STRENGTHENING CAPACITY FOR CLIMATE ACTION IN DEVELOPING COUNTRIES: OVERVIEW AND RECOMMENDATIONS

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Abstract

Despite years of donor country engagement, developing countries' efforts to fight climate change and its consequences remain stifled by important capacity gaps. This paper reviews the experience of development co-operation partners in strengthening capacities in this area. It provides an in-depth analysis of official development assistance trends and flows, as well as an overview of the enabling factors, obstacles and good practices. Finally, it suggests ways to overcome a number of technical, political and organisational challenges, and to accelerate capacity development for more effective climate action in partner countries.

Foreword

This paper provides an overview of capacity development in the field of climate change. It includes a literature review on capacity development, including in the climate change context; an overview of donor activities to develop capacities to tackle climate change, including official development assistance financing and funding priorities in relation to capacity development for climate change, using data from the Development Assistance Committee's (DAC) Creditor Reporting System; a review of partner country needs, bottlenecks and the challenges of development co-operation in this area; and a set of pressing challenges that donors could turn to, individually or globally, to support effective climate change action and ambition through capacity development. The paper also proposes a set of promising avenues for further work for donors to support effective capacity development in the field of climate change.

Methodologically, the paper is based on qualitative research that includes a review of academic journals, grey literature and primary sources from DAC members and other providers of development co-operation. The paper also reflects discussions held with a number of donors and institutions, including Australia, Belgium, the European Union, Germany, Ireland, Sweden, Switzerland, the International Institute for Environment and Development, the Climate and Development Knowledge Network, the United Nations Framework Convention on Climate Change, and the Islamic Development Bank; as well as partner countries, including Chile (in its capacity as dual provider-recipient country), Guatemala, Guinea, Senegal and Tunisia. It also includes quantitative research based on an analysis of the OECD-DAC Creditor Reporting System.

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Abbreviations and acronyms

ACT	Action on Climate Today
CRS	Creditor Reporting System
DAC	Development Assistance Committee
ENABEL	Belgian development agency
ENVIRONET	Environment and Development Co-operation Network
GCF	Green Climate Fund
GIZ	German development agency *Deutsche Gesellschaft für Internationale Zusammenarbeit*
LDC	Least developed country
MEL	monitoring, evaluation and learning
NAP	National Adaptation Plan
NDA	National designated authority
NDC	Nationally determined contribution
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
SIDS	Small island developing state
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
USD	United States dollar

Executive summary

Climate-related capacity development activities represented at least USD 10.7 billion in official development assistance (ODA) on average over the period 2018-19. This amounts to at least 44% of total climate-related commitments by members of the Development Assistance Committee (DAC) over that period. In some partner countries, these commitments amount to virtually all ODA activities by DAC donors. The importance of capacity development investments for climate change is reflected in a myriad of initiatives and guidelines, as well as in the international frameworks that guide development co-operation internationally.

Yet, despite years of donor engagement, developing countries still lack sufficient capacity to engage meaningfully in climate action. In part, this owes to a number of generic obstacles to capacity development in partner countries. It is also due to numerous specific climate change features that make planning for capacity development more challenging: the uncertainty of impacts, technology-related uncertainties, the scale and urgency of the challenge, etc. Although donors have been working to address some of these obstacles and challenges, recent project and programme evaluations show that current practice may not always be fit-for-purpose.

To enhance capacity development for climate action, donors ought to prioritise:

- good practices to unlock access to climate-related financing and to access climate finance and services, notably in least developed countries and small island developing states
- enhancing the sustainability of capacity development results through South-South peer learning, and working with academia and the private sector
- supporting partners at country-level through more effective programming of capacity development activities at headquarter level (e.g. ensuring partner country ownership of activities; co-ordinating myriad capacity development activities sponsored by donors; or planning for sustainable capacity development interventions).

This paper lays out these and other ways providers of development co-operation can make climate-related capacity development more effective for partner countries.

1. Revisiting the capacity development challenge amidst the climate crisis

Climate change is widespread, advancing rapidly and intensifying (IPCC, 2021[1]). Despite decades of warnings, emissions have continued to increase, while most developing countries still fail to adapt to the impacts of climate variability and change (Ziervogel et al., 2014[2]). Climate impacts are already undermining growth and causing poverty across much of the developing world (Hallegatte et al., 2016[3]), especially in the most vulnerable countries, such as the least developed countries (LDCs) or small island developing states (SIDS) (Hsiang, Oliva and Walker, 2019[4]). Against this background, many are calling for transformative, ambitious climate-related action (Pelling and Garschagen, 2019[5]). Yet, even transformative efforts will fail if they are unable to build upon countries' individual, organisational and systemic capacities (OECD, 2006[6]). Capacity constraints are a fundamental aspect of development, and overcoming capacity constraints is a core challenge in developing countries. The more capacity countries have, the more developed they are and the better equipped to face climate change (Nautiyal and Klinsky, 2022[7]). The right capacity in the right place with the right stakeholders can speed up action and drive up ambition to mitigate climate change and build climate resilience. This is true for both OECD and developing countries – although in the former, resources and plans to address capacity gaps are more developed than in the latter.

Unsurprisingly, capacity development is part of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Capacity development is key to implement SDG 13b on climate action[1] and SDGs 17.9 and 17.18 on partnerships for development[2] (Joshi, Hughes and Sisk, 2015[8]). The United Nations Framework Convention on Climate Change (UNFCCC), in turn, recognises the importance of learning and capacity building to respond to climate change [e.g. Article 6 (UNFCCC, 1992[9])]. Under the UNFCCC, the Marrakech Capacity Building Framework (2001) and the Durban Forum (2011) guide efforts and promote dialogue on capacity building. Finally, with the Paris Agreement, capacity building (Article 11) and education, training and public awareness (Article 12) are key avenues towards climate action and ambition (UN, 2015[10]). Moreover, the Paris Committee on Capacity-building helps address current and emerging capacity gaps and associated capacity needs. For the recent UNFCCC Conference of the Parties (COP26), the UK Presidency called for climate-related finance to target transformational outcomes and in-country capacities (UK Government, 2021[11]).

Despite the common climate change challenge and the recognition of capacity development in international climate-related frameworks, most developing countries face significant capacity challenges, undermining their ability to effectively or fully engage in climate action (Nightingale et al., 2020[12]). The need for more

[1] This refers to promoting mechanisms for raising capacities for effective climate change-related planning and management in the LDCs, including focusing on women, youth, and local and marginalised communities.

[2] Indicator 17.9.1 refers to the USD value of financial and technical assistance committed to developing countries while Indicator 17.18.1 is a statistical capacity indicator for SDG monitoring.

capacity is evidenced by the fact that, out of the 169 nationally determined contributions (NDCs) submitted to the UNFCCC in 2020, 113 developing countries made capacity building a condition for NDC implementation, and capacity is the type of support that countries mentioned the most (Pauw et al., 2020[13]). What is more, among national reports submitted by developing countries as part of the UNFCCC process, including NDCs, capacity development needs are prevalent (and the number of capacity development needs is higher than finance finance needs and technology development and transfer needs in most of these documents); (UNFCCC, 2021[14]). Capacity development for managing climate change is gaining particular attention at the international level (Shakya et al., 2019[15]) and across OECD Development Assistance Committee (DAC) members (OECD, 2021[16]). What is more, at the 2020 DAC High-Level Meeting, capacity development was seen as a key tool to "support developing countries to achieve their own transitions to environmentally sustainable, low-emission and climate-resilient development pathways" [§12 of the Communiqué, OECD (2020[17])]. Finally, the *OECD DAC Declaration on a New Approach to Align Development Co-operation with the Goals of the Paris Agreement on Climate Change* also highlights the importance of developing the capacity of partner countries (OECD, 2021[18]).

Capacity development is often taken as short-hand for technical assistance and training, but in fact it implies focusing on underlying capacity constraints. In many cases, this focus casts a light on limited, basic resources constraints that could provide the necessary capacities (e.g. deployment of qualified human resources). In some contexts, such as in LDCs and SIDS, lack of capacity development in the area of climate change is a question of resourcing capacities. What is more, either of the individual, institutional or systemic dimensions of capacity development are not a given, and failure to have either of these fully fleshed will compromise the other forms of capacity development. Given this, one of the key question that developing countries face is to understand where to start and what is the (most important) missing piece to enhance their capacity. In this sense, donors have been instrumental in providing financial support for countries to undertake climate change needs identification processes (UNFCCC, 2021[14]). In fact, capacity development is the "bread and butter" of most DAC members. Climate-related capacity development activities represented at least USD 10.7 billion in official development assistance (ODA) on average over the 2018-19 period, according to data from the OECD-DAC Creditor Reporting System (CRS). This figure represents 44% of total climate-related development finance in that period and shows that the effectiveness of capacity development flows ought to be of great interest for donors. What is more, capacity development is also relevant for many partner countries; for example, it represented 43% of total climate-related ODA in SIDS and over 24% in the LDCs over the same period.

Several DAC members are currently reviewing their financial support for climate action in partner countries, including embedded capacity development approaches (e.g. Denmark, France, Germany, Luxembourg, Portugal and Spain). This is partly owing to recent large-scale increases in climate-related financial commitments (OECD, 2021[16]), which will require greater effectiveness. Partly, it reflects how members are rethinking their approaches to support climate-related capacity development (e.g. Belgium and Switzerland), including through international organisations such as the United Nations Institute for Training and Research (UNITAR) or the Green Climate Fund (GCF) – with the same intention: achieving greater effectiveness and impact.

The OECD has been looking at capacity development through numerous studies related to low-emission and climate-resilient development pathways. These studies include a range of topics: aligning development co-operation and climate action (OECD, 2019[19]); mainstreaming (OECD, 2019[20]); climate resilience (OECD, 2021[21]); the private sector (Casado-Asensio, Kato and Shin, 2021[22]); accessing finance in SIDS (OECD, 2018[23]; Piemonte, 2021[24]) and in remote areas (Kato, Rambali and Blanco-González, 2021[25]); or climate change adaptation and disaster risk reduction (OECD, 2020[26]). Despite the importance of capacity development inputs and past studies touching upon capacity development, there is limited systematic analysis of DAC capacity development approaches in the field of climate change, the effectiveness and impact of these. Existing reports, academic literature and evaluation results note that

capacity development in the field of climate change remains one of the most complex areas of international development practice (Brinkerhoff and Morgan, 2010[27]).

Donors have been supporting partner countries in developing climate-related capacity, but retaining such capacity at country and local levels has been a persisting challenge, due to a variety of structural barriers and inadequate programming (e.g. policy support, use of country systems, explosion of trainings and workshops, overreliance of international *vis-à-vis* local expertise; and lack of consideration of local contexts) [see, for example, Pearson (2011[28]); OECD (2012[29]); European Commission (2015[30]); Ministry of Foreign Affairs of the Netherlands (2017[31]); DANIDA (2020[32]); Mataya, Vincent and Dougill (2020[33])]. In fact, most of the OECD studies mentioned earlier conclude that a "lack of" capacity, information, technology, awareness, etc. hinders climate action – a finding that echoes the literature on capacity development in developing countries (Shackleton et al., 2015[34]). While good practices and success stories are also documented (Enabel, 2020[35]; Shakya et al., 2019[15]; Cattaneo, Piemonte and Poensgen, 2020[36]; DANIDA, 2020[32]; 2020[37]), there is a critical gap in understanding the circumstances underpinning them (Sobeck and Agius, 2007[38]; Cobban et al., 2016[39]). With the climate clock ticking, an update and review of donor approaches is timely. Providers would benefit from understanding what works so they can replicate, scale up and accelerate initiatives that empower individuals and communities to act on climate at the local, national and global scales.

2. Understanding capacity development in the climate change context

2.1. Capacity development is a key aspect of development

There is no universally agreed upon definition of capacity development (Enemark, 2002[40]; Pearson, 2011[28]), yet capacity development is seen as enabling social change through iterative and long-term learning and the exchange of knowledge (Nautiyal and Klinsky, 2022[7]). Notwithstanding, donor engagement in capacity development is long-standing and dates back to the 1950s, picking up in the 1990s when it became a "buzzword" in development co-operation (OECD, 2012[29]). The OECD DAC defines capacity development as "the process whereby people, organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time" (OECD, 2006[6]). Such a definition is coherent with other definitions [see, for example, Operations Evaluation Department (2005[41]); Brinkerhoff and Morgan (2010[27]); UNDP (2014[42]); Le, Biesbroek and Wals (2017[43])] – although other understandings also exist [for a review, see Mataya, Vincent and Dougill (2020[33])]. The OECD definition considers capacity development to be a three-level process that contributes to:

- The competencies of the individual, such as the knowledge, skills and ability to set and achieve objectives (i.e. "soft" competencies such as building relationships, trust and legitimacy, as well as "hard" competencies such as technical, logistical and managerial skills).
- The organisational structures, functions and systems that enable the capacities of individuals to come together to effectively fulfil the mandate of an organisation or to achieve set objectives.
- The enabling environment; that is, the policy, legal, regulatory, economic and social support systems in which individuals and organisations operate (e.g. national policies, rule of law, accountability, transparency and information flows).

