



“Building Armenia’s National Transparency Framework  
under Paris Agreement” UNDP-GEF Project/00110252

Training Day 2 | Session 8

# MRV Of Mitigation Measures

# Session Structure

Section 1

Introduction to section

Section 2

Presentation (20 minutes)

Section 3

Break-out rooms for group assignment (20 minutes)

Section 4

Discussion (10 minutes)

Section 5

Presentation Q&A and close (5 Minutes)

## Section 1

Introduction to section

The Trainer

# Andreas Biermann



Andreas is a climate finance and mitigation professional with extensive technical expertise, a wide experience and a focus on climate change and climate finance.

With a long track record in managing the development of GCF and GEF projects for EBRD, followed by two years as Deputy Director for Mitigation at the Green Climate Fund he is widely recognised for his ability to work with governments and development partners in bringing green and sustainable finance to the fore, delivering real environmental change through the provision of new financing options.

During his career, Andreas has worked with numerous governments and multilateral agencies across the world and in very diverse country contexts with a strong focus on the transition region.

*Andreas is currently an MSc candidate at the School of Oriental and African Studies in London (UK). His thesis project focuses on the interaction between climate and national development policies in Armenia*

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# Day 2 | Specific MRV Approaches with Reference to Armenia

Session 8

**MRV of Mitigation Policies and Measures**

**Trainer: Andreas Biermann**

## **Content Overview**

- **Requirements for information collection and reporting, verification policies, projects and actions (ex-ante or ex-post), including GHG emissions reduction, socio-economic benefits**
- **Monitoring of implementation of progress on policies, projects, and actions aimed at adaptation to the climate change impacts**
- **Country comparison**

- Mitigation spans a limited range of sectors and results are primarily measured in terms of GHG emissions reductions
- While countries benefit from their Mitigation Projects, there is also a global good aspect, and benefits can be traded under e.g. Article 6 of the Paris Agreement
- CO<sub>2</sub> is the common metric for mitigation activities while co-benefits such as job creation and gender are also tracked
- Mitigation is distinguished from business-as-usual development activities through ex-ante assessments of GHG reductions
- A range of internationally agreed standards exists for sector- and project-level activities, and an architecture is beginning to emerge:
  - UNFCCC – requires inventory reporting
  - Multilateral Donors - require accountability, and so set programme indicators (e.g. GCF Investment Criteria)
  - Nationally - countries have set indicators and standards to follow - Country-specific M&E systems
  - Projects - will Set Indicators and Results targets
- Financial tracking of mitigation activities is widely undertaken, but may not guarantee quality of outcomes as it is tracking inputs only
- Training and capacity-building for Mitigation can be tracked

# MRV State of the Art in Armenia

Development of Background Information for Climate Change Monitoring, Reporting and Verification (MRV) Platform Design

Final Report for UNDP-GEF Project (CBIT Project)

**March 2022**



Section 2



Presentation

Requirements for information collection and reporting, verification policies, projects and actions (ex-ante or ex-post), including GHG emissions reduction, socio-economic benefits



