

Analysis and tools for nationally determined contributions

Under the Paris Agreement, more than 150 countries have committed to acting on climate change in nationally determined contributions (NDCs) that are ambitious and progress over time. But commitment is just the first step: preparing, financing and meeting NDC goals present unique challenges for every country.

The Stockholm Environment Institute is working on NDCs from multiple angles, through analysis, capacity building and the development of innovative tools. SEI addresses both big-picture policy questions and country-specific challenges. Dialogues, partnerships and interactive platforms focus on supporting planners, policy-makers and other stakeholders, with the purpose of connecting science to policy.

Key Insights from NDC analysis

Fossil fuel production can be phased down under the UNFCCC

The Paris Agreement sets a goal of limiting warming to “well below” 2 degrees Celsius and asks countries to outline their contribution to this goal in their NDCs. Meeting this goal will require a phase-down of the consumption and production of coal, oil, and natural gas.

SEI researchers examined how fossil fuel supply could be integrated into elements of the Paris Agreement, including NDCs. Among the options: countries could use their NDCs to set targets for phasing down fossil fuel production, and report actions to limit fossil fuel supply. Such actions could include removing fossil fuel subsidies, introducing production taxes or exploration restrictions, and planning for a “just transition” for the fossil fuel workforce.

Countries are already taking many of these actions. China, for example, introduced a three-year ban on new coal mines, and Costa Rica has banned petroleum exploration and extraction until 2021. However, at present, fossil fuel supply is not a central focus in NDCs. India is the only nation in the top ten fossil-fuel-producing countries whose NDC mentions a policy that would restrict fossil fuel supply, namely a coal tax.

But the opportunity is there for countries who are undertaking these actions to include them in their NDCs – alongside existing mitigation goals – and gain recognition for their efforts. That, in turn, could encourage increased ambition among other Parties to intensify their climate efforts by restraining fossil fuel production.

Related publications:

Addressing fossil fuel production under the UNFCCC: Paris and beyond:

www.sei-international.org/publications?pid=3220

Seizing the opportunity: tackling fossil fuel subsidies under the UNFCCC

www.sei-international.org/publications?pid=3164



Mesabi Miner, a self-unloading bulk carrier, docks before unloading 50,000 tons of coal for a power plant in Michigan.

Transparent tracking of NDC implementation requires further guidance from Parties

One of the main elements of the Paris Agreement is the “enhanced transparency framework” set out in Article 13. This transparency is crucial to the success of the Agreement – and can help Parties to achieve a shared understanding of their collective and individual efforts.

By gathering clear and comparable information about NDCs, the transparency framework can help in mobilizing domestic support for stronger climate action and international cooperation, in identifying opportunities to enhance Parties’ efforts, and in holding Parties accountable for meeting their commitments.

SEI researchers looked at the key challenges in putting the enhanced transparency framework into practice. Among them is the lack of detailed guidance on the features of NDCs, which makes reporting on and reviewing the process challenging. Intended NDCs are largely heterogeneous, making it difficult to compare and aggregate their effects.

Researchers made numerous policy recommendations, including that Parties develop further guidance for the features of NDCs and task the UNFCCC Secretariat with preparing a technical report on lessons learned from existing transparency processes.

Related publication:

Putting the ‘enhanced transparency framework’ into action: Priorities for a key pillar of the Paris Agreement
www.sei-international.org/publications?pid=3038

Robust accounting for international transfers under the Paris Agreement is key to preserving the integrity of international market mechanisms

Under the Paris Agreement, countries can work together to reduce emissions. Article 6, in particular, lays out provisions to

foster such collaboration, providing a basis for the possible use of cooperative approaches and market mechanisms.

With that opportunity comes the need to ensure environmental integrity. SEI researchers have analysed various approaches for international emissions trading and internationally transferred mitigation outcomes.

For emission reduction credits, for example, “double counting” could occur if both countries claim the same GHG emission reductions to achieve their NDCs. An SEI-led analysis for the World Bank’s Partnership for Market Readiness assessed how crediting baselines could be established in a robust manner in the new context of the Paris Agreement.

