

## PROCEEDINGS REPORT

# First meeting of the Latin American Greenhouse Gas Inventory Network and the Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios

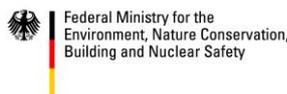
---



Santiago, Chile  
11–14 October 2016



On behalf of:



of the Federal Republic of Germany



## Table of contents

<b>Executive summary</b> .....	<b>3</b>
<b>Abbreviations</b> .....	<b>5</b>
<b>Introduction</b> .....	<b>7</b>
Participants .....	7
Agenda .....	8
<b>First meeting of the Latin American Greenhouse Gas Inventory Network (Tuesday, 11 October 2016)</b> .....	<b>9</b>
Overview of the Latin American Greenhouse Gas Inventory Network .....	9
International coordination of Network support .....	10
Exchange of experiences gained when implementing national GHG inventory systems – the cases of Mexico and Peru .....	11
Prioritising Network needs and areas of action.....	12
Work plan 2016–17 .....	13
Network structure and organisation.....	15
Conclusions and next steps.....	16
<b>Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios</b> .....	<b>18</b>
Mitigation actions in the context of the UNFCCC: situation in Latin America.....	19
MRV systems and mitigation accounting.....	20
Linkage between MRV systems and national GHG inventories.....	22
Developing GHG emission reduction scenarios and projections.....	24
Reporting mitigation measures to the UNFCCC.....	28
Designing specific MRV systems for mitigation actions in the energy and AFOLU sectors .....	29
Workshop conclusions .....	29
Proposals for future workshops.....	30



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



## Executive summary

The purpose of this report is to give an account of the training and experience-exchange activities carried out from 11 to 14 October 2016 in the city of Santiago de Chile, with technical and financial support from the Information Matters (IM) project of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Global Support Programme (GSP), jointly implemented by UNDP and UNEP, and the Climate Change Department of the Chilean Ministry of the Environment. These activities aimed to disseminate information on greenhouse gas (GHG) inventories and measurement, reporting and verification (MRV) systems for mitigation actions, including emissions projections, and to provide training for professionals in these areas.

The events at which these activities took place were the first meeting of the Latin American Greenhouse Gas Inventory Network, held on 11 October, and the Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios, held from 12 to 14 October. The workshop provided the first opportunity for the official focal points of the Network's member countries to meet and work together to address a number of specific objectives.

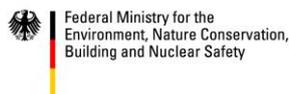
The meeting of representatives of the Latin American Greenhouse Gas Inventory Network was very productive; their work resulted in identifying the main needs of the member countries and the areas of action the network should prioritise. One of the needs identified was capacity building in a variety of areas, such as GHG emissions projections, the improvement of emission data and emission factors (EFs), interlinkages between MRV for adaptation measures and inventories, and communication strategies. Another was the use of modelling and calculation tools to facilitate the preparation of national inventories.

The priority areas of action entail concepts such as capacity building, technical assistance, technology transfer, methodologies for estimating GHG emissions and developing projections, institutional arrangements, communication and dissemination strategies, and financial sustainability for the development of national inventories. A series of activities were proposed for the short and medium term, the principles of the Network operation and coordination were established, and communication and experience-exchange mechanisms were put in place. Lastly, it was agreed to set up a permanent Secretariat for the Network, to be co-sponsored by the GSP, and two of the principal positions were filled, with the appointment of the secretary general and the administrative coordinator.

The workshop on MRV for mitigation actions in Latin America was also very beneficial, providing useful training and exchanges of experience. The main conclusions reached at the workshop were as follows:



On behalf of:



of the Federal Republic of Germany

- The region's countries consider that Nationally Appropriate Mitigation Actions (NAMAs) and other mitigation measures are vital to the successful preparation of Nationally Determined Contributions (NDCs). More robust and reliable MRV systems are therefore required.
- The region's countries should focus efforts on improving the transparency of their national GHG inventories and the monitoring and reporting of mitigation actions until it has been clarified what GHG accounting rules are to be used to track progress in meeting national targets.
- Countries with weaker capacities are recommended to work on simpler MRV system models, using a top-down approach and macroeconomic variables. The more advanced countries need technical support to improve their scenarios and dynamically update them on a regular basis.
- The participation of the private sector and the academic community in workshops on designing and implementing mitigation measures is considered to be of paramount importance.
- On the subject of the MRV framework established under the United Nations Framework Convention on Climate Change (UNFCCC), there was a general consensus that preparation of the first Biennial Update Report (BUR) and participation in the International Consultation and Analysis (ICA) process, while extremely demanding, is also very beneficial for those countries that have managed to comply with the Convention's reporting requirements. In order to improve their BURs, the member countries of the Latin American Greenhouse Gas Inventory Network propose putting in place a cross-review process for their reports, as a means of improving the quality of their submissions and facilitating exchanges of experience.

## Abbreviations

AFOLU	Agriculture, forestry and other land use
BAU	Business as usual (scenario without mitigation)
BUR	Biennial Update Report
CNCCMDL	National Council for Climate Change and the Clean Development Mechanism (Dominican Republic)
COP	Conference of the Parties
CPL	Clean Production Council (Chile)
DCC	Climate Change Department, Air Quality and Climate Change Division, Ministry of the Environment (Chile)
DECCC	Plan for Economic Development Compatible with Climate Change
ECDBC	Low-carbon development strategy (Colombia)
EF	Emission factor
FAO	Food and Agriculture Organization
GHG	Greenhouse gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSP	Global Support Programme
ICA	International Consultation and Analysis
IEA	International Energy Agency
IM	Information Matters (GIZ project)

INDC	Intended Nationally Determined Contribution <sup>1</sup> (submitted by countries that have not ratified the Paris Agreement)
INECC	National Institute of Ecology and Climate Change (Mexico)
IPCC	Intergovernmental Panel on Climate Change
MRV	Measurement, reporting and verification
NAMA	Nationally Appropriate Mitigation Action
NC	National Communication
NDC	Nationally Determined Contribution <sup>2</sup> (submitted by countries that have ratified the Paris Agreement)
PaMs	Policies and Measures (term used in Europe, equivalent to NAMAs)
QA/QC	Quality assurance/quality control
SNICHILE	National GHG inventory system (Chile)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

<sup>1</sup> <http://portal.mma.gob.cl/consultacontribucion/>

<sup>2</sup> <http://newsroom.unfccc.int/paris-agreement/ndc-interim-registry/>

## Introduction

Two training and experience-exchange events were held in Santiago de Chile from 11 to 14 October 2016:

- First meeting of the Latin American Greenhouse Gas Inventory Network (11 October 2016);
- Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios (12–14 October 2016).

