

Submission to the Talanoa Dialogue

Question 3

How do we get there?

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How to raise ambition?

GIZ's worldwide experience in supporting transformation to low-carbon economies and climate-resilient societies

INTRODUCTION

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH welcomes the opportunity to prepare a submission to the United Nations Framework Convention on Climate Change (UNFCCC) Talanoa Dialogue. Through the Paris Agreement, the world community has set a long-term goal of holding the increase in the global average temperature to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. However, the currently submitted nationally determined contributions (NDCs) are not ambitious enough to set the world on the path towards this goal. The Talanoa Dialogue, originally referred to as the 'facilitative dialogue', aims to take stock of where we are on limiting the rise in global temperatures, to examine where we want to go, and how to get there.

GIZ is contributing to the process by drawing on its vast experience in implementing projects with partner governments worldwide. The focus of this international cooperation is to achieve transformation by developing the capacities of people and institutions. We have therefore prepared this technical submission with five (5) key messages that may stimulate countries to effectively implement their actual NDC, to increase the ambition for their next NDCs and thus contribute to achieving the goals of the Paris Agreement. In our submission, we will focus on question three (3) of the Talanoa Dialogue: 'How do we get there?'

GIZ AND CLIMATE CHANGE

GIZ is the German technical cooperation agency with operations worldwide in support to sustainable development. As our main client we assist the German government in implementing its development cooperation objectives. Through our work in the field of international cooperation, we support people, institutions and societies in shaping their own future and improving their living conditions.

GIZ translates the climate policy commitment of the German government and other donors into practice. We develop climate-specific expertise, foster organisational development, and support political change processes in partner countries to help prepare them to face the challenges of climate change. Moreover, we are creating examples of how both mitigation and adaptation measures can generate a whole series of economic, social, and environmental benefits aimed at sustainable development in the light of Agenda 2030.

For over 20 years, GIZ has been actively supporting partners in developing countries and emerging economies in the area of climate change. Today, there are more than 500 projects operating in a broad range of sectors, focussing on mitigating greenhouse gas emissions, climate change adaptation and climate finance. Together, these projects with a volume of approximately EUR 1.9 billion account for more than one third of GIZ's entire portfolio (2016).

Capacity development is a key instrument in GIZ's mission. Our main clients for climate change-related projects are the **German Federal Ministry for Economic Cooperation and Development (BMZ)** and the **German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)**. NDCs are the central framework for Germany's medium- to long-term international cooperation on climate change.

ABOUT THIS SUBMISSION

The core of the submission's methodological approach ([Annex III](#)) is a survey among climate- and transformation-related experts at GIZ headquarters in Germany and in many of its 120 country offices. These experts work in projects related to climate governance and policy, NDCs, climate change mitigation, adaptation or climate finance and, of course, the relevant sectors implementing climate targets. We asked these colleagues to set out their experiences in creating framework conditions for transformative low-carbon or carbon-neutral development processes.

These “good practice” cases ([Annex II](#)) are based on our working experience in climate-relevant sectors, such as energy; transport; waste; industry; water/wastewater; REDD+ or land use and agriculture, as well as financing; governance; measurement, reporting and verification (MRV), and stakeholder engagement. From these cases, we distilled five (5) key messages that, in our view, may stimulate countries towards enhanced implementation of their climate goals under the Paris Agreement and to set out for more ambitious NDCs.

The core objective of this submission is to provide evidence that decarbonisation pathways enable developing countries and emerging economies to achieve their sustainable development goals. Ultimately, this and the availability of support and examples of good practice can motivate parties to set more ambitious NDCs in the future.

KEY MESSAGES FOR THE TALANOA DIALOGUE

The following key messages are to motivate and inspire partner countries to tap into additional mitigation and sustainable development potential and opportunities for the implementation of their existing NDCs and further development of their next NDCs, contributing to achieving the goals of the Paris Agreement.

GIZ's work is based on a [capacity development](#) approach, which forms the underlying principle of these five (5) key messages. We believe that strengthening the capacities of individuals, groups and institutions in the short-, medium- and long-term can trigger political change processes and foster more sustainable development. We have developed a number of tools and training programmes to achieve this goal ([Annex IV](#)).

1. Mobilising private sector investments

The private sector is key for massive and transformative investments in low-carbon technologies. There is evidence that regulatory and incentive policies can enable and leverage private sector engagement.

From a macroeconomic development perspective, the cost-benefit analysis of these policies is generally positive for the country; for example, through gains in energy efficiency, energy security, technology transfer, job creation, and by attracting additional public and private investment.

Investing early in climate action and ambitious NDCs will save avoidable future burdens in various fields (fossil fuel stranded assets, health impacts, etc.).

Access to and effective management of international climate finance presents a challenge for many partner countries. In the context of NDC implementation, mobilising private capital is key to success. Private climate finance may be increased through the mobilisation of funds on the capital market and direct investments by corporations. Setting conducive framework conditions for private sector engagement and targeted budgeting and steering of flow of domestic funds is crucial for effective private investment in climate action. GIZ supports in building up efficient, transparent and corruption-free climate finance institutions, enabling them to plan, coordinate and implement climate finance programs.

Aligning available financing with sectoral plans and developing pipelines of bankable projects can foster the necessary transformative processes and help countries to enhance their efforts. Through capacity development,

GIZ supports this process on improved and more efficient integration of technical and financial cooperation. Jointly, these efforts can lead to transformative investment in low-carbon and clean technologies and enable countries to raise the mitigation ambitions in their NDCs.

GOOD PRACTICE CASES

- **Global: Proklima & Management of Ozone-Depleting Substances (Refrigeration and air conditioning)**
- **Egypt: Renewable Energy (RE) & Energy Efficiency (EE) (Energy)**
- **Global: Nitric Acid Climate Action Group (NACAG) (Industry)**
- **India: Investment Plans in Climate Change (Cross-sectoral)**
- **Kenya: Energy Efficiency in tea sector (Energy)**
- **Chile: Renewable energy (RE) (Energy)**
- **Peru: Transport NAMA (Transport and mobility)**

2. Measurement, reporting and verification (MRV)

Robust data and data management are crucial for the identification of mitigation potential and for accessing private and public climate finance and support.

Identifying sources of emissions and the mitigation potential of certain technologies and measures is a precondition for decision-makers (both sectoral institutions as well as those in charge of policy coordination and private enterprises) to be able to set realistic and ambitious targets and adjust them over time.

Thus, solid data as well as national MRV and management systems are needed to identify effective policies and ensure efficient implementation as well as being key to access climate finance and support.

GOOD PRACTICE CASES

- **Turkey: MRV system for the industry sector (Cross-sectoral)**
- **China: Transport Decision Model (Transport and mobility)**
- **Vietnam: Transport Climate Strategies (Transport and mobility)**
- **India: Investment Plans in Climate Change (Cross-sectoral)**
- **India: EE Certificate Scheme for Industry (Energy)**
- **Sub-Sahara Africa: Climate-Smart Livestock Systems (Land-use and agriculture)**

3. Peer-to-peer learning opportunities

Good practice experiences and peer-to-peer exchange platforms are available and ready to be used.

Peer-to-peer learning can provide an important source of information and motivation for decision-makers in countries. Studying what others have successfully applied and learning about co-benefits can reduce transaction costs. Replicating and scaling up already successfully tested approaches can speed up mitigation progress more cost efficiently. This creates the confidence to embark on a low-carbon pathway and at the same time addressing economic and development challenges.

GIZ is associated with a number of platforms and initiatives relevant for climate change. The NDC Partnership is a frontrunner initiative in this context and for Germany one of the central platforms for cooperation between donors and partner countries towards NDC implementation and ambition raising. Other notable initiatives are,

for instance, the Partnership on Transparency in the Paris Agreement (PATPA), the Africa Renewable Energy Initiative (AREI) or the Transformative Urban Mobility Initiative (TUMI). For more information, see [Annex I](#).

GOOD PRACTICE CASES

- **Sub-Sahara Africa: Climate-Smart Livestock Systems (Land-use and agriculture)**
- **India: Investment Plans in Climate Change (Cross-sectoral)**
- **Costa Rica: Coﬀee NAMA (Land-use and agriculture)**
- **Global: C40 Cities Finance Facility (Cities)**
- **Mexico: Housing NAMA (Cities)**
- **Brazil: Integrated Fire Management (Land-use and agriculture)**
- **Philippines: National REDD+ System (Forests)**
- **Lao PDR: Climate Mitigation through Avoided Deforestation (Forests)**
- **Fiji: Sustainable Forest Management (Forests)**

4. Political buy-in for transformation

Integrating stakeholders enhances political buy-in for transformation. A just transition is key to the success and sustainability of transformation.