These three levels can only be considered as interacting with each other. Capacity development at the individual level depends on the organisations in which people work. In turn, the operation of particular organisations is influenced by the enabling environment. Organisations and the general environment determine a country's ability to make good use of qualified personnel through the incentives they generate (OECD, 2006[6]). Capacity development is characterised as a dynamic process that requires adapting to evolving situations; that covers different levels, stakeholders and scales (and, as seen, their interactions); and that has a long-term profile, requiring investing time and resources over time. Capacity development ought to be driven from the inside as an endogenous process, based on ownership, and where external support can only facilitate, not implant capacities (Garcia, 2011[44]; Shakya et al., 2019[15]).

As will be seen, capacity development is often one of the most important tools that DAC members have to support partner countries to achieve their own development goals. For partner countries, capacity development is also a key financial input and an important contribution of development co-operation. The

concept of capacity development points to unique challenges, gaps and opportunities in the way providers and partner countries collaborate – these challenges are exacerbated when one adds a climate change angle.

2.2. Capacity development is key to support climate-related action and ambition

The DAC developed guidance to support the capacity of governments and providers of development co-operation in the environment field (OECD, 2012[29]). Several additional features need to be considered for capacity development with regard to climate change. These features include the multi-scalar and multidimensional nature of climate change, its context specificity (Adger, 2006[45]), as well as its urgency, the uncertainty of climate impacts and of technology, and equity considerations (Mees et al., 2014[46]). Climate change cuts across many domains, including governance, economics and social policy, so defining any intervention is relatively more intricate and engages more sectors and actors than in other area (Ryan, 2016[47]). As a result, climate-related capacity development aiming at single policy or institutional response is unlikely to be successful (Ballard, Reason and Coleman, 2010[48]; Shakya et al., 2019[15]). Moreover, uncertainty on the timing and extent of climate impacts, as well as on the development and future costs of technology development, mean that capacity development evolves in a context of imperfect knowledge (Victor, 2018[49]; Shakya et al., 2019[15]).

Climate-related capacity development therefore requires a combination of developing generic capacities, such as access to education, health services, income opportunities and political participation, as well as specific climate-related capacities, such as vulnerability assessments, economic analysis of climate change impacts or the costing of climate change options (Lemos et al., 2013[50]). Following Khan et al. (2018[51]) and Kuhl, van Maanen and Scyphers (2020[52]), climate-related capacity development across individual, organisational and systemic levels therefore requires:

- Better understanding the cause and effects of climate change (i.e. sources of emissions, physical manifestations of a changing climate, implications for economic activities and livelihoods). This understanding needs to take place at individual, institutional and systemic levels (e.g. share lessons learnt and knowledge on climate-related approaches; bridge the gap between research and climate policy and action; raise awareness at sector and subnational level; tackle gender considerations; engage with civil society).
- Improving the ability to formulate and implement national actions through climate change mitigation measures, as well as to reduce risks and adapt to them (e.g. develop or facilitate access to tools and guidance on climate change, risk management or mainstreaming; assess climate-related technology needs; train stakeholders to adjust practices so they target or incorporate climate risks; capacity to develop climate-related project proposals to access financing).
- Analysing, building consensus on and articulating the national interest in UNFCCC negotiations, as well as other international climate-related discussions and activities, including at regional level (e.g. Association of Southeast Asian Nations, African Union).

A review of different providers of development co-operation's definitions – including those of Canada, Norway, Switzerland and the United States, as well as the United Nations Development Programme (UNDP) and the World Bank (Khan et al., 2018[51]), and an additional review conducted for this study on Austria, Australia, Belgium, Denmark, the European Union, Ireland, Japan and Portugal – shows broad similarities across providers with the understanding above and with the main differences being a question of semantics and/or focus. Multilateral donors follow a similar understanding of capacity development for climate change, too (WMO, 2020[53]; Independent Evaluation Unit, 2021[54]).

The complexity of climate-related capacity development suggests the need to ensure that capacity development considerations are well embedded from the design stages of an intervention (Ziervogel et al., 2021[55]), and that the range of modalities used are adapted to the climate change context (see Table 2.1 for an overview) and help resource key capacities necessary to enable and provide an enabling environment for climate action (OECD, 2019[19]). However, there is scant information on how these modalities are implemented across donors, their effectiveness or the impact of climate-related capacity development.

Table 2.1. Climate-related capacity development at three levels

	Enabling environment	Organisational level	Individual level
Overall capacity objective	• Capacity building at systems level refers to the policy, legal, regulatory, economic and social support systems in which individuals and organisations operate. The enabling environment is determined by international agreements (e.g. the Sustainable Development Goals, the Paris Agreement), national policies, rule of law, accountability, transparency and information flows. • Develop regulatory frameworks for climate governance, rule of law. • Improve inter-institutional co-ordination. • Society needs capacity to hold the government accountable.	• Organisational capacity refers to organisational structures, functions and systems that enable the capacities of individuals to come together to effectively fulfil the mandate of the organisation and to achieve set climate resilience objectives. This includes both formal organisations such as departments or agencies, private sector entities, non-governmental organisations and civil society organisations. • Develop organisational performance and management capabilities.	• Individual competencies (e.g. understanding climate risks and identifying climate resilience priorities, selecting and implementing technical solutions). Education, training and other measures that enhance awareness of risks and response measures contribute to soft (e.g. building collaborative coalitions, trust and legitimacy) and hard (technical, logistical and managerial skills) competencies. • Improve understanding of environment-development links. • Develop technical skills (strategic environmental or environmental impact assessments). • Support long-term commitment.
Examples of specific interventions	• Support legislative, policy and regulatory reforms. • Develop guidelines on climate management. • Monitor and review climate management systems.	• Develop internal guidelines on climate risk management. • Conduct institutional monitoring and evaluation.	• Create awareness and provide basic skills development. • Train government officials, parliamentarians and civil society on goal formulation, priority setting, etc.
Cross-cutting interventions	• Raise awareness about the benefits of good practice and the need for measures to strengthen climate resilience. • Create platforms for debate and policy dialogue between key stakeholders (i.e. professional networks or conferences to review and discuss states practice). • Improve co-ordination procedures on, for example, the inclusion of climate in government policies. • Support pilot projects that test proposed capacity development initiatives. • Award schemes that identify and appreciate good practices.		

Sources: OECD (2012[29]; 2020[26]).

Moreover, the nature of climate change also calls for capacity development efforts that are more effective and ambitious, which is often observed when multiple strategies are employed together. This happens, for example, with interventions that target the three levels of the enabling environment, the organisation and the individual (Ziervogel, Archer van Garderen and Price, 2016[56]) (Box 2.1); or that mix modalities of implementation. For example, in Nepal, combining capacity development for local radio broadcasts on emergency response and disaster-proof construction, with training courses in masonry, carpentry and plumbing for local disadvantaged and young people, was crucial in post-disaster reconstruction and rehabilitation (Wymann von Dach et al., 2018[57]). A recent meta-analysis of the literature on support to smallholder farmers, in the context of the CERES2030 project, also highlighted the value of capacity development when implemented through various modalities to achieve behavioural change, in this case for farmers to plant climate-resilient crops (Nature, 2020[58]).

Box 2.1. Denmark's capacity support to develop Viet Nam's wind energy production

According to data from the International Renewable Energy Agency, Viet Nam's wind energy production increased 60% in 2020, contributing to raising the share of renewable sources in the country's energy mix to a quarter (IRENA, 2021[59]). The combination of an attractive feed-in tariff with ambitious installation targets and a transparent permitting process has been a critical factor in unlocking this market (World Economic Forum, 2021[60]). This pathway has been the result of a successful co-operation between Viet Nam's Ministry of Industry and Trade and Denmark's Energy Agency, which entered into a long-term collaboration agreement to help the country transition to a low-carbon economy – the joint Energy Partnership Programme. The programme concluded its second phase (2017-20) and included several capacity development aspects, including long-term scenario modelling of the energy sector, tools to manage the integration of renewable energy in the power grid and to improve the energy efficiency of the industrial sector. Although the programme focused on onshore wind projects, restrictions on available land mean that Viet Nam's future wind power developments are likely to be offshore (Danish Energy Agency, 2020[61]). Given this, Denmark and Viet Nam are working on an "Offshore Wind Potential and Roadmap", which will include capacity development of the Electricity and Renewable Energy Authority of Viet Nam to engage in long-range energy sector planning. The project is also assessing skill gaps and aims to develop national competencies on offshore wind capacity (Danish Energy Agency, 2020[61]).

3. Donor activities to develop capacities for climate change: An overview of initiatives, guidance and ODA resource flows

3.1. There are multiple, uncoordinated bilateral and multilateral initiatives for climate-related capacity development

Bilateral and multilateral donors, as well as international organisations and funds, are aware of the importance of developing capacities for climate change in partner countries. This is confirmed by the myriad initiatives that currently exist on this issue (Table 3.1). The list of initiatives, projects and programmes is longer and no overview or overall co-ordination mechanism exists. While a lot of capacity development activities are happening, inevitably, donor and international organisation mandates and working methods lead to capacity development initiatives that have different purposes and use different approaches.

Table 3.1. Selected initiatives on capacity development for climate change

Initiative	Main features
UNITAR Climate Change Programme	Offers a range of services such as capacity development for education and training institutions, support for national learning strategies, learning methodology development, and knowledge-sharing. It designs and provides innovative e-learning services for individuals, organisations and institutions. It manages the United Nations Climate Change Learning Partnership (see below) and implements projects, such as: Building Climate Resilience among SIDS or Common Sensing, as well as trainings for national stakeholders in the Asia-Pacific region and the Horn of Africa.
UN Climate Change Learning Partnership	Online platform that supports countries in achieving climate action by providing learning resources offered by over 30 United Nations institutions through climate change learning.
UN for NAPs	Aims at scaling up technical support to least developed countries and small island developing states and to formulate and implement national adaptation plans (NAPs). The partnership aims to enable UN organisations and other intergovernmental organisations to respond to technical requests identified by any country that is in the process of formulating or implementing its NAP.
UNEP-DTU's Capacity Development for the Clean Development Mechanism Project	The project aimed at creating an enabling business and regulatory environment that was conducive for identification, preparation, approval, financing and implementation of Clean Development Mechanism projects in target countries.
UNDP's NDC Support Programme	The programme works with countries to achieve transformational development progress by scaling up action on climate change. It currently serves 41 countries directly and works with partners at global and regional level. The programme supports countries on eliminating barriers to this ambitious transition.
GIZ's Capacity Building and Finance for Local Action on Climate and Biodiversity	This programme provides funding for small organisations to raise levels of awareness and engagement in relation to climate and biodiversity issues and to promote wider social involvement in the corresponding change processes in partner countries.

JICA's Project for Capacity Building on Climate Resilience in the Pacific	The project aims at providing a base in the region for strengthening countermeasures against climate change and disaster risk, and training human resources. It provides technical co-operation over 2019-22 to enhance training capacities of the Pacific Climate Change Center.
NDC Partnership	The NDC Partnership provides technical support to 50 developing countries to achieve ambitious climate goals in the context of sustainable development.
UNDP's Global Climate Promise Initiative	The initiative aimed to support over 110 countries in enhancing, designing and submitting their nationally determined contribution (NDC) with raised ambitions, including five service lines of Climate Promise supporting activities to enhance the NDCs.
OECD's Green Action Task Force	The GREEN Action Task Force has been working for 25 years on environmental issues (including climate change and sustainable energy) in Eastern Europe, Caucasus and Central Asian countries, providing capacity development efforts for climate action.

Notes: UNITAR: United Nations Institute for Training and Research; UNDP: United Nations Development Programme; GIZ: German development agency; JICA: Japan International Cooperation Agency; UNEP: United Nations Environment Programme.
Source: Own compilation based on UNITAR (2017[62]); UNEP-DTU (n.d.[63]); UNDP (n.d.[64]); GIZ (n.d.[65]); JICA (n.d.[66]).