These events, aimed at experts and key actors involved in preparing national greenhouse gas inventories and managing mitigation actions, were carried out with technical and financial support from the GIZ project Information Matters,<sup>3</sup> the Global Support Programme,<sup>4</sup> jointly implemented by UNDP and UNEP, and the Climate Change Department of the Chilean Ministry of the Environment.

### Participants

The events brought together some 65 participants, who can be grouped into the following categories:

- focal points of the Latin American Greenhouse Gas Inventory Network appointed by the 11 member countries; the Dominican Republic attended as a guest participant;
- professionals from the Latin American countries participating in the Information Matters project (the Dominican Republic and Chile) and directly concerned with the topics addressed;

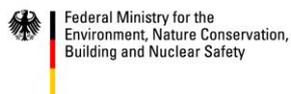
---

<sup>3</sup> The Information Matters project delivers capacity building on ambitious reporting and the facilitation of international mutual learning through peer-to-peer exchange. It is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). Its primary goal is to strengthen in-country capacities for the preparation of Biennial Update Reports (BURs). In consultation with the selected partner countries, specific needs and priorities were identified in terms of measurement, reporting and verification (MRV) systems and greenhouse gas emission monitoring. Tailored in-country capacity-building workshops were then held. In the first phase (2013–16), the partner countries were Chile, the Dominican Republic, Ghana and the Philippines. In the second phase (2016–17), support was extended to Colombia, Egypt, Georgia and Viet Nam.

<sup>4</sup> The UNDP-UNEP Global Support Programme (GSP) for National Communications and Biennial Update Reports provides support to non-Annex I Parties on preparing submissions to the UNFCCC, such as National Communications and Biennial Update Reports. The GSP works with key counterparts to provide technical guidance and assistance for the development of the National Communications and Biennial Update Reports as well as on the identification of priority areas of support for the implementation of the Nationally Determined Contributions. The areas in which support is provided are national greenhouse gas inventories, vulnerability and adaptation, and mitigation assessments.



On behalf of:



of the Federal Republic of Germany



- internationally renowned experts in the field of MRV for mitigation actions and scenario building.

## Agenda

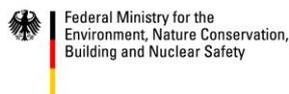
The agenda for the events is shown in Table 1 below.

**Table 1. Agenda**

<b>Tuesday 11 October (Pier Brunori Room, UNDP)</b>	<b>Wednesday 12 October (Hotel NH Ciudad de Santiago)</b>	<b>Thursday 13 October (Hotel NH Ciudad de Santiago)</b>	<b>Friday 14 October (Hotel NH Ciudad de Santiago)</b>
First working meeting of the Latin American Greenhouse Gas Inventory Network	Mitigation actions under the UNFCCC: situation in Latin America	Developing scenarios and projections for GHG emission reductions	Designing specific MRV systems for mitigation actions
Lunch			
First working meeting of the Latin American Greenhouse Gas Inventory Network	MRV and mitigation accounting	Developing scenarios and projections for GHG emission reductions	Designing specific MRV systems for mitigation actions
	Linkage between MRV and GHG inventories	Mitigation reporting to the UNFCCC	



On behalf of:



of the Federal Republic of Germany



## First meeting of the Latin American Greenhouse Gas Inventory Network (Tuesday, 11 October 2016)

With a view to improving the preparation and quality of National Communications (NCs) and Biennial Update Reports and filling gaps faced in the preparation of national GHG inventories, a process is being developed, under the coordination of the UNDP-UNEP Global Support Programme, to strengthen South–South cooperation by setting up a formal Latin American Greenhouse Gas Inventory Network (hereinafter ‘the Network’). The idea for the Network was put forward in 2013 by the Government of Chile, which then ran its Secretariat up to the time of the meeting.

In early 2016, 11 countries officially appointed two focal points each, a move that served to formally establish the Network. The current member countries are (in alphabetical order) Argentina, Colombia, Chile, Ecuador, El Salvador, Honduras, Guatemala, Panama, Paraguay, Peru and Uruguay. The Dominican Republic also attended this first meeting as a guest participant.

The purpose of the Network’s first working meeting, held in the Pier Brunori Room at the UNDP office in the city of Santiago de Chile, was to bring together the focal points for an initial meeting on cooperation among the member countries. The aim was to facilitate exchanges among the countries present on their successful experiences. More specifically, the participants sought to establish a priority ranking of the Network’s needs, determine areas of action, draw up a work plan for the period 2016–17, define Network activities, timescales and financing, and establish an organisational structure with clearly defined roles and responsibilities. The meeting was opened by Fernando Farías, head of the Climate Change Department of the Chilean Ministry of the Environment, who stressed the importance of the meeting and of the Network’s formation.

### Overview of the Latin American Greenhouse Gas Inventory Network

The Latin American Greenhouse Gas Inventory Network initiative was launched in order to create a space for the exchange of knowledge and experiences and thereby help countries to fill gaps in their national GHG inventory systems. The most common constraints are difficulties in putting in place institutional arrangements and creating and maintaining sustainable technical capacities. The secretary general of the Network, Paulo Cornejo (Chile), who is also in charge of Chile’s national GHG inventory system (SNICHILE), gave an introductory presentation on the Network’s purpose, scope, forms of coordination and operation, and its objectives for the remainder of 2016.

The purpose of the initiative is essentially to operate a network for South–South cooperation on national GHG inventories and to facilitate the exchange of knowledge

and technical expertise among the member countries. In this way, the Network seeks to build and strengthen capacities and promote exchanges of experience in the technical aspects of national GHG inventories. It also aims to incorporate these aspects into National Communications, Biennial Update Reports and Nationally Determined Contributions. Membership of the Network, which is limited to a relatively small number of countries to begin with, is expected to be expanded in the medium term.

Operation of the Network will require a permanent Secretariat, which will be rotated among the member countries. Each country will appoint two focal points who will liaise with the Secretariat. Paulo Cornejo also mentioned the importance of the GSP's role as a facilitating body delivering strategic, technical and logistics support for the implementation of the activities proposed in the work plan and providing initial funding for the 2016–17 period.

He observed that it is important to build the Network in a cooperative manner, based on an analysis of the needs identified by each country, so that it is a network created by and for the member countries. He also stressed the importance of drawing on the region's own expertise and not relying solely on experts from Annex I countries or other parts of the world.