# Why track mitigation measures?

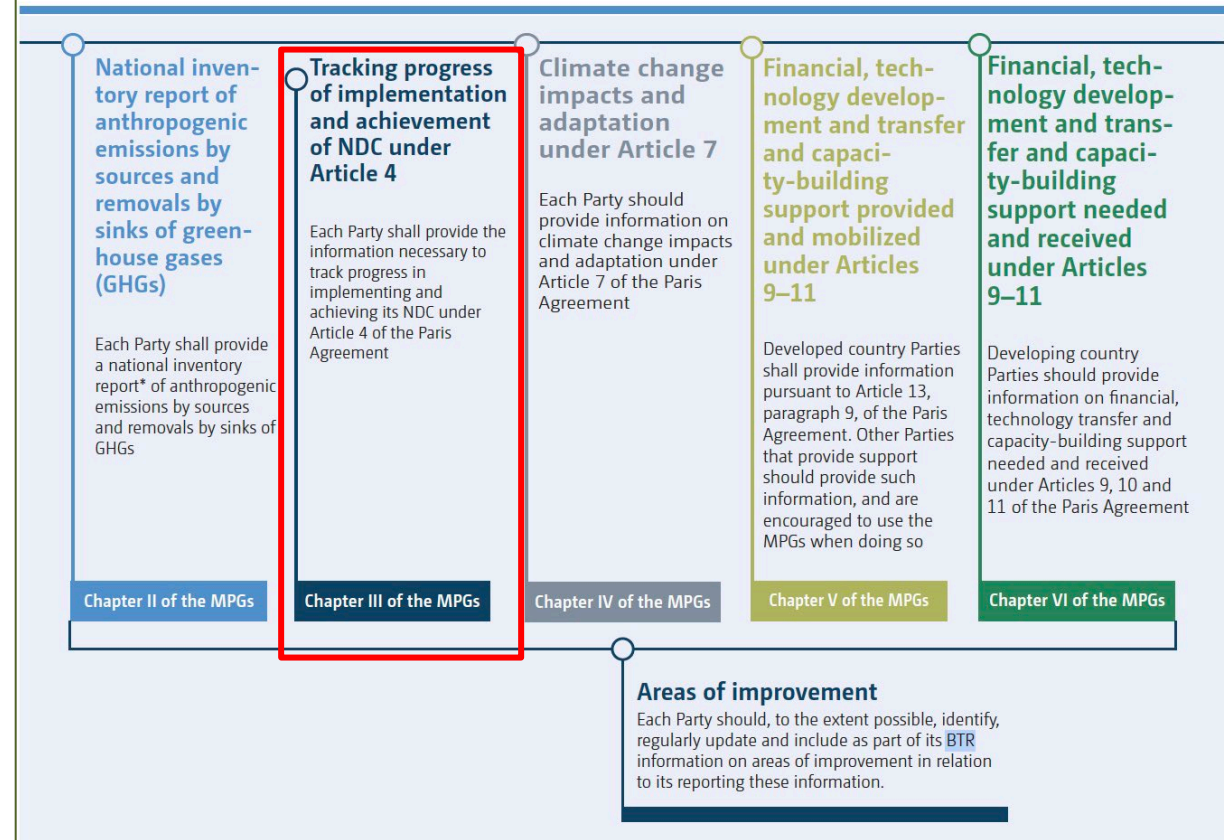
## Governing rules

- *The Enhanced Transparency Framework (ETF)* (presented in Article 13 of the Paris Agreement) establishes some of the new reporting requirements under the Paris Agreement.
- The ETF mentions both what needs to be reported and what requirements there are for reporting.
- Reporting under the ETF is encouraged to take place every two years (starting from 2024) in the form of **Biennial Transparency Reports (BTRs)**.

Figure 3

## Information to be reported in the biennial transparency report<sup>6</sup>

<sup>6</sup> Decision 18/CMA.1, annex, paragraph 10.



\*National inventory report may be submitted as a stand-alone report or as a component of a biennial transparency report (paragraph 12 of chapter II of MPGs) and consists of a national inventory document and the common reporting tables (paragraph 38 of chapter II of MPGs).

Note: Chapters in this figure refer to those corresponding chapters contained in annex to decision 18/CMA.1.

# Why should Armenia track support needed and received?

The NDC and other documents set out Armenia's sectoral targets and specific actions in mitigation. These cover multiple sectors of the economy.

At present, there is no active reporting requirement for these, and there is no guiding framework for reporting. An update on progress of mitigation measure implementation is provided in the BUR, most recently BUR3 in 2021

By 31 Dec 2024, the ETF requires that reporting will have to take place under the new BTR.

What needs to be reported and how?

## **D. Mitigation policies and measures, actions and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans, related to implementing and achieving a nationally determined contribution under Article 4 of the Paris Agreement**

80. Each Party shall provide information on actions, policies and measures that support the implementation and achievement of its NDC under Article 4 of the Paris Agreement, focusing on those that have the most significant impact on GHG emissions or removals and those impacting key categories in the national GHG inventory. This information shall be presented in narrative and tabular format.

81. To the extent possible, Parties shall organize the reporting of actions by sector (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management and other).

82. Each Party shall provide the following information on its actions, policies and measures, to the extent possible, in a tabular format:

- (a) Name;
- (b) Description;
- (c) Objectives;
- (d) Type of instrument (regulatory, economic instrument or other);
- (e) Status (planned, adopted or implemented);
- (f) Sector(s) affected (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management or other);
- (g) Gases affected;
- (h) Start year of implementation;
- (i) Implementing entity or entities.