From a preliminary analysis, it appears that the climate-related capacity development landscape is highly fragmented and uncoordinated, and there are many instances of partner country sectors, organisations and in some cases, individuals, being involved in multiple capacity development activities associated with different donors (Khan et al., 2018[51]). In Malawi, for example, a range of actors, such as the Centre for Environmental Policy and Advocacy, the Civil Society Network for Climate Change, the Food and Agriculture Organization, the European Union, the World Bank, the UNDP, and others support short-term targeted training in climate change adaptation (Mataya, Vincent and Dougill, 2020[33]). However, there is no central database indicating what donors have done or who has benefited from such training, nor the extent to which the knowledge and learning was translated into capacity for effective adaptation. In fact, because of fragmented donor efforts, it is difficult to evaluate progress on capacity development at country level. In some cases, as shown in Box 3.1, support from multilateral development banks targets extensively the development of one aspect of partner country capacities, in this case their capacity to formulate, meet reporting requirements and implement their NDC – partly co-ordinated and overlapping with other initiatives (e.g. NDC Partnership, the UNDP's Global Climate Promise Initiative or its NDC Support Programme).

Box 3.1. Support to nationally determined contributions beyond Development Assistance Committee members

Development banks provide direct financing, support governments in policy reform efforts and the creation of markets, and develop the capacities of public and private actors in developing countries (OECD, UNEP and World Bank, 2018[67]; MOPAN, 2021[68]). Although capacity development activities do not generate financial returns for development banks, they can increase the viability of direct financing and catalyse a broader set of financial flows towards climate action. Most multilateral development banks support partner countries to implement the nationally determined contributions (NDCs), for example:

- The World Bank Group facilitates NDC implementation and enhancement in over 50 countries through its NDC Support Facility, which helps mobilise and align finance to implement the NDCs through, for example, climate budgeting and developing strategies for green investment and procurement, or factoring climate risks and vulnerabilities into economic planning.
- The African Development Bank established the Africa NDC Hub in 2018 with 18 international partners, including other development banks, such as the Islamic Development Bank, to help African countries implement the NDCs. Key activities include developing a digital tool for policy makers to mainstream the Sustainable Development Goals, the NDCs and the Africa Agenda 2063 in national development plans; and tools to support private sector investment in opportunities related to the NDCs.
- The Inter-American Development Bank's NDC Invest platform, established in 2016, helps countries formulate and implement emissions reductions and long-term decarbonisation plans. Initiatives include sustainable infrastructure, e-mobility, green bonds, forest management and supporting the development of long-term strategies.
- The Asian Development Bank established the NDC Advance platform in 2018 to help Asian and Pacific countries mobilise finance for their NDCs, identify and prioritise climate projects, and track how projects support the NDCs.
- The European Bank for Reconstruction and Development's NDC Support Program provides support to countries to further develop, implement and strengthen their NDCs. The programme engages the private sector through platforms for policy engagement and knowledge sharing.

In addition, climate funds also contribute to NDC formulation and implementation. For example, the Green Climate Fund (GCF) has become one of the largest providers of technical assistance for developing countries to craft green, climate-resilient, integrated and inclusive economic measures and incorporate them into their updated NDCs (GCF, 2020[69]). The GCF supports developing countries' efforts to enhance and finance NDC ambitions by identifying, designing and implementing transformational climate interventions. As of 30 September 2020, it had approved 376 projects under its Readiness Programme, covering 136 countries, valued at approximately USD 258 million.

Less attention has been placed on other areas, such as national adaptation plans or long-term strategies. Similarly, some dimensions of capacity development (e.g. individual capacity development, policy support) seem to have been privileged over broader systemic and institutional capacity development (Dagnet, Northrop and Tirpak, 2015[70]). Moreover, experience in partner countries has shown that overlapping and sometimes duplicative or even conflicting capacity development commitments can produce tremendous challenges, including wastage of critical resources, partial efforts and confusion, capacity stretching or even reduction (West, Daly and Yanda, 2018[71]). What is more, such a fragmented approach may undermine the achievement of critical masses and the required transformative impact that the climate change challenge requires (MOPAN, 2021[68]). These risks are recognised among donors and are starting

to be addressed. For example, EU donors and the European Commission increasingly act as "Team Europe" (Niels et al., 2021[72]), and the NDC Partnership aims at co-ordinating all NDC-related work (NDC Partnership, n.d.[73]). According to the Global Environment Facility, it is collaborating with other climate funds and programmes, including the GCF, to address gaps and minimise overlaps in and between countries. The first joint planning and programming of Global Environment Facility and GCF resources at country level has already taken place (GEF, 2018[74]) and there is scope to do more (GCF, 2021[75]; 2021[76]). Moreover, some initiatives also track the evolving capacity of partner countries, e.g. the Global Database of National Greenhouse Gas Inventory Capacity in Developing Countries provides useful inputs on where additional capacity improvements may be needed (UNDP, UNEP and GEF, n.d.[77]).

Donors could therefore benefit from looking at how existing co-ordination mechanisms at country level lead to coherent and more co-ordinated approaches on climate-related capacity development. Similarly, it could be interesting to probe the possibility for more joint dialogue or otherwise co-ordinating efforts in specific cases to avail synergies and add value to ongoing donor investments, commitments and partnerships in partner countries. A mapping of existing initiatives, the modalities and thematic coverage, as well as the effectiveness of existing approaches (both in terms of co-ordination or to track the evolving capacity of partners) would be a useful starting point.

3.2. Guidance to support capacity development on climate change is ample, overlapping in some areas, but gaps persist

Almost mirroring the multiple initiatives to support capacity development on climate change, there is a plethora of guidance to support these processes. Some of this material supports donors, other elements support partner countries and donors to engage in climate-related capacity development. Similarly, some look at all the stages of capacity development, while other documents look at specific aspects. Among the broader tools are the OECD's work on capacity development, which dates back to the 1990s (OECD, 2006[6]). This work also has an environmental focus (OECD, 2012[29]) and has more recently taken a climate resilience dimension (OECD, 2021[21]). Other such guidance includes, for example the *UNDP's Practitioner's Guide: Capacity Development for Environmental Sustainability* (UNDP, 2011[78]). More guidance can be found on a range of topics, including, among others, to:

- Conduct organisational or institutional capacity assessments [the United States' Agency for International Development's Global Climate Change Institutional Capacity Assessment (USAID, n.d.[79]); CaDD's Capacity Diagnosis and Development Matrix (CaDD, n.d.[80]); the Council on Energy, Environment and Water's Capacity-building Assessment Matrix (CEEW, n.d.[81]); the ND-Gain Index for Fragile LDCs (ND-GAIN, n.d.[82]); or the UNFCCC PCCB Toolkit to assess capacity building gaps and needs to implement the Paris Agreement (UNFCCC PCCB, 2022[83]), which donors can resort to and that explores solutions, disseminates knowledge and good practices].
- Assess smallholders' resilience to climate change [Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists Tool and the Enhanced Transparency Framework (FAO, 2021[84])].
- Assess climate action transparency (Capacity Assessment Tool for Climate Action Transparency; the Biennial Transparency Report Process Guidance Tool being developed by GIZ and the Food and Agriculture Organization).
- Develop an economy-wide greenhouse gas inventory [toolbox from the Climate Footprint Project (Climate Group, n.d.[85])].
- Support climate change adaptation and national adaptation plan formulation and implementation (Meybeck et al., 2020[86]).

- Address legal and financial levers on climate resilience in cities (OECD, 2020[87]).
- Find synergies between climate and development goals [NDC-SDG Connections Tool (DIE, n.d.[88])] or on the transformational impact of climate actions at national level [the Initiative for Climate Action Transparency's Series of Assessment Guides (ICAT, n.d.[89])].
- Develop monitoring and evaluation systems for adaptation planning in agriculture (FAO and UNDP, n.d.[90]) or to monitor forests [national forest monitoring system assessment tool (FAO, 2018[91])].
- Support the private sector to adapt to climate change [Climate Expert Tool (GIZ, n.d.[92])].
- Communicate climate change [the UNFCCC's *Communicating Climate Change: A Practitioner's Guide: Insights from Africa, Asia and Latin America*; the United States' NOAA *Climate.gov – Science and Information for a Climate-smart Nation*; the Climate Finance Readiness Training Toolkit; or the Climate & Development Knowledge Network's guidance to communicating climate change within the global South (CDKN, 2019[93])].

Despite the multiple tools available to donors and governments, their uptake is unknown. Given the lack of co-ordination among donors on this topic, it is also unclear the extent to which these are used in practice, which ones are leading to effective approaches, and whether overlaps exist among them. Donors could therefore find it useful to rationalise this space, with a mapping of all guidance outlets, extracting key lessons across the various tools and exploring their relative effectiveness.

3.3. The financing landscape for capacity development for climate action and ambition shows persistent financial efforts by donors over time

3.3.1. Methodological remarks

Capacity development is often taken as short-hand for technical assistance and training, but in fact it implies focusing on underlying capacity constraints. In many cases, this focus casts a light on limited, basic resources constraints that could provide the necessary capacities (e.g. deployment of qualified human resources). In some contexts, such as in LDCs and SIDS, lack of capacity development in the area of climate change is a question of resourcing capacities. Hence, mapping the financing landscape from donors is central to understand the current landscape of efforts in this area. As noted, across the spectrum of financial and technical support to partner countries related to climate change, a good deal of effort has been directed at capacity development. It is estimated that between 1961 and 2006, DAC members devoted approximately USD 400 billion (at current prices) to technical co-operation, of which training and other learning-oriented programmes constitute a prominent part (OECD, 2006[6]). Today, according to data from the CRS, bilateral providers of development co-operation committed USD 24.4 billion in ODA on average per year for capacity development in the period 2018-19, including in the field of climate change. This is more than previous estimates, e.g. the World Bank estimated USD 20 billion a year in 2008 on capacity development in developing countries (Otoo, Agapitova and Behrens, 2009[94]); the OECD estimated in 2010-11 about a quarter of ODA, or about USD 15 billion a year to be invested in technical co-operation (OECD, 2012[29]); while Victor (2013[95]) estimated about one-third of annual ODA (or USD 35 billion) for capacity development in 2012.

There is less work on climate-related capacity development, although funding specifically for capacity development to address climate change is considered to be relatively low (Khan et al., 2018[51]; Hedger and Nakhooda, 2015[96]). As will be seen, our estimates place climate-related capacity development at USD 10.7 billion over 2018-19. The wide range of estimates is a result of some disagreement over what counts as capacity development. Hence, a methodology was developed here to account for these amounts using the DAC Rio Markers for activities classified in the CRS as technical assistance and technical co-operation (types of aid D01, D02 and E01; what could be seen as "core" capacity development activities), to which a number of purpose codes that could also be seen to contribute to developing

capacities in partner countries were added (what we term here "additional" capacity development activities). The list of purpose codes selected matches the current UNFCCC definitions on capacity building, which include education, training, awareness raising, institutional capacity building, and research and development activities (able 3.2.) A number of additional purpose codes were also retained, when the CRS purpose code definition pointed towards capacity development.[3]

Table 3.2. Correspondence between CRS purpose codes and the definitions of capacity building under the UNFCCC and the Paris Agreement

Capacity-building elements	Description based on Paris Agreement and/or the UNFCCC	Relevant OECD-DAC Creditor Reporting System purpose codes
Education	Ensuring that education, as reflected in Article 6 of the UNFCCC and in Articles 11.1 and 12 of the Paris Agreement, is adequately considered in their contribution to capacity building	Education and training in water supply and sanitation (14081) Education and training in transport and storage (21081) Energy education/training (23181) Agricultural education/training (31181) Forestry education/training (31281) Fishery education/training (31381) Environmental education/training (41081)
Training	Impart/facilitate training to enable actions under the Paris Agreement; provide relevant training meeting the provisions in Article 13 of the Paris Agreement	
Public awareness	Public access to information and awareness on issues addressed in the Paris Agreement, involving transparent, timely and accurate communication of information	Water resources conservation (including data collection) (14015) Meteorological services (15143)
Institutional capacity	Capacity building activities to support implementation of the Paris Agreement, including strengthening of institutional arrangements such as those under the UNFCCC aimed at enhancing the synthesis of relevant information and knowledge, and the provision of technical support and guidance to the Parties	Water sector policy and administrative management (14010) Transport policy and administrative management (21010) Transport policy, planning and administration (21011) Transport regulation (21013) Energy policy and administrative management (23110) Energy sector policy, planning and administration (23111) Energy regulation (23112) Forestry policy and administrative management (31210) Fishing policy and administrative management (31310) Environmental policy and administrative management (41010) Urban development and management (43030) Urban land policy and management (43031) Urban development (43032) Rural development (43040) Rural land policy and management (43041) Rural development (43042)
Research and technology development	Strengthening scientific knowledge and research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision making; mechanisms and activities to facilitate access to technology	Energy research (23182) Agricultural research (31182) Forestry research (31282) Fishery research (31382) Environmental research (41082)

Sources: UNFCCC (1992[9]); UN (2015[10]).