Achieving the Sustainable Development Goals (SDGs) will be a key challenge over the next decades. At its core is the aim to leave no one behind and to eradicate global poverty. Climate action can facilitate this process. We are convinced that investment in climate means investment in sustainable growth and improved livelihoods. Reducing emissions can yield multiple sustainable development co-benefits, such as improved public health through reduced air pollution, job creation, technology transfer and many others. Identifying sectoral mitigation targets and formulating them into sectoral plans can mobilise stakeholders (local governments, the private sector, and communities) to create stronger links between climate change mitigation and sustainable development and thus enhance ambition over time. However, it is important to consider the sections of the population or economy that perceive disadvantages from such transformation processes and hence integrate their concerns in decision-making. This will help to increase political buy-in and the sustainability of climate policies.

The ownership of line ministries is key when formulating, implementing and revising NDCs. This can be achieved through sectoral plans and targets designed in close cooperation between the ministry for climate change, ministries in charge of planning and budgeting, and those responsible for the various sectors.

Non-state initiatives are crucial to showcase that more ambition is possible and to provide an assurance that implementing climate action and raising ambition in NDCs is achievable and beneficial.

GOOD PRACTICE CASES

- **Vietnam: System of Rice Intensification (SRI) (Land-use and agriculture)**
- **Philippines: National REDD+ System (Forests)**
- **Ecuador: REDD+ for Early Movers (REM) (Forests)**
- **Global: Forum for Sustainable Palm Oil (FONAP) (Land-use and agriculture)**
- **ASEAN: Cleaner Air for Smaller Cities (CASC) (Cities and waste)**
- **Uganda: Promotion of Mini-Grids (Energy)**

5. Untapped mitigation potential

There are numerous hidden mitigation opportunities that present significant potential for raising ambition in forthcoming NDCs.

There are several significant mitigation potentials that are not yet covered by national policies. Integrating them into NDCs can also unlock additional climate finance from both public and private sources.

Currently underestimated mitigation opportunities can be discovered through sector-level analyses, e.g. in the cooling sector or the fertiliser industry, which leads to avoiding the use of greenhouse gas potent sources like hydrofluorocarbons (HFCs) or nitrous oxide (N₂O). By mainstreaming climate change (both mitigation and adaptation) into those sectors, awareness for their climate relevance can be created, thus helping to increase a country's NDC ambitions.

A starting point for this analysis would be the preparation of NDC sectoral implementation plans.

GOOD PRACTICE CASES

- **Global: Proklima & Management of Ozone-Depleting Substances (Refrigeration and air conditioning)**
- **Brazil: Integrated Fire Management (Land-use and agriculture)**
- **Global: Nitric Acid Climate Action Group (NACAG) (Industry)**
- **Brazil: National Waste Policy (Waste)**
- **Global: Water and Wastewater Companies for Climate Mitigation (WaCCLiM) (Water)**
- **Ukraine: 240 km of bikeways (Transport and mobility)**

CONCLUSION

At GIZ, we believe the Talanoa Dialogue creates the necessary momentum for enhanced NDC implementation and to raise ambition for the next set of NDCs. This is the time to set the right course in policy-making and align with the objectives of the Paris Agreement.

Our key messages, based on our worldwide experience, highlight that there are benefits from early investment in low-carbon and clean technologies, from engaging in a dialogue with all stakeholders involved in climate action, from participating in peer-to-peer exchange platforms, and from collecting robust data. Combined, these elements can lead to more sustainable development and increased ambition. Policy makers need to be convinced of the link between climate action and achieving national SDG targets.

Over the past years and decades, we have piloted and tested solutions. These good practice experiences can now be scaled up and rolled out to trigger large-scale transformation. Capacity development is key to this change.

GIZ is willing to continue its engagement in the Talanoa Dialogue throughout this year by submitting further input and by participating in dialogues and through any other form of contribution.

ANNEX I: INITIATIVES AND PEER-TO-PEER PLATFORMS

A selection of the numerous platforms GIZ is associated with.

NDC Partnership (NDCP)

The success of the Paris Agreement depends ultimately on countries' abilities to turn their NDC commitments into action. The NDC Partnership, launched in November 2016, is a global coalition of countries and international institutions working together to achieve ambitious climate goals and enhance sustainable development. Members of the Partnership work to ensure countries have access to the support they need to implement their NDCs by:

- Providing required technical assistance to developing countries in accordance with a country-led plan.
- Giving countries access to appropriate financing for their NDC actions.
- Sharing learning among members to replicate and scale up successful approaches to NDC implementation.

As of March 2018, the NDC Partnership counts 84 members and is active in 22+ countries. It is co-chaired by the governments of Germany and Morocco, and guided by a Steering Committee with representation of all relevant stakeholders. Its work is facilitated by a Support Unit hosted by the World Resources Institute in Washington and the UNFCCC Secretariat in Bonn.

GIZ is an important partner of the NDGP and understands the Partnership as a central platform to effectively foster NDC implementation and raising their ambition. GIZ advises BMZ and BMU on matters related to the Partnership, dispatches personnel to the Partnership's Support Unit and implements technical cooperation projects under the ambit of the Partnership.

NDC Cluster Helpdesk

The NDC Support Cluster has established a platform for providing flexible support to deal with a number of challenges around NDC implementation in developing countries. The Helpdesk works through a network of experts in different fields related to NDC implementation, namely political and institutional frameworks, sector approaches, financing as well as data and transparency.

Partnership on Transparency in the Paris Agreement (PATPA)

PATPA supports practical exchanges and political dialogues on climate transparency by promoting ambitious climate action through peer-to-peer exchanges and sharing of good practice. As a semiformal forum, the Partnership has gained international recognition, with more than 100 countries participating in its various activities.

Africa Renewable Energy Initiative (AREI)

The AREI aims at massively increasing the use of energy from renewable sources in Africa, thereby also increasing access to energy and addressing climate change. GIZ is engaged with the AREI on behalf of the BMZ and BMU.

Transformative Urban Mobility Initiative (TUMI)

Within the transport sector GIZ is actively involved in the TUMI, which was initiated by BMZ. GIZ has been holding the secretariat position for one and a half years, supporting capacity development in urban transport, implementing pilot projects in selected countries and facilitating access to finance.

Partnership on Sustainable Low Carbon Transport (SLoCaT)

SLoCaT is a multi-stakeholder partnership with the aim of decarbonising the transport sector. Its main aim is to bring the topic on national agendas and thereby support the Paris Agreement and NDC implementation process. In line with this partnership GIZ organized for instance different side events to COP23 in Bonn.

C40 Cities Finance Facility (CFF)

The C40 Cities Finance Facility (CFF) bridges the gap between cities and financiers. The ultimate objective of the CFF is to reduce GHG emissions and increase climate resilience in cities by providing project preparation support for urban infrastructure projects. This includes bringing a project to technical feasibility and mobilise finances for its actual construction. As part of this support, the CFF also builds capacities among relevant city's technical departments and shares knowledge between and beyond CFF partner cities via peer-to-peer exchanges and workshops.

Mobilise Your City Partnership

The Partnership funded by BMU together with the European Commission's Directorate-General for International Cooperation and Development (DG DEVCO) and the French Ministry of Ecological Transition and Solidarity (MTES), and jointly implemented by GIZ, the Agence Française de Développement (AFD) as well as other technical organizations aims at supporting 100 municipalities and 20 national governments in developing urban mobility strategies.

ANNEX II: GOOD PRACTICES IN SELECTED SECTORS

ENERGY

Promotion of Mini-Grids in Northern Uganda (Pro Mini-Grids NU)

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Uganda (NDCP member)

Lead executing agency: Ugandan Ministry of Energy and Mineral Development (MEMD)

Overall term: 2016 to 2020

Challenge

Providing sustainable electricity in particular for rural population without increasing emissions is a major challenge for economic development and poverty reduction. Uganda's electrification rate currently accounts to approx. 15%. While national grid extension has brought increased power supply to the urban areas, electrification rate in many rural areas remains below national average (approx. 7%). Diesel and kerosene alternatives produce high emissions and are unsustainable leading to a carbon lock-in. Cheap solar home systems on the other hand are too small to enhance economic development. Therefore, a GHG neutral, sustainable solution is needed in order to promote economic development in rural Uganda.