83. Each Party may also provide the following information for each action, policy and measure reported:

- (a) Costs;
- (b) Non-GHG mitigation benefits;
- (c) How the mitigation actions as identified in paragraph 80 above interact with each other, as appropriate.

# Question Time?

Name three items that are to be reported under UNFCCC rules and one optional item.

# Tracking mitigation measures: minimal requirements

Each Party shall provide information:

- On actions, policies and measures that support the implementation and achievement of its NDC (focus on those with most significant impact/those impacting key categories in the national GHG inventory. **This information shall be presented in narrative and tabular format.**
- Organize actions by sector (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management and other).
- Report relevant information on policies and measures contributing to mitigation co-benefits resulting from adaptation actions or economic diversification plans.
- Provide, to the extent possible, estimates of expected and achieved GHG emission reductions for its actions, policies and measures
- In the BTR describe the methodologies and assumptions used to estimate the GHG emission reductions or removals due to each action, policy and measure
- Identify those actions, policies and measures that are no longer in place compared with the most recent biennial transparency report, and explain why they are no longer in place.
- Identify actions, policies and measures that influence GHG emissions from international transport.
- *To the extent possible, provide information about how its actions, policies and measures are modifying longer-term trends in GHG emissions and removals.*
- *Parties are encouraged to provide detailed information, to the extent possible, on the assessment of economic and social impacts of response measures.*

# Tracking mitigation measures: detailed requirements

Provide the following information on its actions, policies and measures, to the extent possible, in a tabular format:

- a) Name;
- b) Description;
- c) Objectives;
- d) Type of instrument (regulatory, economic instrument or other);
- e) Status (planned, adopted or implemented);
- f) Sector(s) affected (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management or other);
- g) Gases affected;
- h) Start year of implementation;
- i) Implementing entity or entities.

May provide the following information for each action, policy and measure reported:

- a) Costs;
- b) Non-GHG mitigation benefits;
- c) How the mitigation actions above interact with each other.

Monitoring of implementation of  
progress on policies, projects, and  
actions aimed at adaptation to the  
climate change impacts

# Armenia's Mitigation Ambitions – Policies

Sectors	NDC 2021
Energy	<ul style="list-style-type: none"> <li>National Energy Efficiency and Renewable Energy Programme 2021-2030</li> <li>Strategic Program for the Development of the Energy Sector of the Republic of Armenia (until 2040)</li> </ul>
Industrial Processes and Product Use	4 <sup>th</sup> National Communication – HFC reduction
Forestry	National Forestry Programme (2021)
Waste Management	Solid Waste Management System Development Strategy for 2017-2036, 4 <sup>th</sup> National Communication
Transport	Transport Strategy
Urban Development	No strategy with link to NDC, but covered through energy, transport and waste management strategies
Agriculture	Agriculture strategy (2020-2030) :

# Armenia's Mitigation Ambitions - Objectives

Sectors	NDC 2021
<b>Energy</b>	Goal of annually generating around 12 billion kWh of high reliable, self-sufficient and export-oriented sustainable energy. Total of 417 Gg CO <sub>2</sub> eq. intended reduced emissions if two scenarios are compared “with no mitigation measures” and “with mitigation measures” (4 <sup>th</sup> National Communication).
<b>Industrial Processes and Product Use</b>	Reduction of HFC emissions between 80–85% up to the year 2045, starting from 2024.
<b>Forestry</b>	12.9% forest cover by 2030 and 20.1% by 2050 (INDC – 2015)
<b>Waste Management</b>	Projections show that the overall reduction of emissions by 2030 will comprise 212.9 Gg CO <sub>2</sub> eq. or 51% of solid waste emissions for 2016 by implementing the Strategy for Development of Solid Waste Management
<b>Transport</b>	Increased efficiency of public transport, use of renewable energy, stimulation and support in uptake of electric vehicles
<b>Urban Development</b>	No Target but linked to energy efficiency, transport and waste
<b>Agriculture</b>	By implementing improved genetic techniques in livestock there is a projection of CH <sub>4</sub> emissions reduction of 128 Gg CO <sub>2</sub> eq. up to 2023 and 260 Gg CO <sub>2</sub> eq. by 2030, compared to 2016 levels (4 <sup>th</sup> National Communication) – also improved nitrogen fertilizer management and development of organic farming, sustainable intensification of animal breeding through improved species, breeds, improved irrigation system, promotion of digital agriculture and technological innovation