There are some limits to the methodology applied here, which point towards further work needed in the future:

[3] These purpose codes are Public transport services (21012); Energy conservation and demand-side efficiency (23183); Plant and post-harvest protection and pest control (31192); Agricultural services (31191); Agricultural financial services (31193); Biosphere protection (41020); Biodiversity (41030); Site preservation (41040); Disaster risk reduction (43060); Relief co-ordination and support services (72050); Disaster prevention and preparedness (740); and Multi-hazard response preparedness (74020).

- The current analysis focused on DAC members and on ODA only. A broader study of climate-related capacity development would also consider the activities of donors beyond the DAC, as well as of multilateral development banks and philanthropic institutions. Moreover, the analysis could also stretch to look at other official flows.
- It is difficult to quantify total funding specifically dedicated to capacity development for climate change because of the way donors conceptualise capacity development (i.e. a modality of development co-operation that is mainstreamed or that is cross-cutting) and the way the CRS is structured. The "additional" components of capacity development (i.e. working through purpose codes) may help overcome some of these limits, but not all. These components reflect the fact that sector policy and regulatory reforms or other forms of capacity development often precede and support operational investments. For example, climate-resilient infrastructure may require reforms in land-use policies and regulations, construction standards, environmental and social safeguards, and procurement regimes of the construction industry and the relationship between contractors and government bodies, as well as of technical and geographical knowledge (MOPAN, 2021[68]; OECD, 2012[29]).
- Capacity development activities are typically "buried" in the way some providers report to the OECD and it would be inappropriate to separate certain activities that are easily tracked (e.g. technical co-operation or training and education) from a broad spectrum of capacity development activities. As a result, the "core" capacity development figures presented here may underestimate what is happening in the field of capacity development, while the "core" and "additional" components may approximate overall figures – although parts of the "additional" segment may go beyond capacity development investments. At the same time, other elements of capacity development may be hidden in other purpose codes and thus are not captured through the current methodology. If that were the case, the real figure would be much higher, since a lot of capacity development activities could be embedded within sector-specific spending figures. Hence, further statistical work could be carried out to find a consensus on how to define activities related to climate-related capacity development, beyond "core" activities, and given that there is no requirement or method to track development finance for this purpose yet. Some activities related to capacity development may use different terminology and be partially captured by other elements reported. All of these issues may require DAC members to discuss ways to improve the tracking of climate-related capacity development activities through the CRS. For example, this could be done by using a statistical flag, key words or coefficients to be able to improve the granularity and accuracy of reported figures for capacity development.
- Other elements would require additional investigation, for example budget (sector) support, which can be key to capacity development. Such investments will usually not go into specific projects with high capital expenditure, but a lot of it would be used to develop individual capacities, i.e. the actual human capacity working on an issue at different levels. This is a key element as in many cases, basic resource constraints hinder capacity development of partner countries.
- Finally, the latest statistical data available in the CRS are from 2019 – and it will take time for the recent commitments to increase climate change adaptation and mitigation finance (OECD, 2021[16]) to materialise in ODA statistics.

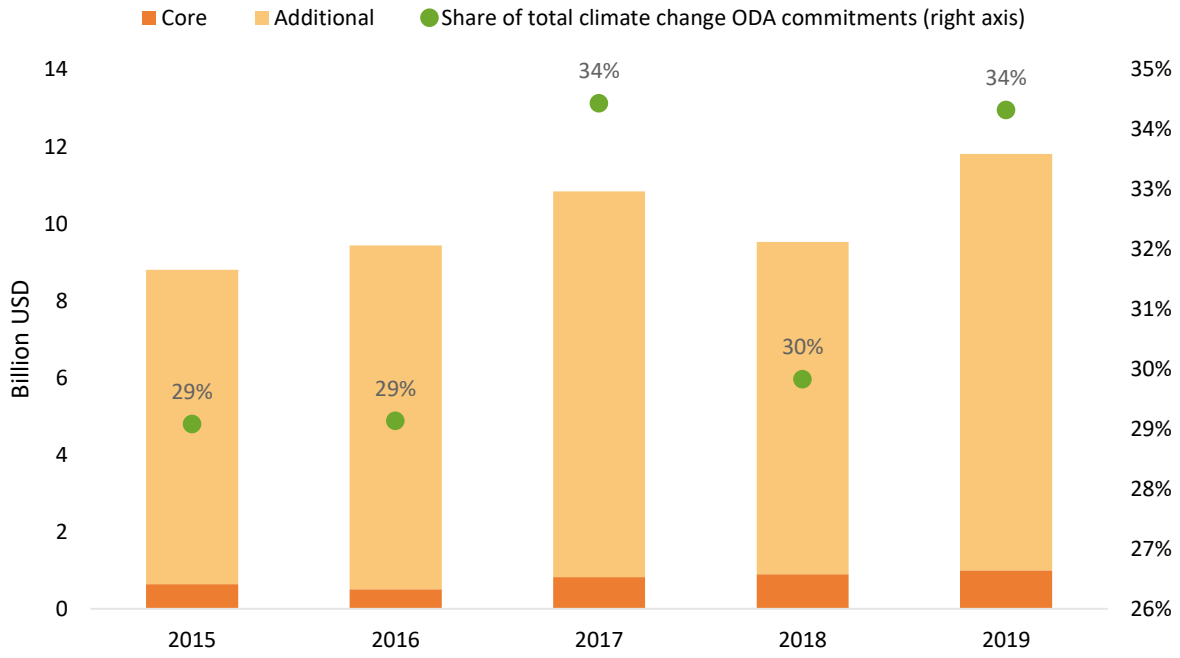
These statistics also provide a point of departure upon which to build additional analysis and understanding. For example, it could be useful to understand the relative size of capacity development for climate change across different sectors, compared to total climate-related ODA investments and total ODA investments. Such an analysis would help get a sense of the comparative relevance of capacity development for climate change issues in a particular sector.

Using this methodology and data, nevertheless, provides a useful starting point to understand current trends and figures of climate-related capacity development. This paper estimates that bilateral donors provided USD 10.7 billion over the 2018-19 period, on average per annum in climate-related capacity development ODA. This represents 44% of total capacity development ODA, and 32% of total climate-related ODA over the same period.

Figure 3.1 shows that climate-related capacity development ODA increased by 34.2% between 2015 and 2019, from USD 8.8 billion in 2015 to USD 11.8 billion in 2019, faster than climate-related ODA over that period (13.7%). The increase happened both in terms of the number of activities (an average of 53 000 activities per year, gradually growing over time) and in terms of volume (averaging USD 430 000 per activity). Most capacity development activities captured through this analysis concern "additional" activities, which represented USD 9.7 billion over the period 2018-19, while "core" activities reached USD 950 million in the same period. While "additional" activities increased by 32.5% over the period, "core" activities did so by 55.9%.

Figure 3.1. Overall climate-related capacity development trends, 2015-19

Bilateral commitments, billion USD, constant 2019 prices



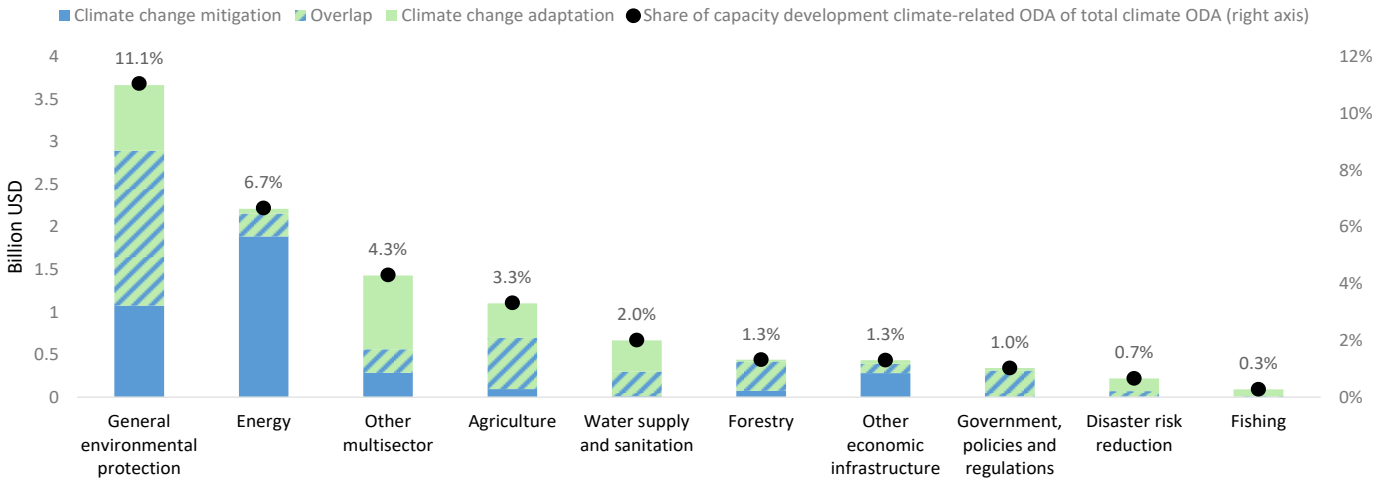
Source: (OECD, n.d.[97])

Climate change mitigation capacity development activities represented USD 8 billion, on average, over the 2018-19 period (including both principal and significant components), while adaptation capacity development activities reached USD 6.9 billion over the same period, on average. Looking at trends over the longer period (2015-19), one can see that adaptation activities grew at slightly faster rates, as mitigation activities increased by 37.1% over that period, while adaptation activities did so by 40%. Activities that targeted both mitigation and adaptation represented USD 4.1 billion over the 2018-19 period, and also increased over time (by 50.5% over 2015-19).

In terms of sectoral allocations, general environmental protection, energy, other multi-sector, agriculture, and water supply and sanitation represented 85.1% of total climate-related capacity development commitments over the period 2018-19, on average (Figure 3.2). In fact, general environmental protection itself represents USD 3.7 billion, or 34.4%, of total allocations, which is hardly surprising as it includes support to environmental research, education, and policy and administration management. It is followed by the energy sector (which represented USD 2.2 billion or 20.7%) and other multi-sector projects (USD 1.4 billion or 13.4%), which includes urban development and management, and multi-sector education, training and research. Stretching to the top 10 sectors represents 99.4% of all climate-related capacity development.

Figure 3.2. Top 10 sectors of climate-related capacity development official development assistance, 2018-19

Bilateral commitments, billion USD, constant 2019 prices



Source: (OECD, n.d.[97]).

Looking at climate change mitigation activities, the main focus was on general environmental protection, which accounted for 44.2% of total climate change mitigation capacity development over the period 2018-19. In addition, energy (e.g. renewable energy generation and energy policy) accounted for 29.5%, agriculture for 10.6%, other multisector 8.6%, forestry 6.4% and other economic infrastructure (e.g. transport and construction) 6%. For adaptation, general environmental protection and other multi-sector accounted for 53.9% of total capacity development adaptation activities. Other investments were widely distributed across sectors, including: agriculture; water supply and sanitation; forestry; government, policies and regulations; and energy.

The top 10 donors provided 91.2% of climate-related capacity development (and 89% of total capacity development ODA), and the top 10 recipients accounted for 44.4% of total climate-related capacity development ODA and 28.3% of total capacity development ODA for the period 2018-19 (Figure 3.3). Among the top donors were Germany, the European Union and France, while India, Colombia and Turkey were the top recipients.

