

# Sectoral implementation of nationally determined contributions (NDCs)

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## FINANCE

This publication forms part of a series of NDC sectoral overviews, which provide information about current sectoral contributions to global greenhouse gas emissions and prospects for implementing NDCs in these sectors.

Each briefing paper presents concrete options for integrating sectoral measures in future NDCs, as well as more general cross-sectoral recommendations for moving forward with emissions-reductions measures.

Written primarily from the perspective of climate change experts, with input and suggestions from sector colleagues, the briefing series' intended target audience is twofold: first sectoral experts, who are facing the challenge of implementing the NDCs and related climate policies in their respective sectors; and second climate change experts, highlighting the relevance of the sector for NDC implementation.

This briefing paper covers finance in the context of NDCs. It presents finance needs in NDCs as well as sources of financial support, and discusses requirements for financing sector transformation.

## The finance sector, climate change and NDCs

### Implications of the Paris Agreement

The Paris Agreement marks the political turning point towards the decarbonisation of the global economy; a goal that is now supported by most countries around the globe. The Agreement raised global mitigation ambition in order to limit the increase in average global temperature to “well below” 2°C, above pre-industrial levels, with the aim to limit warming to 1.5°C. The increased global ambition also raised expectations regarding the availability of finance and support, as its achievement will require transformational action at the national and sectoral levels. Hence, the mobilisation of adequate domestic and international sources of finance, in particular from the private sector, is critical for meeting the objectives of the Agreement and enabling the transformation of national economies. This needs to be coupled with scaled-up technology transfer and capacity building.

Decarbonisation requires the redirection of investment flows towards low- and zero-carbon alternatives. The International Energy Agency estimates that limiting global warming to 2°C requires additional annual

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investments of USD 1 trillion in ‘2°C technologies’<sup>1</sup> by 2050 for the energy sector alone (IEA 2014). Even without considering the specific infrastructure needs for a 2°C scenario, it is estimated that USD 89 trillion in investments are needed to replace, upgrade and expand current infrastructure in urban, land-use, and energy systems over the next 15 years. The composition of these infrastructure investments will, however, need to change considerably if they are to be consistent with a low-carbon pathway. Incremental costs of USD 13.5 trillion would be needed to improve efficiency of the building, industry and transport sectors, and to invest in the deployment of low-carbon technologies, such as renewables, nuclear and carbon-capture and storage (CCS). Savings of USD 9.4 trillion are, however, anticipated as investments are reduced in carbon-intensive areas, resulting in a net incremental cost of USD 4.1 trillion compared to the base scenario — a figure that represents less than 5% of the needed investment costs for infrastructure until 2030 (New Climate Economy 2014). At the same time, an immediate decrease in investments in technologies that result in unabated GHG-emissions is necessary. The long lifecycle — especially of many infrastructure-related investments, e.g. fossil fuel power plants have an expected lifecycle of 30-50 years, — requires immediate action, as there is a high risk of locking in greenhouse gas emitting technologies for decades. The Paris Agreement recognises this need to redirect finance flows in order to make them “consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Article 2 (1) c) (UNFCCC 2015).

The investment community is increasingly aware of the threat of a “carbon bubble” and the risk of stranded assets, evidenced, for example, by fossil fuel divestment strategies (Guardian Newspaper 2016) and initiatives to enhance the disclosure of financial risks associated with climate change. See for example, the G20 Financial Stability Board’s report: Taskforce on climate-related financial disclosures 2016.

Within the financial sector, public institutions have a leadership role to assume in order to enable the alignment of financial flows with long-term climate goals. This means going beyond mainstreaming climate change into their investment decisions and towards mainstreaming



NDCs have to be converted into concrete and detailed implementation and investment plans.

“well below 2°C”-compatibility into their development investment programmes (Höhne et al. 2015). Currently many financial institutions consider climate change impacts in their investment decisions, for example, by requiring best available technologies (BAT) to be applied or by monitoring climate impacts. However, this is not sufficient to ensure that investments are actually in line with what would be required to achieve international climate goals. At the same time, finance for adaptation and resilience needs to be scaled-up significantly to achieve the balance between mitigation and adaptation finance mandated by the Paris Agreement and to satisfy growing financial needs, in particular of Least Developed Countries (LDCs) and Small Island Developing States (SIDS), as they struggle to cope with the consequences of climate change. Since 1980, global disaster-related losses account for a total of USD 3.8 trillion, of which 74% can be attributed to weather extremes (World Bank 2013). Increased financial flows are required at the national, regional and international levels, mainly in the agriculture, water and coastal protection sectors.

