

# G20



## Action Agenda on Adaptation and Resilient Infrastructure

*Descriptions of  
Each Action*

# List of Actions

## Multilateral

- 1 [AP-PLAT](#)
- 3 [SATOYAMA Initiative](#)
- 5 [Climate Risk & Early Warning Systems \(CREWS\) Initiative](#)
- 7 [Building Resilience to Extreme Events in North America](#)
- 9 [Global Facility for Disaster Reduction and Recovery \(GFDRR\)](#)
- 11 [European Adaptation Platform: Climate-ADAPT](#)
- 13 [“Adaptation of Real Estate Sector to Climate Change” Working Group of the GlobalABC](#)
- 15 [Mobilise Your City Partnership](#)
- 17 [InsuResilience Global Partnership](#)
- 19 [Study “Common Ground between Paris Agreement and Sendai Framework” by NAP Global Network](#)
- 21 [Study: “Engaging the Private Sector in National Adaptation Planning Processes” by NAP Global Network](#)
- 23 [Support for Adaptation Planning and Implementation through the NDC Partnership in Collaboration with the NAP Global Network](#)
- 25 [The Centre for Disaster Protection](#)
- 27 [EPIC \(Educational Partnerships for Innovation in Communities\) Model](#)
- 29 [Private Investment for Enhanced Resilience \(PIER\)](#)
- 31 [National Adaptation Plan \(NAP\) Global Network](#)
- 33 [HELP \(High Level Experts and Leaders Panel on Water and Disasters\) Flagship Initiatives](#)
- 35 [Bridging the Gap: Financing Sustainable Infrastructure](#)
- 37 [Resilient Delta’s - Delta Alliance](#)
- 39 [Southeast Asia Disaster Risk Insurance Facility \(SEADRIF\)](#)

## Bilateral

- 41 [Japan Bilateral Support for Adaptation in Asian and Pacific Countries](#)
- 43 [Climate Change Adaptation in Vulnerable Coastal Cities and Ecosystems of the Uruguay River](#)
- 45 [Climate Change and Disaster Resilience in Myanmar](#)
- 45 [Agricultural Insurance Index in the Casamance Region of Senegal](#)
- 47 [Adapt’Action](#)
- 49 [West Africa Coastal Areas Management Program \(WACA\)](#)
- 51 [Mainstreaming Ecosystem-based Adaptation \(EbA\)](#)
- 53 [Climate Resilient and Low-Carbon Infrastructure Planning and Development](#)
- 55 [Korea Bilateral Support for Adaptation Planning Process](#)
- 55 [Annual International Training Program on the National Adaptation Plan](#)
- 57 [Philippines Water Security for Economic Growth and Stability \(Be-Secure\) Project](#)
- 59 [US-Peru Cooperation on Water Resource Management](#)
- 61 [US-Dominican Republic Cooperation on Water and Sewage in Flood Plains](#)
- 27 [EPIC \(Educational Partnerships for Innovation in Communities\) Model](#)
- 63 [SERVIR Program](#)

## National

- 65 [Circulating and Ecological Economy](#)
- 67 [Japan’s Climate Change Adaptation Act](#)
- 69 [Argentina’s National Adaptation Plan](#)
- 71 [Increasing Climate Resilience and Enhancing Sustainable Land management in the Southwest of the Buenos Aires Province](#)
- 73 [Case Study: The Impact of Climate Change on Water Availability in Victoria and Case Study: Coastal Climate Change Risks Assessments \(2015\) in Victoria](#)
- 73 [Case Study: 2016 bushfire in Tasmanian Wilderness World Heritage Area](#)
- 74 [Case Study: New South Wales Assessing Climate Change Impacts for Primary Industries and Case Study: Assessing Climate Change Impacts in New South Wales Alpine Areas](#)
- 75 [National Disaster Risk Reduction Reforms](#)
- 77 [Managing Climate Risks across Australian Government](#)
- 79 [Federal Action to Support Resilient Infrastructure](#)
- 81 [Canada’s Climate Change Adaptation Platform](#)
- 83 [The Pan-Canadian Framework on Clean Growth and Climate Change \(PCF\)](#)
- 85 [Nature-Based Solutions for Disaster Risk Reduction and Climate Change Adaptation](#)
- 87 [Climate Proofing Infrastructure Investment Projects in the EU](#)
- 89 [Creation of the French Gustave Eiffel University](#)
- 91 [German Strategy for Adaptation to Climate Change \(DAS\)](#)
- 93 [National Programme on Resilience Increase of Natural and Semi-Natural Forestry Systems](#)
- 93 [Measures for Energy Efficiency, Sustainable Mobility and Climate Change Adaptation in the Small Islands](#)
- 93 [CReLAMO PA Project](#)
- 93 [Notice on Small Landslides](#)
- 95 [Support Programme for the Climate Change Vulnerability Assessment and Adaptation Response Measures of Korean Industries](#)
- 97 [Establishment of Five-Year Climate Change Adaptation Measures at National and Local Level](#)
- 99 [Improvement of the Vulnerabilities to Heatwave](#)
- 101 [Local Adaptation Action Plan](#)
- 101 [Support for the Key Public Corporations and Organizations Managing Infrastructure](#)
- 101 [Korea Adaptation Center for Climate Change](#)
- 103 [Coastal Watersheds Conservation in the Context of Climate Change Project \(also known as C6 Project\)](#)
- 105 [National REDD+ Strategy 2017-2030 \(ENAREDD+\)](#)
- 107 [The uMngeni Resilience Project \(URP\)](#)
- 109 [Ecological City Project](#)
- 111 [The National Infrastructure Commission and the National Infrastructure Assessment](#)
- 113 [Adaptation Reporting Power \(ARP\)](#)
- 115 [Climate Change Adaptation Resource Center \(ARC-X\)](#)
- 117 [Room for the River](#)
- 119 [Protected Areas Management and Climate Change](#)

# AP-PLAT

## (Asia-Pacific Climate Change Adaptation Information Platform)

 **Japan**  **Indonesia**  **Thailand**

Related organizations: ADB, UNEP, and other partner organizations

Initiative: Multilateral | Timeline: Launch by 2019

### Summary

Japan launches the Asia-Pacific Adaptation Information Platform, or AP-PLAT for short, as a one-stop information platform on climate change adaptation, including development of climate risk information through scenario analysis and computer simulation, for the Asia-Pacific region under the collaboration of various research institutions. AP-PLAT is also a new initiative to convert the scientific information provided by AP-PLAT partners into adaptation policies and actions on the ground through collaborative efforts in Asia-Pacific. AP-PLAT develops scientific knowledge on climate change adaptation and promote capacity building through partnership of like-minded organizations and countries in the region. This combination of scientific information and enhanced capacity will lead to accelerated implementation of climate change adaptation projects in accordance with the Paris Agreement and Nationally Determined Contributions. By doing so, AP-PLAT and partnership under the AP-PLAT will maximize its impacts through enhancing synergies and complementarity of the efforts of each organization, with strong support by the Government of Japan. Such proactive linkages between scientific knowledge and capacity building and attempts to deliver real changes through networking and collaboration makes this action a unique endeavor.

### Description

#### Background

To develop and implement urgently needed climate-related policies and projects in accordance with local circumstances, accurate and precise future prediction on climate risks based on sound

scientific information is essential. Currently rich climate science and adaptation-related data and information are generated by different actors from various perspectives, but such data and information is not compiled in one place, not converted into user-friendly forms, and then poorly communicated to the stakeholders who really need them. Moreover, a complex web of climate finance options is available, but the knowledge, skills, and local capacity to develop economically viable, bankable project proposals which could be funded by donor organizations such as the Green Climate Fund, Adaptation Fund, or Global Environment Facility, are often lacking and those finance options are not well utilized in the Asia-Pacific region. Linking scientific knowledge and capacity building for design and implementation of climate change adaptation projects is a common request of all developing countries in the region. AP-PLAT will play a key role in this context to create an enabling environment to fill this gap so that science-based adaptation actions will be developed and implemented in this region at a faster and larger scale.

#### Partnership under the AP-PLAT

Partnership under the AP-PLAT focuses on three key pillars as the bellows. Additional activities will be added upon implementation (see Figure below).

#### 1. Scientific Information / Knowledge

- Development of scientific climate-related risk data and information
- Generation of tailor-made climate-related risk information through integration of existing data, information and knowledge
- Input of scientific knowledge to localized hazard and vulnerability assessments, especially through downscaling global climate change models and projections

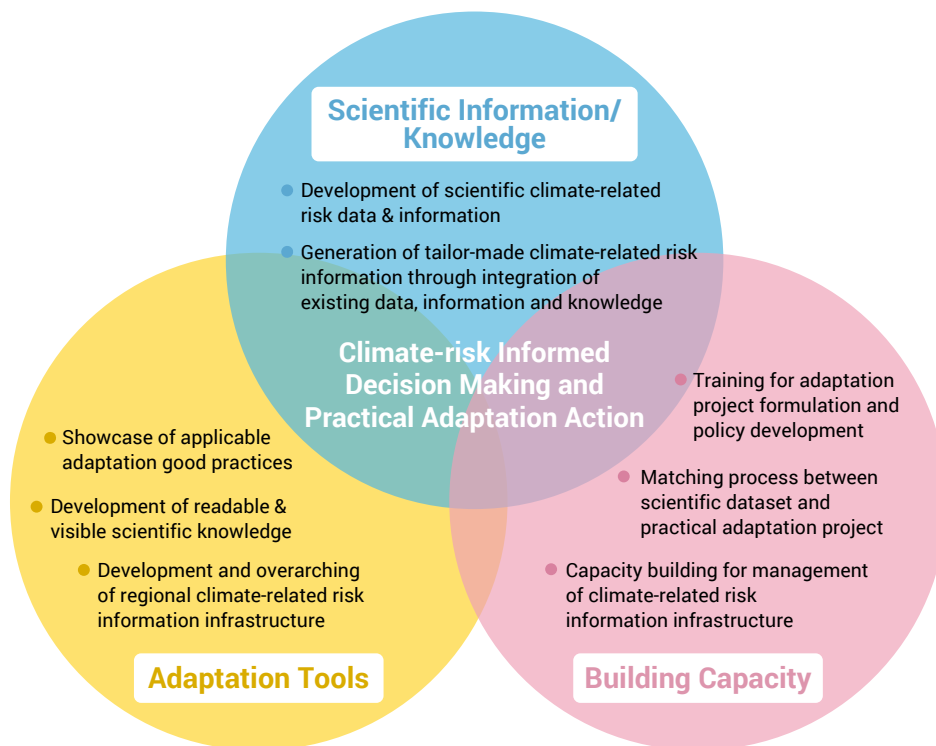
- A compendium of accumulated knowledge and best practice scientific approaches, globally and from the region

**2. Adaptation Tool**

- Showcase of adaptation good practices, applicable technologies, institutional and community-level governance
- Development and dissemination of scientific knowledge in visual and other formats that can be easily understood at local levels in developing countries
- Set up an overarching regional climate-related risk information infrastructure accessible to all
- Use of modern information and communication technology (social media, webinars, etc.)

**3. Building capacity**

- Strengthening scientific technical skills, e.g. downscaling models, climate projections, etc.
- Training for policy development by mainstreaming climate risk information into national strategies, plans, policies and programs
- Capacity building on economic and social impact assessment for prioritizing adaptation actions and justifying access to climate finance
- Tailor-made training for adaptation project formulation to access climate finance
- Matching scientific datasets and practical adaptation project demands
- Capacity building for management of climate-related risk information infrastructure



+

**Further information**  
<http://www.adaptation-platform.nies.go.jp/en/ap-plat/>

**Contact**  
 Takeshi Abe, [TAKESHI\\_ABE@env.go.jp](mailto:TAKESHI_ABE@env.go.jp)  
 Climate Change Adaptation Office, Ministry of the Environment, Japan

Multilateral

# SATOYAMA Initiative

The IPSI (International Partnership for the SATOYAMA Initiative) members;

 **Japan**  **Italy**  **Republic of Korea**  **Thailand**

Initiative: Multilateral | Timeline: Ongoing

## Summary

The SATOYAMA Initiative aims to promote sustainable management and use of natural resources in the “Socio-Ecological Production Landscapes and Seascapes (SEPLS)” which are shaped by the human-nature interactions over a long time. The properly-managed SEPLS often serve as “green infrastructure” that reduce disaster risks.

## Description

### Concept

Protecting biodiversity entails not only preserving pristine environments, such as wilderness, but also conserving human-influenced natural environments, such as farmlands and secondary forest, that people have developed and maintained sustainably over a long time. These human-influenced natural environments are often inhabited by a variety of species, which are dependent on ecological disturbances. Some of the species are adapted to and rely on these landscapes to survive, hence they play an important role in sustaining and enhancing biodiversity. These environments, called “Socio-Ecological Production Landscapes and Seascapes (SEPLS),” can be seen around the world, and they often serve as “green infrastructures” that reduce disaster risks (e.g., rice paddies serve as flood control basins, coppice forests prevent landslides). Conserving these landscapes would be an effective way of implementing ecosystem-based approaches to climate change adaptation (EbA) and disaster risk reduction (Eco-DRR), which are customized to local climatic, geographic, cultural, and socio-economic conditions.

The concept of the Satoyama Initiative also contributes to prevention of land degradation, resource circulation and climate control through sustainable use of natural resources.

### Benefits

Unlike “gray infrastructures” that only serve the purpose of disaster risk reduction, “green infrastructures” serve multiple purposes including disaster risk reduction, adaptation, mitigation, biodiversity conservation, food production, water security, etc. They can be a cost-effective option as well.

### Some good practices

As a global platform which aims to facilitate and accelerate the implementation of activities under the Satoyama Initiative, the International Partnership for the Satoyama Initiative (IPSI) was launched in 2010, and its member organizations include national and local governmental organizations, other government-affiliated organizations, non-governmental or civil society organizations, indigenous and local community organizations, academic, educational and/or research institutes, industry and private sector organizations, and United Nations or other international organizations. The activities of IPSI include facilitation of collecting, analyzing, synthesizing and comparing case studies, and distilling lessons learned for dissemination through a searchable online database and other means, and for use in capacity-building activities. Some good practices can be found on the IPSI website (<https://satoyama-initiative.org/casestudies/>). Several CBD COP decisions have recognized the contribution of the SATOYAMA Initiative.



Further information  
<http://satoyama-initiative.org/>

Contact  
Naoki Amako, [naoki\\_amako@env.go.jp](mailto:naoki_amako@env.go.jp)

# Climate Risk & Early Warning Systems (CREWS) Initiative

 Canada  Australia  France  Germany  Japan  Mexico  Netherlands

Related organizations: World Bank, WMO, UNISDR

Initiative: Multilateral | Timeline: 2016–2020

## Summary

Canada announced \$10M (CDN) over five years (ending March 31, 2021) in grants funding to the Climate Risk & Early Warning Systems (CREWS) Initiative.

Delivered through the World Meteorological Organization (WMO), Canada's contribution will improve Multi-Hazard Early Warning Systems in developing countries, particularly the small island developing states (SIDS) and least developed countries (LDCs). These systems have been proven to reduce loss of life and economic hardship caused by meteorological hazards such as tropical cyclones, floods, severe storms, forest fires, and heat waves.

Launched in 2015, the CREWS Initiative was created in response to the Sendai Framework for Disaster Risk Reduction. The CREWS initiative was developed to support LDCs and SIDS in significantly increasing the provision of weather and climate services and the capacity to generate and communicate effective, impacted multi-hazard, gender-informed, early warnings systems to protect lives, livelihoods, and assets.

Canada's contribution makes it one of the largest contributors to the CREWS initiative.

## Descriptions

Over 80% of natural disasters worldwide are climate-induced. Yet over 80% of the world's population does not have access to early warning systems that can help save lives. Better early warning systems, particularly for the most vulnerable countries like small island states, that are facing an increasing number of extreme weather and climate events

caused by climate change, can make a real difference.

Canadian funds to support the CREWS initiative will be used to support WMO activities such as the Severe Weather Forecasting Demonstration Project and the Flash Flood Guidance System in support of wider WMO strategic objectives on disaster risk reduction and service delivery.

Specifically, Canadian funds will help to:

- Review capabilities, gaps and needs in relation to risk analysis and forecasting tools for severe weather, flash/riverine floods and drought;
- Strengthen governance arrangements and coordination/communication mechanisms within and among the participating National Meteorological and Hydrological Services (NMHSs) and stakeholders in all sectors;
- Develop and deliver education and training packages for multiple countries, and,
- Provide regional and in-country technical assistance to the NMHSs to develop and deliver impact-based warnings, products and services.

CREWS works directly with countries to increase the availability of, and access to, early warning systems. CREWS focuses on ensuring that early warnings, related both to the weather and climate events are risk informed. Early warnings are risk informed when they reach the people and institutions that need them and exposed populations and institutions are sufficiently informed to know how to act.

Country and regional projects are implemented by the countries with the support of international partners who provide technical assistance and capacity development. This includes the twinning

of two or more National Meteorological and Hydrological Services and by leveraging the expertise of regional and international institutions.

CREWS aims to raise more than US\$100 million dollars by 2020 and reach more than one billion people. Multi-hazard early warning systems prove to be a good investment to reduce loss of life, and economic losses, which are increasing all over the globe in the range of US\$300 billion annually.

## CREWS in Haiti

With the support of Canadian funds, Météo France International and WMO will help to rehabilitate Haiti's meteorological and hydrological service, destroyed in the 2010 earthquake, and reduce the extreme vulnerability to natural hazards such as tropical cyclones through better weather forecasts and climate services. The collaboration will have a special focus on strengthening predictive capacity, ensuring the quality of aviation meteorological services and improving the observation network.

Météo France provided weather forecasting and warning service for Haiti from its office in Martinique for nearly 6 years after 2010. Since 2017, Haiti's meteorological and hydrological service has a new, specially designed headquarters, but still lacks capacity to provide high-quality weather, hydrological and climate services.

## CREWS in the Pacific Region

In the Pacific region, flash floods are common hazardous events that pose serious threats to populations, claiming lives of people, damaging properties and infrastructure, putting back decades of development, and disrupting business and livelihoods. Flash floods are hydro-meteorological events and require meteorology and hydrology expertise.

With the support of Canada, the CREWS initiative funds the Fiji Flash Flood Guidance System (FijiFFGS). The FijiFFGS, implemented by the WMO and the Hydrological Research Center (HRC), will supplement existing systems for monitoring and early warning for floods in the Pacific Islands.

More specifically, it will provide guidance to the Regional Specialized Meteorological Centre weather experts within the Fiji Meteorological Service to provide impact-based forecasts of extreme weather events (such as floods, droughts, cyclones and storms) and warnings with improved lead-time and sites' specific.

A number of Pacific SIDS are benefitting from this initiative: the Cook Islands, Fiji, the Federated States of Micronesia (FSM), Kiribati, the Republic of the Marshall Islands (RMI), Nauru, Niue, Palau, Samoa, the Solomon Islands, Tokela, Tonga, Tuvalu and Vanuatu.



### Further information

CREWS Initiative : <https://www.crews-initiative.org/en>

### Contact

Shannon deGraaf, Meteorological Services of Canada  
[shannon.degraaf@canada.ca](mailto:shannon.degraaf@canada.ca) +1 905-315-5235



# Building Resilience to Extreme Events in North America

 [Canada](#)  [Mexico](#)  [United States](#)

Initiative: Multilateral | Timeline: July 2019 – Dec 2020 (With possibility for extension)

## Summary

The “Building Resilience to Extreme Events in North America” project, launched at the 2018 Commission for Environmental Cooperation (CEC) Council Session in Oklahoma City, Oklahoma, aims to advance the capacities of Canada, Mexico, and the United States to deal with extreme weather and climate events that affect the health, safety, and socio-economic and environmental wellbeing of communities and populations across the three nations. The initiative has been divided into four sub proposals; 1) improving preparedness and response to extreme events through the use of remote sensing; 2) using volunteer observer networks to inform prediction and monitoring of precipitation and wildfires; 3) improve local capacity of early warning systems for drought; and, 4) developing a standardized method for costing floods and other extreme events across North America. Each sub proposal is implemented by the CEC with the support of technical experts from each of the three countries. The projects will build response capacity, improve preparedness, and facilitate data sharing as it relates to extreme events across North America.

## Descriptions

### Project 1: Improving local capacity of early warning systems for drought across North America

The economic, environmental, and social impacts of climate extremes across North America are significant. Not constrained by any nation’s borders, drought and its attendant hazards create significant costs for local communities. Coordination and communication between the United States, Canada, and Mexico during recent North American droughts have been essential for minimizing and lessening

impacts. Current drought early warning systems focus primarily at national and regional levels; at local levels, there remains uncertainty about which early warning capabilities, monitoring indicators, and existing drought planning tools and resources are most appropriate and cost-effective to support local drought management. Further, it is critical to “nest” local drought early warning systems within larger-scale early warning systems and also to link local systems with other local systems, particularly in regional settings across transboundary geographies.

This project will focus on three separate, but complementary, objectives that will strengthen the ability of local communities in all three countries to predict, prepare for, and respond to drought impacts. These three objectives are 1) to create a set guidelines for use of North American drought indicators, 2) to increase local capacity to use available drought information for planning and risk management, and 3) to build on and strengthen existing trilateral partnerships across North America.

### Project 2: Using volunteer observer networks to inform prediction and monitoring of precipitation and wildfires

The availability of data critical for improving predictions of extreme events, such as droughts, floods, and wildfires, as well as alerting citizens to life-threatening weather situations in a timely manner is poor in some regions of North America. Partnering with volunteer environmental observations networks offers a flexible and low cost approach to improving prediction, preparedness and response to extreme events by filling data gaps in regions.

Local observation and reporting of precipitation and wildfires in targeted geographical areas of North America varies in existence, capacity, detail, availability and share-ability across three countries. This project aims to assess the feasibility of establishing broader and more consistent precipitation and wildfire smoke observation and reporting through trained local citizen science observers in three countries to complement federal and state meteorological capacities. The project will also aim to build on existing citizen science mechanisms which operate within the three countries. For instance, in Canada data collected by the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) is used alongside existing Meteorological Service of Canada (MSC) monitoring networks. In the U.S., the SmokeSense project was made available to the public in 2017 to communicate wildfire smoke exposure health risks for communities and vulnerable populations.

The objectives of the proposed project are to:

- Assess the feasibility of strengthening and expanding the CoCoRaHS network into Mexico, Western Canada, and data-poor regions of the United States.
- Identify and assess the feasibility of expanding other existing monitoring networks in the three countries, including SmokeSense, to better address information gaps relative to predicting and monitoring extreme events.

### Project 3: Costing floods and other extreme events

At present, the methods by which costs of flood damages are estimated vary significantly among federal and state/provincial jurisdictions and across the three CEC countries. There are significant data gaps in assessing uninsured losses, and much of the available data are not georeferenced adequately. Further, much of this information is not available in real-time and the economic impacts of cascading multi-hazards are not well documented. As a result, government agencies and private entities cannot

easily assess “trade-offs” for infrastructure and institutional investments for enhancing disaster resilience. The information gaps also limit joint responses between US, Canada and Mexico, particularly when encountering extreme events that impact multiple jurisdictions.

The overall objective of this project is to formulate a standardized methodology for assessing the cost of extreme floods in three countries. This project aims to formulate a common methodology for measuring the economic impacts of extreme floods, tabulate the economic costs of floods and related extreme events in the US, Mexico, and Canada for a 5-year period (2013-2017), analyze the emerging patterns, and identify the design elements for a common platform through which this information can be shared.

### Project 4: Use of remote sensing to improve preparedness and response to extreme events

Remote sensing applications for early warning systems or climate change monitoring play a significant role in disaster management as a result of their high temporal resolution and large area coverage. However, varying levels of data accessibility, technical capacities and experienced personnel present significant barriers to the wide adoption of their use. Moreover, providing relevant and timely geospatial information to first responders in the field remains a challenge, as a result of a lack of infrastructure that connects first responders to these technologies. Several real time applications currently exist to promote and facilitate the accessibility of these tools to data users and the general public.

This project will identify and assess available tools, best practices and options of early warning systems for drought, flooding and wildfires used in Canada, México and the United States, in consideration of their respective climates and geographies.



#### Further information

#### Contact

Agusti Bordas-Cusco, Manager, Pan-American affairs, +1819-938-3739,  
[agusti.bordascusco@canada.ca](mailto:agusti.bordascusco@canada.ca)

# Global Facility for Disaster Reduction and Recovery (GFDRR)

 EU  Australia  Germany  Italy  Japan  Mexico and other members

Related organizations: World Bank, UNDP, UNDRR

Initiative: Multilateral | Timeline: Established in 2006

## Summary

GFDRR is a global partnership established in 2006 to support developing countries to understand, manage, and ultimately reduce their risk from natural hazards and climate change. Hosted at the World Bank, GFDRR is supported by 21 member and observer countries as well as ten international organizations<sup>1</sup>, and works with over 400 sub-national, national, regional, and international partners.

## Descriptions

### Comparative Advantage:

GFDRR's comparative advantage builds on its unique position within the World Bank to finance engagements that leverage larger development operations and policies. In particular, GFDRR supports technical assistance and analytical work that enables financing by international financial institutions to ensure that investments enhance resilience and reduce risks.

GFDRR capitalizes on a combination of disaster risk management, climate change adaptation, and development expertise. It does so through its in-house thematic teams, its strong partnership with the World Bank, and its collaboration with extensive networks of partner institutions. This ensures all GFDRR activities are implemented to the highest quality standards, with efficiency gains achieved through the sharing of knowledge and experiences. Disaster risk management is inherently multi-disciplinary, and GFDRR recognizes that one size does not fit all; therefore, GFDRR packages innovation, best practice solutions, capacity building, and global technical experts to support decision makers to overcome entrenched disaster risk management challenges on the ground.

Finally, GFDRR financed projects are implemented under standard policies and procedures of the World Bank. This means that donor funds are spent according to rigorous financial management, safeguards, and procurement policies, among others. This ensures that whether GFDRR projects are executed by the World Bank on behalf of government partners, or by national, regional or sub-national agencies themselves, they are held to the highest standards. A rigorous approach to monitoring, evaluation, and learning results means that GFDRR—through its partners—is an effective catalyst for creating long-term positive change.

### Operating Principles:

GFDRR's strategy is underpinned by seven operating principles detailed below:

#### *I. Demand-driven approach to ensure maximum impact*

Development programs can only have a deep and lasting impact if they emerge from, and are embedded in, national priorities and institutions. GFDRR-funded activities respond to specific requests from national, regional and sub-national authorities, ensuring the necessary ownership needed to achieve positive results. A demand-driven approach also helps countries more effectively coordinate support from other development partners.

#### *II. Leveraging development investments and policies*

To achieve the scale needed to make vulnerable communities resilient, GFDRR finances activities that are expected to have the most impact. GFDRR provides technical and/or financial assistance to leverage additional investment for resilience building by informing and mobilizing resources from national governments or development partners; enabling development investment by directly

supporting the design/or implementation of a DRM operation; and co-financing DRM operations with other development partners to increase the scale of interventions.

### ***III. Focusing on inclusive design and participation***

Resilient development will not be achieved unless all stakeholders are involved in the planning and implementation of disaster risk management interventions. Therefore, GFDRR's activities are designed to ensure that activities addressing disaster and climate risk engage all levels of society, especially civil society and communities, who can champion disaster and climate risk management solutions, bringing resilience to scale. Furthermore, GFDRR is committed to integrating disability, age, poverty, and other social vulnerability dimensions in its activities to inherently ensure inclusive and equitable outcomes.

### ***IV. Empowering women and mainstreaming gender***

Focus on the gender dimension addresses the unique roles that women can play in preparedness, response, recovery, and resilience-building, as well as the differential vulnerabilities experienced by women and men.

### ***V. Jointly addressing disaster and climate risk***

Climate change poses a particular threat to development achievements as it is likely to exacerbate all drivers of risk. Building on its current work in this area, GFDRR integrates resilience to climate change into all its activities by: (i) improving identification and understanding of risk under future climate scenarios; (ii) avoiding the creation of new risks and reducing existing risks; and (iii) supporting design and implementation of investment policies so that they include climate resilience measures.

### ***VI. Developing knowledge and sharing best practices***

GFDRR is committed to ensuring that national authorities and development actors embrace evidence-based decision-making through timely access to accurate and targeted information and to

state-of-the-art decision-making methodologies and tools. GFDRR achieves this by investing in analytics and research to enable advocacy; documentation and dissemination of best practices and lessons learned; and by making sure foundational disaster risk information is open, accessible, understandable, and usable by governments, the private sector, and other development actors.

### ***VII. Prioritizing a results-oriented approach***

GFDRR reports on results achieved under its programs. Information on progress is generated at three main levels: (i) input of financing and other resources; (ii) output of projects and programs; and (iii) contribution to outcomes on the ground. A key characteristic of the monitoring and evaluation process is the establishment of a learning loop to ensure that lessons are applied to future programs and to objective criteria on which grant-financing decisions are made. GFDRR is also committed to improving how it measures resilience and the impact of disaster risk management interventions on the ground.

### **Areas of Engagement:**

GFDRR implements its strategy through eight areas of engagement that support the Sendai Framework priorities and that contribute to achieving the Sustainable Development Goals and the Paris Agreement. These include: (i) deepening engagements in resilience to climate change; (ii) promoting open access to risk information; (iii) promoting resilient infrastructure; (iv) scaling up the resilience of cities; (v) strengthening hydromet services and early warning systems; (vi) deepening financial protection; (vii) building resilience at community level; and (viii) enabling resilient recovery.

1. GFDRR members: Australia, Austria, Germany, India, Italy, Japan, Luxembourg, Mexico, Norway, Serbia, Sweden, Switzerland, United States of America, ACP Group of States, European Union, UNDP, UNDRR, World Bank. GFDRR observers: Belgium, Canada, France, Mozambique, Spain, Turkey, United Kingdom, Vietnam, GNDP, IFRC, Islamic Development bank, Organization of Islamic Cooperation, WMO.



### **Further information**

[www.gfdr.org](http://www.gfdr.org)

### **Contact**

Mr. Julie Dana, Head of GFDRR,  
[jdana@worldbank.org](mailto:jdana@worldbank.org)

# European Adaptation Platform: Climate-ADAPT

 EU  Turkey

Initiative: Multilateral | Timeline: Launched in 2012

## Summary

Set up as a partnership between the European Commission and the European Environment Agency (EEA), Climate-ADAPT supports; (i) knowledge and information sharing on climate change impacts, vulnerability and adaptation; (ii) better informed decision making; and (iii) coordination between sectors and governance levels.

Climate-ADAPT has engaged a wide range of key information users and providers, including governmental decision-makers, transnational organizations and conventions, networks of cities, the research community and other stakeholders.

The Climate-ADAPT is structured following the most relevant adaptation policy elements and vulnerable sectors in Europe, offering information, knowledge and practical examples that illustrate how Europe is adapting to climate change.

The 2013 EU Adaptation Strategy requested to develop Climate-ADAPT further into a 'one-stop shop' for adaptation information in Europe. According to the recent 2018 evaluation, Climate-ADAPT has indeed become a key European vehicle to disseminate information on adaptation to decision-makers at various governance levels and organizations supporting them for developing adaptation strategies and actions.

## Descriptions

The primary target audience for Climate-ADAPT are governmental decision-makers, as well as the organizations supporting them in the development, implementation and evaluation of climate change adaptation strategies, plans and

actions at European, transnational, national and sub-national levels, covering the 33 European Environment Agency member countries (the 28 EU Member States and Iceland, Liechtenstein, Norway, Switzerland and Turkey).

### Components

Climate-ADAPT consists of two main components: (1) the web content and (2) the database. Both components support the development of a reliable knowledge base and facilitate its uptake by users across Europe.

The first component, the web content, contains information organized under several main entry points. There are, for example, sections covering the European perspective on adaptation, providing information relevant on the progress of the EU Adaptation Strategy and the different sectoral policies, and providing information on adaptation at different governance levels.

The second component, the 'database', aims to share detailed information on adaptation in Europe and also guiding users to the most relevant external resources. It contains more than 2000 items, structured following typologies of data, sectors, impacts and other elements that can be used as filters when searching the database.

### Adaptation tool

Climate-ADAPT also contains a set of interactive tools to assist decision makers in developing, implementing and monitoring climate change adaptation strategies, plans and actions by providing guidance and links to relevant resources. These tools include the 'Adaptation Support Tool', the 'Urban Adaptation Support Tool' or the 'Urban Adaptation Map Viewer'.

### Partnership

Climate-ADAPT is a partnership between the European Commission and the European Environment Agency. A Climate-ADAPT Advisory Group, consisting of European Commission staff, provides strategic direction and recommends priorities for the development of the platform. A Climate-ADAPT Strategy 2019-2021 is available that presents the objectives and vision of the platform, as well as the governance and priorities.

### Promotion

Climate-ADAPT is being promoted through a variety of initiatives, including a set of tutorial videos targeted to specific user profiles, a regular newsletter and printed material such as flyers and booklets. Climate-ADAPT is also regularly presented in international conferences, events and meeting.

Increased adaptation action at all governance levels makes Climate-ADAPT a key platform to continue providing access to relevant information needed for adaptation decision-making and planning. Information needs change in the different stages in the adaptation policy cycle, influencing the future development of Climate-ADAPT. In addition, the continuous increase in knowledge generation and practical experiences coming from European projects and initiatives also makes the finding of relevant information needed for each specific user challenging. Therefore, Climate-ADAPT is continuously updating its content and structure to facilitate users to overcome these challenges, looking for complementarity, connections and synergies with the increasing landscape of adaptation platforms (and related areas) across Europe at all levels.



