

Analysis report: implications for NDC accounting and transparency ICP SEMED project

Task 6.2 Analysis report of implications for NDC accounting and transparency

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Acronyms and abbreviations

4C	Climate Change Competence Center of Morocco
ANME	National Agency for Energy Management
BAU	Business-as-usual
BMU	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

BTR	Biennial Transparency Report
BUR	Biennial Update Report
C2ES	Centre for Climate and Energy Solutions
CDM	Clean Development Mechanism
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of Parties to the UN Framework Convention on Climate Change
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CSI	Cement Sustainability Initiative
CTU	Clarity, Transparency and Understanding
DNA	Designated National Authorities
EBRD	European Bank for Reconstruction and Development
EEAA	Egyptian Environmental Affairs Agency
ETF	Enhanced Transparency Framework
FSV	Facilitative Sharing of Views
GCF	Green Climate Fund
GEF	Global Environment Facility
GEFF	Green Economy Financing Facility
GET	Green Economy Transition
GHG	Greenhouse Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNR	Getting the Numbers Right
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
ICA	International Consultation and Analysis
ICAO	International Civil Aviation Organization
ICP	Integrated Carbon Programme
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
ITMO	Internationally Transferred Mitigation Outcome
KPI	Key Performance Indicator
LULUCF	Land use, land-use change, and forestry
MBI	Market-based instrument
MPG	Modalities, Procedures and Guidelines
MRV	Monitoring, Reporting and Verification
NAMA	National Appropriate Mitigation Action
NC	National Communication
NCCC	National Committee on Climate Change

NDCs	National Determined Contributions
NF ₃	Nitrogen trifluoride
NI	National Inventory
NIC	National Inventory Committee
NIR	National Inventory Report
NIS-GHG	National Inventory System for GHG emissions
NIU	National Inventory Unit
PFCs	Perfluorocarbons
PMR	Partnership for Market Readiness
QA	Quality assurance
QC	Quality control
REC	Renewable Energy Certificate
SBI	Subsidiary Body for Implementation
SEMED	Southern and eastern Mediterranean
SF ₆	Sulphur hexafluoride
TACCC	Transparency, accuracy, completeness, comparability and consistency
tCO ₂ e	Tonnes of CO ₂ equivalent
TNC	Third National Communication
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development

Definitions

Accounting	For this report, accounting is defined as the process, rules and principles applied to track the progress in the achievement of the NDC mitigation targets.
Additionality	Refers to ensuring countries are undertaking efforts to reduce their emissions beyond the BAU scenario levels, or beyond the country policy context they are subjected to.
Article 6	Article of the Paris Agreement that aims at promoting integrated, holistic and balanced approaches that will assist governments in implementing their NDCs through voluntary international cooperation and carbon market mechanisms.
Baseline	BAU scenario used to calculate the NDC of a country.
Biennial transparency report (BTR)	Reports to be submitted by all Parties to the Paris Agreement containing national GHG inventories, information necessary to track progress of their NDCs, information on climate impacts and adaptation, and information on financial, technology-transfer and capacity-building supported needed and provided. BTRs will supersede current reporting under UNFCCC requirements through BURs from 2024 onward.
Biennial update report (BUR)	Reports to be submitted by non-Annex I Parties, containing updates of GHG inventories, including a national inventory report and information on mitigation actions, needs and support received. Reporting through BURs will be superseded by BTRs from 2024.

Clarity, transparency and understanding (CTU)	Refers to principles of NDC reporting that requires adoption of common modalities, procedures and guidelines for the transparency of action undertaken by a country, and support needed to meet UN reporting guidelines, and implement actions.
СМА	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Supreme body overseeing the implementation of the Paris Agreement consisting of the states who have signed and ratified the Paris Agreement.
COP	Conference of the Parties. Annual meeting for UNFCCC Parties to decide key aspects of respective climate agreements to enable international cooperation of mitigating and adapting to climate change.
Corresponding adjustments	Subtraction of a quantity of GHG from the emissions account of a given Party (buyer) and the addition of an equivalent amount to the emissions account of another Party (seller).
Double counting	Double counting occurs when more than one party claims credit for the same emission reductions, threatening the environmental integrity of the crediting system by 'inflating' the amount of emission reductions that have been achieved. It can take the form of double use, double issuance or double claiming.
Enhanced Transparency Framework (ETF)	Established by the Article 13 of the Paris Agreement for action and support, with built-in flexibility which considers Parties' different capacities and builds upon collective experience. The purpose of the framework for transparency of support is to provide clarity on support provided and received by relevant individual Parties in the context of climate change actions, and, to the extent possible, to provide a full overview of aggregate financial support provided, to inform the global stocktake under Article 14.
Environmental integrity	Core principle embedded in Article 6 of the Paris Agreement implying that transfer of emission reductions does not lead to an increase in global emissions
Global stocktake	Periodic review of implementation of the Paris Agreement, starting in 2023 and every 5 years thereafter, to assess collective progress toward its long-term goals, through combining emissions data reported from each country's National Inventory Reports, and targets as reported under each country's NDC.
Internationally transferred mitigation outcome (ITMO)	Emission reductions or removals, including mitigation co-benefits resulting from adaptation actions and/or economic diversification plans, or the means to achieve them, which are transferred outside of host country pursuant to a cooperative approach under Article 6.2.
Modalities, procedures, and guidelines (MPG)	Lays out all requirements for operationalisation of the ETF, generally applicable for all Parties regardless of whether they are developed or developing countries. However, flexibility in meeting the transparency requirements is provided to developing country Parties "that need it in the light of their capacities".
Monitoring, reporting and verification (MRV) systems	Refers to the applied arrangements to collect data from emissions sources, mitigation actors, and other relevant institutions that will be reported in national reports submitted to the UNFCCC. This system of data collection reports three main elements: emissions, policies and actions, and support needed and received (finance, technology and capacity building).
Facilitative, multilateral consideration of progress	A multilateral peer review of BTRs by Parties taking place after a technical expert review process to consider and exchange lessons on each Party's mitigation efforts, progress towards achievement of NDC, and the result of technical expert review.
National Appropriate	Any action that reduces emissions in developing countries and is prepared under the umbrella of a national governmental initiative.

Mitigation Actions (NAMAs)	
National Communications (NCs)	Reports, submitted by the countries that have ratified the UNFCCC, that cover country's measures to mitigate greenhouse gas emissions as well as a description of its vulnerabilities and impacts from climate change.
National GHG inventory system	A system to keep track of the GHG emissions and removals at the national level.
National Inventory Report	Contains national GHG emission and removal estimates for a specific period of time compiled under the rules for reporting applicable to the UNFCCC.
Nationally determined contributions (NDCs)	Are at the heart of the Paris Agreement and the achievement of these long- term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.
Paris Agreement	Agreement under the UNFCCC to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future.
Registry	Web-based application that records: CO2 allowances and units allocated to and held in operator, person and Government accounts. The movement of allowances and units between accounts (including allocations, transfers, surrender and cancellations).
Technical expert review (TER)	Technical review of BTRs by independent international experts looks at the national inventory report (NIR), the progress of efforts towards implementation and achievement of NDC, and support (financial, technology, capacity building) provided to developing country Parties. The review is conducted by a team of experts through one of the four formats agreed under the MPG.
Transparency	Principle for GHG inventories and information provided by parties to the UNFCCC that claims that information must be comprehensive and verifiable by third parties, who must be able to monitor it.
Transparency framework	Reporting mechanism and standards to be followed by countries to communicate information relevant to the implementation of the UNFCCC and results of review on those reports.
Transparency, accuracy, completeness, comparability and consistency (TACCC)	Principles that guide the processes in which accounting systems are developed and operated in order to ensure quality and comparability of collected data. These rules around accounting are required by article 4.13 of the Paris Agreement.

Executive summary

Rules on ensuring transparency and accounting are fundamental in tracking climate action, setting future targets, and mobilising international climate finance under the Paris Agreement. While the Paris Rulebook has finalised most of the transparency and accounting requirements for countries' 2020 Nationally Determined Contributions (NDCs) submission, many developing countries are facing capacity building challenges in meeting these requirements, to some extent new for them.

The objective of this report is therefore to assist SEMED policymakers understand how SEMED countries can set up systems of NDCs accounting, transfer mechanisms and transparency to enable domestic and international climate finance flows, as required by different schemes. Although Lebanon (2018) and West Bank and Gaza (2019) have been recently categorised as part of the SEMED region, this report focuses in Egypt, Jordan, Morocco and Tunisia only. This work is undertaken under the auspices of the Integrated Carbon Programme (ICP)¹ for SEMED countries to promote low-carbon transitions in the region and aims to identify common challenges, good practice examples and to collect recommendations for SEMED participants.

The main challenges in setting up these systems for SEMED countries have resulted in problems with the consistency, frequency, and quality of emissions data relevant to the NDCs. This overall lack of valuable emissions data makes it difficult to determine the targets that a country would be willing to commit to for the upcoming submission of new or revised NDCs in 2020-2021². SEMED countries could benefit from further capacity building around emissions tracking systems so that data is properly verified and accounted for under the NDCs.

The key actions for SEMED policymakers to overcome these challenges and ensure the SEMED countries can benefit from international climate financing flows are:

- reporting actual emission reduction targets for the 2020 NDC submissions, with encouragement to adopt more ambitious climate action and targets
- setting and implementing monitoring, reporting and verification (MRV) systems across sectors to provide a more accurate estimation of sectoral emissions that are reported to the national MRV systems, and to identify relevant sectors for the NDCs
- setting up national MRV systems to conform to transparency and reporting rules, as required under the Enhanced Transparency Framework (ETF) of the Paris Agreement

A SEMED alliance made up of SEMED policymakers could help countries to implement the above actions, as it has been proven by other successful policy alliance frameworks around the world. SEMED countries' individual challenges are similar and could justify the development of an alliance that highlights common approaches of how each country is addressing them, allowing each to learn from good practices, and with the potential to develop tools together that would help with transparency and accounting provisions of the Paris Agreement. This SEMED alliance could also sit within, or coordinate activities with the broader United Nations Framework Convention on Climate Change (UNFCCC) working group for the Arab League.

Several good practices to overcome accounting and transparency challenges already exist in the SEMED region, from the creation of legislative frameworks as the Climate Change Bylaw in Jordan to the engagement of the private sector through low-carbon roadmaps and MRV systems as the ones for the cement industry in Egypt.

Based on the capacity building needs and existing good practices, the following **key recommendations** have been identified to support transparency and accounting requirements in SEMED countries:

¹ The ICP SEMED programme is led by the EBRD and financially supported by the Spanish Government trough their Spanish Climate Change Office (OECC).

² Due to disruptions caused by the Covid-19 pandemic during 2020, submissions of new or updated NDCs by a number of parties have been pushed back to 2021.

- 1. Connect international capacity building programs with local entities responsible for NDC implementation
- 2. Define clearly the responsibilities for public and private stakeholders for NDC reporting
- 3. Align transparency and accounting for NDC's with other national priorities
- 4. Create a clearer communications strategy on NDC implementation for national focal points

These lessons provide practical guidelines for SEMED policymakers on supporting implementation of the high-level transparency and accounting requirements of the Paris Agreement. Conforming to such requirements are the foundational steps to supporting the potential for future carbon market mechanisms in SEMED countries and access other sources of international climate finance.

1 Introduction

1.1 Context

The European Bank for Reconstruction and Development (EBRD) together with financial backing from the Spanish Government through the Climate Change Office is supporting the transition to low carbon economies in the Southern and Eastern Mediterranean (SEMED) region which, within the EBRD context, originally comprised Egypt, Jordan, Morocco and Tunisia. In recent years, Lebanon (2018) and West Bank and Gaza (2019) were categorised as part of the SEMED region but, for the purpose of this study, only the initial four SEMED countries have been considered.

This support is provided through an Integrated Carbon Programme (ICP), a comprehensive package that includes technical assistance, policy dialogue and capacity building in carbon markets, and financing instruments for emission reduction projects. This ICP³, known as 'Developing and transacting an up-scaled Clean Development Mechanism (CDM)-based carbon credit approach in SEMED' (ICP SEMED), seeks to identify an approach for the design and implementation of an up-scaled crediting mechanism, including a selection of potential renewable energy pilot projects in the SEMED region.

One of its main objectives is to ensure the long-term sustainability of the carbon crediting mechanism by aligning it with post-2020 domestic climate strategies and targets, as well as the development at the level of international climate policy, especially in relation to Article 6 of the Paris Agreement. In order to be eligible for Article 6, or any other type of carbon market mechanisms, countries need to state their own climate policies and actions through their new or updated National Determined Contributions (NDCs) originally due in 2020. Furthermore, Parties need to have robust emission data collection and reporting systems that conform to the transparency and accounting rules of the Paris Agreement.

1.2 Objective

The SEMED countries submitted their NDCs in 2015, and with the exception of Egypt, the countries' NDCs incorporated economy-wide targets to reduce their emissions. Morocco has submitted stronger targets as part of its updated NDC, Tunisia has publicly announced intention to enhance its NDCs, while Jordan has passed a domestic climate law to enable inter-ministerial cooperation in developing the 2020 NDC. Nevertheless, the EBRD, along with the World Bank Partnership for Market Readiness (PMR), have recognised that these countries face capacity-building, both legal and institutional, and technical challenges to update their NDCs, and conform to the finalised rules on transparency and accounting of the Paris Agreement. Addressing these transparency and accounting issues is fundamental to enabling SEMED countries to access international climate finance.

The objective of this report is therefore to help SEMED policymakers understand how SEMED countries can set up systems of NDC accounting, transfer mechanisms and transparency to enable domestic and international climate finance flows, as required by different mechanisms. More specifically, this report will:

- highlight the importance of a robust emissions accounting and reporting system and explain the links between Monitoring Reporting and Verification (MRV), transparency and accounting terms (Section 3);
- outline the pre- and Paris Agreement rules for transparency and accounting for developing countries (Sections 4 and 5);
- explain the relevance of accounting and transparency for accessing climate finance (Section 6);

³ The ICP SEMED programme is led by the EBRD and financially supported by the Spanish Government trough their Spanish Climate Change Office (OECC).

- analyse how SEMED countries are currently adhering to transparency and accounting rules (Section 7);
- identify emerging good scalable practices within the SEMED countries (Section 7);
- identify existing gaps and challenges for SEMED countries to adhere to transparency and accounting rules (Section 8) and
- create a set of recommendations for SEMED countries to comply with transparency and accounting frameworks to access international climate finance (Section 9).

While transparency and accounting are complex topics under the Paris Agreement covered in a range of its articles and associated decisions of the Conference of Parties, the present report reflects on the various elements with a view to contributing to the ongoing discourse on these matters. Further work on these aspects is being done under different initiatives, which could be of relevance, including, for instance, Climate Transparency's "NDC Transparency Check" methodology developed jointly with the World Bank⁴.