SEI researchers have also looked specifically at the Clean Development Mechanism (CDM) and the possibility of using certified emission reductions (CERs) to achieve NDC targets. They found that policy-makers should limit eligibility to protect against emissions increases, allowing only CERs from new projects that are additional and from existing projects that are at risk of discontinuing greenhouse gas abatement.

Related publications:

Ensuring the environmental integrity of market mechanisms under the Paris Agreement
www.sei-international.org/publications?pid=3025

Using the Clean Development Mechanism for nationally determined contributions and international aviation:
www.sei-international.org/publications?pid=3205

Robust Accounting of International Transfers under Article 6 of the Paris Agreement
www.sei-international.org/publications?pid=3107

Large-scale international cooperation is essential for achieving an equitable pathway to 1.5°C

The Paris Agreement aims not only to keep global temperature rise “well below” 2 degrees Celsius but also to pursue efforts to limit that increase to 1.5 degree Celsius. For the latter, the problem of fairly distributing the global mitigation effort is particularly important, due to a rapidly depleting carbon budget.

To be equitable, countries with higher capacity and responsibility should contribute support to countries with lower capacity and support.

Researchers from SEI, the Climate Equity Reference Project and EcoEquity quantified each country’s range of fair shares for mitigation compliant with a 1.5°C limit. They then looked at INDCs – and found that wealthier countries fell far short in their mitigation pledges, while poorer countries collectively met their fair share.

The United States, for example, pledges at most only 24% of its fair-share contribution. For the European Union, that number is 23%. Industrialized countries – who have a higher capacity and higher responsibility – can’t reach their fair share

Related publication:

Fairly sharing 1.5: national fair shares of a 1.5 °C-compliant global mitigation effort
www.sei-international.org/publications?pid=3243

solely with domestic emissions reductions. To meet their fair-share mitigation effort, they will have to cooperate to achieve mitigation opportunities in other countries.

Kenya must put its energy sector on a low-carbon trajectory to meet NDC targets

Kenya set an NDC target to reduce greenhouse gas emissions by 30% by 2030, which is particularly ambitious in light of its development goal to become a middle-income country during the same period. Implementing a low-carbon energy development pathway is therefore critical to achieving its NDC targets.

SEI researchers worked with researchers from the Energy Research Centre of the Netherlands (ECN) to analyse potential energy pathways, highlighting the uncertainties and risks of each one so policy-makers can better understand the implications of each approach. The ECN Integrated Assessment model was used to evaluate the implications of different pathways. The researchers found many options for low-carbon development of the energy sector – but all require extensive financial investment and place significant demands on energy sector governance.

To succeed, Kenyan policy-makers must engage stakeholders at an early phase of energy project investment cycles, in order to spark a broader public dialogue around energy and development pathways and to implement transparent benefit-sharing mechanisms that are co-designed with key stakeholders.

Related publication:

Energy pathways for achieving Kenya’s nationally determined contribution on climate change:
www.sei-international.org/publications?pid=3239

The private sector is an increasingly relevant actor in agricultural adaptation in sub-Saharan Africa

As part of an ongoing project, SEI researchers are assessing how the private sector can be stimulated to contribute to the financing of adaptation activities as part of the implementation of NDCs in sub-Saharan African countries.

To identify different types of private sector involvement, researchers examined 39 publicly funded agricultural projects that include the private sector. Some projects use public finance to raise awareness of climate risks and adaptation opportunities, aiming to stimulate future private investment. Other projects channel public finance through private actors, who are hired to provide goods and services. In a smaller number of projects, public finance is already leveraging private investment.

To accelerate and scale up private investment, policy-makers in sub-Saharan Africa could provide more clarity on which types of private actors they seek to involve in their adaptation projects and programmes. The private sector is diverse, and different actors respond to different incentives.

Commercial opportunities for private actors could be identified across the entire value chain. Increasing production is not the only relevant objective to private actors; improvements at the harvest and commercialization stages also present opportunities.