Climate-ADAPT front page <https://climate-adapt.eea.europa.eu/>



#### Further information

<https://climate-adapt.eea.europa.eu/>

#### Contact

[climate.adapt@eea.europa.eu](mailto:climate.adapt@eea.europa.eu); [Andre.Jol@eea.europa.eu](mailto:Andre.Jol@eea.europa.eu); [joseramon.picatoste@eea.europa.eu](mailto:joseramon.picatoste@eea.europa.eu)

# “Adaptation of Real Estate Sector to Climate Change” Working Group of the GlobalABC

 **France**  **Mexico**

Related organizations: ICLEI, WBCSD, UNEP-FI, AFD, AFNOR

Initiative: Multilateral | Timeline: 2018–2020

## Summary

The Global Alliance for Buildings and Construction, GlobalABC, aims to facilitate the transition towards zero emission, efficient and resilient buildings, and gathers 27 national governments (9 are G20 countries) and 113 members.

This working group aims at publishing a report or toolkit on the adaptation of buildings to climate change for key players of the real estate value chain.

This will cover the context (which risks need to be addressed, which methodologies are available, how much risks and adaptation cost, which timeframe should be referred to) and will present recommendations for each actor involved in the building sector. This includes governments, local authorities, investors, engineering companies, developers, insurers and asset managers.

For each actor, the specific stakes will be addressed, a review of the current state of integration of adaptation will be made and recommendations will be proposed.

This project will rely on a literature review, data analysis and on workshops and roundtable discussions with the different actors involved. Interviews with experts will be conducted and climate scientists will be involved to ensure the pertinence of the methodology proposed.

The perimeter for the project is global: addressing the specificities of developing countries in terms of vulnerability to risks and lack of data is a key objective.

## Descriptions

The Paris Agreement is the first climate agreement that attributes the same level of importance to adaptation and mitigation of climate change.

In 2017, losses due to meteorological disasters amounted to 200 billion USD and 8 000 victims at the global level. Losses linked to housing accounted for half the total. Besides, covering current risks faced by the built environment (storms, flooding, tsunamis, and earthquakes) would require saving 300 billion USD yearly. 1 trillion of real estate are estimated at risk by 2100 by sea level rise in USA only.

Adaptation to climate change implies reducing negative impacts from climate change through the reduction of vulnerability and the increase of resilience. Vulnerability derives from exposure, sensitivity and adaptive capacity. Yet, few adaptation strategies include a focus on buildings and real estate.

A working group on adaptation of buildings has therefore been set under the Global Alliance for Buildings and Construction.

The objectives of the working group are as follows:

- Establishing a methodology on adaptation (available resources, semantics, etc.);
- Offering a space for discussion between different stakeholders;
- Making a case for addressing adaptation of buildings and establishing strategies;

- Assessing the current knowledge and practices of the real estate industry on adaptation;
- Addressing recommendations to the different stakeholders; and
- Defining a political statement.

A report will be published during the second semester 2020 and an international conference will be organized. Objectives of the report are to:

- Summarise the relationship of GHG baseline scenarios to adaptation needs;
- Review the main adaptation approaches and the situations in which adaptation is needed based perhaps on specific criteria;
- Provide a methodology (framework for action);
- Define recommendations (recommendations should be in the form to implementation strategies) for the different targets of the report ;
- Define a policy statement and principles;
- Propose regulations, standards, codes; and
- Estimate impact of actions.

The report will be around 100 pages long and will be available on a dedicated webpage. The proposed structure of the report is:

- Context: physical climate risks, legislations;
- Framework of action key target groups; and
- Bibliography.

The main target groups of the report are the following players of the building value chain:

- Governments;
- Local authorities;
- Investors;
- Asset managers;
- Real estate developers;
- Insurancers & Reinsurers ;
- Design & Engineering companies;
- Material, Equipment manufactors & Construction companies; and
- Property & facility managers.

Each framework of action (linked to a specific player of the building value chain) should be limited to 10 pages. It will address the following topics:

- Specific challenges faced by this actor on the adaptation of buildings to climate change (e.g. access to data, norms, etc.);
- Context & bibliography for this actor
- (studies, available databases, projects);
- Market analysis / state of current practices;
- Recommendations (investment, measurement, management, etc.);
- Tools; and
- Case studies and best practices;



#### Further information

[www.globalabc.org/](http://www.globalabc.org/)

#### Contact

Régis Meyer, [regis.meyer@developpement-durable.gouv.fr](mailto:regis.meyer@developpement-durable.gouv.fr);  
 Oriane Cébile & Loïs Moulas, [contact@o-immobilierdurable.fr](mailto:contact@o-immobilierdurable.fr)



# Mobilise Your City Partnership

 [France](#)
 EU (DG DEVCO)
  Germany

Related organizations: AFD, GIZ, ADEME, CODATU, FFEM, CEREMA, KfW

Initiative: Multilateral | Timeline: Established in 2015

## Summary

More than 600 million people (around 10 per cent of the world's population) live in coastal areas that are less than 10 meters above sea level (United Nations, 2017). Cities' infrastructures are therefore highly exposed to the threats caused by climate change.

In addition, transport contributes to about a quarter of all energy-related CO<sub>2</sub> emissions and about 15 to 17% of all anthropogenic CO<sub>2</sub> emissions. Without taking bold steps, emissions could significantly raise by 2050.

Mobilise your city is global climate partnership for integrated urban mobility planning in developing countries and an international transport alliance under the UN Marrakesh Partnership for global action.

The partnership supports and engages local and national actors in improving urban mobility by providing a methodological framework and technical assistance through Sustainable Urban Mobility Plans (SUMPs) and National Urban Mobility Programs (NUMPs).

The initiative aims to achieve SUMPs in 100 cities and NUMPs in 20 countries by 2020.

Through integrated and participatory planning, Mobilise your City aims at reducing transport-related GHG emissions in participating cities/states while enabling transformational changes towards more inclusive, livable and efficient cities.

Sustainable urban planning also improves resilience as it requires to establish a long-term vision that takes into account shocks and stresses that may degrade and damage infrastructure, and find policies to adapt to them.

## Descriptions

Cities are facing a growing range of multifaced challenges composed of stressors (unemployment, inadequate public transportation ...) and shocks (floods, droughts, earthquakes ...). Combined, they can severely threaten the resilience of its infrastructures. Given the expected impacts of climate change, there is a need to build the resilience of the cities' infrastructures so that they can better deal with these unanticipated shocks and stresses.

Urban transport has a major role to play in a city's resilience as a resilient transportation system allows people to commute in their city, despite shocks and stresses that degrade and damage infrastructure and lead to service disruptions.

Greater resilience can be achieved by implementing land-use policies and sustainable urban mobility plans (also called SUMPs). It is a strategic plan designed to satisfy the mobility needs of people and business in their cities and their surroundings, in a vision to improve the quality of life of the inhabitants. They are built on existing planning practices and take into consideration integration, participation and evaluation principles.

Sustainable urban mobility planning has the potential to deliver simultaneously public health benefits, improve road safety, tackle climate change and improve the inclusion of social groups. This holistic vision also helps building resilience.

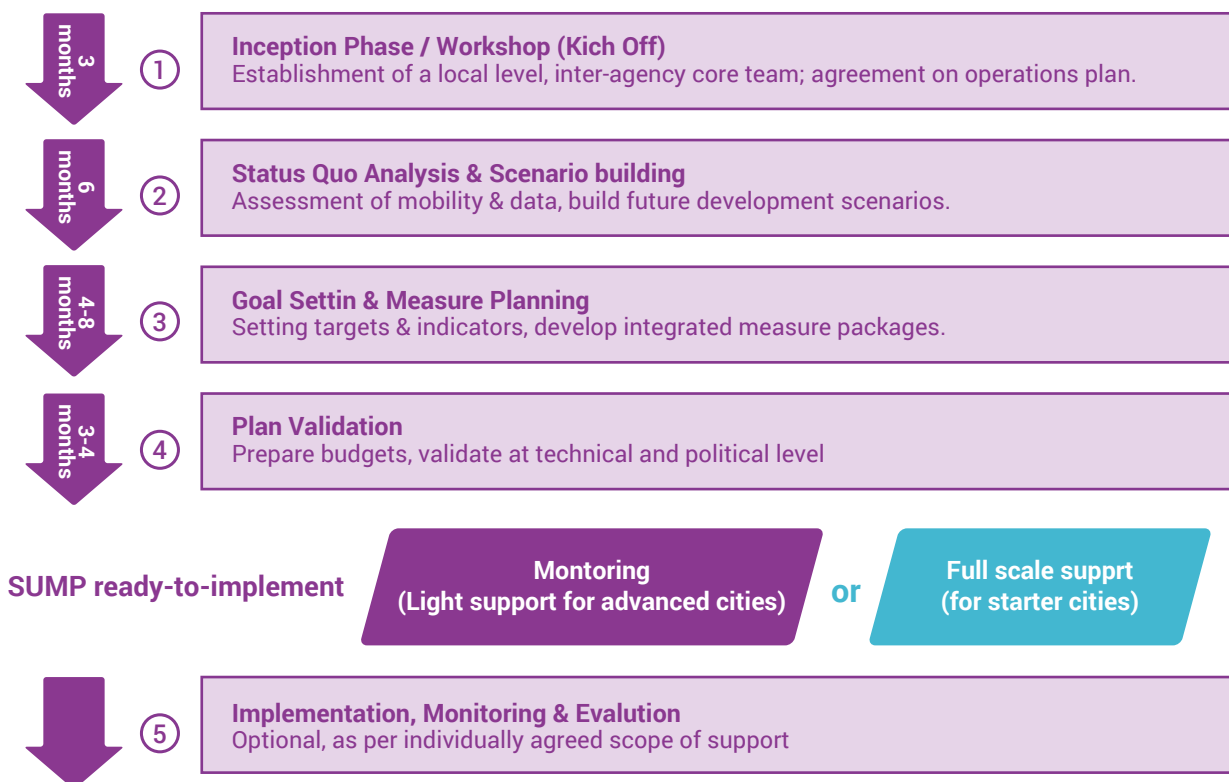
When Mobilise your City assists policymakers and the relevant actors in designing a SUMPs, building a long-term vision is key. This exercise allows to anticipate shocks and their associated impacts and to be proactive in their resolution. It leads

to building resilient design into existing and new infrastructure, for example by encouraging the use of a variety of modes of transportation.

In addition, the development of human and institutional capacity is a priority to requirement to initiate and sustain transformational change.

Mobilise your City Partnership therefore implements capacity building programs for its beneficiary partners. Individuals or institutions who received capacity building trainings increase their resilience as they are more equipped to adapt and cope with changes and shocks.

## SUMP development: Our 5-step approach



Further information  
[www.mobiliseyourcity.net](http://www.mobiliseyourcity.net)

### Contact

Maël Martinie, [mmartinie@codatu.org](mailto:mmartinie@codatu.org);  
Sandra Laquelle, [sandra.laquelle@mobiliseyourcity.org](mailto:sandra.laquelle@mobiliseyourcity.org);  
Sasank Vemuri, [sasank.vemuri@giz.de](mailto:sasank.vemuri@giz.de);  
Adèle Fardoux, [adele.fardoux@developpement-durable.gouv.fr](mailto:adele.fardoux@developpement-durable.gouv.fr)

# InsuResilience Global Partnership

Germany Canada EU France Japan United Kingdom Netherlands

Related organizations: AfDB, ADB, GEF, IDB, ILO, OECD, World Bank, UNDP, UNFCCC, WFP

Initiative: Multilateral | Timeline: Until 2025

## Summary

The vision of the InsuResilience Global Partnership (“the Partnership”) is to strengthen the resilience of developing countries and to protect the lives and livelihoods of poor and vulnerable people from the impacts of disasters. The Partnership aims to enable a substantial scale-up in the use of climate and disaster risk finance and insurance solutions and approaches by developing countries, ultimately contributing to strengthening resilience by enabling faster, more reliable and cost-effective responses to disasters.

## Descriptions

In 2017, the G20 countries welcomed a new global partnership on climate and disaster risk finance and insurance as part of their Climate and Energy Action Plan. The InsuResilience Global Partnership was officially launched in November 2017, at the UN Climate Conference COP23 in Bonn, as a collaborative initiative of G20 and V20 countries and other stakeholders (multilateral institutions, private sector, CSOs, academia). Since its launch, more than 60 members have joined the Partnership. Institutions from the following G20 countries are involved: Canada, European Union, France, Germany, Japan, United Kingdom, the International Development Finance Club (IDFC) with members inter alia from China, South Africa, India and Brazil. The Partnership aims to strengthen the resilience of developing countries and protect the lives and livelihoods of poor and vulnerable people against the impacts of disasters.

The central objective of the Partnership is to enable more timely and reliable post-disaster response and to better prepare for climate and disaster risk

through the use of climate and disaster risk finance and insurance solutions, reducing humanitarian impacts, helping poor and vulnerable people recover more quickly, increasing local adaptive capacity and strengthening local resilience. This complements ongoing efforts in countries to avert, minimize and address climate and disaster risks.

The Partnership seeks to drive forwards implementation and expansion of climate risk finance and insurance solutions through the InsuResilience Program Alliance. The Program Alliance is the collaborative delivery vehicle of the Partnership. It helps to coordinate the delivery of donor contributions to countries in line with the overarching goals of the Partnership. As part of this Alliance, the governments of Germany and the UK, with support from the World Bank, have established the Global Risk Financing Facility (GRiF). The GRiF will establish and scale up pre-arranged disaster risk financing instruments for vulnerable countries, focusing on technical assistance, insurance premium financing, and new types of contingent financing to complement insurance. It will also have a specific focus on making critical infrastructure for poor and vulnerable people more resilient through risk finance and insurance mechanisms. The Program Alliance also entails the InsuResilience Solutions Fund (ISF), a specialized fund providing advice and partial grant financing to transform climate risk insurance concepts into products ready for market placement and bring successfully piloted climate-risk insurance products to scale and the Global Centre for Disaster Protection (see page XX). The InsuResilience Global Partnership also supports the three regional risk pools, such as the African Risk Capacity (ARC), the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Assessment and

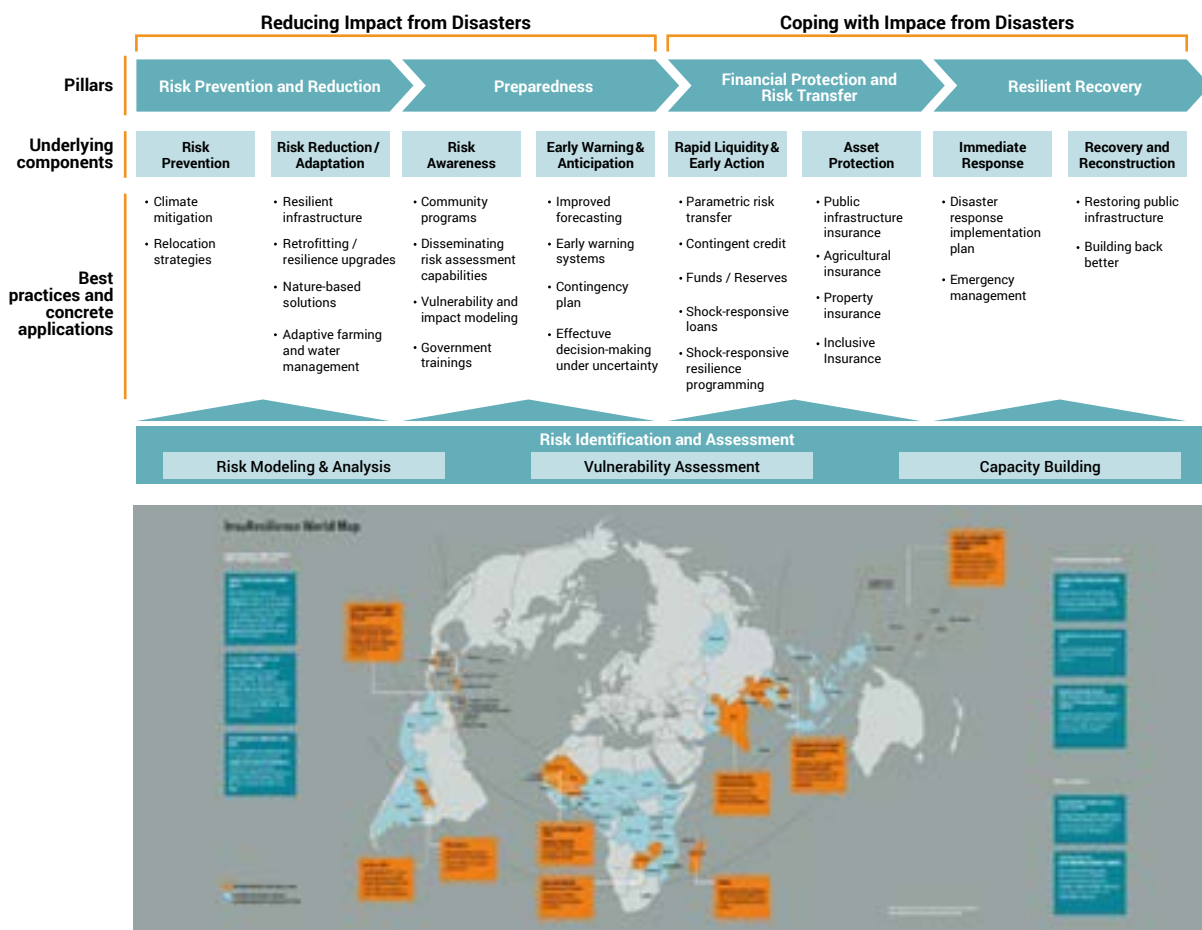
Financing Initiative (PCRAFI). For example, PCRAFI launched a pilot insurance program in 2013 and in 2016 set up the Pacific Catastrophe Risk Insurance Company (PCRIC), owned by a foundation whose governing body consists of the participating countries and donor partners. As of 2017, five Pacific island states—namely the Cook Islands, the Marshall Islands, Samoa, Tonga, and Vanuatu—participated. A total of US\$6.7 million has been paid to countries to date, including US\$3.5 million to Tonga in response to Cyclone Gita in 2018.

scaling up and accelerating risk financing in 2019 and beyond. In addition, the HLCG mandated the Partnership to develop a medium-term vision 2025, which will be agreed in the first half of 2019.

An integrated model of Climate risk management envisions embedding climate and disaster risk financing and insurance in a comprehensive risk management, by having scalable solutions that link wider climate adaptation and risk management efforts with financial resilience to contribute to long-term resilience gains of vulnerable people.

At the first High-Level Consultative Group (HLCG) meeting of the InsuResilience Global Partnership held in December 2018, members agreed on the Concept Note of the InsuResilience Global Partnership and emphasized the urgency of

The figure below shows countries covered by solutions contributing to InsuResilience’s vision and selected solutions and country cases.



Source: InsuResilience Global Partnership Annual Report 2018

**Further information**  
[www.insuresilience.org](http://www.insuresilience.org)

**Contact**  
 Dr. Astrid Zwick, Head of the InsuResilience Secretariat, [Astrid.Zwick@giz.de](mailto:Astrid.Zwick@giz.de)

Multilateral

# Study “Common Ground between Paris Agreement and Sendai Framework” by NAP Global Network

 Germany

Initiative: National | Timeline: Complete by Nov 2019

## Summary

The study “Common Grounds between the Paris Agreement and Sendai Framework”, is commissioned by the German Federal Ministry for Economic Cooperation and Development to the OECD in contribution to the G20 Adaptation Work Program. The study points out challenges and potentials for coherent implementation of the Paris Agreement and the Sendai Framework at a global, national, and sub-national level. The study will identify good practices to scale-up concrete actions to accelerate the integration of disaster risk management (DRM) and climate change adaptation (CCA) in implementation processes / “on the ground”. The study will identify entry points and recommendations for collective action for the G20 countries on promoting synergies in implementing the Paris Agenda and the Sendai Framework. The study will contribute to the G20 Action Agenda in terms of knowledge and information provision as well as capacity development.

## Description

The study on “Common Ground between Paris Agreement and Sendai Framework” is in line and feeds into the Japanese G20 Presidential priority of mainstreaming disaster risk reduction (DRR). It draws on lessons and comparison from three case studies in developing countries (Ghana, Peru and the Philippines) to identify good practices to scale-up concrete actions to accelerate the integration of disaster risk management (DRM) and climate change adaptation (CCA) in implementation processes. Selected case studies will focus on specific thematic areas, such as infrastructure or ecosystem-based adaptation and identify the most suitable financial instruments (including risk finance and insurance) for implementing aligned

CCA and DRM measures.

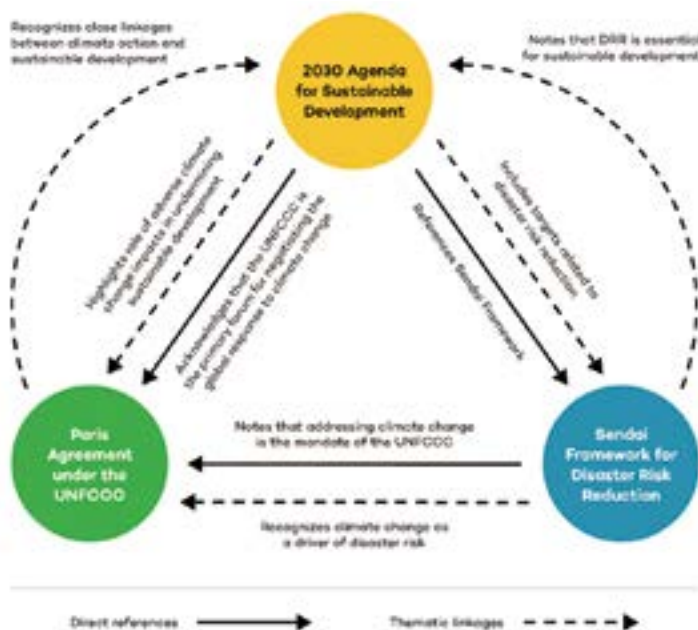
The study also builds upon successful implementation examples of the most important initiatives and actors in international support. It draws on work of existing G20 initiatives, such as the InsuResilience Global Partnership, NAP Global Network and other important actors/platforms, such as the NDC Partnership and UNISDR/ the Global Platform.

Ultimately, the study will identify entry points and recommendations for collective action for the G20 countries on promoting synergies in implementing the Paris Agenda and the Sendai Framework. These include identification of the practical and priority strategies and actions for integrating the CCA and DRR agendas targeted at national governments in developing countries, donors and international organizations. By outlining sources of finance relevant for the Paris Agreement and the Sendai Framework, the study provides an overview and contributes to an increased understanding of the financial support they are providing for planning and implementation at the intersection of adaptation and disaster risk management. These findings could be included in the G20 Action Agenda and contribute not only in terms of knowledge and information provision but also to capacity development. Another similar study currently under development commissioned to OECD will focus on small and medium enterprises (SME). Its aim is to find how the private sector can assess, manage and minimize climate and disaster risks. It will draw lessons from up to three case studies in the Central America, West Africa and South-East Asia. The case studies will identify good practices on how the public sector and SME supporting risk reduction activities. It will identify barriers for the private sector engagement and assess ways to overcome these.

**Table 3.1. Overview of the 2030 Agenda for Sustainable Development, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction**

	Sustainable Development Goals	Paris Agreement on Climate Change	Sendai Framework for Disaster Risk Reduction 2015-30
<b>Purpose</b>	Global agenda for action towards sustainable development, with 17 goals and associated targets	Agreement of the parties to the UNFCCC on the global response to climate change, including both mitigation and adaptation	Global framework to guide multi-hazard management of disaster risk in development at all levels, as well as within and across sectors
<b>Climate adaptation and disaster risk</b>	Climate action is the focus of goal 13 (SDG 13), which aims to combat climate change and its impacts, by strengthening resilience and adaptive capacity to climate-related hazards and integrating climate change measures into national policies, strategies and planning	Enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development (Article 7.1)	Climate change as a driver of disaster risk, points to the opportunity to reduce disaster risk in a meaningful and coherent manner (Paragraph 1.3)
<b>Country ownership and role of development co-operation</b>	Stresses the need for strengthened global solidarity, with the participation of all countries, all stakeholders and all people (17.16-17.17)	Emphasises the importance of action on adaptation to "follow a country-driven, gender-responsive, participatory and fully transparent approach" (Article 7.2), while recognizing the "importance of support for and international cooperation on adaptation efforts" (Article 7.6)	Specifies the role of all-of-society and all-of-State institutions engagement in managing and reducing disaster risk, while recognizing that the ability of developing countries to do so may be strengthened through the provision of "adequate, sustainable and timely provision of support, including through finance, technology transfer and capacity building from developed countries and partners tailored to their needs and priorities, as identified by them" (Paragraph 1.9)
<b>Key actors</b>	Governments, United Nations development system, international financial institutions, regional organizations and other stakeholders	All levels of government and various actors, in accordance with respective national legislations of Parties	Governments, all-of-society (including business and academia)
<b>Timeline</b>	2015-2030	Adopted in 2015 and entered into force in November 2016, implementation phase technically begins in 2020, but the agreement also emphasizes the need for pre-2020 action	2015-2030

Source: (UNFCCC, 2015<sup>[10]</sup>) (UNISDR, 2015<sup>[11]</sup>)



**Table:** A brief summary of the three frameworks, i.e. the 2030 Agenda on Sustainable Development, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction, highlighting the objectives related to climate resilient development.

(Source: OECD 2019 [unpublished]. Scoping note for the study Common Ground between Paris Agreement and Sendai Framework)

**Figure:** This figure helps to better understand where the different policy processes overlap. At the international level, the texts of these agendas make links to one another, both through direct references and through references to thematic linkages. This creates a foundation for creating functional linkages in country efforts to achieve these global agendas.

(Source: NAP Global Network 2018. Alignment to Advance Climate-Resilient Development OVERVIEW BRIEF 1: Introduction to Alignment, p.4)

+

**Further information**

**Contact**

Christoph von Stechow, [christoph.stechow@bmz.bund.de](mailto:christoph.stechow@bmz.bund.de);  
 Andrea Kuhlmann, [andrea.kuhlmann@giz.de](mailto:andrea.kuhlmann@giz.de)

Multilateral

# Study: “Engaging the Private Sector in National Adaptation Planning Processes” by NAP Global Network

 Germany

Initiative: National | Timeline: Complete by April 2019

## Summary

Adapting to the impacts of climate change requires a coordinated input of multiple stakeholders, including local authorities, development partners, communities and civil society. In this regard, the strategic and well-informed inclusion of the private sector in climate change adaptation planning and activities is considered essential for countries' efforts to adapt to the impacts of climate change; they will be key partners in the design, financing and implementation of adaptation priorities. Especially Micro-, Small- and Medium- Enterprises (MSMEs) will be a primary driver of implementing adaptation action and resilience building in developing countries, and an important source of financing for adaptation, e.g. for investments in climate-resilient infrastructure.

The study “Engaging the private sector in National Adaptation Planning processes” conducted by the NAP Global Network, commissioned by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), aims to offer guidance to governments and their partners on how to engage the private sector in the NAP process. It will outline enabling factors that facilitate private sector engagement, offer practical guidance to countries and provide examples of instances where the private sector has successfully engaged with the NAP process, as well as with climate change adaptation more broadly.

## Description

The study “Engaging the private sector in National Adaptation Planning processes”, conducted by the NAP Global Network, commissioned by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development aims to

offer guidance to governments and their partners on how to engage the private sector in the NAP process. The study will be finalized in March 2019 and launched at the 2019 NAP Expo in Songdo, South Korea.

In order to meet the aims set out by the Paris Climate Agreement and the SDGs, increased funding for and engagement in adaptation actions is a necessity. While much of this financing and support may come from public sources, whether domestic or international, the private sector will also play a pivotal role in funding, participating in, and in some cases leading the development, implementation, and review phases of adaptation actions. Adapting to the impacts of climate change therefore requires the coordinated input of businesses and investors. They will be relied on to create the jobs needed to support adaptation, to develop the products and services needed for economies and societies to become more climate resilient, and to finance – either directly or indirectly – many adaptation actions. The strategic and well-informed inclusion of the private sector in climate change adaptation planning and activities must be a key part of all countries' efforts to adapt to the impacts of climate change; they are key partners in the design, financing and implementation of adaptation priorities.

Private sector actors differ in size (micro, small, medium and large) and motivation (for-profit, private charities, remittances). Micro-, Small- and Medium- Enterprises (MSMEs) tend to dominate the private sector in many developing countries, and as such are a key actor for engagement. Managing climate risks will require investments by companies to protect their operations and avoid future losses. Companies may manage climate risks through investments in climate-resilient infrastructure,

consideration of climate impacts in procurement decisions, integrating climate change into business plans, and climate-proofing supply chains.

The three primary objectives of this study are:

- To outline the enabling factors that facilitate private sector engagement in NAP processes, namely information sharing, financing, institutional arrangements, and capacity building;
- To offer practical guidance on how countries can design their NAPs to ensure that the private sector is engaged across the three phases of the NAP process: planning, implementation, and monitoring and evaluation (M&E); and
- To provide examples of instances where the private sector has successfully engaged with the NAP process, as well as with climate change adaptation more broadly.















**Further information**  
<http://napglobalnetwork.org/>

**Contact**  
Christoph von Stechow, [christoph.stechow@bmz.bund.de](mailto:christoph.stechow@bmz.bund.de);  
Andrea Kuhlmann, [andrea.kuhlmann@giz.de](mailto:andrea.kuhlmann@giz.de)



# Support for Adaptation Planning and Implementation through the NDC Partnership in Collaboration with NAP Global Network

 Germany  Argentina  Australia  Brazil  Canada  France  Indonesia  Italy  Japan  Mexico  South Africa  United Kingdom  United States  EU

Initiative: Multilateral | Timeline: Ongoing

## Summary

Transformative change towards climate resilience is only possible through uniting private, public and civil society forces to take action forward. Germany thus supports strengthening resilience and adaptation efforts through multi-level partnerships, most notably the NDC Partnership and the NAP Global Network, which are supported through a majority of the G20 member states.

As the majority of submitted NDCs contains information on adaptation goals, countries face the challenge of translating their communicated goals into planning processes and policies. In this regard, the well-established national adaptation planning (NAP) process, which was established under the UNFCCC in 2010, has been identified as potential operational vehicle for implementation.

Against this background, Germany with its partners, supports the NDC Partnership, which aims at supporting developing countries in bringing climate and development goals together and implementing them in a coordinated manner, as well as the NAP Global Network, a key player when it comes to the formulation and implementation of the NAP processes.

## Description

It will be important to align the NDC implementation with already ongoing NAP processes to make use of institutional and operational settings as well as technical knowledge already in place and avoid duplication of efforts. Germany supports NAP and NAP related processes in 63 countries. .

The NDC Partnership, which aims at supporting developing countries in bringing climate and

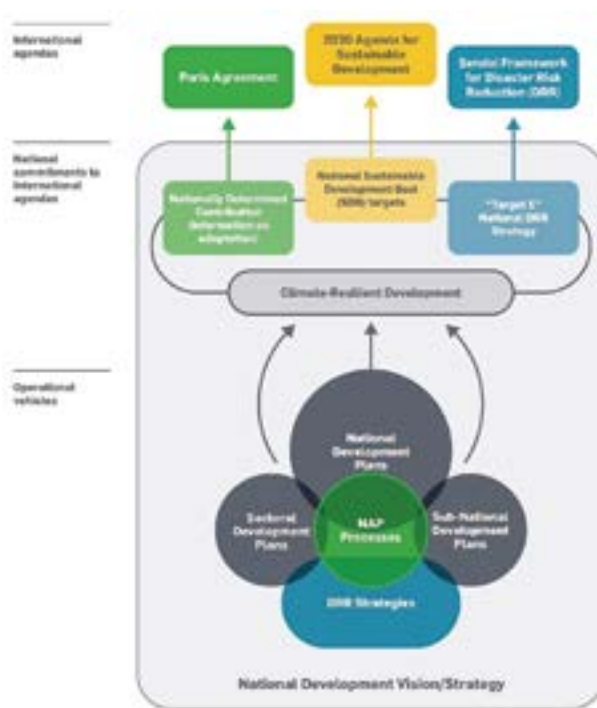
development goals together and implementing them in a coordinated manner with the help of bilateral and multilateral donor programs, is already supporting partner countries in the implementation of these adaptation goals within the NDCs. For in-country support for adaptation, the Partnership particularly cooperates with the NAP Global Network to further align NDC and NAP planning and implementation, e.g. through joint scoping missions and close coordination of country engagement processes. An analysis on country requests on adaptation to the partnership, conducted by the NAP Global Network in consultation with the Partnership, is a basis for these coordination efforts. Furthermore, the partnership fosters the implementation towards climate resilient pathways by giving political orientation, e.g. through policy/regulatory frameworks that mobilize private capital for infrastructure investments and risk finance, or providing assistance for countries to best cope with their specific risk situation.

The NAP Global Network, a key player when it comes to the formulation and implementation of the NAP processes, has been co-founded by Germany in 2014 and continuously supported thereafter. With its expertise, the network not only functions as an important platform for adaptation practitioners from the partner countries, but also provides targeted in-country support and coordinates donors and actors in the countries and therefore acts as a valuable partner for the NDC Partnership for the implementation of the NDC adaptation goals. In the view of increasing climate risks that are further exacerbated by trends as population growth and urbanization, the need to redirect investments, particularly for infrastructure, towards climate-resilient pathways is critical.

This is why Germany supports both the NDC-

Partnership and the NAP Global Network, which can be valuable partners in accelerating public and private investments for a climate-resilient transformation.

The figure (right) illustrates possible linkages between a mutually supportive NAP process and NDC, including implications for national climate change policy governance and coordination, national transparency frameworks and adaptation-related reporting to the UNFCCC. (Source: GIZ 2017. The Role of the NAP Process in Translating NDC Adaptation Goals into Action. Linking NAP processes and NDCs, p.30)



The figure (left) presents the relationships between the global agendas and the different types of policy processes described above. It incorporates policy processes that have emerged in response to the international agendas (such as NDCs, which outline commitments to the goals of the Paris Agreement), as well as core policy processes that were in place before the international (Source: NAP Global Network, 2019. Alignment to Advance Climate-Resilient Development OVERVIEW BRIEF 2: Getting Started on Alignment, p.3).