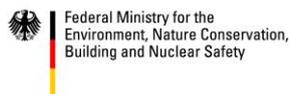
**Photo 1. Participants at the first meeting of the Latin American Greenhouse Gas Inventory Network**

### **International coordination of Network support**

The UNDP-UNEP Global Support Programme is responsible for the international coordination of Network support. Damiano Borgogno (UNDP) outlined the methods and tools the GSP has at its disposal to support and strengthen the Network. The various forms of support provided by the GSP include financing and facilitating meetings and exchanges of experience among the Network's member countries, supporting implementation of the work plan and assisting in the Network's internal



On behalf of:



of the Federal Republic of Germany



coordination. Examples of specific support measures that the GSP could deliver include the financing of one or two Network meetings a year, when there are particular issues to be addressed, and the establishment of a web-based platform to promote exchanges and communication among the Network's member countries.

## Exchange of experiences on the implementation of national GHG inventory systems – the cases of Mexico and Peru

The South–South exchange promoted by the Network featured presentations on the experiences of Mexico and Peru in implementing their national GHG inventory systems, as they are countries that have made significant progress in this respect.

Mexico's experience was presented by Fabiola Ramírez (Mexico's National Institute of Ecology and Climate Change – INECC), who noted that the country has made provision in its Climate Change Act for institutional arrangements and interinstitutional communication for the preparation of GHG inventories. She presented the model adopted for the national GHG inventory system in which a central body – the INECC – is responsible for updating the inventories. This differs to the models of some other countries in which sectoral bodies are tasked with preparing the inventory for their respective sector.

Mexico's approach sparked a discussion among the participants on what the ideal institutional model is for the establishment of a national GHG inventory system. The participants concluded that no one system can be singled out as the best, as successful implementation largely depends on the circumstances of each individual country. In Chile, for example, a decentralised system in which sectoral bodies are responsible for preparing the inventory for their respective sector has worked well, while in Mexico the centralised system has achieved good results.

Margoth Espinoza (Peruvian Ministry of Environment) outlined the system implemented in Peru. Worthy of note is the implementation of the INFOCARBONO programme, which has helped to order the system. It entails a series of actions designed to collect, assess and record information on GHG emissions and removals. INFOCARBONO's dissemination tools include an internet portal that provides the general public with information on the preparation of the inventory, explaining the technical aspects in lay terms so that everyone can understand and, in so doing, raising awareness about the subject.

The case of Peru triggered a discussion about communication strategies for national GHG emissions. The Network members noted that there is a general consensus on the importance of providing technical information contained in GHG inventories in plain language so that the average person can understand it. The initiatives implemented in Peru and also in Colombia are, in this respect, a step in the right direction.

## Prioritising Network needs and areas of action

Under the second item on the agenda, the participants discussed the needs of each country in relation to national GHG inventories, ranking them by priority in order to establish the most important areas of work for the Network in the medium term. The participants split up into three discussion groups. At the start of the discussion, Paulo Cornejo provided a summary and analysis of the identified needs, based on the responses given in a survey conducted before the workshop.

Drawing on this input, a proposed ranking of needs was presented for each country featuring the three categories of capacity building and technical assistance, technology transfer, and financial resources. In the first group exercise, the participants worked on establishing a priority ranking of the needs identified in the country assessments, using the categories very high, high, medium, low and very low. New needs not identified in the survey were also discussed and ranked. Lastly, the newly identified needs were discussed and ranked for all the member countries. Areas of action were then proposed to address the identified needs listed in the priority ranking. The results of the discussions are shown in Tables 2 and 3.

**Table 2. Priority ranking of Network needs**

New needs	
Capacity building and technical assistance	Priority rating
- Short- and medium-term GHG emissions projections (use of models and drivers to develop projections)	Very high
- Capacity building and technical assistance to establish a linkage between mitigation measures and inventories (integration of national GHG inventories, MRV and NDCs)	Very high
- Priority ranking of Network needs and areas of action	Very high
- Differentiated communication strategies drawn up for each target audience; citizen awareness about public policy	Very high
- Creation and consolidation of national GHG inventories	Very high
- Increased consistency of time series by improving activity data	High
- Exchange of experiences on the organisational structures that support inventory systems in different countries: how many people are involved, what are their responsibilities and what is the cost?	High
- Integration of International Consultation and Analysis (ICA) process comments into inventories	High
- Experience in developing country-specific emission factors	Medium
- Development of emission factors: promote collaborative integration between inventories and scientific activities	Medium

<b>New needs</b>	
- Creation and strengthening of statistical data generation systems for inventories	Medium
<b>Technology transfer</b>	<b>Priority rating</b>
- Tools to improve the calculation of uncertainty and error propagation	Very high
- Modelling tools for activity data, emission factors and econometric models	High
- Technology to detect forest degradation	High
- Experience in implementing technology to reduce emissions	Medium
<b>Financial resources</b>	<b>Priority rating</b>
- Montreal Protocol-type financing scheme (own offices)	Very high
- Financing for Network operation and strengthening	Very high
- Financing for the dissemination of national GHG inventory data	High

**Table 3. Proposed areas of action for the Network**

<b>Areas of action</b>
Permanent capacity building and technical assistance programme: strengthening of national teams, management of activity data (problem solving) and emission factors, and promotion of training for local experts in cross-cutting areas such as quality assurance
Technology transfer
Financial resources and network management (self-sustaining)
Methodologies for estimating GHG emissions and developing projections
Structures and arrangements, internal organisational framework in each country
External inventory reviews by Latin American experts
Strategies for the communication and dissemination of processes required for the preparation of national GHG inventories
Financial sustainability for national inventories: short- and medium-term budget design to develop financial management strategies

## Work plan 2016–17

Once the Network's needs, priorities and areas of action had been defined, the participants worked in groups again to draw up a work plan for the period 2016–17. More specifically, the participants discussed what components should be included in the plan, what the specific outputs and activities should be and where resources should be focused. Table 4 shows the proposals that emerged during the discussion, which appear to be very ambitious.

