



United Nations
Climate Change Secretariat

Nations Unies
Secrétariat sur les changements climatiques

TRAINING MATERIAL FOR THE PREPARATION OF BIENNIAL UPDATE REPORTS FROM NON-ANNEX I PARTIES: *REPORTING MITIGATION ACTIONS AND THEIR EFFECTS*

CONTENTS

ABBREVIATIONS	5
1. INTRODUCTION AND BACKGROUND	6
1.1. The UNFCCC context	6
1.2. Understanding the nature of mitigation actions	9
1.2.1. Type of action.....	9
1.2.2. Scope.....	11
1.2.3. Source of funding	12
2. BASIS FOR REPORTING MITIGATION ACTIONS	14
3. REPORTING INFORMATION ON MITIGATION ACTIONS	16
3.1. Completeness of the reported information	16
3.2. Description of the mitigation actions.....	17
3.3. Methodologies and assumptions.....	21
3.4. Identification of steps taken or envisaged	23
3.5. The progress of implementation of mitigation actions	25
3.6. International market mechanisms	27
3.7. Domestic measurement, reporting and verification arrangements	28
GLOSSARY	32

LIST OF FIGURES

Figure 1	UNFCCC decisions related to the measurement, reporting and verification of developing countries' mitigation actions.....	7
Figure 2	Relationship between different types of mitigation actions.....	11
Figure 3	Differentiating mitigation actions by scope	12
Figure 4	Timeline of a mitigation action.....	20
Figure 5	An excerpt of a detailed mitigation action from the first BUR of Ghana submitted in June 2015	20
Figure 6	An excerpt of methodologies and assumptions from the first BUR of Ghana submitted in June 2015	22
Figure 7	Reporting on objectives of the action and steps taken or envisaged (continuation of same excerpt from Ghana's first BUR)	25
Figure 8	Reporting on progress of implementation (continuation of excerpt from Ghana's first BUR)	26
Figure 9	Reporting on international market mechanisms – Excerpt from Singapore's first BUR.....	28

LIST OF TABLES

Table 1	Identification of the extent to which the elements of information on mitigation actions are included in the [first] biennial update report	16
Table 2	Useful questions to consider when describing mitigation actions.....	20
Table 3	Useful questions to consider when reporting information on methodologies and assumptions	22
Table 4	Useful questions for checking of the steps taken or envisaged.....	23
Table 5	Useful questions for the checking of progress of implementation	26
Table 6	Useful questions for the checking of information on international market mechanisms	27
Table 7	Useful questions for checking the information reported on domestic measurement, reporting and verification arrangements.....	30

LIST OF BOXES

Box 1	Examples of mitigation actions communicated to the UNFCCC by developing country Parties in their Intended Nationally Determined Contributions (INDCs).....	10
Box 2	Example for implementation steps – policies and projects	24
Box 3	Examples of reporting on the institutional setup for the greenhouse gas inventory	31

ABBREVIATIONS

BURs	biennial update reports
CGE	Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention
COP	Conference of the Parties
GHG	greenhouse gas
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
MRV	measurement, reporting and verification
NAMAs	nationally appropriate mitigation actions
Non-Annex I Parties	Parties not included in Annex I to the Convention
SBI	Subsidiary Body for Implementation
TTE	team of technical experts
UNFCCC	United Nations Framework Convention on Climate Change

1. INTRODUCTION AND BACKGROUND

The objective of this document is to provide a non-prescriptive, voluntary technical guidance to prepare and report information on mitigation actions and its effects in biennial update reports (BURs) based on the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” contained in decision 2/CP.17, annex III, paragraphs 11–13. This document is adapted from the training programme of the Consultative Group of Experts for the team of technical experts for the technical analysis of BURs under the international consultation and analysis (ICA) process.

The following sections provide context within the United Nations Framework Convention on Climate Change (UNFCCC), as well as a general overview of different forms of mitigation actions that are expected to be reported within the BURs by non-Annex I Parties.

1.1. THE UNFCCC CONTEXT

Mitigation actions for developing countries are already part of the Convention (Article 4), which calls on all Parties to implement measures to mitigate climate change “taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances”.

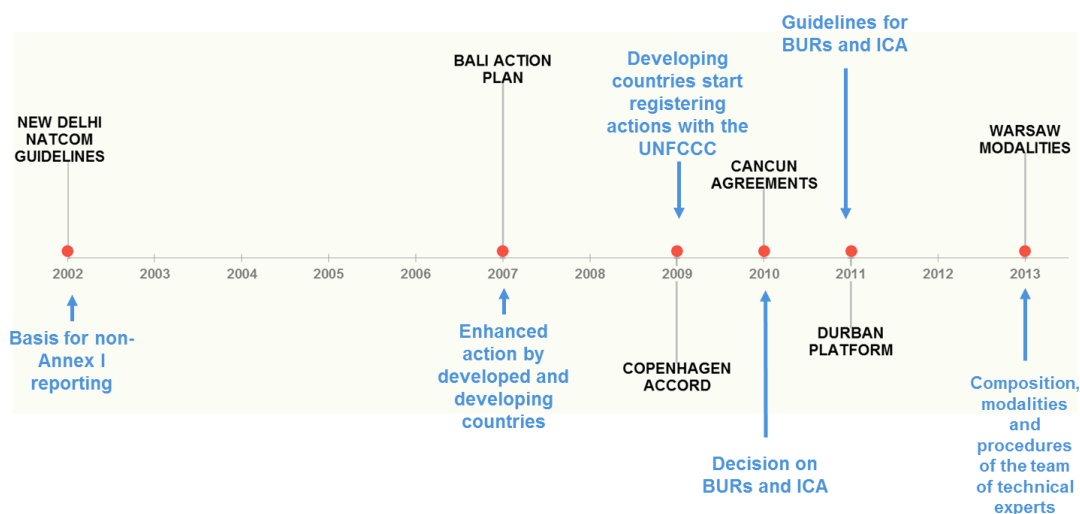
Taking this a step further, the concept of nationally appropriate mitigation actions (NAMAs) goes back to the Bali Action Plan in 2007.¹ After the Conference of the Parties (COP) in Copenhagen, many developing country Parties communicated their mitigation actions, which were compiled in a document by the UNFCCC secretariat.² Since then different decisions have provided more detail on the process for measurement, reporting and verification (MRV) of such mitigation actions as illustrated in figure 1.

¹ Decision 1/CP.13.

² FCCC/SBI/2013/INF.12/Rev.2.

Figure 1

UNFCCC decisions related to the measurement, reporting and verification of developing countries' mitigation actions



Abbreviations: BURs = biennial update reports, ICA = international consultation and analysis.

The relevant decisions under the Convention include:

- **New Delhi:** decision 17/CP.8: In New Delhi, the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (hereinafter referred to as the NC guidelines) were adopted. These form the basis for the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” (hereinafter referred to as the BUR guidelines);
- **Bali:** decision 1/CP.13 (Bali Action Plan): the Bali Action Plan introduced the concept of NAMAs and MRV;
- **Cancun:** decision 1/CP.16 (Cancun Agreements): decisions in Cancun enhanced the reporting framework of the UNFCCC and introduced BURs and the ICA process. Additionally, the decision encourages non-Annex I Parties to submit their national communications every four years, where before it was left up to Parties to submit at their discretion. The Cancun Agreements also define the setting up of the NAMA registry;
- **Durban:** decision 2/CP.17 (Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention): in Durban the BUR guidelines were adopted. They include the information requirements for mitigation actions. The modalities and guidelines for the ICA were also adopted;
- **Warsaw:** decision 20/CP.19: the composition, modalities and procedures of the team of technical experts (TTE) under international consultation and analysis were adopted.