# Reporting on measures – BUR3

THIRD BIENNIAL UPDATE REPORT

**Table 3.1 Implemented, ongoing and planned mitigation actions and their effects by Sectors**

Description/ objectives	Quantitative goals and progress indicators	Time frame	Progress of implementation/steps taken or envisaged/ achieved results	Assumptions	Estimated outcomes / GHG emissions reduction Gg CO <sub>2</sub> eq.
<b>Energy (generation side and distribution networks)</b>					
<b>Coverage:</b> CO <sub>2</sub> , CH <sub>4</sub> reduction through the increased share of renewables in power generation mix and implementation of the energy efficiency measures on generation side and in distribution networks					
<b>Methodology:</b> The impact assessment was carried out using the LEAP-Armenia software by calculating the reduction of greenhouse gas emissions from natural gas combustion and associated reduction of natural gas fugitive emissions due to reduced generation at thermal power plants					
<b>Nature:</b> Legislative, regulatory, technology					
<b>Utility-Scale Solar Power Plants</b>					
<b>Name of the action: Construction of medium utility-scale solar PV power plants</b>					
<b>Coordination/Support/Financing:</b> R2E2 with the financial support of EBRD and WB, private investors.					
According to the Strategy and Action Plan, medium utility-scale solar power plants with total capacity of 175 MW will be constructed by the end of 2024. It includes: <ul style="list-style-type: none"> <li>PV “Masrik-1”, with a peak capacity of 55 MW (about 110 GWh of annually produced electricity) in 2022;</li> <li>Additional solar PVs with total capacity of 120 MW will be constructed by the end of 2024 (about 192 GWh of annually produced electricity).</li> </ul>	The quantitative goal is to install 55 MW of utility-scale PV by 2022 and additional 120 MW by 2024. The progress indicator: installed capacity of medium utility-scale solar PV.	<b>Ongoing</b>	The tariff is based on the proposed lowest tariff resulted from international competition. For Masrik-1 an international competition was held, which was won by the consortium of Dutch Fotowatio Renewable Ventures, B.V. and Spanish FSL Solar. In 2018, the RA Government signed a state assistance agreement, providing the developer of Masrik-1 with an electricity production license.	The impact assessment assumes that 55MW is added to power system in 2020 and another 120 by 2024. In both cases they substitute natural gas-based electricity generation in thermal power plants.	Expected annual emission reduction in 2030: 166.1 Gg CO <sub>2</sub> eq. (60.5 Gg CO <sub>2</sub> eq. from Masrik-1, 105.6 Gg CO <sub>2</sub> eq. from additional 120 MWs of PVs).
<b>Name of the action: Construction of the larger utility-scale solar PV power plants</b>					
<b>Coordination/Support/Financing:</b> Armenian National Interest Fund (ANIF), R2E2, private investors.					
According to the Strategy and Action Plan construction of 2 Solar PVs with the capacity of 200 MW each is envisaged in 2023 and 2024.	The quantitative goal is to support the installation of 400 MW of larger utility-scale PVs by 2024. The progress indicator: installed capacity of large utility-scale solar PV.	<b>Planned</b>	Request for Qualification was announced in 2020 seeking private developers for a project to design, finance, build, own, and operate the first of considered 2 plants, which will be grid-connected 200 MW solar PV power plant called “Ayg-1”.	The impact assessment assumes that 200MW of solar capacity is added to power system in 2023 and another 200MW in 2024. In both cases they substitute electricity generation in thermal power plants.	Expected annual emission reduction after 2024: 352 Gg CO <sub>2</sub> eq. (176 Gg CO <sub>2</sub> eq. each)

