Global Climate Action 2018

Examples of good practice

United Nations
Climate Change Secretariat

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For further information contact
United Nations Climate Change Secretariat
Platz der Vereinten Nationen 1
53113 Bonn, Germany
Telephone +49 228 815 10 00
Telefax +49 228 815 19 99

For more information, please visit:
<climateaction2020.unfccc.int>

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Overview

The Talanoa Dialogue has provided an opportunity for Parties and non-Parties to come together to exchange experiences on actions to address climate change. Included in the sharing of stories and inputs have been a number of good practices – actions undertaken by Parties and non-Parties which have demonstrated success in reducing emissions or increasing resilience and have the potential to be replicated elsewhere. These have been reviewed and catalogued to better understand some of the actions which have already been undertaken successfully – with demonstrated results – across sectors and to provide inspiration for others to apply similar practices.

The inputs reviewed for good practices included submissions (up to 15 October 2018) from Party and non-Party stakeholders via the Talanoa Dialogue online platform over the course of this year and contributions from both groups during the Talanoa sessions in Bonn on 6 May 2018. Over 250 submissions and seven of the Talanoa sessions were reviewed. From these sources, 96 good practices were collected; 50 of the 96 were identified by Parties and 46 by non-Parties in their submissions or discussions.

To date, the good practices discussed or submitted through the Talanoa Dialogue have focused primarily on mitigation, with 75 per cent targeting the causes of climate change. Approximately 10 per cent have focused solely on addressing the effects of climate change, while nearly 20 per cent have targeted both mitigation and adaptation. This difference is likely to have arisen because there is longer experience with mitigation action and because adaptation is often very localized in scale.

In terms of scale, 70 per cent of the actions were undertaken at a national level, with around 20 per cent targeted to a local level (municipalities or single companies). The remaining 10 per cent were nearly equally split between the subnational and international levels. Regionally, just under half of the practices were reported in countries belonging to the Asia-Pacific group, with Latin America and the Caribbean accounting for 17 per cent, Western Europe and Others (including Australia, Canada, Israel, and New Zealand) for 16 per cent, Africa for 13 per cent and Eastern Europe for 6 per cent. Nearly one third (31) of the good practices were related to energy – the largest sector for both global greenhouse gas emissions and for number of actions being taken with success, according to the Talanoa Dialogue inputs. The next-largest sectors in terms of identified good practices were land-use (15), and industry and climate finance (12 actions each).

This report, which complements the 2018 Yearbook of the Marrakech Partnership and the Synthesis Report on the Talanoa Dialogue, provides an overview of the good practices identified. The good practices included provide snapshots of some of the success stories from actors in different sectors, different regions and at different levels, to demonstrate what is working well and what could work elsewhere. The examples given do not reflect the entirety of what has been catalogued, nor do they reflect the full scale of activities being undertaken as Parties and non-Parties alike work towards the goals of the Paris Agreement. There were also many examples of actions which have just begun or are ongoing, for which the results are still being realized.

1 Land-use

Introduction

Land use is a key sector for addressing climate change, both in mitigation and adaptation. Forests can be both a source (through deforestation and degradation) and sink (reforestation and afforestation) of carbon dioxide (CO_2). Agricultural activities result in emissions of mainly methane and nitrous oxide, with soils also having the potential to act as a carbon sink[i]. There is also competition for land use of different types – for food, for human settlements, for ecosystems and for forests. Therefore, good practices associated with the holistic and sustainable use of land resources are key for mitigating and adapting to climate change.

Good Practices for Land Use

In the Talanoa Dialogue, fifteen good practices for this report were identified relating to land use. Of these, nine relate to forestry, four to agriculture and two to forest and brush fire management and prevention. Uncontrolled fires are dangerous to humans and ecosystems and result in emissions of CO_2[ii]. In terms of regional distribution, just under half of the practices identified were in the Asia-Pacific region, with just over a quarter in Latin America. The majority of the practices fall in the category of mitigation actions, while three target both mitigation and adaptation, and one focuses solely on adaptation. The practices range from local to international in scale.

Reforestation is emphasized in more than half of the good practice examples on forestry, and almost all of the forestry good practices are government-driven programmes. In the case of the Y Ikatu Xingu project, which is undertaken by indigenous women in Brazil, national legislation has created a framework for the project to function better. In two cases, the government directly supports the communities financially to nurture and upkeep forests in order to encourage and maintain forest regrowth. All of the agricultural practices have outcomes which increase crop yields, with two also reducing greenhouse gas emissions and one increasing carbon capture. Three of the agricultural practices have also increased resilience among the farmers employing them. In good practices relating to fire prevention and management, the use of traditional knowledge and the involvement of local populations have been key factors for success.