The NC guidelines were originally adopted at COP 2 in Geneva in 1996. The current version of these NC guidelines was adopted by the Parties at COP 8 in 2002. These provide the basis for current reporting for non-Annex I Parties and form the foundation for the BUR guidelines. National communications require a greater variety of information than the BURs, particularly around the impacts of climate change and adaptation measures.

Transparency of action and support under the Paris Agreement

The COP, at its twenty-first session held in Paris from 30 November to 13 December 2015, adopted the Paris Agreement. The agreement entered into force on 4 November 2016.

The Paris Agreement, through its Article 13, established an enhanced transparency framework for action and support which shall:

- a. Provide flexibility in the implementation of the provisions of this Article to those developing country Parties that need it in the light of their capacities;
- b. Build on and enhance the transparency arrangements under the Convention, recognizing the special circumstances of the least developed countries and small island developing States, and be implemented in a facilitative, non-intrusive, non-punitive manner, respectful of national sovereignty, and avoid placing undue burden on Parties.

Under the enhanced transparency framework:

- a. Each Party shall regularly provide the following information: (a) a national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases; and (b) information necessary to track progress made in implementing and achieving its nationally determined contribution under Article 4;
- b. Each Party should also provide information related to climate change impacts and adaptation under Article 7, as appropriate;
- c. Developed country Parties shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10 and 11;
- d. Developing country Parties should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11.

Information submitted by each Party under paragraphs 7 and 9 of this Article shall undergo a technical expert review. For those developing country Parties that need it in the light of their capacities, the review process shall include assistance in identifying capacity-building needs. In addition, each Party shall participate in a facilitative, multilateral consideration of progress with respect to efforts under Article 9, and its respective implementation and achievement of its nationally determined contribution.

As mandated by COP 21, the Ad Hoc Working Group on the Paris Agreement (APA), is currently developing recommendations for the modalities, procedures and guidelines for the enhanced transparency framework.

For comprehensive description of the enhanced transparency framework under the Paris Agreement, please refer Article 13 and paragraphs 84–98 of decision 1/CP.21.

1.2. UNDERSTANDING THE NATURE OF MITIGATION ACTIONS

Mitigation actions by non-Annex I Parties may take different forms. Consequently, this affects how the information is presented in BURs. This section introduces some important distinctions.

Mitigation actions are not limited to those communicated officially to the UNFCCC and compiled in document FCCC/SBI/2013/INF.12/Rev.2. However, the NAMAs that were originally communicated under the Copenhagen Accord already cover a large range of different approaches and types of actions that can be envisioned.

Depending on the focus of the analysis, mitigation actions can be grouped in different ways. The most common classifications are by:

- **Type of action:** here the main question is what type of action is the focus of the mitigation action, i.e. which instruments are used as mitigation actions;
- **Scope:** another dimension is the coverage of the mitigation action by sector, geography or technology;
- **Source of funding:** if the source for funding is the dominant question, a different classification will result.

Depending on which of these categories or combinations of categories are explored, different classifications of mitigation actions will be suitable. The subsequent section provides some further detail of the various approaches to differentiate the mitigation actions mentioned above.

1.2.1. TYPE OF ACTION

In principle there are three types of mitigation actions emerging:

- **Goals:** Actions that are framed as commitments. They are formulated as national, economy-wide or sectoral targets. These can be reductions below business-as-usual (BAU) emissions scenarios, or absolute reductions. They can also be formulated as reductions in carbon intensity or as technology related goals, for example renewable energy targets. In this sense, mitigation goals are not necessarily framed in terms of greenhouse gas (GHG) reductions. The achievement of goals is in many cases subject to adequate support;
- **Policies:** Actions that aim to impact emissions through relevant national policies. This includes broad strategies as well as the full range of policy instruments, such as regulations, taxes and incentive schemes;
- **Projects and programmes:** Activities that are targeted at a specific investment or that are limited in scope, scale and duration. This includes the installation of renewable power capacity, infrastructure investments as well as pilot projects and capacity building initiatives.

Box 1

Examples of mitigation actions communicated to the UNFCCC by developing country Parties in their Intended Nationally Determined Contributions (INDCs)

Goals:

Reductions below business-as-usual: Barbados communicated an economy-wide reduction of GHG emissions of 44% compared with the 'business as usual' scenario by 2030. (INDC submitted on 30 September 2015)

Absolute reductions: Seychelles communicated that it will reduce its absolute GHG emissions by 21.4% in 2025 and by 29.0% in 2030 relative to baseline emissions. (INDC submitted on 25 September 2015).

Reduction in emission intensity: Singapore communicated that it intends to reduce its GHG emissions intensity by 36% from 2005 levels by 2030 and stabilise its emissions with the aim of peaking around 2030. (INDC submitted on 3 July 2015)

Technology related goals: Brazil communicated intention to achieving 45% of renewables in energy mix by 2030. (INDC submitted on 28 September 2015)

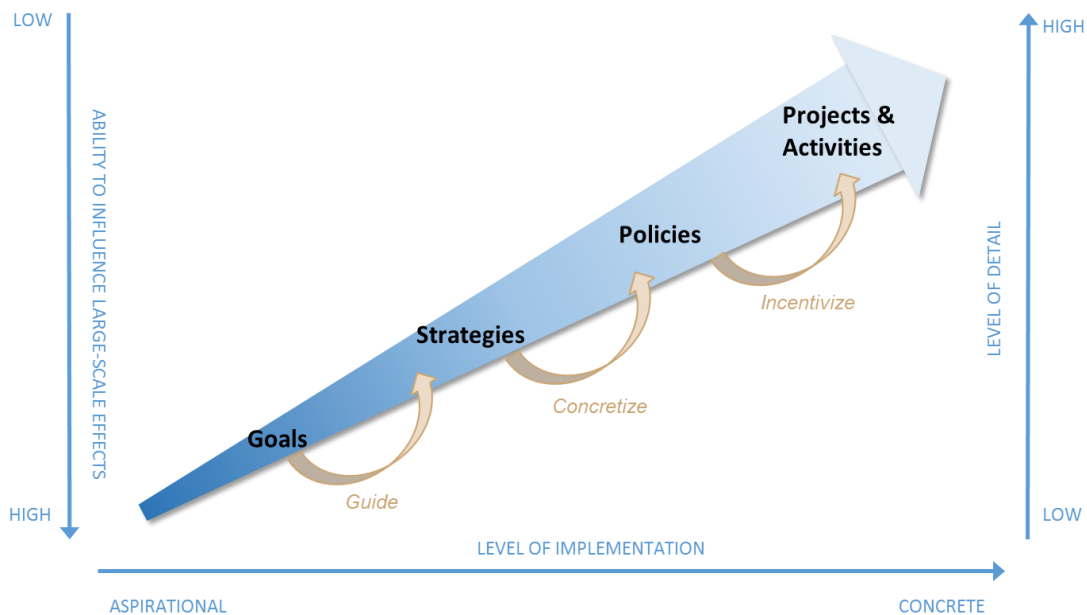
Policies: Mongolia communicated a series of policies and measures the country commits to implement up to 2030 in the energy, industrial, agriculture and waste sector with an estimated mitigation impact of 14% reduction in total national GHG emissions excluding Land use, Land Use change and Forestry (LULUCF) by 2030 compared to 'business as usual' scenario. (INDC submitted on 24 September 2015).

Projects and Programmes: Tuvalu communicated on its renewable energy programme to reduce significantly its reliance on imported fossil fuels for electricity generation. (INDC submitted on 21 November 2015).

Source: http://unfccc.int/focus/indc_portal/items/8766.php.

The relationship between these mitigation actions are captured in figure 2.

Figure 1
Relationship between different types of mitigation actions



Ultimately all goals need to be translated into policies and/or projects if they are to be achieved. Strategies and plans are often used as intermediate steps to provide more concrete guidance for the formulation of policies and/or projects. Policy-based actions involve the selection of specific instruments to be implemented, which are at least roughly defined.

