373	503	533
Number of defending thesis	110	110	125	175

Sources: Ministry of National Economy of the Republic of Kazakhstan, Committee on Statistics (MNERK) (2014-2015) www.stat.gov.kz

The change to the Bologna system and the introduction of more stringent publishing requirements had two significant effects: a low number of doctoral students in the system from 2011 on, and a low rate of successful defence of the dissertation. Figure 5.13 shows the situation since 2012. While there is a welcome increase in numbers over the years, the number of new entrants (794) in 2015 is short of the target of 1 000 (See Figure 5.1). The target for 2020 is 2 000. The merging of some research institutes with higher education institutions should increase the supervisory capacity. The 2020 target is achievable though highly challenging.

The number of PhD students successfully defending their dissertation following completion is worryingly low. In 2014 only 33% were awarded the PhD. A number of factors were cited to the review team to explain the low graduation rate: the period of funding is too short a time to write a paper publishable in good journals; there is insufficient time for the research

project and too much time allocated to coursework; there is lack of effective engagement by foreign co-supervisors. The requirement to initiate and complete a research project, and publish a good paper in the three years of funding is a big challenge, especially when English is not the first language of the student. The very low percentage of time available for carrying out the research project (30%) makes the PhD more like a taught programme, rather than one that cultivates independent researchers. The involvement of a foreign co-supervisor is a very good development provided that the supervisor actively engages and the institution benefits from that engagement to improve the quality of home supervision.

Ibraev et al. (2015) have summarised the supply and demand situation for highly trained researchers and conclude that the current or planned pipeline of domestic PhD graduates is not sufficient to replace faculty and meet the needs of R&D. The significant "brain migration" of PhD graduates to the non-research sector is noted as a serious problem. Ibraev et al. go further and suggest that there is a case to reintroduce a second doctorate qualification similar to the German Habilitation or the former doctorate of Soviet times, which could improve the quality of researchers. From their paper, it is clear that the MESRK is conscious of the need to increase PhD quality.

Figure 5.14 shows the trend in the number of PhD places allocated to disciplinary groups by year. The trends reflect state priorities. Engineering is allocated a steady high number of places, reflecting the need to upgrade the qualifications of engineering faculty. This is a worthy goal but the fact that the number of highly qualified engineering faculty is low now could mean that the supervisory capacity is not available to handle the number of new entrants every year. If institutions struggle to fill those places, the quality of entrant may also be under stress. Natural sciences and social sciences show a decrease over time. The reason for this is not clear.

While it is of value to regulate the number of PhD places funded by public money to avoid over-supply in some areas, there is merit in allowing higher education institutions themselves to have much more control over the process. It could increase flexibility and responsiveness. Including funding for PhD students in research proposals could also help, in as much as supervisory quality and quality of research ideas would be assessed simultaneously. A highly performing higher education institution could be licensed as a whole rather than for individual programmes. As suggested by Ibraev et al. (2015), it may be time to reintroduce some flexibility. In addition to considering a two-tier doctorate system, a further option is the Industry Doctorate or PhD where the students are already working in industry, but they and their employers want to upgrade skills and research capacity (EPSRC, 2011).

Figure 5.14. **Doctoral places awarded by field of study**

Areas	2011/12	2012/13	2013/14	2014/15
Engineering	183	193	182	200
Natural Science	86	81	73	75
Social Science	163	111	121	148
Agriculture/Veterinary	32	51	52	73
Humanities	59	64	65	93
Services	10	0	2	9

Sources: JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

The OECD review team noted that PhD students funded by the state must spend three years working in a research environment following completion. It is understandable that this is a mechanism to ensure graduates return value to the system following training. It may not be the most effective route to build a productive research or academic career, however, or to motivate talented graduates to pursue such a career.

The postdoctoral fellowship has become the norm for career progression beyond PhD to an academic position in many countries. It is a way for graduates to gain experience with different supervisors nationally and internationally (see Box 5.3 for a Swedish example). The OECD review team understands that the concept of postdoctoral positions does not exist in Kazakhstan. The importance of addressing this was emphasised to us by one higher education institution, which expressed considerable frustration that no action was taken in this regard at central level. It would make sense for Kazakhstan to develop a system of sending a number of freshly graduated Kazakhstani PhD students abroad to gain experience with the proviso that they return. It would also make sense to fund a small number of postdoctoral positions for foreign visitors. The Bolashak programme could easily formalise this.

In summary, addressing the PhD pipeline problem and instituting a postdoctoral structure as an intrinsic step in an academic or research career path are necessary for the future health of research, innovation and education.

Box 5.3. **Sweden's Industry Doctoral Student concept**

In 1992, Saab AB (a medium-sized aerospace company) convinced the Swedish government to fund the planning of a new national programme in product development that would include a novel Industry PhD concept. As a result, the Engineering Design Research and Education Agenda (ENDREA) was established involving several universities.

The programme introduced new elements to Sweden which have had significant influence on the development of research and teaching and on industry practice: PhD students were employed by industry but spent most of their time at a university; students had an academic and industry advisor and dissertations were in English; annual reviews of the research projects which could include several PhD students were carried out.

The concept of the Industry PhD served as a bridge between universities and industry: it involved introducing industry-relevant problems to universities and disseminating knowledge from the university to industry. ENDREA was subsequently merged with another Swedish programme, PROPER, to form a national graduate school Pro-Viking, and today the Swedish Foundation for Strategic Research directly funds Industry Doctoral students.

Sources: Swedish Foundation for Strategic Research, http://stratreseaech.se. Original proposal for ENDREA available on request to the Foundation.

Building the engagement between higher education institutions and users of knowledge

As discussed earlier, the over-arching emphasis of public research policy and investment in Kazakhstan is on commercialisation of intellectual property. Most of the higher education institutions engaging in research that the OECD review team visited seem to have followed the central lead and willingly embraced commercialisation as a priority.

With financial support from government, 13 higher education institutions have Commercialisation Offices in operation, three Technoparks have been set up in association with higher education institutions, and 20 special-purpose Laboratories offering shared facilities have been established (JSC Information-Analytic Center, 2015). The MESRK as well as the innovation agency (NATD) support the investment in projects with commercial potential through their own instruments and the Technology Commercialisation Centre established with the World Bank. Targeted funds in other ministries also support innovation in industry, but these were beyond the remit of this review.

The OECD review team was impressed to find that six higher education institutions have established Student Incubators, some of which are supported in part by research income. These have the potential to harness the entrepreneurial spirit of both undergraduate and graduate students, embed

entrepreneurship and innovation in the curriculum, and engage with alumni entrepreneurs as mentors.

It was not possible, in the time available, to identify reliable data on patents, licences and spin-off companies and engagement with industry. However, from our many discussions with Ministry organisations and higher education institutions, the OECD review team could observe the degree to which commercialisation expectations have been met, and the health of engagement between higher education institutions and industry.

While there are some successes, the review team found general government disappointment with the level of commercialisation of intellectual property. Evidence provided includes the following:

- The Science Fund carried out a survey of 1 627 projects funded by the Grant Fund and found only 3% of relevance to identified industry needs.
- Of 785 recent applications to the Technology Commercialisation Centre, 33 projects were selected for funding, of which 25% were from higher education institutions. The balance was from research institutes and industry. The OECD review team was told that the industry projects were the most successful. More promising results for start-ups and licence agreements have been reported in recent months.

For the review team, such a low level of commercialisation is not surprising given the current low base of higher education institution research and the undeveloped culture of engagement with industry. The views expressed to the team on the state of engagement with industry can be summarised as follows:

- There is a mismatch between what higher education institutions offer in terms of research and industry needs insofar as these are well articulated. Very few higher education institution patents are of interest to industry.
- There is a lack of a common language, with each side saying that the other side has no interest in dialogue.
- Higher education institutions consider that industry was undertaking very little R&D and showed little interest to do so.
- Industry had no trust in the ability of higher education institutions to deliver research of value.
- There is insufficient investment in research, and facilities at higher education institutions are below the standard expected by industry.

- Faculties are too burdened with teaching commitments to devote time to research and have even less time to engage with industry.
- Engagement is not a top priority for leadership in either sector.

These issues are surprisingly common in most countries. The recent Dowling Review of Business-University Research Collaboration (Dowling, 2015) in the United Kingdom summarised the ten biggest barriers to collaboration for industry and universities. They included lack of mutual trust, difficulty of negotiating intellectual property, lack of resources and time, different time horizons, emphasis on academic publishing for career development and others. Trust was the most important success factor. To quote from the Dowling Review:

> "Building trusting relationships that enable the collaborating partners to have an open dialogue over a period of months, or years, provides an essential foundation for a partnership. Without this, it is unrealistic to expect a company to share their long-term vision with the academics in the collaboration and, if this does not happen, it is quite likely that the academics will fail to address the research challenges that really matter to the company."

While the top-down higher education institution emphasis on commercialisation is important, the OECD review team believes that building trusting partnerships by the more dispersed form of people-to-people engagement between higher education institutions and industry at all levels deserves equal priority (see Box 5.4 for a good example of university engagement). Dissemination and take-up of useful knowledge by industry is more important than protecting intellectual property or generating income from it. Some of the ways to develop trust and engagement include, but are not limited to, the following:

- Higher education institution leaders could involve industry leaders in strategic planning, events and celebrations, and become members of industry organisations such as Chambers of Commerce where common ground on many issues can be forged.
- Higher education could appoint experienced industry people as Adjunct Faculty or Professors of Practice.
- Faculty could take sabbaticals in industry and not just in other higher education environments.
- Experienced faculty in business and industry could provide consulting services with remuneration. It is common for universities in many countries to allow their faculty to consult for up to one day each week but under strict conditions. It is particularly common in Business Schools.

- Commercialisation Offices could establish a distinct centre with contract R&D personnel, but also involving faculty, to provide professional problem-solving consultancy services to industry.
- Commercialisation Offices could prioritise the take-up of intellectual property by industry over protection and income generation.
- Higher education could explore the Industry PhD concept with industry leaders.
- Kazakhstan could encourage and support student entrepreneurship, including elements of enterprise and innovation in the curriculum for undergraduate and graduate students.
- Higher education could maintain contact with alumni entrepreneurs and engage with regional start-up entrepreneurs.
- Kazakhstan could plan a small number of joint Science and Technology Research Centres with selected industries as proposed in the section on funding instruments, in which researchers work side by side on longer-term strategic issues of importance to the industries' future.

Box 5.4. **Intel Ireland's road to university engagement**

Intel established its first manufacturing operations in Ireland in the mid-1980s. Its engagement with higher education evolved in steps.

The first phase was focused on recruiting skilled graduates. It donated surplus equipment from its factory to the undergraduate teaching laboratories with good effect. This was followed in stages by co-funding of master's and PhD students.

The second phase built on this with full-scale involvement in research centres relevant to its interests such as the CRANN (**C**entre for **R**esearch on **A**daptive **N**anostructures and **N**anodevices) nanoscience centre in Trinity College Dublin and the Tyndall National Institute in University College Cork. It is also involved with three technology centres, and has itself established the Innovation Open Lab Ireland, focused on energy and sustainability and dependable cloud and services research.

The evolution from undergraduate engagement to research engagement is a good model for building trust from small beginnings.

Sources: Dr. Juan J Perez-Camacho, former Staff Engineer with Intel Ireland (private communication); www.intel.ie/content/www/ie/en/company-overview/intel-in-ireland.html.

In summary, the OECD review team suggests that Kazakhstan focus in the short term on building a strong base of research and be patient about commercial return. Most importantly, it should balance its strong and important drive for commercialisation with the more complex but fruitful process of dissemination by people engagement.

Strengthening diversity of institutional mission

Two levels of research diversity are important in Kazakhstan. These are linked to the relationship between higher education institutions and research institutes, and among higher education institutions themselves. The policy of strengthening research in higher education institutions follows best international practice, but it leads to confusion about the distinct role of the research institutes. Moreover, within the higher education sector, there has been significant planned and organic diversity, but this raises the issue of coherence.

While research institutes were beyond the remit of this review, the OECD review team notes that some have merged with higher education institutions, but many remain independent. Spreading research funding and resources across a very large number of relatively small institutions, including higher education institutions and research institutes, is inefficient and wasteful. Concentration of effort in a much smaller number of larger institutions could be achieved, for example, by further mergers of research institutes with higher education institutions and consolidation within the research institute sector itself. Collaboration across the institutes would be important.

Within the higher education sector, research is concentrated mostly in public higher education institutions. Further concentration in the public system, beyond merging research institutes with some higher education institutions, is enhanced by the designation of eleven national higher education institutions with extra funding and the creation of Nazarbayev University as a new model with deep funding.

It is not clear how all of this planned and spontaneous diversity is coherent or sustainable. While the initiative to merge, allocate special stature and establish a new model is positive, much of it could be negated by the policy to have the large number of institutions with the title ‘university’ become research active. This could lead to a homogenous, not a diverse, system.

One approach to diversity is to differentiate between three groups of higher education institutions. The first group would be teaching-led, with little expectation to carry out research but with a strong commitment to excellence in pedagogy. The quality of graduates and their attractiveness to employers would be a key measure of success. The second group would be

research-led with international focus, with responsibility for PhD training and for meeting the long-term strategic research needs of the knowledge economy. High-impact publications and important intellectual property would be key measures of success. The third group could be more focused on local needs, which might include consultancy, problem solving, and short-term research projects involving masters and undergraduate students, for example. The number of industry contracts would be a key measure of success.

There is a risk that higher education institutions will want to imitate those that they perceive as having the greater prestige. The Ministry could manage expectation by openly respecting the different missions, and insisting that each higher education institution operates to international standards according to its own mission.

Recommendations

Focus on building the research excellence of the faculty through a two-pronged approach.

- Build a broad base of frontier research. Frontier research should be in any discipline and have the ability to create new knowledge about the world and generate potentially useful knowledge, in line with the European Research Council (ERC). It would be broader in scope than the Intellectual Potential priority and could include other parts of the Grant funding instrument. It could be based on 3-year project funding.
- Achieve critical mass and impact in strategic areas. This will require two actions. First is the funding of university-led Science and Technology Centres (or equivalent) that are inter-disciplinary and inter-institutional and engage industry as partners, with significant funding for at least 5 years and renewable. Secondly, a special immediate initiative to recruit highly talented faculty by offering competitive salaries and generous funding for an initial 5-year period is essential, following which faculty compete for funding as normal. In all cases, stringent international peer-review is essential.

Take into account competing demands for funding within and beyond higher education, a carefully thought-out implementation plan to increase R&D investment to 1% of GDP over 5 years to 2021 should be devised.

- Review the efficiency of the current investment process taking into account Recommendation 1 and using an international expert group.
- With a revised process, increase public investment in R&D to 0.5% of GDP immediately but on condition that quality is not sacrificed.

- Plan a further increase annually to 1% of GDP but including the beginning of participation by the private sector.
- Review efficiency of the investment again in 2021 using an international expert group and plan further investment accordingly.

Higher education institutions should strive towards explicit and transparent policies on incentives and rewards related to research and innovation.

- Promote between academic grades where there is a consensus on the weighting of teaching, research and innovation.
- Implement equitable workload models to ensure that research-active faculty have reasonable time for research while not removing them from teaching. Recognising that workload models are difficult to devise and implement, a first step could be the broad acceptance of the principle of flexibility in allocating teaching duties at School level.
- Ensure internal resource allocation that recognises the needs of research such as infrastructure, facilities and laboratory assistants.
- HEIs[1] should review salary levels to attract and retain the talented faculty who will deliver on the plans.
- The Association of Universities could mediate much of this with government.

In view of its importance, and also in light of existing concerns at the MESRK, name a special task force to address the PhD pipeline and postdoctoral career path. Engaging higher education institutions in the task force will ensure that any solution gets implemented.