A selection of the good practices identified includes the following:

» In Nepal, the 1993 Forest Act created 17,000 autonomous community forest user groups, with rights to manage (including exclusive rights to regulate harvesting) and control access to forests. National forest cover has since increased by 20 per cent – one of the fastest rates of forest recovery in the world. In 2009, 1.6 million hectares of community forests were estimated to contain 183 million tonnes of carbon and to be adding a further 3 million tonnes each year.

» In Brazil's Xingu Basin, indigenous women collect seeds from their forests to sell to landowners in deforested areas, as part of the Y Ikatu Xingu project. Landowners purchase the seeds to comply with Brazil's Forest Code, and in spreading them help to protect the water supplies they use by restoring the riparian forests of the region. Riparian forests retain and filter water, improving supply. The project works with ranchers to use their equipment for direct seeding alongside hand-seeding techniques, which has been shown to improve growth. To date, the project has restored 5,000 hectares.

» The System of Rice Intensification (SRI) aims to increase farmers' adaptive capacity and productivity, while saving water and reducing greenhouse gas emissions. In Viet Nam, SRI was piloted by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) with five small-scale rice producers. The practice was then expanded to other farmers using on-the-job training and learning. Training was also included for Agriculture Department staff to increase sensitization of politicians and decision makers about SRI. The projects demonstrated an increase in adaptive capacity for farmers while also reducing greenhouse gas emissions. SRI has been shown to include 20-100 per cent increased yields, up to a 90 per cent reduction in required seed and up to 50 per cent water savings.

» Australia's Emissions Reduction Fund is being used to pay indigenous communities to use their traditional techniques to manage burning in savannahs in combination with satellite technologies. This prevents emissions from inadvertent fires due to storms and lightning. Aborigine communities have received more than AUD 72 million (USD 52 million) for their work so far, which is reinvested in their communities.

» Farmers in Niger in the 1980s were introduced to an agriculture technique known as Farmer-Managed Natural Regeneration, where farmers did not clear trees from their lands and instead maintained them. The drive to increase the use of this practice began as an awareness campaign, but then evolved into a Food-For-Work programme which encouraged farmers to try the practice. As a result, crop yields increased as the trees fixed soil nitrogen, maintained

Land-use continued

moisture and stabilized soils. Trees provide firewood, animal fodder and other products that generate extra income. They also protect shade crops and villages from wind and sun. Around 200 million extra trees on over 1 million farms capture an estimated 30 million tonnes of carbon.

» In Costa Rica, forests have been recovering. Forest cover declined from 75 per cent of the Costa Rican land area in the 1940s to 20 per cent in the 1980s, mainly due to cattle ranching. The Government began paying land users in the 1990s to nurture new forests or leave land to regenerate forests naturally, resulting in forests recovering to cover 50 per cent of Costa Rica's land area by the 2010s. The Government is thus paying land owners for ecosystem services.

» Ecological Christian Organisation (ECO) Uganda supported nine rural agro-pastoralist communities with various adaptation and risk mitigation measures. They were guided through a participatory disaster risk assessment and planning process and implemented disaster risk reduction plans, including early warning systems (preparedness). A total of 6,000 people were trained in resilience activities for climate adaptation and natural resources management. They learned how to grow native trees, made small orchards, developed small-scale irrigation systems, planted drought-resistant crops and vegetables, and diversified their income sources. In addition, they improved their water-harvesting practices and participated in savings and credit groups.

Conclusion

Overall, the good practices put forward during the Talanoa Dialogue demonstrate a focus on mitigation while also increasing the carbon sink volume of land areas across the planet. In the cases where land use and water management overlap, improvements demonstrate increasing awareness of the importance of adaptation actions, such as the improvement in riparian forests in Brazil, the maintenance of moisture by trees in Niger, or improved agricultural practices in Viet Nam. The practices put forward in the Talanoa Dialogue relating to land use demonstrate a range of potential mitigation options with replicability potential and in some cases practices which address mitigation and adaptation together.

2 Oceans and Coastal Zones

Introduction

Oceans are a key theme in addressing climate change. They represent a major carbon sink and absorb heat, both of which are key for mitigation. Oceans and coastal zones also serve as important ecosystems and provide ecosystem services for many communities. These same communities have already adapted, or will need to adapt, to changing conditions due to the effects of climate change. Global temperature rise due to climate change causes sea level rise and changes the salinity, alkalinity and circulation of the ocean: factors that affect the ocean's ability to absorb carbon and heat[iii]. Such changes also impact coastal zones, which may result in increased levels of flooding, higher and faster levels of coastal erosion and the intrusion of seawater into freshwater sources, such as groundwater. The large scale of oceans and coastal zones means that good practices need to be carried out widely by many actors.