+

**Further information**  
[https://ndcpartnership.org/;](https://ndcpartnership.org/)  
<http://napglobalnetwork.org/>

**Contact**  
 Christoph von Stechow, [christoph.stechow@bmz.bund.de](mailto:christoph.stechow@bmz.bund.de);  
 Andrea Kuhlmann, [andrea.kuhlmann@giz.de](mailto:andrea.kuhlmann@giz.de)  
 André Fabian, [andre.fabian@giz.de](mailto:andre.fabian@giz.de)

# The Centre for Disaster Protection

## United Kingdom

Related organizations: World Bank, UKAid, InsuResilience

Initiative: Multilateral | Timeline: Sep 2017– Sep 2021

## Summary

The Centre for Disaster Protection finds better ways to stop disasters devastating lives and economies, by supporting countries to better manage disaster risk. We build partnerships. We generate ideas. We find solutions – helping countries to move from reaction to readiness, so they can deliver faster, more cost-effective help for the most vulnerable people when disasters occur.

## Description

The Centre is founded on the principle that the relative likelihood of particular disasters can be predicted, and that their impact can be managed, with the right plans in place. So, the Centre finds and shares better ways to prepare for, and respond to disasters. This significantly limits the effect disasters have on people's everyday lives, and on countries' long-term development.

The Centre sources innovative ideas and work with our partners to bring about change in the way money is programmed for disasters across the global development and humanitarian system.

Experience shows us three key things – and they all shape what we do:

- 1) If potential risks are understood, governments and their partners can manage and mitigate them – and respond faster when disasters occur.
- 2) If the right plans and capacity are in place before a disaster strikes, lives can be saved – and vulnerable families can access food, water, healthcare and other services to protect themselves, recover and thrive.

- 3) And if it's agreed who will pay for the cost of disasters before they occur, money will be delivered more quickly and more effectively.

### Moving from to reaction to readiness

The Centre helps low and middle-income countries manage the specific risks they face, so they can deliver earlier and more cost-effective help for the most vulnerable people when disasters occur.

The Centre works with countries to take early, informed and effective action to manage the risks posed by natural disasters.

Working in a collaborative way, we help countries to understand the challenges they face, develop plans and risk evaluations, and put the right financing in place to protect vulnerable people.

We build partnerships. We generate ideas. We find solutions. And we take action.

### BACKGROUND

The Centre for Disaster Protection was announced by the UK Prime Minister in 2017. Based in the City of London, it is funded by the UK Department for International Development and implemented through a Centre team and the World Bank's Disaster Protection Program. The Centre is an Alliance Partner of the InsuResilience Global Partnership.

The Centre offers thought-leadership, impartial advice, analytics, training and innovation. Bringing together partners from across the development, humanitarian and financial communities, we work towards a central goal - to reduce the impacts of disasters and speed recovery.

Our location in the City of London enables collaboration with the UK's financial sector, whose world-renowned expertise can help to generate positive outcomes for poor and vulnerable people in disaster-prone regions.

The Centre works closely with other groups too, including academia, thinktanks and innovators.

**Further information**

[www.disasterprotection.org](http://www.disasterprotection.org);  
<https://devtracker.dfid.gov.uk/projects/GB-1-205231>

**Contact**

Will Arthur, [G7G20@defra.gov.uk](mailto:G7G20@defra.gov.uk); Nicola Jenns, [n-jenns@dfid.gov.uk](mailto:n-jenns@dfid.gov.uk)

# EPIC (Educational Partnerships for Innovation in Communities) Model

 **United States**  **Japan**  **South Africa**

Related organizations: UNEP - Global Adaptation Network (GAN)

Initiative: Multilateral | Timeline: Initiated in 2017

## Summary

For the 1st time in its decade-long history of adoption and deployment in the US, the EPIC model has, as of 2017, been successfully introduced in developing country cities for the first time and continues to draw considerable international interest. The EPIC model has now been implemented in Lusaka, Zambia, Durban, South Africa and Nairobi, Kenya with early but noteworthy results to date. Even more noteworthy is the advent of the EPIC Africa regional network of EPIC model adopters and implementers in southern Africa, the first EPIC network of its kind outside of the US. EPIC Africa is self-led and is intended as a vehicle for reporting and sharing experiences and knowledge, assessing progress and is internally self-supporting.

## Description

The Educational Partnerships for Innovation in Communities Network (EPIC-N) systematically matches city and local government needs with the innovation of students and academics/researchers to address a broad spectrum of sustainability related issues, with lasting and sustainable impacts and rewards for all involved. Colleges and universities paired with local governments have proven to be a powerful yet significantly underutilized force in making cities sustainable, connecting students and faculty to real-world projects that address the pressing needs of local municipalities and communities as they contend with the challenges of becoming more sustainable and resilient and adapting to climate and a host of interconnected changes.

Based upon a decade of success in the US, EPA Office of International and Tribal Affairs (OITA),

the U.S. National Science Foundation (NSF), ICLEI (Local Governments for Sustainability) Global, International City/County Management Association (ICMA), the UN Global Adaptation Network (GAN), and the EPIC-N Secretariat formed a partnership to explore the possibility of having this model adopted and implemented in developing country cities in Africa, Asia and Latin America.

The partners organized a first-of-its-kind, one-and-a-half-day training on the EPIC model for local government and university officials from developing country cities on May 3, 2017, in Bonn, Germany, as part of the annual Resilient Cities Congress. Applicant pairs composed of municipal government officials and nearby university faculty were invited to compete for travel awards to attend the training. Nearly 200 expressions of interest were received from local government/university pairs from 37 countries. Unfortunately, only 12% of applicants were selected to participate due to resource constraints.

Based on the considerable and growing international interest in this initial training, as well as lessons learned, the above partners elected to adopt a regional-based approach to the training and subsequently organized a 2-day first regional EPIC training in Cape Town, South Africa, November 18-19, 2017. 13 pairs of university and local government officials hailing from South Africa, Namibia, Mozambique, Zambia, Kenya, Tanzania, Zimbabwe and Ghana participated.

Attendees of the Cape Town training event also founded the EPIC Africa regional network to work together to help sustain and service the efforts of everyone in this emerging network to implement the EPIC model successfully and effectively in their local settings and to grow the network over time by

reaching out to interested parties in other nearby regions of Africa. More importantly, several projects are now underway in Lusaka, Zambia, Durban, South Africa and Nairobi, Kenya, implementing the EPIC model locally.

Since the advent of the EPIC Africa regional network, interest from institutions and governments in other parts of Africa and elsewhere has blossomed. Epic Africa is the first regional EPIC network of its kind outside of the U.S.

Based upon these early international successes, the EPIC partners plan to host additional regional trainings on the EPIC model in various developing country cities and in time, create an international network of inter-connected regional EPIC networks, with each regional network becoming self-supporting, self-sustaining and regionally focused. For the immediate future, plans are currently underway for the EPIC Africa leadership to host a first Africa-led training on the EPIC model in Durban, South Africa in the July/August 2019 timeframe.

This workshop represents the further expansion and use of the EPIC model and the EPIC network into other parts of Africa.

To date globally, the EPIC model has been adopted and implemented by approximately 34 universities and local governments and growing. These implementations have thus far led to the completion of over 800 EPIC projects undertaken on behalf of local governments, at the hands of students, faculty. From the perspective of cost, this record of accomplishment has resulted in hundreds of thousands of hours on the part of students and faculty, directed at solutions to problems/issues raised by local governments, representing inestimable savings on the part of local governments and the acquisition of valuable real-world experiences for students working on real issues. EPIC is and remains a simple but powerful service-driven model that is sufficiently flexible to accommodate local circumstances and customs, and is non-prescriptive.



Pictures from Nairobi Walkability Project, Luthuli Street, Nairobi CBD



Further information  
<http://www.epicn.org/>  
<https://sci.uoregon.edu/educational-partnerships-innovation-communities-network>

Contact  
 Dr. Anthony Socci; [socci.anthony@epa.gov](mailto:socci.anthony@epa.gov)

# Private Investment for Enhanced Resilience (PIER)

 United States  Indonesia

Initiative: Multilateral | Timeline: Sep 2017–Sep 2020

## Summary

PIER is an innovative technical assistance project that mobilizes private sector investment to support resilience to climate change in Bangladesh, Ghana, Guyana, Indonesia, Mozambique, Peru, Tanzania, and Vietnam. Implemented by Winrock International, PIER supports development and implementation of national-level climate risk strategies (e.g., National Adaptation Plans, Nationally Determined Contributions, climate strategies, etc.), through the application of four private sector-focused development models in agriculture, finance, capacity building, and policy. PIER's models are designed to attract continued support by interested donors for replicability and scalability in relevant developing country contexts.

- **PIER Agriculture Model:** Tools to reduce risk to high-value commodities of cocoa, coffee, and produce. **Outcome:** Opportunities for private sector investment in better productivity, crop-to-table stability, and multi-stakeholder resilience.
- **PIER Capacity Building Model:** Support and trainings in chambers, associations, and ministries. **Outcome:** Institutional capacity raised to self-manage climate risks among key entities that support businesses, local/regional SMEs, and investors.
- **PIER Investment and Finance Model:** Integrating climate risk information into banking and financial institutional processes. **Outcome:** Banks and financial institutions create opportunities within existing lending portfolios.
- **PIER Policy Support Model:** Improvements to national policies to consider climate risks and create opportunities for private sector actors. **Outcome:** Policies such as PPP laws, EIA, and

bank-lending requirements that include climate information.

## Description

The PIER project supports solutions that encourage private sector investment in resilience to changing climate conditions in several developing countries, including Bangladesh, Ghana, Guyana, Indonesia, Mozambique, Peru, and Vietnam.

The focus of PIER is to demonstrate techniques that promote increased private investment and finance for the implementation of priority resilience actions identified in developing country strategic frameworks, such as National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), and related national development frameworks. PIER aligns its technical assistance and advisory services - first by identifying resilience priorities through a “development first” approach, and second by designing specific activities in collaboration with government, private sector actors, and other stakeholders to catalyze resilient investment in key economic sectors.

Development organizations and governments are increasingly partnering with private sector entities, trade associations, chambers of commerce, banks, and financial institutions that provide talent, technology, financing, and innovative solutions to more effectively invest in and implement projects that increase adaptive capacity and resilience.

PIER aims to improve developing countries' ability to attract private sector resilience investment by demonstrating viable resilience investment opportunities. Examples include developing enabling legal frameworks; conducting cost-benefit analysis for resilience investments in climate-vulnerable commodities; integrating climate risk

considerations into decision-making in local financial institutions; and promoting increased investment in resilience solutions in sectors such as agriculture and watershed protection.

PIER devoted 2018 – the program’s first year – to conducting readiness assessments in the partner countries. These assessments included a customized readiness diagnostic tools; intensive desk studies; on-the-ground reconnaissance missions; post-field work analysis; and preliminary program design for forthcoming implementation in 2019-2020.

PIER developed an analytical framework and suite of diagnostic tools to assess and evaluate the readiness of several countries to catalyze private sector investment. The framework was used to conduct a comparative analysis of specific interventions and opportunities that can enable and directly catalyze resilience investments. Factors for comparing countries included institutional and policy readiness, business climate, resilience needs,

maturity of opportunities, and degree of ‘fit’ with PIER’s objectives, including a focus on developing knowledge and lessons learned on innovative resilience finance approaches with potential for broad dissemination and scaling.

From this analysis, PIER has identified numerous high-priority interventions to be implemented primarily across four countries: Vietnam, Indonesia, Peru, and Ghana.

PIER will leverage its expertise and work with government and private sector to advance these opportunities.

PIER is a 3-year Cooperative Agreement (2017-2020) with the U.S. Department of State, Bureau of Oceans and International Environment and Scientific Affairs (OES), implemented by Winrock International and Climate Finance Advisors (CFA), in coordination with leading development experts and organizations across the globe.

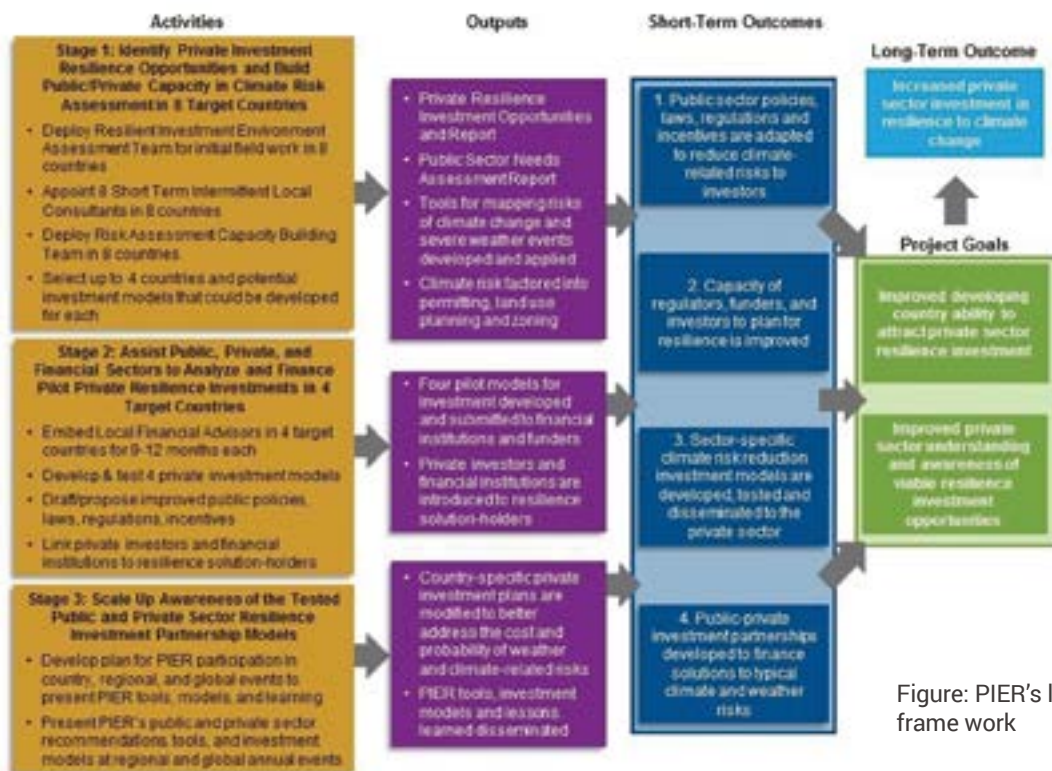


Figure: PIER’s logical frame work

+

**Further information**  
[winrock.org/projects/PIER](http://winrock.org/projects/PIER)

**Contact**

Multilateral



# The National Adaptation Plan (NAP) Global Network

Financial support for the Network has been provided by:  **United States**  **Canada**  **Germany**

Related organizations: International Institute for Sustainable Development (IISD)

Initiative: Multilateral | Timeline: Established in 2014

## Summary

The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes, and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates sustained South-South peer learning and exchange, supports national-level action on NAP development and implementation, and enhances bilateral support for adaptation and climate-sensitive sectors through donor coordination.

The NAP Global Network has participants from 120 countries involved in developing and implementing National Adaptation Plans, as well as 11 bilateral donors. The Network has delivered technical assistance on the NAP process in more than 30 countries, has engaged participants from 34 countries in South-South peer learning and exchange activities, has trained over 1,200 people on climate change adaptation planning, and has produced over 100 knowledge products related to the NAP process.

Financial support for the Network has been provided by Austria, Canada, Germany and the United States, and the Secretariat is hosted by the International Institute for Sustainable Development (IISD).

## Description

The NAP Global Network's vision is a world where communities and countries—particularly the poorest and most vulnerable—are able to articulate, work toward, and realize their development aspirations in a changing climate.

The NAP Global Network's goal is to enhance national adaptation planning and action in developing countries. In pursuit of its goal, the

Network works on three main activities:

- **Facilitating sustained peer learning and exchange** on the challenges and opportunities associated with national adaptation planning and implementation.
- **Supporting national-level action** on NAP development and implementation. We provide technical support and knowledge sharing to leverage existing resources, minimize overlaps, and identify gaps in supporting the NAP process.
- **Enhancing bilateral support** for adaptation and climate-sensitive sectors through donor coordination, with developing countries at the table to ensure that bilateral programs align with the priorities they set out in their NAP processes.

Based on engagement with countries' adaptation practitioners, the Network Secretariat also develops analysis, communications and knowledge products—such as guidance notes, policy briefs, webinars, and blog perspectives—that highlight lessons and concrete experiences about how countries are advancing their NAP processes.

The Network was established in December 2014 at the 20th Conference of the Parties (COP 20) in Lima, Peru, initiated by adaptation policy-makers and practitioners from Brazil, Germany, Jamaica, Japan, Malawi, Peru, Philippines, South Africa, Togo, the United Kingdom and the United States.

The NAP process is a domestic process that integrates climate adaptation into development planning and budgeting at national, sectoral and sub-national levels. The NAP process was formally established in 2010 by the UNFCCC, established under the Cancun Adaptation Framework (CAF). It is a continuous, progressive and country-driven process that has two objectives:

- reduce countries' vulnerability to climate change
- integrate climate change adaptation into new and existing development planning processes, within all relevant sectors and across all levels of government.

The NAP process is designed for medium- and long-term adaptation planning. It's meant to be transparent, and should consider gender and vulnerable communities and ecosystems.

Since each country's adaptation needs are unique, so too are the plans for how they will be addressed. But since countries face similar challenges, lessons can be shared between them to help develop better adaptation planning processes more quickly.

To date, the Network has focused its activities on seven key themes for advancing effective NAP processes:

1. **Financing NAP processes**
2. **Gender-responsive NAP processes**
3. **Monitoring and evaluation**
4. **NDC-NAP alignment**
5. **Sector integration**
6. **Strategic communications**
7. **Vertical integration**, the process of creating intentional and strategic linkages between national and sub-national adaptation planning, implementation and monitoring and evaluation.

Highlights of the NAP Global Network's activities have included:

- Hosting 8 Targeted Topics Forums (TTFs), the Network's initial flagship offering on peer learning and exchange, bringing together representatives from developing countries around the world to discuss key challenges and issues in the NAP process. Organized around the Network's key themes; in 2018, participants tackled the issues of gender, strategic communications, M&E and financing.

- Responding to requests from 20 countries through the Network's Country Support Hub, which provides expert advice and short-term technical support.
- Providing long-term technical support to help countries advance their NAP processes through 17 in-country NAP support programs.
- Enhancing bilateral support through regular engagement with 11 donor members that support NAP processes. The Network is a platform for donors to coordinate their support for NAP processes with one another, and to align their programming with the adaptation priorities identified by developing countries.



Figure. Phases and enabling factors of the National Adaptation Plan process.



Further information  
<http://napglobalnetwork.org>

#### Contact

General NAP Global Network contact, [info@napglobalnetwork.org](mailto:info@napglobalnetwork.org);  
 Christian Ledwell, IISD, [clledwell@iisd.ca](mailto:clledwell@iisd.ca)

# High Level Experts and Leaders Panel on Water and Disasters (HELP) Flagship Initiatives

## Netherlands

Related organizations: UNESCAP, UNESCO, OECD, UNISDR, ADB, WMO

Initiative: Multilateral | Timeline: 2019–2021

### Summary

Now that state actors are moving forward with implementation actions on the global agendas of Sendai (DRR), Paris (Climate Adaptation) and the 2030 Agenda (SDGs), the need for coherence among those action tracks becomes more and more evident. From the angle of reducing the risks from extreme water-related natural events, HELP seeks to provide policy guidance on relevant aspects.

The Netherlands, vice chair to HELP, has embarked on sharing and jointly elaborating its national and international experiences with prevention oriented and adaptive water management planning into an uncertain future under climate change scenarios. It has developed HELP position papers, which further the message that “investments in risk reduction and prevention pay off” (quote Minister Schultz van Haegen).

The Netherlands, jointly with HELP members, will continue to supporting coherence among the global agendas on water-related risk reduction and adaptation, addressing both floods and droughts, through

- co-convening high level sessions,
- developing guidance for practitioners,
- supporting principles for sustainable financing and investments,

and linking with other major initiatives like

- the OECD-WWC-NL Round Table on Financing Water,
- the High Level Panel on Water initiated “Valuing Water” initiative,

as well as through support to

- the Global Coalition and Center on Adaptation.

The respective issues will be developed in consultation with the UN custodian agencies UNISDR and UNFCCC, and will also feed into the programs of work of UNECE, UN Environment, UNESCO and others.

### *HELP's Messages for Water-related Disaster Risk Reduction*

1. Water related disasters, such as floods, droughts, storm surges and tsunamis account for 90% of all disasters in terms of number of people affected. This number is still increasing. The poor, vulnerable groups, women and girls are suffering the most. Economic and environmental losses associated with water related disasters are rising in all regions.
2. Disaster Risk Reduction, Water Resources Management and Climate Change Adaptation should no longer be treated as separate topics.
3. More data and better tools for risk assessment are ready for use and should be more widely deployed to identify and prioritize actions. Better risk awareness of citizens and emergency planning are also essential.
4. Risk reduction, preparedness and prevention are sensible investments that pay off in terms of reduced loss of life, avoided damage, and long-term economic growth and stability. Further emphasis on the role of financial protection measures in Disaster Risk Management is needed.
5. Risk prevention should be integrated with long-term planning. This will enable communities and decision makers to identify and exploit opportunities for synergies with planned investments, including plans for adaptation to climate change.

6. Uncertainties are no excuse for inaction: uncertainties are inherent in long-term planning and should be accounted for in a comprehensive, flexible and adaptive approach.
7. Align the efforts under the Agenda 2030 international policy frameworks to create synergy and to increase effectiveness.

*HELP's messages for Accelerating Urban Resilience in Delta Cities*

1. Sustainable Development Goal 11 'Make cities inclusive, safe, resilient and sustainable' underlines the central importance of cities and urban development in aiming for sustainable development.
2. Through continuous urbanization cities play a central role in the ability of nations to achieve sustainable development.
3. Sustainable Development Goal 6 'Ensure availability and sustainable management of water and sanitation for all' addresses the broader water context and stresses the need to linking water to decisions for sustainable development: water is a key component of sustainable urban development
4. Where the challenges of Delta-cities combine the challenges posed by both rivers and seas,

their messages are as relevant for cities that are situated at either a river or a sea.

5. Inclusive Green Growth as a key element of long-term sustainable development intrinsically links cities with its hinterland as well as with different sectors, like water, energy, food and as such provides a firm basis for urban development.
6. The challenges and opportunities connected to urban development are two sides of the same coin as making a city more resilient to water-related disasters also entails making a city more liveable.
7. Increasing cities' resilience to water-related disasters necessitates an inclusive, adaptive and preventive approach that is integrated in the overall development strategy of cities and nations.
8. Cities should better capitalize on existing ecosystem characteristics and services within the city boundaries.
9. City learning will be essential to build greater institutional and human capacity and better collaboration between citizens and city leaders, and to promote integrated city-level approaches to accelerate progress towards sustainable development and resiliency to water-related disasters.



**Further information**

<http://www.wateranddisaster.org/>

**Contact**

Niels Vlaanderen, [niels.vlaanderen@minienw.nl](mailto:niels.vlaanderen@minienw.nl)

# Bridging the Gap: Financing Sustainable Infrastructure

 Netherlands  Argentina  Canada  China  Germany  India  Indonesia  
 Mexico  South Africa  United Kingdom

Initiative: Multilateral | Timeline: 2018–2020

## Background

The current pace of action on adaptation is insufficient given the scale of risks posed by climate change. Finance will be key to bridging that gap, but major challenges remain. Public finance for adaptation is increasing, reaching USD 22 billion in 2016, but remains a fraction of the USD 192 billion flowing to mitigation that year (CPI Landscape of Climate Finance). Very little is known about the quantity of private finance for adaptation, but consideration of climate risks remains the exception rather than the rule. This is a particular challenge for infrastructure, where the bulk of financing needs for adaptation are expected to arise. There is a serious risk that the USD 6.9 trillion that needs to be invested in infrastructure each year will inadvertently result in increased vulnerability to climate change, for example by encouraging development in areas that are highly exposed to climate hazards.

## Summary

The Global Center on Adaptation (GCA) and Global Commission on Adaptation are amongst the global efforts to align and mobilize finance flows for adaptation. The GCA will be supporting action to address this challenge, focusing both at the level of infrastructure assets and infrastructure systems. Working with partners, and through the Global Commission, the GCA will mobilize action to improve the resilience of assets through key areas including: capacity development, application of improved design standards and ensuring that the benefits of resilience are captured in procurement policy. At the system level, the GCA will support efforts to ensure that infrastructure networks contribute to the resilience of the societies that they serve. Key areas for action include: mobilizing

private finance, mainstreaming climate change into infrastructure planning and encouraging the use of insurance and other risk management tools.

## Description

The Global Commission on Adaptation is managed by GCA and shares the same ambition: to accelerate and support adaptation actions by elevating the political visibility of adaptation and focusing on concrete solutions.

The Commission is led by Ban Ki-moon, 8th Secretary-General of the United Nations, Bill Gates, co-chair of the Bill & Melinda Gates Foundation, and Kristalina Georgieva, CEO, World Bank. It is guided by more than 30 commissioners and 17 convening countries, representing all regions of the globe. A global network of research partners and advisors support the Commission. The Commission is co-managed by the Global Center on Adaptation and World Resources Institute.

There are eight countries within the G20 who have convened the Commission and support the ambition to accelerate adaptation action: Canada, Germany, China, India, Mexico, UK, South Africa and Indonesia.

The Commission accelerates adaptation by raising the visibility of the need and focusing on innovative solutions. Drawing on rigorous, peer-reviewed research, it makes the case that adapting to climate change improves human well-being and results in better, more sustainable economic development and security for all. It supports the UN Framework Convention on Climate Change. It champions the idea that preparing for climate risks is a multi-sectoral endeavor that cannot be done by just one agency or ministry but rather requires transforming how societies invest and plan. It demonstrates,

through rigorous economic analysis, that the costs of adapting are often less than the costs of business as usual, and the benefits many times larger. It shows that ensuring adaptation action and support reaches the poorest and most vulnerable is not only the right thing to do, it is the smart thing to do.

The Commission’s 2-year lifespan exists of two consecutive phases.

**Phase 1: Analysis, Engagement and Coalition Building**

In Phase 1, the Commission oversees preparation of the flagship report and present the findings and recommendations at the 2019 UNSG Climate Summit. The report will set out why adapting to climate risks and accelerated action is essential; which new actions are needed; what must be done differently; and how governments, companies, and citizens can start working today to make the world a safer, better place. The Commission is supported by the Managing Partners, working with the world’s leading scientific, economic and policy analysis institutes, to gather new evidence, synthesize findings and make a set of recommendations.

During Phase 1, the Commission convenes key champions and coalitions, and the private sector to advance action on a set of action tracks defined as:

1. Food Security and Rural Livelihoods
2. Infrastructure
3. Finance
4. Nature-based Solutions
5. Cities
6. Empowering locally led action

Each action track may be led by a coalition of Commissioners and will be supported by the Managing Partners. The Managing Partners help facilitate dialogue and exchange between the report team and the action tracks. This helps to increase the likelihood that recommendations from the report are taken up, and the likelihood that new commitments, programs and partnerships resulting from the Commission are grounded in the report’s analysis, findings and recommendations.

**Phase 2: The Commission’s Year of Action**

The Commission’s report and action tracks will set up Phase 2 of the Commission – the Commission’s Year of Action. Commissioners and champions from the action tracks will help deliver on and implement the commitments made at the 2019 Summit. New action tracks could also be established to make progress on other recommendations coming out of the Commission’s report. During Phase 2, the Commission can use the action tracks to drive further action.

The Commission and the UN Framework Convention on Climate Change will be mutually reinforcing. During a critical year in the global climate change process, this steady drumbeat of action and outreach in Phase 2 will help shift the way decision makers and citizens think about adaptation and accelerate action and support that reaches the most vulnerable. It will also demonstrate that adapting to climate change improves human well-being, results in better, more sustainable economic development and security for all.



+

**Further information**  
[www.gca.org](http://www.gca.org)

**Contact**  
 Mathilda Buijtendijk, The Netherlands government, [Mathilda.buijtendijk@Minienw.nl](mailto:Mathilda.buijtendijk@Minienw.nl)

# Resilient Delta's - Delta Alliance

 Netherlands
  Argentina
  Brazil
  China
  Indonesia
  United States  
 Spain
  Vietnam

Initiative: Multilateral | Timeline: 2016–2021

## Summary

Delta Alliance is an international knowledge-driven network organisation with the mission of improving the resilience of the world's deltas. With increasing pressure from population growth, industrialisation and a changing climate, it is more important than ever that these valuable and vulnerable locations increase their resilience to changing conditions. Delta Alliance brings people together who live and work in deltas. They can benefit from each other's experience and expertise and as such contribute to an increased resilience of their delta region, with the help of 19 network wings in 15 countries.

## Description

Delta Alliance is an international knowledge-driven network organisation with the mission of improving the resilience of the world's deltas. One of the missions of the Delta Alliance is to support the development and proliferation of new approaches in delta management through research, exchange of best practices and an exchange of concepts and ideas. Sixteen countries cooperate in the Delta Alliance, the international secretariat is hosted by The Netherlands.

The Delta Alliance has developed a toolbox to promote an exchange of methods and technologies in delta management, embedded in an overall approach to the management of complex delta systems.

The toolbox for Adaptive Delta Management provides guidance in two ways: The Delta approach and Gathering more knowledge on separate elements of the approach. The aim is to provide tailor-made solutions worldwide by amending top-

down knowledge with bottom-up knowledge. The toolbox comprises of factsheets on existing tools and examples of their application. Some examples of tools are: a checklist; best practices; Adaptation Pathways; oyster reefs, building with nature, bubble screens, models for calculating salt intrusion, scenarios, decision support systems, governance tools, interactive tools, and so on. These tools are organized more or less in the different steps of a proves. The tools can be found through the link:

<http://www.delta-alliance.nl/toolboxoverview>

The Delta Alliance works closely together with the Global Center on Adaptation. Both organisations are interested to support globally with recommendations to upscale and speed up climate adaptation action. The collaboration has for instance lead to leveraging deltas being one on the challenges of the Global Center: <https://gca.org/our-work>. Also, the Delta Alliance (which is the international 'knowledge network' for deltas) and the Delta Coalition (which is the international 'policy network') have expressed the ambition to increase their collaboration. The Netherlands is dedicated to exchanging knowledge on delta management.

Climate adaptation action means in reality dealing with impacts which for about 90% are water related (sea level rise, droughts, intensive rainfall, floods, flashfloods, higher water temperatures). Mainstreaming climate adaptation in integrated approaches of water management is therefore important. Key words are: building resilience, early warning systems, adaptive approaches, prevention, robust and resilient houses and infrastructure in order to reduce damage in case of flooding or waterlogging, evacuation strategies, fact based decision making and governance.


Countries cooperating in the Delta Alliance are gaining much experience with dealing with climate change in river Delta's. In the Netherlands, since

2010 a special programme on dealing with climate adaptation in the delta of its four main rivers: the Dutch Delta Programme.

Table 1: Delta Alliance Comparative assessment report (2014)

Current situation	Land and water use (occupation layer)	Infra-structure (network layer)	Natural Resources (base layer)	Governance	Resilience & Sustainability Indicator		
					Current	Moderate Scenario	Extreme scenario
Nile delta	---	0	-	0	-	-	---
Tamu	-	-	0	-	-	-	---
Incomati delta	0	-	-	-	-	-	---
Zambezi	+	-	+	-	0	0	-
Ganges-Brahmaputra-Meghna delta	---	---	---	0	---	-	---
Yangtze delta	-	+	-	0	0	0	---
Chiwang delta	---	---	---	-	---	---	-
Ayeyarwady	-	---	---	-	-	0	-
Mekong delta	0	0	-	0	0	+	0
Ishim-Meuse delta	+	++	0	+	+	0	-
Danube delta	+	+	+	0	+	0	0
California Bay-Delta	0	-	-	0	-	0	-
Mississippi River Delta	0	0	-	0	-	0	-
Parana	+	0	-	0	+	0	-

resilience/sustainability: ++ (very good), + (good), 0 (medium), - (low), -- (very low)



**Further information**  
[www.delta-alliance.org](http://www.delta-alliance.org)

**Contact**  
M.A. Beek MSc, [martien.beek@minienw.nl](mailto:martien.beek@minienw.nl); K.van Nieuwaal, [kim@climateadaptationservices.com](mailto:kim@climateadaptationservices.com)



# Southeast Asia Disaster Risk Insurance Facility (SEADRIF)

 Singapore  Japan

Related organizations: World Bank

Initiative: Multilateral

## Summary

At the margin of the 21st ASEAN+3 Finance Ministers' and Central Bank Governors' Meeting in Manila, the Philippines, Finance Ministers from Cambodia, Japan, Lao PDR, Myanmar, and Singapore held a meeting on 4 May 2018, and agreed to establish the Southeast Asia Disaster Risk Insurance Facility (SEADRIF), a regional facility to provide climate and disaster risk financing and insurance solutions, starting with a regional catastrophe risk insurance pool for the participating ASEAN member states.

At the margin of the 22nd ASEAN +3 Finance Ministers' and Central Bank Governors' Meeting in Nadi, Fiji, Finance Ministers welcomed the progress on SEADRIF towards operationalizing the catastrophe risk insurance pool for LAO PDR and Myanmar, and initiation of preparatory work to expand coverage to other ASEAN countries.

This is building on the establishment of a regional technical working group in May 2017, between Cambodia, Lao PDR, Myanmar, and Japan with technical support from the World Bank, to jointly advance preparatory work toward developing SEADRIF to strengthen financial resilience against climate and disaster risks in the region.