# What does the reporting cover?

Measure Reporting	
<i>Expected Reporting</i>	
Name	√
Description	√
Objectives	√
Type of instrument (regulatory, economic instrument or other)	√
Status (planned, adopted or implemented)	√
Sector(s) affected (energy, transport, industrial processes and product use, agriculture, LULUCF, waste management and other)	√
Gases affected	√
Start year of implementation	√
Implementing entity or entities	√
<i>Optional Reporting</i>	
Costs	√
Non-GHG mitigation benefits	X
How the mitigation actions above interact with each other	X
<i>Additional Reporting Items</i>	
Additional information reported that is not required or optional under UNFCCC rules	<ul style="list-style-type: none"> <li>• Financial instrument by value</li> <li>• Methodology for GHG calculation</li> <li>• Policy background</li> <li>• Indicators for MRV</li> </ul>

# Mitigation measures reporting - observations

## Depth of information:

- Information provided is going beyond UNFCCC requirements

## Missing information:

- No required information is missing, the current information provision will be sufficient for BTR purposes **if** the data is comprehensively tracked
- Additional information required for e.g. gender and inclusion analysis, or non-mitigation co-benefits is missing

## Methodological issues:

- Each donor/funder has different requirements
- Projects maybe based on different baselines, and hard to compare
- Projects are unlikely to systematically track actual, rather than expected impacts
- Imposing utilisation of identical methods is likely not possible

## Tracking tools

- Project registry (linked with the national inventory of GHG emission).
- Transaction registry (linked to project registry) – to track units generated, traded, purchased and cancelled.

# Reporting Challenges

It should be noted that data collection and quality control of mitigation measures that are being implemented in the country are the main challenge faced while developing BURs, as these measures are not coordinated and there are risks of overlooking mitigation actions or double counting reductions.

## Data quality:

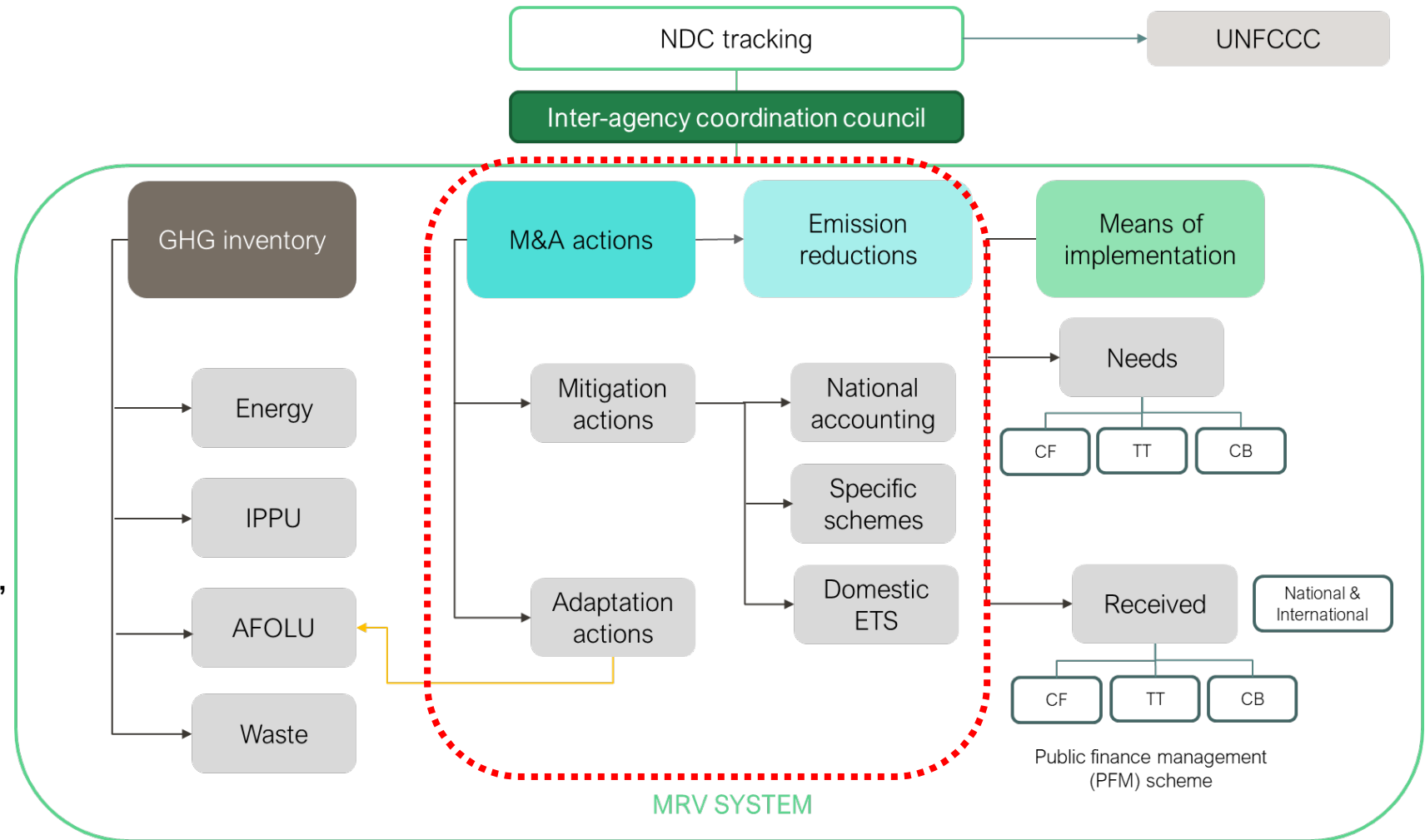
- There is no central repository of data information on measures undertaken – this means it is possible to overlook measures
- Qualitative discussions with e.g. project developers are required to assess project progress – this introduces extra work and error potential
- The utilisation of modelling to assess measure impacts is welcome, but means that quality of reported data is dependent on model quality and access to correct inputs