Good Practices for Oceans and Coastal Zones

During the Talanoa Dialogue, four good practices concerning oceans and coastal zones were identified. Three of the four began within the past three years, with all of them being actions by Parties at the national level. Two of the examples of good practices are legislative. Thematically, half target mitigation and adaptation jointly, while the remaining two focus on mitigation and adaptation independently.

The good practices identified were the following:

» Belize passed the Petroleum Operations Act, also called the Maritime Moratorium Act, in 2017. The act imposes an indefinite moratorium on the exploration for and exploitation of petroleum and other petroleum operations in the maritime zone of Belize. The act also makes provisions for protecting the Belize Barrier Reef System.

» In Viet Nam, efforts involving multiple national governments and international organizations have been working to protect the coastline from tidal surges by restoring mangroves. Since 2001, an estimated 20,000 hectares have been replanted, with restoration working especially well in the south, where the benefits are designed to support local communities, such as improving opportunities to cultivate clams and crabs for local women.

» Republic of Mauritius is the first small island developing state in the Indian Ocean with its own tide-and-storm-surge early warning system for improving preparedness for and resilience to events like cyclones. This system has been operational at the Mauritius Meteorological Service since August 2015, providing a three-days probabilistic forecast for surges every six hours on a continual basis. This enhances the level of disaster preparedness in the vulnerable coastal zone. With this system, coastal communities in Mauritius, Agalega and Rodrigues Islands are able to evacuate in a timely and safe manner in case of predicted extreme water levels.

» National legislation (Marae Moana Policy) in the Cook Islands has increased protections for ocean and coastal zones and the associated resources, using an integrated management plan for 2 million square kilometres (km). This policy also addresses financing and research and is reviewed every four years.

Conclusion

The good practices in this sector focus on adaptation with additional mitigation benefits being realized in several. Protecting ocean and coastal zones through legislation, as in Belize and the Cook Islands, shows how Parties are committing to ensuring that the resources associated with these ecosystems are protected. Since, as in so many environmental systems, ocean systems extend beyond national boundaries, replicating good practices in this sector will be important to ensure that oceans and coastal zones continue to provide the ecosystem services for which they are critical.

3 Water

Introduction

According to projections from the United Nations, there will be a shortfall in water supply by 2030 if water management is not significantly improved[iv]. Water availability, in terms of both quality and volume, affects sectors ranging from energy production, to agriculture, to health. Given that climate change is simultaneously increasing instances of flooding and drought, water management and the good practices associated with it will only become more critical[v]. Water scarcity is already a global issue affecting 40 per cent of the world population. Therefore, improvements in this sector can have immediate impacts.

Good Practices in the Water Sector

Three of the four good practices collected through the Talanoa Dialogue are focused on adaptation on a local scale (cities and villages), with the fourth at the regional level. All four are based in the Asia-Pacific region. One is an example of a Party action, while the other three are non-Party actions. Three of the good practices address adaptation and one addresses adaptation and mitigation jointly.

The good practices identified were as follows:

» Singapore has scarce water resources, but through investments in research and development has created a cost-effective integrated water management system that is a model for other cities. Strategies include water conservation programmes (Mandatory Water Efficiency Labelling Scheme, Water Closet Replacement Programme, Water Efficiency Awards) and diversifying the water supply by maximizing rainwater collection, reusing water and desalinating water. Singapore's per capita household water consumption was reduced from 165 litres per day in 2003 to 143 litres in 2017, which already exceeds the 2020 target of fewer than 147 litres per day. The next target is to lower it to 140 litres by 2030.

» Through its corporate social responsibility programme, ITC, a business enterprise headquartered in Kolkata, India, created an integrated watershed development programme beginning in 2001, in partnership with communities, states, international institutions and agricultural universities. Across 1,182 villages, the programme mobilizes smallholder farmers to form water user groups, which are provided training to increase their water and agriculture capacities. The project comprises 34 public-private partnerships and has increased agricultural productivity by 10-20 per cent, increased water availability and quality, strengthened financial security and enhanced drought-resilience. To date, over 32 million cubic meters of fresh rainwater-harvesting potential has been created along with more than 5 million person-days of employment in just under two decades.

» In the village of Kasba Nenera, India, the community identified that the lack of a water storage facility was leading to lower crop productivity and increased outmigration. The community submitted a proposal to construct an anicut (micro-reservoirs to retain runoff from high-rainfall periods). The anicut was constructed, with 25 per cent of funds coming from the community. The remaining funding was provided by the Centre for Community Economics & Development Consultants Society's Kisam Seva Sumiti (Block Level Federation). There is now an extra crop grown each year and outmigration has decreased.