- Revisit the one-size-fits-all policy for PhD graduation, with the possibility of having an Industry Doctorate/PhD strand ensuring a genuine engagement of the industry partners in the PhD project. The stringent publication requirement could be relaxed while maintaining an equally stringent dissertation defence process.
- License a small number of the best research-intensive higher education institutions to operate PhD programmes in any area, and enable them to include funding for PhD positions in grant applications without quota. This approach would be self-regulating but responsive to opportunities and needs.
- In the case where higher education institutions have more high-quality PhD applicants than places available, agree on a process with the Bolashak programme to fund more of these applicants abroad.

- Formally establish the postdoctoral structure as a necessary stage of a career path in research and academia. This could include sending Kazakh postdocs abroad to get vital experience not available at home, and attracting some foreign postdocs to inject new thinking and dynamism in higher education institutions. Both could be operated by the Bolashak programme.
- The implementation of well thought-out proposals from the Task Force should be of high priority for the Ministry.

A better balance between commercialisation and engagement should be established.

- Policy makers, funders and higher education institutions should reach agreement about all of the tangible and intangible ways by which the outcomes of higher education institution research, in all of its forms and including people and ideas, can contribute to innovation in industry and other users of knowledge.
- Co-ordinate funding instruments across ministries to ensure that all forms of contribution and impact are supported and realised.
- Higher education institution leadership should engage systematically and intensely with the leaders of industry to develop mutual understanding and become members of industry organisations such as chambers of commerce.
- Higher education institution leadership and senior management should work to embed a culture of innovation and entrepreneurship throughout the organisation and not leave responsibility to commercialisation offices only. This could be achieved by strategic actions including, for example, appointing Adjunct faculty and Professors of Practice, student and faculty exchange with industry, use of Industry PhDs, including entrepreneurship and innovation in the curriculum.
- Commercialisation offices should be integrated into the strategic planning exercise of the higher education institution and bring industry needs and concerns to bear. They should prioritise the take-up of intellectual property by industry rather than protection and short-term income.
- Foreign companies with manufacturing operations in Kazakhstan and R&D operations in their home countries should be particularly targeted for engagement.

Review how diversity of mission can be rationalised, optimised and sustained, given limited resources and high expectations of the system as a whole.

- Clarify policy on the future of research institutes and explore how sufficient research concentration can be achieved by their further mergers with higher education institutions or consolidation into larger institutes.
- Articulate the need for higher education institutions to differentiate themselves by mission so that the whole system efficiently meets the needs of Kazakhstan. Three types of mission are suggested: teaching only, research-led to PhD level, and local needs oriented to master's level, respectively.
- Accord each mission equal respect, but expect each higher education institution to perform to international standards according to its particular mission and not according to some generic mission.
- For research-intensive higher education institutions, balance the need for investment in a very small number of universities with excellence in all areas, and the model where areas of excellence are more widely distributed.
- Ensure funding that is equitable and adequate to the mission.

Note

1. HEIs can review salary levels, and it depends on the form of property of HEIs. According to art.138:2 of the Law on State Property the forms of remuneration, staffing, sizes of salaries, bonuses and other remuneration of the system are determined solely by the Republican State Enterprise on the Right of Economic Use within a specified payroll- state and national universities have the status of "Republican State Enterprise".

References

Altbach, P.G. (2007), "Peripheries and Centres: Research Universities in Developing Countries", *Higher Education Management and Policy*, Vol. 19, No. 2, pp. 111-124, OECD Publishing, Paris. http://dx.doi.org/10.1787/hemp-v19-art13-en

Altbach, P.G. (2011), "The Past, Present, and Future of the Research University", in *The Road to Academic Excellence*, eds. P.G. Altbach and J. Salmi, The World Bank, Washington DC.

Atkinson, R.C. and W.A. Blanpied (2008), "Research Universities: Core of the US science and technology system", *Technology in Society*, 30, pp 30-48, University of California, San Diego, https://pdfs.semanticscholar.org/3fc0/2933aa27e0578a982a248e52256c158a6423.pdf.

Blank, R., (2016), "The Role of the University in Economic Development", in *University Priorities and Constraints*, Editions Economica.

Cyranoski, D. (2011), "Education: The PhD Factory", *Nature*, Vol. 472, pp. 276-279.

Deutsche Forschungsgemeinschaft (DFG), www.dfg.de/en/research_funding/programmes/excellence_initiative/general_information/index.html.

Dowling (2015), The Dowling Review of Business-University Research Collaboration, report commissioned by the Department for Business Innovation and Skills, United Kingdom Government, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440927/bis_15_352_The_dowling_review_of_business-university_rearch_collaborations_2.pdf.

Engineering and Physical Sciences Research Council (EPSRC) (2011), "The EPSRC Industrial Doctorate Centre Scheme: Good Practice Guidance", https://www.epsrc.ac.uk/newsevents/pubs/the-epsrc-industrial-doctorate-centre-scheme-good-practice-guidance/.

ERC (European Research Council) (2005), *Frontier Research: The European Challenge, High-Level Expert Group Report*, http://ec.europa.eu/research/future/pdf/hleg_fullreport_frontier_research_april2005.pdf.

Graham, R. (2014), *Creating university-based entrepreneurial ecosystems: evidence from emerging world leaders*, www.rhgraham.org/RHG/Recent_publications_files/MIT%3ASkoltech%20entrepreneurial%20ecosystems%20report%202014%20_1.pdf.

Hazelkorn, E. (2011), *Rankings and the Reshaping of Higher Education: the Battle for World-Class Excellence*, Palgrave Macmillan, Basingstoke.

Ibraev, A. Z. et al. (2015), "Reforming the system of research-staff training: Doctoral (Ph.D) education in Kazakhstan", *Scientific and Technical Information Processing*, Vol. 42, Issue 2, pp. 78-84.

JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

Lane, N. (2014), "Investments in Basic Research are just that: Investments", *Scientific American*, July 2010, www.scientificamerican.com/article/neal-f-lane-ldquo-investments-in-basic-research-are-just-that-investments-rdquo/.

Narayanamurti, V. T. Odumosu and L. Vinsel (2013), "RIP: The Basic/Applied Research Dichotomy", *Issues in Science and Technology*, Vol. 29, No. 2, Winter 2013.

MESRK (2014), *National Report on Science,* Committee of Science of the Ministry of Education and Science of the Republic of Kazakhstan, Astana.

MESRK (2013), *National Report on Science*, Committee of Science of the Ministry of Education and Science of the Republic of Kazakhstan, Astana.

MESRK (2010), The State Program for Education Development in the Republic of Kazakhstan 2011-2020, RK Presidential decree as of 7 December, 2010, Number 1118.

MNERK (2014-2015), Ministry of National Economy of the Republic of Kazakhstan, Committee of Statistics, www.stat.gov.kz.

NCESE (2013), Statistics of Education System of the Republic of Kazakhstan: National System, National Centre for Educational Statistics and Evaluation, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

OECD (2016), Gross domestic spending on R&D (indicators), http://dx.doi.org/10.1787/d8b068b4-en. (accessed 10 April 2016).

OECD (2015), *The Innovation Imperative: Contributing to Productivity, Growth and Well-Being*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264239814-en.

OECD (2014), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264207462-en.

OECD (2013), "Knowledge Transfer Channels and the Commercialisation of Public Research", in *Commercialising Public Research: New Trends and Strategies*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264193321-5-en.

OECD/The World Bank (2007), Reviews of National Policies in Education: Higher Education in Kazakhstan, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

Perkmann, M. et al. (2013) "Academic engagement and commercialisation: A review of the literature on university-industry relations", *Research Policy*, Vol. 42, pp 423-442.

QS, (2015). QS World University Rankings 2015/1, www.topuniversities.com/university-rankings.

RCUK (2014), Research Councils United Kingdom, https://epsrc.ac.uk/newsevents/pubs/201415/.

Salmi, J. (2009), *The Challenge of Establishing World-Class Universities*, The World Bank, Washington DC.

Science foundation Ireland, www.sfi.ie.

Shevchenko, Y. (2015), "Innovations in Kazakhstan: Status and Directions for the Future Development, International Conference Better Policies for More Innovation: Assessment, Implementation, Monitoring", 17-18 November, Minsk, Belarus, www.scienceportal.org.by/upload/2015/November/08_Shevchenko.pdf.

Stokes, D. (1997), *Pasteur's Quadrant: Basic Science and Technological Innovation,* Brookings Institution Press, Washington DC.

Swedish Foundation for stragegic research, http://stratresearch.se.

UNECE (2012), *Innovation Performance Review of Kazakhstan*, United Nations Economic Commission for Europe, United Nations Publishing, Geneva.

Chapter 6

Financing higher education in Kazakhstan

This chapter identifies policies to improve the financing of higher education. It analyses investment levels in higher education and resource allocation mechanisms. It discusses how to build the system's capacity in this area, improve efficiency and integrity, and delineate clearly the private sector's involvement. The chapter finds that recent incremental investments have failed to deal directly and adequately with fundamental weaknesses in the system as a whole. It places particular emphasis on areas of priority for Kazakhstan such as improving low overall levels of public funding and addressing the inefficiency of the state grant system. The chapter also points out the detrimental effect of a high degree of financial control and audits of higher education institutions.

How is higher education financed

Around the world, there are five broad sources of funding that finance institutions of higher education: appropriations from governments; payments from students for tuition fees and other fees associated with their education; philanthropic donations; private payments to universities for goods and services provided; and investment capital provided to capitalise for-profit institutions.

The first two sources, appropriations from governments and payments from students, typically provide by far the largest share of revenues (OECD, 2015). Philanthropic donations (often, but not always from alumni) play a significant role in a few countries which have many private institutions, and where there are traditions and tax incentives which encourage charitable giving. Private payments for research or other services provided by institutions are usually a small part of higher education revenues. Investment funding is used to capitalise for-profit institutions, which currently account for a small but rapidly growing share of student enrolments world-wide. For-profit institutions depend on student tuition fees for revenues, but often rely indirectly on governmental appropriations that help students finance their higher education from grants and loans.

Governmental appropriations for higher education may be provided as direct grants to institutions for instruction, research or public service; as grants to students to enable them to pay tuition fees and/or living costs while studying; as loans to students for tuition fees and living costs; or as payments to institutions to finance particular research projects or other services. Governments may directly or indirectly support both public and private institutions through these various means, but direct governmental support mostly flows to publicly owned or publicly controlled institutions.

The significance of student tuition fees as a source of revenue for higher education varies greatly among countries. Some countries require students to pay little or nothing for tuition, and others require students to meet all or near the full cost of their education.

In 2015, the average tuition fees for public institutions ranged from approximately USD 9 000 in the United Kingdom (with the United States a bit above USD 8 000) to approximately USD 5 000 in Japan, Canada, Korea, Australia and New Zealand, to under USD 2 000 in Italy, Switzerland, Austria, Belgium and France. No tuition fees are paid by public institution students in a number of countries, including Denmark, Finland, Norway, Estonia, the Slovak Republic and Sweden (OECD, 2015). In countries that require students to pay tuition fees (including some where fees are modest) governments usually provide need-based subsidies to low- and

moderate-income students to help them meet these expenses. Differences across countries reflect long-standing policy debates about the relative responsibility of the state or of students to cover the costs of higher education (Box 6.1).

Box 6.1. **What should students pay, what should the state pay?**

A classic higher education policy study was released by the Carnegie Commission in 1973: *Higher Education: Who Pays? Who Benefits? Who Should Pay?* (Carnegie Commission, 1973). The questions in the title convey the difficulty of determining the balance between the public benefits and the personal, private benefits of higher education. Some argue that the public benefits of higher education justify very low tuition fees for students or no fees at all. Others argue that the private benefits (higher income and social status) are so significant that all students should pay (or be able to borrow and later repay) the full costs of their higher education. This latter argument observes that, because higher-income students are more likely to attend higher education, providing free or low-cost higher education to them at public expense amounts to regressive taxation.

The Carnegie Commission consulted with a number of economists and concluded: "No precise – or even imprecise – methods exist to assess the individual and societal benefits as against the private and public costs." An analysis of the status quo in the United States at that time suggested that, on average, students and parents were paying one-third and the public was paying two-thirds of the direct monetary outlays for higher education and living expenses during study. However, when the opportunity costs of not working while enrolled in higher education were added to the direct costs, students and parents were paying two-thirds of the total. The Commission judged this status quo to be reasonable, but suggested small modifications: providing need-based assistance to lower-income families; charging less for the first two years of higher education and more for advanced undergraduate and graduate study; narrowing the gap between the tuition fees in public and private institutions; and developing more progressive tax systems.

In the decades since the report was written, continuing policy changes suggest that nations continue to struggle with these issues. The expansion of participation in higher education has made it difficult for most countries to pay all the direct costs of higher education. At the same time, the full individual and social benefits of higher education remain notoriously difficult to estimate in monetary terms. Moreover, estimates of "average" benefits fail to capture the full range of individual outcomes.

Some countries continue to provide full or near full public funding for higher education. Other countries, such as the United Kingdom, Australia and New Zealand, have introduced tuition fees or allowed fees to rise but have moved to provide income-contingent loans. These enable students to borrow to pay their fees, while forgiving the loan in part or in whole if, as graduates, their later income does not reach certain threshold levels. Still other countries provide a combination of need-based grants and loans to help lower-income students pay tuition fees and living costs. Finally, a number of jurisdictions (e.g. Canada) have experimented with publicly subsidised and sponsored savings plans to meet later higher education costs.

Box 6.1. **What should students pay, what should the state pay?** *(continued)*

This variety of approaches, and the continuing evolution of country strategies for financing higher education, underscores the difficulty of designing a definitive tuition policy. Nevertheless, widely acknowledged criteria for evaluating policy options have emerged. These include:

- Is the level of successful participation in higher education high enough to meet the needs of the national economy?
- Are the revenues generated by tuition fees and direct public appropriations adequate to support the quality that is necessary?
- Are public policies demonstrably enabling all groups within the society to participate in the benefits of higher education?
- Can qualified students at every income level afford higher education without accumulating excessive debt (i.e. debt that will have disproportionately negative effects on their later outcomes)?

Sources: Carnegie Commission on Higher Education (1973), *Higher Education: Who pays? Who benefits? Who should pay?: A Report and Recommendations*, McGraw-Hill.

The purposes of financing higher education

The purposes served by higher education are naturally closely tied to the interests of those who finance it. Traditional-aged students, for instance, are willing to pay for higher education because it provides preparation for a profession or employment that will generate higher income and social status; opportunities to socialise with other young people; and enjoyable opportunities to make the transition from dependence on parents to adult independence. Alumni and other charitable donors support higher education to express gratitude for benefits received, and to contribute to its broader societal benefits. Businesses may provide support for higher education programmes and research that provide direct or indirect benefits to their bottom line. Investors in for-profit higher education are primarily interested in returns on their financial investment, although they may have an affinity for higher education based on their familiarity with it or a belief in its intrinsic value.

The purposes that motivate governmental support for higher education are very much related to those that motivate students to enrol. A higher education system that enhances the capabilities of youth, and that also helps older workers develop or refresh their skills, is an important public priority.

Governments are also motivated to support higher education systems that meet broader public purposes and needs for:

- skilled workers and leaders required by employers in a wide range of sectors
- entrepreneurs who will create new businesses and employment opportunities
- scientists, engineers, scholars, and practitioners who can generate innovative solutions to problems and contribute new knowledge
- educators who can develop the capabilities of successive generations in primary, secondary and higher education
- cultural leaders who enrich and preserve the cultural heritage
- civic and political leaders with the understanding and skills required for advancing the welfare of the nation
- research and innovation to support economic growth and well-being.

Achieving and sustaining such an educational system is a never-ending task for every country. Effective systems must be deeply institutionalised in society. The schools, colleges and universities that make them up must have independent initiative, energy and capabilities. They need a sense of responsibility to their missions, and a commitment to anticipate, articulate and address broader social and economic needs.

Ultimately, financial policies for higher education are measured by their effectiveness in advancing national objectives and their efficiency in doing so (Zumeta et al., 2012). Effective financial policies will:

- provide sufficient money to meet objectives
- monitor results, learn from experience and adapt budgets in order to advance the attainment of goals
- properly balance supports and incentives in order to meet objectives
- build the capabilities of the institutions and individuals who play essential roles in meeting these objectives by providing essential supports, professional training, delegation of responsibility and operational flexibility.