**Table 4. List of proposed Network outputs for the period 2016–17**

OUTPUTS	DESCRIPTION	COMPLETION DATE
List of regional experts	<p>Create a pool of Latin American experts to meet immediate needs. The list will include UNFCCC experts and other experts in specific fields put forward by Network members.</p> <p>Clearly define the roles of the experts to be included on the list. As a first requirement, the list will include experts available to cross-review the region's national GHG inventories.</p> <p>Coordinate with UNDP to avoid duplication, as they are also drawing up a list of experts.</p>	End of 2016
Basic model for integration between inventories and MRV systems and NDCs	<p>The aim is to improve the transparency of the information reported and data consistency.</p> <p>Exchange of experiences on the linkage between inventories and MRV.</p>	End of 2017
Institutional arrangements model for the establishment of national GHG inventory systems	<p>Three existing best practice models will be assessed, so that each country can consider the options and choose the model best suited to its needs.</p>	End of 2017
Log (report or assessment workshop) recording the preparation of national GHG inventories	<p>Who carried out the work, what it cost, what was done, how the information was managed, contractual status of professionals involved, structure, methodology and methods, updating processes, timescale, budgets, etc.</p>	Mid 2017
Models for the development of higher methodological levels (levels 2 and 3)	<p>Identify Latin American countries that have developed inventories based on models and have them explain the pros and cons of the system.</p>	Long term (post 2017)
Training workshops and online courses on the 2006 IPCC Guidelines	<p>Training workshops and exchanges on specific topics requested in relation to the implementation of the 2006 IPCC Guidelines.</p>	At least one course in 2017
At least two (2) professionals per country undertake training courses at the GHG Institute	<p>Training provided by UNDP. UNDP proposes that two professionals per country take the courses, with new entrants taking their place when they</p>	Mid 2017

OUTPUTS	DESCRIPTION	COMPLETION DATE
	pass (prize for countries with most courses).	
Two (2) professionals per country undertake FAO training courses on GHG inventories in agriculture	FAO open-access courses available at the end of 2016.	Mid 2017
Training on methodologies for developing projections		
Various webinars	Define topics to be addressed.	At least one every four months
Informative material on national GHG inventories for dissemination	Easy-to-understand schematic overview published as a leaflet or online	End 2017
Platform/blog for internal communication and exchanges	Conduct a survey to determine which platform (LinkedIn, Facebook, Google Groups) would be most suitable. It is proposed that an existing social media platform be used to start with, leaving the creation of the Network's own platform until a later date.	

## Network structure and organisation

During the final part of the meeting, the discussion focused on the structure and organisation to be established for the operation of the Network. It was agreed that a permanent Secretariat, to be co-sponsored by the GSP, was required for the coordination and operation of the Network.

A number of decisions were also adopted concerning the work of the Network. It was proposed that all communication would be between country focal points and not between experts, so that any issues requiring clarification could be recorded and published for the benefit of the entire Network. It was also suggested that the creation of a communication platform should be put on hold in order to focus efforts on other areas requiring attention. The idea is to use, for the time being, an existing platform, such as LinkedIn or Facebook, where a forum for exchanges and communication among participants can be created as a temporary measure.

The positions required for the performance of organisational and coordination duties for the Network are shown in Table 5.

**Table 5. Proposed roles and responsibilities for Network operation**

Role	Description
Two (2) focal points per country; one will act as the national inventory coordinator	The focal points will act as the sole interface between countries within the Network.
Overall network coordinator	The duties of the coordinator include organising the Network's meetings, coordinating the contributions of all the members and preparing the activities to be carried out in consultation with the focal points.
Coordinators of areas of action	These coordinators will work with the overall coordinator to define the areas of action established in the work plan and develop them through activities for Network members.
Administrative coordinator	This role is performed by UNDP (Damiano Borgogno). The work carried out to date by UNDP has been well received.

It was unanimously decided that Paulo Cornejo, who is currently the acting secretary general of the Network, will continue as the overall coordinator.

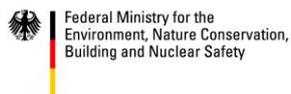
## Conclusions and next steps

In summary, the Network's main needs were identified and ranked by priority during the meeting, based on input from the representatives of the member countries. The needs identified included training in developing GHG emissions projections, improving data and emission factors, establishing linkages between MRV for adaptation measures and inventories, and developing communication strategies. Another need detected was for modelling and calculation tools to facilitate the preparation of national inventories. Based on these discussions, the participants also identified the areas of action that the Network should prioritise. The main concepts were capacity building, technical assistance, technology transfer, methodologies for estimating GHG emissions and developing projections, institutional arrangements, communication and dissemination strategies, and financial sustainability for the development of national inventories.

With regard to the next steps, a number of actions were agreed for the short term. They included drawing up a list of Latin American experts to facilitate the exchange of knowledge, planning webinar meetings to address a variety of issues (at least one every four months) and implementing a communication mechanism using an existing platform, such as Facebook, LinkedIn or Google Groups, to facilitate communication



On behalf of:



of the Federal Republic of Germany

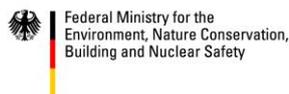


between the Network's member countries. This last question will be assessed by UNDP's Damiano Borgogno. In order to facilitate communication between countries and ensure the appropriate targeting of information flows, it was proposed that focal points should act as the sole interface for all communication.

On the administrative front, it was agreed that a permanent Secretariat would be established and co-sponsored by the GSP. It was unanimously decided that Paulo Cornejo would continue as secretary, and Damiano Borgogno was appointed administrative coordinator. These were the only two positions filled at this meeting.



On behalf of:



of the Federal Republic of Germany



## Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios

The Paris Agreement highlighted the importance of Nationally Determined Contributions (NDCs) as essential tools for achieving development that is low in GHG emissions. In efforts to fulfil NDCs, Nationally Appropriate Mitigation Actions (NAMAs) and other mitigation initiatives are expected to play an important role in reducing emissions. The Latin American Workshop on Implementing MRV Systems for Mitigation Actions and Building Scenarios was held at Hotel NH Ciudad de Santiago from 12 to 14 October 2016, with the aim of achieving a better understanding of systems for the measurement, reporting and verification (MRV) of mitigation actions, improving their operational effectiveness and creating a forum for the discussion and exchanges of experiences among Latin American countries.

The workshop, which was jointly organised by the Chilean Ministry of the Environment, GIZ and UNDP, was attended by representatives from 12 Latin American countries, and support was provided by experts from the Food and Agriculture Organization (FAO) and the International Energy Agency (IEA) and by consultants from Ricardo Energy & Environment (E&E) and Aether España.

The topics addressed included the importance of mitigation actions in the Latin American context, MRV and mitigation accounting, the linkage between MRV and national GHG inventories, indicators and scenarios for tracking the progress of mitigation actions and reporting on mitigation actions. These topics were selected based on lessons learned in phase I of the Information Matters project implemented by GIZ. It was also considered relevant to include topics associated with the capacities required to design and develop MRV systems adapted to new conditions arising from the commitments (NDCs) made under the Paris Agreement.

The speakers at the opening session of the workshop, held on Wednesday, 12 October, included Marcelo Mena, Under-Secretary for the Environment (Chile),<sup>5</sup> Rolf Schulze, Ambassador of the Federal Republic of Germany to Chile, and Silvia Rucks, Resident Coordinator of the United Nations system and UNDP representative in Chile.<sup>6</sup> In their addresses, they stressed the importance of climate change issues, the need to increase national capacities to manage these issues and the benefits of strengthening networking initiatives, such as the Latin American Greenhouse Gas Inventory Network.