» In Viet Nam, the Quang Nam-Da Nang River Basin Organization used a Shared Learning Dialogue process (facilitated by the Institute for Social and Environmental Transition) to improve the early warning system and resilience of downstream communities in a cross-border water management area. To improve the early warning system stakeholders such as community members who had experiences as a result of ineffective management of the river basin were included in the dialogue, community-based vulnerability assessments were made, and site visits were organized to affected areas for non-local stakeholders. The result was support to purchase equipment and supplies to strengthen existing systems, the relocation of system equipment to safer areas, the installation of an additional system and improvements to the existing ones via SMS. In addition, the capacity for disaster risk reduction on the part of the local communities has been strengthened.

Conclusion

In the case of both Singapore and Kasba Nenera, finding ways to store rainwater proved critical. In both cases in India, increasing the volume of water available was key, whereas in Singapore a joint initiative to increase available types of water while also reducing water usage was implemented. Both types of strategies – reducing consumption and increasing available sources – will be crucial in the future and both demonstrate opportunities for replication elsewhere.

4 Transport

Introduction

The transport sector has been identified as contributing approximately 25 per cent of global energy-related carbon emissions[vi]. While the electrification of vehicles has begun worldwide, key decisions will be needed from policymakers to ensure that such a transition results in sufficiently reduced emissions. Further, low- or no-carbon transportation options, such as cycling or footpaths, are important factors to be considered.

Good Practices in the Transport Sector

The seven practices identified in the transport sector all focus on mitigation. Regionally, they were undertaken in Europe and Asia-Pacific. Five are Party actions, while two are non-Party actions focusing on more local practices.

A selection of the good practices identified includes the following:

- Norway has reduced transport-related greenhouse gas emissions by taxing motor vehicle registrations based on environmental differentiation, developing infrastructure for electric vehicles with government support, and offering incentives through tax and other advantages to zero- and low-emission transport. Norway now has the largest share of electric vehicles as a percentage of the passenger car fleet in the world, with approximately 130,000 electric cars in the country. This results in especially high reductions in greenhouse gas emissions, as Norway's energy system has a 98 per cent share of renewables.

- Residents in Iceland have been encouraged to purchase electric vehicles through a carbon tax and other incentives. Additionally, obstacles such as discrepancies between the cars' range and the distance between charging stations were addressed through infrastructure development. Through the involvement of private sector electricity distributors, electric cars can now be charged with electricity sourced from renewables. The electric vehicle market-share had increased to 13.5 per cent as of mid-2018.

- The Government of Japan has developed subsidies to encourage hydrogen fuel cell infrastructure and adoption across the country. Measures have included a subsidy for the introduction of commercial fuel cells and private sector subsidies for the development and installation of commercial hydrogen stations. Over 1,807 fuel cell vehicles, including two fuel cell buses, are in use, supported by 100 hydrogen stations.

- In Ukraine, cycling was not well developed or popular, and urban transport emissions were continually increasing. Cooperation between GIZ and Kyiv Cyclists Association resulted in a concept and recommendation on cycling development based international good practice. Field studies led to the mapping of bike routes in 2015 and public discussions on the concept. Guides, manuals and best practices in cycling infrastructure strategy were published. In 2013, the city of Lviv started developing the first bike-sharing system in Ukraine and in 2015 built its first 15 km of bike lanes. In 2018, Kyiv adopted a masterplan to develop a cycling network of 240 km of bikeways.

Conclusion

Two of the practices reference bike sharing and improving cycling infrastructure, with the remaining five focusing on reducing emissions from vehicles. In cases where governments are working to increase the share of electric vehicles in the national fleet, both financial incentives and increasing charging infrastructure have been key factors for success. In the cases of Norway and Iceland, the electricity mix being renewable was important in reducing the emissions associated with the sector as the national fleet becomes more electrified.

5 Industry

Introduction

Industries across the globe are responding to the growing concerns demonstrated by their customers, regulators, investors and employees about climate change. Many have adjusted, and continue to adjust, their corporate practices to better align with sustainable or climate-neutral goals. In some cases, industry is acting on climate change prior to regulatory requirements; in other examples, governments are helping industry to plan for the future through concrete and long-term policy setting.

Good Practices in Industry

Industry good practices are being demonstrated equally by Parties and non-Parties throughout the Talanoa Dialogue. Twelve good practices, eight of which came from Asia-Pacific, are focusing on mitigation. The good practices in industry are being demonstrated at local levels mostly by non-Party actors, and at the national level mostly by Parties.