Efficient financial policies will avoid waste, pursue cost-effectiveness and be responsive to changing needs. Such policies will:

- allocate funding differentially among institutions and purposes in order to reflect differences in the cost of different missions

- allocate resources to priorities, and use analysis to identify and respond to unproductive allocations of resources for activities whose results are below acceptable standards
- avoid over-reliance on formulaic approaches to budgeting and resource allocation, which can foster inflexibility and reduce the ability to adapt to changing needs
- ensure integrity through appropriate financial controls and audits.

When financial policies fall short of their objectives, performance can be improved by changing policies to more faithfully respect these criteria. Each of these criteria is a useful lens for viewing and evaluating financial policies, even though most are interrelated. These interrelationships will become evident as each criterion is discussed individually.

Increasing system effectiveness

A variety of approaches can help steer higher education towards more effectively meeting public policy objectives. These approaches will serve as a reference later in this chapter for the analysis of higher education in Kazakhstan.

Provide sufficient money to meet objectives

No system of higher education can be effective if the money available to it is inadequate to meet its purposes. However, it can be difficult to determine what constitutes an "adequate" amount of money. Three perspectives can be useful in answering this kind of question.

- Often policy makers and educational leaders discuss adequacy in comparative terms, asking questions such as "what do other countries spend as a percentage of GDP?" or, "how much money do highly respected institutions have to spend?" This approach can be helpful in generating insights, but it cannot yield a conclusive answer.
- Another approach is to examine particular dimensions of finance within a higher education system. Are faculty and staff salaries competitive with the salaries of other comparably qualified employees in the rest of the labour market? Are facilities and equipment adequate in size and in an appropriate condition for the work that they support? Are staffing levels appropriate for the workload, in comparison to conditions in other institutions or sectors of the economy?
- A third view of the adequacy of resources considers whether the system is obtaining the desired results. Are sufficient numbers of

students enrolling and graduating? Are they well-prepared for their lives after graduation? Is the system generating the research and service that meets the needs of the nation? If the outcomes of the system are less than desired, it may be necessary to invest additional resources to obtain better results.

Monitor results, enable learning from experience and adapt budgets in order to advance the attainment of goals

Both determining resource adequacy and improving effectiveness requires information, analysis and adaptation. A well-designed and effectively utilised management information system can serve this purpose. The quality of information in the system must be high, and its content and quantity must be fit-for-purpose (Lingenfelter, 2016). While to some extent all information is relevant to decision-makers everywhere in the system, certain kinds of information are especially important for guiding national policy, and other kinds are especially necessary for improving institutional effectiveness or enhancing the learning of individual students.

Often, though, more data are collected and disseminated than can be understood and used by decision-makers. When large amounts of data are collected and reported, frequently too little time is allocated to focusing on important issues and distilling meaningful information from data that can be used for improvement. When the purposes for which data are collected and used become more intentional and explicit, decision-making at every level – government, system-wide and within institutions – can become more effective (Jones, 1982).

Properly balance supports and incentives in order to advance goal attainment

The need to balance incentives and supports in budgeting is a universal issue. A desire to improve results has periodically led to budget strategies that emphasise incentives and competition among students, faculty and institutions. These efforts raise a number of considerations.

An incentive is not efficient if it does not increase productivity on the margin. When resources are allocated based on performance, budgets run the risk of simply making high-performing institutions better off, without any additional gains in productivity or quality beyond those already obtained. At the same time, such an approach may allocate resources away from lower-performing institutions that need them to improve productivity and quality.

After-the-fact rewards for achievement can be useful in sustaining an individual's morale and productivity, and for inspiring others to higher

achievement. Offering formulaic "bonuses" in advance, though, has not been demonstrably effective. In fact, some behavioural economics research indicates that "high stakes" conditional rewards generate stress and dysfunction and that systematic bonuses do not improve performance (Ariely, 2010.) An "efficient" reward typically achieves the benefits of recognition and encouragement with a relatively small sum.

The use of formulaic budgetary incentives for institutions can be problematic as well. It is natural to encourage institutions to do well and to recognise them for their achievements. However, the efficient use of public money must also be a high priority. Sound principles of public policy suggest that funds should be provided to institutions for explicit public purposes, not simply as a reward for past services. It can be good budgetary practice to provide resources to a high-performing institution to expand its services or improve further the quality of its work. It can be equally good practice to provide resources to a lower-performing institution to improve its productivity and quality. In either case, though, the objective is to obtain more value for money, not to pay more for value already delivered.

In this regard, one key issue that affects Kazakhstan and other countries is the increasing use of national and international rankings of institutions, often based on various indicators of prestige and research productivity. Many institutions have allocated significant effort and staff time to understand these rankings and develop strategies to improve their position in them. The popular appeal of such rankings is undeniable, and they have clearly focused the attention of many universities on the criteria on which the rankings are based.

In most cases, rankings criteria emphasise indicators such as research funding, faculty awards and publications, and citations of faculty publications in the scholarly literature. For various reasons, however, it is difficult to conclude that rankings have unambiguously improved higher education – and in some respects they have been harmful:

- No rankings system is based on the full range of factors that determine institutional quality and effectiveness. Many of them are based on a set of factors closely associated with selectivity and research prestige, which reflect established marketplace advantages and wealth more than actual or improved effectiveness. Institutions with modest resources but that do a good job educating average students rarely achieve high rankings.
- In ranking systems, the "deck" is stacked in favour of those at the top. Significant gains in rankings in the top levels are rare, and small changes are more likely to be caused by measurement noise (or data manipulation) than by actual differences in performance over time.

While a new ranking scheme with different factors and weights may yield different results from an established one, it is extremely difficult for an institution to move up rapidly over any significant distance in rankings. Rankings are more volatile among institutions farther down the list, but year-over-year changes rarely signify substantial differences that need to be taken seriously.

- Real progress in higher education comes not from improving in comparison to others (as measured imperfectly by various ranking schemes), but rather from improving in terms of absolute indicators of achievement such as the acquisition of knowledge and skills, and the use of knowledge to solve problems and spur innovation. Every person and every institution can improve and be successful on these absolute scales. While comparisons may be inevitable, and competition for recognition may help motivate achievement, movement on a scale in comparison to others is no substitute for actual achievement.

Build the capabilities of the institutions and individuals who play an important role in meeting objectives: provide them with essential supports, professional training, delegation of responsibility and operational flexibility.

The effectiveness of a system of higher education depends on a high degree of competence and capability at every level. While some jobs are more demanding than others, nearly every job in a college or university requires sophisticated knowledge, problem-solving capabilities, independent judgment and adaptive capabilities. An effective system will recruit and retain competent people for these jobs; provide ways to help them build their capabilities; and give them the flexibility and support that professionals need to succeed in complex tasks.

This does not imply autonomy without accountability. Effective systems are clear about objectives, and they work to improve performance. However, they acknowledge the importance of professional expertise and do not attempt to prescribe how the complex tasks of higher education should be accomplished. Instead, they recognise that more than one approach to a problem can be successful, and that freedom to pursue different pathways frequently produces greater innovation and improvement.

Increasing system efficiency

Efficient financial policies will avoid waste, enhance cost-effectiveness and be responsive to changing needs. The next four criteria address these issues.

Allocate funding differentially among institutions and purposes, in order to reflect differences in the cost of different missions

The effectiveness of a system of higher education requires that sufficient resources be provided for the success of each individual mission within the system. However, the costs of different missions differ, and they cannot all be funded at the same level. For instance, graduate instruction is more expensive than undergraduate instruction, primarily because class sizes are smaller. Disciplines that require laboratories and expensive equipment are more expensive that ones that do not. Travel expenses are needed for some kinds of research and not for others. Faculty who have advanced qualifications and research expertise can command higher salaries.

Developing an appropriate and accepted basis for financing the varied missions of colleges and universities can be a difficult challenge for government financial policy. Evidence, tradition, debate and negotiation will all play a role in determining what resources are made available for different purposes.

While evidence certainly should be the most important factor in determining the costs of different programmes, there is no authoritative standard against which to measure the cost of instruction for different disciplines and levels of instruction. Nevertheless, data are available to support comparisons. Where formulas are used for budgeting, different estimates are often provided for different disciplines and levels of instruction. For example, a number of states in the United States have analysed actual costs over a number of years, and a summary of results of their studies has been published by the State Higher Education Executive Officers (SHEEO, 2010). These studies show some consistency in patterns across disciplines and levels of instruction but considerable variation as well.

Instructional cost studies, coupled with the examination of funding approaches in other countries, can be used as a point of reference for examining the different levels of funding provided for different programmes and different types of institution in any given country. However, no amount of study can produce a flawless formula, that is, a procedure for allocating resources by "automatic pilot." Cost analysis can and should be used to inform budgetary decisions, but the decisions themselves should not be wholly delegated to an analytical procedure. In the end, success will depend not on good budgetary formulas but on analysis of the effectiveness and needs of each particular programme. The responsive management of resources, based on solid analysis, can help a system and the institutions within it become more successful.

In considering the differential allocation of funds for different purposes, one fundamental question seems particularly relevant: is the country getting

the results it needs from all of the missions of higher education? Every legitimate mission – whether teacher education, technical education, the arts and humanities, applied research, fundamental research or graduate education – needs adequate resources. A comprehensive financial policy will take seriously all of these needs and make sure funding differentials are justified.

On the other hand, institutions and programmes in every system of higher education are tempted by "mission creep" – the desire to expand missions to include more expensive and prestigious functions. This might include more research, more doctoral education, more advanced professional programmes, etc.

When graduate education and research are dispersed across too many institutions, both the efficiency and effectiveness of higher education are likely to be compromised. It is difficult to achieve excellence in fundamental research without establishing a critical mass of faculty and advanced graduate students in a few places, and it is difficult to achieve excellence in instruction when faculty, whose primary responsibility is instruction, are encouraged to generate publishable research but are not explicitly rewarded for instructional excellence. However it is also possible to err by over-concentrating graduate education and research in too few institutions. Truly excellent systems of higher education are not created and sustained via simplistic decision rules and formulaic approaches. They are shaped through thoughtful decisions about resource allocation based on an analysis of priorities and on the potential contributions of every institution in the system.

Ernest Boyer's *Scholarship Reconsidered: Priorities of the Professorate* argues for an expansive view of scholarship which includes four categories: the scholarships of discovery, of application, of synthesis and of teaching. All faculty should be involved in scholarship of some kind, but experience suggests that only a small number of faculty are capable of doing high-quality scholarship to discover new knowledge. The motivations for "mission creep" may be diminished if the value of all forms of scholarship are more explicitly recognised and rewarded (Boyer, 1990).

Allocate resources to priorities, and identify unproductive allocations of resources for activities where results are below acceptable standards

Every organisation or system that has existed for more than a few years has an established pattern for allocating its resources. That pattern, the status quo, has enormous power for shaping future resource allocations. Aaron Wildavsky's *The Politics of the Budgetary Process* famously documented the power of incrementalism in budgeting in the United States Congress, and that is observed in democracies around the world (Wildavsky, 1964).

Although budgetary incrementalism is often derided as a drag on progress, it can also be a force for stability and predictability, which are necessary conditions for organisational effectiveness. Effective financial policies must find a means of putting resources behind priorities. They must respond to emerging priorities and identify programmes whose importance is fading. They must also recognise changes in organisational circumstances that indicate that additional or fewer resources are justified.

To give one example: staffing ratios and faculty workload need to be systematically examined in order to determine whether they are both effective and as efficient as possible. Increases in efficiency can help provide resources to improve faculty workloads and salaries or to finance emerging priorities. An examination of administrative costs and positions can often discover opportunities to make better use of existing resources. Furthermore, an analysis of institutional workloads and resources might find opportunities for reallocation and change that would improve system effectiveness. For instance, Box 6.2 gives a final example of how student financial support has been reallocated in the Netherlands to enhance efficiency and effectiveness.

Box 6.2. **Recent changes to student financing in the Netherlands**

Prior to September 2015, all Dutch higher education students, regardless of parental income, were entitled to a monthly block grant from the government of EUR 100 if they lived with their parents or EUR 279 if they did not live at home. However, the Dutch government eliminated these grants and reallocated the USD 1 billion in savings to income-contingent student loans and grants, and to investments that seek to enhance the quality of teaching, learning and research.

New students now have the option to take out an income-contingent student loan with lenient repayment terms. Also, approximately EUR 200 million to EUR 300 million per year will be allocated as grants to students whose families earn less than EUR 46 000 a year.

Sources: Ministerie van Onderwijs, Cultuur en Wetenschap www.iu.qs.com/2014/06/netherlands-student-grants-to-be-replaced-by-loans/; https://duo.nl/particulier/studievoorschot-engels/measures.jsp

Avoid over-reliance on formulaic approaches to budgeting and resource allocation that foster inflexibility and reduce the ability to adapt to changing needs

The advantages of using formulas to distribute resources make these a popular tool in governmental policy. Formulas are often based on an analysis of need and workload that gives a sense of rationality and fairness. They make it possible for institutions and agencies which depend on governmental funding to have a reasonable measure of funding predictability from year to year. However, it may become impossible or impractical to allocate resources

on anything but a formulaic basis when a governmental programme supports many entities.

In some respects, then, resource distribution by formula is inescapable. Yet inherent disadvantages come along with the advantages of this approach. Formulas have a tendency to create incentives that may not be fully productive. Some governments, for example, have moved away from measuring workload for funding and moved towards measuring course completions. This happened as it became clear that certain institutions with high dropout rates were enrolling students but not providing the supports necessary for completion.

Formulas also have a tendency to presume uniformity where it does not exist or to impose uniformity where it is not functional. It is difficult to construct a formula that properly reflects the diversity of needs that exist within a set of higher education institutions. In striving to reflect diversity, formulas typically become quite complex – and perhaps even incomprehensible to all but those who work with them on a daily basis.

Although rapid change can be disruptive and dysfunctional in a system, it may be possible to improve the effectiveness and efficiency of resource allocation by critically examining with stakeholders the basis and consequences of fiscal policies that operate by formula. Significant improvements might be achieved by addressing areas where adjustments are warranted. Many effective organisations subject routine processes to such a critical review almost continuously.

Ensure integrity through appropriate controls

Financial integrity is not automatic in any system. It can be assured only through systematic procedures to prevent abuse, and to discover and correct abuse when it has not successfully been prevented. Financial controls and audits are indispensable. Yet different approaches to financial control have different consequences, and what is "appropriate" will depend on the setting and circumstances.

Assuring financial integrity by controlling transactions before they occur – a pre-audit system – is inherently much less efficient that a post-audit system that establishes general standards for financial integrity and that exercises control and assures compliance by auditing to determine whether those standards have been observed. Post-audits have typically found that only a sample of transactions need be audited to assure reasonable and adequate levels of compliance.

A pre-audit system can lead to redundant numbers of decision-making staff. A post-audit system gives individual decision-makers both latitude and

responsibility for making cost-effective decisions, and for strictly avoiding self-dealing, bribery or the misappropriation of funds. If the standards are not observed, decision-makers are held accountable, and in serious cases they are terminated or prosecuted.

Clearly a post-audit system requires both well-understood and widely observed standards of practice, and a well-trained, experienced auditing profession of demonstrated integrity. Most governments employ both pre-audit and post-audit financial controls, depending on the size and nature of particular transactions. Pre-audit financial controls, however, are more costly and cumbersome than post-audit controls, and they do not avoid the need for after-the-fact audits. If pre-audit controls can be reduced without sacrificing essential financial integrity, the efficiency of the educational system will be improved.

Observations on higher education finance in Kazakhstan

The 2007 study of higher education in Kazakhstan undertaken by the OECD and the World Bank and the 2013-14 *Roadmap Project* (Nazarbayev University Graduate School of Education, 2014), identified a group of core financial issues that remain relevant for this review:

- total levels of investment in higher education
- the use of private institutions as a major provider
- the extent to which private sources finance higher education, as compared to public supports
- the adequacy of funding for research and development
- the mechanisms used to allocate resources and to achieve efficiency and accountability.