Intervention

In the Pro Mini-Grids approach, GIZ in cooperation with the Ugandan Ministry of Energy and Mineral Development (MEMD) and the Rural Electrification Agency (REA) established a strategy for identifying viable villages with potential for mini-grid installation. The project involves the establishment of a transparent and efficient tender mechanism as well as the adaption of the licensing procedure in a scaled up, coordinated effort between government agencies hosting tenders, DFIs providing finance, project developers operating the mini-grids, and communities adopting smart power usage behaviour. Traditional tendering and operation is adapted through the involvement of communities in planning of power supply processes.

Outcome and relevance to ambition raising

In sense of an open and inclusive Talanoa Dialogue, the project enhances capacity building for all stakeholders involved. The implementation of new methods and regulatory instruments fosters a holistic transformation in Uganda's energy sector by promoting private investment in mini-grids while ensuring that government agencies manage the processes. Through the alignment of power needs of communities and operators, the project ensures secure supply and service quality. In doing so, the project involves provision of trainings and access to finance in order to incorporate electricity in agriculture, retail and service. It therefore fosters productive and sustainable use of electricity while in the same time enhancing economic development. The project thus promotes ambition raising in GHG mitigation on regional and national level.

Egyptian-German Joint Committee for Renewable Energy, Energy Efficiency and Environmental Protection

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Egypt

Lead executing agency: Ministry of Electricity and Renewable Energy (MoRE);
New and Renewable Energy Authority (NREA)

Overall term: 2015 to 2019

Challenge

Meeting the new legal requirements for the promotion of Energy Efficiency (EE) in Egypt is a key challenge for many local electricity distribution companies (DISCOs). Living up to the new legal standard, and to the overall objective of creating a more sustainable energy system, they are in great need of well-functioning organisational structures. As a foundation, energy managers and auditors require enhanced expertise on the role of EE. Furthermore, the DISCOs lack the right techniques to implement effective strategies to promote EE in their service areas.

Intervention

The intervention aims at accompanying the nine national distribution companies in their objective of making Egypt more sustainable. Its approach is multi-faceted. On the one hand, elaborated transformative processes were initiated. With the assistance of the project, Egypt's nine state distribution companies have all opened new offices. These serve as focal points and are responsible for the decentralised distribution of Renewable Energy (RE) and promotion of EE. This has encouraged the construction of countless rooftop photovoltaic systems and brought the country closer to meeting its national target for the expansion of RE. Secondly, the transformative process went along with an intensive capacity building measure aiming to provide the DISCOs with qualified personnel. The trained energy managers and auditors guide the organisational change and the fulfilment of the legally binding requirements. Through the implementation of practical EE measures and monitoring by the trainees, long-term energy-, cost-, and CO₂ savings are achieved. The new EE units are also responsible for running regular courses, for instance to train trainers in the field of industrial energy auditing. Thirdly, a support system of well-conceived innovative services was established. In 2018, two pilot DISCOs are supported in developing their annual EE and RE plans. This includes not only technical support in drafting the paper but also the development of a computerised result-based monitoring system in consultation with the regulatory agency EgyptERA. This will serve as a control and verification tool to record the differences between planned and actual energy savings.

Outcome and relevance to ambition raising

The implementation of RE & EE units in all nine distribution companies led to significant energy savings and the dissemination of environmentally friendly technology all over Egypt. The training of energy managers and auditors led to an increase in the internal capacities of the DISCOs staff and improvements in the awareness and knowledge of EE and RE. Supporting the two pilot DISCOs in meeting their legal requirements and developing their annual EE and RE plans will contribute to a more efficient use of electricity and to a greener energy mix in their service areas, while simultaneously ensuring an improved coordination process with the regulatory agency.

Promoting energy efficiency in the Kenyan tea sector

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Kenya (NDCP member)

Overall term: Ongoing, start in 2014

Challenge

Deforestation is rapidly becoming a key issue in Kenya. Kenyan tea factories are strongly dependent on fuelwood as it is required to power the boilers used to dry the tea, a critical stage in the tea production process. In terms of electrical energy, costs are increasing in Kenya. The Kenyan Tea Development Agency (KTDA) is a shareholder organisation of 560,000 smallholder tea farmers. The energy costs of KTDA equates to nearly 25% of total operating costs equating to some 31 million EUR per year. Supporting KTDA with energy efficiency and thus reducing costs will directly benefit the farmers. With its massive energy demand KTDA is contributing to the emission of GHG while at the same time being highly vulnerable to climate change.

Intervention

GIZ's "Sustainable Energy for Food – Powering Agriculture" project cooperated with KTDA, ETP, Taylor's of Harrogate and Mars Drinks in a new form of partnership to increase energy efficiency in tea factories in order

to save GHG emissions and increase the income of smallholder farmers. Activities included the introduction of energy efficient technology as well as sustainable operation and maintenance practices, the anchoring of energy efficiency training curricula in the KTDA standard induction training as well as the introduction of energy management teams in KTDA HQs and on factory level. It is contributing to transformation by technological change, institutional change and individual change of behaviour.

Outcome and relevance to ambition raising

The public private partnership concentrates on behavioural changes rather than large financial investments by presenting the financial benefits of energy efficiency measures and GHG mitigation for all involved stakeholders. This shows how capacity building and a bottom-up approach on creating awareness can contribute to overall market changes. All 68 factories (covering two thirds of Kenyan tea production) have already saved an average of 15% of energy ever since the project started in 2014 while individual factories saved up to 40%. Overall electricity savings per year compared to 2014 is 9,926,000 kWh while 73,750 tonnes of wood is saved annually (equivalent to 147,500 Eucalyptus trees).

CO2 emission reduction by dynamic development of renewable energy inclusion in a commercial energy market in Chile

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Chile (NDCP member)

Overall term: 2010 to 2018

Challenge

In Chile, renewable energies (RE) have to compete in a totally free electric energy market without any preference and subsidies. Despite of huge natural resources of solar, wind, geothermal, biomass and hydro power, still more than 40% of the electricity demand is generated by imported fossil fuels. These are responsible for more than 40% of Chile's CO₂ emissions.

Intervention

GIZ has been implementing several projects on promoting renewable energies in Chile. A detailed analysis of realistic renewable potentials was conducted accompanied with a comprehensive analysis of potential future scenarios of the electric system. The results were intensively discussed in round table sessions with all sector stakeholders. Close cooperation with Chile's electric system operators and national regulators in matters like adaption of grid codes, adequate forecasting for variable renewables, flexibility of conventional power generation, capacity building and information dissemination in general, have paved the way for dynamic development of variable renewable energy generation (solar and wind) from 2,7% in 2007 up to almost 20% in 2018.

Outcome and relevance to ambition raising

The intervention in Chile shows that reliable data is necessary for evidence-based policy in order to contribute to capacity building. Furthermore, the involvement of all stakeholders in the decision process is key to success. The implemented projects already lead to a reduction of market barriers for RE in Chile. Through the increase of RE production, between 2007 and 2016 already more than 20.000.000 t CO₂ have been avoided in comparison to BAU. Consequently, the projects foster the climate change mitigation and further impact ambition raising in the long-run by implementing a sustainable and effective RE market system.

Energy efficiency certificates for large industries in growth countries in India

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: India

Lead executing agency: Bureau of Energy Efficiency (BEE), Central Electricity Authority (CEA), Ministry of Power (MoP), Ministry of New and Renewable Energy (MNRE), Government of India

Overall term: 2015 to 2019

Challenge

CO₂-certificate schemes, working with free allowances based on historic production, hamper the increase of production. Furthermore, a reduction in production volume is rewarded. Both of these incentives and their effects are difficult for growing economies like India's. The central challenge of the project was thus to find a way to effectively reduce GHG emissions whilst avoiding a downward-curve effect in production. The objective was to increase energy efficiency (EE) in industries significantly without establishing a production cap as in a CO₂-certificate scheme.