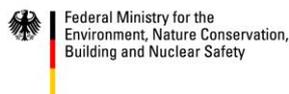
---

<sup>5</sup> <http://portal.mma.gob.cl/chile-realiza-taller-latinoamericano-que-aborda-acciones-de-mitigacion-para-el-cambio-climatico/>

<sup>6</sup> <http://www.cl.undp.org/content/chile/es/home/presscenter/articles/2016/10/12/11-pa-ses-conforman-la-red-latinoamericana-de-inventarios-de-gases-de-efecto-invernadero/>



On behalf of:



of the Federal Republic of Germany



## Mitigation actions in the context of the UNFCCC: situation in Latin America

Under the Paris Agreement (COP 21), which was signed by 191 countries and ratified by 123<sup>7</sup> and which came into force on 4 November 2016, at least 40 countries have made explicit reference to NAMAs in their submissions as being instrumental in efforts to fulfil Nationally Determined Contributions (NDCs).<sup>8</sup> The advantages of NAMAs in implementing NDCs are that they facilitate the disaggregation of national goals into sectoral targets and the implementation of MRV systems for tracking the progress of mitigation actions and, in turn, the fulfilment of NDCs. Other benefits include reporting on successful actions and the results achieved, stock-taking and analysis of actions at the sectoral level and the mobilisation of national and international resources to meet NDC goals. With a view to facilitating the monitoring of NDCs, article 13.1 of the Paris Agreement establishes an enhanced transparency framework for action and support to build mutual trust, so that countries can be confident that the results of NDCs are being correctly reported.

In efforts made under the umbrella of the Paris Agreement, Latin America is the most active region in terms of designing and implementing mitigation actions and tracking and reporting progress. Chile, for example, has developed a general framework covering MRV systems for NAMAs and linked the implementation of NAMAs to the pre-2020 ambition and the country's NDC. According to Jenny Mager, responsible for mitigation at the Chilean Environment Ministry's Climate Change Department, the preparation of Chile's first BUR in 2014 exposed several gaps in the management of mitigation actions. For example, many actions were not being monitored, and in some sectors there was a lack of clarity about the implementation and operation of MRV systems.

To overcome these shortcomings, Chile decided to draw up guidelines for a general MRV framework for NAMAs in Chile, in response to an explicit need in some sectors for standardised guidelines and a standard format for tracking and reporting mitigation actions. The purpose of the framework is to contribute to the generation of information for reporting on mitigation actions in BURs and to the management of mitigation actions in terms of the development of indicators and the identification of improvement processes.

Chile is also working on the development of a mitigation action registry platform where actors involved in mitigation actions can report on them. According to Mager, the biggest challenge at the present time in Chile and Latin America as a whole is the

<sup>7</sup> [http://unfccc.int/paris\\_agreement/items/9444.php](http://unfccc.int/paris_agreement/items/9444.php)

<sup>8</sup> The term 'Intended Nationally Determined Contributions' (INDC) is used for the submissions of countries that have not yet ratified the Paris Agreement, and 'Nationally Determined Contributions' (NDC) is used for those that have. To date, 11 of Latin America's 20 countries have ratified the agreement. NDC may have been mistakenly used in some instances in this report instead of INDC and vice versa.



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



effective use of MRV systems to track the progress of NDCs. Given the diversity of NDCs, the MRV system adopted must be sufficiently flexible to enable it to monitor them all.

The Dominican Republic's NDC is aligned with its Plan for Economic Development Compatible with Climate Change (DECCC), developed in 2011. Federico Grullón, who serves on the National Council for Climate Change and the Clean Development Mechanism (CNCCMDL), explained that the DECCC plan has facilitated the identification of NAMAs in the Dominican Republic. In addition to seeking to reduce GHG emissions, the plan also includes the concept of economic development, which is intended to make it more appealing to certain government institutions, such as the Ministry of Finance and Planning, and the private sector. Implementation of the plan is expected to result in an increase in employment and disposable household income, an improvement in the balance of payments as a result of the reduction in fossil fuel imports, access to international financing and enhancement of the country's image as a regional leader in economic sustainability, in addition to meeting the challenge of reducing emissions by at least two tonnes per capita by 2030.

In Colombia, NAMAs have been linked to the implementation of the INDC. Laura Aranguren, representing the Colombian Ministry of the Environment and Sustainable Development, explained that the country's INDC is based on the low-carbon development strategy developed in 2012 with the involvement of the public and private sectors. In alignment with the strategy, eight sector-specific mitigation plans were formulated (transport, electricity, fossil fuels, mines, industry, agriculture, housing and waste), and the NAMAs developed are part of them.

The target set in Colombia's INDC to achieve a 20% reduction in emissions by 2030 is based on the sector scenarios aligned with its low-carbon development strategy (ECDBC), the sector action plans (PAS-ECDBC), the NAMAs under development, the GHG inventory for 2010 and projections for the agriculture, forestry and other land use (AFOLU) sector. Colombia currently has 11 NAMAs that are being developed and two that have been formulated. Six of them have been recorded in the NAMA Registry, namely the mitigation actions for livestock, the *panela* (brown cane sugar) sector, commercial reforestation, restoration, road-based freight and TAnDEM (Active Transport and Travel Demand Management). In order to fulfil the INDC, the NAMAs identified and being developed must be incorporated into the sector action plans and moved forward to more advanced stages of implementation.

## MRV systems and mitigation accounting

To kick off the training on MRV systems and mitigation accounting, Marcus Alexander (Ricardo E&E) gave a presentation on key concepts relating to MRV systems,



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



international requirements, the Paris Agreement and the benefits that countries can gain from implementing MRV systems. He also gave a step-by-step account of the MRV process, the challenges that need to be addressed and the importance of the use of indicators to measure mitigation actions. Lastly, he presented the example of the United Kingdom's Carbon Budgets, which have set the target of achieving an 80% reduction in emissions by 2050.

Gianluca Tonolo (International Energy Agency) then gave a presentation on energy efficiency indicators. He explained some general concepts associated with energy efficiency and why it is necessary to gather data on energy efficiency. He also talked about the advantages and limitations of obtaining information from energy balances (one significant limitation is the use of aggregate indicators) and the additional information required to study energy efficiency. Lastly, he presented several examples of indicators that can be developed to collect relevant information in different sectors (housing, services and commerce, manufacturing and transportation).