<sup>1</sup> For an assessment of 2°C compatible technologies see for example Höhne et al. 2015.

At the national level, countries need to mobilise significant resources to enable the implementation of their NDCs and the long-term decarbonisation of key sectors. Here the planning and allocation of domestic budgets play a crucial role, as well as the mobilisation of the private sector, where appropriate. In order to define the role of international financial support to complement and activate national public and private resources, it is important to understand investment and finance needs at the sectoral and sub-sectoral levels. By understanding both investment and financial needs, government decision-makers are better positioned to design effective enabling frameworks and intervention strategies.

### Finance needs in NDCs

The importance of international support to achieve the NDC targets is reflected in 75 of the NDCs presented by developing countries (IGES 2016). Financial needs are either presented as total finance needs or related specifically to mitigation, adaptation or both. Some NDCs also include support needs associated with specific policies or actions, but few present detailed and transparent financial needs assessments. The terminology is often not clear as some countries refer to total investments, others to implementation costs or funding needs, generally without specifying shares to be mobilised domestically and those expected to be provided by the international community. In addition to specific financial needs, around 80% of developing countries' NDCs also communicate conditional targets and commitments; in most cases the conditions relate to additional finance being made available or to the provision of technology and capacity support (Day et al. 2016). Also here, the level of detail provided on specific needs is very limited.



Financial strategies need to be applied at the sectoral level.

Generally, the data and information presented in the NDCs does not provide clarity on actual financial and support needs. None of the countries specify the assumptions and methodologies underlying the calculations where quantitative information is presented. Numbers often appear to be high-level estimates derived from other processes (e.g. low carbon development strategies), but also here it is unclear whether these are based on a detailed cost analysis or broader extrapolations. The data often lacks the necessary detail or level of disaggregation to understand specific support needs in different sectors and sub-sectors, and timelines are not always specified (Halonen et al. 2017).

It is important however, to recognise that the purpose of the NDCs is to articulate a government's commitment towards addressing the collective challenge of climate change. Details on implementation and associated resource requirements are addressed in other processes, which have been ongoing for many years in most countries at the national and sectoral level. In many cases these have informed the current NDCs and provide the basis for further implementation and investment planning to drive sector implementation.

### Sources of financial support

The Paris Agreement reaffirmed the earlier commitment to mobilise USD 100 billion per year by 2020 and agreed to continue mobilising at this level of finance until 2025. A new level of finance, which must be higher than the current one, will need to be agreed before 2025 (UNFCCC 2015). Many developing countries have iterated that the 1.5°C goal strongly depends on the availability of additional finance beyond what has already been agreed.

Most developed countries and Multilateral Development Banks (MDBs) have already communicated an increase in their provision of climate finance or their intent to increase mainstreaming of climate considerations into Official Development Assistance. In particular MDBs, alongside other development finance institutions and development banks, are expected to play a significant role to support the implementation of NDCs. In recognition of this, several financial institutions have been developing specific NDC support strategies and programmes.

During 2016, developed countries authored a Finance Roadmap (Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, European Union, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands 2016) to outline the details on how they plan to meet their financial commitments, considering a variety of sources. Analysis in this context by the OECD (OECD 2016) concluded that pledges made in 2015 will

increase public finance from an average of USD 41 billion over the 2013-14 period to USD 67 billion in 2020. This is expected to leverage sufficient private co-financing to meet or even go beyond the USD 100 billion goal (Figure 1). At the same time, it needs to be said that accounting of financial resources is currently being discussed under the UNFCCC in order to develop modalities that will enhance transparency and comparability of climate finance. In particular, accounting for private financial flows is proving to be very challenging.