Intervention

The Bureau of Energy Efficiency (BEE), a statutory body of India's Ministry of Power (MoP), acts on the basis of the Energy Efficiency Act. The Performance, Achieve and Trade (PAT) scheme had 478 designated consumers, comprising around 52% of the entire industry energy demand, or about 24% of India's entire primary energy demand. The industrial sector invested more than 3 billion euro to increase EE. GIZ has the privilege of being a strong implementation partner to both the BEE and the MoP from design to execution. Key for the success of the intervention were:

- a strong political will
- a strong implementation institution like BEE
- a training programme (including an exam) for energy managers and energy auditors
- the development of ambitious but realistic individual, transparent, and sectorial EE goals (base lines) by technical working groups of each industry sector
- evaluation experts and an enforcement line

Furthermore, a trading platform (e.g. energy exchange) for the certificates is crucial for implementation.

Outcome and relevance to ambition raising

A strong, transparent MRV process by certified energy managers in the industry plants, independent certified energy auditors and BEE (the institution in charge) is the backbone of the PAT scheme. PAT is one of the main pillars for India's NDC implementation. It regulates the expected consumption of energy per production unit (e.g. x KWh per tons of steel). Any deviation will result in receiving or buying of EE certificates. This incentivises the entire eligible industry to innovate and save energy. Cycle 1 of PAT (2012–2015) in India saved 31 million tons of CO₂ emissions per year, cycles 2–4 are under way and will save an additional even higher amount. Altogether, it will save more than 8% of Germany's annual CO₂ emissions.

TRANSPORT AND MOBILITY

Towards climate-friendly transport technologies and measures (TRANSfer II) in Peru

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Peru (NDP member)

Overall term: 2013 to 2016

Challenge

To achieve the transport-related NDC objectives in Peru's growing economy, it is crucial to counter the tendency of individual motorised transport by improving the quality of public transport services and the share of non-motorised transport. Both require massive investments. After identifying transport as a priority sector for climate action in 2014, the government of Peru requested support from the German Ministry of Environment (BMU). GIZ's Climate Action Development Facility TRANSfer subsequently supported Peru's development of an Urban Transport NAMA.

Intervention

Within the framework made explicit in the NAMA's detailed policy matrix and tailor made finance mechanisms, Peru was able to access financial support from the NAMA Facility and further climate related loans. Under the leadership of the Ministry of Transport, the NAMA aims to reduce 5 Mt CO₂ until 2025 by a comprehensive set of actions. This includes implementing Metro lines, optimising bus systems, and building cycle lanes as well as modernising the public transport fleet and management. Furthermore, type approval and emission standards will be introduced.

Outcome and relevance to ambition raising

Through the NAMA's detailed policy matrix and by establishing tailor made finance mechanisms, Peru was able to access support from the NAMA Facility (UK, BMU) and more than 500m of climate-related loans from KfW, CAF, IDB, WBG and AFD. In addition, Peru reserved 500m Euro of national budget for sustainable transport in five major cities. The NAMA Facility and the German Climate Technology Initiative are funding GIZ to provide a team of international and national experts based in Lima. This technical assistance supports capacity building on the implementation of the mitigation actions.

Advancing transport climate strategies (TraCS) in Vietnam

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Vietnam (NDCP member)

Lead executing agency: Ministry of Transport of Vietnam

Overall term: 2016 to 2019

Challenge

Vietnam's NDC defined specific climate actions in the transport sector, but greenhouse gas (GHG) mitigation potential and impact data of the actions are still unknown. The Ministry of Transport aims to improve the availability and reliability of transport data for Vietnam's second NDC.

Intervention

The Vietnamese government aims to submit a second NDC in 2019, along with the objective of raising its ambition. The Ministry of Transport (MoT) is in charge of coordinating the contributions in the transport sector and asked the German Ministry of Environment (BMU) to support its work on transport data, MRV, and emission mitigation potential in the context of the Advancing Transport Climate Strategies project. Having listed transport only briefly in its pre-Paris INDC and without in-depth analysis, the MoT is now aiming to identify a sectoral emission reduction target and linking it to their transport sector strategies. The Ministry is closely involved in NDC development through its Department for Environment. In 2017, experts from Germany trained staff from the ministry, local experts, and related public agencies like the Vietnam Register and the Transport Development and Strategy Institute.

Outcome and relevance to ambition raising

Through the project, the institutions have been enabled to organise data, model emissions, and report data along IPCC guidelines. Based on this capacity, staff from the Ministry is now guiding and supervising scenario development through local experts. The GIZ supported this process together with the Worldbank. Resulting mitigation scenarios will enable the MoT to understand emission reduction potentials. These will be not only be an input to the NDC-2 but will also help to define NDC implementation strategies for the transport sector and enable access to international finance.

Modelling energy consumption and GHG emissions of road transport in China in the framework of transport demand management in Peking, China

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: China

Lead executing agency: Beijing Municipal Committee of Transport (BMCT)

Overall term: 2011 to 2014

Challenge

City governments and decision makers in China are increasingly interested in understanding the quantitative effects of policies and strategic measures that reduce energy consumption and greenhouse gas (GHG) emissions in the transportation sector. However, publicly accessible and easily applicable tools are not readily available.

Intervention

GIZ, in collaboration with several partners in China and INFRAS in Switzerland, developed an advanced bottom-up emission model – the China Road Transport Emission Model (CRTEM). The CRTEM is an easily applicable software, which is distributed for free. It is particularly relevant as it includes driving cycles specific to traffic in Chinese cities as well as a localised emission factor database (HBEFA-China). CRTEM has become widely applied by national and local institutes to develop their emission inventory and to conduct analyses on the environmental impact of transport policies and measures. For example, CRTEM is applied by the Worldbank GEF project to trace the annual transport emission inventory of three pilot cities in the time frame between 2014 and 2018.

Outcome and relevance to ambition raising

The core objective of the project is to facilitate quantitative analysis and monitoring of GHG emissions in the Chinese transportation sector. In this context, an emission quantification tool for the transport sector in China was developed by employing and adapting the internationally recognised HBEFA (“Handbook for Emission Factors for Road Transport”) to the specific circumstances of Chinese cities. The project further aimed to increase the ownership of the model locally by widely involving national research institutes and local cities, for instance on data collection, model specification, and human capacity development.

Masterplan for sustainable transport: 240 km of bikeways in the Ukraine

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Ukraine

Overall term: Ongoing, started in 2010

Challenge

Cycling as an everyday means of transport is hardly developed and not very popular in Ukraine, whilst urban transport emissions are rapidly increasing. Even in our current times, transport planners in Ukraine often ignore the needs and challenges of cyclists and pedestrians. The central challenge was therefore to find ways to promote

cycling as a fully-fledged means of transport, to establish awareness and popularity for its benefits in politics and society, and to overcome physical and mental barriers regarding the use of bicycles in Ukraine.

Intervention

In February 2018, Ukraine's capital Kyiv adopted a masterplan to develop a cycling network for the 4-million-inhabitant city, including the building of 240 km of bikeways, and a strong contribution towards the promotion of cycling as a fully-fledged means of transport. This mode shift on short distances in urban mobility contributes to the reduction of transport-related GHG-emissions. In addition, over 20 Ukrainian cities are implementing strategies to improve bicycle traffic, and the importance of cycling as an equal mode of transport is growing. Since 2010, GIZ cooperates with NGOs, city administrations, and activists to inform about cycling as part of a modern emission-free transport system. In 2013, the city of Lviv built the first 15 km of bike lanes in line with the German "Recommendations for Construction of Cycling Infrastructure" (ERA). In 2013, Lviv started developing the first bike-sharing system in Ukraine.

Outcome and relevance to ambition raising

GIZ and the Kyiv Cyclists' Association drafted a concept and recommendations on cycling development inspired by international examples and practices. After various field studies, bicycle routes were mapped in 2015, and public discussions of the concept arranged. A range of guides, manuals and best practice in cycling strategy development have been developed, published, and disseminated, including the handbook "Recommendations on Cycling Infrastructure". In 2018, the BMZ extended its project "Integrated Urban Development", co-financed by the BMZ and Swiss State Secretariat for Economic Affairs, in the historic centre of Kyiv. This will also include a new environmentally friendly system of transport, according to Mathias Brandt, the head of the project. The project supports the establishment of sustainable urban mobility plans as sectoral implementation of integrated urban development concepts in the cities of Zhytomyr, Poltava, Chernivtsi, and Vinnytsia.