Goals, either as GHG reduction goals or related to other indicators, such as energy use or energy mix, serve as guidance for subsequent activities and can be used to track and evaluate progress. Strategies, as part of the available portfolio of policy instruments, translate such goals into more concrete steps that are finally implemented through policies that incentivize concrete action on the ground.

This represents an idealized process of translating higher-level aspirations to actions that allow the achievement of goals. However, not all countries may choose to follow this process along all steps. Policies, as well as projects, programmes and activities, can be implemented without overarching goals. In such cases individual goals and objectives for the activities can be defined, against which progress can be monitored.

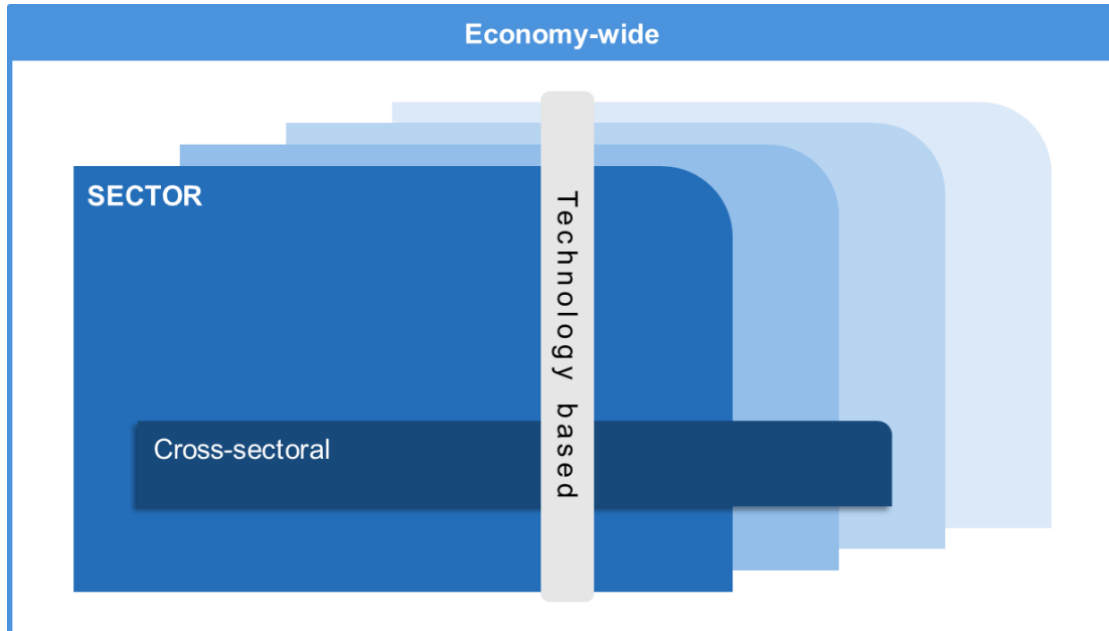
1.2.2. SCOPE

Scope refers to the sectoral and geographical coverage of the mitigation action. As illustrated in Figure 3, sectoral coverage may include:

- **Economy-wide:** Mitigation actions that cover the entire economy of a country, for example economy-wide GHG reduction goals;
- **Cross-sectoral:** Actions that span a number of sectors, but not all, which could be the case for actions that target all energy demand sectors;
- **Sector-specific:** Activities that target one specific sector, for example agriculture;

- **Technology-based:** Actions that target specific technologies, for example certain renewable energy technologies, or packages of technologies. Technology-based actions are often sector specific, but could also be cross-sectoral or economy-wide.

Figure 2
Differentiating mitigation actions by scope



Source: Marion Vieweg based on Jung M, Vieweg M, Eisbrenner K, Höhne N, Ellermann C, Schimschar S and Beyer C. 2010. Nationally Appropriate Mitigation Actions. Insights from Example Development. Cologne, Germany: Ecofys.

1.2.3. SOURCE OF FUNDING

Depending on the source of funding, mitigation actions can be further categorized as follows:

- **Domestically supported actions** are implemented unilaterally by the country itself without specific international support (e.g. Israel's target to achieve a 20 per cent reduction in GHG emissions by 2020 below BAU levels, which would be achieved primarily through the implementation of two government decisions by 2020. Further information was communicated, outlining national actions as well as a government sponsored programme of subsidies, up to USD 2.5 million);
- **Internationally supported actions** involve international funding through direct finance (e.g. Indonesia's goal to reduce emissions to 41 per cent below BAU with sufficient international support);
- **Credited activities** would be funded through the international carbon market (no operational examples currently exist outside the Clean Development Mechanism and voluntary crediting initiatives).

Individual activities can also be funded with a combination of sources. In such cases this type of classification would consider the main source of funding.

As part of the BUR, countries do not need to report on each and every mitigation action or project they may be implementing. BURs should paint a broad picture of a country's mitigation actions or group of mitigation actions.

For example, some non-Annex I Parties have made pledges to UNFCCC on NAMAs that they will undertake³ or have submitted their NAMAs to the registry. Information on such NAMAs could be included as part of the BURs. In these cases, it may be sufficient to present information that relates to the overall mitigation goals and also to specific NAMAs at the level of policies and programmes. It is not necessary to provide information on each individual mitigation project that underpins NAMAs and/or mitigation policies and programmes. However, not all non-Annex I Parties have established national or sectoral policies or NAMAs. Countries without broad mitigation goals in place may report on the packages of projects.

The classification of mitigation actions in the categories outlined, is not a requirement under the BUR guidelines, however, they can provide experts with a better understanding of the nature of actions and the potential order of magnitude of the effects.

³ FCCC/SBI/2013/INF.12/Rev.2.

2. BASIS FOR REPORTING MITIGATION ACTIONS

This chapter highlights the relevant paragraphs of decision 2/CP.17, that form the basis for reporting information on mitigation actions.

The decisions in Durban⁴ provide the basis for the reporting of mitigation actions in BURs:

[Decision 2/CP.17, paragraph 41]

.....

41. Decides:

(a) That non-Annex I Parties, consistent with their capabilities and the level of support provided for reporting, should submit their first biennial update report by December 2014; the least developed country Parties and small island developing States may submit biennial update reports at their discretion;

(b) That in using the Guidelines, non-Annex I Parties should take into account their development priorities, objectives, capacities and national circumstances;

.....

Annex III of the Durban contains the BUR guidelines which contains different sections, pertaining to the different types of information expected within the reporting:

⁴ Decision 2/CP.17.

[Decision 2/CP.17, Annex III, paragraphs 11–13]

.....

11. Non-Annex I Parties should provide information, in a tabular format, on actions to mitigate climate change, by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.

12. For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information to the extent possible:

(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;

(b) Information on methodologies and assumptions;

(c) Objectives of the action and steps taken or envisaged to achieve that action;

(d) Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;

(e) Information on international market mechanisms.

13. Parties should provide information on the description of domestic measurement, reporting and verification arrangements.

.....

The subsequent sections explain each of these provisions in greater detail with examples.

3. REPORTING INFORMATION ON MITIGATION ACTIONS

This chapter provides guidance on each of the key elements to consider when reporting information on mitigation actions in the BUR. The examples provided are illustrative of different ways Parties have reported information and not indicative of best practice. It is for Parties themselves to decide on the extent and nature of information reported in accordance with their national circumstances. Submitted BURs are a useful source of information to learn how other Parties have reported on mitigation actions.

3.1. COMPLETENESS OF THE REPORTED INFORMATION

The BUR guidelines request or encourage specific information on mitigation actions. Table 1 provides a checklist that could be used to assess a high-level completeness of the information reported. Given the wide range of possible mitigation actions to be reported, and the very different stages of implementation, the level of detail and completeness will vary accordingly.