⁴ https://www.climate-transparency.org/ndc-transparency-check

2 Background

2.1 Building international climate action

From the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the international community has agreed on the importance of undertaking action to address climate change through reducing greenhouse gas (GHG) emissions resulting from anthropogenic activities. Since then, there have been successive international treaties defining global goals and individual country responsibilities, with annual conferences (referred to as Conference of Parties, or COP) to facilitate international negotiations and cooperation on the matter.

In 2015, COP 21 concluded with the creation of the Paris Agreement, which became effective in 2016 and goes into implementation as of 2021 to replace the previous international climate treaty, the Kyoto Protocol. The Kyoto Protocol, established in 1997 and entered into force in 2005, is the only treaty with legally binding commitments in the world under which Parties commit to reduce their GHG emissions. The Kyoto Protocol's second commitment period ran from 2013 to 2020 with 192 adhered Parties (UNFCCC, 2019) which, unfortunately, covered only 18% (European Commission, 2019) of the global emissions. The Kyoto Protocol was a pioneer in introducing market-based mechanisms as a tool to support countries to achieve their emissions reduction targets cost-effectively. So, market-based mechanisms for emission reductions were not new when the Paris Agreement was signed, allowing countries to trade carbon credits to achieve their mitigation targets.

However, the Paris Agreement differs from the Kyoto Protocol in two main aspects:

- 1. While the Kyoto Protocol only required developed countries to submit GHGs emission reduction targets, the Paris Agreement establishes a different framework under which all signatories, both developed and developing countries, are required to:
 - have emissions tracking systems to trace the progress of their GHG emission reduction and other NDC targets;
 - report in their NDCs how they will mitigate and adapt to climate change over a period of time;
 - explain how these actions will contribute towards sustainable development; and
 - produce new and more ambitious targets in subsequent NDCs.
- 2. Under the Paris Agreement, countries will track progress towards not only mitigation targets (as was done under the Kyoto Protocol), but also towards other targets such as those related to climate change adaptation and ecosystem protection, as set out in the NDCs of many countries, especially those that are developing or highly vulnerable to climate change.

To reach the Paris Agreement's long-term goals, climate action must become more ambitious over time. To sustain this rising ambition, the Agreement establishes a continuous improvement cycle through which countries plan and communicate their NDCs, then implement their plans, and finally, review individual and collective progress to inform future planning and their next NDCs. This process provides the foundation for countries to bring the Paris Agreement to life (Figure 1).



Figure 1: Paris Agreement cycle

(Source: South Pole, 2019)

The first submission of the NDCs, which are due every five years by all signatories, was executed by 184 (UNFCCC, 2019) Parties in 2015, including the SEMED countries. According to Climate Watch, so far 112 countries have submitted updated or new NDCs in , and 52 countries have shown their intention to enhance ambition or action (Climate Watch, 2021).

2.2 SEMED country NDCs

An overview of the current NDC targets by the SEMED countries is shown in Table 1. Jordan, Morocco and Tunisia have quantitative mitigation targets under their NDCs, particularly emissions reductions relative to a business-as-usual (BAU) scenario (Jordan and Morocco) and carbon intensity reduction (Tunisia). These countries expressed that international financial aid, capacity building and technology transfer support are the means to achieve conditional targets. Egypt differs from the other countries as it does not have a quantitative mitigation target in place, only mitigation policies and measures. All countries have indicated the baseline reference for their NDC and mark 2030 as their target year.

Apart from Egypt, the SEMED countries have economy-wide coverage of their NDCs. Egypt's decision to exclude land use, land-use change, and forestry (LULUCF) from its sectoral scope might be related to its NDC target which focuses on diffusion of locally appropriate low-carbon energy production technologies with substantial reductions in energy intensity.

Party	Туре	Emissions reduction target	Baseline	Target year	Sectors covered
		Unconditional Conditional			
Egypt	Policies and measures	Policies and actions	-	2030	Energy, industry, agriculture, waste

Table 1: SEMED countries's NDC targets

Party	Туре	Emissions reduction target		Baseline	Target year	Sectors covered
		Unconditional	Conditional			
Jordan	Relative emissions reduction ⁵	1.5%	12.5%	BAU	2030	Economy-wide (Energy, industry, agriculture, waste, LULUCF)
Morocco	Relative emissions reduction	18.3%	45.5%	BAU	2030	Economy-wide (Energy, industry, agriculture, waste, LULUCF)
Tunisia	Carbon intensity reduction	13%	28%	2010	2030	Economy-wide (Energy, industry, agriculture, waste, LULUCF)

(Source: South Pole, 2019 (updated 2021) based on Ikeda& Hattori, 2019)

2.3 The lack of convergence in NDC reporting

The Paris Agreement empowers countries to set their own commitments, allowing them to design the NDCs according to their levels of economic development, access to technology, finance and climate change expertise and other relevant national circumstances. In addition, a number of factors drive some countries in splitting their NDCs into unconditional and conditional emission reduction targets. Unconditional targets refer to targets that countries will commit to without any external support. On the other hand, conditional targets show the willingness to undertake more ambitious targets if certain conditions are met, such as receiving international assistance.

Common guidance for how to report targets and climate actions in the NDCs was supposed to be developed in COP 20 in Lima, ahead of the first NDC submission in 2015. However, failure to produce this common guidance framework in Lima resulted in the 184 submitted NDCs differing with regards to:

- the types of targets reported (e.g. economy-wide vs sector-specific targets; which GHGs are considered; NDCs arising internally vs externally, years targets will be measured against and years in which targets will be achieved);
- 2. how progress of targets will be measured and tracked within national accounting systems; and
- 3. the assumptions that underlie both.

The lack of common guidance for the 2015 NDC submission presents difficulties at both the individual country level and global level. At the country level, it becomes difficult to track progress of NDC implementation. Often countries lack the appropriate systems to measure and track progress towards their own targets. While international institutions can develop common guidelines, targets are diverse and progress monitoring will require different information in each case so it becomes difficult to create bespoke systems for each country.

At the global level, the diversity of targets makes it difficult to compare the progress of countries, and to combine the individual country efforts towards the collective goal of reducing GHGs, referred to as the 'global stocktake'. This global stocktake is essential to determine whether the international community is on track to meet the Paris Agreement's goal of limiting the increase of average global temperatures to well below 2 degrees by the end of the 21st century, with best

⁵ Emissions reduction target relative to a BAU emission projection.

efforts towards limiting it to only a 1.5-degree increase. The 2020 United Nations Environmental Programme Emissions Gap report estimates that current global efforts are not on track to meet these goals, with current ambitions stated in NDCs more likely to lead to a 3 degree increase by the end of the century (UNEP, 2020).

3 Defining MRV systems, transparency and accounting

The importance of a common and robust emissions tracking system that aligns countries' NDCs is evident and key for reaching the Paris Agreement goals and implementing NDCs at national level. But this is nothing new, already from the beginning of the UNFCCC having a track record of emissions has been identified as one of the pillars for international climate action to succeed.

However, keeping a track record of national emissions is a complex task that involves different players, tools and rules and that needs to be aligned to the international context. Although it has been in the centre of attention since 1992, the definition of MRV, accounting and transparency has evolved over time being difficult to provide a concrete definition for each of the terms.



Figure 2: MRV system: from raw data collection to generating reports

(Source: World Bank PMR, 2019)

The term "MRV system" usually refers to the applied arrangements to collect data for national reports to be submitted to the UNFCCC, including data on GHG emissions from sources and removal by sinks, data on mitigation progress from actors, and other data from relevant institutions. Although guidelines exist, decisions relating to design and institutional arrangements for domestic MRV systems are at each country's discretion. Domestic MRV systems (Figure 2) include:

- institutions and experts;
- arrangements and systems to collect, compile, and manage relevant and available data;
- associated tools, documentation of methodologies and data;
- approach to measure and verify domestically supported National Appropriate Mitigation Actions (NAMAs); and
- quality assurance (QA) and quality control (QC) in the process.

In general, **accounting** refers to the process of tracking and adjusting a country's GHG inventories and climate finance flows to measure the progress in the achievement of its mitigation targets, while **transparency** is understood as the principle that should be followed during the process to ensure accurate results and build confidence between the parties.

MRV systems are designed to help ensure that **accounting** of GHG inventories and climate finance is done accurately and per the applicable **transparency** principles. The three terms are strongly related, being difficult to break the links among them and often resulting in the terms misuse. Analysing their evolution is crucial to understand their implications for NDC reporting requirements under the Paris Agreement of the UNFCCC. Figure 3 gives an overview of the history of these terms, which will be explained in the subsequent sections.



Figure 3: MRV, accounting and tranparency evolution

(Source: South Pole, 2019)

4 **Pre-Paris transparency and accounting framework**

4.1 Measuring and reporting under UNFCCC

The UNFCCC created a reporting mechanism and standards to be followed by countries to communicate information relevant to the implementation of the Convention and results of reviews of those reports. The purpose of this framework under the UNFCCC is described under Article 12 of the Convention, which obliges all Parties, in accordance with Article 4, to communicate to the COP information relevant to the implementation of the Convention, including in relation to emissions and removals. The reporting guidance provides countries with clear technical requirements and review processes.

Country GHG measuring and reporting to the UNFCCC serves multiple purposes:

- 1. Provides an understanding of potential risks of climate change.
- Communicates the national efforts and progress being made in climate change mitigation and adaptation, which informs progress at the global level. This is used as a basis for measuring how far countries have progressed in meeting the necessary level of measures to achieve agreed global climate goals.
- 3. Measures accountability and comparability of actions, within countries and between countries. For which the completeness and the level of detail of data provided in country reports is key.
- 4. In the case of developing countries, informs in an accountable manner the support they need to enable more ambitious climate actions.

4.2 The introduction of accounting

The Kyoto Protocol introduced carbon market mechanisms (please see Annex I) that could be used by Annex-I Parties as part of achieving their emission reductions targets. Accounting became a must to ensure developing countries' inventories were regularly updated. Relevant principles and guidelines for the verification and accounting were established with this purpose.

4.3 Strengthening transparency and creating a common MRV framework

Under the Bali Action Plan adopted in 2007, Parties agreed to strengthen MRV process in developing countries to enhance climate change mitigation actions. Upon the adoption of the Bali Action Plan, not only developed countries but also developing countries agreed to put in place domestic MRV systems to track climate change activities and enhance transparency in international reporting. The UNFCCC Handbook outlines key transparency requirements and guidelines for domestic MRV frameworks as well as arrangements that may be needed at the domestic level in order to meet them (UNFCCC, 2014).

A domestic MRV system, ideally, covers data collection and reporting of three main elements (Figure 4): emissions, policies and actions, and support needed and received (finance, technology and capacity building).

Analysis report: implications for NDC accounting and transparency



Figure 4: Elements of national MRV frameworks

(Source: UNFCCC, 2014)

MRV for emissions results in a national GHG inventory report to the UNFCCC which should be submitted at least once every four years through the National Communications (NCs) report. For the formulation of a GHG inventory report, countries refer to the methodologies and standards set by the Intergovernmental Panel on Climate Change (IPCC). The main standard is the IPCC Guidelines for National GHG Inventories, which informs countries about all the data, calculation formula, emission factors, default values and reporting tables required to prepare and report a national GHG inventory.

MRV of policies and actions and MRV of support are designed by each country following reporting guidelines under Biennial Update Reports (BURs) provided in the UNFCCC Decision 2/CP.17 (UNFCCC, 2012), provided in Annex II. In contrast to the GHG inventory guidelines from IPCC, there are no specific reporting tables or parameters that need to be used by countries in reporting the progress of mitigation actions and support needed. Countries typically report in the form of a table that describes each climate mitigation action in the country both at programme and project-level.

As part of the Bali Action Plan, the Parties agreed to add to the international framework a new transparency requirement and process of BUR submission. As a result, in addition to pre-existing NC, countries now report in their BURs progress of mitigation actions, the support needed and received by each country, and the structure of the domestic MRV system, every two years.

Developing country Parties were requested to submit their BUR 1 by December 2014 (UNFCCC, 2012). As of August 2021, 66 countries have submitted their BUR 1, 34 have submitted their BUR 2, 17 have submitted a BUR 3 and five have submitted a BUR 4 (UNFCCC website, 2021).

4.4 The UNFCCC MRV framework in SEMED

Table 2 summarises the NCs and BURs submissions in SEMED countries, which do not currently comply with the frequency required under the pre-Paris framework.

Party	NC	BUR
Egypt	NC 1 1999 NC 2 2010 NC 3 2016	BUR 1 2019
Jordan	NC 1 1997 NC 2 2009 NC 3 2014	BUR 1 2017 BUR 2 2021
Morocco	NC 1 2001 NC 2 2010 NC 3 2016	BUR 1 2016 BUR 2 2019
Tunisia	NC 1 2001 NC 2 2014 NC 3 2019	BUR 1 2014 BUR 2 2016

Table 2: UNFCCC MRV framework submissions in SEMED

(Source: South Pole, 2019 /updated 2021)

In contrast to the NC, the BUR is subject to an international consultation and analysis (ICA) which includes an international expert review on BUR and a facilitative sharing of views (FSV). The FSV, a workshop-style meeting where Parties engage in a peer-review discussion, is organised twice a year during the Subsidiary Body for Implementation (SBI) sessions at the COP. Every BUR submitted must undergo an FSV process and hence, the SEMED countries have been subject to as many FSVs as they have submitted BURs. Moving towards the Paris Agreement era, Parties need to utilise their experiences in review process and upgrade the existing domestic MRV systems to meet international reporting requirements under the Paris Agreement's new Enhanced Transparency Framework (ETF).

4.5 From the UNFCCC MRV framework to the Paris Agreement ETF

When Parties agreed on the rules for implementation of the Paris Agreement at COP 24 in Katowice, it was decided to replace the current UNFCCC MRV framework with the ETF from 2020. In general, the ETF requires Parties to provide more detailed reports than the pre-Paris MRV framework.



Figure 5: From the UNFCCC MRV framework to the Paris Agreement ETF⁶

(Source: Dagnet et al., 2019)

As shown in Figure 5, this upgrade brought changes in the reporting and review systems. One of the main changes is the replacement of the Annex 1 Parties biennial reports and the Non-Annex 1 Parties less detailed BURs by the common Biennial Transparency Reports (BTR) to which both developed and developing countries are subject. The first BTR needs to be submitted along with a national inventory report (NIR) at the latest by 31 December 2024.

One of the major changes in transparency under the Paris Agreement is the review process for all countries. The review framework for BTR consists of two phases: a technical review and a multilateral consideration of progress, explained in more detail in Annex III.