A selection of the good practices identified includes the following:

» Mahindra & Mahindra Ltd., a global company based in India, was the first Indian company to implement an internal carbon price of USD 10 per metric ton. To price its carbon emissions, Mahindra calculated the ratio of green investments over the past several years to its total emissions. Using past investments, which were not aiming for carbon emissions reductions, the price came out to USD 6-7 per ton. Mahindra then considered the additional investments needed to achieve its 25 per cent reduction target; this raised the carbon price to USD 10 per ton. The 25 per cent target is a science-based target established as part of a wider initiative in the Mahindra Group to set emissions reductions targets which are in line with the Paris Agreement goals. Since 2016, the funds collected have been allocated to projects addressing carbon, waste and water. The company has achieved a reduction in emissions from offices and manufacturing units and has used funds from the carbon price to convert all manufacturing plants to LED lighting, which yielded a return on investment in under one year.

» In 2014, Google opened a new data centre in Eemshaven in the Netherlands powered completely by renewable energy from Eneco. Google and Eneco had a power-purchase agreement for power from a wind farm in Delfyijl for 18 months. In 2017, Google and Eneco signed a second agreement, for electricity from a new solar park providing 27 GWh of electricity to another data centre.

» In India, the problem of growing the economy while still reducing emissions was addressed through issuing energy-efficiency certificates for large industries, rather than setting an emissions cap. The Bureau of Energy Efficiency, on basis of the Energy Efficiency Act, set up the Performance, Achieve and Trade (PAT) scheme, comprising around 52 per cent of the entire industry demand (24 per cent of India's primary energy demand). PAT regulates expected consumption of energy per production unit and deviation results in receiving or buying of certificates, encouraging the participants to innovate. The scheme includes training programmes and the development of ambitious yet realistic individual, transparent and sectoral energy-efficiency goals (baselines). Cycle 1 of PAT (2012-2015) saved India 31 million tonnes of CO_2 per year.

» The Japanese government set up a voluntary efforts programme for industry called the Greenhouse Gas Emissions Accounting, Reporting and Disclosure Program. Under the programme, emitters that exceed a given threshold of greenhouse gas emissions are required to report their emission quantities to the Government annually, which is disclosed to the public. Each industry sector in Japan voluntarily sets greenhouse gas emission reduction targets and develops action plans. Between 2013 and 2016, the industry sector reduced energy-oriented CO_2 emissions by 10 per cent. The Government ensures accountability in the voluntary actions through strict periodic reviews and assessments. Many other Parties have also followed this approach for the industry sector with success.

» The Coca-Cola factory in Nasinu, Fiji, installed a 1.1 Mega Watt (MW) solar rooftop system, which is the largest privately funded solar grid-connected system in the South Pacific. As a result, electricity costs and greenhouse gas emissions from production have decreased.

Conclusion

As seen in the Talanoa Dialogue through the participation of many industry actors, climate change is a key area for the business community. The good practices from the Talanoa Dialogue that were Party actions demonstrated that working with industry provides good results or that voluntary schemes can demonstrate success too. From the industry side, businesses are looking at different ways to decrease their carbon footprint and many are looking to renewable energy to do so.

6 Energy

Introduction

The energy sector is a critical one for climate action and for development. It is also a sector with high mitigation potential: according to the United Nations Environment Programme (UN Environment), renewable energy promotion could generate emissions reductions of between 1.5 to 2.5 Gigatonnes of CO_2 equivalent by 2020[vii]. At the end of 2017, global renewable generation capacity had increased to 2,179 GW total, with an estimated 146 million people served by off-grid renewable power[viii]. Such changes to the energy system demonstrate the energy transition that is occurring in many regions around the world. However, 2017 also saw increases in energy-related CO_2 emissions for the first time since 2014[ix]. Over 70 per cent of global energy demand growth continues to be met by fossil fuels, representing the work that remains to be done in the energy sector.

Good Practices in the Energy Sector

Energy is the category with the most good practices identified throughout the Talanoa Dialogue. Thirty-one good practices were discussed, 80 per cent of which are being undertaken by Parties and 83 per cent of which are aimed at the national level. All are mitigation-focused except three, which address both mitigation and adaptation. Good practices in energy were found in all regions, particularly in Asia-Pacific, where there were twelve examples, and Latin America and the Caribbean, where there were eight examples.

A selection of the good practices identified includes the following:

» Training centres in the Solomon Islands set up a pilot project to provide renewable energy to a previously diesel-based community. The community increased their energy access from three hours a day to 24-hour availability. Citizens can now charge their cell phones, computers and power tools and use sewing machines whenever needed. Students of the training centres are now learning how to set up the renewable energy technology and local communities are building energy infrastructure in neighbouring communities and islands.

» Power generation in Uruguay became 96 per cent renewable in five years beginning in 2010, which lowered the costs of power generation in the country. A large increase was from wind, which the Government facilitated through aggressive purchase-price allocation and tax exemptions between 20 and 100 per cent of income tax to foster wind and solar generation. The Government passed legal support for renewables in Decree 354 (Promotion of Renewable Energies, 2010) and national energy policies that set specific renewable targets for 2015, 2020 and 2030.