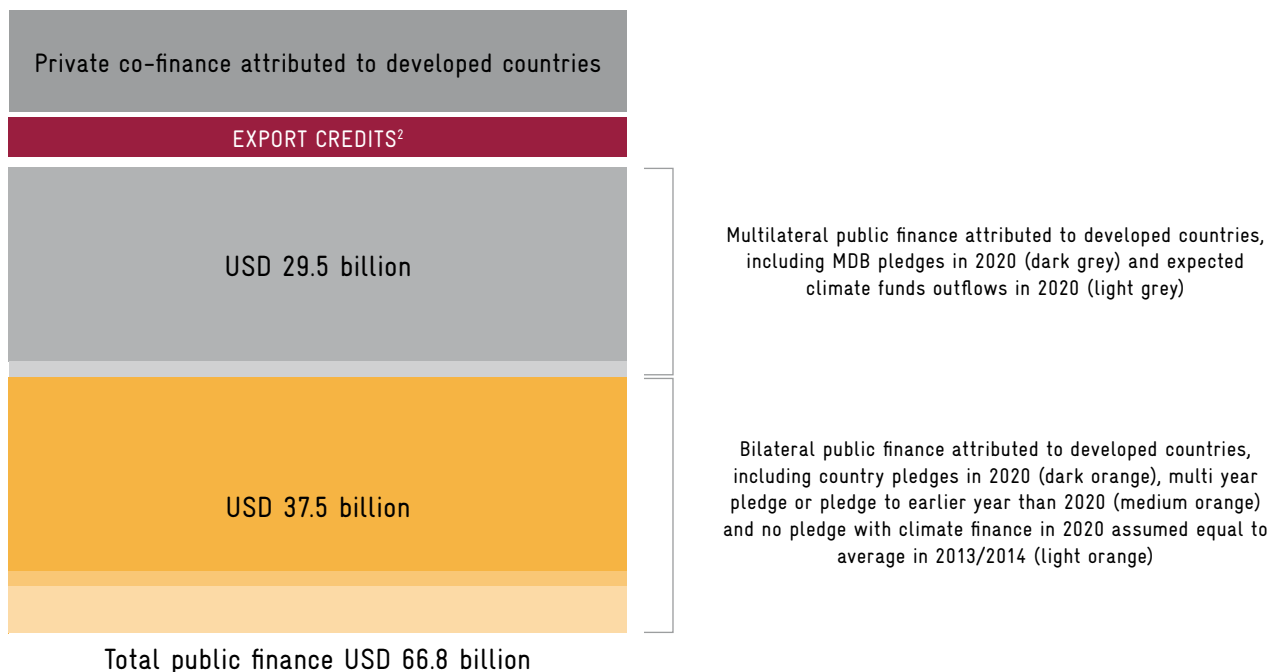


FIGURE 1: Projected finance levels in 2020 (Source: OECD 2016).

The financial mechanisms of the UNFCCC are key sources for targeted climate support. This includes the Global Environment Facility (GEF), the Green Climate Fund (GCF) as well as the Least Developed Countries Fund (LDCF), Special Climate Change Fund (SCCF) and Adaptation Funds. The LDCF and SCCF are administered by the GEF. The GCF, as the latest addition to the already established mechanisms, explicitly aims to support transformational change, reflecting the long-term goals of the Paris Agreement.

engagement in climate relevant investments, evidenced, for example, by the increased issuance and uptake of Green and Climate Bonds. The role of the private sector will be different depending on the market conditions in each country and specific sectoral context. In cases where risk return ratios remain prohibitive or no business models for the private sector can be identified, public funding will continue to play a dominant role.

Although there is an expectation from developing countries that public finance should play a key role, it is the private sector that will have to drive the transformation of the economy. Public funds will need to be deployed in such a way to maximise investment flows from the private sector, for example through targeted de-risking activities. (see for example (UNDP 2013). Along this line, many institutional and private investors have signalled increased



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<sup>2</sup> Mainly officially-supported export credits to renewable energy projects.

The majority of finance is still targeting mitigation activities. According to the Climate Policy Initiative's Global Climate Finance Review in 2014 (Climate Policy Initiative 2014), only 17% of public climate finance has gone towards adaptation and resilience building. The study recognises some uncertainty due to a lack of data on the private sector and different accounting methods. However, when considering only grant-based funding, the balance is in favour of adaptation.