INDUSTRY

Support for the Nitric Acid Climate Action Group (NACAG)

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Countries: Global

Overall term: 2016 to 2021

Challenge

Production of nitric acid, an important raw material for fertiliser production, leads to the unwanted by-product nitrous oxide (N_2O), a greenhouse gas 265 times more harmful to the climate than CO_2 . As N_2O abatement requires investments and does not offer additional revenue streams, the emissions are globally widely unabated.

Intervention

The Nitric Acid Climate Action Group (NACAG) aims at transforming the entire nitric acid sector worldwide. Its vision is for all nitric acid plants worldwide to be equipped with abatement technology by 2020. Over 200 million tons of CO_2 equivalent can be mitigated in this way by 2020. NACAG informs and advises partner countries on regulating the sector and on questions regarding abatement technology. In addition, NACAG offers financial support for abatement measures to ODA countries. The partner countries must commit to the continuation of abatement activities after 2020 in order to receive financial assistance. NACAG cooperates both with governments and nitric acid producers to strengthen the cooperation and find sustainable solutions.

Outcome and relevance to ambition raising

The alliance is triggering the transformation of the nitric acid industrial sector around the world towards climate friendly production. Sustainability is ensured by requiring partner countries to make a firm commitment to phase

out and permanently reduce N₂O emissions. Through the provision of kick-start finance for the installation of abatement technology, NACAG is paving the way for countries to increase the ambition of the NDC by widening the scope of their NDC to include N₂O from nitric acid production.

CITIES

C40 Cities Finance Facility support program for cities

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Region: Global South

Overall term: ongoing, start in September 2016

Challenge

Sustainable transportation is one key challenge in GHG mitigation, especially when it comes to Megacities in the Global South. In the C40 CFF exemplary project in Bogotá, Colombia, the city wanted to build a first-of-its-kind 25-kilometre bicycle highway traversing the city from South to North. Mexico City wants to build a new bus corridor on Eje 8 Sur, which will be 22km long and serve an estimated 160,000 daily trips, providing connections with five Metro lines and one Metrobus Bus Rapid Transit line. At its core are the procurement of 150 fully electric busses. Yet, both cities are lacking technical and financial capacities to turn this project into a bankable urban investment project.

Intervention

The C40 Cities Finance Facility (CFF), in partnership with the Inter-American Development Bank and the World Resources Institute, is supporting amongst others, Bogotá and Mexico City in developing the sustainable transport projects by providing tailored technical assistance to the city. This includes a dedicated advisor, technical studies, and the analysis of potential financing and funding structures. Ultimately, this turns the concepts into bankable investment proposals that will be ready to be taken up by public and/or private investors.

Outcome and relevance to ambition raising

An important aspect of the CFF's work is capacity development to ensure that the city will be able to turn similar projects into bankable investments proposals in the future by without CFF support. The technical support of the CFF enables the cities to access finance for projects that are aligned with NDC objectives. In this way, ambition for GHG mitigation projects is raised by standardizing policy processes and finance access frameworks.

Climate Friendly technologies and capacity development for the implementation of the National Waste Policy in Brazil

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Brazil (NDCP member)

Overall term: 2017 to 2021

Challenge

Even though Brazil has implemented a progressive waste policy in 2010, emissions from the sector continue to rise. At the same time, many municipalities struggle with existing waste disposal sites due to insufficient treatment, which causes a rise in emissions as well. Currently the vast majority of Brazilian municipalities do not consider the criteria of low GHG emissions within their Municipal Solid Waste (MSW) management and the mitigation potential remains unexplored.

Intervention

In cooperation with selected municipalities in Brazil, the project develops appropriate decision taking tools that provide stakeholders with estimations of GHG emissions for different technological options. At the same time, a cost estimation will show hidden costs of the traditional system and potential cost savings of decentralised systems. Thus, the tool covers mitigation impacts as well as cost implications of the available strategic options. This enables municipal actors to follow a different model of MSW management with lower GHG emissions and associated co-benefits.

Outcome and relevance to ambition raising

By creating enabling conditions to introduce a low-carbon MSW management system, the project fosters transformational change of the sector's practices. It therefore becomes clear that there still is untapped mitigation potential in this sector that presents a significant potential for raising ambition in forthcoming NDCs.

The Mexican-German NAMA Programme

Commissioned by: NAMA Facility, co-financed by German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Mexico (NDCP member)

Overall term: 2011 to 2015

Challenge

The residential building sector is responsible for approximately 17% of total energy consumption of Mexico and the Mexican government projects that an estimated 300,000 to 400,000 new residential units will be constructed annually until 2030. In the absence of energy efficiency, these new housing units will lead to substantial additional greenhouse gas emissions.

Intervention

The NAMA addresses different political agendas of the Mexican Government: climate change, sustainable urban development, and improving the quality of life of low-income groups. It addresses policies (state housing programmes), market development (housing developers and suppliers) and the demand side (awareness campaigns). The transformation of the housing sector requires clear, transparent and long-term vision and rules for the public and private sector, addressing end-users gradually. To keep transaction costs low, existing financing mechanisms should be analysed and improved or extended. To increase the mitigation ambition of the NAMA implementation, different energy, climate and environmental entities of the government need to address the tariff subsidy barrier with mid-/long-term strategies.

Outcome and relevance to ambition raising

More than 80,000 NAMA houses with a projected 20% mitigation compared to the BAU scenario have been or are being implemented, which will benefit around 330,000 people. On March 7th 2018, the Mexican government included basic NAMA criteria into its official housing policy scoring system for financing.

Clean air for smaller cities in the ASEAN region (CASC) in China

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: China

Overall term: 2007 to 2016

Challenge

Politicians in secondary or medium-sized cities in developing countries, countries with emerging economies, or middle-income countries do not perceive the challenge of mitigating climate change as the most pressing problem on their agenda. More pressing and visual problems dominate their decision-making.

Intervention

With the support of the Secretariat of ASEAN (Association of Southeast Asian Nations) and national ministries of environment, mayors of 12 medium-sized cities with up to 1.2 million inhabitants in 8 ASEAN member states have been approached and engaged with, and through this, air quality management measures have been initiated. With the help of national universities, emission inventories including air pollutants as well as greenhouse gases (GHGs) were established, and action plans developed. A clear understanding of co-benefits between air quality management and climate change mitigation was created and anchored in city administrations. Following the regional approach, a pool of experts in ASEAN member states was established.

Outcome and relevance to ambition raising

In contrast to climate action, the problem of air pollution can be considered a priority for many city administrations. Issues of health and reduced quality of life, for instance the 7 million premature deaths annually that result from bad air quality caused by urban population, motorisation, and industrial growth, provokes politicians to act. In this context, it has to be emphasised that air quality management approaches can provide the entry gate for climate mitigation action through co-benefits.

FORESTS

National REDD+ system for the Philippines

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Philippines (NDCP member)

Lead executing agency: Department of Environment and Natural Resources – Forest Management Bureau

Overall term: 2012 to 2017

Challenge

REDD+ requires changes in institutions and policies as well as in the way forests are managed. This requires time and the political will for change. The National REDD+ system for the Philippines project produced the research, methods, tools, and draft policies, which are evidence-based references and the basis for policy actions of the mandated agencies. Three of the four requirements for REDD+ implementation have been fulfilled (National REDD+ Strategy, Safeguards Frameworks and Guidelines and Safeguards Information System, and National Forest Monitoring System) but there are still gaps in institutionalisation at national level and in policy development.

Intervention

The project followed a multi-level/multi-agency capacity building approach. The documented local-level experiences with the application of various methods and tools serve as basis for advocating national level application. At the national level, agencies working directly or indirectly for REDD+ were capacitated and exposed to various technical and policy elements about REDD+ to support the transformative process. The active involvement and capacity building of local-level partners led to institutionalised mechanisms, which not only meet REDD+ requirements but also contribute to achieving sustainable forest management and sustainable development goals. The innovative concept of a Provincial Forest Land Use Framework Plan, for example, serves as guide for managing natural resources beyond REDD+ and is a step towards achieving sustainable development.