Figure 3.3. Top climate-related capacity development donors and partner countries over the period 2018-19

Bilateral commitments, billion USD, 2019 constant prices

A. Top climate-related capacity development donors

Germany	3.59
EU Institutions	2.03
France	1.02
United Kingdom	0.62
United States	0.57
Norway	0.43
Japan	0.42
Sweden	0.42
Netherlands	0.37
Korea	0.25

B. Top climate-related capacity development recipients

India	0.72
Colombia	0.33
Turkey	0.28
Indonesia	0.26
Bangladesh	0.22
Philippines	0.22
Mongolia	0.22
Mexico	0.20
Ethiopia	0.16
Jordan	0.16

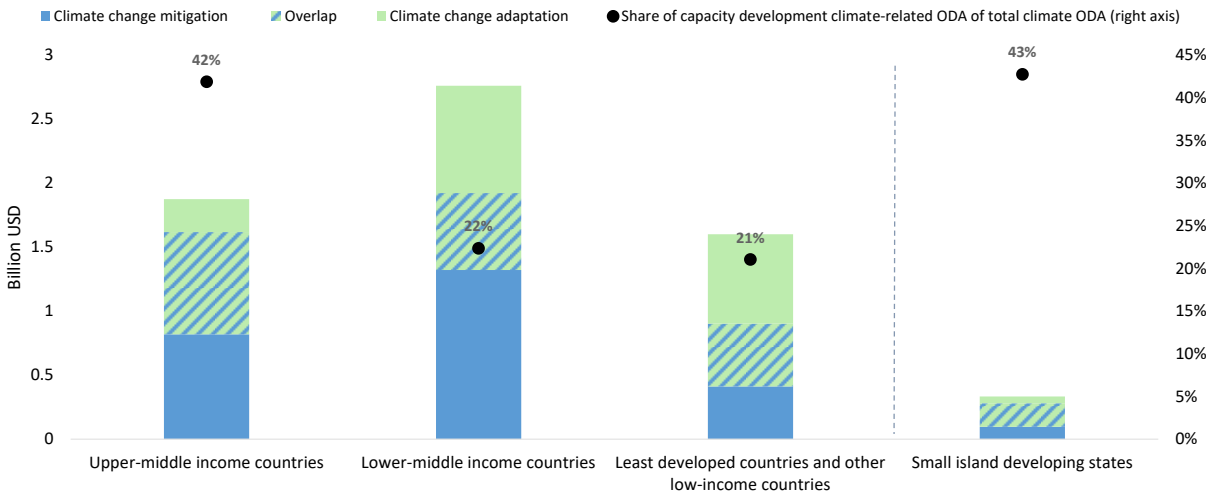
Source: (OECD, n.d.[97]).

For both donors and recipients, these numbers are highly relevant. While capacity development ODA represented 16% of total ODA commitments over the period, in the case of climate-related capacity development, the share climbs to 32% climate-related ODA (and for adaptation-related capacity development ODA, it comes close to 40% of total adaptation ODA). For recipients, climate-related capacity development represented 40% of total climate change ODA.

Overall, the distribution of capacity development expenditure reflects overall donor preferences, such as pre-existing aid activities in a country or region and ease of access – and the ability to absorb capacity. This explains why most capacity development targeted middle-income countries, or 70.4% of all climate-related capacity development ODA (with lower middle-income countries receiving 42.6% of the total). The LDCs and low-income countries received 24.3% of the total, and SIDS 5.3%. As seen in Figure 3.4, while for middle-income countries, most of this ODA was for climate change mitigation purposes (59%), for the LDCs and low-income countries, most was for adaptation (57.1%). For SIDS, the majority is more balanced, but also swayed in favour of mitigation (54.4%).

Figure 3.4. Distribution of climate-related capacity development ODA across income groups and small island developing states, 2018-19

Bilateral commitments, billion USD, constant 2019 prices



Note: According to the CRS Directives, ODA recipients are classified by income group into the following categories: Upper-middle income countries (UMICs), Lower-middle income countries (LMICs), and Least developed countries and other Low income countries (LDCs and other LICs). This explains why LDCs and other LICs are bundled and showcased together here. SIDS are included in their corresponding income category and displayed separately for reference purposes only. The graph excludes unallocated ODA and More advanced developing countries and territories (MADCTs).
Source: (OECD, n.d.[97]).

For some authors, this would make sense as capacity development is more essential to partner countries as they reach high-income status (Cattaneo and Piemonte, 2021[98]). At the same time, middle-income countries may be able to self-finance some or most of their capacity development needs, compared to the poorest or low-income countries, which depend largely on ODA flows (Guicquéro, 2015[99]). Moreover, the key challenges to the deployment of large-scale project finance, e.g. for critical infrastructure, are in most aspects strongly linked to capacity constraints. Consequently, capacity development is a pre-condition for enhanced absorptive capacity and the ability to mobilise and deploy financing. This second approach would call for further climate-related capacity development efforts being devoted to the LDCs and SIDS. MICs, indeed, may require more specific, narrow capacity development (requiring less resources), compared to LDCs or SIDS, where the needs are more fundamental and would require more resources. What is more, research also shows that donors are inclined to invest in less fragile settings (e.g. stable regions, capitals) and not necessarily in the very locations that are the most vulnerable to climate change, such as fragile and conflict settings (Cao et al., 2021[100]; OECD, 2014[101]).

The data analysis needs to be assessed alongside policy practice and changes. As funding gradually increases for climate change, it will be important to see how capacity development approaches can contribute to the needed transformation. Such work could benefit from a better understanding of the types and depth of capacity development support being provided to various country groupings, including the LDCs and SIDS, as well as fragile settings. A clearer statistical understanding of capacity development in the context of climate change, a fuller picture of how it flows and the reasons why the most vulnerable countries are receiving less finance despite being prioritised at the political level would also help better target and identify gaps, and improve the transparency of reporting by donors, e.g. to the UNFCCC and other processes. Such work could also look more closely at financing per modality that could help understand whether donors are investing in those that are the most effective.

4. Capacity development in partner countries: Needs, bottlenecks and challenges

4.1. Partner countries have identified their needs and bottlenecks in capacity development for climate change – yet gaps persist

Capacity development depends on extensive and sustained investment to build up the three dimensions of personal, institutional and systemic capacity. In the areas of environmental/climate capacities, and in particular for LDCs and SIDS, this has largely been provided through assistance from development co-operation providers, whether through development co-operation agencies or their counterpart national environmental ministries or agencies (OECD, 2012[29]). In the past, few partner countries incorporated comprehensive capacity development components into their development plans or sector strategies, either because they did not perceive the need or because they did not have the capacity to do so. This is changing and, in fact, partner countries understand better their needs and capacity development is a key element in most developing countries' NDCs (Pauw et al., 2020[13]). This is particularly true for adaptation (and within adaptation, for agriculture), which is prioritised over mitigation by partner countries (which, in turn, focuses on energy). Countries call for education, training and awareness raising on climate change, especially among the LDCs (Khan et al., 2018[51]; Pauw et al., 2016[102]; UNFCCC LEG, 2020[103]; Mataya, Vincent and Dougill, 2020[33]; Bellamy and Hill, 2010[104]). More specifically, countries call for:

- strengthening sectoral, national and subnational capacities
- integrating mitigation and adaptation into sectoral planning processes
- mainstreaming climate change and raising awareness among local actors, communities and the private sector
- developing finance proposals
- supporting national adaptation plans and decision making with regard to the actions to be undertaken, impact assessment, risk and disaster forecasting
- developing co-ordination mechanisms, legislation, policies and action plans
- strengthening national ownership of capacity building to ensure sustainability, including improving the research capacity in climate change
- developing information systems, understanding and managing climate science, information and associated impacts
- contributing to climate negotiations.

The multi-faceted needs of partner countries reflect both generic and climate-specific bottlenecks. Among the generic constraints are relatively weak institutional capacities [see, for example, Ojha et al. (2020[105])]; underlying structural issues such as high levels of public administration turnover; low salaries; capacity

overstretching [especially challenging in smaller developing countries, such as SIDS (McNamara et al., 2020[106])]; limited capacity to engage with sector agencies and to integrate issues into sector strategies; limited capacity for individuals to absorb capacities; or a lack of established or strong policies, systems, and processes, bodies or entities to efficiently and effectively plan, manage and co-ordinate capacity development activities. As noted earlier, climate change exacerbates these challenges, with, for example, a lack of public awareness and support for climate action – and for adaptation, which is a relatively newer field that is context- and scale-specific, in which many country governments and civil society lack sufficient dedicated expertise (Ojwang et al., 2017[107]); climate information, experts and research institutions are fragmented and lack of training in assessment approaches and methodologies; there is limited or poor enabling environments necessary to meet climate change goals – including through national education, thus leading to a limited understanding of the risks, as well as limited capacities for planning and implementing the necessary policies, plans and projects (Kato, Rambali and Blanco-González, 2021[25]).

These bottlenecks are highly context-driven as capacity development, in essence, is required along a spectrum, depending on where a country is in its development process. Some countries are further ahead on the path of development, such as upper middle-income countries, where technical assistance is needed to fine-tune regulatory settings, for example to improve the power grid or to get more renewable energy projects up and running. The situation is particularly acute in vulnerable developing countries such as SIDS or LDCs, as well as fragile countries, where longer term measures and finance to strengthen the resilience of communities to a changing climate are much needed (OECD, 2019[108]). With limited operational budgets, governmental actors cannot effectively carry out their basic management functions, such as climate monitoring or enforcement of regulations. At the same time, limited allocations make partner countries highly dependent on funding from providers of development co-operation. Providers could therefore explore how climate-related capacity development could help countries progress, with a view to sustaining efforts over time.

4.2. Support of capacity development for climate change raises many concerns on the effectiveness and impact of interventions

The decades-long experience of capacity development under many development and environment regimes, including the UNFCCC, points to the inherent challenge of developing sustained and long-term capacity in developing countries (Khan et al., 2018[51]). Planned attempts to support capacity often fall short for a variety of reasons (Shackleton et al., 2015[34]) and the LDCs' Submission on the Membership of the Paris Committee on Capacity Building (UNFCCC, 2016[109]) shows that "there must be something fundamentally wrong with the way capacity-building is dealt with". The evaluations consulted for this proposal show that developing longer term, in-country capacity is challenging (Ministry of Foreign Affairs of the Netherlands, 2017[31]; European Commission, 2015[30]; DANIDA, 2020[32]; Independent Evaluation Unit, 2021[54]; Pascual Sanz et al., 2013[110]). Moreover, these also question the extent to which capacity development reaches vulnerable or priority groups to provide appropriate solutions within countries and to do so sustainably and with impact (Eriksen et al., 2021[111]). These studies and evaluations raise a number of questions on how effective capacity development interventions are (Mees et al., 2014[46]).

Despite these findings, the number of studies and evaluations that look at what works is limited (DFID, 2013[112]; Cobban et al., 2016[39]) – compared to the amount of information on concerns as to how donors operate in this space. Experience shows that some countries have managed an endogenous process of increasing capacities where development co-operation has played a stimulating role (Keijzer, 2016[113]; DFID, 2013[112]). For example, a recent evaluation of its environmental and climate change programme found that Belgium's development agency, Enabel, had increased its partner countries' (e.g. the Plurinational State of Bolivia, Mozambique, Rwanda, Viet Nam) capacity to govern the activities of the water, forestry, agro-forestry and energy sectors and to better account for climate change in policies and strategies (Enabel, 2020[35]). However, it remains globally difficult to assess how donor support has helped

to improve capacity more broadly. Doing so would help clarify not only the type of support Enabel provides, but also how it can influence the functioning of the targeted institutions.

Indeed, there is often little opportunity to integrate lessons from past development successes and failures (Remling and Persson, 2015[114]; UNITAR, 2020[115]). Studies exploring the sustainability patterns after the completion and conclusion of capacity development interventions, resources and expertise are rare. This is not surprising, as in practice, the budget allocated to a specific project does not include monitoring once the project has been completed, and it is rare to find projects where partner countries include learning goals and a budget to ensure continuity after the end of an intervention (Vallejo and Wehn, 2016[116]).

Investing in developing and retaining individual skills and organisational and institutional capacities is seen as insufficient, as providers are seen to invest in developing the capacity to manage donor funding and achieve required donor project outputs. Often, parallel support processes are established and are justified by the limited capacity available in governments and, again, such support has limited impact (Shakya et al., 2019[15]). Despite the pressure providers, as well as developing countries, have to effectively manage the funds, partner countries have difficulties absorbing further capacities, often because they contribute with hidden overheads to donor projects through limited personnel and facilities (Barnett and Campbell, 2010[117]), a problem that is exaggerated in smaller partner countries (Kandlikar, Zerriffi and Ho Lem, 2011[118]). For example, in Kiribati, well-trained officials are typically recruited to work on donor projects (McNamara et al., 2020[106]). Others must direct a large fraction of their time to meeting donor reporting requirements, rather than to meeting in-country needs like training people in their unit and implementing projects. At the same time, heavy reliance on external resources (e.g. expertise or construction materials) means there is no capacity at hand when difficulties emerge – illustrating that an initiative is not sustainable (McNamara et al., 2020[106]; Clegg and Sandeman, 2019[119]) or lacks domestic ownership (Theisohn, 2013[120]).