Although Latin America still has relatively little experience in implementing mitigation measures and NAMAs – and the corresponding MRV systems – lessons can be learned from actions currently in progress. In Chile, the Clean Production Council (CPL) has for many years been establishing clean production agreements with the production sector as voluntary commitments with private actors and through sector negotiations. Since 2012, these agreements have been part of a NAMA and now include the quantification of GHG emission reductions.

As part of this experience involving clean production agreements, the first official report on the NAMA was prepared for submission to Chile's Ministry of the Environment. To this end, the CPL collected information to measure the impact of the mitigation and adaptation measures carried out under all the agreements implemented to date. The MRV system includes the development of a mitigation scenario with emissions projections, which is compared to the baseline scenario characterising expected future developments in terms of GHG emissions without the implementation of the agreements. In this way, the impact is calculated as the change in emissions described in the scenario including the mitigation action relative to the baseline scenario. As there are numerous clean production agreements, and each one has different effects, tracking the progress of the NAMA more closely is complicated. Work is currently underway, however, on improving the MRV system, so that more reliable information will be available in the future.

Peru has experience in designing 16 NAMAs, led by government institutions and with the involvement of other actors, including companies, civil society and other government agencies. They include NAMAs in the waste, construction, transport, cement, energy and agricultural sectors. Peru is currently working on the design of a national registry to contribute to NAMA reporting and emissions accounting and to assist in monitoring progress towards meeting NDC targets. The NAMA for the cement



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



industry, which is the most advanced, is highly significant because, according to data available on GHG emissions in Peru, the cement industry accounted for an estimated 62.9% of all emissions from 'industrial processes' in 2012 and 6% of emissions nationally.

## Linkage between MRV systems and national GHG inventories

Establishing the link between information obtained from national GHG inventories and estimated reductions in emissions resulting from the implementation of mitigation actions is a common challenge facing the countries of the region. Given the importance of this question in measuring the combined progress of the different mitigation actions in each country and also in tracking progress towards achieving mitigation goals established in the NDCs, Jenny Mager (Chilean Environment Ministry's Climate Change Department) examined the relationship between national GHG inventories and mitigation actions. She noted that GHG inventories are of vital importance because they make it possible to identify the economic sectors that generate most emissions. They provide information on emissions that is useful in planning and evaluating economic development and also in assessing GHG mitigation options and identifying national gaps, among other things. The inputs that an inventory provides can be valuable in the planning of mitigation actions and in formulating mitigation pledges. National GHG inventories deliver detailed information on emission levels and historical trends and make it possible to identify the factors driving those trends. They are also a crucial source of information for developing scenarios that describe possible future developments in terms of emissions.

In the case of Chile, the national inventory was an important source of input for the design of its international commitments, such as its Intended Nationally Determined Contribution, which was based on an analysis of historical GHG emission trends in the country between 1990 and 2010. This is how national GHG inventories can be used as a tool to inform public policy, and they should form an integral part of any national MRV system. While it is clear that national inventories are important and are linked to the planning of mitigation actions, it should be taken into account that the inventory alone is not always sufficient to assess the effectiveness of mitigation actions. While a time series of inventories shows year-on-year variations in national emissions and the historical trend, the MRV of mitigation actions reveals whether emissions really behave in a certain way as a result of the introduction of a given measure. This information can be used to adjust mitigation actions if they are not achieving the expected reductions.

In view of the importance of implementing mitigation actions for the achievement of national goals established in NDCs, a number of questions need to be answered in order to understand their effects: How will the criteria for a cross-analysis of MRV for mitigation actions and the GHG inventory work? Do Latin American countries have the

capacity to carry out such an analysis at the present time? What approach will be adopted with regard to the future NDC guidelines and accounting rules, bearing in mind the varying capacities of different countries? Should we focus efforts on more comprehensive reporting to the UNFCCC or should we seek to improve the technical quality and accuracy of the information reported? Is it worth striving to achieve aggregate reduction numbers with a high level of uncertainty or would it be better to focus on increasing the transparency of national GHG inventories and MRV for mitigation actions separately?

To answer some of these questions, an account was given of the way in which European Union countries deal with national GHG inventories and MRV for mitigation measures in their reports to the UNFCCC. Juan Luis Martín (Aether España) gave a presentation on the European experience in linking national GHG inventories and MRV for Policies and Measures (PaMs in EU reporting jargon). He clarified the main differences between the current commitments of European and Latin American countries, explaining that EU countries are required to carry out PaMs to reduce their emissions, while Latin American countries can implement NAMAs and other national measures.

He introduced the two calculation methods mentioned in the Policy and Action Standard: the inventory accounting method and the policy/action accounting method. The first involves annual estimates of national, regional, local, company or production facility emissions, while the second involves estimated changes in emissions as a result of the implementation of an action (such as a NAMA or a policy). In the European Union, there is a method for linking national GHG inventories and mitigation actions, which hinges on the analysis of emissions projections, setting it as the interlinkage between them. It is important to note that, in this analysis, the system's strength lies in the consistent methodologies used for the inventory and the estimated effects of mitigation measures.

The European system does, however, have its weaknesses and face challenges, which are mainly associated with problems of coordination between ministries and between political and technical bodies. To illustrate these coordination problems, the Spanish and Belgian systems were described, focusing on the problems arising from institutional arrangements. Lastly, emphasis was placed on the importance of synergies, from a technical point of view, between the inventory and the mitigation policy system.

In the course of the subsequent discussion, the Chilean representatives, Paulo Cornejo and Jenny Mager, confirmed that, given the methodological approaches used for inventories at the present time (low-level methodologies), it is the NAMAs that can enhance the inventory by improving the activity data obtained and by using more advanced methodologies to estimate GHG emissions. Taking into account these



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



synergies, the priority for Latin American countries should therefore be to strengthen national inventories, as they are the basis for tracking and assessing mitigation goals.

According to Martín, there are synergies between national inventories and NAMAs which can be used to improve both systems. These synergies largely depend on the methodological approaches used. In view of the fact that methodological approaches used for inventories in the Latin American region tend to be level 1 and that methodologies developed for NAMAs are generally more advanced, it is recommended that countries use MRV for NAMAs to strengthen their national inventories, either by developing national/regional emission factors or by simply improving the understanding of categories of emission sources in the country. In any event, in order to develop synergies between inventories and NAMA MRV systems, it is essential to use the MRV of a consolidated inventory. Supported by a consolidated inventory, countries should involve the inventory team in the quality control and assurance (QC/QA) of NAMAs to facilitate the exchange of information between systems.