Outcome and relevance to ambition raising

During the process of creating enabling conditions for the REDD+ readiness and its implementation phase, implementation of pilot measures lead to sustainable forest management and thereby to reduced greenhouse gas emissions and REDD+ co-benefits. Local-level implementation has succeeded in producing tangible results such as conservation agreements for 180,000 ha of forest and a reduction of 467,000 tCO₂ emissions through avoided deforestation. Making this visible contributes to the transformative process of policy development at the

national level. The process of developing safeguards lead to co-benefits of biodiversity conservation and livelihood improvement. These tangible results can foster the transformative process resulting in the institutionalisation of an operational set of safeguards guidelines. Climate action, as a long-term engagement for responding to a global phenomenon requires synergies and coordinated efforts from all stakeholders. If these REDD+ actions and experiences are well documented, they provide input into the international climate discourse, ultimately shaping climate policies and guidelines.

Climate protection through avoided deforestation (CliPAD) in Lao PDR

Commissioned by: German Federal Ministry for the Economic Cooperation and Development (BMZ)

Country: Lao PDR

Lead executing agency: Department of Forestry

Overall term: 2009 to 2018

Challenge

In 2018, Lao PDR submitted its national FRL/REL to the UNFCCC. The annual average emissions (2005–2015) are 34.1 million tCO₂e. The land use, land use change and forestry sector is the main contributor to GHG emissions. The Government of Lao PDR embraces the REDD+ mechanism as the opportunity for transforming rural land use from opportunistic revenue generation at the cost of natural resources, to strategic and efficient land use delivered through participatory and integrated planning design. The CliPAD project supports Lao PDR's REDD+ efforts since the beginning. It is providing policy advice and capacity development measures to support the creation of a national and provincial REDD+ framework and is also implementing local-level mitigation measures. In addition, the project is currently supporting the development of the Emission Reductions Program of Lao PDR. Finally, in order to successfully implement the ER Program, CliPAD is developing a GCF proposal to provide the necessary financial investments.

Intervention

Based on the piloted interventions where e.g. 51.500 ha are currently under sustainable community forest management the GCF land-based investments aim to up-scale the pilot initiatives and will transform the rural population land intensive and inappropriate production methods and improve household revenues by promoting the adoption of sustainable forest management and low-emission and climate-resilient agricultural practices, while also improving market access and value chain linkages.

Outcome and relevance to ambition raising

The expected outcome is reduced emissions from land use, deforestation, forest degradation, and through sustainable management of forests and conservation and enhancement of forest carbon stocks through the effective implementation of the national REDD+ strategy and the ER Program. The second outcome is strengthened institutional and regulatory systems for low-emission planning and development, at the national and provincial level, as well as improved law enforcement. The Program will result in the reduction of national GHG emissions, equivalent to approximately 3.7 million tCO₂e/year.

REDD-Program for Early Movers (REM) in Ecuador

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Ecuador

Overall term: 2011 to 2019

Challenge

Unsustainable cattle-farming practice is a key driver of deforestation in the Ecuadorian Amazon region, and thus contributing to the immense emission of GHG.

Intervention

In the framework of the “REDD Early Movers” (REM) Program the intervention in Ecuador focuses on the strengthening of strategies to effectively reduce deforestation. Since agriculture and livestock play a key role in deforestation dynamics, a close dialogue between the Ministries of Environment and of Agriculture & Livestock was facilitated. Apart from joint capacity building activities, like field visits to proactive farms, the high-level dialogue to build synergies between the Ministries’ agendas, e.g. via joint pilot farms, was supported. Additionally, the implementation of sustainable cattle ranching is key to halt deforestation in the Amazon. Both Ministries integrated this as cornerstones in their respective agendas. Through the Productive Transformation Agenda, the Ministry of Agriculture & Livestock seeks to change the land-use dynamics in the Amazon. Reconverting degraded pasture and sustainably optimising cattle farming on productive pastures serve both agricultural development and the REDD+ agenda. Several studies and pilot activities helped to strengthen this process.

Outcome and relevance to ambition raising

The intervention in Ecuador showed that political ownership and the involvement of key sectors are crucial for the long-term success of any REDD+ strategy. The close working relationships between key actors, especially the involved Ministries, helped to reduce implementation barriers.

Sustainable forest management in Fiji

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ) before 2010 and German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) after 2010

Region: Fiji (NDCP member)

Overall term: Ongoing, started in 1990

Challenge

The management of indigenous forests in Fiji is based on incomplete information and outdated management prescriptions. It leads to short-term benefits, but results in permanent forest depletion, insecure future income and high CO₂ emissions. This is a key challenge for Fiji regarding GHG mitigation and protection of biodiversity.

Intervention

In 1990, Fiji’s Forestry Department with support from GIZ and the Pacific Community selected a pilot site to develop a system for the sustainable management of communally owned indigenous forest, which represent 90% of Fiji’s forest area. At the pilot site four harvesting intensities, light, medium, heavy, very heavy (i.e. conventional logging as currently practiced throughout Fiji) and control sites without harvesting were implemented with continuous scientific monitoring. Two harvesting campaigns (1992–94, 2014–now) have taken place until 2018. After a 20-year harvesting cycle, the medium logging intensity (i.e. sustainable forest management, SFM) yields the most sustainable outcomes in terms of forest growth and income compared to all other interventions.

Outcome and relevance to ambition raising

The developed system protects biodiversity, reduces carbon emissions and yields predictable income to communities and forest sector actors. Furthermore, the steady cooperation of all partners (ministries, communities, development agencies on behalf of German government and science) enabled the long duration of the intervention and thereby its transformative character. Even without additional income from REDD+, the financial yield of SFM outweighs the benefit from conventional logging already after the second harvesting cycle. Carbon stock in SFM areas is only 3% lower than in unlogged forests, but 23% higher than in conventionally logged areas. Hence, national SFM application can reduce emissions from logging by more than 60% or 165,000 tCO₂ per year, eligible for REDD+ accounting. Biodiversity is also not negatively affected. Fiji currently incorporates the results in its Harvesting Code. National level application will lead the forest sector on a low carbon pathway.

LAND-USE AND AGRICULTURE

Programme for Climate-Smart Livestock Systems in Sub-Saharan Africa

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Sub-Saharan Africa

Overall term: 2017 to 2022

Challenge

Developing Countries have significant needs for reliable greenhouse gas (GHG) emissions reporting under the Paris Agreement and the associated identification of mitigation strategies. Agricultural and especially livestock systems constitute one of the main causes of GHG emissions in the global south. In the same time, these systems provide greatest potential for mitigating GHG while simultaneously implementing strategies for climate change adaptation as a co-benefit. However, to date there is still a lack of reliable measurement, reporting and verification systems (MRV) in Sub-Saharan African (SSA) countries to ensure the necessary quality of GHG reporting.

Intervention

The Programme for Climate-Smart Livestock Systems, which is implemented by GIZ, the World Bank and ILRI, supports key livestock stakeholders in selected SSA countries to direct their livestock practices, sector strategies and policies towards climate-smart livestock systems through the implementation of monitoring and reporting systems. The programme focuses on expanding action strategies for climate-smart livestock systems as well as drafting and implementing policies and sector strategies for GHG mitigation in livestock farming. It further aims at developing capacities for livestock related to MRV and upscaling interventions for climate change mitigation in livestock farming at a regional level.

Outcome and relevance to ambition raising

The programme shows, that smart integration of technical and financial cooperation are a key to finance access. In three SSA countries, the national monitoring and reporting systems for GHG mitigation in the livestock sector will meet the requirements for reporting to UNFCCC. The research findings and strategic options generated by the programme will be incorporated into the livestock sector strategies in these three countries. Furthermore, the results of the programme will form the basis for ten new investment projects related to climate-smart livestock systems in eight SSA countries. By giving sustainable livestock farming incentives, the programme leads to ambition raising in national GHG mitigation processes by promoting that de-coupling of economic growth and GHG emissions is possible.

Forum for Sustainable Palm Oil (FONAP)

Commissioned by: German Federal Ministry of Food and Agriculture (BMEL)

Country: Global

Challenge

The global demand for palm oil is one of the contributors to the loss of tropical forests in producing countries such as Indonesia and Malaysia and therefore enhances the emission of greenhouse gases (GHG). NASA experts calculate that between August and October 2015 alone, the clearance of rainforests released up to 600 million tons of greenhouse gases into the atmosphere – a quantity roughly equivalent to the annual emissions of Germany.