Figure 6.1 summarises the specific recommendations of the 2007 OECD/World Bank review and the status of their implementation in early 2016. Many of the recommendations have not been implemented, but this is perhaps unsurprising to students of financial policy. Because of funding's central importance and the number of stakeholders that it affects, it is difficult to make rapid, non-incremental change in the way governments distribute it. For these very same reasons, though, it is important to develop clear, purposeful strategies to improve financial policy and to pursue these strategies over time.

Figure 6.1. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD/World Bank recommendations	Implementation status
Raise the proportion of public spending for education in Gross Domestic Product.	No material change.
To maximise the efficiency and equity impact of the voucher system, increase the tertiary education budget, thereby reaching a greater share of the total student population.	No material change.
Allocate at least 20% of the national budget for the education sector, and allocate at least 15% of the education budget for tertiary education.	No material change.
Increase funding for research, most of which should be allocated to research teams and projects on a competitive basis, with independent peer reviewing of research proposals.	New research competitions have been established utilising peer review. However, funding for research and development in Kazakhstan – despite some recent growth – remains quite small in comparison to most other countries.
Separate clearly the voucher and scholarship elements of the education grant by, establishing a distinct scholarship fund to attract students into study programmes of high national or regional priority.	This recommendation has not been implemented, but a new programme ("Serpin") has been established to encourage students, from areas of higher unemployment, to study in regions with a shortage of well-trained workers.
Allow public tertiary education institutions to operate under the same financial management rules as private institutions, including receiving the amount corresponding to the education grant and other government subsidies in the form of a block grant that can be used flexibly within the context of sound financial management practices.	This has not been implemented.
Provide equal taxation regulations for all tertiary education institutions.	Status unclear.
Require all tertiary education institutions to manage their resources under standard and transparent financial practices, and to prepare annual financial reports that would be audited independently.	While a few institutions have received more flexibility through a joint stock company structure, the general financial management system has not changed.
Introduce provisions (collateral waiver, interest rate subsidy, etc.) to address the issue of affordability of the new commercial student loan scheme for the neediest students.	This has not been implemented.
Explore the feasibility of setting up an income contingent student loan system that could, in principle, be more efficient and equitable than the new commercial scheme.	Unclear if this has been seriously explored, but no changes have occurred.
In order to ensure an equitable distribution of public resources at the tertiary education level, a reliable management information system should be put in place to collect information on key personal and social characteristics of students (socio-economic origin, gender, rural/urban origin, ethnic origin, etc.) that would be used to analyse the benefits incidence of public spending and guide corrective policy measures.	Education data remains rudimentary and often unreliable.

Sources: OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan*, http://dx.doi.org/10.1787/9789264033177-en.

Levels of investment in higher education

Kazakhstan's public spending for education stood at 3.6% of Gross Domestic Product (GDP) in 2014, with spending for higher education representing about one-tenth of this, or 0.3% of GDP. In absolute terms, public higher education spending stood at about KZT 133 billion, or roughly USD 400 million at mid-2016 exchange rates. These levels of investment as a percentage of GDP are substantially lower than in many peer countries and far below the average investment in OECD countries[1] (OECD, 2015).

Private funds, which flow primarily through tuition fees, account for the largest share of financing for higher education in Kazakhstan. In particular, private funds are the predominant source of revenue for private institutions, where 88% of students are self-financed or supported from non-public sources. Even at public institutions, though, more than half the students (51.4%) are self-financed. Overall, private spending on higher education in Kazakhstan represents about 0.7% of GDP: the addition of private spending thus still does not bring the country up to levels anywhere near those of most of its peers or aspirational peers.

Public funding of higher education will be the prime focus of this chapter. The percentage of GDP allocated as public funding to education is a relevant indicator for the policy makers. However, absent an analysis of how money is spent or of how money might be spent more productively, it does not provide much policy guidance. Simply spending more is unlikely to advance national objectives.

In higher education Kazakhstan's current allocation of public resources is concentrated on three objects (Figure 6.2):

- providing state tuition grants and stipends for students with high scores on the Unified National Test who enrol in selected academic programmes
- supporting international study through the Bolashak programme and other related institutional activities
- supporting student grants and other expenses at Nazarbayev University.

Public funding finances capital improvements – primarily, but not exclusively at public institutions – and it is also the principal source of support for research and development. As noted in Chapter 5 of this review, funding for research and development in Kazakhstan, despite recent growth, remains quite small in comparison to most other countries.

The nation's financial strategy for higher education has been focused on two over-riding objectives – internationalisation and financial support for the

most academically able students. These objectives are clearly central to broad national goals for higher education, but they concentrate resources at the top of the system. It is unlikely that these kinds of targeted investments will by themselves yield the results needed for the nation as a whole. Additional priorities warrant attention and greater financial support.

Figure 6.2. **Overview of the public higher education budget in Kazakhstan in 2015**

2015 higher education budget (in thousands of KZT)	Purpose	Percentage of total
Capital construction	4 221 137	2.80
Other capital expenditures	4 579 217	3.00
State grants for instruction and student stipends	87 800 778	58.00
Bolashak programme	14 895 440	9.80
State grants allocated to students attending Nazarbayev University	16 471 289	10.90
Other operating and capital expense at Nazarbayev University	22 911 569	15.10
Other expenses	403 502	0.30
Total	151 282 932	100.00

Sources: Ministry of Education and Science of the Republic of Kazakhstan, Statistics (2015).

Many areas of the instructional component of higher education could be strong candidates for additional public investment, but three stand out as priorities based on the OECD review team's observations and on previous studies of education in Kazakhstan:

- Faculty compensation. According to the National Report on the State and Development of the Educational System of the Republic of Kazakhstan, salaries in education at every level, including higher education, fall below the national average (JSC Information-Analytic Center, 2015a). Because educational attainment is high among employees in the education sector, the salaries of educators are almost certainly below the compensation for workers with similar levels of knowledge and skill. Kazakhstan cannot achieve a world-class education system without attracting and retaining highly talented people as teachers and researchers. More competitive compensation is an essential step toward achieving national educational goals.
- Tools for assessing quality and improving instruction and student learning. In the 20th century, and especially in the United States, multiple-choice tests and measurements were used to identify students likely to be successful in higher education. While these instruments have become quite sophisticated in design, they are increasingly falling out of favour for a number or reasons,

including their inability to assess problem-solving abilities, creativity, and critical thinking; the potential for some students to improve test scores through coaching on test-taking skills without actually achieving high levels of knowledge and skill; and their inadequacy for helping students and teachers improve student learning. Such assessments are also a weak basis for assuring the quality of instruction in colleges and universities. Accordingly, multiple-choice examinations are increasingly being abandoned or supplemented by assessments that emphasise the direct examination of student work in terms of more complex and authentic learning objectives.

- In Kazakhstan, multiple-choice examinations are being used as a high-stakes basis for university admission and eligibility for state grants, and as a quality assurance indicator of the attainment for graduating students (see Chapter 3 for more detail). These examinations do not attain the level of quality of the multiple-choice tests traditionally used for these purposes in other countries – and in any event, highly respected institutions around the world tend not to rely solely on such tests for important decisions. Better assessments of student learning (including better standardised tests) are needed in Kazakhstan to improve learning and enable more robust quality assurance. The costs that would be involved in this are comparatively low, and public investments would pay substantial dividends in terms of national goals.
- The net price of higher education. Tuition and fees at public and private universities in Kazakhstan represent a substantially higher fraction of per capita GDP than in most countries. Current policies now provide free higher education for approximately 30 000 students through state grants, but this represents only about one-quarter of the cohort of students who complete the 11th grade. Thus, most students in higher education must pay both living expenses and tuition and fees. As Chapter 3 outlines, there is a lack of financial assistance to help students meet these expenses. It was reported to the OECD review team that private costs undoubtedly prevent qualified low- and moderate-income students from enrolling; they are likely also a factor causing many who enrol to drop out without completing a credential.

Reducing the net price of higher education for those who face affordability challenges is not the same as reducing posted tuition fees. Rather, it implies targeted investments that can achieve real incremental gains – helping students who could not otherwise attend higher education.

Resource allocation mechanisms: support for instruction and access to higher education

The principal governmental mechanism for supporting higher instruction is through "state grants" that are awarded to a set number of students and are allocated among academic programmes throughout the country. Students receiving a state grant receive full tuition payment plus a stipend to cover their living expenses.

While the procedure for system-wide grant allocation was not completely transparent to the OECD review team, interview evidence suggests that institutions bid on new state-funded spots, and that state and national institutions currently control the majority of these spots. Some private institutions reported to the team that they "did not participate" in the state grant system. At any rate, while students at both public and private institutions are in receipt of state grants, a much larger percentage of students attending private institutions pay their own fees. These students (like students at private institutions overall) are often concentrated in areas where state grants are comparatively rare (e.g. social sciences and law).

Students can obtain a state grant based on their score on the Unified National Test (UNT) or the Complex Test (CT), and on their willingness to pursue a degree in a field to which a specified number of state grants is allocated. The use of competition for the allocation of resources is a common feature of budgeting in Kazakhstan. The provision of state grants to students with the highest scores on the UNT who apply to specific programmes of study is the most prominent and significant of these competitions. Research grants are also awarded on a competitive basis. The competitive allocation of research funding has been consistently encouraged as an effective budgetary strategy, but recent reviews have questioned the state grant system as it exists in Kazakhstan (OECD, 2007; Nazarbayev University Graduate School of Education, 2014). It is useful to explore the reasons for such conflicting advice.

Employing a competitive peer review process for awarding research grants is widely considered to be an effective way of allocating limited resources. Normally the proposed research is unlikely to be pursued without financial support. The effort of preparing a proposal builds the research capabilities of those applying, even if they are not awarded a grant in the current round. The judges of the competition can also assess the potential value of the research as well as the capabilities and motivations of those preparing the proposal.

The Kazakhstan programme of state grants has some similar characteristics, but there are offsetting considerations. This programme provides very generous support to students with high scores on the UNT and who apply to academic programmes for which state grants have been allocated. The use of an objective test reduces the risk of favouritism and

the appearance (though perhaps not the reality – see Chapter 3) of unfair advantage. The programme may induce some students to stay in the country for higher education who might otherwise go elsewhere – although it was reported to the OECD review team that families which have sufficient means often prefer to send their children to study abroad. The programme also steers students toward fields that are deemed a state priority. Inefficiencies, opportunity costs and in some cases perverse incentives may be offsetting the value of these two outcomes.

The state grant is inefficient to the extent it spends public money with limited influence on student behaviour. The grant is certainly not the only factor motivating academic achievement, which has many intrinsic and extrinsic rewards on its own account. In many countries, nearly all high-achieving students whose families are able to pay for higher education enrol and pay their own way without state support: the financial and social rewards of a higher education credential are sufficient motivation for enrolment. High-achieving students often do receive scholarships and grants to recognise their academic merit, but unless they can demonstrate financial need they rarely have their full tuition and living costs paid.

Kazakhstan's approach to funding students is inefficient because it forfeits the opportunity to encourage the higher education enrolment of academically able, lower-income students who have lower UNT scores. Every able student who fails to enrol in higher education or drops out because he or she cannot afford to pay for it is a loss to the nation. Both the weaknesses of the UNT as a measure of academic potential, and the sharp distinction it makes between students just above and just below the cut scores for state grants, contribute to these opportunity costs.

Finally, some of the employers interviewed by the review team suggested that students choose academic majors based on the probability of receiving a state grant, rather than on the basis of their interests. These students then become unmotivated workers in internships associated with their academic programme, but they cannot transfer programmes without losing their grant. The "steering" of students toward fields of study that may not be intrinsically of interest to them is unlikely to be productive in the long run. It is more likely to produce a waste of instructional resources and of the student's time, and may contribute to non-completion.

In summary, Kazakhstan's decision-makers should review five central issues concerning state grants:

- The number of grants may be smaller than justified by the nation's education needs.
- Although there are some set-asides for vulnerable groups and low-income students, grants are typically provided without any

consideration of financial need. An appreciable number of lower-income students without grants, but who would be able to succeed in higher education, are likely not enrolling in academic programmes.

- The amount of the grants, full-tuition and fees plus a stipend, is almost certainly higher than what is needed to motivate the enrolment of higher-income students, and it is expensive for the state.
- Tying the grants to a specific academic programme may cause students to choose fields of study for financial reasons rather than their actual interests, and it locks them into a choice that might not persist as they cannot easily change.
- Scores on the Unified National Test may not be the best, fairest predictor of academic ability and postsecondary success.

These issues involve judgments about financial need; the ability to benefit from higher education; the fairness of the current system; the likely influence of the current state grant policies and practices on student behaviour; and about whether it is truly feasible to anticipate future labour market needs and meet them by allocating places in a higher education system. Other countries have addressed these issues in a variety of ways – some with income-based loan repayment systems, some with a combination of merit-based and need-based grant aid, some with combinations of loan and grant programmes (OECD, 2008; Johnstone and Marcucci, 2010).

Most countries have found that student responses to real signals in the labour market work as well or better than central planning or heavy-handed incentives that seek to match labour market supply and demand. Fairness of access, fairness in pricing, support for academic ability and affordability are all clearly relevant issues for this policy discussion. Of course, no country has found a perfect solution to these complex issues. Continuing evaluation of the effectiveness of the current institutional funding system in Kazakhstan, and a willingness to explore improvements, should thus be important priorities for policy makers.

Functional and dysfunctional uses of formulas

The Government of Kazakhstan, like most governments, takes both formulaic and non-formulaic approaches to allocating higher education funding. They include, for instance, decisions about whether to build facilities or whether to change the status of a higher education institution. It is evident that many decisions about allocations within the system are made by formula, predetermined by policy, or governed by law. The OECD review team met some institutional leaders who argued that particular laws or formulaic policies are impractical, unfair, or unworkable. The team also met many

more, though, who simply accepted the law and rules as they exist, and emphasised that the rules were being faithfully observed. Eventually, such non-critical compliance can work against systemic effectiveness.

The current budgetary system in Kazakhstan has a number of explicit categories that distinguish funding for different purposes, but these differences sometimes appear to be based on coarse-grained decision rules that are applied in a mechanical way. For example, the pay for faculty and all staff at national universities is 1.7 times the pay for faculty and staff at state universities in similar job classifications. Although legitimate justifications for differential salaries may exist, it seems unlikely that every position of every kind in a national university is worth 70% more than similar positions in a state university. As a result of this policy, substantially different amounts of funding are provided for undergraduate and master-level instruction at national universities compared to other universities. The basis for these differences appears not to be well understood among universities, and it is difficult to believe that they actually reflect differences that would emerge if salaries were negotiated in an open market for each university. These differences thus represent an inefficient allocation of resources.

Allocating resources to priorities and assessing effectiveness

At the national level, Kazakhstan's budgeting for higher education has demonstrated both a commitment to innovation and a vision for a better future. The creation of the Bolashak programme and Nazarbayev University are bold initiatives to leverage the resources and expertise of the international community to improve higher education in Kazakhstan. Ongoing efforts to enhance the quality of research, to integrate research and teaching in national universities, to expand early childhood education and improve secondary education, to encourage students to study in regions where there are employment needs, and to reduce the cost of vocational education are likewise indicators of responsive budgeting to meet national priorities.

Thus far it appears that the principal financial strategy for improving and expanding higher education has been to undertake new initiatives, largely as additions to the existing system. These include promoting the development of the private education sector and the creation of the Bolashak programme, Nazarbayev Intellectual Schools, Nazarbayev University, etc. Adding new initiatives is a natural strategy for a system of education seeking rapid improvement.

Careful evaluation of new initiatives can lead to a refocusing that generates improvements over time. This has been occurring in Kazakhstan, and it is likely to become increasingly necessary as the nation seeks to diversify its natural resource based economy. Examples include the "optimisation" of

the private sector, and the refocusing of Bolashak scholarships to emphasise graduate education after the creation of Nazarbayev University.