There is also a sense of "fatigue" with the current capacity development model and the type of modalities typically used by donors (notably training and education, see Box 4.1). Donor arrangements have been found to be inefficient and ineffective when they are short-lived, project-based interventions, lack medium- or long-term investments, or are characterised by an under-involvement of recipients (Khan et al., 2018[51]). The majority of submissions to the UNFCCC Adaptation Committee on capacity development challenges, for example, note that the current mode of capacity development is based on one-off, project-based, foreign consultancy-led trainings and workshops, with the submission of a final report by a consultant after completion (UNFCCC LEG, 2020[103]). Complicated application and evaluation procedures have also increased the reliance on external experts who know how to negotiate the application process, but who may not have a deep knowledge about the local, e.g. vulnerability, context (Eriksen et al., 2021[111]). This so-called "fly-in and fly-out" modality may be *ad hoc*, short-term and project-based, and as such may support short-term or even no capacity (Hoffmeister, Averill and Huq, 2016[121]; Huq, 2016[122]; CPACB, 2016[123]). These help donors meet the standards and due diligence of their own processes, but is not always anchored in local processes, creating fragmentation and doubling implementation structures. As a result, some argue that such donor-driven technical assistance may harm local capacities, as it weakens local ownership and deprives local recipients of taking responsibility for the projects and their outcomes (Godfrey et al., 2002[124]). In other cases, "quick fixes" are implemented, which also do not result in meaningful improvements in technical, institutional and enabling capacities over the long term (Khan, Mfitumukiza and Huq, 2020[125]). In essence, these challenges are close to those identified by the Global Partnership for Effective Development Co-operation and the "aid effectiveness' principles" (OECD, 2019[126]), and indeed this kind of issue had been among the original drivers for the focus on the aid effectiveness agenda.

Box 4.1. Concerns with training and education

One of the most traditional mechanisms for knowledge transfer is training and education. Training requires considerable finances and resources, which many times are not reflected in its benefits (Blume et al., 2010[127]). However, training in capacity development projects has been subject to considerable criticism (Alpízar et al., 2019[128]; Lubell and Niles, 2019[129]). Many authors argue that in practice, the knowledge and skills transferred to recipients through (short-term) training are not sufficient to ensure effectiveness (Grossman and Salas, 2011[130]). There is no "cookie-cutter" methodology to support capacity development, which ought to be demand-driven and responsive, yet some find that activities are often hastily designed, over-ambitious and characterised by inadequate time frames, and lack contextualisation. The design, structure and execution of training programmes can present challenges because the majority of trainings are designed in a workshop set-up (Cundill et al., 2014[131]; Kristjanson et al., 2014[132]). Many training programmes could use more active methods, such as mentoring; on-the job training with expert placements; and follow-up with training through action plans, internships and residencies (Jones et al., 2018[133]), as well as a combination of training approaches – such as presentations, discussions, field practice, field visits, documentaries of best practices and expert talks with emphasis on tailored examples. Such challenges can also be overcome through the use of free-to-use online platforms, self-driven learning tools (e.g. massive open online courses, like for example, the University of Cape Town's Climate Adaptation in Africa) and social media where trainers and learners can continue to interact and share ideas (Vincent et al., 2017[134]).

For donors, the urgency to tackle climate change and the (perceived) limited expertise within developing countries has frequently led to reliance on short-term efforts to boost capacity, with difficulties to build sustained and long-term capacity. In some cases, capacity development is often automatically incorporated into many development activities. As such, this does not always contribute to sustainable capacity development and does not help build a capacity development system in partner countries. The approach preferred now by many donors is to avoid parallel units and to design interventions or projects to build the capacity of line units responsible for projects as part of the project itself. Further analysis would be needed to understand the prevalence of various approaches across providers of development co-operation and the instances when they are effective.

The fragmentation of international institutions aimed at supporting capacity development has also contributed to the persistence of these challenges (Pearson, 2011[28]). For example, the lack of communication and collaboration across organisations, projects and initiatives implementing climate change activities in similar regions may lead to duplication of efforts as well as reduce the overall effectiveness of interventions, undermining the potential for cross-sectoral and cross-institutional learning. In other cases, the many donors engaging with country partners may stretch already insufficient resources, as noted earlier. With capacity development being seen as a cross-cutting issue for many donors, as well as for many partner countries, there is a greater need for a centralised process to ensure coherence and co-ordination among relevant bodies, initiatives and funding entities working towards this goal. This centralisation process ought to come through the national and local prioritisation and steering process – which would ensure country ownership and coherence with an overall development process. Such a process would also account for how capacity development efforts contribute toward sustained and long-term capacities developed at all levels, thus avoiding the creation of a parallel capacity development or climate change agenda.

5. Priorities for enhancing climate-related capacity development

5.1. Donors need to consider a number of systemic elements, as well as thematic priorities, to ensure climate action and ambition through capacity development

The above analysis points on the importance of broader changes in the way capacity development is supported in partner countries. Progress towards such change would require dialogue and a reflection on various issues, including on:

- **Flexible, results-based support**: Creating systems and incentive mechanisms in donor countries and governments that go beyond achieving specific targets to implement funds against a pre-formulated plan in the short term (Mikulewicz, 2021[135]; 2020[136]). Creating mechanisms and spaces for reflection and questioning within donors regarding their own assumptions around questions such as "what is good capacity development in the case of mitigation and adaptation" and "who can best support capacity development".
- **Donor co-ordination**: As set out above, the huge array of development support initiatives can be daunting to developing countries. Yet, capacity development can be particularly effective when pooled and co-ordinated, rather than provided separately by individual donors. Development co-operation has an important role to play in facilitating access to the tools and guidance available, and in sharing lessons learnt on different approaches. These can lead to greater alignment around joint assessments, country development priorities and needs, and agreed approaches and standards for implementation.
- **Targeting the right level**: donors could consider, how to support capacity development processes at the lowest appropriate organisational level. Concentrating support to environmental ministries may hinder effectiveness, as they are centralised and remote to address local climate issues, where the capacity to absorb resources is limited. Moreover, environment ministries invariably need to delegate implementation to other levels of governance, following the subsidiarity principle. Many may not be able to cope with broadened mandates, as the availability of adequate human and financial resources has not kept pace (OECD, 2012[137]), so subnational institutions, civil society, academia or the private sector may be preferred partners. Despite this, community and stakeholder participation in planning, although often required, is frequently problematic. For example, communities and marginalised people have limited say over the process through which the capacity development activities are framed (Nightingale, 2017[138]; Mosberg, Nyukuri and Naess, 2017[139]) and defined (McNamara et al., 2020[106]; Mikulewicz, 2020[136]). At the same time, donors' capacity on the ground also imposes practical constraints to dealing with multiplying the potential number of partners at lower levels of governance. Notwithstanding the added complexity of engaging these communities (but see Box 5.1), development partners can play an important role here in providing resources and allowing time/space for such participatory processes (McNamara

et al., 2020[106]). Engaging with other stakeholders will also require flexible donor mechanisms, such as backstopping activities to react to local demands.

Box 5.1. Denmark's experiences in building resilience in Bangladesh

If the right mechanisms for capacity development and awareness creation can be put in place, then local government institutions can be supported and coached to make quite rapid progress in climate change adaptation practices, as demonstrated by Denmark's work in Bangladesh. Denmark supported the climate-proofing of subnational (Union Parishads) development plans. In 2019, approximately half of Bangladesh's most climate-vulnerable Union Parishads had included climate change adaptation actions in these plans. Union Parishads are in a unique position to facilitate climate change adaptation because they have first-hand knowledge of local conditions and are directly accountable to their constituents. Denmark supported the engagement of communities in local decision making, planning and implementation, including capacity development for standing committees. Denmark also supported local authorities in engaging communities and the standing committees in the planning process. By the end of 2019, 16% of supported unions had developed a new development plan which addressed climate change adaptation and resilience (DANIDA, 2020[32]).

- Ensuring more attention to learning from capacity development activities. Monitoring activities is difficult because of the nature of capacity development as an umbrella term, which encompasses a large number of stakeholders, disciplines and aid objectives (Kühl, 2009[140]). The overreliance on outsourcing of different components of project design, implementation and evaluation – all taking place on different time frames and with limited allocations – impedes optimal learning and could involve greater local research expertise.
- Having clear exit strategies so that those doing the capacity development are no longer needed by the time they leave. Experience from Peru and the Philippines highlights the role of development co-operation supporting partner countries in piloting risk financing instruments such as the Philippine City Disaster Insurance Pool and the creation of contingent credit lines in Peru, where a clear exit strategy, as well as in-built replication and scale-up plans helped the initiatives be sustainable (OECD, 2020[26]).
- Ensuring effectiveness for climate-related capacity development; that is, ensuring greater ownership and leadership by developing countries and greater use and strengthening of developing countries' own financial and planning systems, as these processes are in themselves a way of developing capacity. This point was reiterated by the Global Partnership for Effective Development Co-operation, whereby climate-related finance is meant to be provided, supported and monitored through developing countries' systems in a transparent manner, although this is not tracked directly in the Global Partnership for Effective Development Co-operation's latest progress report (OECD, 2019[126]).

In addition to these systemic considerations regarding how capacity development operates, there are a number of areas where donors could concentrate to ensure action and ambition in climate-related capacity development, namely:

- exploring good practices to unlock access to climate-related financing, notably in the LDCs and SIDS
- enhancing the sustainability of capacity development investments through South-South peer learning and working with academia and the private sector
- exploring the effectiveness of different modalities to support capacity development, notably digital and virtual tools

- capacity development in specific areas (e.g. climate data and information to foster resilience)
- monitoring, evaluation and learning for climate-related capacity development
- supporting partner countries at country-level through more effective programming of capacity development.

5.2. Capacity development to access climate finance is a key multiplier to ensure action and ambition on climate change

Developing fundable projects, in particular to access international climate funds, is typically highlighted as a major challenge for partner countries, notably the LDCs and SIDS [see, for example, OECD (2018[23]); UNFCCC (2020[141]); UNFCCC LEG (2020[103]); Pauw et al. (2020[13]); Omukuti (2020[142])]. Fragile settings fare even worse. For example, although the GCF's Readiness and Preparatory Support Program helps countries strengthen their capacity to tap into its funding, less than a quarter of the funds have been allocated in fragile settings (Cao et al., 2021[100]). While there is recognition that there are structural capacity barriers, as seen earlier, many countries find it difficult to access climate-related funds. Countries have to go through a complex, time-consuming and resource-intensive process of developing and submitting proposals, which entails holding stakeholder consultations, conducting feasibility studies, drafting concept notes, engaging with donors and making regular adjustments (UNFCCC LEG, 2020[103]). The global climate finance landscape is complicated by the many donors that provide climate-related ODA, each with its own templates and criteria for submitting proposals. Submitting proposals requires not only knowledge of donor policies and systems, but also substantial technical and professional skills in a range of subjects, including how to set up baselines and indicators, how to ensure environmental and social safeguards, or how to use the available science to articulate the climate additionally of proposals. In addition, language is often a constraint, especially for non-English speaking countries and communities (Independent Evaluation Unit, 2021[54]).

Donors are working to provide technical support and guidance to partner countries to overcome this reality. For example, through:

- Dedicated programmes, such as the GCF's Readiness and Preparatory Support Program, that helps create enabling environments, plan interventions or apply for funding (Box 5.2), even though such programmes may not always be sufficiently flexible or forward-thinking (Independent Evaluation Unit, 2021[54]). This is particularly true in adaptation-related projects, given their cross-cutting and integrated nature.

Box 5.2. Climate finance readiness in Tajikistan

One country that has been successful in attracting and using readiness for strengthening institutions and policies is Tajikistan. The country had little institutional capacity and personnel resources for the topic before the Green Climate Fund (GCF) became operational in 2014. Then, Tajikistan secured support for strengthening its National Designated Authority (NDA) from GIZ's Climate Finance Readiness Programme (GIZ, n.d.[143]). The NDA received training on climate finance readiness on behalf of the German Ministry for Economic Cooperation and Development. GIZ also helped the Tajik Committee for Environmental Protection (which is the NDA) develop a no-objection procedure (GCF, 2017[144]). Tajikistan now has five ongoing projects, of which four are adaptation and one is cross-cutting. Research considers this early capacity-building support combined with GCF support as the key that helped Tajikistan progress through the GCF project-funding cycle (Independent Evaluation Unit, 2021[54]).