Table 1

Identification of the extent to which the elements of information on mitigation actions are included in the [first] biennial update report

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No/NA</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 12	<p>For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information to the extent possible:</p> <ul style="list-style-type: none"> • Name and description of the mitigation action: <ul style="list-style-type: none"> ○ Information on the nature of the action and coverage (i.e. sectors and gases) ○ Quantitative goals ○ Progress indicators • Information on methodologies and assumptions: <ul style="list-style-type: none"> ○ Methodologies ○ Assumptions • Objectives of the action and steps taken or envisaged to achieve that action: <ul style="list-style-type: none"> ○ Objectives of the action ○ Steps taken or envisaged to achieve that action • Information on the progress of implementation of the mitigation actions and the underlying steps taken or 		

Decision	Reporting requirements	Yes/ Partly/No/NA	Comments on the extent of the information provided
	<p>envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible:</p> <ul style="list-style-type: none"> ○ Progress of implementation of the mitigation actions ○ Underlying steps taken or envisaged ○ Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible • Information on international market mechanisms 		
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on the description of domestic measurement, reporting and verification arrangements		

If all of the elements in Table 1 are answered with “yes”, the information provided is deemed to be complete. Various tools such as tables, graphs, and diagrams could help in reporting large volumes of essential information in a concise manner. It is also important to note the fact that some information to be reported do not fall under strict requirements (“should”), and required information (“shall”) is provided “to the extent possible” and “where appropriate”.

3.2. DESCRIPTION OF THE MITIGATION ACTIONS

[Decision 2/CP.17, Annex III, paragraph 12 (a)]

For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information to the extent possible:

(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;

The type of information provided in the description will depend on the type of mitigation action. It should be concise and provide a basic understanding of the mitigation action. Additionally, the description should be clear about the way in which the mitigation will lead to actions that deliver GHG emission reductions. Describing mitigation actions in detail has advantages beyond complying with BUR reporting guidelines. A certain minimum level of detail is necessary to be able to understand the achieved or expected effects of mitigation actions, but more detail allows a more robust understanding of these effects for the Party implementing the mitigation action. In particular:

- A clear definition and description of the mitigation action is necessary to accurately understand the action and its intended or achieved effects for national and external stakeholders;

- A high level of detail supports a robust design and can facilitate the successful implementation of mitigation actions;
- Having a clear definition of the mitigation action is also useful when communicating the action and expected impacts to policymakers and other interested parties;
- Detailed information will enhance opportunities for support for planned mitigation actions.

A number of factors relating to the scope of the action further refine the understanding of the mitigation action, including the sectoral and geographic coverage of the action, which indicate how much of national emissions could be impacted. To this end, it is also important to understand which sources and/or sinks are targeted by the action. Finally, the choice of gases covered will influence the expected and/or achieved impact of the action.

Sectors: The Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories groups GHG emissions and removals into six main sectors:

- Energy;
- Industrial processes;
- Solvent and other product use;
- Agriculture;
- Land-use change and forestry;
- Waste.

The *2006 IPCC Guidelines for National Greenhouse Gas Inventories* have a different sector classification. Non-Annex I countries are encouraged to use the latest IPCC guidelines, if capacity and resources allow or the country finds elements from the 2006 IPCC Guidelines useful for its national context. These sector classifications are:

- Energy;
- Industrial processes and product use (IPPU);
- Agriculture, forestry and other land use (AFOLU);
- Waste;
- Other.

To ensure that readers understand the reported mitigation actions and their effects it is important to be clear about the sector definitions used.

Sources and sinks: apart from the sectoral approach, mitigation actions can also be framed around a specific set of sources and/or sinks. Sources and sinks are also the main guiding categories for the development of GHG inventories. However, in the context of mitigation actions, they can reflect a specific target group within or across sectors.

Geographic coverage: normally it is the case that the larger the geographic coverage the larger the share of national emissions that is potentially covered by the mitigation

action. There may be exceptions to this rule, where specific sources or sinks, for example industrial installations or forest areas, are strongly clustered in selected regions. In such cases, concentrating on specific regions may cover most of the relevant sectoral emissions and be an efficient way to achieve expected results. Implementation of mitigation actions may in some cases be easier at a smaller geographic scale. This can for example be the case with transport related measures or related to the conservation of forests. Other cases will require action at a national level to be effective. In many cases the policy framework at the national level needs to support more local actions.

Irrespective of the rationale for selecting the appropriate geographic boundary for a mitigation action, the reporting should clearly define in which geographic area the mitigation measure is applied or planned to be applied, for example:

- a. At the national level;
- b. At a regional level;
- c. Within one or more communities;
- d. For one or more cities.

Gases: the GHG data reported by non-Annex I Parties contains estimates for direct greenhouse gases, such as:

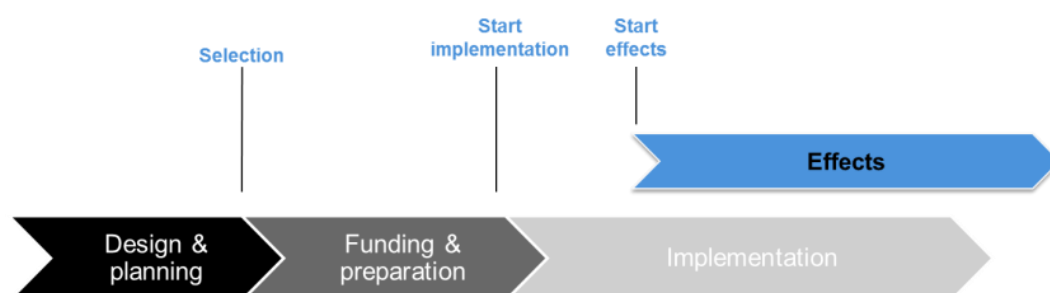
- a. Carbon dioxide (CO₂);
- b. Methane (CH₄);
- c. Nitrous oxide (N₂O);
- d. Hydrofluorocarbons (HFCs);
- e. Perfluorocarbons (PFCs);
- f. Sulphur hexafluoride (SF₆).

They could also cover nitrogen trifluoride (NF₃) and the indirect greenhouse gases such as sulphur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO) and non-methane volatile organic compounds.

It is important to be clear which of these gases are targeted by the mitigation measure and if other gases are expected to be impacted by the mitigation action. Given the large differences in global warming potential (GWP) of different gases, the impacts of other gases can easily outweigh CO₂ effects.

Timeline: to understand the effects of mitigation actions, it is important to understand what the status of the mitigation action is within the mitigation implementation cycle. This will provide an indication of how long it will take until effects can be expected, or how long effects can have been effective. There can be a substantial time lag between different steps of the process to implement mitigation actions. Additionally effects can take some time after implementation to take off. Figure 4 illustrates the different timing of elements of mitigation actions.

Figure 4
Timeline of a mitigation action



Questions for reflection: While the reporting provisions related to the description of the mitigation actions are relatively straightforward, there are a few useful questions that can help enhance reporting as illustrated in table 2.

Table 2
Useful questions to consider when describing mitigation actions

Title	<ul style="list-style-type: none"> Is the title clearly stated, description of mitigation actions consistent and clearly communicated?
Description	<ul style="list-style-type: none"> Is the description and nature of the mitigation action consistent and clearly communicated from the information provided?
Coverage	<ul style="list-style-type: none"> Is the scope related to sectors and gases defined and consistent with the BUR guidelines and the Revised 1996 IPCC Guidelines (or 2006 IPCC Guidelines)?
Quantitative goals	<ul style="list-style-type: none"> Is the reference for the goal provided, i.e. base year data, reference intensity levels or baseline values? Is the scope of the goal clear and does it correspond to the coverage of the mitigation action? Is the time frame for the goal (year or period) clearly defined? Is information provided how the goal relates to sectoral or national total emissions?
Progress indicators	<ul style="list-style-type: none"> Are progress indicators qualitative or quantitative in nature? Are data sources for monitoring progress indicators, or procedures to enable the future collection of these indicators, clearly defined?