Kazakhstan could further improve the effectiveness of the higher education sector by continuing the careful evaluation and refinement of new initiatives, and by probing more deeply into the effectiveness and efficiency of long-standing practices. For instance, while it is widely hoped that the contributions of Nazarbayev University will significantly benefit the entire educational system, it is also clearly acknowledged that its financial model cannot be replicated in other places. Furthermore, the OECD review team had trouble identifying concrete instances of how the Nazarbayev University model has been used to make substantial improvements at other universities in Kazakhstan. This calls into question whether the significant investments that are being made in the new university are generating the benefits that might be expected of them.

The *National Report on the State and Development of Educational System in the Republic of Kazakhstan* (JSC Information-analytic center, 2015b) offers another example of a practice that would benefit from evaluation and possible reconsideration. The report employs an elaborate rating of educational performance in each region of the country based on a number of factors. While it produces rankings from year to year, it is not evident from the report why performance varied from year to year. Nor does the report provide much analysis explaining the differences in performance among regions. It would be necessary to explore the underlying causes of these differences in order to use data to improve the performance of institutions and the system as a whole. Measuring performance to develop rankings is not enough to improve performance, especially when the validity of the measures and the causes underlying them are not fully understood.

Finally, the extent of centralised control over higher education in Kazakhstan is a damper on initiative and creativity at the institutional level. At the national level, goal setting and a spirit of experimentation have resulted in significant actions to improve the system. The OECD review team observed a similar level of energy and initiative at a few institutions and among some faculty, but it was not widespread. Frequently when asked about certain institutional practices, the response was "we follow the law." Providing space for priority setting and reallocation at the level of schools and colleges should lead to system improvements.

Building the capacity of the system

Kazakhstan's recent initiatives, especially the Bolashak programme and the creation of Nazarbayev University as a comparatively autonomous institution, are investments in developing the capabilities of education professionals. The Bolashak programme sends some of the very strongest

students in Kazakhstan abroad for their education. Nazarbayev University provides in-country higher education for strong students; it draws on advice from internationally respected universities and employs faculty from abroad. Nevertheless, realising the nation's educational aspirations will require an intentional strategy to develop a much higher-level of administrative and professorial capability throughout the higher education system.

The Bolashak programme appears to be infusing an international perspective into higher education and other sectors of Kazakhstan; people to whom the OECD review team spoke generally considered it successful. For the future, the challenge will be to create the conditions necessary to retain the Bolashak grant recipients after the completion of their mandatory service and to integrate these talented and well-trained individuals into leadership roles in the country – including in the higher education sector.

For its part, Nazarbayev University is clearly too expensive to be a scalable model for other universities in Kazakhstan. Moreover, given the limitations on the current public education budget, the university generates significant opportunity costs for the rest of the system. It is too early to know whether the lessons learned from developing this university will successfully benefit other universities in ways that are financially feasible. Without question, though, additional resources will be required in other parts of the higher education system in order to meet national goals.

Kazakhstan clearly has the resources and potential to achieve its educational goals: many talented individuals work in the system. Promising seeds have been planted and the potential for them to grow is evident. The maturing of the system, however, will take time and call for some risk-taking. It will require that policy makers give faculty and staff the freedom to do things differently. The maturing of the system will also require professional development opportunities and changes to provide more discretionary authority at the campus level. Further delegation of the responsibilities previously or currently held by the MESRK to institutions and boards of trustees is likely to advance progress.

A rapid, dramatic transformation of Kazakhstan's higher education system is neither desirable nor possible, but the inertia present in all organisations will slow or even prevent positive changes unless concrete, deliberate actions are taken to achieve them. Changes in financial policy as well as in the governance framework will help build capabilities of the people in the system.

Achieving efficiency and assuring integrity

Achieving efficiency and assuring integrity are two facets of a fundamental purpose – the desire to use resources well and avoid their deliberate or unintentional misuse.

Information

By inviting multiple outside reviews, Kazakhstan has demonstrated openness to learning and innovation in its approach to budgeting and financial policies. The Country Background Report prepared for this review (JSC Information-Analytic Center, 2015a) and the *National Report on the State and Development of the Educational System of the Republic of Kazakhstan* (JSC Information-Analytic Center, 2015b) suggest that an enormous amount of information about the system is being collected. Apparently most of the data collection is used to assure compliance with law and regulation.

It would be helpful, though, to evaluate the current role of information in the system and to consider how information might be more effectively used to reach national goals. Although a great deal of higher education information is collected, the OECD review team noted important data deficiencies, and observed that data and information may not always be used effectively to ground policy decisions. As institutions progressively take more responsibility for their internal operations, both they and the Ministry will discover the need for new analytical tools.

Financial controls and audits

The scope of this review was too wide, and the amount of time on site too brief, to develop a comprehensive understanding of the system of financial controls and audits employed for higher education in Kazakhstan. However, the review team's impression is that decision-making is predominately centralised, either through a system of required approval before purchase or via extensively detailed regulations. Chapter 7 discusses these matters in more depth.

Public institutions cannot retain revenues, so it is common for virtually all but an insignificant fraction of revenues to be spent every year. This policy removes natural incentives for efficiency and cost effectiveness, since there is no benefit to be gained from not spending available resources. If institutions were able to retain funds, to take more responsibility for managing their own revenue streams and to build endowments, incentives for cost-effectiveness and planning for long-term improvement would be created (see Box 6.3).

Private institutions complained about the level of governmental regulation but agreed that, in the area of procurement at least, they have much more flexibility than public institutions. Without exception, researchers in public universities questioned the necessity of the level of control involved in public procurement processes. One faculty member commented that it is far easier to raise money for research than to spend it.

Box 6.3. **Financial regulations and retention of revenues**

A survey of 29 European countries identified the following statistics regarding the ability of higher education institutions to keep any surpluses they generate.

- Only 4 countries do not allow higher education institutions to keep their surplus: Cyprus[1], Greece, Ireland and Lithuania.
- 15 jurisdictions allow the surplus to be kept without restrictions: Austria, Denmark, Estonia, Finland, France, Hesse, Hungary, Iceland, Italy, the Netherlands, North Rhine-Westphalia, the Slovak Republic, Spain, Switzerland and the United Kingdom.
- 3 countries allow higher education institutions to retain their surplus up to a maximum percentage: the Czech Republic, Norway and Sweden.
- 5 countries require approval of an external authority for higher education institutions to keep their surplus: the Czech Republic, Latvia, Luxembourg, Portugal and Turkey.
- 3 jurisdictions allow higher education institutions to keep their surplus, but its allocation is pre-determined by an external authority: Brandenburg, Poland and Turkey.
- One jurisdiction allows higher education institutions to keep their surplus kept but imposes other types of restrictions: Belgium-Flanders.

1. Notes by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Sources: This and other information on (financial) autonomy in Europe can be found at: www.university-autonomy.eu/dimensions/financial/.

It is evident that observing financial regulations is a significant requirement in all major decisions – for hiring staff, purchasing equipment, letting a contract, etc. This is particularly the case for public institutions. Prior approval from an external authority is often required before a transaction can be completed.

There are of course perennial debates over the appropriate and necessary degrees of governmental regulation of institutions of higher education, and these occur in every country. In the specific case of Kazakhstan, though, the findings of this current review are consistent with those of the 2007 OECD/World Bank review and the Roadmap report team in 2013-14.

Government regulations and financial practices provide very little flexibility and limited incentives for institutions to become innovative and more efficient.

The role of the private sector

The creation of many private higher education institutions in the post-independence period was initially part of a strategy to rapidly increase higher education opportunities and reduce youth unemployment. Most of the revenues of these institutions were, and continue to be, provided through self-paid student tuition and fees. By 2005, private institutions accounted for 61.4% of the institutions in Kazakhstan, and 46.3% of postsecondary enrolment (OECD/World Bank, 2007).

Over the past ten years, there has been a sharp decline in the number of institutions in Kazakhstan. This stems in part from an effort "to improve quality and efficiency and assure diversity" in the system of higher education (Nazarbayev University Graduate School of Education, 2014). The reduction occurred almost entirely in the private sector where the number of institutions fell from 130 in 2004 to 77 in 2014 (JSC Information-Analytic Center, 2015a). It was reported to the OECD review team, though, that the reduction in the number of private institutions is more apparent than real: much of it stemmed from institutional mergers, not closures. The share of students studying in private institutions has not fallen. In fact, it has increased.

Although most OECD countries rely primarily on public institutions to provide higher education, the private sector plays the predominant role in Japan and Korea. It also plays a significant role in the United States, where approximately 30% of enrolments are at private institutions. In the past quarter century, Kazakhstan has gone from a higher education system that was small but virtually entirely publicly owned and operated to one where most institutions and slightly more than half the enrolments are in the private sector. Without question, the growth of the private sector has created educational opportunities that would otherwise not be present. Private institutions are contributing significantly to the human capital of the nation. It is difficult to imagine the future of higher education in Kazakhstan without a significant role for the private sector, but how that future unfolds is an important question.

Policy deliberations on the future will need to consider the respective roles, responsibilities, and privileges of public and private institutions. Are their responsibilities parallel and similar or somewhat different and distinctive? Is the national interest served by these sectors playing complementary or competitive roles? If the former, in what ways and along what dimensions should they be distinctive and complementary? If the latter, in what areas should they compete and what should be the ground rules for competition?

From the point of view of finance, the following questions arise: what should be the role of the state in financing public and private institutions? Should there be different criteria for public and private institutions? Should the state provide more assistance to students attending institutions with higher costs, be they public or private? Should different kinds of assistance be provided to students attending different institutions?

It is evident from the review team's visits to public and private institutions that these questions are very much on the mind of educational leaders in both sectors. The seeds of a vigorous, competitive public debate between the sectors have been planted.

Recommendations

This chapter has raised questions, discussed issues and suggested actions that might improve the effectiveness and efficiency of Kazakhstan's higher education in meeting national goals. The following recommendations distil the main themes of the chapter, which have also been explored to some extent in preceding chapters of this review.

The size of the public investment in higher education should be increased, bringing it more in line with levels in peer countries that Kazakhstan seeks to emulate.

- Kazakhstan's public investments in higher education do not match the country's ambition to develop world-class skills and knowledge. Private sector investment, while greater than public investment, does not make up the gap.
- New public investments should be carefully allocated in ways that: help attract and retain the talent essential for a strong system of higher education; reduce artificial barriers to higher education; and ensure that sound student assessment practices foster the development of skilled graduates.

The national government should now and at regular intervals in the future re-assess its financing strategies for higher education in the context of national goals.

- An ongoing, systematic and strategic review process should ensure that financial resources are adequate, and that they are effectively allocated to achieve these goals for all institutions in the system.
- This process should actively engage a wide range of stakeholders, to ensure that it is based on sound sectorial intelligence.

The effectiveness and efficiency of the state grant system in serving national purposes should be re-evaluated.

- Kazakhstan's current system of providing students with grants for "excellence" represents a significant deadweight loss in the higher education system. Given already low public investment levels, this is something that Kazakhstan cannot afford. The grants system also has unintended effects on student choice.
- Modifications to the system, including providing grants based on the financial need of qualified students and expecting greater financial contributions from higher-income students, should be strongly considered.

The level of financial controls on institutions should be significantly reduced.

- Kazakhstan should emphasise post-audits rather than pre-audits, and it should allow institutions to retain and accumulate funds over time in order to strengthen their financial stability and flexibility, and to provide incentives for greater efficiency and effectiveness.

Note

1. The average tertiary spending as % of GDP for OECD countries stands out at 1.6% (OECD, 2015). It is important to note however that the OECD data covers all tertiary education and not just higher education.

References

Ariely, D. (2010), *The Upside of Irrationality: The Unexpected Benefits of Defying Logic at Work and at Home*, HarperCollins, New York.

Boyer, E. (1997), *Scholarship Reconsidered*, Carnegie Foundation for the Advancement of Teaching, Palo Alto.

Carnegie Commission on Higher Education (1973), *Higher Education; who pays? Who benefits? Who should pay?: A report and recommendations*, McGraw-Hill, New York.

Dienst Uitvoering Onderwijs, https://duo.nl/particulier/studievoorschot-engels/measures.jsp.

JSC Information-Analytic Center (2015a), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

JSC Information-Analytic Center (2015b), *National Report on the State and Development of the Educational System of the Republic of Kazakhstan*, IAC, Astana.

Johnstone, D.B. and P.N. Marcucci (2010), *Financing Higher Education Worldwide: Who Pays? Who Should Pay?,* Johns Hopkins Press, Baltimore.

Jones, D. P. (1982), *Data and information for executive decisions in higher education*, National Center for Higher Education Management Systems (NCHEMS), Boulder, CO.

Lingenfelter, P. (2016), *"Proof," Policy, and Practice: Understanding the Role of Evidence in Improving Education*, Stylus, Sterling, VA.

MESRK (2015), Ministry of Education and Science of the Republic of Kazakhstan, Statistics, http://edu.gov.kz.

Ministerie van Onderwijs, Cultuur en Wetenschap, www.iu.qs.com/2014/06/netherlands_studentgrants-to-be-replaced-by-loans/.

Nazarbayev, N. (2014), "Kazakhstan's way – 2050: common aim, common interests, common future", State of the Nation Address by President Nursultan Nazarbayev, 17 January 2014, http://strategy2050.kz/en/page/message_text20141//.

Nazarbayev University Graduate School of Education (2014), *Development of Strategic Directions for Education Reforms in Kazakhstan for 2015-2020, Diagnostic Report*, Indigo Print, Astana.

OECD (2015), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2015-en.

OECD (2014), *Reviews of National Policies for Education: Secondary Education in Kazakhstan,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264205208-en.

OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1 and Volume 2*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264046535-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan 2007*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264033177-en.

State Higher Education Executive Officers (SHEEO) (2010), Four-State Cost Study, Boulder, Colorado, www.sheeo.org/sites/default/files/publications/SHEEO_Cost%20Study%20Report_2010.pdf, Boulder.

University Autonomy in Europe, www.university-autonomy.eu/dimensions/financial/.

Wildavsky. A. (1964), *The politics of the budgetary process*, Toronto, Little Brown.

Zumeta, W. et al. (2012), *Financing American higher education in the era of globalization*, Harvard Education Press, Cambridge, MA.

Chapter 7

The governance of higher education in Kazakhstan

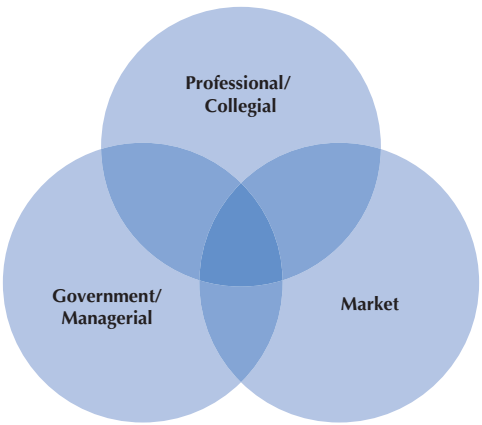
This chapter looks at governance in higher education and recent steps Kazakhstan has taken to strengthen institutional governance, enhance autonomy and accountability, and balance financial flexibility and responsibility. It also discusses the roles of the public and private sectors in higher education. Four areas of priority are identified where significant governance challenges remain: excessive financial regulation of Kazakhstan's higher education institutions; a lack of academic autonomy which discourages faculty and institutional creativity, initiative and responsibility; weak organisational autonomy of higher education; and regulation of the public and private sectors, which is excessive and lacking rational differentiation to reflect their distinctive roles.

Roles and responsibilities in higher education governance

Bases of authority and purposes for governance

Policy discussion of governance in higher education can have three focal points: the professional/collegial authority of the academic profession, the market and the government (or managerial) function. Each of these has an independent claim for legitimate authority, and in some respects their claims overlap (Clark, 1983). In most countries a role for each claim is balanced in an overall strategy for governing higher education (Figure 7.1).

Figure 7.1. **Clark's triangle of governance**



Sources: Clark, 1983 (Adapted from Santiago, P. et al., 2008).