- Efforts to provide direct access for local institutions to climate funds are exemplified by the direct access funding windows in the Adaptation Fund or the GCF (Adaptation Fund, n.d.[145]). However, these efforts appear insufficient. For example, as of 2018, 75% of GCF funding had been allocated through international accredited agencies (Fonta, Ayuk and van Huysen, 2018[146]), including the World Bank, United Nations agencies and other multilateral development banks – often with high intermediation and transaction costs for partner countries (OECD, UNEP and World Bank, 2018[67]).
- Streamlining processes so they are adapted to vulnerable countries. For example, new fast-track modalities for accessing climate financing have been deployed in some cases, e.g. the GCF's Simplified Approval Process Pilot Scheme (Piemonte and Fabregas, 2020[147]), although it has not been effective in making access easier or faster (Independent Evaluation Unit, 2020[148]). Donors could build upon these experiences and envision schemes for SIDS or the LDCs. The recent pilot project-specific assessment approach, for example, allows organisations to bring a climate project proposal directly to GCF for rapid consideration. This new pathway will apply to entities from the public and private sectors, and non-profit organisations, particularly those from countries without an existing GCF-funded project, with seed funding to develop project ideas being made available through GCF's Project Preparation Facility (GCF, 2022[149]). Such schemes could also be developed in collaboration with humanitarian assistance providers, as recently put forward by the International Development Association [e.g. specialised windows, specific formulas for country allocations of fast-tracked investments, specific targets for fragile and conflict-affected situations; see IDA (2021[150])].
- Designing interventions that mobilise broader sources of finance, notably funding available at the national and subnational level from public and private finance providers, for example by developing bankable projects, including through blended finance (Donner and Webber, 2014[151]), valuing risks and benefits, by proving a return on investment (UNFCCC, 2020[141]), translating the NDCs into investment plans or by issuing green local currency bonds (Box 5.3).

Box 5.3. Readiness in Jamaica and other small island developing states

The Green Climate Fund is supporting Jamaica to set up the Caribbean's first regional green bond exchange through its Readiness and Preparatory Support Program. As part of this programme, Jamaica's Ministry of Economic Growth and Job Creation is developing a regulatory framework for green bonds, raising awareness in the marketplace among potential issuers and investors to ultimately issue a green bond (GCF, 2019[152]). Such efforts could be replicated across developing countries to attract institutional capital. Technical assistance is required to design these instruments, as well as to ensure a high-quality pipeline of bankable climate investments that can be capitalised in the form of credible assets (GCF, 2020[69]).

There are other good examples from small island developing states. For example, the government of Vanuatu is working with the Secretariat of the Pacific Regional Environment Programme as an implementing entity to develop a project around Climate Information Services for Resilient Development. The activity gathered data to better understand the island's Climate Information Service needs and will now be used to inform the development of a proposal to the Green Climate Fund. This process included several workshops and consultations with a range of national and subnational stakeholders, government officials, and policy developers to better understand their needs. The programme is now a leading example of a project that has gone through the entire project cycle (GCF, n.d.[153]).

- Applying novel approaches when supporting countries, e.g. training clusters of participants to develop capacity (GCF, 2021[76]); the United Kingdom's and other donors' devolved climate finance mechanism to connect county- and local-level administrations, thus giving local communities increased influence over climate-related finance decisions (DCF Alliance, 2019[154]); or the Action on Climate Today programme (Box 5.4).

Box 5.4. Accessing finance through the Action on Climate Today programme

The Action on Climate Today (ACT) programme worked in partnership with the national governments of Afghanistan, Bangladesh, India, Nepal and Pakistan and seven subnational governments of India to strengthen climate resilience. ACT developed capacities to integrate climate adaptation into policies, plans and budgets and to attract climate change investment. For example, with ACT's support, the government of Pakistan established a Climate Finance Unit that, in collaboration with officials across ministries, was able to access over USD 140 million of financing for climate change over the period 2014-19 (Shakya et al., 2019[15]). ACT's work has contributed to helping these governments access USD 290 million in new funding, to allocate USD 400 million of domestic resources to climate change issues, and to leverage USD 600 million from multilateral and private sector resources.

5.3. Enhancing the sustainability of capacity development investments requires partnering with a range of actors

Country commitment at the central level is vital. Where it is lacking, providers could look for other entry points and use opportunities to remain engaged. Recognising that providers can only influence countries to a certain extent, there is scope for stronger engagement between providers and other domestic actors, such as academia or the private sector, as well as to foster greater peer collaboration through South-South co-operation. Doing so could foster transformative climate action, one where knowledge creation is closer to the grass-roots level and where community actors are empowered to inform and implement climate-related responses (Ziervogel et al., 2021[55]).

5.3.1. Working with the academic sector

In donor-led capacity development, some of the main centres of knowledge building and dissemination in partner countries are typically international organisations, donors themselves, consultants and non-governmental organisations – while universities or research institutes are relatively less relevant (Khan et al., 2018[51]). At the same time, the main targets of capacity development tend to be national or subnational government officials, who are transferable, while academic staff tend to have a more permanent profile. The lack of engagement of research institutions and universities in capacity development activities is a recurring issue in discussions on capacity within the UNFCCC process. Yet, mobilising local and policy-relevant knowledge from these actors can help partner countries build, retain and sustain capacities, they are therefore potentially strong partners for development co-operation (Ensor and Harvey, 2015[155]). They are tested institutions on education, training, public awareness, research and technology development, thus generating both generic and specific capacities (Khan, Mfitumukiza and Huq, 2020[125]). They can render national and regional scientific advances, data and information on climate change more accessible to the broader public (Conway and Vincent, 2021[156]). Indeed, universities can help address climate-related challenges by providing knowledge and leadership, frameworks for education (through curricula), workforce development and technological innovation (Miquelajauregui et al., 2021[157]).

Engagement of academic centres through international research collaborations, student and teacher exchanges, and access to peer-reviewed knowledge is on the rise (Khan et al., 2018[51]). For example, the

Consultative Group on International Agricultural Research, a global research partnership for better food security, works to bridge academic research in climate-smart agriculture. Its co-operation includes a farmer-led experimentation model, supporting local solutions (Kristjanson and Jost, 2014[158]). However, such examples are often hampered by the fact that universities and research institutions in developing countries, including the LDCs, require further capacity development to live up to their potential. Universities in developing countries face significant challenges in the implementation of capacity building programmes for sustainability, including deficient co-ordination and staff training, lack of leadership, inadequate financial support, administrative constraints, lack of alignment between institutional and societal needs, and lack of assessment tools to monitor progress and to quantify, and evaluate programmes and initiatives (Miquelajauregui et al., 2021[157]). Together with mainstreaming climate change education, universities could be supported to offer certificate programmes for stakeholders including government officials and non-governmental organisations or the private sector. In addition, the capacity of policy and decision makers to apply scientific evidence in their policy work would also need to be strengthened to bridge existing climate policy-research gaps.

In recent years, a growing body of research has emerged that demonstrates how enhancing the capacity of academia and of communication between researchers and policy makers can improve climate-related policy and practice (Pardoe, Vincent and Conway, 2018[159]; Ziervogel, Archer van Garderen and Price, 2016[56]; Conway and Vincent, 2021[156]). Box 5.5 presents an example from Nepal. Another example is provided by the Dominican Republic's National Climate Change Council, which collaborates with one of the largest banks in the country and the Pontifical Catholic University to organise capacity-building programmes for civil society and grassroots organisations. In another example, a recent project to strengthen climate resilience in water, disaster risk resilience and forestry in the Indian Himalayas successfully applied a "learning by doing" approach to capacity building in state governments (SDC, 2020[160]). The approach included "easy-to-understand" science briefs for decision makers and training workshops for state governments to strengthen capacities on climate science for adaptation planning. Finally, the Norwegian Agency for Development Cooperation also engages in this area, funding climate-related education and degree programmes in developing country universities [e.g. Bangladesh; (Khan et al., 2018[51])].

Box 5.5. Knowledge-policy interface in Nepal

Despite years of research on Nepal's forest governance and management (Ojha et al., 2020[105]), the country's forest sector displayed a persistent research-policy gap. Many initiatives have tried to bridge this gap, e.g. through multi-stakeholder processes, working groups and task forces, or policy learning groups. Yet, these initiatives failed to influence the policy space and in fact some decisions emanating from such processes became more contested than the decisions made through conventional practices (Ojha et al., 2020[105]). Through a collaborative project led by Australian universities, the government of Nepal and non-governmental research groups based in Nepal, "Enhancing Livelihoods and Food Security from Agroforestry and Community Forestry in Nepal", a novel approach was tested, revolving the concept of "policy labs". A lab is a forum designed to foster dialogue between researchers and policy actors to develop a shared understanding of a policy problem, and to undertake co-inquiry into possible solutions. The lab methodology proved successful in bridging the research-policy gap in Nepal, creating a two-way dialogue that enriched both research and policy processes.

Yet, more could be done to explore the potential of working with academia to develop capacities – and to map current practices, unearth good practices and engage in dialogue with academic actors in both donor and partner countries to increase the effectiveness of current capacity development approaches. In this sense, the UK's Global Challenges Research Fund can be an interesting model to engage academia in capacity development efforts writ large. The Fund supports cutting-edge research to address challenges

faced by developing countries and is managed by the Department for Business, Energy and Industrial Strategy. The Fund finances 'interdisciplinary research hubs' that bring together researchers, governments, international agencies, NGOs and community groups in developing countries and the UK. The hubs help share knowledge and expertise on innovative and sustainable solutions including on climate change issues (UK Research and Innovation, n.d.[161]).

5.3.2. Working with the private sector

As seen above, capacity development efforts usually focus on governmental partners, but a wider constituency of supportive actors outside government is important for building political commitment, providing expert advice and supporting adaptation. Strengthening this constituency, which includes the private sector, also helps build a shared positive vision and enables more meaningful and constructive engagement in climate policy (Shakya et al., 2019[15]). Small-scale industrial enterprises are, in fact, major sources of employment in developing and emerging economies. They are central to income generation and the alleviation of poverty. However, they are also vulnerable due to their small size and limited capacity and resources. They do not always have the capacity to deal with unexpected climate-related shocks.

Despite their relevance, knowledge on the capacity needs and gaps of, as well as the type of capacity development efforts required by, the private sector to address climate change is still limited (Casado-Asensio, Kato and Shin, 2021[22]). Although work has begun [see, for example, UNFCCC, IDRC and Government of Canada (2020[162])], the private sector has not yet been identified as a target audience for capacity development on climate change and few initiatives address this issue – see Box 5.6 on the building sector in East Africa, or work with co-operatives in Senegal or Guatemala (Casado-Asensio, Kato and Shin, 2021[22]).

Box 5.6. Enabel's approach to developing capacities in the building sector

Belgium has set up a platform that gathers a community of professionals from the private and public sectors to design and construct buildings that can have positive impact on the environment and communities. The platform is built around a manifesto that considers climate-responsive design as a participatory process. The process starts with the communities themselves, which decide on the choice of sustainable materials used in building processes or the bioclimatic design of the buildings. Such participatory construction focuses on the building process and ensures a dialogue between public, private and civil society actors. The platform and manifesto focus predominantly on single-storey community buildings in rural areas in East Africa and include good practice examples from the Democratic Republic of Congo, Malawi, Rwanda and Uganda (Enabel, 2020[35]).

Working through co-operatives or chambers of commerce, for example, can provide important entry points for such capacity development work. Exploring how to work with these representatives of the private sector on climate-related capacity development could help uncover good practices, but also to propose strategies and approaches to promote greater participation and collaboration, e.g. on integrating climate risk and resilience into development policies and business planning; scaling up and leveraging climate-resilient investments through the development and deployment of financial instruments and mechanisms; and to enable learning-by-doing and peer-to-peer exchanges at the local, national and regional levels.

5.3.3. Promoting South-South co-operation and peer-to-peer learning

There is a largely unidirectional flow within capacity development activities from donors to their partner countries – and in fact there is an underlying narrative in capacity development whereby actors in or from the Global North are seen as knowledge producers, and those in or from the Global South as knowledge

consumers (Nautiyal and Klinsky, 2022[7]). This is a missed opportunity of taking into consideration the expertise within partner countries. One key area for future work could therefore explore how to tap into partner countries' knowledge (e.g. experts and peers, traditional learning practices). Partner country experts, for example, are well placed to know what will work with local participants ensuring that assistance and support is more appropriate for the countries engaged, while keeping more money within the countries (Independent Evaluation Unit, 2021[54]; OECD, 2019[163]). Furthermore, it enables greater donor exposure to Southern experts, who can often not afford the costs to attend international conferences. The ensuing exchange can become multidirectional and premised on the fact that all partners have value and expertise to share. This is the basis of certain programmes (e.g. the work of the African Centre for Trade and Development, the International Institute for Environment and Development, and 15 partner countries), of matchmaking platforms, including the Reverse Linkage of the Islamic Development Bank (Box 5.7), and underpins planned work by the UNFCCC Paris Committee on Capacity-building.