Figure 5 below illustrates a high level of detail concisely reported in a BUR.

Figure 5
An excerpt of a detailed mitigation action from the first BUR of Ghana submitted in June 2015

Name and description

Households (HH) Solar Lantern Distribution Programme: the solar lantern distribution programme aims at replacing kerosene lantern with solar lantern. The reduction of dependence on kerosene for lighting is expected to reduce GHG emission by avoiding burning of kerosene. Removing the subsidies on kerosene and redirecting it to the social interventions will bring great benefits to the people for whom the subsidy was meant. The expected savings to government may result in expenditures that are likely to increase or decrease emissions depending on how the funds are put use. The avoided burning of kerosene fuel for lighting will lead to a reduction of indoor pollution and avoid the exposure to women and children to harmful gases.

Nature and coverage (sector, gases, geography)

Sector	Energy
Scale	National (HH) – Off-grid non-electrified communities. Remote communities on islands and lakeside communities with road access.
Phases	Phase 1 - 2013 to 2014, Phase 2 - 2014 -2016, Phase 3- up to 2018
Gas	CO ₂
Status	On-going
Start Year	2013
End Year	2018

Quantitative goals

Target	Distribute 200,000 solar lanterns by 2018 at 70% subsidized price to off-grid communities. as part of government's policy to minimize impacts of the implementation of "petroleum products .subsidy removal" Phase 1 target – 20, 000 solar lanterns Phase 2 target – 50,000 solar lanterns Phase 3 target - 130,000 solar lanterns
--------	--

Progress indicators

Key performance indicators are identified, including the number of homes that have collected Solar Lanterns and are in used
Solar Lanterns penetration (share of HH electricity lighting) through survey @ 5 years interval (GLSS)
No of Kerosene lanterns retrieve (at time of distribution)
No of solar lanterns distributed by HH and districts (at the time distribution)
Quantities of kerosene use in targeted communities

3.3. METHODOLOGIES AND ASSUMPTIONS

[Decision 2/CP.17, Annex III, paragraph 12 (b)]

Information on methodologies and assumptions;

Reporting on methodologies and assumptions is the most challenging task within the BUR reporting on mitigation actions. A wide variety of different methods and tools are available and the type of information reported will strongly depend on the nature of the mitigation action, the sector, methods and tools used and national circumstances. Therefore, it is important to check whether the information reported or to be reported on the methods used and assumptions used cover key parameters and could be clearly understood from the perspective of a reader of the report. The check should therefore concentrate on identifying if sufficient information is provided to understand the results reported, based on the calculations and highlighting where additional information would enhance transparency.

Note that Parties shall report on methodologies and assumptions used in the preparation of the BUR to the extent possible and the guidelines do not specify which

methodologies and assumptions Parties should use. Information reported could refer to methodologies and assumptions used to: determine quantitative goals; estimate expected GHG effects of mitigation actions (ex ante); estimate achieved GHG effects of mitigation actions (ex post); estimate expected non-GHG effects of mitigation actions (including sustainable development effects and economic and social consequences of response measures); or estimate achieved non-GHG effects of mitigation actions. In the absence of secure knowledge about future developments, assumptions need to be made regarding the different elements impacting the model calculations such as the relevant drivers within the assessment period and the parameters in the calculation method that will change over time. The number and level of detail of assumptions depend on the calculation method and model chosen.

There are a few useful questions that can help enhance reporting as illustrated in table 3.

Table 3

Useful questions to consider when reporting information on methodologies and assumptions

Methodologies	<ul style="list-style-type: none"> • Are the methods chosen for calculation transparently documented? • Is the assessment period clear, i.e. start and end year of the assessment? • Is the assessment boundary clear, including the sectors, gases and geographic coverage? • Is it clear how land use, land-use change and forestry (LULUCF) is treated, i.e. included or excluded (where applicable)? • Is it clear which policies are included in the baseline or what the cut-off date for the inclusion of policies is? • Does the methodology include an uncertainty and sensitivity analysis?
Assumptions	<ul style="list-style-type: none"> • Are all relevant assumptions for the calculations reported in a transparent way? • Are key parameters and/or drivers in the calculations identified and historic and projected data for the identified parameters provided? • Are all sources for historic data and for assumptions on future developments provided? • Is it clear which sources and values for global warming potential (GWP) were used? • Are activities to ensure data quality reported?

Figure 6 below illustrates a high level of detail concisely reported in a BUR.

This is just a part of information reported on methodologies. Ghana has reported detailed information for all the scenarios used in the assessment: Activity data for baseline scenarios; Formulae used for estimating avoided emissions GWPs and emission factors.

Figure 6

An excerpt of methodologies and assumptions from the first BUR of Ghana submitted in June 2015

Households (HH) Solar Lantern Distribution Programme

Methodology	WRI GHG project protocol
Estimating baseline emissions	<p>Baseline option data</p> <p><i>Fuel = Kerosene</i></p> <p>Lighting hours /month = 120 hours</p> <p>Fuel use/month = 3 litres</p> <p>Fuel use/lantern/year = 36 liters or 1.27GJ</p> <p><i>Programme level</i></p> <p>Number of kerosene = 200,000</p> <p>Total kerosene use/year = 7,200,000 liters or 253,719.43GJ</p>

Assumptions	<ul style="list-style-type: none"> • Distributed solar lanterns target only off-grid (home) rural HH not commercial entities. • The amount of light intensity (lumens) and light available to the user from the solar lamps will determine the number of hours it will be used by the beneficiaries. • A kerosene lamp producing 37 lumens for 4 hours per day will consume about 3 liters of kerosene per month. • Each HH will get one Solar Lamp. Replacement will depend on the scenarios described above.
-------------	--

3.4. IDENTIFICATION OF STEPS TAKEN OR ENVISAGED

[Decision 2/CP.17, Annex III, paragraph 12 (c)]

Objectives of the action and steps taken or envisaged to achieve that action;

Steps to achieve the mitigation action depend on the type of mitigation action. Countries may require:

- **Steps to select the policy or instrument of choice to achieve objectives:** if the mitigation action is framed as a goal and the process of determining the measures to support the goal is not yet completed, steps include the analysis and selection of mitigation options to be implemented;
- **Steps to implement the chosen policy or instrument:** if the mitigation action is framed as a concrete measure or the policy or instrument for implementation are already selected, the individual steps for implementation need to be outlined.

For concrete mitigation actions in the form of policies, measures or projects, it is important to clearly outline the status of the measure, i.e. if it is already implemented, was adopted for implementation or is currently in the planning phase. This information will enhance the understanding of results reported in their context. Table 4 provides some guidance questions on the identification of steps.

Table 4

Useful questions for checking of the steps taken or envisaged

Objectives	<ul style="list-style-type: none"> • Are the stated objectives consistent with the description and the scope of the mitigation actions?
Steps taken and envisaged	<ul style="list-style-type: none"> • Are mitigation actions clearly distinguished according to their status of implementation (implemented, adopted or planned)? • Are steps clearly distinguished into steps taken (i.e. already implemented) and steps envisaged (i.e. planned for the future)? • Are responsibilities for the mitigation actions, including communication and reporting processes clearly defined? • Is information on the availability of funding provided?