However, other aspects remain the same and countries continue to submit their NCs under the Paris Agreement in the same way as under the UNFCCC framework. A comparison of the main reporting requirements and review process for developing countries under the UNFCCC transparency framework and the Paris Agreement ETF can be found in Annex II.

⁶ Solid-coloured boxes indicate reports or review processes operationalised by the Paris Agreement. Boxes with dashed outlines indicate reports or review processes that continue under the Convention. Developed countries' inventories not submitted with a biennial transparency report will be subject to a simplified review, which consists of a check by the UNFCCC secretariat.

5 Paris Agreement transparency and accounting framework

5.1 An overview

Since COP 21 in Paris, successive COPs have focused on how to address the lack of NDCs convergence by developing common targets and progress reporting frameworks at the individual country level and at the global level. While countries can continue to define their own NDCs that are specific to their national circumstances, the way they communicate and account for NDCs and report on implementation progress and achievement of NDCs needs embedded into the common framework defined by the Paris Agreement Article 13 (enhanced transparency framework). Article 13 directly speaks to and draws upon/feeds into the following key articles of the Agreement relevant for accounting and transparency: Article 4 (NDC), Article 6 (voluntary international cooperation), Articles 9-11 (financial, technology transfer and capacity building support, respectively), and Article 14 (Global Stocktake), as further illustrated in Figure 6.



Figure 6: Linkages between Enhanced Transparency Framework and other clauses of the Paris Agreement

(Source: World Resources Institute, 2017)

In COP 24 in Katowice, Poland, the rules around how countries account for and report on their NDCs were agreed, expanding on the overarching provisions of Articles 4 and 13 of the Paris Agreement, to ensure alignment on how the countries' accounting systems will report and track GHG emissions and achievement of NDCs.

Specifically, rules around NDC accounting are required by article 4.13 of the Paris Agreement, which also requests countries to carry out accounting processes with transparency, accuracy, completeness, comparability and consistency (TACCC). In addition, provision by Parties of information on the clarity, transparency and understanding (CTU) of their NDCs is required under Article 4.8 of the Paris Agreement. The above elements are covered by the respective guidance on NDC accounting and transparency adopted as part of Katowice climate package.

When accounting for national GHG emissions and removals covered by their NDCs, countries should use the methodologies and metrics assessed by the IPCC and adopted by CMP. In this

way, all countries will be able to ensure methodological consistency between communications and the implementation of NDCs. It is also recommended that accounting systems include not only all country's emissions but also sinks, and possible exclusions are explained in a logical and transparent manner. The main rules and principles for the subject of accounting are summarised in Figure 7.

Article 13 of the Paris Agreement also envisages common modalities, procedures and guidelines (MPGs) for the transparency of actions undertaken by a country as well as support provided and received in the context of climate change actions, which were also agreed and adopted as part of the Katowice climate package.



Figure 7: Paris Agreement Rulebook accounting rules

(Source: South Pole, 2019 based on C2ES, 2019)

Finally, Article 6.2 calls for robust accounting and transparency systems for internationally transferred mitigation outcomes (ITMOs). ITMOs are the result of international cooperation which enables countries to collaborate in implementing their respective NDCs. With detailed guidance on Article 6 accounting expected to be adopted at the next COP 26 in Glasgow, the finalised rules for transparency and accounting systems should provide the important framework for enabling carbon market mechanisms to promote international climate finance.

5.2 The Enhanced Transparency Framework

The ETF, which consists of a reporting and review framework, was developed based on country experiences in complying with the previous UNFCCC MRV framework. Generally, countries which have submitted BURs are better equipped to meet the ETF requirements, such as biennial reporting, being subjected to reviews, tracking progress of mitigation actions and reporting support received. They may also have greater capacity to develop a national GHG inventory that meets the ETF reporting requirements under its modalities, procedures, and guidelines (MPGs) for the transparency of action and support, as explained in detail in Annex IV.

In order to follow the ETF, countries need to make sure that their domestic MRV system is designed to promote continuous improvement, flexibility, environmental integrity and efficiency (Graichen & Blank, 2018) in line with the agreed ETF guiding principles listed in Figure 8. More details of the changes that need to be implemented to adjust to the ETF requirements can be found in Annex V. National roadmaps for addressing the current gaps and implementing the improvements to the MRV systems and processes could be useful in making sure the SEMED countries are ETF-ready to report in line with the new requirements of the Paris Agreement.



Figure 8: ETF guiding principles

(Source: South Pole, 2019)

5.3 SEMED readiness for the new transparency and accounting framework

An analysis of SEMED countries reporting practices and GHG accounting guidelines to date (Table 3) is used as a base to asses SEMED countries readiness to report under the ETF and comply with the accounting and transparency frameworks under the Pars Agreement.

Party	Time between NCs	Applied IPCC Guidelines
Egypt	NC1-NC2 11 years NC2-NC3 6 years	2006 IPCC guidelines - for latest inventory; previous inventory(ies) apply 1996 IPCC guidelines
Jordan	NC1-NC2 12 years NC2-NC3 5 years	2006 IPCC guidelines - for latest inventory; previous inventory(ies) apply 1996 IPCC guidelines
Morocco	NC1-NC2 9 years NC2-NC3 6 years	2006 IPCC guidelines - for latest inventory; previous inventory(ies) apply 1996 IPCC guidelines
Tunisia	NC1-NC2 13 years NC2-NC3 5 years	2006 IPCC guidelines - for latest inventory; previous inventory(ies) apply 1996 IPCC guidelines

Table 3: SEMED countries NCs submission frequency and applied IPCC Guidelines

(Source: South Pole, 2019 / updated 2021)

As shown earlier in Table 2, Tunisia, Morocco and Jordan have relatively more practice than Egypt, having already submitted two BURs compared with just one BUR for Egypt. This may reflect higher capacity to comply with the new BTR, which should be submitted every two years. On the other hand, the frequency with which the countries have submitted their NCs is not sufficient to meet the 4 years' interval that was established by the UNFCCC MRV and that remains in force under the ETF.

Under the ETF, countries must adopt the latest IPCC guidelines for GHG inventory preparation for their first BTR. This means adopting the IPCC 2006 Guidelines and the complementary IPCC 2019 Refinement, which provides supplementary up-to-date methodologies to estimate GHG emissions and absorption including for new sources and sinks that are not included in the 2006 Guidelines. In addition to methods for national GHG inventory, the IPCC 2006 Guidelines provide general guidance on standards and procedures for QA/QC and verification of national GHG inventory and national reports. Setting up domestic QA/QC plans and procedures is good practice to improve transparency, consistency, comparability, completeness, and accuracy of the national GHG inventories (IPCC, 2006). While all of the countries analysed have adopted the 2006 IPCC Guidelines for their latest GHG inventories submitted as part of their BURs, consistency of reporting should still be ensured by applying the same guidelines to the previous inventory years.

6 Transparency and accounting requirements to access international climate finance under the Paris Agreement

Domestic MRV systems are key to comply with the transparency and accounting frameworks defined by the UNFCCC under the ETF and the Paris Agreement and have access to international climate finance. Hence, countries need an infrastructure that satisfies various requirements as illustrated in Figure 9.



Figure 9: How MRV systems can help with meeting international transparency and accounting requirements domestically and internationally

(Source: World Bank PMR, 2019)

If that national infrastructure is aligned with the international requirements, countries can opt to several climate finance options under the Paris Agreement. The Paris Agreement dedicates several Articles to mobilise international climate finance, as shown in Figure 10. Articles 9 to 11 have options to enable up-front financing for capacity building activities for undertaking climate action in developing countries. In contrast, Article 6 of the Paris Agreement rewards countries for climate mitigation through the sale of ITMOs. However, to get access to international climate finance from these sources, developing countries as Egypt, Jordan, Morocco and Tunisia need to adhere to the transparency and accounting rules under the Paris Agreement.



Figure 10: Sources of international climate finance for developing countries under the Paris Agreement

(Source: South Pole, 2019)

6.1 Financial support under Articles 9 to 11

Article 9 to 11 of the Paris Agreement clearly demonstrate the responsibility of developed countries to allocate climate finance to support mitigation and adaptation actions – both in terms of technologies and capacity building – in developing countries. However, in order to be a recipient of this climate finance, developing countries need to clearly report their financing needs, and report and account for how received funds have been distributed.

Specifically, under the ETF, countries are encouraged to provide information on financial support needed and received under Articles 9 to 11 of the Paris Agreement, in addition to technology development and transfer and capacity-building support. A lack of financial management and budget tagging could be indicated if developing countries fail to report adequately the financial support they need, and funds they have received. This may risk the country's accountability and the trust from donors and financial support providers. Furthermore, without proper management of support data, a country will not have enough evidence to account for their NDC targets and improve them over time, especially when the country has conditional target such as with Jordan, Tunisia and Morocco. Proper tracking and reporting of climate finance is therefore essential for both the country's access to climate finance and for proper accounting of NDC target achievement.

6.2 Income from international crediting mechanisms

Another source of climate finance is international carbon markets, such as Article 6 of the Paris Agreement. Specifically, Article 6.2 and 6.4 involve international cooperation and crediting mechanisms where a country can sell its emission reductions to another country, which counts this emission reduction towards meeting its NDC targets. Emission reductions that are bought and sold between countries are termed ITMOs.

Unfortunately, Article 6 rules around how to calculate the amount of emission reductions that are achieved in a seller country, and how the seller and buyer countries' accounting systems need to be adjusted after an ITMO transaction, still need to be negotiated at the next COP 26 in Glasgow.

Clarifying these rules around Article 6 is important for upholding the environmental integrity of the international crediting mechanism by ensuring emission reductions are real, verified, and not double counted. The outcomes of these negotiations will have important implications for how countries develop their NDC targets, and structure their accounting systems, to enable international crediting mechanisms.

Although Article 6 specific rulebook is yet to be agreed, the MPGs paragraph 77(d) provides an indication of what the reporting requirements will be for Parties that participate in cooperative approaches involving the use of ITMOs towards NDC, or authorise the use of mitigation outcomes for international mitigation purposes other than achievement of a Party's NDC (e.g. for use by airlines for compliance with requirements under CORSIA). Parties will need to report the following elements in a structured summary in the BTR consistent with future guidance (UNFCCC, n.d.):

- Annual level of anthropogenic emissions by sources and of removals by sinks covered by the NDC, reported biennially;
- An emissions balance reflecting the level of anthropogenic emissions by sources and of removals by sinks covered by a Party's NDC, adjusted on the basis of corresponding adjustments;
- Any other information consistent with decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) on reporting under Article 6;
- Information on how each cooperative approach promotes sustainable development and ensures environmental integrity and transparency, including in governance, and applies robust accounting to ensure inter alia the avoidance of double counting.

Conforming to these rules can help with addressing key principles of the Paris Agreement on environmental integrity and avoidance of double counting.

Beyond the mandated MRV processes, country-level institutional and regulatory frameworks should also be established to authorise mitigation activities to generate emission reductions eligible for use under Article 6, in order to ensure no double counting occurs and to facilitate NDC tracking. The process of host country-level authorisation for Article 6 should be further assessed, highlighting how this integrates with the traditional MRV processes under the Paris Agreement ETF.

6.3 Environmental integrity and additionality

Environmental integrity and additionality are interrelated and, in some context, interchangeable concepts applied in climate markets which, as the broadly accepted definition goes, imply that generation and transfer of emission reductions does not lead to an increase in global emissions. Both concepts are premised on the assumption that targeted level of emissions resulting from a mitigation intervention is lower that would otherwise be expected under the BAU scenario level that reflects the existing or planned policies and measures. For example, the country's emissions can reduce because the country decides to impose regulatory standards for more efficient technologies. The resulting future emission trajectory caused by the implementation of this regulation is considered the BAU baseline. Additionality is an important principle in recognising and rewarding efforts in reducing emissions that go beyond this baseline. In the aforementioned example, a firm can implement technologies that are even more efficient than mandated by the policy regulations. The emission reductions achieved above the BAU baseline are considered additional. Upholding the additionality principles ensures that efforts to address climate action are ambitious.

Parties have not agreed on the guidance for implementation and reporting of achievements made by activities under Article 6 of the Paris Agreement. This guidance is crucial since it will define the eligibility of activities under Article 6 mechanisms, including applicability of the concept of additionality. which is explicitly referenced as the basis for emission reductions generated by mitigation actions under the mechanism of Article 6.4. In theory, BAU could be determined by the kind of policies and targets set in the NDCs. Within NDCs, the BAU baseline is indicated in the unconditional targets countries report. However, countries can also signal in their NDCs a willingness to undertake more ambitious targets if certain conditions are met, such as receiving international assistance in meeting such targets. In additional to unconditional targets, Jordan, Morocco and Tunisia have more ambitious conditional targets, based on receiving international finance and technical assistance.

Mitigation outcomes refer to emission reductions that go beyond the targets, policies and actions listed in the country's NDCs. However, Article 6 negotiations have not clarified the rules of how to treat NDC unconditional or conditional targets in the context of setting BAU baselines. Without this clarification on how NDC targets set the BAU baselines, it is difficult to calculate the amount of emission reductions that would be additional to the BAU baseline, and thereby the volume of mitigation outcomes that could be transferred through an international credit mechanism, i.e. an ITMO.

6.4 Avoiding double counting

Mitigation outcomes are transferred internationally when one country sells them to another in order for the emission reduction to count towards the buyer country's efforts to fulfil its NDC target as represented in Figure 11. Buyer countries would be incentivised to buy ITMOs when the costs of reducing emissions within their own economies are higher than the purchase price of the ITMO. Seller countries would be incentivised to sell ITMOs as a way of attracting international climate finance.



Figure 11: ITMO flow

(Source: South Pole, 2019)

It is important for the emission reductions to be counted only once to reflect accurately how global emissions are being reduced – in other words, to avoid double counting. Double counting occurs when more than one party claims credit for the same emission reductions, threatening the integrity of the system by overestimating the amount of emissions reductions achieved globally. Double counting can occur in three ways: (1) double issuance of emissions units – more than one unit is issued for the same emissions or emissions reduction; (2) double use of emissions units – the same unit is used more than once; and (3) double claiming of the same emission reductions or removals – the same mitigation outcome is counted toward respective targets by both the buyer and the seller.

To avoid emission reductions being counted twice, the ITMO seller and buyer countries respectively add to and subtract from the emission balances in their accounting systems the quantity of the ITMOs transacted. This process of adjusting the two accounting systems is referred to as a corresponding adjustment.

Having robust accounting systems that can track and correctly assign which party has a claim to an emission reduction is key to enabling carbon crediting systems to work, not only internationally (through linking of national carbon markets, or other international mechanisms) but also domestically (through carbon markets within a country).