## Suggestions for improvement:

- Strengthening measures for data collection through:
  - Creation of a central repository
  - Implementation of a standardised reporting framework
  - Mandatory reporting of certain measures, at least in key sectors

# MRV components in Armenia

- Mitigation measures reporting is well integrated in the MRV system and links to national reporting frameworks
- There is a lack of connection to 'Means of implementation'



# Mitigation measures reporting - challenges

Corporate level carbon accounting linkage to the national inventory

- Characteristics of the National Inventory
  - The national inventory uses aggregate national data to estimate GHG emissions from most of the sources, which does not provide the geographical information of the emissions.
  - This could be overcome by reporting emissions at facility level and aggregate it to the national level.
  - For Article 6 trading a clear link from measures to inventory will likely be needed
- Challenges - I
  - There are multiple standards available for GHG emissions reporting, and there is a lack of harmonization among these standards, which makes it difficult to aggregate GHG emissions reported using different standards.
  - The source level data can be aggregated to national level data but it is not clear at what level this data will be reported, at the upstream level or the downstream level i.e., whether the seller will report those emissions or the beneficiary.

## Challenges - II

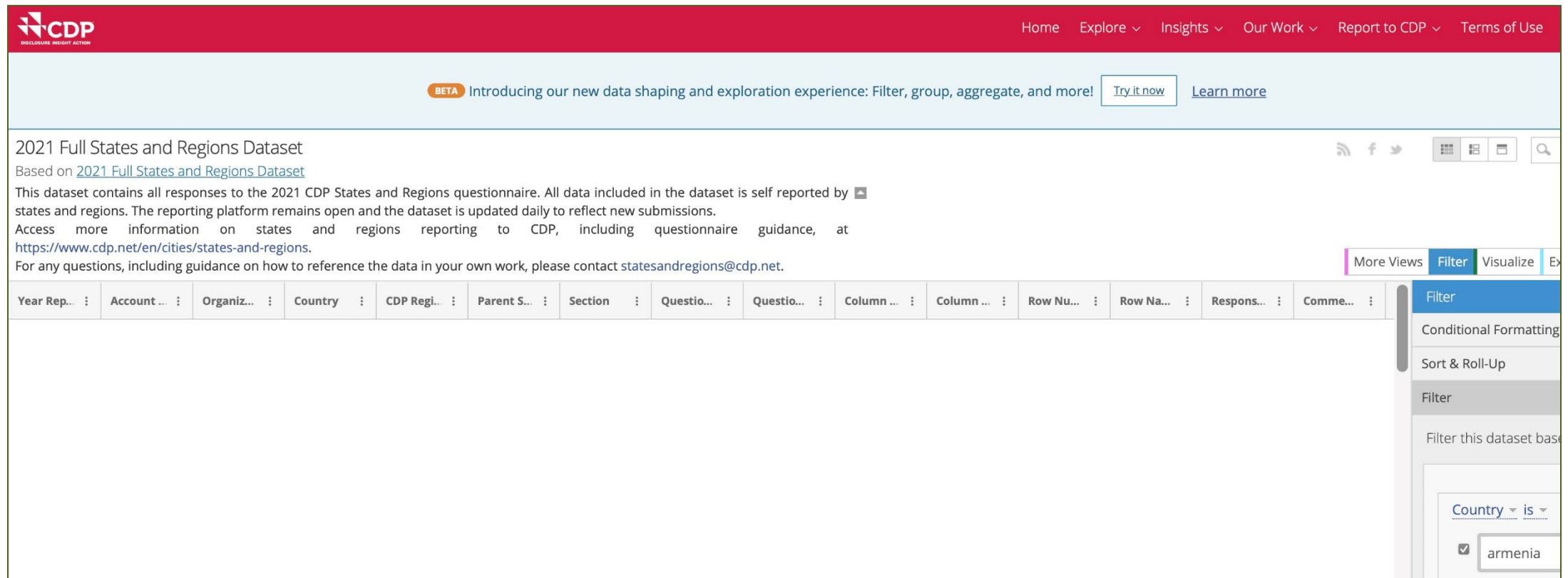
- Corporate and National level GHG inventories complements each other and helps in identifying high carbon emissions hot-spots, help decision-makers understand emission trends, and inform mitigation activities.
- Both the systems are developed separately and hence countries are unable to capitalise on potential linkages between the two.
- Corporate level GHG accounting collects emissions at the source level unlike the national level GHG accounting, which collects anthropogenic emissions and removals at national level.
- Integrating granular/source level emissions will help filling the data gaps in national inventory, which could improve the data quality and accuracy of sector emission factors.
- The corporate level emissions cannot be directly incorporated into the national-level inventories, but it can be used in support of national inventories if sector and national inventory defined in a same manner or when the sufficient disaggregated data are available to combine data in line with the national level inventory.