» In an example of a pure equity investment, Google, along with the Public Investment Corporation and the Development Bank of Southern Africa, financed the USD 230 million Jasper solar PV project in 2013 in South Africa. The development consortium consisting of SolarReserve, a US developer of utility-scale solar power projects, the Kensani Group, an experienced empowerment investment player in South Africa, and Intikon Energy, a South African developer of renewable energy projects, succeeded in financing the Jasper Solar Energy Project. The 96 MW plant powers 80,000 homes, was constructed and operational within one year with 45 per cent local content and has created permanent local jobs.

» Increased energy access in Bangladesh came from the installation of 5 million solar panel systems to power homes by the government programme the Solar Home Systems Initiative. The programme received funding from international partners (World Bank, International Development Association) and worked with selected local partner organizations as the main promoters of the project. The local partners were microfinance institutions already active in rural areas, which involved local private vendors in importing and installing the solar home systems after the vendors were granted a loan. Around 15 per cent of the population has been reached, with additional benefits of improved health, reduced use of kerosene and growth for local manufacturing industries in solar system components. The average loan collection efficiency is over 90 per cent, with the local partners servicing their debts to the Government on time.

» The Sustainable Energy for Food-Powering Agriculture project aims to improve the energy efficiency of tea factories and increase the income of smallholder farmers in Kenya. The project works with the Kenyan Tea Development Agency (KTDA), a shareholder organization of 560,000 smallholder tea farmers, representing two thirds of Kenya's tea farmers.

Energy continued

The project introduced energy-efficient technologies and sustainable operation and maintenance practices together with including energy-efficiency training in the KTDA standard introductory training. Energy management teams were also introduced in factories. Across the 68 factories in KDTA, there has been an average of 15 per cent energy savings since 2014. Some individual factories saved up to 40 per cent. Overall electricity savings per year compared to 2014 were almost 10 million kWh, with 73,750 tonnes of wood saved annually (compared to previous fuelwood use for drying tea).

» Norway has reduced greenhouse gas emissions through a two-pronged approach to emission pricing: a carbon tax (introduced in 1991) and emissions trading (introduced in 2005). Currently, over 80 per cent of Norwegian emissions are covered by one of the two prices, including the petroleum sector. It is estimated that Norway's emissions would be 10-15 per cent higher without carbon pricing.

Conclusion

The good practices discussed in the Talanoa Dialogue show how energy transitions are occurring in all regions. Financial instruments to encourage the renewable energy industry, such as tax incentives, investment support schemes or feed-in tariffs, are represented in one third of the good practices in the sector. Just under one third of the practices reference solar technology. Increased energy access through decentralized technologies also demonstrates important development opportunities. Energy access remains a key issue for the sector, with the examples of decentralized solar showing how improvements to energy access can improve quality of life.

7 Human Settlements

Introduction

Infrastructure, including that of urban areas, often remains in place for many years once it is constructed. This creates a risk that it remains ''locked-in'' to energy and emissions pathways which are difficult to change and can be energy-intensive[x]. Therefore, actions addressing renovations of existing buildings or regulations to encourage improved pathways are key mitigation measures for the human settlements sector.

Good Practices in the Human Settlements Sector

Four of the five good practices identified address energy efficiency in buildings, and the fifth relates to urban planning. The majority of the practices reported in this sector have been initiated within the last decade and range from national to local levels in terms of implementation. Three of the good practices demonstrate strict regulatory requirements.

A selection of the good practices identified includes the following:

» Emissions from the building sector have decreased in Latvia through regulations on heat insulation and energy-efficiency measures. Over 1000 buildings have had energy-efficiency measures implemented and further work is continuing through emission allowances. Regulatory measures on heat insulation and energy-efficiency measures dually supported by government funding and climate change financial instruments (Building Energy Certification Rules, Regulation No. 383, Law on Energy Performance of Buildings) were key for decreasing emissions from the residential sector.

» Singapore increased green cover from 36 per cent in the 1980s to 47 per cent in 2016 by replacing lost greenery on the ground with greenery in high-rise terraces and gardens. The programme is called the Landscaping for Urban Spaces and High Rises. Since 2009, developers have been required to replace greenery displaced by buildings and lost from the site due to development with greenery in other areas within the development. By replacing greenery, the impact of buildings on temperature in cities is decreased through measures beyond energy efficiency or insulation, thereby mitigating the urban-heat island effect.