Box 2

Policies: Example for implementation steps



Projects: Example for implementation steps for investment oriented projects

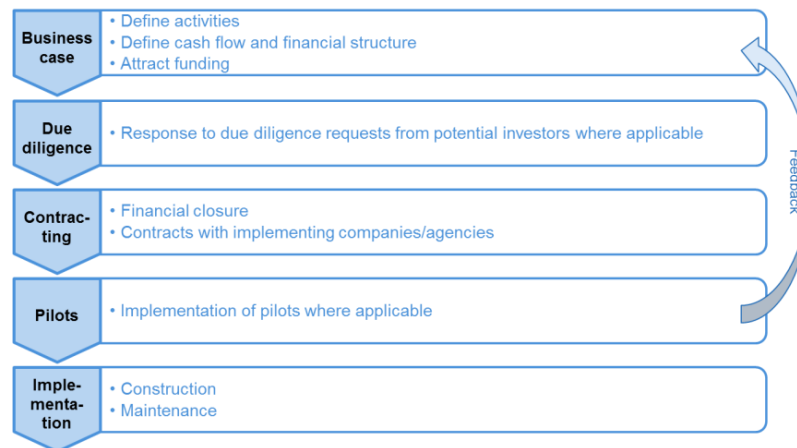


Figure 7

Reporting on objectives of the action and steps taken or envisaged (continuation of same excerpt from Ghana's first BUR)

Seeks to distribute thousands of solar lanterns to off-grid rural communities so as to reduce their dependence on kerosene lamps for lighting.

Primary effect - reduction in GHG emissions by avoiding combustion of kerosene fuel for lighting.

Significant secondary effect – reduction of indoor pollution from burning of kerosene fuel for lighting by switching to solar lanterns.

Objectives of the action

Phase 1 - 2013 to 2014, Phase 2 - 2014 -2016, Phase 3- up to 2018

Phase 1 – Trade in - community trade-in old kerosene lantern for the solar lanterns.

Subsidy - HH pay subsidized fees in cash for solar lanterns without turning in their old kerosene lantern.

Phase 2- 50% grant subsidy and ensure sustainable solar promotion using commercial mass media and social marketing concepts to create critical mass demand and awareness for solar lanterns.

Phase 3 - Further reduced subsidy. Continue with the market promotional support for a sustainable market chain development

Phase 1 (ex-post)

Number of kerosene = 23,522

Total kerosene use/year = 846,792litres or 29,839.9GJ

	Replacement scenarios (expert assumptions)	Share of total lanterns	No of Splits	No. Solar Lantern use	No. Kerosene Lantern use
A	Full replacement (when HH trade in kerosene lantern for use solar of lantern to meet 4hr lighting needs)	35%	8232.7	8232.7	
B	Partial replacement (HH trade in 1 kerosene lantern for solar lantern). Use Solar lanterns for 75% and kerosene lamps for 25% to lighting needs respectively)	50%	11761	8820.75	2940.25
C	Dual use replacement (HH trade in 1 kerosene lantern for solar lantern. Use Solar lanterns for 50% and kerosene lamps for 50% to lighting needs)	15%	3528.3	1764.15	1764.15

Steps taken or envisaged

Cost	Estimated Amount (\$) – 2 million
Sources	Government of Ghana - 100%
	Mechanism – Direct Cash investment
	Private sector – market participation
	Donor - 0%Donor Channel - Not Applicable

3.5. THE PROGRESS OF IMPLEMENTATION OF MITIGATION ACTIONS

[Decision 2/CP.17, Annex III, paragraph 12 (d)]

Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;

Progress of implementation and the steps taken or envisaged are closely linked. Knowing which steps were already undertaken and which are planned to be implemented are the first prerequisites to understanding progress. The steps alone, however, are not sufficient to describe progress. This requires an understanding of these steps on the timeline, i.e. asking not only WHAT has been or will be done, but WHEN it was done or is it planned and for HOW LONG. An additional element in understanding progress is the question BY WHEN did effects of an action come into effect or are planned to start?

There are two distinct areas to understand the progress of implementation: a. is Process - Understanding the status of the mitigation action within the overall process of a mitigation action, i.e. steps taken or envisaged and b. Results: Understanding the effects achieved and expected in the future. Progress refers to current status and past achievements.

Table 5 provides some guidance questions on analysing the progress of implementation of mitigation actions.

Table 5

Useful questions for the checking of progress of implementation

Progress of implementation	<ul style="list-style-type: none"> Is the timeline for planning, implementation and expected effects of reported mitigation actions clear, i.e. steps taken and envisaged?
Results achieved	<ul style="list-style-type: none"> Are results achieved and estimates of expected future results for mitigation actions (intermediate outcomes, greenhouse gas effects, sustainable development effects, economic and social consequences of the implementation of response measures) provided separately and in a transparent way? Is potential interaction between mitigation actions and other policies, and potential interaction between different mitigation actions, included in the analysis? Are the findings reported and sources used specific to the national context?

Figure 8

Reporting on progress of implementation (continuation of excerpt from Ghana's first BUR)

Phase 1 - 2013 to 2014, Phase 2 - 2014 -2016, Phase 3- up to 2018

Phase 1 – Trade *in* - community trade-in old kerosene lantern for the solar lanterns.

Subsidy - HH pay subsidized fees in cash for solar lanterns without turning in their old kerosene lantern.

Phase 2- 50% grant subsidy and ensure sustainable solar promotion using commercial mass media and social marketing concepts to create critical mass demand and awareness for solar lanterns.

Phase 3 - Further reduced subsidy. Continue with the market promotional support for a sustainable market chain development

Underlying steps taken or envisaged

Phase 1 (ex-post)

Number of kerosene = 23,522

Total kerosene use/year = 846,792litres or 29,839.9GJ

Replacement scenarios (expert assumptions)		Share of total lanterns	No of Splits	No. Solar Lantern use	No. Kerosene Lantern use
A	Full replacement (when HH trade in kerosene lantern for use solar of lantern to meet 4hr lighting needs)	35%	8232.7	8232.7	
B	Partial replacement (HH trade in 1 kerosene lantern for solar lantern). Use Solar lanterns for 75% and kerosene lamps for 25% to lighting needs respectively)	50%	11761	8820.75	2940.25
C	Dual use replacement (HH trade in 1 kerosene lantern for solar lantern. Use Solar lanterns for 50% and kerosene lamps for 50% to lighting needs	15%	3528.3	1764.15	1764.15

Figure 8 cont.

Estimating ex-post mitigation effects	<p>To estimate project scenario emissions, the same emissions estimation method is used, but the assumed parameter values in the project scenario are different. The emissions estimation method is based on the assumption that, solar lanterns have zero emissions. Thus, estimated baseline equal avoided emissions</p> <p>Phase 1 avoided emissions = 1,293.19tCO₂e/yr in 2013/2014</p> <p>Phase 2 avoided emissions = 2,462.58 tCO₂e/yr in 2014/2015</p> <p>Phase 3 avoided emissions = 6,229.23 tCO₂e/yr by 2018</p>	<p>Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions</p>												
Projections beyond 2018 (ex-ante projected savings)	<p>Projected that beyond 2018, the Solar Lantern market will continue to expand leading to additional penetration of the Solar Lanterns. The expansion of the market will be influenced by the growth in HH population (2.5% pa), which will lead to of 5% penetration p.a. The expected emission savings due to additional penetration of Solar Lantern at 5% annually translate to:</p> <table><tr><th>Year</th><th>Emission (t)</th><th>Cumulative (kt)</th></tr><tr><td>2014</td><td>1293.19</td><td>1.29</td></tr><tr><td>2016</td><td>2462.58</td><td>3.76</td></tr><tr><td>2018</td><td>6229.23</td><td>10722.48</td></tr></table>		Year	Emission (t)	Cumulative (kt)	2014	1293.19	1.29	2016	2462.58	3.76	2018	6229.23	10722.48
Year	Emission (t)		Cumulative (kt)											
2014	1293.19	1.29												
2016	2462.58	3.76												
2018	6229.23	10722.48												
Non-GHG Effects	<ul style="list-style-type: none">Reduction in burden of subsidy on government in the medium to long term (avoided GH¢74 million subsidy on kerosene annually). Equivalent of cost of over 822,000 solar lanterns within one year.Removing the subsidies on kerosene and redirecting it to the social interventions will bring great benefits to the people for whom the subsidy was meant.Switching to cleaner off-grid lighting solutions at minimal cost to the consumer. Market price of solar is Gh Cedis 90 whereas government is distributed solar lanterns at 30 Ghana cedis.Ensuring better illumination and total elimination of smoke exposure to women and children.Solar lanterns had minimal battery replacement, which is safe for human health and the environment.Solar lanterns are cost effective and environmentally friendly (reduction in local air pollution).													