There is an expectation that public funding for adaptation will have to be scaled up significantly to meet the growing demand. The public sector has a much larger role to play here, as many investment activities are infrastructure-related and do not present attractive business cases for the private sector. The private sector does have an important role in the context of climate risk finance, for example insurance and micro-finance schemes. See, for example, the G7's InsuResilience Initiative launched in 2015, which aims to increase insurance coverage of vulnerable communities across the globe.

Beyond international finance support, domestic resources play a dominant role and are critical for meeting the Paris goals. The Global Climate Finance Landscape report shows that 74% of climate finance and 91% of private finance is spent domestically (Buchner et al. 2015). It

is, therefore, crucial to create an investment and policy environment, which enables the shifting and mobilisation of domestic resources.

Development agencies and other actors have been providing readiness support for several years. Such initiatives support developing countries to build appropriate institutional structures, develop sectoral- and national-level investment plans and project pipelines in the context of their NDCs and sectoral targets. Active institutions and initiatives include, for example, the GCF Readiness and Preparatory Support Programme, the GEF, IADB NDC Invest platform and the GIZ / KfW Climate Finance Readiness Programme.

### Moving ahead with implementation and raising ambition

The NDC provides an overarching framework and political mandate for climate action. The targets and ambitions communicated in the NDCs will now have to be converted into concrete and detailed implementation and investment plans, as well as associated financial strategies<sup>3</sup> at the sectoral level.



One key recommendation for policy makers: NDC planning should be mainstreamed and integrated with all line ministries.

<sup>3</sup> Investment plans here refer to plans of where investments in a particular sector needed to be allocated (or not) with finance strategies defining how such investments will be facilitated.

## Key steps for moving towards sector-driven implementation and ambition raising

Many of the key steps for moving ahead with NDC implementation and ambition raising are relevant for all sectors. They are summarised in this box. Further details on the individual steps can be found in the overview briefing paper of this briefing series.

**Establishment of institutional bodies for oversight of implementation and monitoring of progress:** Alignment of institutions based on optimisation of existing mandates, to include broader levels of governance in strategy making including finance and planning ministries, and devolvement of responsibilities to line ministries and agencies with most sector influence. Approaches developed should be resilient to government staff turnover.

**Development and dissemination of knowledge on climate requirements and benefits:** Enhancing understanding on the implications of the Paris Agreement for the sector, and the social and economic benefits of climate change mitigation and adaptation measures.

**Plans for achievement of sector targets, and review of potential for increasing ambition in specific sub-sectors:** Stock-take and integration of sub-national, national and non-state action, translation to subsector targets, determination of long-term full decarbonisation targets for the sector, and collation of this information into a target-based roadmap. Potential for ambition raising can be analysed based on regional best practice policies and consideration of targets for sub-sectors not covered in climate strategy.

**Planning and implementation of instruments to leverage investments:** Evaluation of investment requirements and the role of private and public finance for leveraging those investments. Analysis of persisting barriers and development of concepts for projects/programmes that can address those barriers through unilateral action or international support (e.g. NAMAs).

**Revision of NDC:** Update content of NDC for greater transparency, clarity and in line with aligned national strategy and identified ambition raising potential.

**Introduction of policy packages and programmes to kick-start action:** Introduction of new policies and strengthening of existing policies, in accordance with sector planning process, and development and submission of proposals for internationally supported programmes (e.g. NAMAs).

Such planning needs to be guided by the alignment of sectoral development objectives with short-, medium- and long-term climate goals. An assessment of the range of 2°C scenarios and pathways showed that most mitigation activity has to occur in the energy-supply sector alongside energy efficiency in buildings, industry and transport. Renewable energy technologies, transport infrastructure as well as energy transmission infrastructure and buildings will require most investment flows given the scale of the activity and costs (Höhne et al. 2015).

The NDC process revealed a general lack of understanding of investment costs and financial needs at a sufficiently detailed level to allow for climate policy-oriented decision-making and the development of an associated investment pipeline. A robust estimation of financial needs requires a deep understanding and analysis of the specific policy and market context in the relevant sectors and sub-sectors, in particular an understanding of the barriers to implementation of climate-compatible, alternative technologies or processes. An enhanced understanding of the policy and market contexts can result in the development of investment plans that more effectively consider the range of domestic and international resources available.