» Liechtenstein has reduced emissions from buildings through a number of legislative acts, including the Energy Efficiency Act (2008) and the Energy Ordinance (2007) on the Construction Act. These comprise measures for the renovation of old buildings, subsidies to improve heat insulation, promotion of a minimum energy standard, subsidies for buildings which already meet insulation requirements to further improve by using technical installations or renewable energy, and subsidies for solar collectors and photovoltaic systems. In 2016, around CHF 1 million (nearly USD 1 million) were contributed to the renovation and improvement of old buildings.

» In Victoria, Canada, a former brownfield site has been developed into a model of sustainable urban living. The Dockside Green building development addressed mitigation and adaptation concurrently and was Leadership in Energy and Environmental Development platinum certified twice during the first two stages of its development. Wastewater management and treatment are completed at an on-site facility, which treats and filters 100 per cent of the sewage and gray water generated by residents and commercial tenants. The residual reclaimed water is reused on-site for toilets, the rooftop garden and landscape irrigation. Stormwater collected on-site is absorbed by rain gardens[1], or directed to green spaces via permeable paving and exposed drainage routes. Energy is generated on-site by a plant which burns locally sourced biomass or natural gas. The buildings are highly energy- efficient, using 45-55 per cent less energy than the Canadian Model National Energy Code, and each suite includes meters to increase resident awareness of water and electricity use. Energy-efficient appliances and low-water use appliances are used throughout the buildings and domestic water savings have been estimated at 65 per cent.

Conclusion

All but two of the good practices in human settlements involve regulatory requirements for the building sector, with two providing financial support for improvements. Two of the good practices target existing infrastructure and three target new infrastructure, demonstrating that both energy-efficient refurbishment of old buildings and highly efficient new buildings are critical for reducing the climate impact of human settlements.

1. Rain gardens are relatively small depressions in the ground that can act as infiltration points for roof water and other 'clean' surface water

8 Finance

Introduction

Climate finance supports the transition to a low-carbon, resilient economy. To meet the goals of the Paris Agreement, the scale of both public and private climate finance needs to increase significantly. This will need innovation in the types of finance instruments available and changes in the way investment decisions are made.

Good Practices in Climate Finance

Twelve good practices related to climate finance were identified throughout the Talanoa Dialogue. Five are examples of national funds established to coordinate and fund climate finance at the country level. Five of the good practices are non-Party actions. Five of these practices come from Africa, four from Asia-Pacific. Thematically, five address mitigation and adaptation jointly, four address mitigation, and three address adaptation. The scale of the good practices ranges from local, to regional, to national and international, with the majority aimed at the national level.

A selection of the good practices identified includes the following:

» The African Development Bank is de-risking investment in climate projects by absorbing risks that other financiers are unable or unwilling to bear. This allows projects to advance, mobilizes co-financing and attracts other investors. An example is the Menengai geothermal project in Kenya, where funding from the Bank covered the riskiest but most important stage of upstream development – exploratory drilling to prove availability of upstream resources. As of July, 2018, 165 MW of steam had been produced in total. Once the project is fully completed and comes online, the plant will operate with 35 MW of capacity, and will be one of three geothermal projects in the region with a combined capacity of 105 MW.

» Germany's National Climate Initiative offers targeted funding and strategic advice to municipalities that want to implement ambitious climate action. More than 25,000 projects were implemented by the end of 2017, with a total funding volume of around EUR 790 million (USD 900 million). These projects resulted in a total investment of over EURO 2.5 billion (USD 2.8 billion). Per unit of funding, more than three times the funds were mobilized for climate action. A reduction in greenhouse gas emissions of around 600,000 tonnes of CO_2 equivalent per year was achieved. Further greenhouse gas reductions of approximately 550,000 tonnes of CO_2 equivalent per year were also achieved by means of non-investment projects, such as informational campaigns.

» Toda Corporation, a general contracting corporation in Japan, developed a green bond to finance the construction of floating offshore wind turbine facilities. In 2017, Toda built its first offshore wind turbine in a pilot project led by the Ministry of Environment. The company is now constructing a 22MW wind farm, with a launch date of 2021-2022. To raise funds, the Toda Corporation issued a five-year, JPY 10 billion (USD 88 million) green bond in mid-December 2017. The bond was a success, offering 0.27 per cent annual interest, compared to the average 0.33 per cent over the previous eight months of other five-year bonds of the same class.

» In 2012, Rwanda created a national green fund (FONERWA). FONERWA is the vehicle in Rwanda through which environment and climate change finance is channelled, programmed, disbursed and monitored. As a national basket fund, FONERWA facilitates direct access to international environment and climate finance, as well as streamlines and rationalizes external aid and domestic finance. The Fund is open to line ministries, districts, and charitable and private entities, including businesses, civil society and research institutions. So far, 33 projects have been approved, USD 50 million in seed capitalization has been secured from various international agencies, USD 18 million in leveraged external finance, USD 15 million in leveraged co-financing for fund-supported projects, and 136,594 green jobs created.