## Description

The working group has prepared the necessary work leading to the agreement of the Finance Ministers on the establishment of SEADRIF:

1. The Southeast Asia Disaster Risk Insurance Facility (SEADRIF) will be established as a trust which will own a general insurer domiciled and

licensed in Singapore. The SEADRIF insurance company has been incorporated in Apr 2019, and will be licensed as a general insurer in 3Q2019;

2. As a start, Lao PDR and Myanmar will establish a regional catastrophe risk insurance pool under SEADRIF in 2019 where they will be beneficiaries, with the support of Japan, Singapore and the World Bank. In the case of Cambodia, the decision whether or not to join the regional catastrophe risk insurance pool will be subjected to the result of the feasibility studies;
3. The World Bank is acting as the technical advisor of SEADRIF;
4. SEADRIF encourages other ASEAN+3 countries to join and welcomes donor partners beyond ASEAN+3 countries to financially contribute to the establishment and implementation of SEADRIF. To date, Japan, Singapore, Laos PDR, Myanmar, Cambodia, and Indonesia have joined SEADRIF;
5. The ASEAN Secretariat will support SEADRIF in terms of knowledge management and capacity building through collaboration with the ASEAN Disaster Risk Financing and Insurance Program;
6. The World Bank will continue to provide financial and technical assistance to support the establishment and implementation of SEADRIF and to explore collaboration with regional partners; and
7. SEADRIF acknowledges the continued financial and political support from Japan and commitment from Singapore to provide financial and technical support to facilitate the establishment and implementation of SEADRIF.



Further information

Contact



# Japan Bilateral Support for Adaptation in Asian and Pacific Countries

 **Japan**  Indonesia  Thailand  Vietnam

Related non-G20 countries: The Philippines, Mongolia, Fiji, Vanuatu, Samoa

Initiative: Bilateral | Timeline: Initiated in 2018

## Summary

Ministry of the Environment Japan has been actively engaged in international bilateral cooperation in the climate change adaptation planning in order to steadily fulfill its commitments in COP22 and to meet the obligations globally. According to the Climate Change Adaptation Act which was adopted in June and came into effect in December 2018, the international cooperation in adaptation has three main objectives as 1) to support for National Adaptation Plan (NAP) formulation through evidence based impact assessment, 2) to promote private sector's adaptation technology or business and 3) to provide technical cooperation collaborating with various international schemes.

In accordance with principal strategy above mentioned, seven bilateral cooperation projects in eight Asia and Pacific countries are currently in progress. Each project has various features which were dedicatedly designed for meeting actual needs of each countries, as shown in Table-1.

The typical common activities in several projects are contribution to the NAP formulation by scientifically lined evidence-based impact assessments as a strong policy making tool in selected pilot sectors and adaptation mainstreaming into national and regional development plan. All projects are expected to attain the institutional and practical capacity development for the central and regional government officers those who are directly involved with adaptation planning and social implementation activities. Several projects also have a component of human resource development in academic field for ensuring sustainability of scientific knowledge transfer in specific sectors.

Providing technical cooperation for creating an

adaptation platform such as I-PLAT in Indonesia or T-PLAT in Thailand is also one of typical expected outcome of some of projects, because of those regional dedicated Web-sites for adaptation will be considered "Hub and Spoke" structure with AP-PLAT which had been officially committed to be launched up as a climate change initiative by Japan in COP22.

## Description

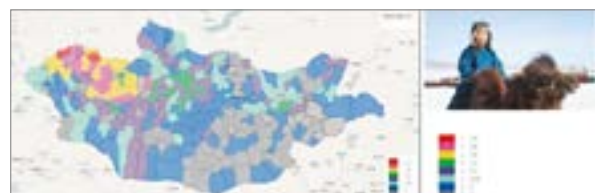
The figure-1 shows the several typical pictures of outcomes, and brief explanations of characteristic of each country's activities are outlined below.

### 1) Indonesia

The expected outcomes were NAP, I-PLAT, capacity development training package of adaptation mainstreaming and pilot project formulation. Through these activities, the project has intended to develop strong policy making tools by evidence-based impact assessments for realizing the adaptation mainstreaming in nationwide.

### 2) Mongolia

Project has been intent upon implementing ZUD (extremely cold weather) prediction algorithm as one of key resolutions for the livestock supply chain in Mongolia. Project also provides adaptation scenarios for conserving water resources in the upper stream of TULU liver and introduces Japanese private company's prominent water saving technology to Ulan Bator for adapting the rapid growth of the urban population.



### 3) Philippines (Flood)

Project has developed “Participatory Watershed Land-use Management (PWLM)” through implemented flood and water quality impact assessment in the several pilot sites in southern



area of Lake Laguna. Project expects that adaptation scenarios through PWLM methodology will be integrated into land-use plans.

### 4) Philippines (Green Gray Infrastructure)

An ecosystem of mangrove forest has a potential to reduce damage of storm surge by a typhoon or sea level rise caused by global warming, according to an academic research which was funded by Ministry of Environment Japan from 2017. The purpose of this activity is formulating “Green Gray infrastructure” project in vulnerable community.

Table-1

	Key components	Start year	Main Counterpart	Expected Demonstratable Outcomes
Indonesia	IA (Agriculture, Health, Water) NAP Support / Mainstreaming I-PLAT (adaptation platform)	2015	BAPPENAS BAPPEDA	Capacity Development for adaptation mainstreaming Science based policy tools
Mongolia	NAP Support	2015	MET	GCF Project formulation by JICA on agriculture supply chain
Philippines	IA (ZUD prediction, Water) IA (Flood, water quality, EBA) in Laguna lake GCF Project formulation Use Gray/Green infrastructure	2015 2017	LLDA 16 LGUs CCC	Introduce PWML methodology P&F Project formulation GCF Project formulation by CI (use Japanese technology)
Thailand	T-PLAT (adaptation platform)	2017	ONEP ERTC	Adaptation platform (Web site)
Vietnam	IA (Agriculture, Health, Flood) NAP Support / Mainstreaming	2018	MONRE DONRE	NAP kick-off / roadmap Local Adaptation-em's (Hue)
Fuji	Impact assessment by remote sensing technology	2015	Related Ministries	Disaster reduction on airport
Samoa	Capacity Development			Contribute land use plan
Vanuatu				Remote sensing HRD in PCCC

### 5) Thailand

This project purpose is simply developing the Web-site as adaptation platform. Through this activity, project has expanded institutional capability of ONEP/ERTC for ensuring sustainable operation of the Web-site.

### 6) Vietnam

This project was started in 2018 to support NAP formulation through evidence-based impact



assessment and local adaptation mainstreaming. In reconsideration of a negative aspect on severally overextended target areas and sectors, the project narrows down the focuses to one pilot site for obtaining at least one good practice as a leading case of policy making for adaptation mainstreaming.

### 7) Fuji, Samoa and Vanuatu

The intermediate outcome of this project is storm surge projection by remote sensing technologies. This highly accurate model of storm surge will be utilized for disaster risk modeling on a runway in the airport which is essential infrastructure for island nations. The project intends to utilize this model and methodology to other costal airports.



#### Further information

<http://www.adaptation-platform.nies.go.jp/en/ap-plat/>  
<https://www.iges.or.jp/en/natural-resource/ad/pwlm.html>

#### Contact

Tomonori Orita, Climate Change Adaptation Specialist, Ministry of Environment,  
[TOMONORI\\_ORITA@env.go.jp](mailto:TOMONORI_ORITA@env.go.jp)

# Climate Change Adaptation in Vulnerable Coastal Cities and Ecosystems of the Uruguay River

## Argentina

Related non-G20 countries: Uruguay

Initiative: Bilateral | Timeline: 2019–2024

### Summary

This is a 4 year, 14 million USD project to be implemented in cities and riparian protected areas of significant importance located along the lower Uruguay River corridor, which is shared by Argentina and Uruguay.

In this area, river floods are becoming increasingly frequent and severe due to the effects of climate change, thus causing serious damage to the infrastructure, generating economic losses and affecting the population in both countries. Consequently, it is important to manage and guide an adaptation process that includes strategies designed at the regional level and implemented at the local level, by means of policies and plans that consider the climate change perspective in communities and riparian ecosystems.

In order to promote climate change resilience at communities and ecosystems of the Uruguay River, several activities will be developed in a comprehensive approach of climate risk management, urban resilient infrastructure, and community and ecosystem-based adaptation.

For this project, local governments are relevant agents to be empowered to deal with climate change adaptation, the reduction of disaster risks and to achieve Sustainable Development Goals. Working on a combination of these three frameworks of action has the common objective of reducing vulnerability and increasing resilience.

### Description

Considering recurrent floods, riverine cities considered a priority for this project include 7 cities in Uruguay and 6 cities in the Argentine province of

Entre Ríos.

Regarding the ecosystems within the project area, it is necessary to understand their behavior as ecological corridors in order to pursue their conservation and sustainability. Three protected areas (El Palmar (Argentina), Esteros de Farrapos e Islas del Río Uruguay (Uruguay), and Rincón de Franquía (Uruguay)) are representative of the ecosystem of the lower Uruguay River and are considered within this project given their vulnerability to climate change.

#### Vulnerability in cities and ecosystems of the lower Uruguay River

There are several threats of extreme events in the study area, such as droughts, floods, cold and heat waves, strong winds, hail, heavy rains and severe storms. The floods caused by high water levels of the Uruguay River and its tributaries are the phenomena that generate the greatest struggles and have the strongest impacts in the cities along the river corridor. This is particularly so, in the presence of the El Niño–Southern Oscillation (ENSO phenomenon).

#### Climate change in the lower Uruguay River

There has been an increase in average annual rainfall in this region since the 1970s with the consequent increase in river flows, and there was also a considerable increase in the frequency of extreme rainfall in the region. In addition to the increase in average annual rainfall and extreme rainfall, a series of changes have affected the basin's hydrological system. The predicted climate change scenarios project increased extreme rainfall, which could increase the frequencies of high-water levels and floods. Therefore, it could cause unplanned migrations and relocations, increase in health risks, effect on primary economic activities.

Overall, extreme events (heavy rains and winds, storms, hail, etc.) are expected to be more frequent and intense over time, and so this is a priority issue for the design and application of adaptation measures.

### Adapting to climate change in cities and ecosystems of the lower Uruguay River

The project is aimed at promoting resilience in these communities and ecosystems, and reducing their vulnerability by means of developing instruments, tools and shared experiences for planning and adapting to climate change.

To achieve this, several activities will be developed in a comprehensive approach of climate risk management and community and ecosystem-based adaptation (EbA), as follows:

#### *Territorial Planning and Risk Management*

Efforts will be made to strengthen public policy planning instruments, in a comprehensive strategy (territorial, public infrastructure and services, housing and protected areas, among others), incorporating medium- and long-term climate risk adaptation scenarios.

Including adaptation in subnational processes such as land management, promotes the consideration of locally-designed solutions and decision making with a long-term preventive approach. In this sense, the project works with national and local authorities that are responsible for local development and climate change adaptation.

#### *Measures to increase resilience and reduce social vulnerability*

Actions will be taken to increase resilience and reduce social vulnerability, taking into account a perspective of human rights, gender and generations. The vulnerability and social risk perception analysis; the generation and

strengthening of networks or organizations; the development of communication strategies and the process of retraining will be instruments in building social resilience and sustainable territorial management.

#### *Ecosystem Based Adaptation (EbA) for the conservation of vulnerable coastal ecosystems of the Uruguay River*

Actions oriented towards conservation policies, identification and evaluation of ecosystem services and the design of EbA measures will be carried out in protected areas. EbA measures are considered those that contribute to greater resilience and sustainability, bringing along several social, economic and environmental co-benefits.

#### *Urban-resilient Infrastructure to increase resilience in flood-prone cities*

Several flood prone areas will be recovered and re-signified in the form of “Linear Parks”, thus avoiding the informal settlement of the most vulnerable groups in such areas, and shaping it as a space for social integration.

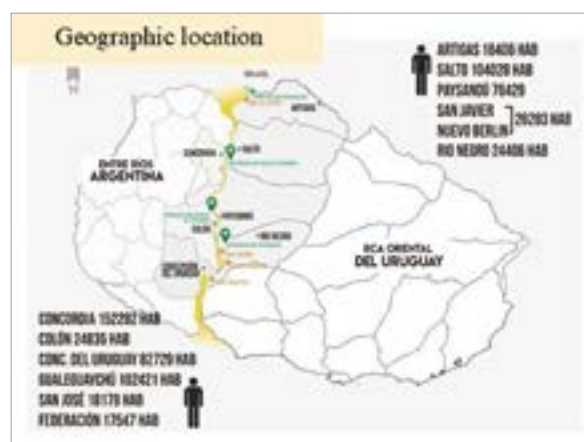


Figure 1: Population, location of cities and national parks on both banks of the Uruguay River basin



Argentina's climate change website: <https://www.argentina.gob.ar/ambiente/sustentabilidad>

#### Further information

#### Contact

Lucas Di Pietro Paolo, [ldipietro@ambiente.gob.ar](mailto:ldipietro@ambiente.gob.ar)  
Adaptation Coordinator at the National Directorate of Climate Change

# Canada's Bilateral Support in Myanmar and Senegal

## Canada

Related non-G20 countries: Myanmar, Senegal | Related organizations: ADB

Initiative: Bilateral | Timeline: Myanmar 2016/17–2020/21, Senegal 2017–2020

## 1 | Climate Change and Disaster Resilience in Myanmar

### Summary

Canada is providing CAD\$10 million towards disaster resilience in Myanmar, in partnership with the Asian Development Bank. This technical assistance project is building disaster-ready and financially resilient national and local governments and private sector institutions in Myanmar. The Project is also building resilience in the disaster-prone and highly populated Ayeyarwady delta region of the country, including a pilot project on disaster resilience in the agriculture and rural development sector. The project is expected to benefit an estimated 300,000 people in up to 300 communities.

### Description

As part of Canada's CAD\$2.65 billion climate finance commitment, Canada is providing CAD\$10 million towards disaster resilience in Myanmar, working with the project's partner, the Asian Development Bank. As a Least Developed Country, Myanmar is highly vulnerable to the negative consequences of climate change.

This technical assistance project contributes to building disaster-ready and financially resilient national and local governments and private sector institutions in Myanmar. It also increases resilience in communities in Ayeyarwady, a disaster-prone and highly populated delta region of the country. The project contributes to strengthening climate and disaster risk governance at the national level and in Ayeyarwady. It will also enhance the capacity of government agencies and selected communities in Ayeyarwady to undertake pilot activities focused

on disaster resilience in the agriculture and rural development sector. In addition, this project will increase awareness and capacity for disaster risk financing in government and the private sector at the national and local levels. It is expected that over 25,000 women and men will have the tools to cope with the impacts of climate change and natural disasters, benefitting an estimated 300,000 people in up to 300 communities.

The expected intermediate outcome as stated by Asian Development Bank include: increased capacity for strengthening resilience, including financial resilience to extreme weather events, of the national government and rural communities of Ayeyarwady region in Myanmar.

Results achieved as of March 2018 include: disaster risk modelling has been undertaken in the Ayeyarwady region and at the national level.

## 2 | Agricultural Insurance Index in the Casamance Region of Senegal

### Summary

Canada is providing CAD\$1.6 million towards technical and institutional capacity in Senegal to expand access to agricultural climate risk insurance in the Casamance region. The project is reducing the number of small agricultural producers who do not have access to the insurance services currently in place. The project is also assisting financial institutions in their agricultural insurance integration policy; and building the capacity of the authorities responsible for collecting, analyzing and disseminating rainfall data.

As of March 2018, results achieved so far include the installation of 25 automated rain gauges and 5 agro-meteorology stations, broadcasting of four weather forecast bulletins, and agricultural index insurance training/awareness building for over 35,000 male and female farmers.

## Description

The aim of this project is to extend the network of rain-gauges (meteorological instruments that measure precipitation) throughout southern Senegal, mainly in Casamance, to collect basic rainfall data that is required to roll out agricultural index insurance in this region.

The initiative has three objectives:

- 1) to expand the area of agricultural index insurance coverage in order to reduce the number of small agricultural producers who do not have access to the insurance services currently in place;
- 2) to assist financial institutions in their agricultural insurance integration policy; and
- 3) to build the capacity of the authorities responsible for collecting, analyzing and disseminating rainfall data.

Project activities include the following: (1) purchasing and installing 165 rain gauges; (2) developing and/or updating rainfall indices for the targeted crops; (3) preparing and holding information sessions for producers on agricultural index insurance services and helping them to prepare their coverage file; (4) building the capacity of the structures responsible for collecting, analyzing and disseminating rainfall information through training sessions and the use of high-efficiency equipment.

The expected outcomes of the project include the following:

- (1) adapt the activities of agricultural producers in Casamance in response to climate change;
- (2) improve financial institutions' climate risk management of agricultural activities; and
- (3) improve the quality of information and climate forecasts by the competent authorities.

Results achieved as of March 2018 include:

- 1) 25 automated rain gauges and 5 agro-meteorology stations have been installed;
- 2) four weather forecast bulletins were broadcast;
- 3) agricultural index insurance training/awareness building was conducted with 10,000 corn producers (25% of whom are women), 10,000 rain-fed rice producers (40% of whom are women) and 4,000 peanut producers (15% of whom are women);
- 4) 3,056 corn producers (42% of whom are women), 4,652 rice producers (32% of whom are women) and 3,532 peanut producers (25% of whom are women) have access to agricultural index insurance. This represents approximately 50% of the annual target;
- 5) \$3,551,505 CAD in crop-year credits are covered by agricultural index insurance, which is 89% of the annual target.

The agro-meteorological stations collect automatically and continually the meteorological parameters of the polarized agricultural zones. They allow measuring and calculating the wind speed and direction, the air temperature, the relative humidity, the atmospheric pressure, and rainfall. This data is analyzed and used for the elaboration of weather forecast bulletins, and information to producers in order to help them adapt their productive activities (type of culture, seed variety, technical itinerary of production, conservation method, etc.) to variations and climate change.



### Further information

<https://w05.international.gc.ca/projectbrowser-banqueprojets/project-projet/details/D003678001>  
<https://w05.international.gc.ca/projectbrowser-banqueprojets/project-projet/details/D003619001>

### Contact

(Myanmar) Angela Marie Tilk, Development Officer, Global Affairs Canada,  
[AngelaMarie.Tilk@international.gc.ca](mailto:AngelaMarie.Tilk@international.gc.ca)  
 (Senegal) Célestin Samba, Development officer, Global Affairs Canada,  
[Celestin.Samba@international.gc.ca](mailto:Celestin.Samba@international.gc.ca)



# Adapt'Action

## ■ ■ France

Related non-G20 countries and organizations: African countries, Least Developed Countries and Small Island Developing States

Initiative: Bilateral | Timeline: 2017–2021

### Summary

France, through its implementing agency AFD, has launched Adapt'Action, a 30 million Euros facility which supports some of the most vulnerable countries along low-carbon and climate-resilient development pathways. Through technical assistance and capacity building activities, the Facility is acting as a driving force in speeding up investments that have co-benefits for adaptation to climate change in the most vulnerable geographical areas (Africa, Least Developed Countries and Small Island Developing States).

The Adapt'Action Facility aims to assist 15 countries and Regional Organisations in:

- Strengthening their climate governance to ensure the successful implementation of their NDC;
- Translating their NDC into sectoral public policies, combined with concrete action plans for the most vulnerable sectors to climate change (water resources management and securing supply, agriculture and biodiversity, extreme climate events, etc.);
- Designing transformational adaptation programs and projects.

The Facility ultimately aims to give countries the means to mobilize international climate finance, to scale up their action and set them on resilient development pathways.

### Descriptions

Adapt'Action Facility started in 2017 and is fully in line with AFD's commitment to be 100% aligned with the Paris Agreement.

With a budget of EUR 30M for 4 years, this Facility aims at supporting 15 countries and regional

organizations among the most vulnerable to climate change (African countries, Least Developed Countries and Small Island Developing States) to reach the goals of the Paris agreement through the effective implementation of the adaptation chapters of their Nationally Determined Contribution (CDN). The facility supports those States and organizations by providing technical assistance and capacity building activities and organizing multi-stakeholders dialogues where it is the most urgent to act.

More specifically, Adapt'Action's goals are:

- (1) To foster the inclusion of climate change and adaptation issues into all public policies by working within multi-stakeholder frameworks, involving ministries, civil society, universities, research institutions, the private sector, and technical and financial partners, with a cross-sectoral approach and aiming at building a long-term resilient development pathways;
- (2) To foster investments in adaptation, by supporting the elaboration of structuring projects and programs that can be eligible to international climate finance, such as the Green Climate Fund or international development banks.

The Facility aims at supporting countries in developing their own resilient development pathway. This is why Adapt'Action is always basing its work on the needs of its counterparts. Partner countries define the most relevant activities for them to strengthen their adaptation capacities.

Adapt'Action works through three main areas of intervention:

1. Strengthening climate governance to ensure the

- effective implementation of the NDC (area of intervention delegated to Expertise France);
2. Translating NDCs into sectoral public policies, combined with concrete action plans focusing on key sectors in the field of adaptation to climate change;
  3. Designing transformational adaptation programs and projects, based on a robust analysis of vulnerability to climate change, and engaging dialogues among the different stakeholders to define various potential adaptation solutions.

First supports already started on the field in Tunisia,

Niger and Mauritius. About 100 different supports are scheduled by 2021, among which 40 are already in the phase of co-elaboration with our partner countries. A large diversity of themes is covered: resilient agriculture, integrated water management, disaster risk reduction, climate services, forecast-based early actions, nature-based solutions, etc. Adapt'Action also aims to better take into account gender-related climate vulnerabilities.

Adapt'Action is thus a tool for adaptation mainstreaming, through an inclusive and participative approach in the countries that are the most vulnerable to climate impacts.



#### Further information

<https://www.afd.fr/en/adaptaction>

#### Contact

Viviane Trèves, [viviane.treves@diplomatie.gouv.fr](mailto:viviane.treves@diplomatie.gouv.fr)

Julie Gonnet, [gonnetj@afd.fr](mailto:gonnetj@afd.fr)

Christophe Buffet, [buffetc@afd.fr](mailto:buffetc@afd.fr)

# West Africa Coastal Areas Management Program (WACA)

## ■ ■ France

Related non-G20 countries and organizations: World Bank, Benin, Cote d'Ivoire, Mauritania, Sao Tome and Principe, Senegal, Togo

Initiative: Bilateral | Timeline: Initiated in 2015

## Summary

West African Coastal zones are particularly vulnerable to natural and climate-related hazards, including sea-level rise, coastal erosion and storm surge. They harbour critical infrastructure for production and trade and are increasingly populated. Coastal communities – from small fishing towns to megacities – face a considerable challenge to reduce their exposure and enhance their capacity to respond to the consequences of a changing climate. In 2015, in response to requests from countries in the region and aware of the need for multi-sectoral investments to address coastal risks, the World Bank launched the WACA Program aimed at combating erosion and coastal flooding. This programme provides technical assistance to West African countries (Benin, Cote d'Ivoire, Mauritania, Sao Tome and Principe, Senegal and Togo) and seeks to finance investment, inter alia, in grey and green infrastructures to reduce coastal erosion and strengthen coastal resilience. For this purpose, the World Bank decided last year to provide \$210 million in financing for a regional project.

## Descriptions

In response to the growing impact of coastal risks in West Africa, the member countries of the West African Economic and Monetary Union (UEMOA) declared in 2011 their willingness to pool their resources for the creation of the West African Coastal Observatory (WACO) whose regional coordination is provided by the Ecological Monitoring Centre, based in Dakar.

In 2015, in response to requests from countries in the West African region for multi-sectoral investments to address coastal risks, the World Bank launched the WACA Program which helps

West African countries access to expertise and finance to sustainably manage their coastal areas. The WACA Program provides Technical Assistance, Investment Finance, and has announced to launch a High-Level Investment Platform to crowd in additional partners to mobilize the resources at the scale needed. On April 9, 2018, the World Bank Group approved a package of \$210 million in financing for a regional project to build the resilience of coastal communities in Benin, Cote d'Ivoire, Mauritania, Sao Tome and Principe, Senegal and Togo.

France supports the development of this program: signature of an administrative arrangement with the World Bank on April 21, 2016); contribution of four French public agencies (SHOM, IGN, BRGM, CEREMA) to WACA program initiatives; assignment of a French technical expert at the World Bank in support of the program.

The WACA-F project complements the World Bank's Program and aims to accelerate knowledge of the phenomena and support the many structures involved in conducting a particularly complex project. Its main purpose is to provide Sénégal, Togo and Bénin with cartographic data and ancient bathymetric surveys. The project uses topographic and hydrographic records (sea charts, plans, bathymetric minutes, aerial photos) held by French public agencies. France will make available these historical data on the coastline in digital form. They will enable the scientific community and the national authorities in charge of management and planning to better understand the dynamics of the coastline to anticipate the future. In addition to the provision of these data, it is also necessary to support the authorities and local populations in the interpretation of this information and to support the good conduct of the WACA project and program.

The initiative would aggregate and build upon existing and emerging programs that the G20 Governments and their agencies are ready to bring to the table, such as programs aiming to build capacities in West African countries through data

and information sharing, technology development and transfer, training, education and public awareness activities. It does not require the pooling of resources or the establishment of dedicated institutional or administrative arrangements.



Further information  
<http://www.worldbank.org/en/programs/west-africa-coastal-areas-management-program#1>,  
<https://www.cerema.fr/fr/mots-cles/projet-waca>

Contact

AUBOURG Olivier: [olivier.aubourg@developpement-durable.gouv.fr](mailto:olivier.aubourg@developpement-durable.gouv.fr)

# Mainstreaming Ecosystem-based Adaptation (EbA)

## Germany

Related non-G20 countries and organizations: Developing countries

Initiative: Bilateral | Timeline: Ongoing

### Summary

Functioning ecosystems support humans and nature in adapting to the effects of climate change; for example, wetlands, mangroves and beach walls protect against storms and floods. These so-called ecosystem services are becoming increasingly important in the face of a rapidly growing world population, as technical alternatives for their provision would be unaffordable. Ecosystem-based adaptation (EbA) therefore refers to measures that use biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change (CBD 2009). In contrast to classical natural resource conservation and management approaches, EbA focuses on the reduction of climate risks for people and societies, taking into account both current climate variability and future climate changes.

Germany is one of the biggest supporters of EbA, including through the International Climate Change Initiative (IKI) which is an important part of Germany's international climate finance commitments. Since 2008 it supports climate and biodiversity projects in developing countries and emerging economies. The latest IKI thematic call has underlined the relevance of EbA with a specific funding priority.

### Descriptions

The approach of ecosystem-based adaptation is discussed both in the context of the Framework Convention on Climate Change (UNFCCC, since 2008) and the Convention on Biological Diversity (CBD, since 2000) and outside these negotiation processes, e.g. in the context of disaster preparedness (UNISDR). Within the framework of the Paris Agreement, countries undertake to submit

their National Determined Contributions (NDCs) at least every five years from 2020. NDCs from 162 countries include a component on adaptation goals and strategies, including 23 with explicit elements on ecosystems and biodiversity and 109 with references to ecosystem-based approaches. This makes it clear that ecosystem-based adaptation to climate change is becoming increasingly important in many partner countries.

Of 74 approved GCF projects, 14 are EbA-relevant (status 12/2018). Accordingly, EbA is also gaining in importance in German climate cooperation. In the IKI, EbA is one of the central funding priorities in the field of adaptation. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports projects that anchor the EbA approach at the political-strategic level in the partner countries on the one hand and pilot measures that test EbA in practice and in relation to different ecosystems on the other. The BMU will also contribute the experience gained to the international discussion processes in order to further develop this innovative approach and bring it to the fore in the climate negotiations. The EbA portfolio of the BMU is growing steadily and now comprises 44 projects with a volume of over EUR 170 million.

The direct and indirect benefits of EbA are manifold: If people have safe access to water and other vital resources through ecosystems and if the effects of floods, fires, droughts and storms are mitigated, this strengthens their livelihoods in general and reduces vulnerability to the effects of climate change as well as increases resilience to natural hazards. Ecosystem-based adaptation thus makes a decisive contribution to food security and poverty reduction in addition to helping people adapt to climate change. Biodiversity is protected or restored

and a contribution is made to reducing greenhouse gases. EbA measures therefore have a wide range of impacts, irrespective of the occurrence of expected climate impacts.

A major advantage of EbA measures is their cost efficiency. Quantified cost-benefit examples show that the benefits of restored ecosystems usually significantly exceed the costs of restoring them within a short period of time. Such measures are often demonstrably more cost-effective than purely 'grey' infrastructure measures. One example is Vietnam, where mangrove forests break waves to protect the coast. Their reforestation and maintenance costs significantly less (1.1 million US dollars for 12,000 hectares) than the mechanical repair of wave erosion at dikes (7.3 million US dollars annually, The Economics of Ecosystems and Biodiversity, 2009). Ecosystem-based adaptation

should not, however, be planned as a stand-alone adaptation measure, but rather in the context of a holistic adaptation strategy, which often also consists of other combined measures (e.g. early warning systems, awareness raising, insurance systems, grey infrastructure). The full potential of nature-based solutions to reduce risks & strengthen resilience of societies is still overlooked, despite obvious co-benefits such as biodiversity conservation, climate and water regulation and carbon sequestration.

Therefore, the IKI funded Global Project Mainstreaming EbA collaborates with initiatives and networks that promote the integration of nature-based or EbA solutions into broader infrastructure planning in the context of climate change adaptation (UNFCCC) and disaster risk reduction (UNISDR) frameworks.



Figure: **Ecosystem-based Adaptation initiatives** have to form part of an overall adaptation strategy. Since EbA focuses on the benefits that derive from biodiversity and ecosystem services, and specifically: how these benefits can be used in the face of climate change, it is characterized as a people-centric concept. "Hybrid solutions" include a range of 'green-grey' measures, e.g. mangrove restoration combined with the construction of a dyke, to 'green-brown' measures, using a combination of classical EbA with the use of natural material, instead of grey, e.g. cut bamboo stilts, or earth dams.

Source: GIZ / Th. Amend, 2019; Photos: GIZ, Pixabay



**Further information**  
 EbA on the [IKI website](#)  
[EbA publications on the BMU/BMZ funded website AdaptationCommunity.net](#)  
[EbA measures on the BMU funded website PANORAMA Solutions for a Healthy Planet](#)

**Contact**  
 Arno Sckeyde, [arno.sckeyde@giz.de](mailto:arno.sckeyde@giz.de)

# Climate Resilient and Low-Carbon Infrastructure Planning and Development

## Germany

Related non-G20 countries and organizations: Project partner countries

Initiative: Bilateral | Timeline: Ongoing

### Summary

Climate change and the unprecedented growth of cities, especially in emerging economies and developing countries, require increased investments in climate-resilient and low-carbon future infrastructure projects. This is why Germany supports a wide range of studies, project work, initiatives and events in order to foster climate resilient and low-carbon infrastructure planning and development.

Following up on mandates from the 2017 G20 Hamburg Climate and Energy Action Plan for Growth, a series of studies on climate-resilient and low carbon infrastructure was prepared by the OECD, World Bank, as well as the UN Environment initiative Financing Climate Futures: Rethinking Infrastructure, supported by Germany.

One key message from these studies is that cities – in particular in developing countries – face significant barriers to prepare bankable projects, secure finance and implement such infrastructure projects. Therefore, Germany supports various project preparation facilities which assists cities of developing countries with limited access to international funds to develop climate-resilient and low-carbon urban infrastructure projects and to scale up their investment on climate.

Germany also supports a whole range of studies, project work, initiatives and events for advancing climate resilient and low-carbon infrastructure planning and development in practice, with a special focus on project preparation facilities, such as the C40 Cities Finance Facility (CFF), Cities Development Initiative in Asia (CDIA) and the International Conference on Climate Action in May 22-23 2019 (ICCA 2019) as a key stepping stone towards the upcoming UNSG Climate Summit.

### Description

Through several studies and initiatives, Germany contributes to the provision of guidance for countries to move beyond an incremental approach to financing resilient and low-carbon infrastructure systems towards the transformational agenda needed for decisive climate action. In accordance with the 2017 G20 Hamburg Climate and Energy Action Plan for Growth, and the G20 Adaption Work Program, Germany supported the following studies:

- 2018 World Bank study on Financing a Resilient Urban Future, and
- the 2018 OECD, World Bank, UN Environment initiative Financing Climate Futures: Rethinking Infrastructure.

This reflects the priority of Germany's support for building resilience and low-carbon pathways in infrastructure networks of cities from G20 countries and beyond.

#### C40 Cities Finance Facility

Investments in urban infrastructure lag behind the real needs of many countries, according to a number of studies. This shows that conventional financing channels need to be supplemented by new mechanisms. Worldwide, there are only few experiences with new instruments. The C40 Cities Finance Facility (CFF), a project commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), co-financed by the UK Department for Business, Energy and Industrial Strategy and USAID and implemented by GIZ and the city network C40, intends to develop and promote such new financing concepts. Through technical support and capacity building, it brings climate protection and adaptation projects in cities to maturity.

**Cities Development Initiative for Asia (CDIA)**

launched by BMZ and ADB is a project preparation facility for sustainable urban infrastructure in Asian medium-sized cities (250,000 to 5 million inhabitants). With additional funding from institutions in Austria, Switzerland, Sweden, and more recently France, CDIA has worked in 140 cities and 18 countries across Asia. CDIA has prepared and linked 77 sustainable infrastructure projects to investments, with a total investment volume of 7 billion US Dollars. CDIA support includes infrastructure investment prioritization, project preparatory studies and capacity development. The initiative's approach ensures that each urban infrastructure investment has positive impacts in at least two of its areas such as poverty reduction, environmental protection, climate change mitigation and resilience, as well as good governance. From 2019 onwards, CDIA will continue as an ADB-managed multi-donor trust fund, thereby remaining open for upstream and downstream partnerships to develop and finance projects, and strengthen sustainable urban development capacities in Asia. An integrated planning approach across different sectors is very important for a successful project implementation. Investments in drainage must consider also a solution for solid waste management as garbage which is lying around might easily be swept away during heavy rainfalls and would be likely to tap canals and tubes, making the drainage investment ineffective. For example, the CDIA project in Khulna/Bangladesh also located the access roads to the neighborhood on top of the dykes. This way they found an integrated solution for three different problems in the sectors solid waste, drainage and transport, making the investment much more effective than planning separate sector solutions while saving money.