Unfortunately, under Article 6, Parties have yet to agree on a definition of double counting, and how the ITMOs should be accounted in order to avoid it. The expectation is for such guidance, which should also include common reporting table for Article 6 and ITMOs as part of transparency reporting tool, to be adopted at COP 26 in November 2021.

6.4.1 Tools for tracking emissions reductions under market mechanisms

Countries who participate in cooperative approaches shall report an 'emissions balance', reflecting the level of emissions by sources and removals by sinks covered by its NDC, adjusted through corresponding adjustments. Although a common reporting table for Article 6 and resulting emissions reductions (i.e. ITMOs) remains to be developed, countries should have the accounting system and tools to track them to meet the ETF requirements, such as a registry database. A registry system for market mechanisms under the ETF needs to monitor and manage the movements of ITMOs, in order to report transparently ITMOs acquired, transferred out, retired and cancelled by each country.

There are several possible options for the configuration of a registry (Figure 12):





- 1. An online national GHG inventory system that handles ITMOs. The ideal arrangement is to integrate a registry function within a national GHG inventory tool, creating a dedicated account or space for recording ITMOs owned by the government. As few developing countries, have set up an online system for GHG inventory preparation, this option might be for future consideration and be designed specifically to follow Paris Agreement's ETF. An online system will be advantageous for institutional memory and data archiving for the continuity of GHG inventory. However, it requires significant funding and information technology skills to manage. To date, some countries have created an online GHG inventory system to which ITMO accounting could be added in the future, for example the CDM National Registry for Annex B countries involved.
- 2. An offline national registry to handle ITMOs from international market mechanisms. As opposed to an online system, countries could develop an offline registry specifically for international market mechanisms, especially those implemented under Article 6 of the Paris Agreement. The registry can be handled by the GHG inventory coordinating entity. Such system will lead to an efficient process, a lower risk in data loss

or mismatch between entities and practicality to compile all ITMO information required for reporting. This registry should be able to feed information to the GHG inventory process and to provide documentation to perform corresponding adjustment and to create emissions balance. A disadvantage of such a system is a registry being centralised, which opens the possibility of error in data collection that is harder to verify.

3. Standalone registries specifically made for each international market mechanism handled by the coordinating entity of each mechanism. Those registries, although technically not linked, should be able to generate datasets for the national GHG inventory coordinating entity to be used for corresponding adjustment and BTR. Such a system will lead to the smoother operation of each mechanism and a practical data collection as each entity can operate without relying on coordinating entity. However, the amount of additional work in synchronising data and archiving at the time of reporting, as well as potential differences in methodologies and standards, may hinder the efficiency of such system. Such registries are being operated by countries participating in the Joint Crediting Mechanism.

7 Transparency and accounting in the SEMED region

To assess the readiness of SEMED countries to access international climate finance, it is first necessary to see if these countries are compliant with Paris Agreement transparency and accounting rules. By identifying individual (detailed country analysis in Annex VI) and common challenges in complying with these rules, international organisations and programmes, such as the ICP SEMED, can provide targeted support to help these countries set and achieve more ambitious NDCs. Although major support is needed, several good practices have been identified in the region, what indicates that SEMED countries are already taking the first steps towards their readiness.

7.1 Country case study analysis

7.1.1 Egypt



Figure 13: Egypt's overview of progress and challenges setting up MRV and NDC accounting systems

(Source: South Pole, 2019 /updated 2021)

Egypt submitted its NDC to the UNFCCC on 29 June 2017. Although this does not contain a GHG emission reduction target, it includes mitigation actions for specific sectors (agriculture, waste, industrial processes, and oil and natural gas), as well as CO₂ mitigation pathways focused on the adoption of low-carbon energy production technologies to reduce energy intensity, efforts to reduce major sources of emissions, and transfer of technology and financial support from Annex-I countries for carbon abatement.

Egypt has presented GHG inventories for the fiscal years 1990, 2000 and 2005 in its initial (1999), second (2010) and third (2016) NC, respectively, and for 2005-2015 in its first BUR (2019). The latest GHG inventory in BUR 1 applies 2006 IPCC Guidelines for GHG inventory for the period covered (2005-2015), which is required under the ETF within the domestic institutional arrangements and data collection process. At the same time, in order to ensure consistency of reporting, the GHG inventory for the previous years (1990, 2000) should also apply the 2006 IPCC Guidelines.

The fact that Egypt only submitted its first BUR at the end of 2019 and the NCs submitted have a six- to ten-year gap, may indicate a lack of readiness to report biennially. To meet the ETF requirements, Egypt has to upgrade its GHG inventory process to report annual emissions data

covering from at least the starting year of its NDC. GHG inventory QA/QC procedures covering data collection and emissions calculation are elaborated in BUR 1, as per IPCC Guidelines.

The main authority in charge of looking after UNFCCC commitments is the Egyptian Environmental Affairs Agency (EEAA) (EEAA, 2016). The National Council on Climate Change (NCCC), composed of representatives of sector ministries, is responsible for data collection.

Data for the Third National Communication (TNC) and BUR 1 was collected through various channels, such as governmental institutions and national and international data sources. The TNC states that "data received from the sources are reliable with minimum uncertainty" (EEAA, 2016, p.25). BUR 1 has further sought to address gaps and reduce uncertainty encountered in previous inventories through identifying reliable data sources as well as improving data collection methodologies for future BURs. However, Egypt's BUR 1 still notes constraints in terms of data gaps, tracking of mitigation and adaptation measures, lack of effective coordination among institutions, as well as resources. Capacity building needs are focused on strengthening the institutional and legal climate change framework, improving climate change knowledge at various levels and developing efficient climate finance processes.

Egypt has been working to improve its GHG inventories and to develop MRV systems. In 2015, it received support from the EU's Directorate-General for Climate Action, as part of the MRV Africa project, to build institutional capacity for data collection and to design and implement an MRV system for the waste sector. As part of the project, an institutional structure was formed with assigned data collection responsibilities and a QA/QC plan was developed, including templates for 2018 data collection (MRV Africa, 2018). Egypt is also receiving support in the design and development of a carbon crediting mechanism as part of the ICP SEMED project, and in the transition to a green economy through an EBRD Egypt Country Strategy adopted in 2017. As part of this strategy, the EBRD will assist Egypt in diversifying its energy mix, improving energy and water efficiency, and supporting the regulatory framework to encourage renewable energy investments (EBRD, n.d.).

Building on the above developments, Egypt's BUR 1 proposes a national climate MRV system, which consists of the NCCC as the supervisory body, EEAA's Climate Change Central Department (CCCD) as the national entity coordinating with relevant ministries and the national Statistics Agency (CAPMAS). The CCCD, represented by the NCCC, has two arms: the quality assurance working group (QA-WG) and the technical support working group (TS-WG). CAPMAS would act as the central data coordinating entity. MRV pathways for data flows consists of four tracks: i) MRV of GHG inventory, ii) MRV of mitigation policies and actions, iii) MRV of support received, and iv) MRV of adaptation policies and actions.

Once fully funded and operationalised, the proposed national MRV system should be able to support implementation of Egypt's NDC and reporting obligations under the ETF, and also facilitate Egypt's goal of developing a national carbon market stated in the TNC, for which a robust accounting and MRV system is a critical element.

7.1.2 Jordan



Figure 14: Jordan's overview of progress and challenges setting up MRV and NDC accounting systems

(Source: South Pole, 2019 /updated 2021)

Jordan has completed six GHG inventories: three, in 1994, 2000 and 2006, under the 1996 IPCC Guidelines, and three, in 2010, 2012 and 2016, under the 2006 IPCC Guidelines (Jordan Ministry of Environment et al., 2017, Jordan Ministry of Environment et al., 2020). Those inventories were compiled and reported as part of NCs (1997, 2009, and 2014) and BURs 1 and 2 (2017, 2021). In order to meet the ETF requirements, Jordan needs to report GHG inventory from the year 1990 onwards. If it needs flexibility in the light of its capacities, Jordan has to provide justifications and report annual emissions covering from at least the reference year for its NDC. Since Jordan's NDC baseline scenario is BAU, it can meet general provisions, to report in its BTR as a minimum: 1) the result of recalculation of past GHG emissions; 2) annual emissions from 2020 onwards; and 3) a report for the latest reporting year no more than two years prior to the submission of the inventory. Emissions for all inventory years should be calculated consistently using 2006 IPCC Guidelines.

Jordan reported some limitations in BUR 1, which have been largely restated in BUR 2, in terms of data collection for the development of GHG inventories, including:

- lack of periodicity in data collection;
- difficulties in obtaining data due to data collection processes;
- diversity of collection methods and formats used by different departments;
- lack of technical capacity;
- gaps in data availability for certain sectors; and
- unavailability of national emission factors.

Jordan previously reported limited exposure to the use of MRV systems, given that it only has four CDM projects registered under the UNFCCC. This has been mainly due to the lack of technical capacity to track mitigation measures and integrate climate change in national plans and strategies, the need to improve information sharing between departments, and the need to establish a strong institutional framework with clear responsibilities (Jordan Ministry of Environment et al., 2017).

In recognition of the necessity to have an MRV system to improve GHG data collection methods and quality of results, Jordan proposed an MRV framework as part of BUR 1 and suggested its
inclusion in a Bylaw. Progress has subsequently been made in addressing identified institutional, structural, and legal limitations.

In 2016, Jordan received support from PMR to pilot an MRV framework under the Ministry of Environment, for the environment, water, and energy sectors, as well as to build technical capacity in the identification of market-based instrument (MBI) opportunities (PMR, 2019). As of 2020, the MRV system covering the public sector energy projects has been piloted and there are plans to expand it to the waste and transport sectors. Jordan is also part of the ICP SEMED Project and is receiving EBRD support to improve energy sustainability and efficiency in the country (EBRD, n.d.).

In addition to the above institutional arrangements, a Climate Change Bylaw was drafted with the support of The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ in its German acronym) and PMR. This Climate Change Bylaw no.79 passed in 2019, dictates the formation of a National Climate Change Committee headed by the Ministry of Environment and consisting of the Secretary General of each sector ministry, the Mayor of Amman, and the Chairman of the Board of Commissioners of Aqaba Special Economic Zone Authority (Jordan Ministry of Environment, 2018). The committee is in charge of:

- approving proposals related to national and international commitments on climate change;
- evaluating and proposing climate change policies and legislation;
- ensuring implementation of the NDCs, the National Adaptation Plan, and other reports as part of the country's commitments; and
- adopting climate change mitigation and adaptation action plans, as well as a national climate finance strategy and new technologies as needed by relevant authorities, among others.

The Bylaw formally appoints the Ministry of Environment as responsible for: preparing and updating NDCs, NCs, BURs, and any other reports as required by Jordan's international commitments; establishing and managing the NIR database and accrediting bodies for verification; and coordinating the development of a national finance plan for projects and climate change market mechanisms. The Bylaw also requires ministries to incorporate climate change measures in municipal and provincial plans, and the Department of Statistics to submit data for preparation of GHG inventories. Annex 3 of the Bylaw lists the entities responsible for submitting primary emission data for the NIR. Figure 15 illustrates how this cross-sectoral coordination occurs between respective entities.



Figure 15: Cross-sectoral cooperation under Jordan Climate Change Bylaw

(Source: South Pole, 2019)

The Climate Change Bylaw therefore officially formalises the structure of the MRV system and the importance of the development of ITMOs (PMR, 2019). Table 4 demonstrates how the Climate Change Bylaw assigns responsibilities to each of the entities to support the submission of the 2020 NDC and reporting requirements.

Jordan Climate Change Bylaw		aw	
Paris Agreement requirements for 2020	Ministry/entity responsible for sector	National Committee on Climate Change	Ministry of Environment: Focal point between Jordan and UN
Updating targets and policies in 2020 NDC submission	Suggest sectoral targets and policies	Approve sectoral and national target	Update NDC
Reporting greenhouse gas emissions through NIRs	Collect data at sector level		Compile data from each sector into NIR
Identify financing needs	Identify financing needs to meet sectoral targets	Approve National Climate Finance Plan	Coordinate development of National Climate Finance Plan
Identify capacity building needs	Identify needs to execute responsibilities and meet targets	Identify cross-sectoral and national capacity building needs	Engage with international bodies on capacity building

Table 4: Cross-sectoral coordination for Paris Agreement reporting requirements

(Source: South Pole, 2019)

7.1.3 Morocco



Figure 16: Morocco's overview of progress and challenges setting up MRV and NDC accounting systems

(Source: South Pole, 2019 /updated 2021)

Morocco's transparency reports have covered ten years of national GHG emissions inventories: the years 1994 (initial NC), 2000 and 2004 (second NC) and 2005, 2006, 2008, 2010, and 2012 (TNC), all of which are also included in the BUR 1, while BUR 2 covers the years 2010, 2012, 2014 and 2016. In a welcome change since pervious GHG inventories which have applied 1996 IPCC Guidelines, in its latest inventory submission in BUR 2 for the first time Morocco has applied the 2006 IPCC Guidelines , as required under the ETF.

Nevertheless, Morocco still needs to report its GHG inventory for the year 1990 and also ensure consistency of reporting (by applying 2006 IPCC Guidelines to its GHG inventory for the years 1994, 2000, 2004, 2005, 2006), as required by the MPG provisions. If it needs flexibility in the light of its capacities, Morocco has to provide justifications and report annual emissions data covering from at least the reference year for its NDC. Since Morocco's NDC baseline is BAU, it needs to at least report in its BTR: 1) the result of recalculation of past GHG emissions, 2) annual emissions from 2020 onwards, and 3) a report for the latest reporting year no more than two years prior to the submission of the inventory.

From 2003 to 2011, three attempts were made to implement a centralised national GHG inventory system with international financial support, without success. However, from 2014 onwards, efforts were made to develop institutional frameworks to develop a national MRV system to help meet international reporting rules (see next section on good practices for further details).

In terms of the implementation of an MRV system, Morocco's MRV system has focused on CDM projects, and more recently, on NAMA projects, with five proposed projects described in BUR 1 and BUR 2: NAMA Habitat, to reduce primary energy consumption; NAMA Solar Water Pumping to improve irrigation for agriculture; NAMA Solar Roofs for the residential sector; NAMA Argan Promotion to develop argan tree cultivation; and NAMA Waste for waste reduction. Nonetheless, the country recognises the need to implement a national MRV system to ensure compliance with ETF requirements of the Paris Agreement and a design study for such a system has been launched by Climate Change Competence Center of Morocco (4C), which at the time of writing of this report has not yet been completed.

In 2015, Morocco received support from the PMR (PMR, 2019) to define a national strategy for the implementation of MBIs, centred on GHG data management and the development and implementation of MRV systems for three sectors: power, cement, and phosphate extraction. The

project ended at the end of 2018 before the MRV pilot phase could be implemented. Morocco is also part of the ICP SEMED and of an EBRD GEFF which, in partnership with the Moroccan Bank for Trade and Industry, granted a EUR 20 million private investment loan for energy efficiency, renewable energy, and resource management projects (Ngounou, 2019).