Building on this model, the initial sections of this chapter outline general principles and considerations surrounding higher education governance. This will in turn allow the challenges facing Kazakhstan to be better framed in the second part of the chapter.

The purpose of governance is to assure that higher education's stakeholders are able to achieve the goals they have for the enterprise. These goals have been articulated in many ways, but the following common themes tend to emerge in most countries – including in Kazakhstan (for an example of how they are applied, see Box 7.1). Governments, higher education faculty and students all have particular perspectives on the process of higher education, but all three tend to seek a higher education system that:

- Is responsive to the needs of students and employers in providing well-prepared graduates for jobs in an economy that increasingly values knowledge and intellectual skills.

- Prepares students to lead fulfilling lives and to become responsible, well-informed citizens.
- Generates new knowledge, and applies knowledge to improve the quality of life and solve the practical problems faced by a country, its businesses, governments and people.
- Avoids being entirely dependent on the government and taxpayers for the revenue needed to support its operations. Generates financial support from the private sector, from the students benefiting from higher education, and from graduates and philanthropists with an interest in the common good.
- Is efficient and effective in performing all of its missions.
- Is globally recognised for its quality and for the benefits that stem from integrating the talent and experiences of the international academic community into the national higher education system.
- Achieves integrity, avoiding corrupt practices that drain resources and damage the reputation of higher education.

Box 7.1. **The new Scottish Code of Higher Education Governance 2013**

The Scottish higher education system comprises a wide range of diverse institutions with differing governing instruments, traditions and strategic mission, and the new Scottish Code of Higher Education Governance is intended to reflect this diversity. The Code is not a prescriptive set of rules but rather a set of main principles supported by guidelines and examples of good practice to guide institutions. Institutions will either have to "comply or explain". This approach promotes good governance in an effective and transparent way.

The code identifies the purpose of governance of the higher education system as promoting "the enduring success, integrity and probity of the Institution as a whole", through:

- institutional autonomy
- financial accountability and efficiency
- active stakeholder participation
- guarding against potential conflicts of interest
- maintaining and observing clear statements of authority and responsibility throughout the institution
- matching such authority and responsibility with accountability to key internal and external stakeholders.

The governing body in a higher education institution determines overall strategic direction and sets institutional values. Its activities are distinct from those of the operational management of the institution, which are decided by the senior team of administrators.

Sources: The Scottish code of GOOD HE Governance (n.d.), www.scottishuniversitygovernance.ac.uk/.

International experience suggests that if these goals are to be achieved, governments typically must play an active role in higher education. They cannot achieve these goals solely by relying on the tools at their disposal, that is, financial appropriations and government orders, regulation, information and direct provision. They also need to rely on professional expertise, non-governmental business and civil society leaders, private initiative and market mechanisms. Thus all of the three sources of authority identified in the model above are interdependent. In a well-functioning system of higher education, all three will be important and working together towards shared purposes (Maggio, 2012).

The role (and limitations) of professional expertise in governance

Excellence in higher education requires professional expertise as well as freedom for the exercise of this expertise. Advances in knowledge, in transmitting knowledge, and in solving social and economic problems do not typically emerge by simply complying with instructions and applying what already exists. They emerge when existing practice and knowledge are examined and challenged, when new approaches to old problems are tried, and when changing conditions lead to innovation and adaptation.

A key dimension of the notion of "academic freedom" is thus the belief that professional academics should have freedom to teach, do research and express their professional views without restrictions related to their employment. Such freedom is especially necessary in the intellectual space of classrooms and laboratories. This means that organisational policies should not restrict the freedom of thought, inquiry and expression of academic staff.

Independence of thought does not preclude academics from working collaboratively. College and university faculty are most effective not when working in isolation but when they are stimulated and challenged by colleagues, when their individual work is validated by colleagues and when they collaborate with colleagues to address shared problems. The broader social benefits of academic freedom explain why faculty members have a substantial role in governance at well-regarded institutions of higher education. A higher education system that does not provide academic flexibility and freedom will have difficulty attracting and retaining the talent that are required for excellence.

All this is not to suggest that flexibility and freedom can exist without responsibility to others. If an academic community becomes excessively self-referential – if it cuts itself off from the interests of its students and the surrounding community – it will lose the information and feedback it needs to fulfil its mission. If it fails to fulfil that mission, it will lose the public trust and access to the resources it needs to carry on its work. This is the reason why both the market and governments have an important role to play in higher education governance.

The role (and limitations) of the market in governance

The second source of authority, the market, is an inevitable and natural constraint on academic authority and autonomy. Payments by students to professors or institutions have long been a common means of financing higher education. Without students' willingness to study and pay for this privilege (with their fees and/or with their foregone income), higher education could not survive.

The price system and the marketplace are effective means of allocating resources and making many decisions in society. It works especially well where goods and services are widely or universally consumed, where there are many competing providers, where most consumers have access to good information, where there is freedom of choice among providers, and where consumer decisions occur frequently and have only short-term consequences.

Although a number of these conditions are met in higher education, other important ones are not. Higher education is increasingly widely "consumed", and the number of competing providers for some of its functions (instruction in high-demand fields such as computing, business, etc.) has grown rapidly. However, there are very few or no private providers for basic research, or for instruction in important fields that have low enrolment demand (e.g. much of graduate education). A government that looks to the market to meet all of a nation's higher education needs will find that important needs go unmet.

Because of the nature of higher education, the market system also creates risk for consumers. Students vary greatly in the quality and amount of information they have when they are purchasing higher education, and in their ability to "shop" intelligently among various providers. Some students have the benefit of exhaustive information to inform their decisions and possess the financial wealth necessary to choose expensive or distant providers. A great many students do not enjoy these advantages, though. If they make a poor choice, it may be impossible for them to recover from the loss of capital and time. Students who lack resources may also have a difficult time accessing private capital markets to finance their investment in education.

These factors significantly limit the potential of the market, absent governmental intervention, to meet a country's needs for higher education. The market will not respond to important public needs when profit potential is limited. It will not serve students who lack financial or geographic access to providers either. Some educational providers in the marketplace may be tempted to achieve or expand their profit margin by cutting corners on quality or to enrol students who are unlikely to benefit from their programmes.

In response to market limitations, most countries have created and sustained public institutions of higher education, provide public programmes to

financially support students attending public and independent institutions, and use regulations to provide quality assurance and consumer protection. However they have also relied on markets and competition among institutions for the benefits that these provide: attracting investment and philanthropic capital to support higher education; promoting responsiveness to the needs of students and the labour market; and providing incentives for institutions to improve through competition on the basis of quality and/or price. The market sends signals that governments, institutions and students ignore at their own risk.

The role (and limitations) of government in governance

The third basis of authority for higher education governance is the legitimacy of the sovereign state. In the 21st century, higher education is an enterprise that involves a large fraction of the population. Knowledge has become increasingly important in the world economy: in many countries, a minimum of some postsecondary education has become a *de facto* requirement for acquiring and holding a well-paying job. As a result, the question facing a 21st century government is not whether to be involved in higher education, but how to be involved in a way that will effectively marshal the capacity of institutions to meet the emerging needs of the population and the economy. Governments must consider the demands of the marketplace for talent; the needs of their people for opportunities to prosper in a knowledge economy; the necessity of identifying, nurturing and respecting expertise in higher education; and the necessity of making prudent investments in order to meet national objectives (Lingenfelter, 2004).

Different countries have pursued different strategies for providing higher education. Most have strongly emphasised the direct provision of higher education through public institutions. Some countries have relied primarily on private independent institutions, but far more have employed both public and private institutions to deliver different degrees and serve different purposes. Regardless of the chosen mix of public and private institutions, countries need to make a range of decisions about their strategies and the governance of the system:

- To what extent, for what purposes, to whom and in what ways will the state provide financial resources to advance educational attainment and research?
- What factors will the state establish as conditions for receiving public subsidies?
- What mechanisms, regardless of sector, will the state employ to ensure quality and to establish appropriate protections for students as consumers?
- What mechanisms will the state employ to govern publicly owned and operated institutions?

The effectiveness of a government's role in higher education depends on several factors:

- The quality of its overall vision for higher education in the nation. Is it sufficiently broad, deep and well-designed to meet the nation's needs?
- The effectiveness of its strategies for public investment. Do public investments achieve their intended purposes? Are they efficient? (This issue is discussed at greater length in Chapter 6).
- The effectiveness of governmental regulations and practices in assuring and advancing quality, responsiveness to public purposes and the integrity of the system (discussed at greater length in Chapter 2).
- The ability of the government to employ market forces and the abilities of others – academics, independent institutions, civic and business leaders – to accomplish purposes that are beyond the capabilities of government alone.
- The ability of the government to strike an effective balance between accountability for public purposes and the academic independence required for excellence in higher education.

One obvious limitation on governments is financial in nature. In theory, governments could levy taxes sufficient to pay all the costs of a desired system of higher education. Most governments, though, have found such levels of taxation to be politically impractical and fiscally undesirable. Higher education provides significant benefits for individuals and for many commercial and social interests within society. Experience demonstrates that individuals and others are willing to invest their own resources in higher education. These investments of private money and time are a resource to higher education that also serves the public interest. The obligation of government is thus to assure that adequate resources are provided for an excellent higher education system and that citizens can afford to participate in it.

Governments are also limited in their expertise and agility. Academic flexibility and freedom are essential because academic issues are complex and change is constant. Excellence requires the decentralisation of academic authority, both among and within institutions. This allows institutions to deal with complex and dynamic academic work, while responding to the changing needs of the individuals and communities. Governments cannot acquire the knowledge required to govern higher education fast enough, nor can they change quickly enough to manage colleges and universities effectively. Sometimes they institute "buffer bodies" that operate closer to the actual delivery of higher education. Even these bodies, though, face limits on their knowledge and responsiveness.

The role of boards in the governance of public institutions

There is an inevitable tension between public ownership of an institution of higher education, and the flexibility and operational autonomy that are essential for excellence. In many countries, boards of directors play a significant role in managing that tension. Governing boards typically function as:

- the body that has the authority to choose a chief executive and to evaluate his or her performance
- the decision-making body that makes or ratifies major policy decisions concerning the budget and strategic plan of the institution
- a source of advice, support and accountability for the chief executive
- a permanent, self-renewing body committed to the effectiveness and the continuous improvement of the institution
- an advocate for the institution with the community and with government
- a source of financial support
- a means of assuring that the institution is responsive to the public interest.

In some jurisdictions, the members of public institution boards are appointed by the executive branch of government (generally to staggered terms of office). However, in the United States, for instance, some governing boards are directly elected by the public (this is relatively rare for public universities and more common for community colleges). In countries like Canada, while governments have no direct role in selecting governing board members, they must approve selections, and have the right to withhold approval. In some countries governing boards have a substantial number of members who are faculty or staff at the institution, although with a requirement that a significant number of members (e.g. a majority of the board) be external to the institution.

Boards of public institutions that are appointed by governments do not function simply to oversee the implementation of centralised policies. They create a space for diversity and innovation in the public sector, within the broad framework of institutional missions established by the government in its overall plan for higher education. They may not have the independent authority to establish (for example) a medical school or PhD programmes, if these are not within the approved mission of the institution. However, boards do oversee the institution's pursuit of its mission. Strong boards have discretion to identify which decisions can and should be delegated to the Rector, other administrative leaders or the faculty, and which decisions require board approval.

The effectiveness of a board depends on the ability of its members to understand what is required for institutional effectiveness. This includes an understanding of the appropriate role and limits of the board in setting

policy; establishing goals and standards for performance; providing space for executive leadership; and avoiding dysfunctional interference in operations. It is important that governments or others appoint board members who have the stature, experience and ability to perform these important responsibilities. Many boards develop their own orientation and training activities to help new members become effective. Some governments provide formal training or encourage board members to participate in associations that help board members understand and fulfil their responsibilities.

If governmental policy does not assign significant responsibilities to a governing board and give it discretion to do its work, it will not be possible to recruit capable board members. The kind of person who can be an effective board member will likely not be interested in serving on a board that has no significant powers. A division of labour between government policy and institutional governance can be established to the benefit of both. Communication (at times frequent) between governing board members and governmental authorities is necessary to achieve common understanding and mutual benefit. However, a separation of powers is essential to realise the benefits of a board (see Box 7.2).

Box 7.2. **Ireland and university governance**

Ireland offers an interesting example for the development of university governance over time. Given the role universities play in national economic and social development, and their reliance on public as well as private funding, the national government and the university sector partnered to jointly establish a framework for governance.

The evolution of the governance framework can be traced back to the *Universities Act* of 1997 and the "The Financial Governance of Irish Universities" code of 2001. In 2007, the Higher Education Authority and Irish Universities Association jointly updated and replaced the relevant provisions of the 2001 Code and extended its scope well beyond financial governance with "Governance of Irish Universities - A Governance Code of Legislation, Principles, Best Practice and Guidelines". All universities adopted the Code's principles and reporting requirements.

In 2012, the "Governance of Irish Universities" was updated once again to reflect new advancements and best practices in governance, with updated requirements, responsibilities and accountabilities in areas such as internal control, audit and risk management.

The Code, which is intended to be revised periodically, assists universities and their governing bodies in the management of universities by outlining appropriate procedures and controls. The principles and best practices provided are not meant to be prescriptive. Rather, they serve as a reference point that each university interprets according to its unique circumstances and organisational structure. On the whole, this provides the government and general public with comfort that universities are operating in accordance with well-developed standards and practices of governance and accountability.

Sources: Governance of Irish Universities (2012), www.hea.ie/sites/default/files/university_code_of_governance_2012.pdf.

The governance of higher education in Kazakhstan

Twenty-five years ago, the governance and financing of higher education in Kazakhstan was almost exclusively based upon the authority and resources of the state. Starting in 1990, however, Kazakhstan also began to rely on the market for the provision of higher education: it began encouraging and assisting the development of private institutions of higher education, and requiring both public and private institutions to rely primarily on student paid tuition and fees for revenues. The reliance on market mechanisms did not, however, diminish the role of the state in governance. While there were some important differences between public and private institutions (e.g. regarding the authority for appointing rectors), the government continued to play a very strong role in the regulation of both public and private institutions.

Government regulation of higher education and the "attestation process"

The government's regulation of higher education is based on the Law on Education (2007). The Committee for Control of Education and Science conducts an "attestation" review of each higher education institution at least once every five years to determine compliance with the law and regulations – with focus on input and process measures such as student/faculty member ratios, as well as on student performance on subject-matter tests. If an institution is found not to be in compliance with the law, its license is suspended and its rector is liable to prosecution for administrative offenses. During the period 2008 to 2014, the Committee undertook attestation reviews of 157 universities. In addition, the Committee also performs regular inspections of higher education institutions (with those judged to be riskier being inspected more frequently) to ensure their compliance with regulations; *ad hoc* inspections can also occur in response to complaints. In 2014, inspections led to the suspension of the licenses of more than 20 institutions. Three of these institutions later had their educational license revoked and one voluntarily surrendered its license (JSC Information-Analytic Center, 2015).

There has been some movement though towards loosening this rigid attestation and inspection approach to quality assurance. In 2005, the government established the National Center of Accreditation within the MESRK. The creation of a legal authority to recognise accreditation agencies was a first step towards promoting professional/collegial authority as a tool in the governance of higher education in Kazakhstan. This legal authority was then reorganised into the Bologna Process and Academic Mobility Center in 2012. Currently two Kazakhstan-based accreditors and eight international

accreditors are included in the national register of accreditors. As Chapter 2 also notes, anticipated changes to Article 5 of the Law on Education (2007) are designed to gradually replace attestation with accreditation for quality assurance purposes. Moving towards a more robust system for quality assurance, which helps to raise standards while encouraging greater institutional responsibility for leading improvements, will be critical to strengthening the architecture of higher education governance in Kazakhstan. It is also important to move ahead with other reforms, highlighted as central to more effective governance in the 2007 report, with respect to building the conditions for greater institutional autonomy and leadership.