Intervention

The Forum for Sustainable Palm Oil (FONAP) is a multistakeholder initiative that aims to reduce these negative aspects and promotes a sustainable and resource-efficient palm oil production. All 52 members of the FONAP – private companies, NGOs, associations and the German Federal Ministry of Food and Agriculture – have therefore made a public commitment to use only certified, sustainably produced palm oil and palm kernel oil in their products.

Outcome and relevance to ambition raising

The existing certification standards can be considered adequate in that they define minimum requirements for sustainable palm oil production. However, the members of FONAP have voluntarily accepted add-on criteria. One of these criteria requires the application of strict greenhouse gas (GHG) reduction targets as slash-and-burn farming is often applied for clearing land for cultivation. Another add-on criteria prohibits the cultivation on peat lands and other areas with a high carbon content. Oil palms are often grown on peat lands which store large quantities of carbon dioxide. In order to prepare the land for oil palm cultivation, draining of the soil takes place, which releases large quantities of GHG emissions. FONAP members are already calling on their palm oil-producing suppliers to reduce GHG emissions on a continuous basis and to stop cultivation on peat land.

Prevention, control, and monitoring of bushfires in the Cerrado, Brazil

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Brazil (NDCP member)

Lead executing agency: Ministério do Meio Ambiente (MMA)

Overall term: 2011 to 2018

Challenge

The Brazilian Cerrado, the most biodiverse savannah landscape in the world, is threatened by high rates of deforestation and recurring massive wildfires specifically in protected areas. These are not only degrading ecosystems but also set free large amounts of GHG emissions. Fire, however, is an essential part of the Cerrado. Many plants and animals are adapted to fire and even need it for their reproductive cycles. Not every fire is the same, however. Depending on frequency and intensity, they can have positive as well as negative impacts on biodiversity and GHG emissions.

Intervention

Core element of Integrated Fire Management (IFM) is the use of controlled fires at the beginning of the dry season. These controlled fires of low intensity have numerous positive effects. They reduce combustible biomass and thus avoid intensive large and uncontrollable wildfires during the late dry season. As a consequence, GHG emissions are reduced and biodiversity is protected. Through the method of initiating them mosaic-like, they further produce a structural variety in habitat on the landscape level. Through the involvement of the local population in the IFM and through usage of traditional knowledge about fire, the management of protected areas becomes more effective and conflicts of land use are reduced. Finally, IFM is considerably less expensive than material-intensive and ineffective fire-fighting methods at the end of the dry season.

Outcome and relevance to ambition raising

The intervention led to a paradigm shift away from sheer fighting fires towards managing fires. IFM was institutionalised in the processes and procedures of numerous partner institutions, and is a key element of a new national fire legislation currently under development. It has thus had a great contribution in the context of climate action and the protection of biodiversity.

Promotion of the System of Rice Intensification (SRI) in Vietnam

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Vietnam (NDCP member)

Overall term: 2011 to 2013

Challenge

Rice is the basis of livelihood for millions of people, especially in Asia. Rice production is predominantly performed by small-scale producers, and their already marginal economic returns are further threatened by the impacts of climate change. At the same time, rice production is known to be an important contributor to GHG emissions within the agriculture sector worldwide. This is the result of conventional rice growing practices in flooded fields, producing large amounts of methane under anaerobic soil conditions. In no other crop does the dichotomy between cause and victim of climate change become more evident. The System of Rice Intensification (SRI) can respond to these challenges as it can help to increase productivity and farmers' adaptive capacity, whilst at the same time contributing to saving water and to significantly reducing GHG emissions.

Intervention

The GIZ-PARA project in cooperation with the IFAD-funded IMPP introduced SRI to farmers in the Mekong Delta. SRI was piloted with 5 small-scale rice producers, and the practice was then expanded to other farmers by using on-the-job training and learning. The project also involved the training of staff at the Agriculture Department, and thus achieved a sensitisation for the practice in the realm of politics and decision-makers. The performance of SRI in the pilot projects was monitored, and reduced GHG emissions were measured. The results were documented and "lessons learned" disseminated.

Outcome and relevance to ambition raising

SRI is based on principles that are very different from the conventional method of rice cultivation, using an approach that aims to create „more output with less input“. The practice is evidence-based rather than research-based, and therefore requires a different approach with regard to upscaling and monitoring. Practicing SRI is also more knowledge-intensive than traditional techniques, and the implemented practices used a "flexible menu" approach rather than a one-for-all recipe. The dissemination of the practice in the region therefore holds great potential in creating a framework for both environmentally sustainable and self-sufficient patterns of livelihood. Capacity building in political as well as producer contexts is therefore at the very core of the intervention.

NAMA support project: low-carbon coffee from Costa Rica

Commissioned by: NAMA Facility, co-financed by German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Costa Rica (NDCP member)

Lead executing agency: Ministerio de Ambiente y Energía (MINAE)

Overall term: 2015 to 2019

Challenge

The coffee sector in Costa Rica is closely linked to the country's identity and responsible for approx. 150.000 jobs during harvest. Coffee production in Costa Rica is responsible for 9% of the country's GHG emissions. Thus, the challenge is to maintain coffee production as an important economic factor – taking adaptation to climate change into consideration – and reducing emissions from the sector at the same time.

Intervention

In order to transform the coffee sector in Costa Rica onto a low-carbon pathway, the Coffee NAMA Support Project is being implemented from 2015–2019. It considers three main strategies:

1. Capacity development measures such as workshops enabling local farmers to use adequate technologies in combination with good agricultural practices in order to produce high quality low emission coffee and continue in the coffee business.

2. At the coffee mill level, encourage low emission processing and thus elevating cost-efficiency in cooperation between private and public sector.
3. In order to achieve a higher price for the coffee and get access to new or future markets the coffee will be traceable up to the farm and certified as low carbon.

Outcome and relevance to ambition raising

So far, the project could contribute through capacity development of coffee producers and leveraging additional financing to the coffee sector's pathway to carbon neutrality. In 2016, the first mill in Costa Rica was certified carbon-neutral. The project thus supports the transformational process of the coffee sector in Costa Rica and serves as orientation for the ambition raising of NDCs.

WATER

Water and Wastewater Companies for Climate Mitigation (WaCCliM)

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Global with measures in Mexico (NDCP member), Peru (NDCP member) and Thailand

Lead executing agency: Mexico: Comisión Nacional del Agua (CONAGUA), National Water Commission (CONAGUA); Peru: Ministerio de Vivienda, Construcción y Saneamiento (MVCS), Ministry of Housing, Construction and Sanitation (MVCS); Thailand: Ministry of Natural Resources and Environment (MONRE); Jordan: Water Authority of Jordan (WAJ)

Overall term: 2013 to 2019

Challenge

Water and wastewater utilities are among the largest consumers of energy in developing countries and emerging economies. This is partly due to high losses of water (50–60 per cent) and energy (40 per cent). Many of the utilities in Mexico, Peru, Thailand and Jordan are using out-dated and energy-intensive treatment technologies and pumps, and opportunities for recovering energy and nutrients from wastewater are not being exploited. At the same time, with rising water scarcity, the water sector will face great challenges during the coming decades.

Intervention

The Water and Wastewater Companies for Climate Mitigation (WaCCliM), funded by the International Climate Initiative, assists key policymakers in Jordan, Mexico, Peru and Thailand at the national, municipal and utility level to develop mitigation strategies in the water sector with the final goal to achieve transformational changes and lead the sector to a low carbon economy. With the introduction of greenhouse gas-reducing technologies to pilot utilities, the project demonstrates opportunities for urban utilities to transition to a circular economy to reduce overall greenhouse gas emissions while lowering operational costs.

Outcome and relevance to ambition raising

The project shows that within the water sector there is numerous potential to mitigate GHG-emissions. Through the technical assistance project, water and energy loss can be avoided, unleashing not only the mitigation potential but enhancing water security at the same time.

REFRIGERATION AND AIR CONDITIONING

Proklima & management and destruction of existing ozone-depleting substances in ODS banks

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Global

Overall term: 2013 to 2018 (ODS Banks) and 2018 to 2022 (Colombia NAMA)

Challenge

HFCs are the fastest growing GHGs, more than 85% of which result from leaking refrigerants in refrigeration and air conditioning (RAC) equipment. The rapidly increasing global demand for cooling means increased energy demand – in many cities, for instance, by more than 40%. In developing countries, the cooling sector is already responsible for 11 Gt CO₂ emissions annually, which is comparable to the climate impact of the transport sector. According to BAU-projections, the cooling sector could account for 13% of the total global GHG emissions by 2030. The 2016 adopted Kigali Amendment to the Montreal Protocol establishes a binding framework to control the HFC consumption in both developed and developing countries. Integrating HFC reduction and energy-efficiency measures, the Kigali Amendment can work alongside the Paris Agreement to reduce the overall GHG emissions of the cooling sector and contribute to achieving the internationally agreed “well below 2°C” warming limit.