7.1.4 Tunisia



Figure 17: Tunisia's overview of progress and challenges setting up MRV and NDC accounting systems

(Source: South Pole, 2019 /updated 2021)

To date, Tunisia has compiled five national GHG inventories: two of these (1994 and 2000) applied 1996 IPCC Guidelines, and three (2010, 2011, and 2012) applied 2006 IPCC Guidelines as required by the new ETF framework. According to Tunisia's BUR, the last three inventories were significantly improved in comparison with the first two in terms of details of activity data, emission factors, and completeness (Tunisia Ministry of Local Affairs and the Environment, 2016). Other improvements included QA/QC through multiple internal audits, transparency of results, and the establishment of the first database of the MRV system and of a robust National Inventory (NI) (Jaafar & Khecine, 2014).

On the other hand, Tunisia reported challenges in developing national GHG inventory such as improving coverage and frequency of data collection, refining calculations, and using national data for emission factors (Jaafar & Khecine, 2014). According to Tunisia's second BUR (Tunisia Ministry of Local Affairs and the Environment, 2016), a task force was set up with support from GIZ and UNDP to conduct the 2010, 2011, and 2012 GHG inventories. This task force was headed by the National Agency for Energy Management (ANME in its French acronym) and was composed of sector working groups under the ANME, the Ministry of Agriculture, the National Agency for Waste Management, and the National Sanitation Office. This structure had been recommended as part of a National GHG Inventory System analysis. At the time of the BUR's submissions, the inventory and corresponding organisational structure had not been formalised.

In terms of the development of MRV systems, Tunisia's second BUR mentions plans to elaborate a national MRV system, which was expected to be implemented in 2017, as well as sector-specific MRVs, and NAMA MRVs for six areas: buildings, Tunisian Solar Plan, cement, sanitation, solid waste, and forests. For the energy sector, two systems are in use for data collection: SIM2E, which centralises GHG emission data and provides calculations for energy efficiency and GHG emission indicators, and 'EnergInfo', implemented in 2014 for the MRV of energy efficiency and renewable energies.

In terms of capacity building, Tunisia's needs are centred on the implementation of NDCs and the elaboration of UNFCCC reports. Strengthening capacities within institutions and key sectors related to GHG mitigation, and the establishment of MRV systems at the national, sectoral, and NAMAs levels, are also identified as priorities in Tunisia's BUR.

In March 2018, decree no. 2018-268 was passed for the establishment of a Management Unit under the Ministry of the Environment. The Management Unit is in charge of the implementation of a monitoring and coordination programme for activities related to the Paris Agreement and UNFCCC, through the following activities (Government of Tunisia, 2019):

- Elaborating a portfolio of priority projects for emission mitigation, a national plan for climate change adaptation, and an investment plan for the implementation of NDCs;
- Coordinating the development and implementation of an MRV system;
- Providing support for access to climate finance mechanisms;
- Ensuring the participation of the main stakeholders in the identification of priorities and monitoring of NDCs;
- Assisting in the integration of climate change in development policies, through data collection of emissions reductions and the elaboration of a low-carbon national strategy, based on Article 2 of the Paris Agreement;
- Building capacity of main stakeholders at the national level; and
- Monitoring NDCs through the implementation of the MRV system, elaboration of reports for submission to the UNFCCC, and update of national objectives.

Nonetheless, based on Tunisia's TNC (2019), some gaps remain both at the institutional level, and at the MRV level. As stated in the TNC, "several new concepts such as NAMAs and MRV system have been promoted and adopted. However, significant technical, institutional, regulatory and financial shortcomings are identified" (Tunisia Ministry of Local Affairs and the Environment, 2016, p.33). In addition, the TNC states that "a complete, permanent and formalised MRV system needs to be set up, to allow the monitoring and evaluation of all components of mitigation and adaptation actions carried out at a national level and in all sectors" (Tunisia Ministry of Local Affairs and the Environment, 2016, p.33).

In 2018, Tunisia received support from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU, in its German acronym) to set up the structures and processes to participate in carbon markets. The project is expected to be finalised in 2021. Tunisia also received support up to 2020 from the PMR to develop and implement carbon pricing mechanisms, as well as enhance stakeholder capacities and establish an MRV system for the electricity sector (PMR, 2019).

Tunisia is also receiving support from the EBRD as part of the ICP SEMED project and through a 2018-2023 country strategy. One of the priorities of this strategy is to support Tunisia's Green Economy Transition, by increasing renewable energy capacity, diversifying the energy mix and encouraging private sector participation in energy projects; increasing the efficient use of resources; and reducing carbon emissions (EBRD, 2018). Tunisia is also part of an EBRD GEFF project that facilitates investments in GET technologies and services (DAI, n.d.).

7.2 Good practices

The efforts to address transparency and accounting systems in the SEMED region have also led to emerging good practices that could be replicated in other countries at similar level of development. Below are a few examples of addressing key challenges regarding accounting and transparency in the region.

7.2.1 Legal framework and institutional arrangements for cross-governmental coordination of climate action: Jordan Climate Change Bylaw

Jordan's Bylaw, which includes a requirement for ministries to submit data for GHG inventories, is a good example that can be replicated to other SEMED countries. The country can fully utilise

the potential and mandate of this Bylaw to collect and track data relevant to the NDC target. For Jordan, this means tracking progress towards unconditional and conditional targets as well as international finance and/or support received.

Another key challenge to developing both economy-wide and sectoral targets, along with collecting the emissions data associated with each sector, is enabling institutional coordination between different sectors towards national climate policies. Each SEMED country has assigned the focal point for climate change to the ministry in charge of the environment. Nevertheless, the Ministry of Environment does not necessarily have the sectoral expertise, nor purview, to develop climate mitigation and adaptation plans for those sectors. In contrast, the Ministry(ies) in charge of specific sectors may not necessarily have the scientific, technological, and policy expertise to determine appropriate climate actions, targets and implement MRV systems in place. Lastly, it is highly likely that these ministries would undertake such actions without an institutional mandate.

As elaborated in the Jordan case study, one of the key challenges has been collecting data in a periodic and consistent manner that accurately reflects the national emission factors in the country. A major reason for these inconsistencies is the diversity of collection methods and formats used by different departments, along with a lack of technical capacity.

Therefore, with the support of the World Bank's PMR, Jordan passed the Climate Change Bylaw in 2019, which provides the legislative and institutional foundation for climate action in Jordan. First, it creates an institutional framework to coordinate national climate action through the National Committee on Climate Change (NCCC), which is under the purview of the Ministry of Environment. The NCCC coordinates climate action by involving the Secretary Generals of 16 Ministries and 11 institutions⁷ listed in the Bylaw to help with the development, implementation, and execution of climate actions in their respective sectors. The Bylaw also provides the legislative mandate for these entities to engage in market mechanisms to finance emission reductions in their respective sectors.

With this legislative and institutional framework in place, the next step was to implement the Bylaw. With the support of the EBRD and under the ICP SEMED programme, a Jordan Policy Dialogue workshop was undertaken to inform public and private stakeholders about roles, responsibilities and functions of the Climate Change Bylaw, and the provisions for engaging with market mechanisms. Some of the key recommendations for implementing institutional coordination were the following:

- 1. Continuous dialogue between the Ministry of Environment and the separate ministries to understand how best to coordinate actions with each other. This could potentially be facilitated by quarterly meetings, as necessitated in the Climate Change Bylaw.
- 2. The creation of a dedicated website under the Ministry of Environment that has all the laws, national plans, pilot projects and international partnerships to demonstrate existing action in Jordan, and potential resources available to public and private stakeholders. This also includes reports submitted by the ministries.
- 3. The development of targeted communication to the ministries and public that can help

⁷ The Ministries and institutions involved include: Ministry of Energy and Mineral Resources, Ministry of Planning and International Cooperation, Ministry of Agriculture, Ministry of Water and Irrigation, Ministry of Health, Ministry of Municipal Affairs, Ministry of Transport, Ministry of Tourism and Antiquities, Ministry of Finance, Ministry of Social Development, Ministry of Industry, Trade and Supply, Ministry of Education, Ministry of Higher Education and Scientific Research, Greater Amman Municipality, Meteorological Service, Jordan Valley Authority, Water Authority, Directorate General of Civil Defense, Aqaba Special Economic Zone Authority, National Electricity Company, Department of Statistics, Jordan Chamber of Industry, National Agricultural Research Center, The Royal Society for the Conservation of Nature, Royal Scientific Society, Customs Service, Queen Alia International Airport, Land Transport Regulatory Authority, Jordan Ports Corporation, Aqaba Railway Corporation, Energy Sector Regulatory Commission, Ministry of Communications, The Central Bank, Civil Aviation Regulatory Commission, Royal Administration for Environmental Protection, Ministry of Foreign Affairs, Jordan Association of Banks.

inform on potential climate policies, developments, and reports, such as through Twitter hashtags.

- 4. A dedicated climate expert (or a dedicated team) within each ministry who would be in charge of coordinating reporting and implementation actions that are required by the ministry, including annual reporting of emissions data and progress to target. These dedicate climate experts would need to have a long-term appointment in the ministry to ensure ongoing action.
- Dedicated capacity building workshops on how the dedicated climate expert can use the online MRV systems developed by the World Bank PMR team for energy, waste, transport and cement. It would be important to extend this online MRV system to other sectors.
- 6. Consideration of how the Climate Change Bylaw integrates within the broader legislative frameworks of Jordan, including with laws governing finance, public-private partnerships, and fossil fuel subsidy reforms. This is to ensure harmonisation and avoid potential conflicts between the laws.

Developing climate governance frameworks that coordinate actions amongst different institutions is an iterative process. The Jordan Climate Change Bylaw is a starting step creating the institutional framework that clearly assigns roles and responsibilities to enable coordinative action at the sectoral and national level. The passage of the Bylaw, and the Jordan Policy Dialogue, provide concrete next steps on how to facilitate the development of such governance processes. Other SEMED countries can develop similar laws to provide similar legislative mandates to enable coordinative action.

7.2.2 Setting up institutional frameworks for national GHG inventories: Morocco's National Inventory Committee and National Inventory Units

Due to previous failed attempts at setting up national GHG inventory systems, an assessment was conducted in 2014 to define an institutional framework for a national GHG inventory. This assessment was conducted by the Climate Change Competence Center of Morocco (4C); a project funded by the International Climate Initiative of the BMU and implemented by GIZ, in partnership with Morocco's Secretary of State of Sustainable Development, formerly known as the Delegate Ministry in charge of the Environment (4C Morocco, n.d.). The institutional framework proposed and validated as a result of the assessment is described as follows:

- Creation of an overarching National Inventory Committee (NIC), headed by the Delegate Ministry in charge of the Environment and composed of institutional partners having influence on the National Inventory System for GHG emissions (NIS-GHG), such as sector ministries, agencies, high commissions and government offices.
- A National Inventory Unit (NIU), composed of five key sectors (energy, forests, agriculture, industry, and waste), each represented by a sector coordinator.

Based on the above-mentioned structure, an NIS-GHG was implemented in 2015 (4C Morocco, n.d.) to improve reporting transparency. Capacity-building activities were provided to key stakeholders on the components and functioning of the system, to ensure ownership and proper implementation. As a result of the new system, four inventories were conducted for the years 2010, 2012, 2014 and 2016, under 2006 IPCC standards for the preparation of the fourth NC and BUR 2.

The NIS-GHG and institutional framework was formalised in April 2019, through decree 2-18-74 (Government of Morocco, 2019) for the NIS-GHG. This decree establishes an NIS-GHG under the governmental authority for sustainable development. The objective of the NIS-GHG, as described in the decree, is the collection and treatment of data from GHG emitting sectors as well as of all data required for the elaboration of NIRs in accordance with international norms.

As described in decree 2-18-74, the NIC, headed by the authority in charge of sustainable development, is responsible for: approving the NIR and the internal NIS-GHG regulation, presenting its opinions and proposals regarding measures for GHG emission reduction, and approving the annual capacity building plan to be presented by the NIU. For its part, the NIU is responsible for: ensuring the availability of inventory results, approving methods for the establishment of inventories, validating the capacity-building plan for the implementation of the NIS-GES, and ensuring the monitoring of inventory related works. This decree also lists the entities required to make the necessary contributions to the inventory. The NIR is then shared with the authority in charge of sustainable development and included in NCs and BURs. The NIS-GHG also goes through QA/QC, as per IPCC recommendations.

7.2.3 Developing sectoral MRV systems: Low-carbon Roadmap for Egypt's cement sector

One of the key challenges countries face in developing NDC targets is understanding what kind of emission reductions are achievable through the country's own efforts. Actors operating in most sectors in each country do not consider the GHG implications resulting from their existing technologies and operations, nor are they likely aware of existing low-carbon technologies that could help them reduce these emissions. Recognising this knowledge gap, international organisations such as the International Energy Agency (IEA), International Renewable Energy and Nuclear Association, the World Business Council on Sustainable Development, and others, have developed sectoral studies that identify the best-in class, or best available technologies and processes that could help reduce emissions in these sectors. While these sectoral studies are useful, it is also important to take these global studies and apply them to the local context. Furthermore, it is important to be able to implement MRV systems that can help estimate and track the emission reductions resulting from implementing different interventions suggested in these roadmaps.

A good example of applying international expertise to the local context is the "Low-carbon Cement Technology Roadmap for Egypt" (the Roadmap)⁸. The EBRD, along with the EEAA and the Chamber of Building Materials Industries/Cement Industry Division, in collaboration with the Egypt Ministry of Trade and Industry and the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD), jointly developed the Roadmap. The main objective of the Roadmap was to suggest a pathway for how to mitigate as far as possible the CO_2 emission impact of new fuel regulations in Egypt, which involved phasing out subsidies for lower carbon content fuels such as natural gas and heavy fuel oil. The result would be a greater uptake of more carbon-intensive, but less expensive fuels (such as coal or petcoke), which would lead to greater emissions from the cement sector. The Roadmap suggests various mitigation scenarios, and provides recommendations on realistic, targeted improvements for the key performance indicators of the Egyptian cement industry, to offset at least the 15% increase of CO_2 emissions caused by the fuel switch to more carbon-intensive fossil fuels. These improvements are technically and economically achievable, and include:

- emissions reductions that could be achieved through alternative fuels switching, clinker content, and energy efficiency improvements;
- policy actions identified for implementation of the Roadmap, including establishment of MRV; and
- an estimated EUR 150 million in investment for implementation of the low-carbon development scenario.