**Innovative approaches to infrastructure planning in Germany's International Climate Initiative (IKI)**

In cooperation with WWF, an initiative for enhancing

early stage "upstream planning" for infrastructure investment projects has been initiated in 2018. It gives recognition to the importance of a process of "visioning futures," where needs, dependencies on current ecosystems and infrastructure, and future risks driven by climate change and other factors, can help decision makers identify and prioritize infrastructure projects so that they provide their intended benefits in the face of increasing climate risk without compromising essential ecosystem services.

With reference to the Global Framework for Climate Services (GFCS) the GIZ project on Enhancing Climate Services for Infrastructure develops scalable approaches for establishing and building capacities for effective climate service providers. The existence of functioning demand oriented climate service providers are a basic precondition for resilient infrastructure planning, construction and maintenance.

**International Conference on Climate Action (ICCA2019) and Partnership Declaration on Collaborative Climate Action**

The International Conference on Climate Action (ICCA 2019) in Heidelberg, 22-23 May 2019 convened high-level representatives from national, regional, local and city level as well as relevant networks to strengthen coordination, collaboration and alignment in climate mitigation and adaptation action across all tiers of government. The Partnership Declaration on Collaborative Climate Action is one of the key deliverables of ICCA2019, which provides a foundation for the critical exchange of experiences and knowledge as well as for implementation-oriented collaborative climate action. ICCA2019 serves as a major milestone in the run-up to the UNSG's Climate Action Summit by contributing to the preparation of deliverables for the Summit's "Infrastructure, Cities and Local Action" work stream.

**Further information**

[C40 Cities Finance Facility \(CFF\)](#)

Cities Development Initiative for Asia (CDIA):

<https://www.giz.de/en/worldwide/14338.html> and <http://cdia.asia/>

**Contact**

Christoph von Stechow, [christoph.stechow@bmz.bund.de](mailto:christoph.stechow@bmz.bund.de);

Andrea Kuhlmann, [andrea.kuhlmann@giz.de](mailto:andrea.kuhlmann@giz.de)



# Korea Bilateral Support for Adaptation

## Republic of Korea

Related non-G20 countries and organizations: Vietnam, Cambodia, UNEnvironment, UNDP and developing countries in Asia, Africa and the Pacific regions

Initiative: Bilateral | Timeline: (1) Initiated in 2009, (2) 2012–2021

### (1) Korea Bilateral Support for Adaptation Planning Process

The Ministry of Environment with Korea Adaptation Center for Climate Change (KACCC) has supported 4 local governments in 2 Southeast Asian Countries for adaptation planning process through climate change risk assessment and economic analysis.

In this project, officials from the central government, local governments and research institutes worked together to strengthening their ability to adapt to climate change.

Adaptation measures were prioritized through risk assessment and economic evaluation, and adaptation projects were discussed through technical cooperation between Korean SMEs and local governments in Cambodia and Vietnam.

### (2) Annual International Training Program on the National Adaptation Plan

The Ministry of Environment with Korea Adaptation Center for Climate Change (KACCC) has been providing an annual international training program on the national adaptation plan for the developing countries in Asia, Africa and the Pacific regions. It aims to enhance the partner countries' capacity to plan and implement the national adaptation plan in order to strengthen the resilience of the countries. It has been covering various adaptation issues including adaptation planning procedure, prioritization of options for adaptation planning, monitoring and evaluation of adaptation plans, etc. It often cooperates with the NAP-GSP for the program.



Further information

Contact

Lee Hyun-Joon, [tocexpert@korea.kr](mailto:tocexpert@korea.kr)



# Philippines Water Security for Economic Growth and Stability (Be-Secure) Project

## United States

Related non-G20 countries and organizations: The Philippines

Initiative: Bilateral | Timeline: 2012–2017

## Summary

Through USAID funding in the Philippines, local government units that represent 2.8 million Filipinos across six cities are enforcing land-use plans that include hazard maps and disaster risk-reduction plans and also reflect assessments of the vulnerability of water resources. The plans help local officials make decisions on the design and siting of critical infrastructure, the development of water resources, and responses to natural disasters.

Additionally, water utilities representing 1.2 million customers in secondary cities and disaster-prone areas are implementing business and emergency response plans informed by vulnerability and hazard assessments and local disaster plans. These plans help ensure continued water service in the event of typhoons, floods and drought and will protect critical water and other infrastructure from natural disasters. The project leveraged more than \$83 million from private and public sources for improved water, sanitation, climate resilience and disaster risk reduction efforts.

## Description

Much of the population of the Philippines is vulnerable to changing weather patterns that include less rain, longer dry seasons, increased flooding, and more violent storms. Further complicating the situation are the approximately 20 typhoons that hit the country annually. Responding to these challenges, the Philippines Water Security for Economic Growth (Be-Secure) Project worked in six selected urban sites to increase sustainable access to water and wastewater treatment services and resilience to water stress and extreme weather. In 2013, Super Typhoon Haiyan struck the nation,

causing massive property damage, loss of life, and displacement of thousands of families. USAID was in place to lend post-disaster recovery assistance in Leyte Province, where water utilities learned firsthand how violent weather activity can affect water supply. USAID helped repair and rehabilitate damaged facilities, and, under the guiding principle of “build back better,” new structures can now withstand strong typhoon winds or are better protected from flooding and landslides. In addition, the project commissioned and shared data from municipal-level weather models and vulnerability assessments to determine the susceptibility of cities to floods, landslides, and other hydrological disasters. This data and other weather considerations were integrated into engineering designs and the siting of water supply infrastructure. Be-Secure assisted eight municipal water systems to repair and rehabilitate their damaged water systems that benefited 275,241 people. Be-Secure also repaired water systems for 17 schools and four health facilities that provide services to approximately 26,298 people.

Following a drought, USAID introduced water demand management at the national and local levels. This encouraged the Government of the Philippines to allocate about \$1.16 million for the construction of rainwater harvesting systems in schools and public buildings, reducing the use of drinking water for washing, flushing, or gardening.

The project facilitated stakeholder dialogues and supported policy reform initiatives designed to increase government accountability on services delivery and improve water sector performance. Be-Secure also worked on strengthening the analysis, communication, and use of water resources and climate data by decision-makers to increase resilience.

The Be-Secure project developed several impactful private sector partnerships. For example, recently, a Joint Venture Project between the Metro Iloilo City Water District and a private sector partner was signed that will mobilize about \$247 million in investments, under a 25-year concession, to improve and expand water supply and wastewater treatment services for 840,000 residents of the city and six surrounding municipalities. By providing transaction support to the water district, USAID Philippines, through the Be Secure Project, helped facilitate this partnership, which will give water consumers reliable, affordable, and quality water supply and sanitation services. USAID also initiated a partnership with The Coca-Cola Foundation and the city's water district to implement a non-revenue water program that will reduce the city's water loss from a staggering 53 percent to 30 percent by 2035.

Under the guiding principle of “build back better,” Be-Secure incorporated climate-resilient features into infrastructure designs so the systems would be better able to withstand future hydrological hazards such as strong typhoon winds, flooding and landslides. This picture is of a newly constructed overhead water tank at an elementary school in Carigara, Philippines.

Following Typhoon Haiyan, leaks occurred around infrastructure that draws spring water for drinking purposes. The Be-Secure project rehabilitated and sealed the infrastructure to reduce leakages and added an additional spring box to capture excess water during future events of intense precipitation.



Photo credit: Kananga Waterworks.



Photo credit: USAID



#### Further information

<https://www.globalwaters.org/resources/assets/water-security-resilient-economic-growth-stability-be-secure-project>

<https://www.aecom.com/ph/projects/water-security-for-resilient-economic-growth-stability-be-secure/>

#### Contact

Danielle Miley, [dmiley@usaid.gov](mailto:dmiley@usaid.gov)

# US-Peru Cooperation on Water Resource Management

## United States

Related non-G20 countries and organizations: Peru

Initiative: Bilateral | Timeline: 2017–2022

### Summary

USAID is supporting efforts of the Government of Perú to better-manage its natural resources, to increase water security and provide a sustainable economic future for its citizens, as well as reduce migration and the risk of internal conflicts. Compared to “gray infrastructure,” or human-engineered systems such as dams or water-treatment systems, natural infrastructure is a cost-effective way to mitigate a variety of risks through conservation and the sustainable management of landscapes that purify and store water, reduce stormwater runoff, and minimize flood damage. These practices include the conservation of wetlands and forests, improved grazing and farming practices, and the restoration of pre-Incan infiltration canals. The project, which also benefits from Canadian funding, will demonstrate how modest investments can improve the management of water and help catalyze Peruvian public- and private-sector investment in these cost-effective practices.

### Description

Water security in Peru is facing formidable challenges, from recurring floods to extended periods of water scarcity, which is becoming a source of increased social conflict due to increased competing water usage demands. Natural infrastructure (e.g., reforestation and water filtration ditches) is recognized as a valuable and inexpensive complement to address challenges to water security. Peru has new financial mechanisms to bolster the use of natural infrastructure but

hurdles remain to efficiently invest these funds and scale up natural infrastructure investments.

The NIWS Project will demonstrate how well-managed natural infrastructure projects in Peru deliver water security benefits and are sustainable, cost-effective, and scalable. The Project addresses specific challenges to implementing natural infrastructure in Peru: A lack of a robust project pipeline; lack of capacity and guidance for designing sustainable, gender-inclusive projects; lack of coordination across sectors; and insufficient financial resources in some regions. The NIWS project will address these challenges by: ensuring policy synergy across ministries and departments by building a common vision for natural infrastructure in Peru and incorporating this into key policies like Peru’s National Gender and Climate Change Action Plan; generating water and socioeconomic information including differentiated impacts on men and women, required for project decision-making and support; developing guidelines and tools to design plans, projects, and actions guaranteeing water, social, and economic benefits; teaching the design, evaluation, monitoring, and management of natural infrastructure projects of natural infrastructure projects to water utilities, watershed councils, regional governments, and local communities; designing, testing, and implementing new financial models to mobilize funds; building integrated natural-gray project portfolios in priority watersheds to increase investment; and documenting and disseminating the benefits of natural infrastructure through flagship State of Natural Infrastructure in Peru publications, and public and private financial analyses.



**Figure 1:** Introducing sustainable grazing practices in the highlands of Peru can influence river levels far downstream (and many months later) in major coastal cities such as Lima. Photo credit: Michell Leon



**Figure 2:** The Piuray Declaration, ratified in November 2018 by 23 water utilities in Peru, commits public water companies to protecting source water areas and reducing inequality in leadership opportunities for women in the water resources and sanitation services sectors. Photo credit: Arlene Villanueva



#### Further information

<https://www.forest-trends.org/who-we-are/initiatives/water-initiative/natural-infrastructure-for-water-security-in-peru/>

<https://medium.com/usaid-global-waters/the-infrastructure-upgrade-reimagined-681b23321e65>

#### Contact

Ana Villegas, [avillegas@usaid.gov](mailto:avillegas@usaid.gov)

# US-Dominican Republic Cooperation on Water and Sewage in Flood Plains

## United States

Related non-G20 countries and organizations: The Dominican Republic

Initiative: Bilateral | Timeline: 2016–2019

### Summary

In the Dominican Republic, a \$20 million portfolio of USAID projects in four cities is helping provide affordable solutions to problems related to water and sewage in flood-prone areas. The program is improving the provision of clean drinking water and the management of the collection/disposal of sewage, mitigating urban and coastal flooding, and reducing the erosion of beaches. These efforts, based on an integrative, ecosystem-based climate-risk-reduction approach, are helping nearly 25,000 people improve their resilience to weather-related shocks. In the capital city of Santo Domingo, USAID assistance led the Santo Domingo Water and Sewage Corporation (CAASD) to change the location of a planned wastewater-treatment facility to another site less prone to flooding.

### Description

USAID is implementing an integrated ecosystem-based climate risk reduction approach to provide affordable and resilient solutions to water and sewage-related problems in flood-

prone neighborhoods. To achieve this, USAID is working with communities and local partners to install small-scale water treatment and delivery systems, build linear wetlands and green buffers in vulnerable areas, restore coral reefs, mangroves and dunes, encourage proper waste management and sanitation, and develop a geo-referenced information system to monitor results. USAID is also supporting local marine resources conservation with local non-governmental organizations focusing on coastal ecosystem (mangrove and reef) restoration efforts in Las Terrenas. Underlying these efforts, the program is also engaging youth, teaching job-related skills, and encouraging community members to take ownership of projects in order to promote sustainability and reduce the likelihood of migration. Results to date have included water management and quality improved for 42,000 residents in Santiago; wastewater treatment provided for 125 households in Arroyo Gurabo, Santiago; access to potable water enhanced for 660 people in Las Terrenas; and 10 coral restoration structures established in Cayo Las Ballenas, Las Terrenas to reduce beach erosion and encourage tourism.



Figure 1: Mirtha Saleta (to the left), project coordinator in Santiago, with the team of young members from Cristo Rey community developing the initial surveys for defining the baseline sanitation conditions and willingness to receive the proposed constructed wetland WASH solution.

Photo credits: Ron Savage, USAID. Date: October, 2017



Figure 2: To reduce vulnerability of communities during tropical storms and hurricanes, USAID improved the collection and treatment of wastewater using techniques such as this constructed wetland in Santiago.

Photo credits: Erick Conde, USAID. Date: February, 2019



**Further information**

<http://fundacionreddom.org/programa-de-la-usaid-y-reddom-para-la-reduccion-de-riesgo/>

**Contact**

Danielle Miley, [dmiley@usaid.gov](mailto:dmiley@usaid.gov)



# SERVIR Program

 **United States**  **Brazil**

**Related non-G20 countries and organizations:** 42 developing countries served through hubs in West Africa, East Africa, the Hindu Kush, the Mekong, and Amazonia

Initiative: Bilateral | Timeline: Initiated in 2017

## Summary

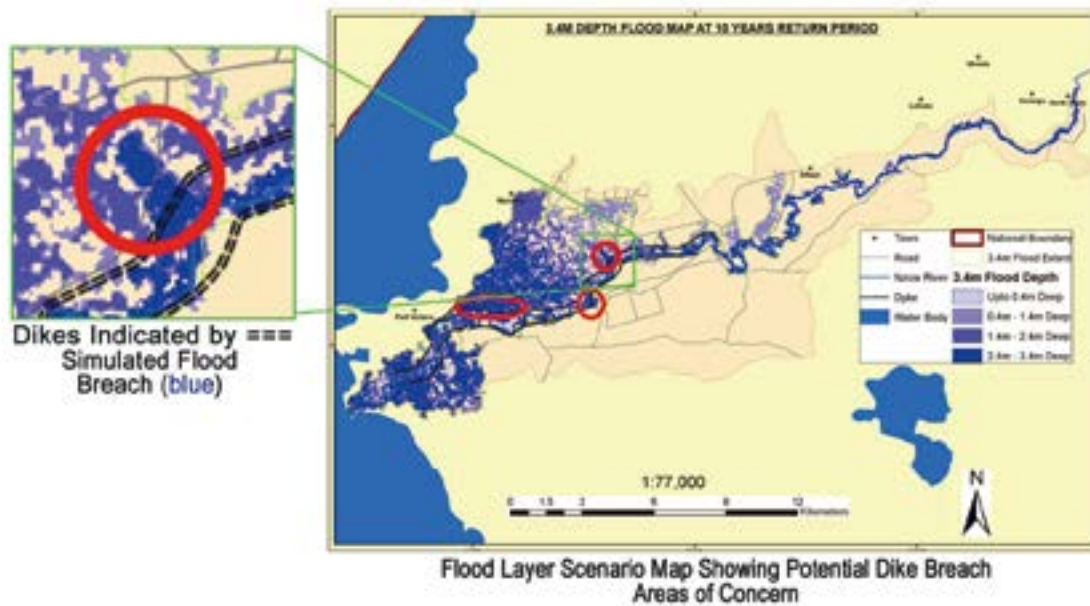
SERVIR is a joint development initiative of National Aeronautics and Space Administration (NASA) and United States Agency for International Development (USAID). SERVIR works in partnership with leading regional organizations world-wide to help developing countries use information provided by Earth observing satellites and geospatial technologies for managing climate risks and land use. We empower decision-makers with tools, products, and services to act locally on climate-sensitive issues such as disasters, agriculture, water, and ecosystems and land use. This includes providing tailored information to support key decisions related to infrastructure. For example, in Kenya the program worked with the World Bank's Water-Security and Resilience Project to improve the country's dike system. SERVIR's regional hub institution, the Regional Center for Mapping of Resources for Development (RCMRD), provided high-accuracy, flood-level scenario maps to the World Bank to guide the repairs it was funding to flood protection dikes.

## Description

Like many rivers across the world, the Nzoia River in western Kenya pushes over its banks each year. For example, in November 2008, the river burst through the dikes, flooding the low-lying land around it. According to the United Nations Office for the

Coordination of Humanitarian Affairs, at least 5,000 people were marooned or evacuated from the banks of the swollen river. In recent years, to protect lives and property in Kenya, SERVIR-Eastern & Southern Africa (E&SA) at the Regional Center for Mapping of Resources for Development (RCMRD) has provided high-accuracy flood level scenario maps to the World Bank to guide their flood protection dike repairs in the region. The SERVIR Flood Map Tool has been used to identify sections of the dikes that needed repair. Based on this information, the World Bank's Water Security and Resilience Project provided financial assistance to design and implement the repairs.

"We used the (SERVIR) maps for watershed modeling to help guide repair and construction of the flood prevention dikes," says Peter Muiruri, Technical Manager and Lead Engineer for the World Bank Water Security and Climate Resilience Project. The Flood Map Tool incorporates 30-meter resolution Digital Elevation Model (DEM) data from the Shuttle Radar Topography Mission (SRTM) as well as high resolution elevation data from Digital Globe. The DEM was used to create a rating curve showing the relationship between streamflow and water elevation above the streambed. The dike reparation project is funded by World Bank and operates out of the Kenyan Ministry of Environment, Water, and Natural Resources. The final design of the dike reconstruction is expected to be complete in June 2017.



Example of analytical results from Western Kenya



**Further information**  
<http://projects.worldbank.org/P117635/kenya-enhancing-water-security-climate-resilience?lang=en&tab=overview>

**Contact**  
 Kevin Coffey, [kcoffey@usaid.gov](mailto:kcoffey@usaid.gov)

# Circulating and Ecological Economy

## ● Japan

Initiative: National | Timeline: Ongoing

### Summary

In order to attain sustainable future, the Government of Japan has continued putting effort into creation of a “Circulating and Ecological Economy” or CEE to reflect the philosophy of the 2030 Agenda and contribute to the attainment of various SDGs simultaneously. The Government of Japan is aiming to expand this idea into Asia and other overseas areas as CEE can be applicable globally under the consideration of regional and local circumstances of natural and human capital. The Government is currently further strengthening this effort by starting a new programme to provide support for CEE to vitalize local areas. This programme will materialize the principles of CEE by connecting regions/municipalities with experts to find the most effective way to cope with social, environmental, and economic issues. This programme will enable communities to find their unique assets and base their sustainable development plans upon them.

### Concept

CEE, which has emerged through deliberations on the 5th Basic Environment Plan of Japan, is a Japan’s future vision for decarbonization and realization of the Sustainable Development Goals. Focusing on regional and local challenges, it presents integrated solutions that utilize regional and local resources in a sustainable manner. CEE is aimed to produce new value chains, complementing regional resources by building broader networks. CEE is composed of natural connections (connections among forests, the countryside, rivers and the sea) and, economic connections (composed of human resources, funds, and others), while making full use of mountainous, agricultural and fishing villages, and cities (Figure).

### Benefit

CEE can advance a decarbonized, self-reliant, and decentralized society living in harmony with nature. CEE can also help simultaneously achieve regional sustainable development while promoting regional mitigation and adaptation to climate change by effectively utilizing regional resources in communities. The key to creating CEE is to re-discover regional resources and to utilize them in a sustainable manner.

### Some good practices

Two concrete examples of good practices could be Nagano Prefecture and Toyooka City, Hyogo Prefecture.

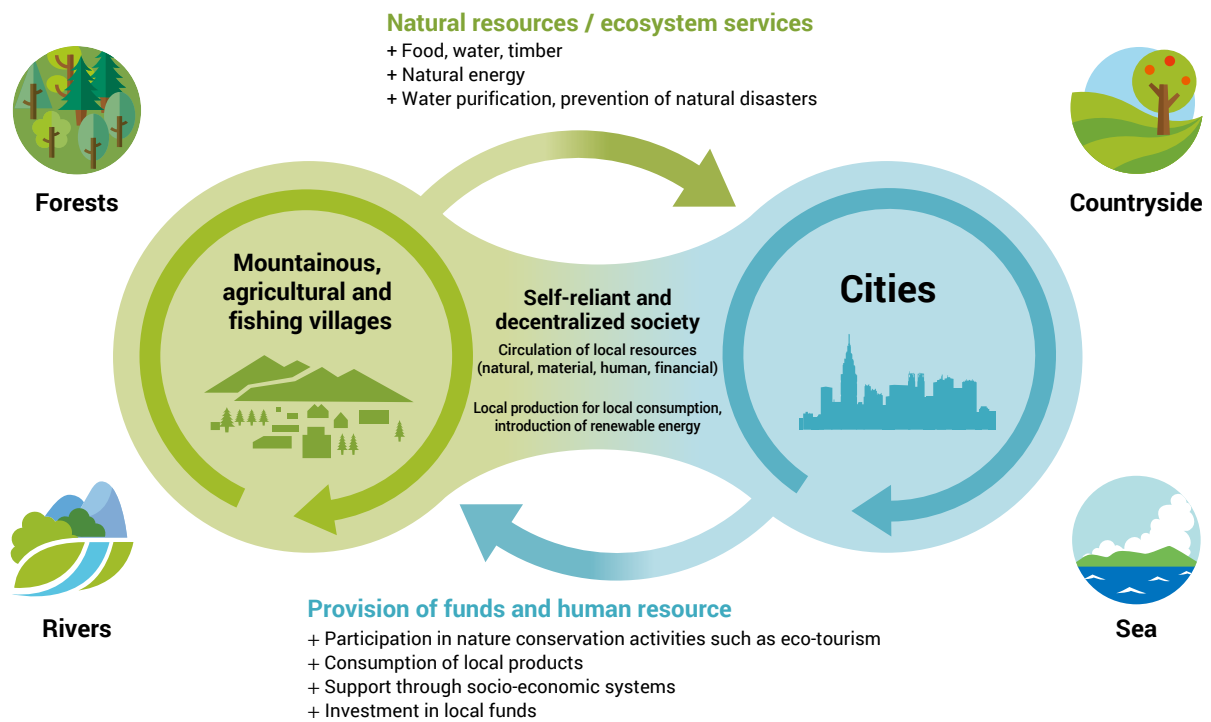
First, Nagano Prefecture is targeting a 100% renewable energy production that will minimize CO<sub>2</sub> emissions and help revitalize the economy of rural communities. Nagano also developed forest maintenance guidelines of resilient forests, after large-scale landslide caused by heavy rain in 2006. The guidelines show how to afforest a mountain and maintain forests in order to prevent landslide. They can make possible both adaptation to climate change and utilization of biomass energy as one of the mitigation measures. Nagano is moving towards decarbonization, simultaneously achieving tighter rural-urban linkages, resource circulation and conservation of its biodiversity.


Second, Tyooka City, in cooperation with private sectors and governmental agencies, has developed activities to protect habitat for the Oriental white storks, which were designated a special national treasure in 1956 and disappeared from the wild in

1971. When the artificial incubation was initiated by Hyogo prefecture in 1965, conservation of wetlands surrounding the Maruyama River, which serve as habitats for the Storks, also progressed. In the field of agriculture, farmers are practicing “Stork Friendly Farming,” which is a form of organic farming aimed

at creating an environment where the Oriental white storks can safely inhabit. Now, the Oriental white storks have become a symbol of the region, and the wetlands also function as a flood control basin which enhances resilience of the indigenous industry and environment.

### Conceptual illustration of CEE





**Further information**

**Contact**

# Japan's Climate Change Adaptation Act

## ● Japan

Initiative: National | Timeline: Enforced in 2018

### Summary

The Climate Change Adaptation Act (CCAA) enforced from December 2018 aims at promoting adaptation measures and actions at all levels through followings.

#### (1) Comprehensive assessment and adaptation planning cycle

- The Minister of the Environment, in cooperation with other ministries and experts undertakes periodical assessment of current and future climate change impacts for all related sectors approximately every 5 years (expected in 2020, 2025, 2030...).
- The Cabinet formulates and updates the National Adaptation Plan approximately every 5 years, taking into consideration the latest impact assessment report. The NAP under the CCAA was adopted in November 2018. Next update of the NAP is expected in 2021 taking into consideration the next impact assessment report.

#### (2) Center of excellence on adaptation

- The National Institute for Environmental Studies (NIES) is designated as the center of excellence for adaptation.
- NIES supports adaptation planning and actions by local governments by providing technical assistance and related information via a web-based Climate Change Adaptation Platform (A-PLAT).

#### (3) Enhancing local adaptation actions

- Local governments are asked to develop Local Adaptation Plan, to set up local information center on adaptation in order to enhance local stakeholders' actions and capacities for adaptation.

#### (4) Promotion of international cooperation and adaptation business

- The government promotes assistance to developing countries, and also supports adaptation by the private sector including promotion of new businesses related to adaptation.

### Description

#### Mainstreaming adaptation

In Japan, climate change has already affected various realms, from agriculture, forestry and fisheries industries, natural disasters, health and natural ecosystems. In order to take effective adaptation measures to these risks, the CCAA was approved in June 2018 and came into effect on 1st December, 2018.

The CCAA regulates the clear roles of national and local governments, research institutes, private sectors, and citizens to promote climate change adaptation efforts.

Firstly, it stipulates that the Ministry of the Environment (MOE) is to take a leading role in implementation of climate change impact assessments related to various fields in Japan approximately every 5 years, and to undertake a review of the National Adaptation Plan based on this assessment. The 1st Plan based on the act was already formulated in November 2018. Periodic collection and updating information on climate change impacts are essential for formulation and revision of the Plans which will enable us to make decision for appropriate adaptation action effectively and timely.

#### Building an information infrastructure on adaptation

The National Institute for Environmental Studies

(NIES) plays a major role in the collection and analysis of scientific information related to climate change impacts and adaptation. The CCAA stipulates that NIES is to put in place an information infrastructure and provide information to local government, private companies and citizens. Then the Center for Climate Change Adaptation was established within NIES in December 2018. Beforehand, in 2016, the MOE established the Japan's adaptation information platform (A-PLAT) which is operated by NIES.

From now on, we will continue to augment the information under the platform and carry out researches as we further support adaptation measures on the part of a wide range of stakeholders.

**Promotion of adaptation in local areas**

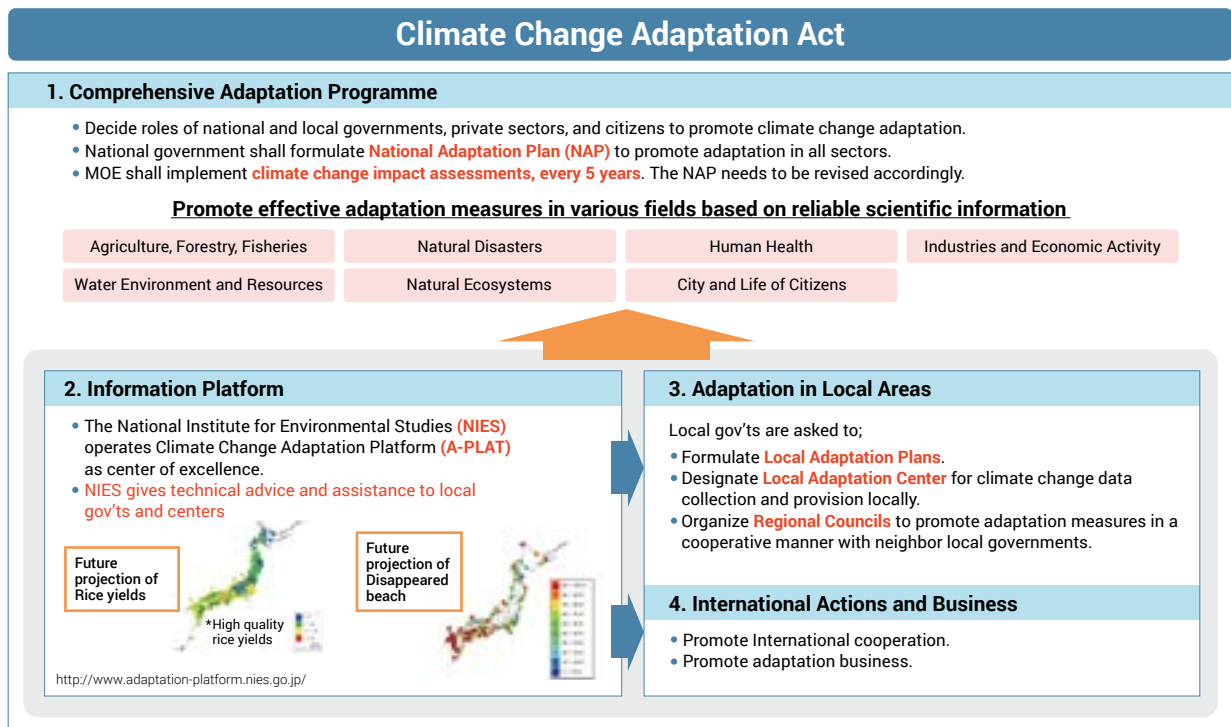
CCAA also indicates that local governments make efforts to promote policies for adaptation in their regions. At first, local governments such as prefectures and municipalities are asked to formulate the Local Climate Change Adaptation

Plans, and also to establish the Climate Change Adaptation Center as a local climate change data collection and provision center. Local governments are also expected to provide information and take measures for business to promote adaptation or any activities which contribute for appropriate adaptation measures.

**International cooperation**

Aside from domestic efforts, Japan is also engaged in international cooperation. Japan has been conducting bilateral and multilateral cooperation related to impact assessments, adaptation planning and implementation. We are also going to expand the domestic initiative A-PLAT abroad as the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT) in 2019. (See also related Actions on AP-PLAT and bilateral cooperation)

Japan has begun full-scale implementation of adaptation measures. We will continue our efforts to prepare for the threat of climate change both domestically and abroad.



**Further information**  
[http://www.japaneselawtranslation.go.jp/law/detail\\_main?vm=04&id=3212](http://www.japaneselawtranslation.go.jp/law/detail_main?vm=04&id=3212)

**Contact**  
 TEKIOU@env.go.jp

National

# Argentina's National Adaptation Plan

## Argentina

Initiative: National | Timeline: 2019–2021

### Summary

In 2019 Argentina has started elaborating its National Adaptation Plan (NAP) in accordance with the Global Process of the National Adaptation Plan of the UNFCCC and the national commitments assumed in the Argentinian Nationally Determined Contribution revised in 2016.

The NAP will be financed by a readiness of the Green Climate Fund for the period 2019-2021. The NAP readiness will support the Argentinian government to advance in the Adaptation Planning process within all relevant sectors and at different levels. It will facilitate the integration of climate change adaptation into relevant new and existing policies, programs and activities. Particularly, it will provide assistance in the development of planning processes and strategies for vulnerability assessments and prioritization of adaptation measures. From this process, it is also expected to develop a portfolio of adaptation projects to address the main climate change threats identified along the country. Overall, it will help to reduce vulnerability to the impacts of climate change, by promoting adaptive capacity and resilience.

Building on the successful institutional arrangements and the progress made so far, the NAP process will mainly work on institutional reinforcement, coordination, awareness raising and capacity building in order to develop an adaptation strategy that goes in accordance with the NDC implementation, national long-term goals, and the achievement of the Sustainable Development Goals.

### Background

The United Nations Framework Convention on Climate Change (UNFCCC) established the Global

Process of the National Adaptation Plan (NAP) as a way to facilitate adaptation planning in developing countries. Argentina is committed to take into account the adaptation aspects in the design and implementation of policies and programs, accordingly to the UNFCCC strategy.

In this regard, based on the Argentinian Nationally Determined Contribution (NDC), Argentina has committed to articulate actions and initiatives related to adaptation to climate change through a systematic and participatory National Adaptation Plan. Over the past years, Argentina has made significant progress in planning and implementing measures to adapt to climate change.

In order to tackle several factors hindering the development of the NAP process in Argentina, which are mainly of legal and geographical nature, Argentina requested to the Green Climate Fund (GCF) for financial support. On December 2018, the GCF approved the Argentinian “Readiness and Preparatory Support” proposal and committed to give USD 3 million to support the Argentinean National Adaptation Plan Process for the period 2019-2021.

#### *Which are the objectives of the NAP and how will they be achieved?*

The NAP readiness will support the Argentinian government to advance in the Adaptation Planning process within all relevant sectors and at different levels. It will facilitate the integration of climate change adaptation into relevant new and existing policies, programs and activities. Particularly, it will provide assistance in the development of planning processes and strategies. It will also help to reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience.

Regarding institutional reinforcement and coordination for the formulation of the NAP, there will be a strategy that will establish clear responsibilities for government institutions, and will specify key milestones and expected outputs of the NAP process, along with establishing the frequency of such outputs over time.

There will be a strong emphasis on awareness raising and capacity building, to support the Argentinian government in addressing capacity needs. These activities will consist of conducting trainings at the national, provincial, municipal and sectoral level to promote the evaluation, planning and implementation of adaptation measures. From this work stream, it is expected to enhance capacity building, enable planning processes; improve prioritization and implementation of strategies, policies, legal frameworks, projects and programs aimed at reducing vulnerability to climate change, and building adaptive capacity and facilitating integration of adaptation into development.

#### Stakeholder's involvement

Regarding the NAP, it is essential to involve a wide variety of stakeholders in the planning and implementation of adaptation activities to ensure that the assessments and subsequent steps are validated from a sectoral and territorial point of view.

In the analysis of vulnerability to climate change, the design of the plan, participation and convening of workshops, as well as in the stages for consultation, participation and decision-making, gender approach, ancestral, traditional and

indigenous knowledge, and the most vulnerable individuals, communities and ecosystems will be taken into consideration.