# Mitigation measures reporting - challenges

## Solutions?

- Small countries like Armenia can report their corporate level emissions by finding out the companies that are main sources of emissions within the sector and aggregate it to the national level by complementation of already existing [Carbon Disclosure Project](#) (CDP) dataset to fill the data gaps, if such data is available. Unfortunately that is not the case for Armenia.



The screenshot shows the CDP website interface for the 2021 Full States and Regions Dataset. The page includes a navigation bar with links for Home, Explore, Insights, Our Work, Report to CDP, and Terms of Use. A banner highlights a new data shaping experience with a 'Try it now' button. The main content area provides information about the dataset, including a description and a link to more information. A table is visible with columns for Year Rep., Account, Organiz., Country, CDP Regi., Parent S., Section, and Question. A filter menu is open on the right, showing options for Conditional Formatting, Sort & Roll-Up, and Filter. The 'Filter' option is selected, and a search box shows 'Country is' with 'armenia' selected and checked.

CDP  
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BETA Introducing our new data shaping and exploration experience: Filter, group, aggregate, and more! Try it now Learn more

### 2021 Full States and Regions Dataset

Based on [2021 Full States and Regions Dataset](#)

This dataset contains all responses to the 2021 CDP States and Regions questionnaire. All data included in the dataset is self reported by states and regions. The reporting platform remains open and the dataset is updated daily to reflect new submissions. Access more information on states and regions reporting to CDP, including questionnaire guidance, at <https://www.cdp.net/en/cities/states-and-regions>. For any questions, including guidance on how to reference the data in your own work, please contact [statesandregions@cdp.net](mailto:statesandregions@cdp.net).

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# Mitigation measures reporting - challenges

## Solutions?

- Source-level data can be collected from the individual facilities and can be complemented with ETS dataset (for the countries that already have ETS in place) to improve national inventories.
- For this the national inventory compiler will have to assess the quality of available corporate level data and whether the data can be mapped to national inventory categories or will cover a single category. Even when the entire sector is not covered, the data can be used to cover missing data.
- This will require continuous monitoring of major emitters

# Country Comparator Case Study

# Country Comparator - Chile

Chile has a long-standing MRV system in operation to cover NAMA mitigation actions, developed with international support.