Recent steps to strengthen institutional governance in Kazakhstan

The 2007 OECD/World Bank Review of Higher Education in Kazakhstan described a governance system that was largely informed by laws, and by the decision-making authority of the MESRK and other ministers. Figure 7.2 summarises the recommendations of the 2007 report, with a brief assessment of the current status where relevant.

Figure 7.2. **Implementation status of the 2007 OECD/World Bank recommendations**

2007 OECD Recommendations	Implementation Status
All Higher Education Institutions (HEIs) that gain accreditation should be entitled to academic autonomy, and allowed to make their own decisions on introducing new undergraduate and postgraduate courses, on course content, on examinations, graduation standards and certain changes to entry standards.	Freedom in the curriculum has been expanded to a limited extent in undergraduate education, and to a greater extent in graduate education, but most of these recommendations have not been implemented.
To improve HEI governance and bring Kazakhstan in line with best practice in developed countries, all HEIs should be required to set up governing boards with majority external representation, in addition to their scientific or academic councils; and the governing boards should appoint rectors.	Boards of Trustees have been established for some public institutions, but most of these recommendations have not been implemented.
All HEIs should have the right to determine academic pay and conditions, manage their own budgets and introduce income-generating ventures.	While institutions have some freedom to determine academic compensation, most of these recommendations have not been implemented.
Accreditation of HEIs should be independent of the MESRK.	Accreditation is beginning to replace "attestation" managed by the MESRK, but the process is incomplete and its independence is disputed.
The MESRK's role in the management of HEIs, and controls over them, should be reduced to the minimum possible level.	Changes in the role of the MESRK in the management of HEIs have been minimal. Nazarbayev University has received the designation of "autonomous" but the level of state supervision is still extensive.

Sources: OECD/World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan* 2007, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

After these 2007 recommendations were made, the governance structure of higher education in Kazakhstan began to shift. In 2007 the MESRK issued an order establishing objectives for Advisory Boards. This order described the role of the boards as supporting higher education institutions in implementing their statutory functions; assisting in advancing international co-operation; assisting in improving the education, living conditions and employment of students from socially vulnerable strata of the population; and making proposals to "eliminate shortcomings" in the organisation of education. The order outlined no formal role of governance authority for these boards, but they were a first step towards building a non-governmental body to advise higher education institutions. About half of the universities in Kazakhstan (62 of 125) have now established Advisory Boards (JSC Information-Analytic Center, 2015).

In 2012, the MESRK issued additional guidelines for the establishment of "Boards of Trustees." These boards are to be composed of representatives of the Ministry, the local executive body, the National Chamber of Entrepreneurs, the public and the leaders of state-owned companies. Boards of Trustees have some limited powers of governance that are not granted to Advisory Boards. They decide on the allocation of sponsorships, charitable assistance, and funds received from non-government sources, including the allocation of any net income the state permits an institution to retain. Boards of Trustees have unimpeded access to documents concerning the state of the institutions. They may determine the term of office and salary of the Board's secretary. They may also make proposals to the Ministry on the participation of the state-owned institutions in other legal entities and on "other substantive matters".

In 2015, the MNERK issued rules governing the election of officers to Boards of Trustees. These rules, covering seven pages and 25 topics, specify in great detail the procedures used for selecting board members; the qualifications and disqualifications of board members; specifications about the required content of applications for election; procedures for evaluating board members; and other substantive and procedural matters. This detail demonstrates the seriousness with which this initiative has been advanced and betokens a commitment to ensuring that it is successful. At the time of this review, nine state-owned universities had Supervisory Boards. Plans were underway to create such boards in 20 more public institutions.

Although these are important first steps toward a more decentralised system of governance, higher education in Kazakhstan is still largely controlled by detailed and prescriptive laws and regulations, and by decisions taken by the MESRK (and by other national ministries to which some public universities report). Most of the fundamental laws and practices governing and constraining higher education institutions have not changed. One of the

most important of these is the provision that the rectors of public institutions are still appointed, and can be removed, by the President of Kazakhstan (national universities) or by the minister (state universities).

However, some laws and regulations, such as those prescribing the content of the curriculum, *are* indeed gradually changing. State compulsory educational standards, which establish the content of the curriculum, have been relaxed to give higher education institutions more autonomy in their design of academic programmes of study. At the bachelor's level, 45% of the curriculum is now prescribed, and 55% is flexible. At the master's level, 70% may be determined at the institutional level, and at the doctoral level this figure rises to 90%. However, during the OECD review team's visits to campuses, it was not yet evident that substantial changes or improvements in actual practice have resulted from this provision of greater flexibility. Furthermore, individual faculty and academic officers expressed concern about the value of some of the remaining mandated components of the curriculum, suggesting for instance that these can crowd out other more important learning, that they are sometimes outdated, and that they can make co-operation with institutions outside Kazakhstan challenging.

In many respects, the slow rate of change in Kazakhstan's higher education governance is unsurprising. It would be unusual (and may even be imprudent) for governing authorities to make fundamental changes in law without an extensive period of deliberation and discussion. It can also be quite difficult for individuals and institutions to implement new ways of working quickly. Inertia is a very powerful force in most organisations, and it is particularly powerful in institutions of higher education where the work is spread out over many departments and areas of study. It is easier to change a simple organisation than a very complex one, especially when traditional practice has emphasised compliance with detailed law and regulation.

The decade between the 2007 OECD/World Bank review and this OECD review of higher education in Kazakhstan can be characterised, then, as a period of activity that has moved in the general direction of the 2007 review's recommendations on governance. It has not yet led to fundamental change, though, in the relationship of higher education institutions to the state. Boards of Trustees and Advisory Boards have been created in public institutions, but their role is almost entirely limited to that of giving advice; indeed, boards appear to be playing a significant advisory role at only a few institutions (Hartley et al. 2015.) In response to ministry mandates, most campuses have reached out to regional employers for input, and it was reported to the OECD review team that in some cases these have efforts have produced productive and influential relationships. However, it is not clear yet that campuses have the flexibility necessary to fully and promptly respond to the needs of the communities they serve.

The slow rate of progress towards greater institutional autonomy also suggests a real degree of ambivalence – especially among administrators and members of the public. For instance, some of the government officials interviewed by the OECD review team questioned whether higher education in Kazakhstan is in fact prepared for more autonomy. Concerns about the expansion of autonomy may partly be explained by the continuing need to address a set of problems that arose after the rapid and largely uncontrolled growth of private higher education provision that began in the early 1990s. In this regard, and as noted elsewhere in this review, the MESRK has taken steps to optimise the system and to assure the quality of provision.

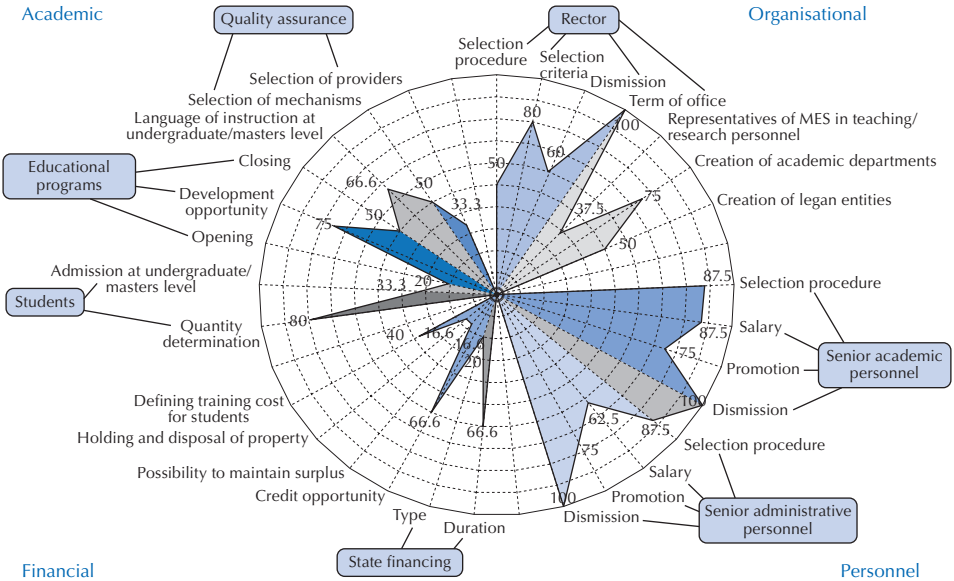
Discomfort about institutional autonomy may also be linked in part to societal concerns about institutional accountability. These are evidenced for instance in public unease about corruption occurring at higher education institutions. Students surveyed in the late spring of 2014 reported that bribes are routinely required for the purchase of course assignments, examination results and access to dormitories. This survey led senior officials to call for stringent anti-corruption measures aimed at corrupt university managers (Zakon, 2014).

Thus, while the development of new governance arrangements with more institutional autonomy is an important part of the modernisation process, it will be essential for the Ministry to ensure that greater institutional autonomy is accompanied by the development and implementation of robust accountability mechanisms and good governance practices at the institutional level. Institutions need to build their capacity for self-governance. The newly created Nazarbayev University provides one example of a workable governance model that other institutions in Kazakhstan can learn from, if effective means to disseminate these lessons are implemented.

Strengthening autonomy with accountability

The *Country Background Report* which Kazakhstan's JSC Information-Analytic Center prepared for this review takes up a framework that the European University Association (EUA) created, and uses this to make a summary assessment of the autonomy of Kazakhstan's public higher education institutions (Estermann, 2011). Figure 7.3 illustrates the results of this assessment (JSC Information-Analytic Center, 2015). If Kazakhstan fully met the EUA's standards for four dimensions of autonomy – academic, organisational, staffing and financial – all the space on this circular figure would be filled in.

Figure 7.3. **Summary assessment of the autonomy of Kazakhstan's public higher education institutions**



Sources: JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

According to the JSC Information-Analytic Center analysis, Kazakhstan meets 84% of the criteria established for staffing autonomy, 65% of the criteria for organisational autonomy, 51% of the criteria for academic autonomy and 38% of the criteria for financial autonomy. Among the 28 European countries included in this analysis, one-third have higher values than Kazakhstan for staffing autonomy; nearly one-half score higher on organisational autonomy; four out of five are higher on academic autonomy; and nine out of ten score higher on indicators of financial autonomy.

It is clear that academic and financial autonomy are the areas where Kazakhstan faces the greatest comparative challenges. It does better on the full array of indicators for staffing autonomy. However, Kazakhstan does not compare favourably on one particularly important indicator of organisational autonomy, the recruitment of chief executive officers. In more than half of the countries in the study, universities themselves are freely able to carry out the recruitment and appointment of chief executives with no validation from external authorities. In other countries an external authority "validates" the selection but rarely makes it. In Kazakhstan, the selection is made by the state.

Autonomy for higher education in Kazakhstan is far below the "ideal" as proposed by the EUA analysis, and it is well below the average levels of autonomy in the 28 European countries included in the study. Kazakhstan is thus lagging behind the international trend to replace centralised governmental control and regulation with forms of governance that emphasise policy leadership, the setting of national goals, decentralised institutional governance and the use of finance policy (e.g. performance funding) to ensure that institutions respond to public policy priorities.

As the EUA analysis argues, autonomy is good for higher education; university autonomy is good for countries and, if it is well managed, more autonomy is better than less. The rationale behind granting greater autonomy to institutions is to improve the responsiveness of higher education institutions to national and societal demands. This should lead to more innovative capacity and greater efficiency. By continuing its shift from a control to a steering strategy, the state could encourage a culture of performance that is able to meet the challenge of "intensified international competition" (OECD, 2008).

Regulation of course has its place. In determining the balance between regulation and autonomy, Kazakhstan needs to focus on its national goals for higher education and work on implementing approaches to governance that will advance these goals. The changes that have occurred since 2007 do indicate an appetite for ensuring that governance of higher education in Kazakhstan evolves. It is not desirable to wait for a "perfect moment" to undertake further change: concrete decentralisation measures can themselves build institutional capacity for self-governance. Nevertheless, as they move to grant institutions more autonomy, the government and national funding agencies need to make certain that assurances are in place. They need to ensure that institutions make use of resilient accountability systems that are based on outputs and outcomes, and on performance measures such as evidence of the cost-effective and efficient utilisation of resources.

Financial flexibility and responsibility

Kazakhstan is far from alone in dealing with the complex and controversial issue of how to balance university autonomy with improved accountability and transparency. However, levels of financial regulation in Kazakhstan are extremely high in comparison with other countries and reflect antiquated practices.

Chapter 6 of this report suggested a number of ways that financial deregulation could help the higher education system become more efficient and institutions become more effective. Because the ability to make decisions about the use of money is fundamental to every other area of governance,

providing financial flexibility coupled with accountability for outcomes is an essential first step in helping institutions become strong and innovative in the pursuit of their missions. The responsible use of financial flexibility should be assured through audits to ensure financial integrity (see the example of Finland in Box 7.3) and through the supervision of governing boards to assure that money is employed effectively to advance the mission of institutions.

Box 7.3. **Monitoring performance in Finland**

The *Universities Act* (2009) gives significant administrative and financial autonomy to universities as independent corporations under public law or as foundations under private law.

Since 2010, universities are bound to general public accounting legislation. Financial statements are made public. Higher education institutions must provide information requested by the Ministry for the purposes of evaluation, development and statistics, as well as other information needed for monitoring and steering if this information is not otherwise available. Accurate information on performance and finances must be provided in a way that enables progress be evaluated against set goals.

Monitoring is undertaken annually using indicators of effectiveness and quality. The Ministry of Education gives feedback to the higher education institutions on their activities and development needs during the agreement period. As a rule, more comprehensive feedback is given during the intervening years between negotiations.

Sources: Ministry of Education and Culture Finland (2010), www.mineedu.fi; OECD (2015), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, http://dx.doi.org/10.1787/eag-2015-en.

Academic autonomy

Despite recent moves to increase flexibility in the content of academic programmes, Kazakhstan still has considerably more centralised regulation of the curriculum and of institutional processes than is typically found in European countries (and in other countries with strong systems of higher education). Centralised academic regulation is a poor substitute for a robust system of accreditation and a national qualifications framework. It dampens creativity and initiative, discourages faculty members from taking responsibility for the quality of student learning and undermines institutional responsibility for the quality of the overall instructional programme.

As discussed in other chapters of this report, additional efforts are needed to create and implement a strong system of accreditation and a qualifications framework that can guide programme development and assure quality. The rapid development of such tools, accompanied by further meaningful increases in academic flexibility, is an essential step in strengthening quality-focused governance structures.

Organisational autonomy

Organisational autonomy should not be confused with the absence of accountability. In fact, it might more properly be construed as organisational *responsibility:* the responsibility to serve the mission of the institution, the responsibility to improve, to become stronger financially, to be innovative, and to provide better service to students and the community. No matter how a governing board is constituted, accountability for these responsibilities needs to be present. On the other hand, if institutions do not have an independent governing board, they are lacking an important tool for responsibility.

Kazakhstan has begun taking steps towards greater organisational autonomy for its public universities. The creation of advisory Boards of Trustees and Supervisory Boards that have some (but still limited) powers is a step in the right direction. The creation of joint stock company universities is presumably another step in this direction, although the team was unable to judge how these arrangements actually work in practice. Progress is slow: it was reported to the OECD review team that the current roles of these boards are more honorary than substantive. Few important decisions are made in board meetings; most important decisions seem to be made elsewhere and then reported to the board for information or *pro forma* ratification.

Government and private institutions

A final important consideration regarding system-level governance for Kazakhstan is centred on the relative roles of the public and private sectors in higher education. The different legal and financial bases of private institutions and public institutions naturally lead to competition between the sectors. Private institutions sometimes argue that governmental subsidies to public institutions give the latter an unfair advantage, since they permit lower student fees (or better services at the same fee). It is understandable that private institutions might seek public support, arguing that public subsidies should be available on an equal basis for students attending any institution.

Public institutions tend to argue, on the other hand, that lower fees structures provide greater access for students, and that for-profit private institutions are prone to cutting corners on quality in order to maximise net revenues. Some public institution leaders also suggested to the OECD review team that private institutions are not fully accountable to the public, since they are not regulated as closely as public institutions – even though, in comparison to many countries, both sectors are heavily regulated in Kazakhstan. Yet private institutions visited by the OECD team expressed a belief that governmental regulation is excessive, while acknowledging that in many areas (especially procurement) they have considerably more flexibility than public institutions. Some predicted that quality in the private sector will

eventually be much above that of the public sector unless the regulation of public universities is considerably reduced.