To assess progress in the Egyptian cement industry's CO₂ and energy performance against the Roadmap's objectives and targets for 2030, it was important to develop an MRV system suited to the Egyptian context but also in line with the international MRV standards. The MRV system would

⁸ https://www.ebrd.com/documents/climate-finance/egypt-roadmap-cement.pdf

periodically collect data, and monitor and report key performance indicators (KPIs) outlined in the Roadmap on the Egyptian cement industry's energy consumption and CO₂ emissions.

Developing a local MRV system that is harmonised to international MRV standards for the sector provides several important lessons:

- The monitoring of emissions helps identify which actions are leading to emissions reductions, and where further support is needed to achieve further emission reductions.
- Developing a standardised, objective methodology provides greater confidence in the veracity of emission reductions achieved against the KPIs developed in the Roadmap. This standardised methodology involves getting data from the local context that is more aligned to objectively representing emissions factors in Egypt, while also being calculated to industry standards.
- This objective information can also level the playing field between cement companies that have to comply with the reporting requirements of the new fuel regulations.
- The data collected can be used to calculate the energy and CO₂ abatement costs and/or benefits, which can help a more effective design of policies to reduce emissions.
- The experience gained from designing an MRV for the cement sector can help inform the process needed to design similar MRV systems for other industrial sectors.
- Having an MRV system with credible emissions data can help with mandatory reporting requirements of progress towards meeting NDC targets and enabling international climate finance flow.

The process of developing an MRV system that meets international reporting standards but is reflective of the local context is also important. The consulting team used the global MRV standard for the cement industry developed by the WBCSD, along with the CSI Global Cement Database on CO_2 and Energy Information System 'Getting the Numbers Right' (GNR), which provides key data for estimating CO_2 emissions from cement in different countries. For Egypt, the GNR database estimated emissions from installations that accounted for only 53% of total Egyptian cement production. This was not particularly representative for developing emissions estimates for the country.

The Consulting team therefore undertook the following steps to help design an appropriate MRV system for the Egyptian cement sector:

- Phase 1. Stakeholder consultation to define and formally agree on terms of engagement for the system, to which the concerned stakeholders commit to adhere.
- Phase 2. Design of the system and processes, and capacity building.
- Phase 3. Technical implementation and piloting of the system.
- Phase 4. Full operation of the system, including periodic data collection, verification, analysis, reporting on results, and conclusions.

As part of phase 2 in technically designing the system and system operator, the Consulting team presented two options:

- Option 1: The Egyptian cement sector and its companies join the CSI internet-based GNR system, managed by the CSI and operated by PriceWaterhouseCoopers.
- Option 2: To create a dedicated Egyptian (Excel-based) system, operated by an independent service company, but also in line with international standards.

The team suggested that Option 2 would be the most useful for Egypt. This type of sectoral road mapping, and the process of developing MRV systems to monitor progress towards achieving the Roadmaps, could be replicated in other sectors and SEMED countries.

7.2.4 Online software tool to align sectoral MRV systems with national MRV reporting: World Bank PMR assistance to Jordan

The World Bank PMR team has worked with the Jordanian Ministry of Environment to pilot an online tool to set up a national MRV systems for the energy sector, which will be expanded to include the waste, cement and transport sectors.

In developing this national MRV, the World Bank PMR team recognised the importance of standardisation of MRV as a key to helping Jordan build the necessary infrastructure for overcoming issues around data collection, data quality and capacity, a consistent challenge for the country. Specifically, the benefits of enabling this kind of standardisation will:

- 1. enable common sources of data that can align levels of MRV (from the point source, to sectoral level, to national level);
- 2. integrate MRV requirements (particularly with UNFCCC standards of reporting, and incorporation into NIR);
- 3. enable central data management, including coordinating and engaging with stakeholders.

This online tool allows the respective user to input raw data that can help calculate associated emissions, which are then presented in formats that are consistent with the MRV reporting needed to input into the national GHG inventories. This data can also be reported in a way that adheres to the UNFCCC reporting rules.

The World Bank PMR team presented this online tool during the Jordan Policy Dialogue in 2019. The stakeholders in the Workshop were encouraged that such a tool would be available to help with data processing and report generation. They also raised the possibilities of this kind of tool being developed for their respective sectors, as the current stage is for the MRV systems for the energy sector.

A key benefit of this tool is not just how it sets up the infrastructure between the national MRV systems and the national registry to enable adherence to Paris Agreement requirements for the ETF, but it sets up the necessary infrastructure to enable potential domestic market-based mechanisms in trading within the national registry, or international transactions under Article 6.

8 Common challenges in transparency and accounting for the SEMED region

The international community has taken considerable steps towards finalising the rules on transparency and accounting to enable the tracking of individual countries' and global progress towards meeting the Paris Agreement goals for averting disastrous climate change effects. The practical steps to implementing and adhering to the transparency and accounting rules at the country level proves to be challenging, especially for developing countries. While this report focuses on the difficulties for the SEMED region, the below challenges and following recommendations, are likely to be applicable to other countries at a similar level of development.

8.1 MRV and GHG inventory systems

The inability to set up MRV and national GHG inventory systems has resulted in problems with consistency, frequency, and quality of data reporting. The key tasks that have proved to be challenging include:

- 1. collecting the necessary raw data needed to input into MRV systems for sectors;
- 2. developing sector-specific MRV systems, including developing national emission-specific factors to enable more accurate calculations that reflect country's circumstances;
- 3. understanding how to align sectoral MRV systems to the national MRV systems, including aligning MRV systems into the national GHG inventory and registry systems;
- ensuring reporting from the national GHG inventory adheres to ETF rules on reporting for NIRs;
- 5. developing an MRV or tracking system for support received, including climate finance; and
- 6. the lack of policies indicated by countries for implementation of mechanisms under Article 6 of the Paris Agreement.

8.2 Capacity building

Another major challenge in SEMED countries is having the human resources and public and private stakeholder engagement needed to collect, report and harmonise the transparently reported emissions data and input it into the accounting system. Capacity building needs have been identified for developing the 2020 NDCs and sectoral and national MRV systems and listed in Table 5.

Transparency and accounting	Types of capacity building	Associated capacity building needs
Developing 2020 NDCs	Technical	Identifying climate interventions (technologies or processes) that could reduce emissions in sectors
		Estimating potential emission reductions and costs for each intervention
	Technical, legal	Developing policies to incentivise emission reductions in sectors

Table 5: Summary of capacity building needs to adhere to Paris Agreement transparency and accounting requirements

Transparency and accounting	Types of capacity building	Associated capacity building needs
	Institutional, legal	Coordinating with stakeholders (within and across governments) to develop and agree on proposed targets and policies
Developing sectoral MRV systems	Technical	Developing sectoral MRV systems that are reflective of domestic factors and conform to international best practices in calculating and reporting emissions
	Institutional	Coordinating amongst private and public stakeholders to collect data to be inputted into MRV systems
		Ensuring long-term responsibility and management of sectoral MRV systems
	Legal	Mandatory reporting of results of sectoral MRV systems to the national MRV systems
Developing national MRV systems	Technical	Developing national MRV systems that conform to 2006 IPCC guidelines
		Identifying flexibility needs for reporting to ETF requirements
		Developing accounting system to track how climate funds/assistance have been disbursed
	Technical, legal and institutional	Identifying financial, legal and capacity building needs in developing climate policy, technology transfer, and setting up accounting systems

(Source: South Pole, 2019)

In short, capacity building needs can be grouped in technical and legal and institutional and summarized as follows:

1. Technical capacity building in:

- a. learning how to collect emissions data from private and public stakeholders to calculate emissions for the sector through sectoral MRV systems;
- b. integrating sectoral emissions data collected from MRV systems into national MRV systems;
- c. ensuring data collected from national MRV systems adheres to international reporting rules of transparency and accounting under the ETF.
- 2. Legal and institutional coordination to enable transparency reporting and accounting:
 - a. While all the SEMED countries have an identified focal points to coordinate NDC, MRV and accounting systems in each country, a key challenge is in enabling cooperation with other ministries to collect and submit data.
 - b. Part of this problem is the individual ministries not having the technical skills and dedicated capacity to undertake such data collection for the MRV systems.
 - c. There is a lack of knowledge of the kind of technologies, actions and policies that could reduce emissions in the sector to help set NDC targets.

9 Recommendations

Despite these challenges, this report has highlighted international resources that can enable capacity building at the technical level (through online tools such as the World Bank's national MRV system, which is being piloted in Jordan), or through the development and implementation of legislation (as the Jordan's Climate Change Bylaw) to enable institutional coordination. Furthermore, several capacity building initiatives around the topic exist (examples of ongoing programs can be found in Annex VII), such as the EBRD ICP SEMED programme, focused on capacity building and transparency, to support developing countries in the process of getting ready for the post-Paris requirements.

Based on the capacity building needs and good practices, the following key recommendations (Figure 18) have been identified to support transparency and accounting requirements in the SEMED countries.



Figure 18: Summary of recommendations for SEMED sountries

(Source: South Pole, 2019)

- National focal points and SEMED policymakers should connect international capacity building programs with local entities to address capacity building needs in developing climate policies and building robust sectoral and MRV systems that conform to international rules.
- 2. Legislation at the national level, or recommendations for national governments from a COP decision at the UNFCCC, should be developed to establish clear responsibilities for public and private stakeholders involved in each sector, with the potential for developing a central committee in which these stakeholders regularly participate in developing climate policy, reporting emissions data in sectoral and national MRV systems, and identify capacity building needs.
- 3. National focal points and relevant SEMED policymakers should assess how climate policies align with other national priorities and legislative frameworks should be developed to identify potential areas of conflict or synergy. Development of a roadmap that identifies necessary improvements for becoming "ETF-ready" under the accounting and transparency requirements of the Paris Agreement is also recommended.
- 4. A clear **communications strategy** from national focal points and SEMED policymakers should:
 - 1. provide a centralized portal of international and domestic resources, and ongoing projects, available to stakeholders in undertaking climate action;
 - 2. use social media or other digital channels to broadly communicate the latest developments and resources;
 - 3. provide emissions data from each sector so that the private and public sectors can track emissions; and

4. showcase climate projects and initiatives in the country.

In addition, the common challenges that SEMED countries face could justify the development of an alliance of SEMED policymakers to share common approaches for addressing these difficulties, allowing each to learn from each other's good practices, and with the potential to develop tools that would help with transparency and accounting provisions of the Paris Agreement. Several alliances and cooperation initiatives between countries to ensure readiness and promote carbon markets already exist and a SEMED alliance could get inspired to create their own and even consider other neighboring countries to join. This SEMED alliance could also sit within, or coordinate activities with the United Nations Framework Convention on Climate Change (UNFCCC) working group for the Arab League.

These lessons provide practical guidelines on supporting implementation of the high-level transparency and accounting requirements of the Paris Agreement in the SEMED region. Conforming to such requirements are the foundational steps to supporting the potential for carbon market mechanisms in these SEMED countries. The process to develop such climate governance frameworks at the sub-national, national and international level is challenging and long. However, experience from SEMED countries demonstrate how taking the high-level rules of transparency and accounting, and implementing them on the ground, can yield several valuable lessons – and innovative solutions – that are scalable not only to countries in the region, but beyond. These lessons are invaluable in supporting international climate governance, as well as in creating the foundations for countries to update their NDCs and have the necessary infrastructure to enable international climate finance.

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Annex I. Carbon pricing mechanisms

Carbon pricing consists of embodying the costs of future environmental damage by putting a price on its cause: GHG emissions. There are several ways of 'putting a price on carbon', all of which result in an extra cost for polluters, who would need to decide between reducing internal emissions or paying the imposed price.

It is broadly accepted that carbon pricing is the most effective way of reducing GHG emissions and this is now seen as an integral pillar of policies designed to mitigate climate change. In the near future, domestic and international carbon pricing initiatives could play an essential role in helping countries to meet their NDCs in the Paris Agreement. Currently, two-thirds (UNFCCC, n.d.) of the countries that have submitted their NDC targets are open to using carbon pricing to achieve their pledges. Countries can drive emission reductions through domestic and/or international carbon pricing mechanisms. As carbon pricing relies on collecting emissions data from actors that are subject to the carbon price in order to calculate their associated compliance costs, ensuring robust accounting and transparency will be essential regardless of the type of carbon pricing that is chosen. An overview of the different carbon pricing mechanisms is provided in Figure 19.



Figure 19: Carbon pricing mechanisms overview

(Source: South Pole, 2019)

Domestic carbon mechanisms

Figure 20 shows the 67 domestic carbon pricing initiatives implemented or scheduled for implementation at regional, national and subnational level. Together, they would cover 21.5% of the total worldwide GHG emissions in 2020 (World Bank Group, 2021).



Figure 20: Regional, national and subnational initiatives implemented or scheduled for implementation as of 2021

(Source: World Bank Group, 2021)

The choice of domestic mechanism will depend on national and economic circumstances. Currently, the most used instruments are carbon taxes and cap-and-trade systems. There are also more indirect ways of accurately pricing carbon, such as through green certificates, fuel taxes or the removal of fossil fuel subsidies.

Carbon taxes

Carbon taxes, categorised as Pigouvian taxes, impose a fee according to the quantity of GHGs emitted through operations, such as the combustion of fossil fuels. Carbon taxes differ from one another with regard to whether they imposes a tax on all greenhouse gases or just a specific gas (most likely carbon dioxide), and which activities and actors are subject to the carbon tax.

Carbon tax provides certainty about the price of carbon but the level of emissions will be unknown. The tax per ton of carbon would ideally represent the harm a company does by emitting it. However, this cost can be very difficult to estimate and is often equal for all market players irrespectively of their size.

Carbon taxes can generate a symbolic amount of income for governments, who will in general destinate it to the implementation of emissions reductions or climate change adaptation actions. Since Finland established the first carbon tax in 1990, many other countries have adopted the same carbon pricing mechanism. There are currently 35 carbon tax initiatives in place, mainly in developed countries (World Bank Group, 2021).

Cap-and-trade systems

The government distributes among markets players a limited quantity of allowances (cap) to emit a certain amount of GHG during a specific period of time. Ideally, the cap will decrease over time, limiting the total amount of GHG a country emits. In contrast to carbon taxes, Emissions Trading Systems set the level of emissions for a specific period and geography while the cost of carbon remains unknown.

Apart from reducing their own emissions, companies can trade their excess allowances with other companies that need to increase the allocated number of permits. Regulations will set the type and vintage of offsets eligible to be used. Regulated entities must surrender these offsets to a government authority and retire them for compliance use.

Green certificates

A green certificate is a tradable asset which proves that one megawatt-hour of electricity has been generated by a renewable energy source. Renewable Energy Certificates (RECs) are not a direct carbon pricing mechanism, as they do not impose a cost on polluters. However, they do reward 'clean' energy generation while not providing any support for 'dirty' energy generation. Therefore, one can argue it is an implicit carbon price through creating a preference for clean energy generation.