Lastly, the participants reflected on tracking progress and fulfilling NDCs, as suggested by Sebastián Galbusera (Argentine Ministry of the Environment and Sustainable Development). Like other countries, Argentina has estimated its voluntary mitigation goal using the BAU method, but Latin American countries still have many unanswered questions about how to measure and evaluate NDCs and about the role that GHG inventories are going to play in this. As the approaches, procedures and guidelines for tracking the progress of NDCs are currently subject to negotiation under the UNFCCC, it is unlikely that these questions will be answered before 2018, when guidance is expected to be issued. Until then, it is suggested that the region's countries continue working to improve transparency in tracking and reporting on national GHG inventories and mitigation measures at the development and implementation stages.

## Developing GHG emission reduction scenarios and projections

Scenario building is particularly relevant in the Latin American context, because their NDCs are based on BAU scenarios and emission reduction scenarios. However, the region's countries lack reliable data and the capacities required to develop these scenarios. There is therefore a general consensus that, in the short and medium term, it is necessary to develop the capacities required to use indicators to monitor mitigation actions and build scenarios that describe expected future developments in GHG emission abatement, with a view to estimating the effectiveness of mitigation actions and defining the best set of mitigation actions to be implemented in order to fulfil national commitments.

On this subject, Juan Luis Martín (Aether España) presented an overview of concepts and methodologies and explained the relationship between the baseline scenario and the different projected scenarios. The baseline scenario can be defined as the set of

assumptions and data representing the most likely future developments without the implementation of a mitigation policy or measure, that is, the most likely future emissions if circumstances stay the same. Projected scenarios, or simply projections, characterise expected future developments with the effect of the implementation of a mitigation policy or measure. Martín explained how the European Union uses mitigation targets and its GHG emission projections as tools to evaluate progress towards fulfilling the GHG emission reduction targets set for 2020.

He also spoke about how country pledges and policy-making have a positive effect on meeting targets and how they can generate better-than-expected benefits, such as the greater development of renewable energy. Having the support of the private sector is also an important factor in meeting targets.

National mitigation scenarios are based on a projection of the national GHG inventory in which the effects of different policy and/or socio-economic scenarios are modelled. In order to develop a good projection, Martín recommends using consistent historical estimates (preferably the time series of GHG inventories) that are robust and sufficiently long. In Latin America, GHG inventories are not yet very well developed (limited number of years inventoried; often lacking consistency). He therefore suggests strengthening these inventories and moving towards a system in which complete time series are updated at least once every two years. Improving inventories in this way would undoubtedly enhance methodological options and baseline estimates and mitigation scenarios.

National mitigation scenarios can be built using **top-down models or bottom-up models**:

- Top-down models are used to develop scenarios and projections with a focus on macroeconomics; they are based on monetary units and provide cost-effective solutions for reducing GHG emissions. They are also good for long-term analysis, but are limited by the paucity of technological detail. It is possible to build relatively simple models that are easy to update and provide insights into likely future national emission trends. It is therefore a suitable tool for tracking progress towards meeting mitigation targets.
- Bottom-up models are also used to develop scenarios and projections but they incorporate more technological detail. These models focus on material units and therefore make it easier to understand the reasons behind GHG trends. They are useful for the analysis of technology-oriented policy and other non-financial instruments, but it can be hard to obtain the data needed for modelling. They are therefore more complex models, and their development requires greater expertise.

Models are used to quantify GHG reductions in scenarios and projections. There is no internationally agreed methodology for quantifying the effects of emission mitigation (ex-ante or ex-post). However, the Policy and Action Standard<sup>9</sup> of the WRI<sup>10</sup> provides guidance on estimating and reporting the change in GHG emissions and removals resulting from policies and actions. The guidelines the European Union issues for its member states on the projections they are required to submit every two years<sup>11</sup> in their biennial reports can also prove useful. Although they are guidelines for developed countries, they also contain information of interest to developing countries. In general, the following must be taken into account:

- There are different methodologies (top-down, bottom-up or a combination of the two) which vary in their level of complexity.
- In simple terms, both ex-ante and ex-post assessments can be made by calculating the difference between emission projection scenarios with and without the effect of a policy or policies. A more accurate reference analysis can be made, if detailed data is available, by using a more complex bottom-up model.

Most countries rely on models based on a bottom-up approach (LEAP, MARKAL/TIMES, MESSAGE/MEAD or other purpose-developed models). The appeal of these models lies in their ability to provide a reasonably detailed representation of the energy system (which in most countries is the main source of emissions), while keeping resource needs down to a reasonable level.

The United Kingdom uses the Energy System Modelling Environment (ESME) developed by the Energy Technologies Institute (ETI) to support its work on Carbon Budgets. ESME is a least-cost optimisation model of the whole UK energy system, which performs energy system analysis to inform its technology strategy. ESME belongs to the class of energy system models that might be termed pathway optimisation models and is a bottom-up model. The central approach is policy-neutral cost optimisation. With a focus on the long-term (2010–50) pathway, ESME searches for optimal energy system designs that minimise cost while meeting stipulated emission targets. ESME is a long-term optimisation model covering the whole energy system and therefore has a very large dataset, but relatively limited detail on the individual technologies within the system. This is why it is important to have other specific models focused on the detail or a part of the energy system to provide information on the effects of the near-term pathway, energy bill impacts, climate change adaptation costs, etc.

---

<sup>9</sup> <http://ghgprotocol.org/policy-and-action-standard>

<sup>10</sup> World Resources Institute.

<sup>11</sup> [http://www.ipcc.ch/organization/organization\\_procedures.shtml](http://www.ipcc.ch/organization/organization_procedures.shtml)

There are also examples of non-Annex I countries, such as Ethiopia, that use a system based on a combination of simplified top-down and bottom-up modelling. The top-down model generates projections of broad emission trends, while the bottom-up model is used to produce additional detail at the sectoral level.

It is possible to build relatively simple models that are easy to update and provide insights into likely future national emission trends making them a suitable tool for tracking progress towards meeting mitigation targets.

Practical exercises were carried out with examples of models for estimating the baseline and developing scenarios for the main emission source sectors in Latin America: energy and AFOLU. Alessandro Ferrara (FAO) presented Ex Act, a tool developed for the AFOLU sector to estimate the potential GHG reduction that a particular mitigation project can be expected to achieve. This tool assesses two scenarios: a scenario without the project (baseline scenario) and another with the project, calculating the potential reduction in emissions. The tool is simple to use and requires only basic information.

Gianluca Tonolo (IEA) outlined a proposal for monitoring energy efficiency, emphasising the vital importance of data collection and of the identification of indicators to be used to ascertain whether the policies are successful and the objectives of the process have been achieved. To do this, it is necessary to segregate both the data and the indicators in order to determine what part of the goals and policies has had the greatest impact compared to the others. The main methods used in the IEA proposal are statistics-based.