3.6. INTERNATIONAL MARKET MECHANISMS

[Decision 2/CP.17, Annex III, paragraph 12 (e)]

Information on international market mechanisms.

Apart from the existing Clean Development Mechanism (CDM) under the UNFCCC there are a wide range of potential international market mechanisms a Party could engage in. To enhance transparency, it is important to understand in which mechanisms a Party already engages or plans to engage. It is also useful to understand the order of magnitude of units generated or expected to be generated and their potential interaction with reductions achieved by the reported mitigation actions.

Table 6

Useful questions for the checking of information on international market mechanisms

Nature of international market mechanisms	<ul style="list-style-type: none"> Is information on the type(s) of market mechanisms in which the reporting country already engaged provided? Is information on the type(s) of market mechanisms in which the reporting country plans to engage provided? Is the coverage of such mechanisms clearly described, i.e. project-based, sectoral or other?
Use of units	<ul style="list-style-type: none"> Is there a quantification of issued and/or expected credits from these mechanisms included? Is the expected and/or realized use of generated units from these mechanisms transparently documented?

Figure 9
Reporting on international market mechanisms – Excerpt from Singapore’s first BUR

As of October 2014, Singapore has 6 registered CDM projects. The estimated emission reductions from these 6 projects is about 473kt CO₂eq annually.

Registered	Title	Methodology	Estimated Emission Reductions (tonnes CO ₂ eq per annum)
18 Nov 08	Thermal energy recovery for new applications at No.5 Sungei Kadut Street 6 by Bee Joo Industries Pte Ltd, Singapore	AMS-I.C. ver. 12	15205
13 Sep 10	Dehydration and incineration of sewage sludge in Singapore	AM0025 ver. 11	101577
12 Dec 12	Kim Hock Biomass Energy and Wood Recycling Plant	AMS-I.C. ver. 19	31360
31 Dec 12	Chew’s biogas plant for treatment of poultry waste and recovery of biogas for electricity generation in Singapore	AMS-III.D. ver. 18 AMS-I.F. ver. 2	31837
5 Jun 14	Demand side energy efficiency measures in building lighting systems	AMS-II.C. ver. 14	6291
14 Jul 14	Grid connected electricity generation plant using natural gas at Jurong Island in Singapore	AM0029 ver. 3	286755

3.7. DOMESTIC MEASUREMENT, REPORTING AND VERIFICATION ARRANGEMENTS

[Decision 2/CP.17, Annex III, paragraph 13]

Parties should provide information on the description of domestic measurement, reporting and verification arrangements.

Reporting on domestic MRV arrangements is not a strict requirement of the guidelines; however, it will enhance transparency and trust in reported information. It can also facilitate support for the enhancement of such arrangements through the discussions between the TTE and the Party concerned during the ICA process and by highlighting financial, technology or capacity needs to enable targeted support. When checking the information reported on this element, it is important to focus on highlighting gaps and areas for improvement in reporting that can facilitate the subsequent learning and enhancement of arrangements.

COP 19 in Warsaw adopted general guidelines for domestic MRV of domestically supported nationally appropriate mitigation actions by developing country Parties. They aim to provide guidance on voluntary use, based on the following principles:

“These guidelines are general, voluntary, pragmatic, non-prescriptive, non-intrusive and country-driven, take into account national circumstances and national priorities, respect the diversity of nationally appropriate mitigation actions (NAMAs), build on existing domestic systems and capacities, recognize

existing domestic measurement, reporting and verification systems and promote a cost-effective approach.” (FCCC/CP/2013/10/Add.2/Rev.1)

The guidelines provide the basis for reporting on domestic MRV arrangements for mitigation actions within the biennial update report (BUR).

Measurement, reporting, and verification are terms that refer to three key elements of the policy infrastructure needed to monitor and track progress of mitigation actions (Hogan et al., 2012):

A: Measurement

General definition: direct measurement of impacts of efforts to address climate change, including the level of GHG emissions and removals, emission reductions and other co-benefits.

Measurement under the Convention for non-Annex I Parties: such measurement occurs at the national level. Initially it referred to measurement of GHG emissions by sources and removals by sinks through the national greenhouse gas inventories, which are reported in national communications.

Based on the decisions⁵ adopted at COP 16 and 17, non-Annex I Parties now need to measure the specific effects of national mitigation actions and the support received, and provide this information including a national inventory report, as part of their BURs.

B: Reporting

General definition: Presentation and transmission of data, measurements and associated analysis.

Reporting under the Convention for non-Annex I Parties: for non-Annex I Parties, reporting is implemented through the national communications and BURs.

Parties, are required to report on their actions to address climate change in the national communications,⁶ which include information on:

GHG inventories;

Adaptation and mitigation actions and their effects;

Support received.

⁵ Decision 1/CP.16 and 2/CP.17, annex III.

⁶ National communications are to be submitted every four years and to be prepared following the guidance contained in the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (decision 17/CP.8). BURs, to be submitted every two years, provide an update to the information presented in national communications and also include information on mitigation actions, needs and support received (decision 2/CP.17, annex III). The first round of submission is due by December 2014.

C: Verification

General definition: Evaluation of the emission, abatement and other information that is measured and reported to ensure accuracy.

Verification under the Convention for non-Annex I Parties: for non-Annex I Parties this is addressed at the international level through the international consultation and analysis (ICA) of BURs, which is a mechanism to increase the transparency of mitigation actions and support received (decision 2/CP.17, annex IV and decision 20/CP.19).

At the national level verification is implemented through domestic MRV mechanisms to be established by non-Annex I Parties, general guidelines for which were adopted in 2013 at COP 19.⁷ Provisions for verification at the domestic level that are part of the domestic MRV system are to be reported in BURs. Special provisions have been adopted for verification of REDD-plus⁸ activities.

Table 7

Useful questions for checking the information reported on domestic measurement, reporting and verification arrangements

Domestic measurement, reporting and verification (MRV) arrangements	<ul style="list-style-type: none">• Does the reporting include a description of the institutional arrangements and systems, including location, coordination and engagement processes for domestic MRV?• Is information on the methodologies and/or approaches and tools used for data collection, processing and storage reported?• Are constraints and gaps, and related financial, technical and capacity needs identified?
---	--

⁷ Decision 21/CP.19.

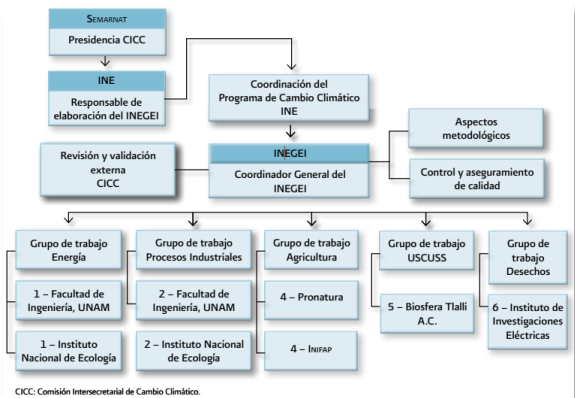
⁸ In decision 1/CP.16, paragraph 70, the Conference of the Parties encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.

Box 3

Examples of reporting on the institutional setup for the greenhouse gas inventory

The two examples below show different ways to report on the institutional arrangements for the development of a greenhouse gas (GHG) inventory or, in the case of South Africa, the operation of the software tool used for GHG data management. They provide not only examples for different ways of reporting, one graphical, one tabular, but also provide different levels of detail and information. To provide an overview of involved institutions, the graphical presentation is very useful. A tabular format can then supplement this information with more detail on responsibilities. Flow charts that illustrate the information flows can also be a useful additional tool.