- Purpose
  - Originally designed to enable the tracking of NAMA projects, in particular for the renewable energy sector.
  - Sufficient flexibility to allow for tracking of all mitigation actions
- Scope
  - NAMA mitigation actions, does not create a national accounting system
  - GHG and co-benefit impacts, as appropriate

# Country Comparator - Chile

- Characteristics
  - Utilises WRI Policy and Action Standard
  - Unified approach that is applied at the start of a project to determine MRV procedures which developers of NAMA projects need to submit for clearance.
  - Set of standardised processes to ensure consistency of reporting of impacts.
  - GHG indicator is a given, other indicators derived by projects as appropriate in a consistent manner.
  - Other indicators can cover implementation milestones, co-benefits, etc. and are activity-based.
  - Indicators must include: i) target value, ii) timeline and iii) baseline and be fully documented.
  - No prescription of GHG calculation methodology but users encouraged to use sector-specific assumptions and baselines
  - External review of project developer plan by ministry's Climate Change Office
  - Annual reporting requirement on progress

# Country Comparator - Chile

- History
  - Ministry identified need for MRV system as part of NAMA development and to support Copenhagen pledge
  - External support:
    - Finance from UK
    - Technical implementation by UNDP
- Assessment
  - Provides comparable, transparent data of high quality in standardised format, thus providing better inputs for policy decision-making as well as reporting at the national and international level.
  - More comparable NAMAs more in line with sectoral assumptions and the national GHG inventory, allows easier identification of mitigation options to achieve the objectives.
  - Regular evaluation of NAMA impacts ensures understanding of a NAMA's impacts on sectoral GHG emissions compared to external influencing factors.
  - Assessment of impacts and causalities improves developer understanding of how the NAMA achieves change and thus can improve the design of NAMAs and their steering during the implementation phase.
  - Stakeholder consultation and testing allowed development of cost-effective, pragmatic requirements.

# Gender Aspects of MRV

# Gender Aspects

Gender considerations play a considerable role in donor and funder decisions. Designing projects for gender has substantial benefits:

- Addresses social inequalities and women's agency
- Helps in Identifying gaps in gender participation and decision-making processes
- Helps in making a more accurate decision by knowing a more comprehensive point of view.
- Enables an opportunity to understand entrenched patterns of social inequality in terms of race, class and gender.
- Enables the engagement of women within the organization and institutions and ensures that they are involved in the dialogues and decision-making processes

Integrating gender in mitigation measure MRV:

- MRV needs to identify who is receiving the benefits of mitigation actions and policy support and who is deprived of it. **Gender-differentiated beneficiary tracking as an indicator is needed.**
- MRV enables a better understanding of gender-based roles and the impact of climate actions, thus making climate actions more effective. **Qualitative research is needed to understand how different beneficiaries view project impacts.**



## Section 3

## Group Assignment

# Group Assignment

Discuss the challenges of reporting under the Paris Agreement for Armenia:

- Additional reporting items for mitigation measures
  - Guiding ideas
    - What other data could be important to track?
    - Who could benefit from tracking it?

There are no 'right' or 'wrong' answers!

Section 4



Discussion

# Group Assignment - Feedback

Discuss the results of the group assignment:

- Feedback

There are no 'right' or 'wrong' answers!

## Section 5

Q&A and Closing

# References

Alianza del Pacifico	2020	<a href="#">Climate Finance MRV In Chile – Baseline Report Series</a>
Metzger, E. (WRI)	2008	<a href="#">Bottom Line on Corporate GHG Inventories</a>
Singh, N., Damassa, T., ALARCÓN-DÍAZ, S. and Sotos, M.	2014	<a href="#">Exploring linkages between national and corporate/facility greenhouse gas inventories</a>
Transparency Partnership	2017	<a href="#">Good Practice Chile – Chilean MRV Framework for Mitigation Actions</a>
US EPA	2022	<a href="#">Greenhouse Gas Reporting Program and the U.S. Inventory of Greenhouse Gas Emissions and Sinks</a>
UNDP	2022	Development of Background Information for Climate Change Monitoring, Reporting and Verification (MRV) Platform Design
UNFCCC	2019	Common tabular formats for the electronic reporting of the information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement - Informal Note by the Co-Facilitators
UNFCCC	2020	<a href="#">Technical Handbook: Preparing for implementation of the enhanced transparency framework under the Paris Agreement</a>