Related publication:

PRINDCISSA project
www.sei-international.org/projects?prid=2238

What roles could private actors play in agricultural adaptation in sub-Saharan Africa? Insights from publicly funded projects
www.sei-international.org/publications?pid=3191

Supporting countries in setting and achieving goals

NDC development

The Long-range Energy Alternatives Planning system – or LEAP – is widely used by countries for clean energy, climate mitigation and short-lived climate pollutant (SLCP) mitigation planning. To date more than 20 countries have used LEAP when developing their NDCs.

SEI is now developing training to enable climate mitigation practitioners to create and analyse NDC policies within LEAP. Policy-makers can use the system to test out mitigation strategies, analysing what policies are both feasible and achieve GHG abatement targets.

Recently, SEI worked with the U.S. Environmental Protection Agency and the University of Colorado to develop a benefits calculator called LEAP-IBC. Planners can thus see how policies affect not only the energy system and greenhouse gas emissions, but also human health. Enter a measure, and the tool will tell planners the estimated reduction in deaths related to ozone and small particulate matter.

SEI uses LEAP-IBC to support about a dozen countries in the development of their national plans. That effort is part of SEI's role as one of the leaders of the Supporting National Action and Planning on SLCPs initiative – or the SNAP initiative – of the Climate and Clean Air Coalition (CCAC).

Capacity building

SEI works with national, regional and local partners to spark conversations, foster partnerships and encourage knowledge sharing. Dialogues and workshops can be key to engaging policy-makers, researchers and stakeholders.

In 2018, SEI is planning a series of NDC and development dialogues at Swedish embassies across Africa and Southeast

Asia countries. The aim is to explore interactions and possible win-win opportunities for development/growth and climate action. This work is conducted as part of the Swedish contribution to the NDC Partnership.

SEI also has a representative on the Steering Committee of INCCETT, a new international network of climate centres and think tanks initiated at COP22 that focuses on capacity building to support individual countries address their NDCs. The aim is to foster partnerships and south-south and south-north collaborations, under the Paris Committee on Capacity-building.

Tracking progress with NDC Explorer

The NDC Explorer gives users a cross-cutting, bird's-eye view of NDCs. Accessible to all, this interactive tool puts NDCs in context, enabling users to see how countries are tackling high-emission sectors, adaptation and mitigation. SEI worked with the German Development Institute and the African Centre for Technology Studies to build the database and then analyse ambitions and priorities across countries.

Researchers found trends that offer insight on the challenges and opportunities that lay ahead. Many countries, for example, set targets for particular sources of renewable energy. But as few as 4 NDCs include agriculture as a priority area – despite its importance as a source of greenhouse gas emissions.

Researchers also found that poorer countries tend to focus more strongly on adaptation. Many developing countries make the implementation of their mitigation target partly or fully conditional upon receiving international support.

Linking NDCs with Sustainable Development Goals

In September 2015, the UN General Assembly adopted the 2030 Agenda, including the 17 Sustainable Development Goals. Three months later, the Paris Agreement was adopted, with NDCs as the core element for increasing climate ambition.

The SDGs and NDCs are universal and implemented through a bottom-up process where countries set their own priorities and ambitions. Their joint implementation can offer great potential.

SEI has, together with the German Development Institute, conducted a comprehensive global analysis of all NDCs,