Once in the grid, renewable energy is impossible to separate from conventionally generated energy. This makes purchasing of a green certificate equal to purchasing a claim that the certificate owner consumed energy from the renewable portion of the whole energy in the grid.

International mechanisms

Paris Agreement

• Previously Kyoto Protocol, with transition to Article 6

The Kyoto Protocol, established in 1997 and entered into force in 2005, is the only treaty in the world with legally binding commitments under which Parties commit to reduce their GHG emissions. The Kyoto Protocol's second commitment period ran from 2013 until 2020 with 192

(UNFCCC, 2019) adhered Parties which, unfortunately, covered only 18% (European Commission, 2019) of the global emissions.

The Kyoto Protocol was a pioneer in introducing market-based mechanisms as a tool to support countries to cost-effectively achieve their emissions reduction targets. These mechanisms were the CDM and Joint Implementation, both allowing Annex I (i.e. developed) countries to purchase carbon credits from non-Annex I (i.e. developing) and Annex I countries, respectively.

Market-based mechanisms for emission reductions were therefore not new when the Paris Agreement was signed in 2016, allowing countries to trade carbon credits to achieve their mitigation targets. Some characteristics of Article 6, specifically the mechanism provided for under clause 6.4, remain the same as those defined under the Kyoto Protocol, such as its voluntary nature, international governance or long-term approach.

However, the Paris Agreement establishes a different framework under which all countries participating in Article 6.4, and not only the ones purchasing carbon credits, are accountable for their emissions. The Article 6.4 aims to deliver 'Overall Mitigation in Global Emissions' and to boost countries' appetite for ambitious mitigation targets. In addition, as the Paris Agreement allows countries to set their own pledges, targets are diverse and monitoring their progress will require different information in each case.

• Article 6 (enabling 6.2, 6.4, 6.8), and potential with the future of the CDM

Article 6 of the Paris Agreement provides the voluntary framework for countries to join forces and pursue more ambitious climate change mitigation and adaptation goals. In the past years, we have seen countries become more open to international cooperation when designing plans to achieve their NDC targets. Canada, Switzerland or New Zealand are some of the countries that shared this information in their NDCs.

- Article 6.2, Cooperative approaches: enables countries to voluntarily cooperate towards NDCs using ITMOs and calls for strong accounting systems to avoid several countries accounting for the same emission reduction.
- Article 6.4, A mechanism: establishes a centrally-administered mechanism where Parties and other public and private actors authorised by a Party, can voluntarily "contribute to the mitigation of GHG emissions and support sustainable development." This mechanism would produce mitigation outcomes that can then be used to fulfill the NDC of another Party.
- Article 6.8, Non-market approaches: refers to non-market mechanisms for mitigation and climate change adaptation. These approaches also cover technology transfer and capacity-building measures.

NDCs cover certain sectors or regions of countries. Any carbon pricing compliance scheme involving the use of offsets will most likely be counted towards the host country's 'inventory' of GHG reductions reported under the Paris Agreement.

Currently, in absence of a comprehensive rulebook for international carbon market adopted by CMP, the market mechanisms introduced by the Paris Agreement are not yet fully-functioning. Nevertheless, piloting activities are being pursued under general provisions of Article 6 and CMP associated decisions (including on ETF), with a bilateral agreement between Switzerland and Peru signed in October 2020 representing the first such practical arrangement.

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

CORSIA was created by the Member States of the International Civil Aviation Organization (ICAO) and, with the aim of capping GHG emissions from international aviation at 2020 levels, is the first global sectoral carbon pricing mechanism. Building on the pre-Covid-19 assumptions of international aviation operations growth, IATA forecast that CORSIA would create demand for around 2.5 billion tCO₂ in offset credits between 2021 and 2035 (IATA, 2019).

Common rules regarding accounting need to be agreed to avoid the double counting of emission reductions under CORSIA and a country's NDCs targets. This risk of double-counting could only be avoided by establishing a clear international set of rules, which ICAO has defined in coordination with the UNFCCC.

Annex II. Reporting requirements for developing countries

Table 6: Reporting requirements for developing countries

NC	BUR	BTR (replacing BUR)
Reporting frequency		
4 years	2 years	2 years
Objective		
Communicate national efforts to mitigate GHGs	Provide an update to the most recently submitted NC	Provide information on progress of NDC
Scope of report		
 National circumstances National GHG inventory Steps taken or envisaged to implement the Convention (mitigation and adaptation) Other information relevant to the achievement of the objective of the Convention (e.g. transfer of technologies, research and systematic observation, education, training and public awareness, capacity building, and information and networking) Constraints and gaps, and related financial, technical and capacity needs 	 National circumstances and institutional arrangements relevant to the preparation of the NC National GHG inventory report Mitigation actions Description and coverage Quantitative goals and progress indicators Methodologies and assumptions applied Implementation progress Results achieved International market mechanisms Finance, technology and capacity building needs and support received Constraints and gaps Financial, technology transfer, capacity building and technical support needs and received Support received to enable preparation and submission of BURs Information on domestic MRV	 National circumstances and institutional arrangements Description of a Party's NDC, including updates NIR, consisting of national GHG inventory document and common reporting tables Information necessary to track progress made in implementing and achieving NDCs 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 an NDC Summary of GHG emissions and removals Projections of GHG emissions and removals, as applicable Other information Climate change impacts and adaptation Financial, technology development and transfer and capacity-building support needed and received
Review process		
None, reports are synthesised	 International consultation and analysis by international experts Facilitative sharing of views by Parties 	 Technical review Facilitative, multilateral consideration of progress

(Source: South Pole, based on UNFCCC, 2003; UNFCCC, 2012; and UNFCCC, 2018)

Annex III. The ETF review framework

One of the major changes in transparency under the Paris Agreement is the review process for all countries. The review framework for BTR consists of two phases: a technical review and a facilitative multilateral consideration of progress as highlighted in Figure 21.



Figure 21: ETF review framework

(Source: South Pole, 2019)

A technical review by independent international experts looks at the NIR, the progress of efforts towards implementation and achievement of NDC, and support (financial, technology, capacity building) provided to developing country Parties. The review is conducted by a team of experts through one of the four formats agreed under the MPG:

- **In-country review**, which involves experts visiting the country whose report is under review. This review format is required for the first BTR and at least two BTR in a 10-year period (at least one of which must contain information on NDC achievement). An incountry review shall also be conducted if recommended by technical expert review of the Party's previous BTR and upon request of the Party under review.
- **Centralised review** is done remotely by experts who gather in one location. This format can be an option for Parties needing flexibility in light of their capacity, but they are encouraged to undergo the in-country review.
- **Desk review** is done remotely by experts from each expert's location. Desk reviews should not be conducted for the first BTR, a BTR following update of a country's NDC or for a BTR that contains information on the Party's NDC achievement.
- **Simplified review** is done by the UNFCCC secretariat as an initial assessment, especially on NIR, which will feed into a deeper technical review using one of the above formats. It shall only be conducted for an NIR submitted in a year in which a BTR is not due.
- If a BTR does not fall under the requirements for in-country or simplified review, it shall undergo at least a centralised or desk review.

A multilateral facilitative consideration of progress involves peer review by Parties and takes place after a technical review process. The format of the multilateral review is similar to the current FSV on BUR. An important topic covered under the multilateral review is each Party's mitigation efforts, progress towards achievement of NDC, and the result of technical expert review. Similar to the FSV process, Parties undergoing multilateral review will go through a written question and answer phase followed by a working group session phase during COP (SBI session).

Through the two review processes, Parties would receive feedback on the consistency of report with the MPG provisions and related areas of improvement. The technical expert review will be implemented in a facilitative, non-intrusive, non-punitive manner, respectful of national sovereignty, and will avoid placing undue burden on Parties, while giving Parties information on potential areas for improvement and feedback on the way they track progress. That information can be utilised by Parties in improving their domestic MRV system and in formulating their next BTR and NIR so that both the MRV system and transparency of reports are improved over time, aligned with the goals of the Paris Agreement.

Annex IV. Reporting requirements under the MPG

The MPG for the transparency of action and support lays out all requirements for BTR, generally applicable for all Parties without differentiation between developing and developed countries. However, flexibility in meeting the transparency requirements is provided to developing country Parties "that need it in the light of their capacities". When a developing country determines itself in need of flexibility, it shall clearly (UNFCCC, n.d.):

- 1. indicate the MPG requirements for which it requires flexibility;
- 2. concisely identify capacity constraints; and
- 3. provide an estimated time frame for improvements of those constraints.

As with other provisions in the Paris Agreement, this demonstrates the principle of continuous improvement.

Parties are required to report through the BTR national updates on national GHG inventories, progress of NDC, climate change impacts and adaptation and lastly finance, technology, and capacity-building support (received or provided). The content of BTR shall cover mandatory reporting requirements ('shall' provisions), which are summarised in Table 7. Although developing countries are at different stages of MRV framework and readiness in adopting the MPG, it is likely that they need to adjust their existing MRV systems (institutional arrangements and domestic data collection system) to meet new reporting requirements.

Reporting elements	Mandatory items to be reported ('shall' provisions)
National GHG inventory	
Institutional arrangements	National entity/national focal point for national GHG inventory and inventory preparation process
Sectors	Energy, industrial processes and product use, agriculture, LULUCF and waste
GHG emissions by gas and category	 Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), HFCs, PFCs, SF₆ and NF₃ (at least CO₂, CH₄ and N₂O as well as HFCs, PFCs, SF₆ and NF₃, which are included in the Party's NDC, covered by an activity under Article 6 of the Paris Agreement, or have been previously reported) Continue report of emissions or removals for a category if they continue to occur, once they have been estimated Use notation keys where numerical data are not available, e.g. 'NO' (not occurring), 'NE' (not estimated), 'NA' (not applicable), 'IE' (included elsewhere), 'C' (confidential)
Aggregate GHG emissions and removals and Global Warming Potential (GWP)	 Aggregate emissions and removals of GHGs, expressed in CO₂e Apply the 100-year time-horizon GWP values from the IPCC Fifth Assessment Report, or from a subsequent IPCC assessment report

Table 7: Reporting requirements for BTR under MPG

Reporting elements	Mandatory items to be reported ('shall' provisions)
Reporting time-series	 Annual GHG emissions Starting year of inventory: 1990 (at a minimum, the reference year/period for its NDC and a consistent annual time series from at least 2020 onwards) Latest reporting year of inventory: no more than two years prior to the submission of its NIR (three years prior to the submission of its NIR)
Recalculation of past reported emissions	Recalculate past emissions using the 2006 IPCC Guidelines
Key categories	 Categories for the starting year and the latest reporting year including and excluding LULUCF categories Individual and cumulative percentage contributions from key categories, for both emissions level and emissions trend
Uncertainty assessment	 Quantitative uncertainty of emissions and removal estimates for all source and sink categories for at least the starting year and the latest reporting year Trend uncertainty of emissions and removal estimates for all source and sink categories between the starting year and the latest reporting year A qualitative discussion of uncertainty for key categories
QA/QC	QA/QC plan, procedures and responsible agency
Methodology used	 2006 IPCC Guidelines and any subsequent version or refinement In case of using other nationally appropriate methodologies, explain national methods, data and/or parameters selected
Activity data and emission factor used	Use the same methods and a consistent approach to activity data and emission factors for each reported year
Tier used	As high as possible for the key categories
Institutional arrangements	National entity/national focal point for national GHG inventory and inventory preparation process
Information necessary to track progress in imple	ementing and achieving its NDC
National circumstances and institutional	Government structure, population profile, geographical profile, economic profile, climate profile, sector details
arrangements	Information on how its national circumstances affect GHG emissions and removals over time
	Institutional arrangements in place to track progress made in implementing and achieving its

Reporting elements	Mandatory items to be reported ('shall' provisions)
	NDC
	Institutional arrangements used for tracking internationally transferred mitigation outcome
	Legal, institutional, administrative and procedural arrangements for domestic implementation, monitoring, reporting, archiving of information and stakeholder engagement
Description of a Party's NDC	 Data to be reported as covered by NDC target type, e.g.: economy-wide absolute emission reduction: (e.g. tCO₂e/year) emission intensity reduction (e.g. percentage reduction in emissions intensity per GDP unit) emission reduction below a projected baseline mitigation: (e.g. percentage below BAU) co-benefits of adaptation actions or economic diversification plans policies and measures (e.g. establish efficiency standards for vehicles and appliances) other (e.g. peak of carbon emissions, carbon neutrality)
	Target year(s) or period(s): single-year or multi- year target(s)
	Reference point(s), level(s), baseline(s), base year(s) or starting point(s), and their respective value(s)
	Time frame(s) and/or periods for implementation
	Scope and coverage, including, as relevant, sectors, categories, activities, sources and sinks, pools and gases
	Clarifications of previously reported information (e.g. greater detail on methodologies or use of cooperative approaches)
	Intention to use cooperative approaches that involve the use of internationally transferred mitigation outcomes under Article 6 towards NDC
Information necessary to track progress	 Indicator(s) selected by each country to track progress towards the implementation and achievement of its NDC, which can be: quantitative, e.g. net GHG emissions and removals, percentage reduction of GHG intensity qualitative, e.g. relevant qualitative indicators for a specific policy or measure, mitigation co-benefits of adaptation actions and/or economic diversification plans other (e.g. hectares of reforestation,

Reporting elements	Mandatory items to be reported ('shall' provisions)
	percentage of renewable energy use or production, carbon neutrality, share of non- fossil fuel in primary energy consumption and non-GHG related indicators)
	Indicator reference point(s), level(s), baseline(s), base year(s) or starting point(s)
	Contribution from the LULUCF sector
Projections of GHG emissions and removals	Begin from the most recent year in the Party's NIR and extend at least 15 years beyond the next year ending in zero or five
	Models and/or approaches used, and key underlying assumptions and parameters used for projections
	Projections on a sectoral basis and by gas
	Projections with and without LULUCF emissions
	Presented in graphical and tabular formats
For Parties participating in cooperative approaches	Annual level of anthropogenic emissions by sources and removals by sinks covered by the NDC on an annual basis reported biennially
	An emissions balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by its NDC adjusted on the basis of corresponding adjustments (to reflect ITMO transfers)
	Information on how each cooperative approach promotes sustainable development, ensures environmental integrity and transparency, applies robust accounting to ensure inter alia the avoidance of double counting
Climate change impacts and adaptation	
None. All reporting requirements are under 'should'	and 'may' provision.
Finance, technology, and capacity-building supp	port received
None. All reporting requirements are under 'should'	and 'may' provision.