Box 5.7. The Islamic Development Bank's Reverse Linkage

The Islamic Development Bank's Reverse Linkage approach, introduced in 2010, offers a matchmaking platform to its member countries, facilitating and enabling a mutually beneficial arrangement among member countries to share expertise, knowledge and good practices to address specific development constraints or exploit unique opportunities in other member countries. The modality operates through systematic peer-to-peer interactions and capacity development that may promote cross-border investments, regional co-operation and leverage resources. The Islamic Development Bank is the facilitating partner in all Reverse Linkage activities. Pivotal partners showcase technology and expertise, are exposed to a new environment, learn from partner country challenges, get a boost to their reputation and visibility, and may develop business and other long-term relations with the beneficiary country. Beneficiary partners obtain expertise and solutions in various domains, enhancing their capacity in a cost-effective manner and building on proven results, again with the possibility of developing long-lasting bilateral relationships (IsDB, 2018[164]). The approach has also been used to foster sustainable and climate-compatible development (IsDB, 2019[165]). For instance, through the Reverse Linkage modality, the Bank is assisting Mali to develop its renewable energy infrastructure, with Morocco's expertise (IsDB, 2017[166]). Other such Reverse Linkage projects have also focused on climate-related aspects, such as agriculture or water and sanitation (Casado-Asensio and Piefer, 2018[167]).

Working with peers is key: it forms a horizontal community, helps keep conversations going after a capacity development intervention finishes, helps look for and share knowledge and solutions, and promotes learning on similar issues across countries and even regions. North-South or South-South peer networks thus enable constant learning and forge relationships that can go beyond an intervention (CDKN, n.d.[168]) see Box 5.8. Donors have used such approaches. For example, Denmark's Strategic Sector Cooperation Initiative builds on a 'peer-to-peer' approach in areas where Denmark has strong expertise and technology (DANIDA, 2020[37]).

Box 5.8. Mobilising Investment for NDC implementation

Mobilising Investment for NDC Implementation was launched by the Climate and Development Knowledge Network (CDKN), SouthSouthNorth and the Low Emission Development Strategies (LEDS) Global Partnership in 2017 (CDKN, n.d.[168]). The project works with Bangladesh, Ethiopia, Kenya, Peru, the Dominican Republic, Philippines and Viet Nam to accelerate public and private investment across NDC sectors and markets. The project, supported by the Ministry of Foreign Affairs of the Netherlands, Global Affairs Canada, the International Development Research Centre and Germany, includes a Learning Programme. This Programme gathers, analyses and shares information on emerging strategies, directly supporting national and local government decision makers to develop finance mobilisation measures for key sectors and scaling NDC implementation. In collaboration with the LEDS Global Partnership, the Programme facilitates learning and replication opportunities within and between countries, and within peer networks at regional, national and international scales. Three learning themes have been implemented to capture, synthesise and share knowledge across and beyond the project, including on financing for low carbon, climate-resilient energy systems of the future in Africa and Asia; and on clean energy demand stimulation and finance across Asia and Latin America.

5.4. The COVID-19 crisis can help test the effectiveness of different modalities to support capacity development, notably digital and virtual tools

Harnessing information and communication technologies for capacity development for climate change is seen as a potential area for future consideration. Some modalities, such as e-learning or networking and communication platforms, in particular, have taken off during the COVID-19 crisis and could provide an interesting alternative to traditional methods to support capacity development, in particular to raise awareness, train stakeholders or for educational activities (UNFCCC, 2019[169]). Studies show these approaches may be:

- cost-effective: potentially saving time and resources;
- scalable: reaching a broader set of participants from within a country or from different countries, simplifying the participation of stakeholders that could have not joined physical events;
- replicable: stakeholders can potentially receive the same type of information, irrespective of when the training is taken (e.g. by sharing training recordings)
- Impactful: digital modalities enable the collection of information about participants and thus help with monitoring of activities. They may also promote greater levels of retention and reduce “group thinking” bias.

At the same time, virtual spaces also limit interpersonal connections and partnerships, trust building and collaboration compared to in-person activities. Digital activities also presuppose that stakeholders are comfortable with the use of online tools, and that, in fact, they are able to participate in the first place given the digital divide in many countries, especially in rural areas. Some stakeholders are already working to improve the digital experience to support capacity development for climate change through such modalities. For example, the Under2 Coalition (2020[170]) is developing a platform to exchange and access information and to share contacts easily to complement their websites. Others are using a hybrid virtual and on-site capacity development, with good results in terms of transfer of knowledge and capacity, as seen in the Côte d’Ivoire’s Roadmap for Sustainable Mobility and Transport (Climate Chance, n.d.[171]). Another example is provided by UNITAR, which is beginning to incorporate virtual reality technology to reach fragile settings (Box 5.9).

Box 5.9. UNITAR's use of virtual reality to support capacity development

UNITAR, through its Green Development and Climate Change Programme, uses virtual reality for training in the most climate- and conflict-vulnerable regions. Virtual reality has a huge potential for storytelling and thus raising awareness on climate change. Several campaigns harness immersive storytelling that helps present and explain abstract concepts. Immersive reality provides an opportunity to experience events and phenomena at real scale, from witnessing the bleaching of the coral reefs to melting glaciers and deforestation – providing a better learning experience than reading about or watching TV footage on these phenomena (UNITAR, 2018[172]).

5.5. Capacity development to gather climate data and information for resilience can improve countries' resilience to climate change

Better hydro-meteorological services and data, early warning and emergency management systems reduce physical damage and economic losses from climate-related hazards — for example, shuttering windows ahead of a hurricane can reduce damage by up to 50 percent, and the benefits of providing universal access to early warning systems globally have been found to largely exceed costs, by factors of at least 4 to 10 (Hallegatte, Rentschler and Rozenberg, 2020[173]).

There are several areas that providers could focus their attention on when designing climate-related capacity development activities. One area highlighted by many scholars and practitioners is the need to generate, understand and use data and information on climate change. For example, in Durban, South Africa, lack of information on the combined effects of sea storms and sea-level rise has hampered decision making at the municipal level (Ziervogel et al., 2014[2]). Poor access to climate information also explains why farmers, herders or fisherfolks are unable to respond to climate change in Ghana, Guatemala, Peru, the Philippines or Senegal (OECD, 2020[26]; Casado-Asensio, Kato and Shin, 2021[22]). Conversely, several studies show that farmers in sub-Saharan Africa with access to weather information and who engage in community-based monitoring are more likely to adjust their behaviour (Shackleton et al., 2015[34]; DANIDA, 2020[32]; Casado-Asensio, Kato and Shin, 2021[22]) – a pattern that is also observed in South Asia (Shakya et al., 2019[15]) or Pacific SIDS (McNamara et al., 2020[106]). Finally, other work shows that awareness of, access to and the potential usability of climate information and services are highest in communities where prior interventions and capacity development have taken place (West, Daly and Yanda, 2018[71]) and when capacity development interventions build upon data collected by locals themselves (Wymann von Dach et al., 2018[57]). In Caracas, Venezuela, for instance, 60% of the population lives in slums, 90% of which are inhabitants of mountainous terrain prone to rainfall-induced mass movements. Engaging the inhabitants in data collection raised their awareness about safe and risk-prone places and discouraged uncontrolled or illegal occupation of land (Wymann von Dach et al., 2018[57]).

These examples show that developing capacities to improve climate services may be one fundamental area to achieve transformational outcomes in partner countries. Donors may be interested in exploring current approaches to support countries in this space, document good practices and engage in a dialogue with partner countries on how to ensure greater effectiveness for this type of activity.

5.6. Donors need to strengthen the use of monitoring, evaluation and learning for climate capacity development

Enhancing monitoring, evaluation and learning (MEL) tools and practices for capacity development is consistently highlighted by many stakeholders in the UNFCCC process. Indeed, without MEL it becomes difficult to adequately measure the efficiency, impact, effectiveness, relevance, and sustainability of donor and partner country approaches. In the case of MEL for climate-related capacity development, additional challenges emerge (relative to MEL in other disciplines), e.g. long-term horizons, shifting baselines and contexts, or problems of attribution (Noltze et al., 2021[175]; Doswald et al., 2020[174]; OECD, 2015[176]). At the same time, partner countries have relatively low capacity to generate appropriate MEL frameworks and, even if parts of the system are developed in partner countries for monitoring, the information generated is fragmented and uncoordinated, as MEL systems are not set to share knowledge but rather around compliance or even accountability (CLEAR, 2020[177]).

Providers could support partner countries to develop or adapt existing MEL systems, building on existing capacity needs assessments and capacity-strengthening plans. When these lack, donors could help countries develop and implement them, e.g. through collaborative platforms that bring together all the stakeholders concerned. Doing so could help partner countries design integrated capacity development plans in the area of climate change. In parallel, providers also require better MEL frameworks to back up their own climate-related capacity development activities. Future activities need to be designed to maximise learning and the dissemination of lessons needs to be accelerated. Yet, traditionally, many capacity development activities have not been defined, designed or evaluated to encourage learning. As a result, projects still lack adequate indicators [e.g. in training and education, donors monitor the number of people trained, graduations, number of educational curricula revised (UNITAR, 2021[178]); in policy support, the number of new or changed policies, the number of workshops held]. Despite a multitude of initiatives, no coherent core set of indicators is either recognised nor applied by donors when monitoring capacity development for climate change (GCF, 2020[69]).

Donors could now focus their activities on the impact of climate-related capacity development on individuals and communities – and MEL methods and indicators ought to be adapted to do so [e.g. conducting interviews; using indicators differentiated across groups to account for different climate-related risks, priorities or impacts; circulating pre- and post-event surveys to measure progress made; tracking the longevity and impact of climate-responsive activities by individuals and communities over time (UNFCCC, 2019[169]); or grounding interventions in evidence emanating from the ground and evaluations (Box 5.10)].

Box 5.10. Evidence gap and intervention heat maps of climate change adaptation in low to middle-income countries

There has been considerable interest in understanding what does and does not work to increase the ability of human and environmental systems adapt to a changing climate. The Green Climate Fund and German Institute for Development Evaluation developed an evidence gap map that examines evidence on development co-operation work on climate change adaptation in low- and middle-income countries between 2007 and 2018 (Doswald et al., 2020[174]). The study analyses evidence related to the effectiveness of adaptation measures. For countries, donors and development actors, a comparison of the intervention portfolio – for example of the Green Climate Fund and Germany – with the available evidence in the form of an intervention heat map can indicate how evidence-based the portfolio is. The map also helps actors identify where more evidence is needed and where interventions are backed by evidence.

5.7. The capacity of donors also needs to improve to support effective capacity development for climate change

As noted on MEL frameworks, capacity challenges may also be observed among development co-operation providers themselves. Often, the resources to drive and mainstream climate are not plentiful (OECD, 2019[20]) and so the issue of achieving climate-related outcomes with limited resources is recurrent across many donors. This issue also concerns climate-related capacity development issues, which are often conceptualised as a cross-cutting issue by many donors, and that is often supported in collaboration with other departments within the donor or through external institutions and partners (e.g. ministries, academia, the private sector, civil society, consultants and international organisations). Such a set up can pose several well-documented challenges [see, for example, DANIDA (2020[37]; 2020[32]); Australian Department of Foreign Affairs and Trade (2018[179]); Independent Evaluation Unit (2021[54])] and calls for donors to assess their own capacity needs to effectively provide climate-related capacity development to partner countries (OECD, 2012[29]). Concretely, donors could work on:

- Conceptualising what capacity development success comprises. More thorough scoping of needs is necessary and donors could build upon MEL information (as seen earlier) to reflect this in programming and budgeting. As learning from capacity development is an iterative process, only nimble and adaptive models are likely to be effective [e.g. the case of Ethiopia (CDKN, n.d.[168])].
- Climate change is a cross-cutting issue, but programmes and funding are owned by other parts of a donor organisation. Training sessions, of personnel at headquarters as well as in embassies, can be useful to support these other parts of the organisation to engage in climate-related capacity development. The Swedish International Development Cooperation Agency, for example, trains all staff, including at the embassies in partner countries and in operational departments at headquarters, in handling climate issues through an Environment and Climate Helpdesk (OECD, 2019[20]). A similar set-up has been recently recommended in the case of Denmark (DANIDA, 2020[32]).
- Developing a network or platform to exchange good practices and experiences on climate-related capacity development. A Learning Network on Capacity Development was active from 2004 until 2016. The informal network was open to all interested persons, practitioners and representatives of organisations working on capacity development. Its constituency includes a wide range of stakeholders and users of knowledge resources for capacity development practice, but who have never worked on climate change (Woodhatch et al., 2019[180]).

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