When governmental policy supports and encourages both public and private institutions of higher education – as it does in Kazakhstan – it is necessary to construct regulatory and financial policies that assure quality in both sectors, and that enable both to thrive. In Kazakhstan, both sectors are regulated more extensively than is useful, and there is no explicit framework justifying the differences in financial and regulatory conditions affecting the two sectors. It would be easier to develop a system of complementary, diverse public and private institutions if some broad understandings of their respective missions were made more explicit in governmental policy.

More than one approach to such a framework is possible. One potentially effective division of labour between the public and private sectors might allocate the following primary functions to public higher education:

- Provide broad access to affordable higher education across a full range of disciplines in every region of the country.
- Provide funding for basic research and for applied research that serves the needs of the nation.
- Provide graduate and professional education that is beyond the financial capacity of most private institutions.

These functions would justify direct public subsidies to support functions not likely to thrive in private institutions and to ensure that affordable higher education opportunities are available to low-and moderate-income students.

This approach would also justify vesting governance functions in public institutions' supervisory boards that are accountable to the government.

By way of contrast, the primary functions of the private sector might be to:

- Provide alternative opportunities for undergraduate and professional education without governmental restrictions on price for students who may find such opportunities attractive.
- Create a space to meet the needs of particular communities and to address demand for educational programmes not met by public institutions.
- Develop innovative approaches to the delivery of instruction and to self-governance.

These functions, and the absence of a direct responsibility to meet publicly identified priorities, justify freedom from governmental regulation and governance on purely educational matters. Such freedom does not preclude some public financial support, though. For instance, some jurisdictions provide

financial assistance to students who attend private for-profit institutions. In such cases, grant assistance is typically provided on the basis of financial need only and is limited to the amounts that are provided for student fees at public institutions. Alternatively, governments may provide a somewhat greater support to meet higher costs at private institutions, with the provision that this requires a commensurately larger contribution from students as well. In many countries, students at private institutions also benefit from publicly subsidised loan programmes and from higher education savings plans.

Whether or not public subsidies are available to private institutions, all institutions of higher education, public and private, need to be held accountable to quality assurance standards in order to assure that students benefit from the time and money they invest in higher education. International experience suggests that when public funds are available to private institutions (especially to for-profit private institutions) a robust quality assurance programme – rather than an exhaustive regulatory compliance regime – is an essential ingredient of success (see the example of Chile in Box 7.4).

Box 7.4. **The Information Service of Higher Education (SIES) in Chile**

Chile has an extensive network of both public and private higher education institutions. In Chile, the Information Service of Higher Education (SIES) is a subsidiary of the Division of Higher Education within the Ministry of Education. As part of the law on quality assurance, the Division was charged to develop and maintain a national information system of higher education that provides timely, relevant and reliable data to assist different stakeholders (e.g. policy makers, institutional leaders, employers, students and their families, etc.) in making informed decisions. For example, the SIES provides data on expected returns to credentials broken down by academic discipline and, in some instances, by institution. Information is also available at the institutional level on accreditation outcomes, finances, enrolment rates, the number of professors and on a variety of other indicators.

Sources: Ministerio de Educacion, www.mifuturo.cl/index.php/servicio-de-informacion-de-educacion-superior/quie.

Moving forward

Changes to governance raise many of the same implementation challenges as other reforms. It is worth recalling the advice in Chapter 1 on how to address these challenges. When attempting a reform of something as complicated as higher education governance arrangements, policy makers need to:

- Develop a working consensus on the direction of change.
- Experiment with incremental change as necessary, but act and learn quickly.

- Recognise that both problems and benefits are likely to emerge slowly.
- Provide opportunities to learn and to build capacity.
- Monitor results and use what is learned.
- Build public trust in the higher education system among all stakeholders.

The government's responsibilities and capabilities for nurturing and sustaining a strong system of higher education are not diminished when it delegates authority to governing boards and provides operational, financial and academic flexibility to institutions. The recommendations of this and previous reports on higher education thus simply advise Kazakhstan's government to shift perspective from detailed operating regulations and compliance auditing to goal setting (steering the sector), delegating responsibility, monitoring results and adapting policy accordingly. A government's stance towards board governance at public colleges and universities is an important part of such a shift. (Ingram, 1993; OECD, 2008).

A shift towards greater autonomy does not affect or diminish the most powerful tools available to government to shape and influence higher education: the power of investing in different institutions and purposes; the power to influence the price of higher education for students attending public institutions; the power to help students finance their enrolment in public or private institutions; and the power to withhold the right to operate from institutions that fail to meet acceptable standards of quality or integrity in serving students. A shift towards greater autonomy coupled with accountability does, however, increase the flexibility and effectiveness of higher education, and help better ensure that governments can meet their goals.

Recommendations

As Kazakhstan moves forward to build a higher education system that better responds to the skills and knowledge needs of a modern economy and society, this review recommends that it:

Strengthen governance at the institutional level to enable deeper decentralisation and greater financial, academic and organisational flexibility as well as freedom for the operations of higher education institutions.

- The government should support the development within the public sector of a system of governing boards to select chief executives, provide oversight of institutional operations, support the improvement and effectiveness of institutions, and ensure that each institution successfully pursues its mission.

Concurrently, improve the transparency of governance in public and private higher education institutions.

- For instance, instead of depending heavily on formalistic controls, the government should shift towards an audit approach to assure financial integrity. Rigorous, financial audits based on common standards should become the means of assuring integrity and transparency.
- A focus on outputs and outcomes produced should supplement attention to inputs and the processes by which institutions use them. Also, measures to combat corruption should be deployed in ways that, over time, build public confidence in the higher education system. Examples of such approaches already exist at certain institutions within Kazakhstani higher education.
- As observed throughout this review, Kazakhstan requires a national system of data on higher education to analyse the outcomes of higher education and to inform national policy and financial investments.

Within the academic community itself, develop and implement a robust system of accreditation and a national qualifications framework as the basis for assuring and improving academic quality. This will provide justification for academic operational autonomy.

- As also recommended in Chapter 2, Kazakhstan needs to form a quality assurance process that relies on "attestation" and inspections, and fully deploy a resilient accreditation approach that both ensures and further develops high-quality learning and research.

Clearly delineate the respective purposes of the public and private sectors of the higher education system.

- The government should require or promote governance arrangements in each sector that match its policy purposes.

References

Clark, B. (1983), *The Higher Education System: Academic Organization in Cross-National Perspective*, University of California Press, Berkeley.

Estermann, T., T. Nokkala and M. Steinel (2011), *University Autonomy in Europe II: The scorecard*, European University Association, Brussels.

Governance of Irish Universities (2012), www.hea.ie/sites/default/files/university_code_of_governance_2012.pdf.

Hartley, M. et al. (2015), *Learning Autonomy: Higher Education Reform in Kazakhstan*, Higher Education-Springer, http://dx.doi.org/10.1007/s10734-015-9953-z.

JSC Information-Analytic Center (2015), "Country Background Report", prepared for the OECD follow-up review of higher education policy in Kazakhstan, JSC Information-Analytic Center, Ministry of Education and Science of the Republic of Kazakhstan, Astana.

Ingram, R. T. (1993), *Governing Public Colleges and Universities: A Handbook for Trustees, Chief Executives, and other Campus Leaders,* Jossey-Bass, San Francisco.

Lingenfelter, P. (2004), "The State and Higher Education: An Essential Partnership", in *Restructuring Shared Governance in Higher Education,* W. G. Tierney and V. M. Lechuga (eds.), *New Directions for Higher Education*, No. 127, Jossey Bass, San Francisco.

Maggio, Z. (2012) "Exploring Burton Clark's Triangle", paper presented at The Symposium on Kerr's Life, Work and Legacy", The Steinhardt Institute for Higher Education Policy, New York University.

Ministerio de Educacion, www.mifuturo.cl/index.php/servicio_de_information_de_education_superior/quie.

Ministry of Education and Culture Finland (2010), www.minedu.fi.

OECD (2015), *Education at a Glance 2015: OECD Indicators,* OECD Publishing, Paris. http://dx.doi.org/10.1787/eag-2015-en.

OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1 and Volume 2*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264046535-en.

OECD/The World Bank (2007), *Reviews of National Policies for Education: Higher Education in Kazakhstan 2007*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264033177-en.

The Scottish code of GOOD HE GOVERNANCE, www.scottishuniversitygovernance.ac.uk/.

Zakon (2014), "students are told how much is "pass the session" in high school" (google translation), Retrieved from www.zakon.kz/4653299-kazakhstanskie-studenty-rasskazali.html (Accessed on 15 February, 2016).

Chapter 8

Concluding remarks

This chapter gives concluding remarks and summarises the broader challenges Kazkahstan is facing in relation to quality, labour market relevance, access, research and innovation, funding and governance. Even if there is no single key to effective implementation, certain broad principles can help ensure that progress is made and that this progress bears results. It is important to tackle change in an inclusive way, working with civil society and all stakeholders to build a working consensus on the direction of change and on the reasons behind it.

Over the course of its two-week mission in Kazakhstan, the OECD review team had the chance to visit over 20 higher education institutions in six cities. We were impressed in particular by the students whom we met during these visits. They spoke to us with enthusiasm and with seriousness, and expressed a commitment to learning. As Kazakhstan faces the challenges of diversifying an economy that is still too dependent on the extractive sector, and as it seeks to address the challenges of unequal opportunity, the country's youth really is its most important resource.

This review has argued that, if they are to succeed in the economy of the coming decades, people will need a broad range of skills and knowledge – and countries will need a strong capacity to innovate. Since the time of the 2007 OECD/World Bank review, Kazakhstan has made progress towards ensuring that its higher education system can help deliver the skills, knowledge and innovation that are needed. Efforts have perhaps been most pronounced in the area of research and innovation at universities. Other reforms – such as incremental moves towards replacing the attestation process with true accreditation and the encouragement of student mobility through programmes like Bolashak and Serpin – are also very promising. Policy makers and academic leaders appear to understand the challenges the higher education sector still faces, and they recognise the need for further action.

Each of the chapters of this review outlines concrete actions that Kazakhstan could take to further modernise higher education and to ensure that all young Kazakhstanis have the chance to access (if they so choose) a quality higher education that builds the skills and knowledge needed for prosperity, well-being and a rich civic life. Further reform will not always be easy, but if it is successful, Kazakhstan will be well-positioned to meet the challenges, and seize the opportunities, of the coming decades. There are some significant obstacles in the country's way, though. Rather than review recommendations once more in detail, it is useful to focus here on three of these challenges.

The issue of the funding available to higher education remains critically important. Higher education is poorly funded in Kazakhstan, and the majority of its funding comes from private sources. The review team recognises that the country has limited financial resources and that these need to meet a broad variety of needs. Nevertheless, it is absolutely critical to make substantial investments in the future, building the knowledge and skills of the youth who will be the citizens and make up the workforce of the coming decades, and laying the groundwork for innovation. The team identified a number of areas that require additional investments – both on the instructional side and in university research.

The review team also identified ways in which current investments might be made more effective. The current system of financing higher education through state grants, whose award depends primarily on results achieved on standardised tests, needs to change. Kazakhstan should seriously explore ways of shifting public funding to better support students who face financial need, and it should take action quickly. Improvements to the primary and secondary school systems, so that all students leave school ready for higher education or other post-secondary opportunities, are also absolutely critical. These too will require public investments, new ways of teaching and new forms of institutional behaviour.

The issues of governance, trust, and the relationship between higher education and the state are another challenge that, if not addressed, will remain an obstacle to progress. Over the past decade, there have been some moves towards greater institutional autonomy. Such autonomy is necessary if higher education is to mature and be fully responsive to the changing needs of Kazakhstan's economy and society. However, the higher education system is still subject to a strong, centralised control function that does not serve it well – and that manifests itself for instance in curricula that are not fully responsive to the needs of students and the labour market, or in barriers to international co-operation.

This relationship between higher education and the state is rooted in history, and in part reflects a lack of trust between the main partners. Moving forward, Kazakhstan needs to ensure that its higher education institutions further develop the capacity to operate autonomously and that they address issues such as possible corruption that may hinder their progress. The country cannot wait, though, for "ideal conditions" before it further enhances the autonomy of higher education: concrete decentralisation measures can themselves build institutional capacity for self-governance. Yet at the same time, as they move to grant institutions more autonomy, the government and national funding agencies need to make certain that sound accountability and performance measures are in place.

Finally, the issue of how Kazakhstan gathers and uses data and information on higher education came up repeatedly in our review. For instance, the award of the state grant to students – which means that some students go to certain programmes for free, while the majority of students pay full tuition – appears to be based on information about labour markets that does not fully take into account future uncertainty nor the need for a broad mix of skills within the economy. Kazakhstan could collect reliable information on a variety of labour market outcomes of its graduates and provide this information to prospective students in ways they found useful; this could provide an important corrective to current planning approaches and thus help reinforce the alignment between higher education and emerging labour market needs.

More generally the team noted that the information that policy makers and academic officers need to make sound, strategic decisions – and to enhance the performance of existing programmes and initiatives – appears not to be available. This is true in a broad range of areas. Building a better approach to information and data is challenging. Nevertheless, relative to the expenditures that Kazakhstan is already making in higher education, it is not one that should be thought of as particularly costly. In fact, by ensuring that resources are used more effectively, better data and information will likely actually reduce net costs that the higher education system faces.

The review team recognises that many of the actions it recommends will be difficult to put into place: some require new funding, others require decisions that affect the interests of certain individuals or groups of individuals, and all require a co-ordinated strategic approach. How Kazakhstan deals with challenges like these must depend in large part on decisions that are made locally, grounded in the country's culture and history: there rarely are universally "right" ways to implement policy changes. The many examples contained in the chapters of this report do give some idea, though, of how other countries have approached some of the same issues.

Even if there is no single key to effective implementation, certain broad principles can help ensure that progress is made and that this progress bears results. It is important to tackle change in an inclusive way, working with civil society and all stakeholders to build a working consensus on the direction of change and on the reasons behind it. Concrete efforts to build and foster trust and capacity are critical. It is also important to recognise that progress will typically be incremental – but that if change is to gain momentum, it requires an ability to act and learn quickly. Finally, as reforms move forward, results need to be carefully monitored and used to make course corrections where necessary – or to further invest in approaches that can be shown to be working.

The review team is confident that, if Kazakhstan implements a variety of reforms to address critical areas of weakness, and does so in ways that actively build the conditions for the success of these reforms, then the next decade will see the emergence of a higher education system that is better able to meet the ambitious goals that the country has set out for itself.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX16
(91 2017 01 1 P) ISBN 978-92-64-26852-4 – 2017

Reviews of National Policies for Education

Higher Education in Kazakhstan 2017

Higher education policy is the key to lifelong learning and this is particularly important as the ageing population is increasing in many countries. It is a major driver of economic competitiveness in an increasingly knowledge-driven global economy and it also brings social cohesion and well-being. Countries are increasingly aware that higher education institutions need to foster the skills required to sustain a globally competitive research base and improve knowledge dissemination to the benefit of society. Kazakhstan's higher education system has made progress over the past ten years. However, there is scope for improvement in delivering labour-market relevant skills to Kazakhstanis, and in supporting economic growth through research and innovation.

In examining the higher education system in Kazakhstan, this report builds on a 2007 joint OECD/World Bank review, *Reviews of National Policies for Education: Higher Education in Kazakhstan 2007*. Each chapter presents an overview of progress made in the past decade across the main areas explored in the 2007 report. These include quality and relevance, access and equity, internationalisation, research and innovation, financing and governance. The report also examines policy responses to evolving dynamics in higher education and the wider socio-economic changes.

Contents

OECD publishing
www.oecd.org/publishing

ISBN 978-92-64-26852-4
91 2017 01 1 P