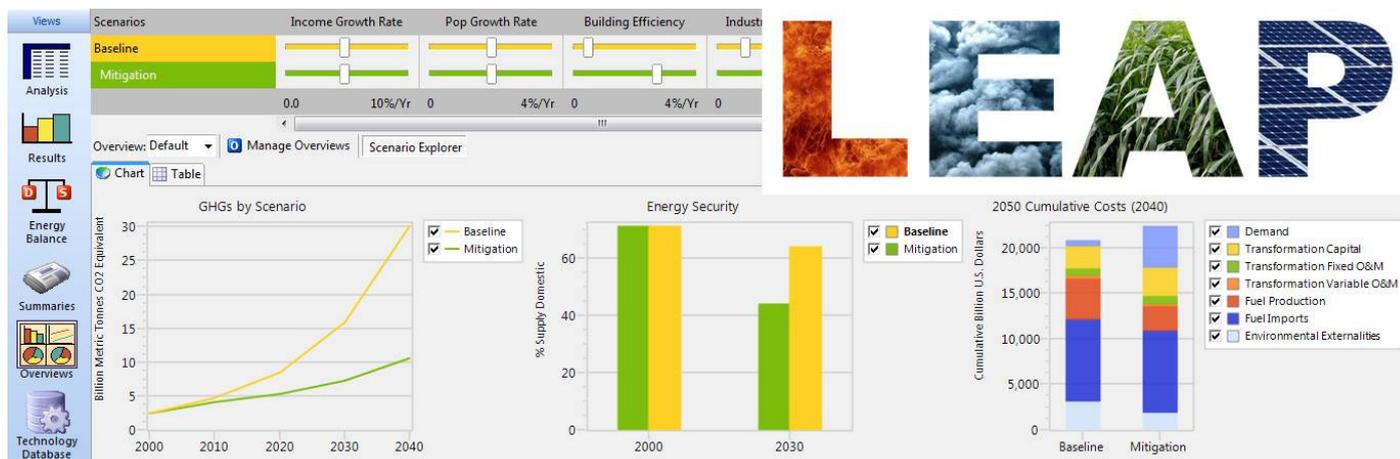


Figure 1: More than 20 countries have used the Long-range Energy Alternatives Planning system – or LEAP – when developing their NDCs. SEI is now developing training to enable climate mitigation practitioners to create and analyse NDC policies within LEAP.



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A rice farmer in Mozambique talks with an agricultural supervisor as part of an irrigation and climate resilience project.

identifying ways joint implementation offers potential of synergies. The main output is a new tool called the NDC-SDG Connections tool, which shows the links between all NDCs and the 17 SDGs.

The tool is meant to inform research and policy discussions on how to cover the SDGs in NDCs, to provide insights into individual sustainability targets and to explore the interlinked character of the SDGs through a climate lens. Users can estimate how a sustainability policy can complement climate measures, or compare countries with regard to the ambition level of their climate activities. The tool shows how aligning climate and development priorities can help to prioritize socially and environmentally conscious climate actions, based on a global assessment of economic, social, and environmental impacts.

Crowd-sourcing expert knowledge

The SEI platform weADAPT brings together practitioners, researchers and policy-makers to share information on climate adaptation planning, research, practice and related areas. That includes NDC-relevant topics such as planning NDC implementation, low emissions development strategies and climate-resilient development.

Users can find hundreds of articles, case studies, tools, approaches, and lessons learned from regions around the world. Recent publications have included a report on forging low emission development paths in Latin America, using NDCs to advance climate-resilient development and financing national adaptation plan processes.

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Tools to support countries in setting and achieving goals:

LEAP: www.energycommunity.org

NDC Explorer: <http://ndcexplorer.info>

NDC-SDG Connections Tool: <http://ndc-sdg.info/>

weADAPT: www.weadapt.org

Exploring connections between the Paris Agreement and the 2030 Agenda for Sustainable Development:
www.sei-international.org/publications?pid=3246

Moving forward

SEI researchers are looking at how well NDCs align with other national plans, such as national development plans and sector priorities. It is critical to understand the challenges countries have had in making this connection, and researchers hope to learn from regional experiences.

A dialogue with small island developing states is one part of this effort. Researchers also plan to produce a paper with insights that will help identify ways of strengthening the integration of climate change into the national development planning of developing countries.

SEI has also started a review on how human rights are addressed in NDCs. While the Paris Agreement acknowledges the connection between climate change and human rights in the preamble, it does not reference human rights in its operative provisions. Researchers will review Asia-Pacific NDCs and produce recommendations on best practices for integrating human rights into the NDCs and the Paris Agreement “rule book”.

SEI researchers continue to look at both the broader questions surrounding NDCs and the on-the-ground challenges, in order to link research with policy and support the implementation of effective strategies that reduce climate risk.

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