Source: (South Pole, 2019)

Annex V. Adjustments to meet ETF-MPG

Notable adjustments need to be made by countries in the three MRV main elements as summarised in Figure 22.



Figure 22: Overview MRV adjustments to meet the ETF-MPG

(Source: South Pole, 2019)

To produce a BTR that covers the above three aspects in line with the ETF-MPG requirements (Annex IV), a few adjustments are needed:

1. On national GHG inventory report preparation process (MRV of emissions):

- All countries need to add into their MRV system procedures to collect emissions data for GHGs that must be reported under the ETF, especially those which used to be reported on a voluntary basis: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃);
- When applicable, countries need to report emissions of all seven GHGs covered by an activity under Article 6 of the Paris Agreement. Guidance for Article 6 reporting still needs to be adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA);
- All countries need to streamline their MRV system to speed up the process for data collection and analysis, as annual GHG emissions must be reported biennially. Some countries may revisit the agreed policies surrounding data collection and make sure that data sharing between sources and stakeholders is mandated by appropriate domestic law;
- All countries need to adopt 2006 IPCC Guidelines, and be ready to make the necessary
 adjustments to adopt subsequent IPCC Guidelines. In practice, countries need to build
 their internal capacity and may need to modify or update domestic reporting tools with
 new reporting tier methods, emission factors, and global warming potential; and
- All countries need to produce GHG emissions projections and continuously and consistently update them. Some countries, especially those who have 'policies and actions' as their NDC target will need to start the process from scratch.

2. On monitoring, tracking and reporting **progress of mitigation actions towards NDC achievement** (MRV of policies and actions):

 Countries that intend to implement mechanisms under Article 6 of the Paris Agreement need to add into their MRV system systems for tracking and reporting ITMOs, consistent with guidance for Article 6 to be adopted by the CMA;

- Countries that intend to implement mechanisms under Article 6 of the Paris Agreement need to revisit the mandate, role and works of the CDM Designated National Authorities (DNA). In some countries, the daily operation of CDM DNA has been in hiatus due to the lack of CDM activity in the country. In such cases, the DNA needs to be revived and be prepared to implement new procedures to avoid double counting of emissions reductions;
- Countries that implement cooperative approaches under Article 6 need to define the scope and coverage of the NDC and the cooperative approach consistent with Article 6 guidance to be adopted by the CMA;
- Countries that implement cooperative approaches need to formulate methods to assess and report how each cooperative approach promotes sustainable development;
- Countries need to avoid double counting including, where participating in cooperative approaches, the double counting of ITMOs in accordance with guidance for Article 6. Avoiding double counting of ITMO will require domestic systems to track ITMOs;
- All countries need to add into their MRV system tools for tracking progress of NDC implementation using the indicators they select. These tools may be country-specific.

3. On data collection and reporting of **finance**, **technology**, **and capacity-building support received** (MRV of support), there are no mandatory reporting requirements under the ETF. However, countries are encouraged to report support received in addition to support needed. For those who intend to report support received:

- Countries need to build MRV systems, through institutional arrangements for data collection, covering finance, technology, and capacity-building support received. For example, tracking financial support received can be done by 'budget tagging'. Countries can also integrate the arrangements for reporting support needed with other reporting systems;
- Countries need to formulate the means and efforts in avoiding double counting between:

 claims on provision of support, among multiple Parties involved in the provision; 2)
 claims on finance mobilised, between Parties; 3) resources reported as support provided or mobilised, and resources used under Article 6 of the Paris Agreement by the acquiring Party for use towards NDC; 4) support attributed to multiple recipient countries, for example in cases of multi-country support programme.

Finally, the ETF encourages reporting on climate change impacts and adaptation, all under 'should' and 'may' provisions.

Annex VI. Challenges setting up MRV and NDC accounting and transparency systems in SEMED countries

Egypt

(i) Considering capacity building needs

In order to meet the ETF requirements, Egypt needs to establish an MRV system that tracks data relevant to its NDC target. This means tracking progress for low-carbon energy production technologies, mitigation efforts across all major emissions sources, technology transfer and international financial flows, in line with its NDC

(ii) Legal architecture and institutional arrangements

Related to market mechanisms, Egypt expressed the need to establish new frameworks and institutions to regulate markets (EEAA, 2016). It expressed the importance of establishing a Carbon Trading Regulatory Commission under the Ministry of Finance or EEAA. Furthermore, according to Egypt, the EEAA should be equipped with the capacity to monitor and manage the national carbon market including emissions allocation, development of MRV standards and regulations, and establishment of market regulatory bodies which also monitor the growth of derivative markets.

(iii) Tracking tools, platforms or systems

In its TNC, Egypt expressed the need for capacity building in managing and tracking climate finance and investment (EEAA, 2016), especially in the implementation of platforms and systems. This includes the capacity to promote public-private partnerships and the capacity of the EEAA to develop clear objectives and plans for climate finance in Egypt, including appointment of responsible managing agencies. The Ministry of Finance should provide clear arrangements on the funding of climate change programmes, including the establishment of designated budget items for climate-related programmes to be managed by the EEAA. With regard to transparency, Egypt identified the importance of an analysis and reporting mechanism for direct climate finance performed by the NCCC and the Ministry of Finance. This means that Egypt will have to put more effort into the implementation of the MRV systems, not only from an administrative point of view, but also from a technical point of view.

Jordan

(i) Considering capacity building needs

For preparation of its GHG inventory, Jordan expressed in its BURs the need to prepare national emission factors. This is particularly vital for key categories within the GHG inventory. Capacity building may be needed to set up a QA/QC manual for procedures. Upon further consideration, Jordan may need capacity building to formulate, implement, and report QA/QC plan and relevant procedures in accordance to IPCC Guidelines. For mitigation actions, Jordan requires capacity building training for mitigation analysis for the transportation, industry, land-use and waste sectors. Data quality, completeness, and accuracy are of a primary concern when it comes to stablishing the baseline and mitigation analysis (Jordan Ministry of Environment *et al*, 2020). Capacity building among all institutions working within the key sectors should be developed to perform mitigation analysis, such as GHG emissions estimation and studies on potential mitigation actions in the sector.

Jordan has received financial assistance from 'green funds'. For example, in 2013 the SEMED Sustainable Energy Financing Facility (Phase I) was set up by EBRD, European Investment Bank, French Development Agency and Kreditanstalt für Wiederaufbau, supported by EU NIF grants, to extend credit lines to Morocco and Jordan for energy efficiency and renewable energy projects (European Commission, 2019). In 2019, EBRD launched a Jordan Green Economy Financing Facility (GEFF), which aims to provide up to USD 60 million for a Green Economy Transition

(GET) in Jordan, extending beyond energy efficiency and renewable energy to include water efficiency and material efficiency technologies (EBRD, 2019). In order to expand its opportunities for green growth projects from the Green Climate Fund (GCF), Jordan has been benefitting from a capacity development programme supporting GCF readiness, accreditation of a national entity and pipeline project formulation.

(ii) Legal architecture and institutional arrangements

Jordan needs to implement legislation that allows the country's MRV systems and NDC accounting to be transparent. The first step is to generate an obligation for the different productive sectors to report their emissions on an annual basis, thus achieving a robust accounting system that will make the country's progress report towards its NDC more reliable. However, it is necessary to create an institutional framework (not necessarily a new institution) that allows monitoring of these reports and sporadic verifications to prove their veracity. This new institution should be made up of the national institutes that generate the information for the BUR, the Ministry of the Environment and, if necessary, the research institutes. This institution should be regulated by law or decree, so that it is assigned not only specific functions for the implementation of the MRV but also a budget for the development of activities.

(iii) Tracking tools, platforms or systems

In its BURs, Jordan identified the need for tracking tools for climate finance inflow, as well as tracking and verification systems of GHG emission impacts (Jordan Ministry of Environment et al., 2017, 2021). Such systems are particularly required by the Jordan Ministry of Environment, Ministry of Planning & International Cooperation and the Ministry of Energy and Mineral Resources, the main data sources for financial flows especially for mitigation actions (e.g. bus rapid transit developed in Great Amman Municipality, Al-ghabawi landfill, etc.).

Morocco

(i) Considering capacity building needs

Morocco has an NDC target that is conditional upon 'specific measures'. In its BURs, it mentions capacity building needs for, among others, 'strengthening the legal and institutional framework, improving knowledge and observation, prevention and reduction of climate risks, awareness raising, empowerment of actors and capacity building, promotion of research, innovation and technology transfer, climate finance, and monitoring and evaluation'. As a reference, the implementation of capacity-building measures mentioned in Morocco's TNC, requires USD 111.7 million.

(ii) Legal architecture and institutional arrangements

Morocco, as explained above, already has a legal framework for the implementation of GHG inventories which also defines its institutionalism. However, in order for Morocco to enter the new cooperative mechanisms established in Article 6, it will be necessary to create a space within its MRV system that allows monitoring not only of emissions, but also of emission reduction projects and the process of trading these reductions, whether at the national or international level. This process should not only be a technical adjustment to the platform, but should also be supported by a legal instrument that obliges reporting of emission reductions in a correct, transparent and traceable manner.

(iii) Tracking tools, platforms or systems

In order to meet the ETF requirements, Morocco needs to integrate existing MRV for tracking project-based activities such as CDM and NAMA into a national MRV framework that tracks data towards accountable to their NDC target. For Morocco this means tracking progress for unconditional and conditional target and progress in Agriculture, Forestry and Other Land Use sector.

Tunisia

According to the processes reported by the country both in the construction of its NDCs and in the establishment of MRV systems, the following opportunities and challenges were identified in Tunisia (BUR2).

(i) Considering capacity building needs

In order for GHG accounting systems to function optimally and for high-quality data to be available for monitoring emission reductions and establishing new NDCs, it is necessary that all actors involved in the monitoring processes (both local and national authorities) have the same capabilities and understanding of the processes. This will facilitate the collection of data and the monitoring and verification of the information provided by the sectors.

The challenge of training public sector stakeholders is not only in reaching the greatest number of people possible, but also in maintaining institutional capacity and engaging stakeholders outside of the public sector with knowledge and skills in MRV and NDC development processes. For this reason, it is necessary to involve multiple stakeholders in training processes in order to have greater technical capacity and institutional capacity in the country.

As mentioned above, in Tunisia's BUR, the need to increase the technical capabilities related to GHG mitigation and the implementation of MRV systems was identified. This process can be developed in a stepwise approach, starting with the sectors that have higher emissions and therefore have a greater potential for mitigation impact.

(ii) Legal architecture and institutional arrangements

The main challenge Tunisia faces in its MRV process is in the sectoral activity data collection from emissions sources necessary for GHG inventory. To increase the reliability of data used for GHG inventory, Tunisia could formulate laws that mandate companies to report their emissions on government platforms or at least share data with the GHG inventory coordinating entity, following measurement parameters established by the IPCC. With this regulation, it will be easier for the government to decide on the actions that will be implemented to reduce emissions taking into account the particularities of each sector.

In order for Tunisia to have more ambitious NDCs, it must have the necessary institutional arrangements to follow up on the MRV system reports, i.e. the country must have the institutional capacity to audit or follow up on some reports to verify their authenticity and transparency. This will allow the country not only to have greater control over the effectiveness of specific measures implemented, but also to adjust measures that for some reason are not working. This process will require inter-sectoral agreements, but also a budget to increase the technical capacity of the institutions in charge of the MRV process and for the implementation of monitoring systems.

(iii) Tracking tools, platforms or systems

For Tunisia and according to what has been reported in its GHG inventories and the report to the BUR, one of the greatest technical challenges is the definition of national emission factors.

Another of the challenges of MRV systems for GHG emissions is presented in the current coverage of the different productive sectors. This coverage varies according to the capacity of the sectors, preventing the increase in the reliability of the national GHG inventories.

Some companies in Tunisia report to voluntary reporting platforms and others to existing national systems. One of the major challenges in the MRV process is to standardise the information that companies and sectors report on their emissions measurements, to achieve comparability of the data provided.

Annex VII. Transparency capacity building initiatives

Capacity-building efforts in support of the UNFCCC have been underway from its beginnings. The Paris Agreement now places new requirements on all Parties, and further emphasises the need for additional capacity for some countries.

Transparency is an example of a new requirement; different supporting initiatives, with diverse scopes and methodologies, exist to assist countries in meeting it. The processes to access capacity building under each initiative, listed in Figure 23, are varied.



Figure 23: Available transparency capacity building support overview

(Source: South Pole, 2019)

As we have seen in sub-section 5.3 the SEMED countries have major transparency capacitybuilding needs. However, with the exception of Morocco, they are not particularly active in joining the available initiatives, which could be key to support their compliance with the transparency requirements and access to international climate finance. Each initiative can potentially assist SEMED countries in different aspects so exploring all existing options is recommended.

Initiatives focused on transparency

Capacity building framework for transparency under the UNFCCC: outlines 15 priority areas to focus capacity-building efforts. Together with previous experiences in capacity building, this framework provides essential insights to inform future efforts to build capacity for the Paris Agreement's enhanced transparency framework.

Initiative for Climate Action Transparency: helps countries assess the impacts of their climate policies and actions and support greater transparency, effectiveness, ambition and trust in climate policies worldwide. It integrates methodological work, capacity building and knowledge sharing. Morocco is currently the only SEMED region country that has adhered to this initiative.

Partnership on Transparency in the Paris Agreement: supports international efforts to engage in practical exchanges and political dialogue on climate transparency. This is funded by South Africa, South Korea and Germany, but open for other countries to join.

Capacity-building Initiative for Transparency: supports developing countries to build institutional and technical capacity, both pre- and post-2020, to meet enhanced transparency requirements as defined in Article 13 of the Paris Agreement. This was created by the Global Environment Facility (GEF) Secretariat. Morocco is currently the only SEMED region country that has adhered to this programme.

Broad scope initiatives that touch on transparency

Paris Committee on Capacity Building: supports efforts related to implementation of the Paris Agreement as a whole; identifies capacity gaps and needs and potential solutions, including enhancing the coherence and coordination of capacity-building efforts related to climate change.

NDC Partnership: works directly with national governments, international institutions, civil society, researchers, and the private sector to fast-track climate and development action. The Partnership aims to increase alignment, coordination, and access to resources to link needs to solutions and includes a pocket guide on transparency.

GCF Readiness Programme: All developing countries can access the Readiness Programme, and the Fund aims for a floor of 50% of the readiness support allocation to particularly vulnerable countries, including the Least Developed Countries, Small Island Developing States, and African States.

Others

Several reports, analysis and compilations of lessons learnt around transparency exist and can be key for knowledge sharing. For example, a working paper by the World Resources Institute (Dagnet et al., 2019) brings together six essential lessons for building countries' capacity to implement the Paris transparency framework and highlights activities and initiatives that can help countries build their transparency-related capacity.