Intervention

The Montreal Protocol operates an effective compliance mechanism and provides financial and technical support to developing countries and emerging economies for the sector-wide reduction of HCFCs and HFCs. Complementing the MP mechanism, GIZ Proklima advises partner countries in directly transitioning to “green cooling technologies” – i.e. energy-efficient and uses climate friendly (low GWP) refrigerants. Leapfrogging to green cooling technologies allows for avoiding intermediate solutions and massive use of highly climate-potent HFCs, thereby encouraging increased mitigation ambitions in the cooling sector and in NDCs. GIZ Proklima promotes this integrated approach in the different cooling subsectors and along the life cycle of RAC appliances in order to initiate and support sector-wide transformations.

Outcome and relevance to ambition raising

GIZ Proklima’s assistance to partner countries combines policy advice, technology transfer, and capacity building. An implementation example is the Project “ODS Banks Management”, which advises five partner countries, as well as the refrigeration NAMA in Colombia, on mitigating emissions in the context of “banks of ozone depleting substances” (ODS Banks) with negative impact on climate and ozone layer.

CROSS-SECTORAL

Development of investment plans towards implementation of state action plan on climate change (SAPCC)

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)

Country: India

Lead executing agency: Ministry of Environment, Forest and Climate Change (MoEFCC)

Challenge

All states in India have prepared State Action Plans on Climate Change (SAPCC) with details of relevant activities to be implemented. However, state budgetary sources are not sufficient to fund all activities. Furthermore, a lack of analysis of the current level and efficiency of climate relevant expenditure in states is limiting effective utilisation of existing financing structures. Furthermore, there is limited awareness and a lack of capacities to access private sector and international climate financing sources. In order to overcome these limitations in accessing financial sources, transparency and information regarding policy changes and financing instruments is required in order to mobilise climate financing.

Intervention

The development of SAPCC Investment Plans is being facilitated in four states in India, where investment plans for two states are already in place. The plan enables state government departments to analyse climate relevant expenditure leading to better planning, coordination and effective use of existing funding. For instance, the development of “Community Managed Carbon Sinks” in the state of Punjab serves as a successful example of how the

Investment Plan enabled determining appropriate funding instruments and sources for GHG mitigation activities for meeting targets under the SAPCC. With the establishment of the community forest, the communities will maintain the plantation, as they will reap the benefits from sale of non-timber forest products.

Outcome and relevance to ambition raising

SAPCCs in India are seen as primary drivers for achieving India's NDC goals. The project reveals that identification and analysis of investment potentials and key activities as a part of the Investment Plan enable attracting the private sector as well as international funding. Financial cooperation thus is key to enhance projects for reaching regional and national GHG mitigation objectives. A co-benefit of financial cooperation in this case is the ambition raising due to positive impulses for economic growth. Since the resulting project of community managed carbon sinks is furthermore involving several stakeholders from finance as well as actors on community-level, the project strengthens the inclusive and holistic approach in sense of a Talanoa Dialogue.

Capacity development for the implementation of a monitoring, reporting and verification system (MRV) for greenhouse gas emissions in Turkey

Commissioned by: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Country: Turkey

Lead executing agencies: Ministry of Environment and Urbanisation of the Republic of Turkey

Overall term: 2013 to 2018

Challenge

Monitoring industrial GHG emissions is key to mitigation processes. So far there existed no efficient and robust data management system (DMS) to monitor industrial GHG emissions in Turkey. DMS provide various statistical queries for the competent authority from source stream level up to country level.

Intervention

The innovative, tailor-made DMS was implemented in Turkey as a solution to this challenge. Monitoring plans and verified annual emission reports of installations of the energy and industry sector are being submitted to the DMS. Being efficiently used by different stakeholders, the in-house developed DMS is an online user-friendly tool that is flexible to respond to future requirements and regulatory amendments. Although the project itself does not directly contribute to GHG emissions' reduction, the DMS provides the prerequisites to measure and verify emissions. This helps to create awareness amongst the key stakeholders and to encourage them to increase their energy efficiency and/or reduce their emissions. The data can also be used to establish benchmarks to promote sectoral low carbon development strategies and to overall aid the implementation of the Turkish NDCs.

Outcome and relevance to ambition raising

With its key characteristics of transparency, precision and comparability, the DMS allows for steering mitigation actions and for monitoring progress towards climate change-related targets. The MRV system is a key pillar for the NDC implementation in Turkey as the mitigation targets for the industry sector can be monitored and reported. More than 700 Turkish industrial installations submitted their emission data to the DMS. Those installations are responsible for >50% of CO₂ emissions in Turkey, >250 Mt CO₂ eq., which are now being monitored and covered by the MRV DMS. Serving as a good example, the Turkish MRV system implementation sparked interest in countries in the region. The DMS approach can also easily be replicated in other countries, although it should be customised to the specific circumstances. For this reason, two Ministerial-level workshops on experience dissemination have been successfully conducted with Ukraine and Tunisia.

ANNEX III: PREPARING THIS SUBMISSION

GIZ offers a wide range of expertise, both in Germany and abroad, and has close cooperative relationships with policy-makers around the globe. GIZ in-country networks and long-standing experience in dealing with climate-relevant projects provide long-term solutions that are tailored to the partner country.

In the area of climate change, GIZ can draw on numerous alliances and cooperation arrangements with renowned research facilities, other specialist institutions and donors, such as multilateral development banks. Since GIZ regularly participates in the international climate negotiations on behalf of BMZ and BMU, GIZ can directly make use of its specific experience as basis for decision making at an international level, which often leads to innovative approaches.

At the basis of this submission's methodological approach is a survey among climate- and transformation-experts at GIZ headquarters in Germany as well as in many of the 120 country offices we are currently working in. From these contributions we deduced five key messages.

The above-mentioned key messages, in GIZ's understanding, may motivate policy makers to develop more ambitious NDCs with the aim to support transformation to low-carbon and resilient economies as part of successful sustainable development. These key messages give orientation to the third question of the Talanoa Dialogue: How do we get there? Or, how can we increase ambition?

The GIZ contribution to the Talanoa Dialogue shows the professional expertise in selected sectors and concrete implementation experiences. GIZ's good practice cases presented here from completed and ongoing projects show success factors for initiating sustainable, effective and significant transformative processes. These include experience in climate-relevant sectors such as energy, transport, waste, industry, water/waste water or REDD+ or agriculture. In addition, experiences from other central topics of the Paris Agreement, such as financing, steering and cooperation mechanisms (climate governance), MRV systems, climate data or stakeholder engagement have been selected.

ANNEX IV: A SELECTION OF GIZ TRAININGS, TOOLS, AND METHODS ON CLIMATE CHANGE MITIGATION

Mitigation of climate change: Trainings

- [NAMA e-learning: A Contribution to the Implementation of NDCs](#)
- [Webinar: Tracking NDC Achievement – New Accounting Perspectives](#)
- [Webinar: Linking NAMAs and NDCs](#)
- [Green Cooling Initiative: Cool Training](#)
- [Training on the compilation of GHG inventories and identification of mitigation options in the waste sector](#)
- **NDC Training** (in development) with modules on mitigation of climate change, adaptation to climate change, climate finance, transparency as well as governance and multi-stakeholder dialogues

Mitigation of climate change: Tools

- [NDC Funding+Initiative Navigator](#)
- [NDC Toolbox Navigator](#)
- [BUR Process Guidance Tool](#)
- [NAMA Tool](#)
- [MRV Tool](#)
- [Stock Taking Tool](#)
- [CliF Reflect: Climate Finance Reflection Tool](#)
- [TRANSfer Toolbox](#)
- [Solid Waste Management – GHG Calculator](#)
- [Alternative Waste Treatment Guide](#)

Mitigation of climate change: Methods

- [ProKliNAMA Handbook](#)
- [RAC-NDC Guidance Handbook](#)
- [Navigating Transport NAMAs Handbook](#)