On the **process level**, investment planning needs to consider the following aspects:

- » **Investment planning requires the close cooperation of government decision-makers and non-governmental stakeholders**, in particular those in the private and financial sectors, who are actually expected to deliver the change.
- » It is particularly important to closely **align the relevant line ministries' climate planning processes with national budgeting and planning processes (e.g. Ministries of Finance, Planning)**.
- » Given the MDBs and other international financial institutions' significant role in the provision of finance, **climate planning activities at the sectoral level need to take into account and align their activities with the timelines and planning cycles of multilateral donors and other major financial institutions**. This is particularly important as such planning cycles can be long and carry political weight.

On the **content side**, the following steps and aspects are relevant for the development of sectoral level investment plans for the mitigation-related elements of NDCs:

- » *Development of decarbonisation pathways at sectoral level considering mitigation options, technology trends, political feasibility, mitigation potentials and costs in the context of long-term climate objectives.* Such plans could be developed in conjunction with the long-term-strategies according to article 4.19 of the Paris Agreement and might need to be updated regularly to account for innovation and new developments.
- » *Assessment of technology and infrastructure needs and associated investment requirements,* considering the role of the private sector and identification of carbon lock-in risks.
- » *Identification of investment priorities,* considering constrained public budgets, resources and capacities.
- » *Identification of barriers to the implementation of mitigation options, as well as the identification of delivery mechanisms, instruments and measures to unlock investments,* including a detailed analysis of domestic financial institutions and the finance landscape.
- » *Design of financial interventions that address sector- and market-specific barriers and investment risks,* considering the myriad of instruments including equity, loans, grants as well as de-risking instruments.
- » *Assessment of domestic financial resources and identification of the finance gap* for international support in order to implement interventions.
- » *Development of investment proposals and project pipelines* for presentation to (international) funds and investors.

Much of the information is already available through other policy-planning processes at the national and sectoral levels. This includes low-carbon development-related planning, technology needs assessments, finance readiness activities as well as the development of (nationally appropriate) mitigation actions, amongst others.

Although not clearly defined as such, Nationally Appropriate Mitigation Actions (NAMAs) can be interpreted as a dedicated climate finance instrument under the UNFCCC, which can support the implementation of the NDCs through concrete, fundable activities pre-and post-2020. With their emphasis on transformational change and sustainable development they are particularly suited to support sector-level activities aimed at long-term decarbonisation.

Lastly, financial support should not be considered on its own. Typically, effective climate action faces a range of barriers, which need to be addressed through a variety of interventions. In particular, the mobilisation of private finance requires stable and clear policy signals to create enabling conditions, which reduce perceived or real investment risks. Here fiscal and subsidy reforms and regulatory instruments need to be considered in combination with specific financial instruments and incentive schemes. In this sense, policy packages including incentives for technology-push and demand-pull sectoral policies, as well as R&D need to be considered alongside targeted institution, capacity and knowledge-building activities. Generally speaking, a key barrier to sector transformation is not the lack of available capital but a policy environment that is conducive to change by setting the right incentives.

## FURTHER READING

Further details on the topics discussed in this briefing paper may be found in the following sources, amongst others:

- UNDP, 2008 → [Investment and Financial Flows \(I&FF\) methodology](#) (guidebook to undertake a bottom-up, national sectoral analysis of the costs of adapting to the impacts of climate change and mitigating GHG emissions).
- GIZ, 2017 → [Financing strategies: A missing link to translate NDCs into action](#) (the paper identifies the key building blocks of a financing strategy for climate-relevant activities, presents practical experiences and outlines some pragmatic lessons learned for the future).
- GIZ, 2017. Study on the potential use of Green Bonds to finance the implementation of Nationally Determined Contributions. Forthcoming.

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### About the GIZ Climate Policy Support Programme

GIZ Climate Policy Support Programme aims at developing and mainstreaming innovative approaches to tackle the challenges of climate change in the context of German Development Cooperation. On behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), it supports developing countries in their efforts to mitigate climate change and to adapt efficiently to its impacts. Through conceptual and practical activities, the Climate Policy Support Programme actively contributes to the implementation of the Paris Agreement and the UN Sustainable Development Goals.

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