#### Sustainability of the NAP process

The National Adaptation Plan will be carried out within the National Climate Change Cabinet, which will guarantee the commitment of the highest decision-making areas at the national level. During 2019, it is expected to obtain different sectoral guidelines from thematic roundtables that will constitute a fundamental part of the NAP.

Financially, apart from the GCF Readiness support, the NAP is expected to count with funds from the national treasury. Moreover, these funds are expected to be reinforced by the creation of a fiduciary fund for climate change. The fiduciary fund for climate change will aim to capturing and channeling public, private, national and international financial resources, and earmarking them for the implementation of actions to face climate change.

Finally, as part of the commitments the country has assumed under the Paris agreement, National Directorate of Climate Change has started elaborating its long-term low greenhouse gas emissions development strategy towards 2050. This long-term strategy will include the periodic update of the National Adaptation Plan. Moreover, the 5-year cycle for the update and revision of the Nationally Determined Contribution to the UNFCCC includes the strengthened of the national resilience and low-carbon plans.



Argentina's climate change website: <https://www.argentina.gob.ar/ambiente/sustentabilidad>

#### Further information

#### Contact

Lucas Di Pietro Paolo, [ldipietro@ambiente.gob.ar](mailto:ldipietro@ambiente.gob.ar)



# Increasing Climate Resilience and Enhancing Sustainable Land management in the Southwest of the Buenos Aires Province

## Argentina

Initiative: National | Timeline: Jun 2015–Sep 2019

### Summary

The objective of the project is to contribute to reducing climate and man-made vulnerability of the agroecosystems in the southwest of Buenos Aires Province by increasing adaptive capacity of key local institutions and actors and piloting and disseminating climate-resilient and sustainable land management practices.

The Project aims at promoting an enabling environment for climate adaptation as a continued, inter-sectoral and inter-institutional learning process; and to implement production-based adaptation measures in dry land agroecosystems, by introducing techniques for climate-resilient and sustainable management of natural resources, supported by cross-institutional work. This work aimed at:

- 1) creating an adequate political, social, and economic framework to ensure adoption, sustainability, continuity, and further development of the adaptation efforts; and
- 2) bolstering and fine-tuning adaptation measures identified and chosen through institutional and community-level capacity building.

In order to reducing institutional and community-level vulnerability, an Information and Early Warning System on climate change and desertification (“IEWS”) was consolidated, responsible for the collection and processing of data with which relevant threat and hazard information is generated and disseminated to farmers and other stakeholders on a timely basis.

### Description

#### *The Information and Early Warning System (IEWS)*

The Information and Early Warning System (IEWS)

of the Southwest of the Province of Buenos Aires is a specialized technical body responsible for collecting, processing and analyzing data to communicate and disseminate information relevant to various stakeholders involved in productive systems of the region. It aims to establish a Regional Monitoring System that helps reduce vulnerability to climate change and desertification. It applies both, extreme events and those that have lower temporal rates such as soil degradation or drought.

This IEWS is organized through an inter-institutional arrangement, involving four national institutions, and three of which have regional and local structures: CERZOS (Renewable Natural Resources of Semi-Arid Regions Center), INTA (National Institute of Agriculture Technology), UNS (Southern National University) and SMN (National Meteorological Service).

Through procuring the anticipated knowledge of the existence of threats of natural or anthropic origin that could bring about damages to the environment and / or society, it contributes to improve the response capacity and adaptation of the municipal and provincial governments, farmers and others that may be affected by them.

Its mission is to issue alerts through clear, useful and timely information, based on the analysis of climate forecasts and the evolution of other relevant environmental and productive indicators.

It generates, on a quarterly basis, a Productive Perspectives Report for the Southern End of Buenos Aires, built jointly by the professionals and technicians of each of the institutions that comprise IEWS. These Reports assemble meteorological, soils and agricultural information from the previous

6 months, and generate probable scenarios estimated for the following three months. These Reports have four components: i) agrometeorology, ii) risks of erosion and fires, iii) general state of agricultural activities, and iv) environmental and productive management recommendations.

**Lessons learned:**

1. **Common /shared scope:** the support and accompaniment of promoters and process facilitators was key, since it allowed consolidating a common view of all participating institutions.
2. **Jointly Product:** achieving the development of an agreed product with the intervention of professionals and technicians of all the institutions that form part of the IEWS was determinant in giving life and continuity to the initiative.
3. **Animus Societatis:** regularly meetings every three months, with a common purpose to generate the Quarterly Report, contributed to generate an animus societatis among the participants.
4. **Information exchange:** all parts involved contributed to improve the Report, strengthening the development of information and technical inputs within each institution.
5. **Product first – Formalization as a consequence:** the joint work experience showed that joint products could be generated without even having the IEWS formalization.
6. **Reaching stakeholders on a timely basis:** for the technicians of the different institutions that participated in the realization of the Productive Perspectives Reports for the Southern End of Buenos Aires, the experience of reaching farmers and other stakeholders in order to get information was decisive as it contributed to broaden access to information, which was useful for the decision-making process.



Figure 1: Degraded land in Argentina and Project Area



Figure 2: Extreme event of blasting of soils by winds during drought in Project area (2009)



**Further information**

<https://www.argentina.gob.ar/ambiente/tierra/bosques-suelos/manejo-sustentable-suelo/sudoesteba>  
<https://siat-soba.smn.gob.ar>

**Contact**

Diego Moreno, [dmoreno@ambiente.gob.ar](mailto:dmoreno@ambiente.gob.ar); Vanina Pietragalla, [vpietragalla@ambiente.gob.ar](mailto:vpietragalla@ambiente.gob.ar);  
 Maria de los Milagros, Skansi, [mms@smn.gob.ar](mailto:mms@smn.gob.ar);  
 Miguel Angel Cantamutto, [cantamutto.miguel@inta.gob.ar](mailto:cantamutto.miguel@inta.gob.ar)

# Local Adaptation Activity: Case Studies in Australia

 Australia

Initiative: National | Timeline: Ongoing

## (1) Case Study: The Impact of Climate Change on Water Availability in Victoria

As of 2017, all Victorian water corporations have developed 50-year Urban Water Strategies that examine the effect of climate change on water supply. The strategies were informed by the Guidelines for Assessing the Impact of Climate Change on Water Supplies in Victoria. The Guidelines were developed based on the results of the Victorian Climate Initiative (2013-2016) which was a three-year regional research program by the Victorian Government and research partners, the Australian Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation (CSIRO). The guidelines provide advice and a range of scenarios to take into account climate change when planning for water availability. Research into the impact of climate change on water availability continues through the current Victorian Water and Climate Initiative. The initiative builds on the earlier research and includes three distinct but related research projects undertaken with the University of Melbourne, the Bureau of Meteorology and CSIRO.

## (2) Case Study: Coastal Climate Change Risks Assessments (2015) in Victoria

Coastal Climate Change Risk Assessments (2015) assessed risks to significant public assets from future coastal flooding and erosion in three coastal regions in Victoria. Four Local Coastal Hazard Assessments have been completed, for Bellarine Corio Bay, Gippsland Lakes – Ninety Mile Beach, Port Fairy and Western Port. These

assessments evaluate hazards to coastal communities, infrastructure and the environment, including sea-level rise and coastal erosion. They have been used as the basis for planning scheme amendments, infrastructure upgrades, and better integrated emergency and hazard management. Local governments are using these assessments in adaptation planning. A coastal hazard assessment has commenced for Port Phillip Bay, which will define the extent of land expected to be threatened by the coastal processes of inundation, erosion and groundwater change. The project will assess the extent of the three coastal hazards under several climate change scenarios. This assessment will be an important step in planning for, and management of, current and future natural, cultural and economic assets, and the setting of state, regional and local priorities.

## (3) Case Study: 2016 Bushfire in Tasmanian Wilderness World Heritage Area

In early 2016, the Tasmanian Wilderness World Heritage Area experienced bushfires which impacted its globally significant natural and cultural values. It also impacted Tasmania's energy infrastructure and involved an unprecedented firefighting effort. The fires occurred after one of the driest summers on record and are likely to have been ignited by lightning strikes on peat soils. Tasmanian alpine flora is not resilient to infrequent, large fires and is highly vulnerable to changing fire frequency. In response, the Tasmanian Government delivered an AU\$250,000 research project examining the impacts of a changing climate on bushfire risk in the Tasmanian Wilderness World Heritage Area and ways to improve Tasmania's preparation for, and

response to, bushfires. The Tasmanian Government is using the findings of the research to protect the natural and cultural values of the World Heritage Area. As a result the Tasmania Parks and Wildlife Service has implemented new techniques, such as sprinkler systems to protect vulnerable flora during the 2018 bushfires in the Tasmanian Wilderness World Heritage Area.

#### (4) Case Study: New South Wales Assessing Climate Change Impacts for Primary Industries

The New South Wales (NSW) Government has assessed climate change impacts and vulnerability of primary industries using a range of global climate models and emissions scenarios, including regionally downscaled data. The climate data are incorporated into biophysical and economic models to determine the impacts of climate change on current farming systems. A variety of adaptation options are then tested under future climate scenarios to determine biophysical and economic effectiveness. Research areas include:

- broadacre cropping, including rotations and optimising nitrogen application
- irrigation, including investigating water allocation scenarios
- mixed farming systems, including adjusting enterprise mix to suit future climates
- horticulture, including the effect of climate change on flowering and fruit setting
- biosecurity, including the change in distribution of pests under future climates.

#### (5) Case Study: Assessing Climate Change Impact in New South Wales Alpine Areas

Australia's alpine areas are particularly vulnerable to climate change with recent regional climate projections indicating major impacts on human and natural systems in this region. The NSW Government is assessing climate change impacts in NSW alpine areas, including on water availability, bushfire, biodiversity and habitat, soil erosion and agriculture. This information can be used to develop an effective climate change adaption plan for the region. NSW National Parks and Wildlife Service (NPWS) has developed a draft Climate Change Adaptation Strategy. The draft Strategy sets out a two stage process for trialing and then implementing adaptation action into NPWS strategic and operational planning.



#### Further information

#### Contact

Alice Chee, [Alice.Chee@environment.gov.au](mailto:Alice.Chee@environment.gov.au)

# National Disaster Risk Reduction Reforms

 Australia

Initiative: National | Timeline: Initiated in 2018

## Summary

Australia is experiencing and will continue to experience the impact of more frequent, variable and intense natural hazards. Disasters have cost the Australian economy on average more than A\$18 billion per year for the past 10 years, which could reach an average of A\$39 billion per year by 2050.

Recognizing this, the Australian Government has committed to undertaking generational changes to reduce the impacts of disasters on Australian communities and the economy. In April 2018 the Australian Government established the National Resilience Taskforce to lead this work with all levels of Government, the private sector and communities. The National Resilience Taskforce is working to reduce existing disaster risk, minimize the creation of new risk and improve disaster risk information by:

- setting strategic direction for disaster risk reduction in Australia through the development of a National Disaster Risk Reduction Framework;
- providing national guidance to assist decision makers to understand disaster risk and vulnerability, strategically prioritize disaster risk investment and generate new forms of investment to reduce disaster risk; and
- exploring the feasibility of an advanced climate and disaster risk forecasting capability for Australia to better understand the likely future and what it means for decisions that we make now and well into the future.

## Description

The Australian Government established the National Resilience Taskforce within the Department of Home Affairs to lead nation-wide reforms to reduce existing disaster risk, minimize the creation of new risk and improve disaster risk information. The

National Resilience Taskforce is progressing these reforms through five priority projects:

### 1. National Disaster Risk Reduction Framework

Throughout 2018, the National Resilience Taskforce worked with representatives from all levels of government and a diverse range of sectors to co-design the new National Disaster Risk Reduction Framework and fundamentally reform the way Australia reduces disaster risk. The Framework was co-designed in consultation with an inter-jurisdictional National Disaster Risk Reduction Steering Committee, based on the outputs of an intensive multi-sector policy sprint event held in June 2018.

The Framework takes a long-term view and guides coordinated efforts to identify, prioritize and address disaster risks across all sectors according to four National Priorities. The four National Priorities outlined in the Framework aim to improve understanding of disaster risk, lead to more accountable decisions, strengthen governance, ownership and responsibility, and enhance investment in disaster risk reduction. Importantly, the Framework acknowledges that disaster risk reduction is a cross-cutting issue relevant to many policy areas beyond emergency management including land use planning, infrastructure, health, housing, homelessness, agriculture and the environment. The Framework recognizes that resilient infrastructure is critical for reducing disaster risk across society, and that it is part of a broader system that interconnects with multiple areas of society.

The Framework complements the Council of the Australian Governments' 2011 National Strategy for Disaster Resilience and translates much of the Sendai Framework into action appropriate for

the Australian context. The Framework sets the national policy context within which the remaining four projects underway by the National Resilience Taskforce sit.

## 2. Australian Vulnerability Profile

The National Resilience Taskforce and the Commonwealth Scientific and Industrial Research Organization, in partnership with a range of resilience practitioners have published the inaugural report 'Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk'.

Profiling Australia's Vulnerability is a resource that can be used by policy-makers, risk assessors, investors and disaster managers to inform their efforts to reduce the impacts and consequences of disasters in Australia. The report contributes to new insights about the systemic nature of disaster risk to better manage national-level vulnerability and enhance the nation's resilience.

The work is now being leveraged to create contemporary tools and methods that provide guidance for strategic disaster risk assessment at a national level. It will inform a new, nationally relevant capability and guidance to support a comprehensive understanding about disaster risk, and strategically prioritize investments in disaster risk reduction in Australia.

## 3. Strategic Disaster Risk Assessment Guidance Materials

The National Resilience Taskforce is working with key stakeholders to develop principles and guidance materials that inform strategic, integrated disaster risk assessments that consider the direct and indirect causes and consequences of disaster risk in Australia.

The purpose of this work is to raise awareness of the challenges and opportunities posed by climate and disaster risk and to build capabilities in assessing the relevance of climate and disaster risk to existing decisions on where and how to prioritize disaster risks reduction efforts. These principles

and materials will inform existing strategy, planning and project prioritization processes at national, state and local levels in Australia.

The work will build on existing best practices, current sub-national risk assessments and the substantial capabilities in both public and private sector agencies responsible for, or affected by, climate and disaster risks.

## 4. Funding and Financing Disaster Risk Reduction

The Australian Government is looking at new and innovative ways to finance disaster risk reduction, and leverage existing funding to reduce risk. All sectors must invest in reducing disaster risk, through both funding and financing, to limit the cost of disasters in the future.

Building on the guidance and principles from the Strategic Disaster Risk Assessment Guidance project, the National Resilience Taskforce is working together with the Australian Government's Infrastructure and Projects Financing Agency in the Infrastructure portfolio to identify opportunities to fund priority risk reduction measures.

## 5. National Disaster Risk Information Services Capability

During 2018 the National Resilience Taskforce led extensive research and engagement to understand the climate and disaster risk information decision makers need and identified existing initiatives and investments that could be better connected to deliver this information.

The National Resilience Taskforce has also explored the complex barriers to providing useful, accessible climate and disaster risk information, such as inconsistent data standards, concerns about legal liability.

The National Resilience Taskforce is piloting a national climate and disaster risk information services capability in Australia to equip decision makers to understand climate and disaster risk and what it means for decisions made now and well into the future.



### Further information

#### Contact

Mr Mark Croweller AFSM, Head of the National Resilience Taskforce, [nrtf@homeaffairs.gov.au](mailto:nrtf@homeaffairs.gov.au)

# Managing Climate Risks across Australian Government

 Australia

Initiative: National | Timeline: Ongoing

## Summary

The Australian Government is building the capability of its staff to identify, assess and manage climate risks by using Climate Compass, a climate risk management framework developed specially for Australian Government agencies.

Staff can attend a two-day “masterclass” training program held by the Department of the Environment and Energy to build a foundational level of knowledge on climate risks and learn to use Climate Compass to identify and assess climate-related risks.

The implementation of the framework and the training program aims to build the capacity of Australian Government staff to consider climate risks in every day responsibilities and operations.

## Description

Australian Government agencies have started to examine the risks and impacts from the changing climate that will affect their policies, programs, assets and operations using Climate Compass.

Climate Compass and the climate risk masterclasses are being implemented across the Australian Government as a framework and complementary training program to develop the capability of Australian Public Service officials to consider climate risks as part of business-as-usual work.

Climate Compass was developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian Government Department of the Environment and Energy. It was published on the Department’s website in January 2019.

Climate Compass is a framework designed to help Australian public servants manage the risks from the changing climate to Australian Government policies, programs and asset management. It includes step-by-step guidance for climate risk management and reflects the current leading practice for climate risk management and planning for long-term, uncertain, pervasive change.

Climate Compass features three cycles; “scan”, “strategy” and “project”. The three cycles are designed to align with different layers of managing climate risks. For example, scan provides guidance on a high-level identification and prioritisation of climate risks to an agency (or area of an agency). The steps within each cycle build from international and Australian risk management standards.

The Department of the Environment and Energy delivers “masterclass” training to support the use of Climate Compass. The training builds the capability of Australian Government officials to manage climate risks in their day-to-day work. The training builds a foundational knowledge on climate change and adaptation, and provides guidance on using Climate Compass to identify and assess climate risks.

The classes include guest presentations from the Bureau of Meteorology and the Australian National University Climate Change Institute. The training is open to all Australian Government agencies.

Ongoing evaluation of the masterclass program has been positive and has shown the masterclass program has been successful in improving participants’ knowledge and confidence in understanding, identifying, managing and communicating climate risks.



### Further information

<https://www.environment.gov.au/climate-change/adaptation/publications/climate-compass-climate-risk-management-framework>

### Contact

Climate Adaptation Policy, Department of the Environment and Energy,  
[Climate.Adaptation@environment.gov.au](mailto:Climate.Adaptation@environment.gov.au)





# Federal Action to Support Resilient Infrastructure

## Canada

Initiative: National | Timeline: Ongoing

### Summary

Canada is taking significant action to support infrastructure that is resilient to the impacts of climate change. This includes enabling work such as the establishment of the Canadian Centre for Climate Services to improve access to trusted, useful and timely climate information and data to support adaptation decision-making, including for the planning and design of infrastructure. This also includes work to integrate climate resilience into building and core-public infrastructure standards and codes.

The government also has a number of funding programs that directly support resilient infrastructure, including nature-based infrastructure solutions. Infrastructure Canada has also put in place a climate lens that applies to relevant infrastructure projects requesting federal support. Collectively, these efforts are ensuring infrastructure is planned, designed, built and managed in consideration of climate impacts and is helping to protect Canadians and their communities.

### Description

The Government of Canada is taking significant action to adapt and enhance resilience to climate change through infrastructure, including through nature-based infrastructure solutions.

#### Pan-Canadian Framework on Clean Growth and Climate Change (PCF)

The policy driver for Canada's action on resilient infrastructure is the PCF – Canada's plan to take action to fight climate change, adapt and build resilience to the changing climate, and drive clean economic growth. The PCF was developed collaboratively and agreed to by federal, provincial and territorial (FPT) governments.

Adaptation and Climate Resilience is one of four pillars in the PCF. Under this pillar, "building climate resilience through infrastructure" was identified by FPT governments as a priority area for action. Actions specified in the PCF are: 1) investing in infrastructure to build climate resilience; and 2) developing climate-resilient codes and standards. Throughout the process of developing the PCF, many jurisdictions and stakeholders identified infrastructure as a key area for collaboration with the federal government to build climate resilience in Canadian communities.

#### Canadian Centre for Climate Services

The Canadian Centre for Climate Services (CCCS) is Canada's authoritative federal source for climate information, data, information, and tools. The CCCS was established so that all Canadians have the information and support they need to understand and plan for climate impacts. e. The CCCS advances this goal by:

- Delivering climate services driven by user needs;
- Providing access to climate information;
- Building local capacity; and
- Offering training and support.

To ensure the right audience has access to the right tool, the CCCS has supported a suite of data portals that are useful for Canadians looking for an entry-level understanding of climate change trends, informed decision-makers that need high-resolution data, and researchers with climate science backgrounds looking to collaborate and share information. Access to these data portals is available through the CCCS website, which also includes a library of climate resources, provides climate information basics, and the ability to view mapped climate data or to download subsets of climate data from a selection of Environment and Climate Change Canada's datasets. The CCCS helps

guide Canadians in the understanding and use of climate data by providing direct access to climate experts through the CCCS Support Desk. The CCCS can be an important resource for infrastructure project proponents to integrate climate impact considerations into asset planning and design.

#### Climate Resilient Codes and Standards

Canadian buildings and infrastructure face risks associated with the potential impacts of climate change and extreme weather events. To respond to this situation, the National Research Council of Canada (NRC) and Infrastructure Canada (INFC) are working to update building and infrastructure codes, specifications, guidelines and assessment tools accordingly to help keep Canadians safe and to ensure the resilience of buildings, infrastructure, and neighboring communities. Specifically, the Climate-Resilient Buildings and Core Public Infrastructure Project was launched to integrate climate resiliency into building and infrastructure design, guides and codes in collaboration with the Standards Council of Canada and various Standard Development organizations.

#### Investing in Canada Infrastructure Program

Beyond this enabling work, the Government of Canada is also providing funding for infrastructure investments, including for assets to specifically enhance climate resilience in Canada through a number of programs. For example, CAD \$9.2 billion over 10 years is being delivered to provinces and territories through Infrastructure Canada's Investing in Canada Infrastructure Program (ICIP) for green infrastructure.

#### Disaster Mitigation and Adaptation Fund

INFC has also launched a Disaster Mitigation and Adaptation Fund (DMAF). The DMAF is a 10-year, CAD \$2 billion national program aimed at strengthening the resilience of Canadian

communities through investments in large-scale infrastructure projects, including natural infrastructure projects, enabling them to better manage the risk associated with current and future natural hazards, such as floods, wildfires and droughts.

#### Climate Lens

INFC has also developed a climate lens, which is a requirement for relevant infrastructure projects under ICIP. The climate lens has two components: the greenhouse gas (GHG) mitigation assessment, which will measure the anticipated GHG emissions impact of an infrastructure project, and the climate change resilience assessment, which will employ a risk management approach to anticipate, prevent, withstand, respond to, and recover from a climate change related disruption or impact. The climate change resilience component requires proponents to employ a risk management approach to infrastructure asset planning that is consistent with ISO 31000.

#### Natural Infrastructure

The Government is also taking action to support the development of "natural infrastructure", defined by the Government as existing, restored, or enhanced combinations of vegetation and associated biology, land and water, and naturally occurring ecological process that generate infrastructure outcomes such as preventing and mitigating floods, erosion, and landslides; mitigating effects of extreme heat; and purifying groundwater. Beyond infrastructure outcomes, natural infrastructure can also achieve co-benefits such as improving, purifying and decontaminating water, air and soils; creating recreational green spaces; improving human health and wellbeing; and enhancing biodiversity. Natural infrastructure is an eligible area of investment under the ICIP and DMAF.



<https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html>

#### Further information

#### Contact

Laniel Bateman: A/Executive Director, Strategic Policy Directorate,  
Environment and Climate Change Canada,

[laniel.bateman@canada.ca](mailto:laniel.bateman@canada.ca), +1 873-469-1516

Chad Nelson, Principal Advisor, Infrastructure Canada

[Chad.nelson@canada.ca](mailto:Chad.nelson@canada.ca), +1 613-948-8006

# Canada's Climate Change Adaptation Platform

 Canada

Initiative: National | Timeline: Established in 2012

## Summary

Canada's Climate Change Adaptation Platform is a national forum that brings together diverse actors across Canada in order to collaborate on adaptation priorities. The Platform works to create an enabling environment for adaptation and ensures that appropriate users in regions and sectors are efficiently equipped with the knowledge and resources that they need to adapt to a changing climate.

## Description

The multidisciplinary actor-set is an integral characteristic of the Platform, highlighting that policies, programs, and legislation from all levels of government affect decisions that are driven by local or industry needs. The Platform members are the users and the producers of the adaptation knowledge and tools. This has resulted in a demand-driven process whereby the Platform facilitates the analysis and implementation of adaptation action, and directly responds to the needs of decision-makers in Canada's public and private sectors. The Platform is maintained on the national level, and supports both regional and local level adaptation.

### Structure of the Platform

The Adaptation Platform encompasses a number of different mechanisms that work to connect networks under the overarching network of the Platform. These include: Plenary, a series of subject-matter specific Working Groups, and a Secretariat.

### Plenary

Described as a network of networks, Plenary is the coordinating forum of the Adaptation Platform. Plenary members are champions of adaptation within their sectors, have an authoritative voice

and an established distribution network, and provide resources. Currently, there are 37 plenary members representing provincial and territorial governments, federal departments, national Indigenous organizations, professional and industry associations, and research organizations.

Plenary members meet twice annually to identify new opportunities for adaptation action, co-create plans of engagement and collaborative work, and provide guidance to the Platform Working Groups. The meetings enhance collaboration and foster partnerships between adaptation actors in Canada based on trust, knowledge and recognition of a common starting point.

The greater reach of Plenary is an integral element of the Platform's communication strategy with targeted dissemination of information, making use of the extended networks and enhancing engagement at senior levels within members' organizations. This is the only mechanism in Canada that addresses the challenge of climate change in this matter.

### Working Groups

The Working Groups bring together people with expertise and common interest in specific issues or sectors. Similar to Plenary, the Working Groups are a network of networks with diverse membership. Participants collaborate to define and work towards their shared adaptation priorities and objectives that are developed and reported through a Terms of Reference, Program of Work, and State of Play. The Program of Work is revisited throughout the lifecycle of the working group and often follows government funding cycles. The State of Play serves as a synthesis and reference tool in identifying initiatives to be undertaken.

The outputs of the working groups are generally products that will ensure information and resources are delivered to the practitioners and policy-makers that are implementing climate adaptation. Current Working Groups include: Agriculture, Biodiversity, Climate Services, Coastal Management, Economics, Energy, Forestry, Infrastructure and Buildings, Mining, and Northern Strategy.

**Secretariat**

Natural Resources Canada (NRCAN) chairs the Adaptation Platform and performs the secretariat duties. NRCAN has committed to support the Platform and select Working Groups through providing ongoing resources, supporting Plenary, managing the shared workspace, facilitating interactions amongst the working group co-chairs, running a webinar series, and producing an annual report and regular newsletters.

**Work Completed (funding, project size, scale, Plenary, benefits)**

To date, over 85 projects have been completed. The projects have produced and deployed practical information and tools to help regions and economic sectors in Canada increase their resilience to climate change. Projects address knowledge gaps and capacity issues identified by the Working Groups, and vary in size from a total project amount of \$38,000 to \$700,000 US.

To continue to support priorities identified by Working Groups, NRCAN solicited proposals for cost-shared projects in August 2017. There was a total of \$6.20 million US in funding across several different thematic issues: coastal management, energy, mining, economics, infrastructure, forestry, and adaptation training. Depending on the context, the projects aim to adapt environmental, economic, and/or social systems to the changing climate.

**Evolution of the Platform and Looking Forward**

The work of the Adaptation Platform has evolved over the past seven years. From launching the Platform and identifying initial priority knowledge gaps to the creation of the relevant Working Groups and the growth of Plenary, a deeper understanding of the synergies and opportunities in Canada has strengthened. Platform work continues to focus on addressing the adaptation knowledge gaps, as well as expand to focus on the implementation. The work is more explicitly focused on assisting organizations to develop the expertise and capacity that they need in order to effectively use the knowledge.

The Adaptation Platform presents a successful example of a model in which cross-jurisdictional and multi-disciplinary actors have action-orientated results. In looking forward, the Platform will continue to evolve depending on the needs and priorities of the members and the adaptation landscape in Canada.



Figure 1. The structure of the Adaptation Platform

+

**Further information**

<https://www.nrcan.gc.ca/environment/impacts-adaptation/adaptation-platform/10027>

**Contact**

Elizabeth Atkinson, [Elizabeth.Atkinson@Canada.ca](mailto:Elizabeth.Atkinson@Canada.ca), +1 (613) 447-5664

# The Pan-Canadian Framework on Clean Growth and Climate Change (PCF)

 Canada

Initiative: National | Timeline: Ongoing

## Summary

The Pan-Canadian Framework on Clean Growth and Climate Change (PCF) is Canada's plan to grow the economy while reducing greenhouse gas emissions and building resilience to adapt to a changing climate. A key pillar of the PCF is Adaptation and Climate Resilience, with the goal of taking action to adapt to current and future climate impacts to protect Canadians from climate risks, build resilience, reduce costs, and ensure that society thrives in a changing climate.

Canada's federal, provincial and territorial governments have identified actions to build resilience in the following areas:

- Translating scientific information and Traditional Knowledge into action;
- Building climate resilience through infrastructure;
- Protecting and improving human health and well-being;
- Supporting particularly vulnerable regions; and
- Reducing climate-related hazards and disaster risks.

Canada is currently in its third year of PCF implementation and is continuing to make progress on a broad range of adaptation initiatives. Notable achievements under the adaptation pillar include the launch of the Canadian Centre for Climate Services, which provides data, guidance and resources for Canadians to better understand how the climate is changing and to use this knowledge for making climate-smart decisions when planning for the future. Achievements under the adaptation pillar also include the launch of the CAD \$2-billion Disaster Mitigation and Adaptation Fund to support infrastructure

projects to help communities manage the risks of natural disasters and climate change.

## Description

### The Pan-Canadian Framework on Clean Growth and Climate Change

Building on commitments and actions, the Prime Minister of Canada met with all Provincial and Territorial Premiers to work on a coordinated approach to addressing climate change. In December 2016, First Ministers adopted the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). A landmark achievement, the PCF is the first climate change plan in Canada's history to include joint and individual commitments by federal, provincial and territorial governments and to have been developed with input from Indigenous Peoples.

The PCF outlines concrete measures to reduce carbon pollution, help Canada adapt and become more resilient to the impacts of a changing climate, foster clean technology solutions, and contribute to a stronger economy. These actions are outlined in the four main pillars of the PCF; 1) Pricing Carbon Pollution; 2) Complementary Actions to Reduce Emissions; 3) Adaptation and Climate Resilience; and 4) Clean Technology, Innovation and Jobs.

### The Adaptation and Climate Resilience Pillar

The impacts of climate change are already being felt across Canada, posing significant risks to communities, health and well-being, the economy, and the natural environment, especially in Canada's northern and coastal regions and for Indigenous Peoples. Under the Adaptation and Climate Resilience pillar of the PCF, federal, provincial and territorial governments have identified actions to build resilience to climate change across Canada.

**Progress to Date*****Translating scientific information and Traditional Knowledge into action***

Governments are supporting the generation of climate science, information and knowledge, with many jurisdictions adopting approaches to respectfully include Indigenous Knowledge and to support the development of tools, guidance, and resources to guide decision-making.

In the fall of 2018, the Government of Canada launched the Canadian Centre for Climate Services (CCCS) to ensure Canadians have the information they need to plan for climate impacts. The CCCS works with partners and stakeholders to improve understanding of how the climate is changing and provides guidance and resource to help Canadians use this knowledge for making climate-smart decisions when planning for the future. Also, to use knowledge effectively, Canada launched the Building Regional Adaptation and Capacity Expertise (BRACE) program to increase adaptation action and uptake through the delivery of training, internship opportunities and knowledge exchange activities.

***Building climate resilience through infrastructure***

Disaster Mitigation and Adaptation Fund (DMAF) is aimed at strengthening the resilience of Canadian communities through investments in large-scale infrastructure projects, including nature-based infrastructure solutions, enabling them to better manage the risks associated with current and future natural hazards.

***Protecting and improving human health and well-being***

This work includes reducing health risks through enhanced research, monitoring, and awareness

activities. The Government of Canada also committed to support Indigenous communities in undertaking health adaptation projects and community-based monitoring activities to address growing health challenges.

***Reducing climate related hazards and disaster risk***

Federal, provincial and territorial governments developed and released an Emergency Management Strategy for Canada in 2019, which charts a course towards a more resilient future for Canadian society by 2030. This Strategy guides federal, provincial and territorial governments in strengthening Canada's ability to assess risks and to prevent and mitigate, prepare for, respond to, and recover from disasters.

***Supporting particularly vulnerable regions***

Northern and coastal regions and communities and Indigenous Peoples continue to be prioritized in adaptation initiatives, as they are disproportionately affected by climate change. Indigenous Peoples actively drive action and contribute vital knowledge, experience, and leadership to adaptation efforts across Canada and the development of community-based solutions. The Government of Canada is supporting climate change adaptation and enhancing resilience in Indigenous communities through several programs., including First Nation Adapt, which provides funding to First Nation communities to assess and respond to climate change impacts on community infrastructure and emergency management.

Looking ahead, Canada will continue to support both ongoing and new climate change adaptation initiatives through the implementation of a broad suite of programs, information and capacity-building initiatives, and will leverage research outcomes to achieve societal resilience.

**Further information**

<https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/climate-change-plan.html>

**Contact**

Laniel Bateman: Executive Director, Strategic Policy Directorate,  
Environment and Climate Change Canada,  
[laniel.bateman@canada.ca](mailto:laniel.bateman@canada.ca), +1 873-469-1516

# Nature-Based Solutions for Disaster Risk Reduction and Climate Change Adaptation



Initiative: National | Timeline: Initiated in 2018

## Summary

Ecosystem-based approaches to climate change adaptation and disaster risk reduction are often a very beneficial way of enhancing resilience and adaptive capacity and of reducing social and environmental vulnerabilities to climate change risks and impacts. In general, these approaches are politically desirable, socially acceptable, economically viable and beneficial. By using equitable, transparent and participatory approaches they have significant capacity to generate societal benefits and to contributing to sustainable and resilient development. They use biodiversity and ecosystem functions and services through sustainably managing, conserving and restoring ecosystems.

A number of new EU-funded projects are aiming to pilot new innovative approaches to nature-based solutions (RECONNECT, PHUSICOS, NATURVIATION, NAIAD, OPERANDUM, LIFE DICCA and LIFE SPARC).