» Implemented during a 20-month period in 2016/17 in northeastern Kenya, the Taking Risk out of Agricultural Trade for Relief and Development, Enhanced with Resilience project created a Sharia-compliant, innovative livestock value chain financial product called Mifugo Kash Kash. The project aimed to afford small-scale livestock traders reliable and consistent access to working capital and a secured and consistent end market for their livestock to help respond to the impacts of climate change. Livestock keepers – both traders and producers – experienced increased wealth and improved capacity to manage climate-related risks. In 18 months, over 8,300 members from 312 savings groups and 900 members from 18 cooperatives opened e-wallets and microfinance institution accounts. Over 227,000 Malian and Nigerien agro-pastoralists accessed financial education messages on the 321 mobile platform and through radio, and over 15,700 were trained in entrepreneurship and financial literacy.

Finance continued

» Fiji has created the Environment and Climate Adaptation Levy to finance climate mitigation targets and adaptation needs through projects that are included in Fiji's national budget. Projects include building seawalls, improving the resilience of agriculture and other adaptation-focused projects. The Levy comes from a variety of sources, including a duty on vehicles with engines above 3000 cc, a plastic bag levy, and a yacht-docking fee.

Conclusion

Efforts to improve access to climate finance are being demonstrated at all levels in the Talanoa Dialogue. Good practices in this sector show an equal distribution between mitigation and adaptation, demonstrating that both are a priority. Further, since five of the good practices were initiated by non-Party actors, this demonstrates that climate finance is being addressed by actors from across the spectrum, rather than Parties alone.

9 Cross-cutting

Introduction

In some cases, good practices do not fit into a previously identified category. Instead, they address multiple sectors. These have been captured in the "cross-cutting" category.

Good Practices in the Cross-cutting Category

A total of four good practices were identified as belonging to the cross-cutting category. All four were Party actions. The two from Japan focus on mitigation, while the United Kingdom and Indonesia good practices focus on both mitigation and adaptation. One from Japan was at the international level, while the remaining three were nationally focused.

A selection of the good practices identified includes the following:

» The United Kingdom's UK Climate Change Act, carried through multiple governments, has resulted in an improvement to the UK's domestic political debate on climate change, an increase in low-carbon power from 20 per cent in 2008 to 45 per cent in 2016, and a decrease in emissions by 31 per cent since 1990. The Act works by setting sequences of five-year targets, which are recommended by the Committee on Climate Change (independent advisory body), then debated and finally legislated by Parliament, resulting in progressive, increasing emissions cuts. The Act also includes continual adaptation planning, and the Committee on Climate Change monitors progress on emissions reduction and climate resilience. The Government is then responsible to Parliament for delivering the targets by producing plans and meeting budgets. There is judicial review if the targets are not met.

» The "J-Credit System", operated by the Japanese government, registers greenhouse gas reductions or carbon sinks through the installation of energy-efficient and renewable energy equipment or through forestry management. Private companies, farmers, forest owners or local governments register a project and the Government provides support in monitoring and verifying processes. The credit system had registered 690 projects and had issued credits for 3.43 million tonnes of CO_2 as of March 2018. The credits can be used for carbon offsets, the national reporting scheme and disclosure of information to investors and consumers.

» In Indonesia, a national programme for community-based adaptation and mitigation actions (Program Kampung Iklim/PROKLIM) includes 1,375 villages in 30 provinces. The government, based on the Minister of Environment Regulation No. 19/2012, gives awards to communities that are undertaking these actions on an ongoing basis. Funding comes from state or regional budgets. The programme is enhancing the adaptive capacities to the impacts of climate change and climate variability at the local level, providing data and information on potential mitigation and adaptation activities at the local level, and increasing the contribution of local communities to the 2020 national emission reduction target (compared to business as usual). Between 2012 and 2016, the government received 278 submissions from across the country.

Conclusion

All three of the good practices described in this sector aim to decrease greenhouse gas emissions, although through different mechanisms. In Indonesia, the efforts also demonstrate a focus on adaptation. In each case, monitoring and verification were key aspects. Cross-cutting actions demonstrate that climate action can target multiple sectors at once, while still demonstrating measurable progress and results.

10 Conclusion

Throughout the Talanoa Dialogue sessions and submissions, many more examples of actions that are currently underway or planned were highlighted. The examples of good practices in this report demonstrate a snapshot of climate action. Through the model of the Talanoa Dialogue, these practices have been shared with a wider audience, with the knowledge that some of these good practices are already being adapted and replicated in new contexts. By sharing what is working successfully, efforts can be focused on actions that have a higher chance of success, ambition can be increased at a faster rate, and climate action can be increased in scale and speed.

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