Interesting initiatives are being developed in Latin America to inform public opinion and decision-makers about likely future trends in GHG emissions. In this vein, Adolfo Uribe (Chilean Ministry of Energy) presented the 2050 Calculator, a web-based tool that is currently at the development stage. The purpose of the Calculator is to assess and display the effect of implementing different energy policies in terms of GHG emissions. It will be available in three versions of varying complexity for different target audiences:

- the first level is My2050, which is aimed at the general public and is an educational tool;
- the second level is the Web Tool version, intended for an audience with greater technical knowledge and a specific interest in the subject;
- the third level is the full Excel version designed for decision-makers and experts in the field.



On behalf of:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



Although this model has its limitations when it comes to making complex estimates, it is undoubtedly a good tool for assessing the implementation of different mitigation pathways in the energy sector and for facilitating policy decision-making.

## Reporting mitigation measures to the UNFCCC

One of the aims of developing MRV systems for mitigation actions is to facilitate reporting to the UNFCCC. At present, parties are required to submit Biennial Update Reports (BURs), which must include information on the progress of mitigation measures and the GHG emission reductions resulting from them. In addition to reporting requirements, BURs are subject to an International Consultation and Analysis (ICA) process in which international experts, under a mandate from the UNFCCC, and countries party to the UNFCCC can ask questions about the transparency and comprehensiveness of the information reported. This process has only recently been introduced for developing countries and, as at October 2016, only Chile and Peru had participated fully in the process.

The two countries shared their experience with the other ten countries represented at the workshop. They considered, like the other countries participating in the workshop, that the time given to prepare the first BUR was insufficient (December 2014). As a result of this constraint and the lack of experience of Latin American countries in preparing such reports, they found the ICA process to be very demanding, but also very enriching.

The general impression that both Chile and Peru have of the ICA process is that it helps to improve the transparency and quality of the reporting of mitigation actions, because it involves an 'external review' of the BUR by international experts, who examine the contents from a different perspective and provide relevant feedback to the countries about potential areas for improvement. One criticism Chile and Peru had of the ICA process concerned the Facilitative Sharing of Views, which they took part in in May 2016 in Bonn. Although it is meant to be an exchange of opinions with other countries, it was simply a presentation of the contents of the BUR, and there was no sharing of experience on the preparation of reports among the different countries.

With a view to preparing for the ICA process in the future and improving the transparency of Latin American BURs, the countries represented at the workshop suggested that they undertake a real exchange of experiences on producing reports and preparing for and participating in the ICA review. The Latin American Greenhouse Gas Inventory Network can play a crucial role in this respect.

## Designing specific MRV systems for mitigation actions in the energy and AFOLU sectors

The participants worked in groups, holding surgeries on the subject of designing specific MRV systems for mitigation actions in the energy and AFOLU sectors, with the aim of putting forward new perspectives and developing new approaches to solve the problems posed by a specific mitigation action chosen by the participants. The mitigation actions selected were:

- Group 1. NAMA for renewable energy self-consumption 2015–19 (Chile)
- Group 2. Energy efficiency. NAMAs – technology replacement (Honduras)
- Group 3. NAMA based on carbon sequestration in soils (Chile)
- Group 4. Uncertainty of values in clean production agreements
- Group 5. Energy sector. Developing NAMAs (Dominican Republic).

### Workshop conclusions

The main conclusions reached following the training activities were:

- Latin America is the world's leading region in the development and implementation of NAMAs.
- The countries in the region consider NAMAs and other mitigation measures to be the main pillar of efforts to fulfil their NDCs.
- Developing robust MRV systems is one of the challenges faced in the effective implementation of mitigation actions.
- In order to track the progress of mitigation actions, it is necessary to identify their impact on national GHG inventories. There are, however, no internationally accepted accounting rules or Annex 1 country experiences for effectively linking national GHG inventories to MRV for mitigation actions and sector or national targets. The region's countries therefore propose focusing efforts on improving the transparency of national GHG inventories and monitoring and reporting mitigation actions until the accounting rules for tracking progress towards national goals have been clarified.
- In order to carry out effective MRV of mitigation actions, it is necessary to work with baseline scenarios and mitigation measure scenarios. Developing these scenarios is one of the major challenges facing the region, as it requires considerable technical and human capacities. Countries with weaker capacities are recommended to begin working with simple top-down models based on

macroeconomic variables, while more advanced countries should seek technical support to improve their scenarios and dynamically update them on a regular basis.

- The participation of the private sector and the academic community in workshops on designing and implementing mitigation measures and the MRV systems required to track them is considered to be of paramount importance. It also delivers co-benefits in terms of enhanced scientific expertise and better support from the private sector when it comes to implementing mitigation actions.
- The private sector will only become involved in mitigation actions and MRV systems if there are clear regulations and strong institutional structures in place. This need for institutional clarity means that the private sector only cooperates with the public sector and engages fully in this area in countries with clear institutional arrangements and strong climate change legislation (such as Mexico and Chile).
- Lastly, the Latin American countries agree that preparing the first BURs and taking part in the ICA process has been demanding, but also very beneficial for those countries complying with UNFCCC reporting requirements. With a view to improving the BUR process, the member countries of the Latin American Greenhouse Gas Inventory Network intend to establish regional cross-reviews of their reports so as to enhance the quality of the information reported and facilitate exchanges of experience.

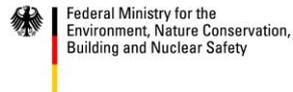
## Proposals for future workshops

The representatives of the countries participating in the workshop noted a number of issues to be addressed at future regional workshops and training and experience exchange events, including the following:

- As training in the development of baseline scenarios and mitigation measure scenarios has been identified as the greatest challenge in the MRV of mitigation measures, it is suggested that a technical regional workshop be held with the participation of experts from different countries. Colombia has offered to host the event as it has experience in this field, thanks to the support it received under the MAPS (Mitigation Action Plans and Scenarios) project. The workshop should incorporate a greater number of exercises, examples and case studies so that the knowledge transferred is practical and readily applicable. Other topics include cross-reviews of Latin American BURs and exchanges of experience on BURs and on participation in the ICA process.



On behalf of:



of the Federal Republic of Germany



- Joint workshops should be held with private sector actors on the planning and MRV of mitigation actions. It was felt that, with a fuller understanding of the private sector perspective, more agreements will be established and this sector will engage more.
- Guidelines and manuals need to be prepared on topics relating to MRV for mitigation actions. There are already sufficient guidelines on GHG inventories (IPCC), and no further guidance is required in this area.
- Exchanges and forums for discussion should be held between the scientific and academic community and policy-makers, with a view to defining the best mitigation strategies and improving the scientific quality of GHG inventories in order to fulfil NDC goals.