## Description

The **RECONNECT** project aims to contribute to European reference framework on nature-based solutions by demonstrating, referencing and upscaling large scale nature-based solutions and by stimulating a new culture for 'land use planning' that links the reduction of risks with local and regional development objectives in a sustainable way.

The **PHUSICOS** project demonstrates how nature-inspired solutions reduce the risk of extreme weather events in rural mountain landscapes.

The **NATURVIATION** project seeks to develop our understanding of what nature-based solutions can achieve in cities, examine how innovation can be fostered in this domain, and contribute to

realising the potential of nature-based solutions for responding to urban sustainability challenges by working with communities and stakeholders.

The **NAIAD** project develops concrete nature-based solutions approaches in response to flood and drought risks at 9 demo sites across EU. It aims to deliver replicable methods for its implementation, work on development of financial instruments and novel business models in support of their implementation, and contributes to academic knowledge on nature-based solutions planning, to increase the capacity of policy decision makers to integrate nature-based solutions in development planning and contribute to the general awareness of the need of nature-based solutions and socio-economic opportunities arising with their implementation at local, regional or EU level.

The **OPERANDUM** Project includes open labs for green and blue/grey/hybrid solutions. It includes multiple level of stakeholder engagement to improve acceptance and to increase competitiveness of nature-based solutions.

The **LIFE DICCA** project will develop a climate change adaptation strategy for Vienna's Danube Island that will improve ecosystems and water management, deliver a 15% reduction in the maintenance costs of the island, and be replicable by other cities (total budget €2 million, EU contribution €1 million).

The **LIFE SPARC** project which will make the estuary of the Belgian river Scheldt and its highly urbanised area more resilient to climate change. At present, financial damage from flooding in the Scheldt estuary can exceed €50 million on an annual basis. The project therefore wants to enlarge and strengthen the estuary ecosystem to reduce flood risks and improve its function as habitat (total budget €8.5 million, EU contribution €2.3 million).



#### Further information

Voluntary Guidelines on the Design and Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction.  
CBD Decision 14/5.

<https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-05-en.pdf>

Selection of relevant portals and platforms:

- Platform <http://nwrn.eu/> to gather information on natural water retention measures in the EU
- CLIMATE ADAPT <https://climate-adapt.eea.europa.eu/> supporting Europe in adapting to climate change helping users to access and share data and information including on ecosystem-based adaptation
- BISE <https://biodiversity.europa.eu/> the single entry point for data and information on biodiversity supporting inter alia the implementation of the EU Green Infrastructure Strategy
- OPPLA <https://oppla.eu/> the knowledge market place including for nature-based solutions

#### Project websites

[www.reconnect.eu](http://www.reconnect.eu)

<https://phusicos.eu/>

[www.naiad2020.eu/](http://www.naiad2020.eu/)

<https://www.operandum-project.eu/>

<https://www.wien.gv.at/umwelt/gewaesser/donauinsel/dicca/>

<https://www.natuurenbos.be/sparc>

#### Contact

Karin Zaunberger, [karin.zaunberger@ec.europa.eu](mailto:karin.zaunberger@ec.europa.eu)



# Climate Proofing Infrastructure Investment Projects in the EU



Initiative: National | Timeline: 2014–2020

## Summary

Infrastructure projects are of strategic importance and represent a substantial share of EU spending. In the current programming period (2014-2020), a robust integration of climate change adaptation and mitigation has become a pre requisite for approval and financing of major infrastructure projects, i.e. projects with a total eligible cost exceeding 50 million EUR (or 75 million EUR for transport projects). Adaptation is integrated through vulnerability and risk assessments to ensure adequate resilience of infrastructure to the adverse impacts of climate change, for example flooding. The mitigation potential is assessed through the quantification of life-cycle emissions and their integration in the cost-benefit analysis. Guidance and technical assistance on climate proofing are provided to project developers. More than 500 major projects are foreseen in the period 2014-2020.

The climate proofing requirements for major projects are an integral part of the mainstreaming of climate action into EU policies and funds. The approach can be usefully adapted and applied to a wider range of infrastructure projects in different sectors. The European Commission is preparing further guidance on the climate proofing of all infrastructure investment projects.

## Description

### (1) Current experience

Climate proofing is used as a convenient shorthand to describe the integration climate change adaptation and mitigation in infrastructure projects. Climate proofing should be fully integrated in the project cycle management from the outset alongside the environmental assessments. By doing

so, the corresponding climate resilience measures and mitigation options can be optimally integrated in the project cycle.

### (2) Climate-proofing methodology

The Climate Change Vulnerability and Risk Assessment is the process of managing climate adaptation issues for a project in order to improve the project's resilience to climate change. It involves identifying which climate hazards the project is vulnerable to, assessing the level of risk, and considering adaptation measures to reduce that risk to an acceptable level. It is highly recommended to integrate the vulnerability and risk assessment from the beginning of the project development, because this generally will provide the broadest range of possibilities for selecting the optimal adaptation options. The guidance for project managers on how to make vulnerable investments resilient to climate change provides a methodology for undertaking such a Vulnerability and Risk Assessment. It can be summarized into the following steps:

#### *Preparing the vulnerability and risk assessment*

As a prior step, it is essential to prepare and plan the process, assess and define the project context and project boundaries and interactions, define the methodology for how to carry out the assessment.

#### *Vulnerability assessment*

The aim of the vulnerability assessment is to identify the relevant climate hazards for the given specific project type at the foreseen location. This is done by combining the outcome of the analysis of **sensitivity** and **exposure**. The **sensitivity analysis** identifies the relevant climate hazards for the given type of project, irrespective of its location. It should also consider the project in a comprehensive manner, looking at the various components and how it operates within the wider network or system.

The aim of the **exposure analysis** is to identify the relevant hazards for the foreseen project location, irrespective of the project type. The analysis can consider exposure to the current climate and to the future climate. Climate model outputs can be used to understand how exposure may change in the future. Particular attention should be given to changes in the frequency and intensity of extreme weather events.

#### *Risk assessment*

The aim of the risk assessment is to assess in a greater level of detail the likelihood and impact of the relevant climate hazards (as identified in the vulnerability assessment). The aim is to quantify the significance of the risks to the project in the current and future climate.

For a range of climate hazards it can be expected that the likelihood and impacts will change during the lifespan of the major project as climate change unfolds. The projected changes in likelihood and impacts should be integrated in the vulnerability and risk assessment. For this purpose it may be relevant to subdivide the lifespan into a sequence of shorter periods, e.g. 20 years. Again, particular attention should be given to weather extremes.

#### *Adaptation options, appraisal and planning*

For each significant risk identified, relevant adaptation measures should be considered and assessed. Adaptation will often involve a mix of structural and non-structural options. The former includes modifications to the design or specification of physical assets and infrastructure, or the adoption of alternative or improved solutions. The latter includes improved monitoring or emergency response programmes, staff training and skills transfer activities, development of strategic or corporate climate risk assessment frameworks, financial solutions such as insurance against supply chain failure or alternative services.

The expected benefits of recommended adaptation measures should be clearly explained and expressed in financial terms where possible and appropriate.

The next step is to integrate the appraised adaptation options into the project, at the various development stages.

#### **(3) Elaboration of further guidance for the post 2021 period**

New guidance is being prepared for the climate proofing of EU funded infrastructure projects in the period 2021-2027. The main EU funds concerned include the Invest EU Program, Connecting Europe Facility (CEF), the European Regional Development Fund (ERDF) and the Cohesion Fund (CF), building on lessons-learned from the climate proofing of major projects in the period 2014-2020.

The guidance is intended for project developers and experts involved in the preparation of infrastructure projects, concerned public authorities as well as other interested parties, investors, and other stakeholders.

Besides the focus on specific EU funding programs, the guidance will also be a valuable reference for infrastructure investment projects funded by other private and public sources.



#### **Further information**

[https://ec.europa.eu/clima/sites/clima/files/docs/major\\_projects\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/docs/major_projects_en.pdf)

#### **Contact**

Claus Kondrup, [claus.kondrup@ec.europa.eu](mailto:claus.kondrup@ec.europa.eu)

# Creation of the French Gustave Eiffel University

## ■ ■ France

Initiative: National | Timeline: Establish by Jan 2020

### Summary

To address the **continuous transformation of cities** due to urbanization, the French Government decided to create a unique, **pioneering university** made out of six existing bodies (a research institution, a university, a school of architecture and three engineering schools): with 17 000 students and 2 300 staff, Gustave Eiffel University will gather on a **quarter of the French research and training effort on Cities and Transportation**. The ambition is altogether to address societal challenges of tomorrow, to provide broad skills to the students, to offer international education programmes, to imagine and feed research and innovations covering the numerous fields linked to cities. **Advice to public authorities** at international, national and local levels, and **dialogue with society** will also feature the University activities.

Inspired by **international models**, the governance of the new University will be a mix between the French traditional model of universities, the research organisations model and the *Grandes Écoles*. The new University will consist of several campuses all over France with headquarters in the Paris region. The President will be appointed by the French Government and Board members will be mainly external experts. A strong bilateral cooperation programme will strengthen **international networking with Universities and research organizations** working in the same fields. In addition, a number of **big training and research facilities** across the country, Gustave Eiffel University will foster the **cross-fertilisation of existing knowledge and skills** between the engineering sciences, earth or environmental sciences, human and social sciences.

### Description

The need to provide resilient infrastructure systems will intensify in the future. Addressing vulnerabilities requires that citizens, cities and regions, the business sector and governments avoid exacerbating threats to infrastructure systems. To ensure availability, quality, safety and security of such infrastructures, both long-term development strategy and the ability to build on adverse events are needed.

The evolution of cities is accelerating on a global scale as regards densification and sprawl, facing societal challenges. To assess such complex transformation, the contribution from research, aiming at the cohesion of the populations and targeting sustainability, is essential.

#### A Multidisciplinary, Multiscale, Integrated Approach

More comprehensive infrastructure lifecycle and multiscale assessment methodologies are required. In order to address the resilience issues and those linked to urban and transportation systems of tomorrow, the Gustave Eiffel University aims at becoming an iconic multidisciplinary research demonstrator, fostering innovation and high level education, focused on climatic and energy supply emergencies, preservation of biodiversity and resources, revision of economic models. Therefore the University will offer and provide skills in many disciplines, including civil engineering, architecture, and urban planning.

#### Challenges for "Quality Infrastructure" and Urban Liveability

The continuous transformation of cities is an actual given issue for research communities that cannot be assessed at one glance. Wide cooperation is

required with partners sharing the same values, and the need for cross-fertilisation in the approaches around all subjects related to “Quality Infrastructure” and to infrastructure resilience is recognised. With the support of the academic, social and economic partners, the University’s ambition will be to enhance knowledge, carry innovative ideas and offer tools, methods, innovative products and perform associated services to meet the challenges of the inclusive, resilient and sustainable City of tomorrow. Such cooperation will bring a real paradigm shift in the approach to urban problems.

**A Dynamic Vision Shared with Key International Partners**

The Gustave Eiffel University will share principles and practices with European and international partners, aiming at building interdisciplinary and intersectoral networks and programmes, to match research, innovation and society burdens at several levels: regional, national and worldwide.

*Building exchanges through networking and co-programming*

Around the world, the University will strengthen and gather its networks focused on infrastructures, transport, and cities. The ongoing process will consolidate existing thematic links by integrating cross-visions, building a network of universities and research organizations sharing such bases. Strong bilateral international cooperation will be engaged to serve resilience issues of complex systems

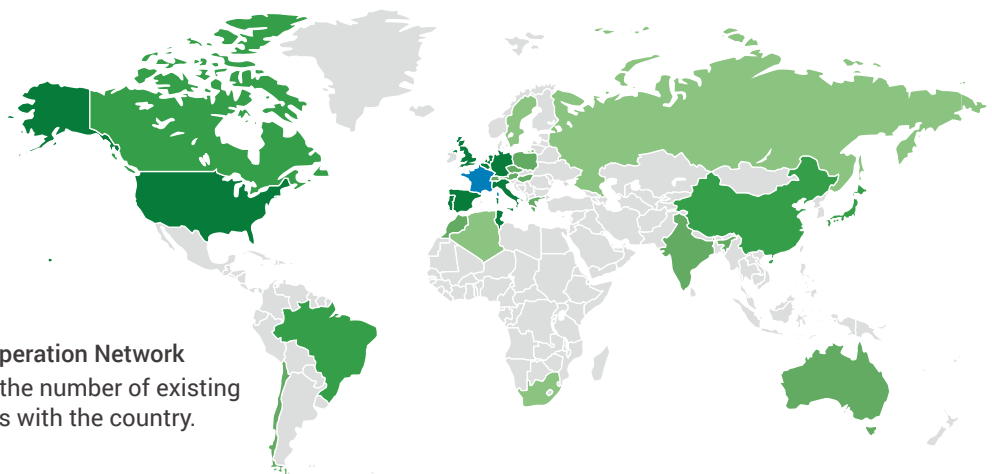
constrained by environmental and societal burdens.

The Gustave Eiffel University will support the effort in participating into the construction of European and international universities through adapted networking, will continue lobbying within the framework of European associations, writing position papers, exchanging staff with long-term partners and creating new links. In addition, recurrent bilateral international actions will be developed to create or sustain links in communities. Such actions will be supported by joint projects and initiatives induced by International Associated Laboratories and Institutes, that combine research, education and innovation.

*Developing the “territorial connection”*

To pool knowledge at different scales, and to be a leader in targeted areas of the city will lead the Gustave Eiffel University to confirm a permanent presence in a logic of “territorial connection” between its national locations and European and international settlements set by campuses or offices.

Gustave Eiffel University staff and students mobility, internationalization with innovative teaching methods and welcoming international partners according to their thematic areas and skills will provide an excellent basis for cooperation. Such dynamic integration will build and provide leadership in targeted areas serving infrastructures resilience in particular.



**Figure: A Worldwide Cooperation Network**  
The green index reflects the number of existing collaboration agreements with the country.

+

**Further information**  
<http://univ-gustave-eiffel.fr/>

**Contact**  
 Dr. Agnès Jullien, [agnes.jullien@ifsttar.fr](mailto:agnes.jullien@ifsttar.fr)

# German Strategy for Adaptation to Climate Change (DAS)

## Germany

Initiative: National | Timeline: Periodic reporting

### Summary

The German Adaptation Strategy (DAS) aims to reduce the vulnerability to climate change impacts, sustaining or enhancing the adaptive capacity of natural, societal and economic systems. In Germany, adaptation to climate change is a permanent task established along an agreed and politically adopted institutional and methodological framework. Scientific research programmes, participation and consultation processes as well as the establishment of ongoing reporting systems are set up. On the national level nearly all federal ministries are represented in the “Interministerial Working Group on Adaptation to Climate Change” (IWG Adaptation), led by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. To coordinate adaptation activities with the federal states the Conference of Environmental Ministers established in June 2009 a standing committee for the adaptation to climate change impacts.

### Description

In 2008 the Federal Government of Germany adopted the “**German Strategy for Adaptation to Climate Change**”. It lays the foundation for a medium-term process to progressively identify the effects of global climate change, assess the risks, and develop and implement adaptation measures. The strategy also highlights possible climate impacts and options for action for 15 spheres of activity and selected regions.

The German Strategy for Adaptation to Climate Change describes climate change impacts on nature, economy and society while deducing options for action in the fields.

To underpin this strategy with specific action, the

DAS was followed by the first “Adaptation Action Plan of the German Adaptation Strategy” (APA I) in relation to climate change.

### Progress report on the DAS/APA II

In 2015 the Federal Government of Germany adopted the first progress report of the DAS. This report gives an overview of the primarily federal activities since the adoption of the DAS in 2008 and the APA I (2011). The APA II presents current and future actions to be taken by the Federation. In the central reporting document, the progress report on the DAS presents the progress that has been made in implementing the Strategy and the process of reforming the adaptation strategy.

The German Adaptation Strategy is updated every five years in the form of “progress reports” and adopted by the Cabinet. The progress reports present concrete steps for the further development and implementation of the German Adaptation Strategy. The reports draw on the Evaluation of the adaptation strategy. Together, they form a reporting system for the planning process for adaptation to climate change in Germany. The process can be divided into four phases based on the adaptation policy cycle:

#### 1. Understanding and describing climate change:

The monitoring report provides an overview of the observed impacts of climate change and the adaptation measures already introduced in Germany. The monitoring report will be updated every four years.

The first monitoring report on the DAS is a report by the IWG Adaptation Strategy and was published in May 2015. The report addresses the interested public and political decision-makers, and provides information on the impact of climate change as

well as on adaptation measures. The basis for this monitoring report on the DAS is formed by 102 indicators, and the Ministries and their appointed scientific authorities were closely involved in the development of the indicator system. The DAS Monitoring System has been designed as an updatable system, which can evolve in line with advances in knowledge and know-how in respect of adaptation to climate change.

**2. Identifying climate impacts and describe vulnerabilities:** The climate impact and vulnerability analysis (KWVA) will identify in which fields of action, which climate impacts and in which regions there are particularly affected by climate change and where there are particularly strong needs for taking preventive action. The present, the near future (2031-2060) and the distant future (2071-2100) are considered. The KWVA was developed for the first time in 2015. An update is planned every 7 years.

**3. Developing and implement measures:** The Adaptation Action Plans (APAs) specify the current and future measures on the federal level to adapt to climate change. Among other things, they are based on the scientific findings and results of the KWVA. The APAs thus describe the implementation of the German adaptation strategy through specific measures. They demonstrate links with other national strategy processes. Responsibility for the implementation of the measures described in the APAs lie with the relevant ministries.

**4. Observing, evaluating and further developing adaptation:** The strategy process and the implementation of the adaptation strategy are evaluated every four years; the first external evaluation took place in 2018. The evaluation of the strategy is carried out according to a methodology adopted by the inter-ministerial working group on adaptation. The results of the evaluation were published as a scientific report in spring 2019.



**Further information**  
[German Adaptation Strategy, Adaptation Action Plan](#)

**Contact**  
 Susanne Hempen, [Susanne.Hempen@bmu.bund.de](mailto:Susanne.Hempen@bmu.bund.de)

National

# Local Adaptation Activities in Italy

## ■ Italy

Initiative: National | Timeline: Ongoing

### (1) Measures for Energy Efficiency, Sustainable Mobility and Climate Change Adaptation in the Small Islands

On July 14, 2017, the Department for Climate and Energy published the notice “Measures for energy efficiency, sustainable mobility and climate change adaptation in the small islands”, to reduce greenhouse gas emissions, promote low emission mode of transport and take climate change adaptation measures. The beneficiaries of funding are the municipalities (Comuni) of non-interconnected small islands, carrying out projects in each own territorial constituency. In 2018, fourteen projects including adaptation measures were selected for funding, up to a maximum of EUR 1 million for each intervention and with a total amount of EUR 13,772,604. Types of adaptation measures eligible for funding were: conversion of irrigation systems for water saving; reducing losses for water networks; maintenance of the dunes with restoration of psammophila flora; maintenance interventions and protection of internal ecosystems, also for prevention of forest fires; plantation of trees and urban pavement regeneration to reduce heat wave impacts; desalination plants from renewable sources.

### (2) National Program on Resilience Increase of Natural and Semi-natural Forestry Systems

On October 11, 2017, the Department for Climate and Energy published the notice of “the national program on resilience increase of natural and semi-natural forestry systems”, through the recovery, the structural and functional restoration

of ecosystems and their service functionality and through consistent actions with the biodiversity protection and conservation (flora, fauna, vegetation and natural and rural landscape) in the protected areas crossed by the fire. In September 2018, fifteen applications were submitted and the Commission for project evaluation was appointed. Currently the selection of the eligible proposals is ongoing. The resources allocated for the purpose amount to EUR 5 million, for each initiative up to EUR 500,000. Beneficiaries of funding are public administrations managing protected areas, whose constituencies are not only affected by forest fires, but also fire risk protected areas requiring forestry biodiversity conservation actions. Those beneficiaries can implement measures for soil protection, hydrogeological risk reduction, CO<sub>2</sub> absorption, biodiversity preservation and ecosystem functionality.

### (3) Notice on Small Landslides: Hydrogeological Risk Reduction

In 2015 the Department for Climate and Energy committed EUR 44.5 million to seventeen regions to implement measures for hydrogeological risk reduction caused by landslides in mountain municipalities (Comuni montani). A total of 55 actions were financed, and in 2016, 17 procedural agreements were signed for regulated control and monitoring activities. These actions are currently in progress.

### (4) CReIAMO PA Project

In June 2018, the action L5 (Strengthening of administrative capacity for climate change adaptation) of the CReIAMO PA Project started.

The initiative is covered by the European Social Fund, under the NOP Governance and Institutional Capacity 2014 – 2020. The objective is promoting climate change adaptation knowledge at local and regional level, overcoming the territorial disparities regarding adaptation progress, facilitating the integration of adaptation in spatial planning. During 2018 four on-the-job training sessions took place, in Sardinia, Apulia, Calabria and Abruzzo.

**Further information**

<https://www.minambiente.it/bandi/interventi-di-efficienza-energetica-mobilita-sostenibile-e-adattamento-agli-impatti-ai>

[https://www.minambiente.it/sites/default/files/archivio/bandi/dd\\_CLE\\_460\\_11\\_10\\_2017.pdf](https://www.minambiente.it/sites/default/files/archivio/bandi/dd_CLE_460_11_10_2017.pdf)

<https://www.minambiente.it/pagina/15-rafforzamento-della-capacita-amministrativa-ladattamento-ai-cambiamenti-climatici>

**Contact**

[CLE-UDG@minambiente.it](mailto:CLE-UDG@minambiente.it)



# Support Program for the Climate Change Vulnerability Assessment and Adaptation Response Measures of Korean Industries

## Republic of Korea

Initiative: National | Timeline: Initiated in 2012

### Summary

A combination of top-down and bottom-up approach has been developed to strengthen the adaptation capabilities of Korean industries. Top-down approach involves climate change impact assessment(s) based on IPCC climate models and scenarios. In addition, climate change vulnerability and risk assessment using location-based evaluation indicators and tools, as well as establishment of adaptation measures through consulting and training have been used as a bottom-up approach.

### Description

The importance of adaptation to climate change as well as mitigation of climate change is globally emphasized, and the damage caused by anomaly has become serious, increasing the need to identify vulnerabilities of industries to climate change and strengthen such response capabilities.

In this regard, Ministry of Trade, Industry and Energy (MOTIE) of Republic of Korea has been implementing support program to evaluate vulnerability levels of various industrial sectors to climate change and facilitate those sectors to establish adaptation measures based on the 2nd National Climate Change Adaptation Plan (2016-2020).

Since 2012, MOTIE has been developing evaluation methodologies and indicators for the assessment of Korean industries' vulnerability and risks to climate change. MOTIE has also developed and distributed web-based evaluation tools for self-diagnosis by Korean industries on vulnerability to climate change, and provided consulting services to support the establishment of appropriate adaptation measures.

The industrial climate change vulnerability and risk assessments comprises of; (1) vulnerability assessments that evaluate the extent or nature of vulnerability to climate change; and (2) risk assessments that evaluate potential impacts and risks that Korean companies can face associated with climate change. Vulnerable and high-risk factors are derived from such assessments and as a result, MOTIE has completed the development of evaluation indicators for fifteen industries as of 2018.

The industrial climate change vulnerability assessment and adaptation diagnosis evaluation tool is an online program developed so that company workers can easily diagnose the vulnerability of the workplace to climate change and establish appropriate adaptation measures. The tool is comprised of; (1) self-diagnosis function for the assessment of vulnerability and potential risks to climate change; and (2) information sharing function of best practices for adaptation measures. Currently, over 80 companies have used the tool and MOTIE plans to continuously update the tool based on user feedbacks.

Consulting services includes the identification of vulnerable and risk factors through the evaluation of Korean industries and deriving applicable adaptation measures through the means of document review, on-site visit, and interview with relevant personals. It also includes capacity building through staff training and sharing of best practices through seminars. On 2018, MOTIE has provided consulting services for six companies and conducted staff training and seminars for a total of five times.

In addition, we have developed guidelines for

climate change adaptation for Korean industries which include information on the general status of climate change adaptation, vulnerability evaluation methodologies and indicators, and adaptation

measures. Guidelines for a total of six industries were developed in 2018 and will be expanded to all industries in the future.



Figure 1. Industrial Climate change Adaptation Tool(ICAT) Webpage



Figure 2. Climate Change Adaptation Training and Seminars



**Further information**

<http://www.koreacdm.com/icat/>

**Contact**

Mr. Dongpil Kim, [ktp0117@motie.go.kr](mailto:ktp0117@motie.go.kr)

# Establishment of Five-Year Climate Change Adaptation Measures at National and Local Level

## Republic of Korea

Initiative: National | Timeline: 3rd National Adaptation Measure to be finalized in 2020.  
3rd Adaptation Measure for Local Governments to be finalized in 2021.

### Summary

Korea's central and local governments develop and implement five-year measures and the action plans and review the progress with the aim of reducing the negative impacts of climate change by taking pre-cautious and preventive actions and enhancing the responsiveness to climate disasters.

### Description

In 2016, the 2nd National Climate Change Adaptation Measure (2016-2020) was jointly established by 20 government agencies. Subsequently, local level adaptation measures have been developed based upon the 341 targets included in the National Measure.

In 2008, the interim evaluation was conducted to assess the progress under the 2nd National Measure and improve the implementation.

In 2019, Korea launched the process for the development of the 3rd National Measure while revising the List of Climate Change Risks, setting the Climate Change Adaptation Index, and identifying priority tasks.

The 3rd National Measure will be established on the basis of the ongoing work through collaboration among relevant government agencies. Metropolitan level adaptation action plans will be set up one year after the release of the National Measure, and annual progress assessment will be conducted on the implementation. Meanwhile, local governments will also develop and implement their own region-specific adaptation plans based on the Metropolitan plan.

### Overview of the 2nd National Climate Change Adaptation Measure

#### Based on Priority Risks

Through the analysis of the risks caused by climate change, 87 priority risks\* were listed based on which the specific measures were developed.

\* Newly identified climate change risks included damage in tourism industry during winter season, malfunction in transport, etc.

#### Integrated Implementation System

The 2nd Measure was designed to have four target policy areas and one implementation basis. This structure intends to improve the weakness of 1st Measure by enhancing the linkage among target policy areas while building on the accomplishment of the 1st Measure.

#### Implementation and Assessment

The performance in the implementation of the Measure was evaluated with specified indicators by sector and by government department.

#### Vision:

**Build a society for happy and safe life by adapting to climate change**

#### Goal:

**Reduce climate change risks while taking advantage of the opportunities**

#### Four Policy Areas

##### 1) Science-based Risk Management

- Climate change observation and forecasting system

- Korea specific Climate Change Scenario
  - Climate change Impact Monitoring
  - Integrated assessment on vulnerability and provision of the information
- 2) Safe Society
- Protection of vulnerable group
  - Prevention and control of health risks
  - Targeted management of vulnerable regions and facilities
  - Disaster management
- 3) Industrial Competitiveness
- Adaptation capacity building and infrastructure expansion
  - Development of adaptation technologies
  - Promotion of business expansion to overseas market
- 4) Sustainable Natural Resource Management
- Conservation and management of biological species
  - Restoration and protection of habitats and ecosystems
  - Management of climate change risks on ecosystems
- Domestic and international Implementation Basis**
- Promote Substantial Policies
  - Encourage community-based activities
  - Strength International Cooperation
  - Awareness raising and Education

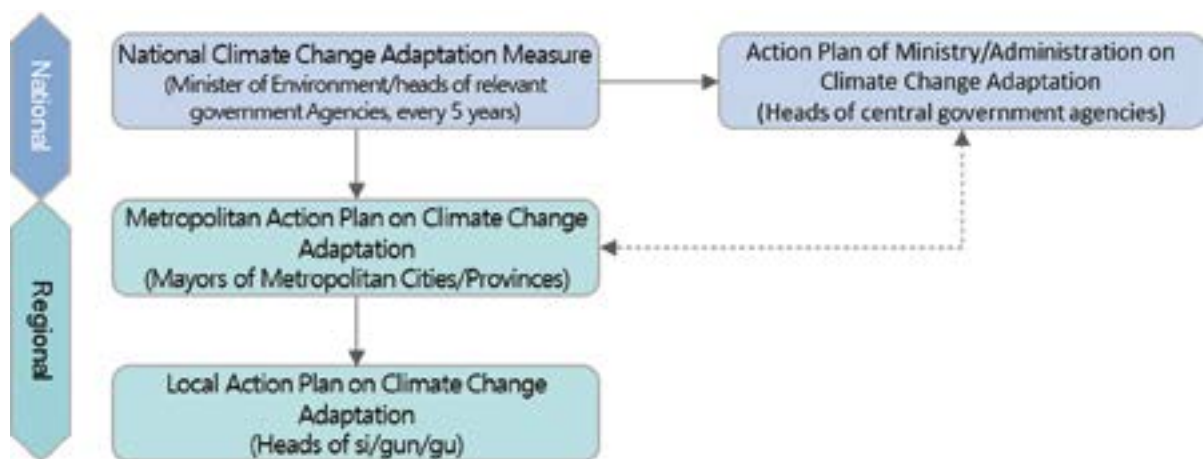


Figure: Climate Change Adaptation Measure: Implementation Structure

+

**Further information**  
[www.kaccc.kei.re.kr](http://www.kaccc.kei.re.kr)

**Contact**  
 Lee Hyun-Joon, [tocexpert@korea.kr](mailto:tocexpert@korea.kr)

# Improvement of the Vulnerabilities to Heatwave

## Republic of Korea

Initiative: National | Timeline: Conduct in 2019

### Objective

In the long run, extremely heat weather (heatwave) during summer caused by climate change is expected to be more frequent and common. This may limit the effectiveness of the measures currently in place such as heat caution and warning. In order to address the intensifying heatwave damages, proactive measures need to be taken utilizing temperature-lowering technologies for public facilities.

This Program aims at developing a standard heatwave adaptation model by learning from best practices home and abroad and utilizing a broad range of available technologies. Once the standard model takes shape, promotional and technical support will be provided for the dissemination from pilot communities to other regions.

### Progress

- Conducted a survey on demand for pilot project for 2019 (9 metropolitan cities and provinces submitted 30 project proposals.) (4–17 Sep 2018)
- Selected two pilot projects through expert assessments (Seo-gu, Gwangju and Kimhae-si, Gyeongnam) (27 Sep 2018)
- Conducted field survey to project sites and held meetings among relevant institutions (10–13 Dec 2018)

### Project Outline

**Title:** Pilot project to address the vulnerability to heatwave caused by climate change

**Expectation:** To develop an effective and applicable “standard project model for heatwave adaptation” utilizing heatwave-proof technologies

**Procedure:**

- Ex-post survey
- Project planning and implementation design
- Installation
- Operation and monitoring
- Standard project model

**Responsibility:**

- (KME) Project coordination, development of standard project models, and performance evaluation
- (Local Government) Project design, installation, organization of community-based governance\*, and monitoring
  - \* local experts, research institutes and civil society
- (Korea Climate Change Adaptation Center) General management and support and project consulting.

**Draft Project Plans:**

**<Kimhae-si, Gyeongnam>**

- (Objective)** Link climate change adaptation efforts to urban rehabilitation

- **(Site)** Jangyu-ro, Mugyeo-dong, Kimhae-si, Gyeongnam\*  
\* Previously designated as the site for urban rehabilitation new deal in 2017 by MOLIT (2018-2022, KRW 28 billion)
- **(Cost)** KRW 1,500 million (Central 750 million, Local 750 million)
- **(Scope)** Cooling fog system 300m, Cool roof 13,500m<sup>2</sup>, Cool pavement 11,150m<sup>2</sup> (road 9,750m<sup>2</sup>, walking trail 1,400m<sup>2</sup>), Creation of climate forests

<Seo-gu, Gwangju Metropolitan City>

- **(Objective)** Promote the linkage between the work to improve the city's water cycle and heatwave responses

- **(Site)** Gwangcheon-dong, Seo-gu, Gwangju (near the Gwangju Bus Terminal)
- **(Cost)** 1,500 million (Central 750 million, Local 750 million)
- **(Scope)** Clean (cooling) road 550m, Cooling fog system 300m

**Future plan:**

- Basic plan (Feb 2019), implementation design (Mar 2019), Installation (Jun 2019)
- Operation and monitoring (Jul–Aug 2019)
- Development of a standard project model (Dec 2019)



대구 콜린(쿨링)로드



대구 버스정류장 쿨링포그



창원시청사 쿨루프



Further information

Contact

Lee Hyun-Joon, [tocexpert@korea.kr](mailto:tocexpert@korea.kr)

# Other Adaptation Activities in Republic of Korea

## Republic of Korea

Initiative: National | Timeline: Conduct in 2019

### (1) Local Adaptation Action Plan

Comprehensive measures include directions and strategies for the changes by climate change and adaption sector-specific action plans. The 33 municipals, the pilot cases of the 1st plan has established the action plans, which will soon to be implemented.

#### 1st Adaptation Plans at local governments

- Regional (17/17) : 2012- 2016
  - \* Sejong-si : 2015-2019
- Municipal (224/226): 2013–2016 (The 33 municipals has established the plan first as a pilot case.)

#### 2nd Adaptation Plans at local governments

- Regional (16/17) : 2017–2021
  - \* Excluding Sejong-si
- Municipal (33/226): The 33 municipals, the pilot cases of the 1st plan has established the action plans and soon to be implemented.

### (2) Support for the Key Public Corporations and Organizations Managing Infrastructure

The aims of this initiative were to; (1) support the initiation of the legislation of public sector

climate change adaptation reporting; (2) enhance adaptation reporting system and improve its effectiveness; (3) strengthen the effectiveness of public institution's policy enforcement; and (4) enhance awareness of adaptation capacity of public institutions and adaptation to climate change.

Outcomes from this initiative are the following;

- 48 organizations have been selected as they are exposed to bigger impact of climate change (ex. Korea Electronic Power Corporation, Korea National Oil/ Coal Corporations)
- 31 organizations have completed their adaptation plans and 4 organizations are developing plans.

### (3) Korea Adaptation Center for Climate Change

KACCC was established on July 1, 2009 to; (1) support nationwide climate change adaptation policies development and implementation; (2) establish and manage global and regional climate change adaptation networks; (3) develop climate change vulnerability and risk assessment frameworks and tools; and (4) raise public awareness of climate change adaptation.

The items on the operation of KACCC was legalized by "the Clean Air Conservation Act" (revised on May, 2012)



Further information

Contact

Lee Hyun-Joon, [tocexpert@korea.kr](mailto:tocexpert@korea.kr)





# Coastal Watersheds Conservation in the Context of Climate Change Project (also known as C6 Project)

## 🇲🇽 Mexico

Initiative: National | Timeline: 2014–2019

### Summary

The “Coastal Watersheds Conservation in the Context of Climate Change Project” (C6) aims to promote integrated management of selected coastal basins to conserve their biodiversity, contribute to climate change mitigation and adaptation, and strengthen the sustainable use of their natural resources. The overall objective is to recover watershed functionality while securing the provision of ecosystem services. In this Project, the National Forestry Commission (CONAFOR) supports mitigation of climate change impacts through the implementation of activities focused on reducing deforestation, forest degradation and the promotion of sustainable use of forests. It does so by delivering Payments for Environmental Services (PES) in key selected areas while also investing resources from the Biodiversity Patrimonial Fund (FPB) to support those landowners who have not been benefited by the PES program.



### Description

The C6, started operations in 2016 and it is due to end in 2019-, seeks to implement a vision of integrated coastal watershed management plan focused on 16 coastal basins in two regions of the country (Gulf of California California and Gulf of Mexico) which, according to climate change projections, will be strongly impacted by this phenomena. The 16 basins were selected by their high biodiversity value, their presence in a federal Natural Protected Area and their potential to be areas where collaborations among four main institutions can develop work.

- The National Commission of Protected Natural Areas (CONANP) shares its experience in the management of Natural Protected Areas in the basins of the Gulf of Mexico and the Gulf of California.
- The National Forestry Commission collaborates with its experience in the management of forest areas and building capacities with local communities through Payment for Environmental Services.
- The National Institute of Ecology and Climate Change (INECC) provides basin models to establish priority sites and design comprehensive watershed management action plans. It also trains local communities in the monitoring (water, biodiversity and soil) and use of these tools.
- The Mexican Fund for the Conservation of Nature (FMCN) is a private institution that has broad relations with local actors within and outside the conservation and environmental field, and has extensive experience managing financial resources implemented for conservation.

The C6 Project is supported by GEF funds, counterpart funds, and matching endowment resources. It currently impacts 3,810,825 hectares of which 67% are protected areas.

The project has five components. *Component No. 1, Creation and consolidation of Protected Areas*, is implemented by CONANP and FMCN, following the model developed in earlier GEF-funded projects (SINAP I and II) which finances biodiversity conservation activities included in operational plans. *Component No.2, Promotion of sustainability within watersheds*, supports conservation of forests fragments prone to deforestation or under high pressure of land use change. Through the payments for environmental services, CONAFOR supports areas of high potential for mitigation and adaptation to climate change. In this sense, FMCN selects sub-projects for sustainable land use and forest management with GCF funds administered by FMCN and CONAFOR provides counterpart funds. INECC leads *Component No. 3, Enabling adaptive management by strengthening monitoring capacities*, responsible for engaging local communities, and coordinating with national and state agencies to collect and manage watershed health data. *Component No. 4, Innovative mechanisms for inter-institutional collaboration and the promotion of social participation*, focuses mechanisms for inter-institutional collaboration, promoting social participation, monitoring and evaluation, and strengthening channels for coordination and learning among different sectors. It also supports

broad participation in management action plans in selected basins. In addition the above mentioned components address carbon stock enhancement as a crosscutting issue. Finally, *Component No. 5* includes project management and operational costs for the acquisition of goods and services as well as the, provision of technical assistance and necessary training. This component is supported by FMCN and CONAFOR, the project's Technical Committee, and two regional funds for the execution and supervision of the project (Gulf of Mexico Fund, A.C. and the Fondo Noroeste or FONNOR, A.C in the Gulf of California).

It is to mention that requested GEF funds include endowment funds to be invested in the existing Biodiversity Fund at CONAFOR with BANORTE as the trustee, and in an FMCN investment account for the Fund for Coastal Watersheds (FCC). FMCN manages non-endowment GEF funds for all five components of the project, with support from the two regional funds that provide technical and administrative oversight in the selected areas.

Finally, the preliminary results of the final independent evaluation of C6, reveal positive results in qualitative terms: mobilization, alignment, training, coordination, and monitoring of the different actors involved in the project.. In this regard, a high number of interviewees perceive C6 as a milestone among environmental projects in Mexico, especially for the effectiveness of inter-agency collaboration.



#### Further information

<http://www.c6.org.mx/>

#### Contact

Taryn Sanchez Montesinos, [taryn.sanchez@conafor.gob.mx](mailto:taryn.sanchez@conafor.gob.mx)

# National REDD+ Strategy 2017–2030 (ENAREDD+)

## Mexico

Initiative: National | Timeline: 2017–2030

### Summary

The National REDD+ Strategy 2017-2030 (ENAREDD+) is a public policy instrument with strategic lines that simultaneously promotes climate change mitigation and adaptation actions through an integrated land management approach, which promotes a low-carbon Sustainable Rural Development (SRD) in rural landscapes with forest activities. In this regard, REDD+ activities in Mexico must be carried out trying to address the direct and underlying causes of deforestation and forest degradation, ensuring the respect and addressing environmental and social safeguards, by fostering a proper coordination amongst federal, state, and municipal governments. This will promote the formulation of the appropriate incentives for the people who own and use the forest lands.

### Description

The forest policy that CONAFOR has promoted is mainly focused on sustainable forest management, seeking to permanently improve the social and economic conditions of the people living in our country's forests, which at the same time is highly effective for conservation and protection of the ecosystems. This forest policy also recognizes the important role of forests in climate change mitigation and adaptation; this is why we consider REDD+ an important instrument to address climate change.

In this regard, REDD+ is a central part of Mexico's adaptation strategy through actions that involve ecosystem-based adaptation that strengthen actions of ecosystem protection and restoration while setting a goal of attaining a deforestation rate of 0%.

The approach for REDD+ in Mexico, considers the integrated management of the territory, the alignment of national policies, generation of synergies and inter-sectorial coordination and collaboration.

The National REDD+ Strategy or ENAREDD+ was developed in a participatory manner, through widespread participation from civil society and various stakeholders and sectors in the country, It represents a planning instrument that highlights the importance of promoting public policies that favors sustainable rural development, incorporating and strengthening community forest management and biodiversity conservation as transversal actions. Its objective is to achieve the reduction of emissions from deforestation and forest degradation, and the conservation and enhancement of carbon stocks, by promoting a sustainable rural development and guaranteeing the implementation of social and environmental safeguards.

The ENAREDD+ considers the following components for its implementation:

1. Public policies and legal framework: to promote the mainstreaming, coordination and coherence for the integrated implementation of programs and policies in the territory.
2. Financing schemes, with the objective of designing and establishing a flexible, gradual and efficient financing scheme that facilitates the sustainability of the social and environmental benefits in the long term.
3. Institutional arrangements, to guarantee institutional mechanisms and structures with sufficient capacities at the appropriate scales, among federal, state and municipal institutions.
4. Development of the national reference level, that allows the disaggregation of the information at

subnational levels with the aim of assessing the performance and results of the implementation of REDD+ measures.

5. Development of a robust and transparent monitoring, reporting and verification system, that helps to follow up the effectiveness of the actions and policies.
6. Integration of a National Safeguards System and information safeguards systems to guarantee their compliance.
7. Participation, communication and transparency to guarantee social participation, transparency and accountability between communities, social organizations, and government to achieve the objectives of REDD+.

## Mexico Strengths for REDD+

- Mexico has a solid legal framework, including a Climate Change General Law, a General Law for Sustainable Forest Development, and a Sustainable Rural Development Law.
- Long experience in sustainable forest management through programs such as payments for environmental services, community forestry and sustainable forest management, which have produced successful results in various parts of the country.
- A clear and well-established regime of ownership and land tenure, as well as tools for solving agrarian and land tenure conflicts, which are relevant for the development and implementation of the Initiative. The unique land tenure system of communal property, the very diverse social mosaic in the country, and the large proportion of the forestland under collective ownership by indigenous and local communities provide a firm basis for community-based landscape approach.
- A National REDD+ Strategy (ENAREDD+) widely consulted.
- Significant progress on defining the National Safeguards System (SNS) and Safeguards Information System (SIS).

- A robust and transparent National Monitoring, Reporting and Verification System (SNMRV).
- A National Reference Emission Level submitted to the UNFCCC in 2014 and technical assessment by the UNFCCC roster of experts in 2015.
- ENAREDD+ is part of Mexico's commitments established in the National Determined Contribution (NDC), which includes: (1) achieving a zero rate of deforestation by 2030, and (2) a commitment to reduce by 22% GHG in the USCUS sector in 2030.



Figure 1. Integrated Land Management Approach

## Progress

Mexico's government has undertaken actions moving towards the implementation of REDD+ by:

- Promoting institutional arrangements to strengthen coordination between forest and agriculture sectors to foster sustainable rural development.
- A land governance model that promotes participation of various stakeholders in platforms operating at different levels in a region. The overall principle is to set collaborative actions in order to obtain emission reduction results.
- Actions specifically designed to address the needs of the region on matters of forests and climate change in five states of Mexico: Campeche, Yucatán, Quintana Roo, Chiapas y Jalisco. These states have developed Investment Programs that identify the causes of deforestation and degradation in their jurisdiction while having established medium-term activities to address them.



### Further information

<http://www.enaredd.gob.mx/>

### Contact

Taryn Sanchez Montesinos, [taryn.sanchez@conafor.gob.mx](mailto:taryn.sanchez@conafor.gob.mx)

# The uMngeni Resilience Project (URP)

## South Africa

Initiative: National | Timeline: 2015–2020

### Summary

The overall objective of the uMngeni Resilience Project is to reduce the vulnerability of communities and small-scale farmers in uMgungundlovu District Municipality to the impacts of climate change. This is to be achieved by increasing climate resilience and adaptive capacity by combining traditional and scientific knowledge in an integrated approach to adaptation. This is being enabled through implementing a suite of complementary gender-sensitive project interventions, focusing on: i) early warning and ward-based disaster response systems; ii) ecological and engineering infrastructure solutions specifically focused on vulnerable communities, including women; iii) integrating the use of climate-resilient crops and climate-smart techniques into new and existing farming systems; and iv) disseminating adaptation lessons learned and policy recommendations, to facilitate scaling up and replication.

The project is comprised of four components which covers early warning system; climate proof settlement; climate resilient agriculture and capacity building and learning. The multi hazard early warning system component ensures that Hydro-climatological, lightning and fire information and warnings are supplied timeously in an appropriate format for direct use by communities during their agricultural and other practices and relevant disaster response officials. This will enable proactive response to flood, storm and fire in the district. The location (a School) of the system provides a capacity building component for the learners and an opportunity for incorporation into the curriculum due to the simplified context of the system.

The Climate-proof settlements component ensures that critical settlement infrastructure, community facilities and homes are strengthened and stabilised to buffer vulnerable communities against anticipated climate-induced stresses in rural communities. The ecological infrastructure is also enhanced to reduce the risks to disaster through implementation of Ecosystem based Adaptation initiatives.

The Climate-resilient agriculture promote investments in climate-resilient agricultural practices and physical infrastructure at the farm level to mitigate impacts of climate variability and change, for small scale farmers. Whilst the capacity building and learning involves the sharing of lessons in the three components of the projects, in this component there will be policy recommendations to facilitate the scaling up and replication of the project in other areas.

### Description

Multi-hazard early warning system detectors is in place which include the flood detectors, agrometeorological early warning system, as well as the lightening early warning system. The agrometeorological Early Warning System has been installed and the information generated through the system, is being disseminated to farmers who are advised to plant early, with those planting late advised to use early maturing varieties. Furthermore, a lightning Early Warning System is operational to provide early detection for the protection of the community. There is also a Flood forecasting early warning system to provide information on the flood hotspots areas.

A wetland/grassland rehabilitation plan has been developed and implemented as part of the ecological infrastructure programme. The Vulnerability Assessment of physical infrastructure in the target areas has been undertaken, assets have been identified for strengthening. These are 300 households, stormwater channels and pedestrian bridges in Nhlazuka. The identified project beneficiaries are also being trained and Implementation of interventions is underway. About 575 farmers are being supported to grow a number of climate-resilient crops in climate smart ways. Crops include Bambara groundnut, cowpea,



Image1: Capacity building on Climate Change related initiatives

sorghum and soybeans, as well as early maturing varieties of maize. A number of Co-ops have been established, which have been linked to Local Economic Development (LED) offices as well as to markets.

A number of capacity building initiatives (training) have been provided to project stakeholders (including community members, local champions, councilors, traditional authorities and officials) on selected climate change related topics as well as on mainstreaming climate change within municipal planning documents.



Image 2: A combination of agricultural and climate resilient settlements



#### Further information

#### Contact

Mr Tlou Ramaru, [tramaru@environment.gov.za](mailto:tramaru@environment.gov.za)

# Ecological City Project

## Turkey

Initiative: National | Timeline: 2010–2030

### Summary

The Gaziantep Metropolitan Municipality first initiated its efforts on combatting climate change in 2011 with “Gaziantep Climate Change Action Plan - The Energy and Greenhouse Gas Emission Profile, Pre-Action Plan and Implementation Strategy. Subsequently, in 2016, “The Climate Change Action Plan” was prepared and to develop regional sustainable economy, priority actions for the reduction of greenhouse gas emissions in the period of 2016-2023 were identified.

In December 2017, the Gaziantep Metropolitan Municipality signed the Covenant of Mayors that carries a common vision of contributing to maintaining the average global warming below 2°C. With regard to combatting climate change, the Covenant of Mayors mainly aims to increase in energy efficiency and utilization of renewable energy resources for the signatories.

The Gaziantep Ecological City Project has been designed to create a sustainable living space which has energy efficient buildings, renewable energy, green transportation, combined use of fields, efficient waste and water management, protection of biological diversity, social and cultural facilities.

The project contributes to building the identity of Gaziantep as “brand settlement built on the basis of ecological city approach”. In this context, the ecological city approach will be accomplished through this project with the principles of climate resilience, respecting nature, being ecofriendly, energy and water efficiency and thus reducing greenhouse gases and pollution originating from residential areas. Project is going to be conducted by public and private sector partnership with approximately investment of 15,000,000,000 euros.

### Description

Gaziantep Ecological City Project has been designed in order to develop an ecological settlement model on a field of 2,900 hectares, which is predicted to host 200 thousand people.

The main aim of the project is to design an authentic brand that competes on a global scale with alluring characteristics, which is energy efficient, utilizing renewable energy, controlling urban pressures on environment, realizing agricultural potential and other potential at the local level, improving quality of life and being a model for rural settlements.

Within the scope of the project, strategies and targets have been developed regarding the natural environment, structures located or to be located in the project’s field, socio-economic structure, improvement of the quality of urban life, transportation lines, agricultural and recreation fields, green spaces and urban infrastructure.

The ecology-based branding process by realizing the spatial transformation on a socio-economic basis includes all existing and potential actors of the city. This process consists the projects of infrastructure, waste management, energy generation, awareness raising, cultural centers, alternative living spaces as well as local and international activities. The sustainability of the project will be ensured via coordination units established in the municipality in accordance with the visions specified in the plan. Within this scope, relevant municipalities, nongovernmental organizations, private sector, central government, international institutions, international funds and local communities are represented in the organizational structure.

Key elements of the project are:

- To create an authentic urban brand on the basis of ecological planning.
- To make Gaziantep a destination center by integrating the city into ecological cities network at the global level.
- To tackle climate change via promoting the utilization of renewable energy resources.
- To utilize the renewable energy systems for street and district illuminations.
- To utilize solar energy in the ecological living park, the most suitable renewable energy resource for Gaziantep.
- To ensure infusion of rain waters with the ground waters via coating the firm grounds - apart from the roads and pavements - with pervious surfaces.
- To control rainwater and to construct green roofs.
- To design rainwater store reservoirs in the landscapes in the field.
- To collect rainwater from firm grounds with separate drainage piping.
- To control rainwater via cultivating vegetable gardens in sloping fields in order to prevent potential flood disasters.
- To plant forests besides protecting the existing trees.
- To support organic cultivation by leaving spaces in public lands.
- To build settlements which are suitable for the natural environment of the field and to benefit from sun and winds.
- To prevent urban development that put pressure on agricultural fields and natural thresholds.
- To reduce greenhouse gas emissions by constructing green corridors and zones, rehabilitating the deteriorated ecological fields, ensuring the preservation of the valley and regenerating its enclosure.
- To protect drinking water resources, the forests, protected areas, wetlands, archeological sites and fertile agricultural soils which are all under the pressure of urban development.
- To reduce the energy consumption by taking the natural environment into consideration during site selections for buildings.

- To realize the existing agricultural potential in a way that provides maximum economic benefit and ensures sustainability.
- To develop a transportation plan that promotes public transportation, pedestrian and bicycle transportation and human-friendly systems.
- To plan urban infrastructure areas in a healthy, efficient, active way that minimizes the harm to nature.



In accordance with these key elements, a master plan study that includes qualitative residential areas, business areas, trade centers, tourism areas, vast green areas, ordained technical and social infrastructures (education, culture, health, recreation and etc.) and thus, qualitative living spaces is projected. The Gaziantep Ecological City addresses the following points.

1. Ecological residential pattern
  - Eco friendly construction
  - Energy efficient buildings
  - Waste Management
  - Water preservation
2. Urban Transportation
  - Pedestrian zones
  - Bicycle lanes
  - Park fields
  - Road space landscapings
  - Road coatings
  - Public transportation
3. Open Spaces and Green Spaces
  - Parks and playgrounds
  - Lot spaces between the neighbouring groups
  - Building gardens
4. Sustainable urban structure
5. Urban art and information centers



Further information

Contact



# The National Infrastructure Commission and the National Infrastructure Assessment

## United Kingdom

Initiative: National | Timeline: Every 5 years, first assessment published in 2018

### Summary

The National Infrastructure Commission was established in 2015 to provide impartial, expert advice and make independent recommendations to the government on economic infrastructure. The Commission makes recommendations to government on the UK's long-term infrastructure needs to support sustainable economic growth across all regions of the UK, improve competitiveness and improve quality of life. The first National Infrastructure Assessment was published in July 2018. The Commission used a new approach to make an evidence-based case for increasing resilience from both flooding and drought, identifying investments and policy actions that are needed now to make communities resilient for the future.

### Description

The government has given the National Infrastructure Commission a key role in independently defining the nation's long-term infrastructure needs, prioritizing and planning, and testing value for money, to ensure that investment is properly targeted to deliver maximum benefit. A central part of the Commission's work is the National Infrastructure Assessment, an in-depth assessment of the UK's major infrastructure needs on a 30-year time horizon. The first National Infrastructure Assessment looked at the United Kingdom's future economic infrastructure needs up to 2050 and makes key recommendations for how to deliver new transport, low carbon energy and digital networks, how to recycle more and waste less, and how future infrastructure should be paid for. The government gave the Commission a long-term funding guideline

for its recommendations of 1.2% of UK GDP. Where infrastructure is funded by the private sector, and the costs of any recommendations will ultimately be met by consumers, the Commission is also required to provide a transparent assessment of the overall impact on bills. This ensures that the recommendations made by the commission are implementable and affordable.

In the first National Infrastructure Assessment, the Commission gauged public expectations around flood and drought resilience, and considered economic, environmental and social impacts for the counterfactual of not providing resilience. This analysis demonstrated the need for increasing resilience from drought and flooding, enabling the Commission to make evidence-based policy and investment recommendations:

- The Commission recommended that government should set out a strategy to deliver a nationwide standard of resilience to flooding, supported by rolling funding, planning for all sources of flood risk whilst ensuring that new development is resilient to flooding and does not increase risk elsewhere.
- The Commission also recommended that government, working with the regulators and water companies, ensure the capacity of the water supply system in England is increased to boost the country's resilience to drought whilst also managing demand and reducing leakage.

The government has committed to respond to all the recommendations made by the Commission, setting out clearly any further work required to take them forward.

In October 2018, the Chancellor of the Exchequer asked the National Infrastructure Commission to carry out a further study examining the resilience of the UK's economic infrastructure. In this study, the Commission will consider what action government should take to ensure that infrastructure can cope with future changes, disruptions, shocks and accidents. The study, provisionally reporting in spring 2020, builds on the Commission's first National Infrastructure Assessment and will form the basis for resilience to be addressed in future assessments.

**Further information**

[www.nic.org.uk](http://www.nic.org.uk); [www.nic.org.uk/resilience](http://www.nic.org.uk/resilience);  
<https://www.nic.org.uk/assessment/national-infrastructure-assessment/>

**Contact**

# Adaptation Reporting Power (ARP)

## United Kingdom

Initiative: National | Timeline: 2019–2021

### Summary

The Adaptation Reporting power – introduced under the UK Climate Change Act in 2008- helps ensure that organisations such as infrastructure providers and public bodies are taking action to adapt to climate change, by reporting on how they are addressing current and future climate impacts. These reports also provide vital intelligence on the resilience of key sections of society.

### Description

It is essential that key national stakeholders are engaged in building climate resilience. The UK's Climate Change Act (2008) provides Government with the power (known as the 'Adaptation Reporting Power'(ARP)) to require public bodies and infrastructure operators that provide key services, to report on what actions they are taking to address climate impacts.

ARP's primary goal is to support the ongoing integration of climate change risk management into organisations' work. Secondly, the reports contribute to government and wider public understanding of the level of preparedness of

key sectors to climate change, at a sectoral and national level.

The UK Government's strategy for the third cycle of Adaptation Reporting (2019-2021) was published together with the second National Adaptation Programme in July 2018. It illustrates the contributions from a range of reporting organisations in infrastructure sectors, and reporting public bodies, including those responsible for water, energy, transport, communications, environment, fisheries, heritage, health and finance, and how they are addressing key risks in the UK's second Climate Change Risk Assessment (published in 2017). These include cascading impacts due to interdependencies.

Since 2009 there have been two rounds of reporting under ARP. Over 80 organisations reporting during the second round, which ran between 2013 and 2015. Reports are publicly available: <https://www.gov.uk/government/collections/climate-change-adaptation-reporting-second-round-reports>

The third round of reporting opened in January 2019. So far 90 organisations have confirmed their participation.



#### Further information

<https://www.gov.uk/government/publications/climate-change-second-national-adaptation-programme-2018-to-2023>

<https://www.gov.uk/government/publications/climate-change-adaptation-reporting-third-round>

<https://www.gov.uk/government/collections/climate-change-adaptation-reporting-second-round-reports>

#### Contact

Climate Adaptation Policy team, [climate@defra.gov.uk](mailto:climate@defra.gov.uk)



# Climate Change Adaptation Resource Center (ARC-X)

 **United States**

Initiative: National | Timeline: Ongoing

## Summary

A major focus of EPA's work on climate adaptation is the Agency's Climate Change Adaptation Resource Center (ARC-X). This is an innovative, online system designed to help all 40,000 communities across the nation anticipate, prepare for, and adapt to the impacts of climate change. The EPA's ARC-X is a unique system ([epa.gov/arc-x](http://epa.gov/arc-x)). It supports local government officials, such as mayors and county executives, whether they have extensive experience and expertise in dealing with the impacts of climate change or are just beginning to meet those challenges. The ARC-X is also the portal through which decision makers can access all of EPA's resources on climate adaptation.

## Description

PA's Adaptation Resource Center (ARC-X) is an interactive resource to help local governments effectively deliver services to their communities even as the climate changes. Decision makers can create an integrated package of information tailored specifically to their needs. Once users select areas of interest, they will find information about: the risks posed and the issues of concern; relevant adaptation strategies; case studies illustrating how other communities have successfully adapted to those risks and tools to replicate their successes; and EPA funding opportunities.



### Further information

<https://www.epa.gov/arc-x>

### Contact

Dr. Joel Scheraga, [Scheraga.Joel@epa.gov](mailto:Scheraga.Joel@epa.gov)



# Room for the River

## Netherlands

Initiative: National | Timeline: Initiated in 2006

### Summary

The goal of the Dutch Room for the River Programme is to give the river more room to be able to manage peak discharge volumes of the river. Measures are taken to give the river more space for example by lowering the flood plain, dyke relocation and developing high water channels, leading to lower water levels at peak discharge. In this way, more natural processes in the river system are reintroduced (building with nature). Moreover, the measures are designed in such a way that also other functions profit (such as sand and gravel extraction, shipping) and/or they improve the quality of the immediate surroundings (nature, housing, leisure). In the designation of the measures, also the future expected increase in peak discharge volumes has been taken into account (adaptation). The Room for the River programme of the Netherlands was also part of the Action Plan on Floods of the International Commission for the Protection of the Rhine. It aims at improving flood protection by 2020 and to extend and enhance the area of floodplains of the Rhine.

These national and international approaches of innovative river management to manage high water levels (at peak discharge volumes) are worth sharing with other countries to prevent floods or to conserve water.

### Description

Throughout the centuries, everywhere the natural space for the rivers has become only more limited. The area of floodplains and other adjacent areas, including the number of parallel high water channels, has decreased significantly. River normalisation, including the construction of dams, has altered the natural processes in rivers. In the

delta of rivers, dikes have been built alongside the river, also reducing the area of flood plains for significantly. As a result of that, also the natural process of sedimentation of sand and clay was disturbed. Often the level of the land behind the dikes is dropping (due to dewatering the soil, which contains peat and/or clay). At the same time, the land behind the river embankments is becoming more heavily used and populated. This often results in an increasing risk of economic damage and casualties in case the dikes breaches at high water levels.

In 2002, after a near flooding of the central river area in 1993 and 1995, the Dutch Cabinet decided to start a new approach to river flooding and to give the rivers more space. It ordered to create a package of measures called the Spatial Planning Key Decision 'Room for the River'. The main objectives are flood protection by 2015 and improved overall environmental quality in the river basin region.

A characteristic feature of the Room for the River programme is that a future increase in the peak volume of river discharge due to climate change is anticipated. Much experience is gained with reintroducing natural processes in river systems (building with nature). In addition, the governance of the programme was innovative. Businesses, inhabitants, non-governmental organisations where involved in the planning of measures at an early stage. District water boards, provinces and municipalities were closely involved, and often participated in the realisation of the projects.

#### *Planning studies and participation, how did it work in the Netherlands?*

The Spatial Planning Key Decision Room for the River (SPKD) contained a general description of the types of measures, the locations for most of the measures and the expected effects. Before a

measure could actually be implemented, it had to be worked out further in a planning study in which the exact location and details were determined. An environmental impact assessment was required for many of the measures, giving local residents, authorities and other stakeholders the chance to have their say. Then, depending on the type of measure, permits had to be obtained for the excavation and construction work. One of the public authorities involved took charge of each measure; this was a municipal, water or provincial authority or Rijkswaterstaat. The Ministry of Infrastructure and Water Management also created a project organisation to oversee the work. This organisation ensured that the objectives of safety

and environmental quality are achieved and that deadlines and budgets are met.

The International Commission for the Protection of the Rhine (ICPR) adopted the 'Action Plan on Floods' in 1998. The Netherlands, Germany, Luxembourg, France and Switzerland aimed with his action plan to improve flood protection by 2020 and to extend and enhance the area of floodplains of the Rhine. The objectives for 2020 are that damage risks are to be reduced by 25 per cent, that extreme flood stages downstream the impounded sections are to be reduced by up to 70 cm and that the periods of flood forecasting will be distinctly prolonged in order to avoid potential damages.

## How we are making room for the river



### Deepening summer bed

The river bed is deepened by excavating the surface layer of the river bed. The deepened river bed provides more room for the river.



### Water storage

The Volkerak-Zoommeer lake provides for temporary water storage when exceptional conditions result in the combination of a closed storm surge barrier and high river discharges to the sea.



### Dyke relocation

Relocating a dyke land inwards increases the width of the floodplains and provides more room for the river.



### Strengthening dykes

Dykes are strengthened in areas in which creating more room for the river is not an option.



### High-water channel

A high-water channel is a dyked area that branches off from the main river to discharge some of the water via a separate route.



### Lowering of floodplains

Lowering (excavating) an area of the floodplain increases the room for the river during high water levels.



### Lowering groynes

Groynes stabilise the location of the river and ensure that the river remains at the correct depth. However, at high water levels groynes can form an obstruction to the flow of water in the river. Lowering groynes increases the flow rate of the water in the river.



### Depoldering

The dyke on the river side of a polder is relocated land inwards and water can flow into the polder at high water levels.



### Removing obstacles

Removing or modifying obstacles in the river bed where possible, or modifying them, increases the flow rate of the water in the river.



### Further information

<https://www.ruimtevoorderivier.nl/english/>;  
<https://www.iksr.org/en/icpr/rhine-2020/action-plan-on-floods/>

### Contact

Willem Jan Goossen, [willem-jan.goossen@minienw.nl](mailto:willem-jan.goossen@minienw.nl);  
Martien Beek, [martien.beek@minienw.nl](mailto:martien.beek@minienw.nl)



# Protected Areas Management and Climate Change

## Spain

Initiative: National

### Summary

Inclusion of climate change adaptation actions has become a key component of management plans of protected areas (PAs) in Spain.

The Spanish government has undertaken the task of defining the framework under which climate change considerations are duly taken into account so that management plans incorporate specific actions to enhance protected areas capabilities to adapt to climate change while strengthening their resilience to the effects of climate change. This task has two complementary sides.

On the first side, the approach taken by the Spanish government has been characterized by the active involvement of stakeholders and by its gradual implementation through pilot projects in order to test the measures identified to promote climate change adaptation in protected areas.

On the second side, a proposed roadmap to establish an Action Plan for adapting PAs (specifically Natura 2000 areas) to climate change has been drafted, and a working group was set within the official coordination body. Both initiatives bring together public policies of climate change and protection of natural areas and contributes to accomplishing Sustainable Development Goals 13 and 15.

### Description

#### CONTENT OF THE FIRST INITIATIVE

This initiative has been developed in two stages:

1. The first stage has been devoted to examine the methodology to incorporate climate change adaptation considerations in the planning and management of protected areas.

2. The second stage of the initiative consisted in applying the guidelines contained in the manual to seven pilot management plans in protected areas.

#### 1st stage: Examining the methodology

To this end, within the framework of the Programme Society and Protected Areas, sponsored by EUROPARC-España, a handbook (manual) for incorporating climate change concerns in the planning and management of protected areas has been drafted and made available for protected areas managers across Spain.

The elaboration of the manual has been developed through the implementation of three parallel activities:

- 1) A review of available scientific literature on climate change and protected areas was conducted.
- 2) A survey was made among protected areas managers and researchers (70 managers and 85 researchers) with the aim of getting information on how climate change is currently considered in protected areas management plans.
- 3) Sample of 60 management plans of protected areas was carefully examined to determine to what extent climate change was considered.

Finally, four workshops were held to facilitate the exchange of information among managers and researchers, who had the opportunity to comment on the different drafts of the manual that were produced. They also contributed to the final version of the manual by sharing examples of good practices, compiling different climate change adaptation actions currently implemented and formulating for properly including climate change in management plans.

The manual identified five general principles to develop and reinforce protected areas capacity to adapt to climate change, namely:

- Considering a global and long term perspective in which protected areas and the territory they lie in are considered a single functional unit.
- Managing uncertainty by continuously researching and monitoring climate change effects in protected areas.
- Considering change as a process always present in the management of protected areas.
- Developing new governance tools for a new context in which a greater number of actors play a more prominent role.
- Securing a stronger popular support and awareness about the effects of climate change.

### 2nd stage: Applying the guidelines

The lessons learned through this implementation of the guidelines were also included in the final version of the manual.

### CONTENT OF THE SECOND INITIATIVE

This initiative has been developed in two stages:

3. The first stage includes an analysis of the potential impact of climate change in key elements in PAs and the development of a coordinated roadmap.
4. The second stage seeks to extend the concepts and toolkits to the rest of the stakeholders and specially PA managers.

### 1st stage: Initial analysis and roadmap

The need for coordination was a key driver for developing a solid initial analysis and an initially agreed roadmap for developing an Action Plan for Adapting PAs (especially Natura 2000 areas) to climate change. So a solid analysis of the potential impact of climate change in the main elements of Natura 2000 was undertaken. This analysis, which helped establish a clear roadmap, was agreed by certain PA managers, scientific bodies and administrations.

### THE PROJECT IN THE FRAMEWORK OF THE SUSTAINABLE DEVELOPMENT GOALS

#### SDG 13. CLIMATE ACTION

Adaptation to climate change in protected areas has become a crucial component in the overall policy to combat climate change. Considering climate change effects is vital to secure long term survival of protected areas.

#### SDG 15. LIFE ON LAND

Preserving biodiversity in protected areas is highly dependent on ensuring resilience to climate change effects. Enhancing tools and measures to tackle climate change in protected areas management plans greatly contribute to this objective.



### LESSONS LEARNED

- Climate change considerations must be duly taken into account in the management of protected areas.
- Participation and active involvement of stakeholders (managers, researchers and civil society) is vital for the success and effectiveness of the climate change measures adopted in protected areas.
- Tackling climate change in protected areas have positive spillover effects in other areas such as biodiversity.
- Most managers look for adapting species and habitat specific adaptation toolkits and how to include them in PAs.



#### Further information

[http://www.redeuroparc.org/system/files/shared/Publicaciones/manual\\_13\\_planificacion\\_adaptacion.pdf](http://www.redeuroparc.org/system/files/shared/Publicaciones/manual_13_planificacion_adaptacion.pdf)

<http://www.redeuroparc.org/noticias/manual-13-europarc-espaa-%C3%B1a-%C3%A1reas-protégidas-y-cambio-clim-%C3%A1tico>