Mexico: organizational chart

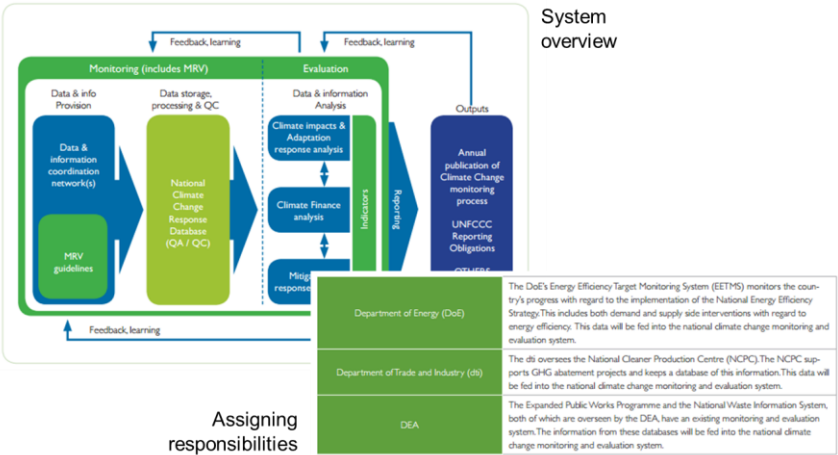


South Africa: tabular format

	National					Provincial					District/Metro				Local			
	AO	Staff	Auditor	Compliance Officer	Viewer	AO	Staff	Auditor	Compliance Officer	Viewer	AO	Staff	Auditor	Viewer	AO	Staff	Auditor	Viewer
Role Responsibility																		
Create Authority User	X	X			X						X				X			
Create Facility User	X	X			X	X					X	X			X	X		
Manage Sources	X	X			X	X					X	X			X	X		
Review/Assign Master List Source	X	X			X	X					X	X			X	X		
Review Master List Source	X	X			X	X					X	X			X	X		
Approve Master List Source	X	X			X	X					X	X			X	X		
e-notify Master List Source	X	X			X	X					X	X			X	X		
Audit/Assign Audit	X	X			X	X					X	X			X	X		
Audit Only	X		X					X					X				X	
Issue compliance	X	X		X		X	X		X		X	X			X	X		
System Configuration	X																	
View Only					X					X								X

Source: Comisión Intersecretarial de Cambio Climático (2012).

South Africa: Domestic MRV arrangements



GLOSSARY

Anthropogenic greenhouse emissions: Greenhouse gas emissions resulting from human activities.

Article 4: an article of the Convention stipulating general commitments assumed by all Parties, both developing and developed.

Article 12: an article of the Convention that describes the how Parties are to communicate information related to implementation of the Convention.

Baseline scenario: a reference that aims to represent likely developments under a given policy framework as accurately as possible.

Baseline value: the value of a parameter in the baseline scenario.

Biennial update reports (BURs): a report submitted by Parties not included in Annex I to the Convention, which provides updates on actions undertaken by the Party to implement the Convention, including the status of its greenhouse gas emissions and removals by sinks, as well as actions to reduce emissions or enhance sinks.

Business as usual: assumes that future development trends follow those of the past and no changes in policies will take place.

Climate change: a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Capacity-building: in the context of climate change, the process of developing the technical skills and institutional capability in developing countries and economies in transition, to enable them to address and report effectively on the implementation of the Convention.

Conference of the Parties (COP): the supreme body of the Convention. It currently meets once a year to review the Convention's progress. The word 'conference' is not used here in the sense of 'meeting' but rather of 'association'. The 'Conference' meets in sessional periods, for example, the 'fourth session of the Conference of the Parties'.

Consultative Group of Experts on National Communications from non-Annex I Parties (CGE): an expert group constituted under the Convention, with representation from Annex I and non-Annex I Parties as well as relevant international organizations, to provide technical advice and support to non-Annex I Parties on the process of and preparation of national communications and biennial update reports and also build the capacity of technical experts nominated by Parties to undertake technical analysis of biennial update reports under the international consultation and analysis process.

Effects: Changes that result from a mitigation action. See intermediate effects, greenhouse gas effects, and non-greenhouse gas effects.

Emissions: the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.

Global warming potential (GWP): an index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.

Greenhouse gases (GHGs): the atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent – but very powerful – GHGs are hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride (SF₆).

Implementation: Actions (legislation or regulations, judicial decrees, or other actions) that governments take to translate international accords into domestic law and policy.

International consultation and analysis (ICA): a process under the Convention, whereby the biennial update reports from developing country Parties are considered, through a technical analysis and a facilitative sharing of views, in manner that is non-intrusive, non-punitive and respectful of national sovereignty. It aims to increase transparency of mitigation actions and their effects.

Intergovernmental Panel on Climate Change (IPCC): established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent of the Convention.

Kyoto Protocol: an international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of greenhouse gas emissions by industrialized countries.

Land use, land-use change, and forestry (LULUCF): a greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities.

Measurement, reporting and verification (MRV): a process/concept that entails reporting by Parties on their actions to implement the Convention, which are subjected to international verification, with a view to facilitate discussions on such implementation. The reporting and verification are undertaken on the basis of relevant guidelines adopted by the Conference of the Parties.

Mitigation: in the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other 'sinks' to remove greater amounts of carbon dioxide from the atmosphere.

Mitigation actions: Activities that are expected to affect the emissions sources and sinks included in the greenhouse gas assessment boundary. These actions can be framed around economy-wide, sectoral or technology goals.

Montreal Protocol: the Montreal Protocol on Substances that Deplete the Ozone Layer, an international agreement adopted in Montreal in 1987.

National communication: a document submitted in accordance with the Convention (and the Protocol) by which a Party informs the Conference of the Parties of activities undertaken to address climate change. Most developed countries have now submitted their fifth national communications; most developing countries have completed their second national communication and are in the process of preparing their third.

Nationally appropriate mitigation actions (NAMAs): at COP 16 in Cancun in 2010, it was agreed that developing countries will undertake nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a deviation in greenhouse gas emissions relative to 'business as usual' emissions in 2020.

Non-Annex I Parties: Parties not included in Annex I to the Convention, who are mostly developing countries.

Party: a state (or regional economic integration organization such as the European Union) that agrees to be bound by a treaty and for which the treaty has entered into force.

Progress indicator: a metric that indicates the progress of a policy or action, such as tracking changes in targeted outcomes. For example, the quantity of wind power generated in a country may be used as an indicator for a production tax credit for wind power.

Protocol: an international agreement linked to an existing convention, but as a separate and additional agreement which must be signed and ratified by the parties to the convention concerned. Protocols typically strengthen a convention by adding new, more detailed commitments.

Recommendation: a formal act of the Conference of the Parties or the meeting of the Parties to the Kyoto Protocol which is weaker than a decision or a resolution, and is not binding on Parties to the Convention or the Kyoto Protocol.

Removal: Removal of greenhouse gas emissions from the atmosphere through sequestration or absorption, such as when CO₂ is absorbed by biogenic materials during photosynthesis.

Scenario: a plausible description of how the future might develop, based on a coherent and internally consistent set of assumptions ('scenario logic') about the key relationships and driving forces (e.g. rate of technology change or prices).

Sink: any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.

Source: any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.

Subsidiary body: a committee that assists the Conference of the Parties. Two permanent subsidiary bodies are created by the Convention: the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA).

Subsidiary Body for Implementation (SBI): The SBI makes recommendations on policy and implementation issues to the Conference of the Parties and, if requested, to other bodies.

Sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Team of technical experts (TTE): a team of technical experts drawn from the UNFCCC roster of experts, responsible for conducting the technical analysis of biennial update reports from non-Annex I Parties under the international consultation and analysis process.

Technical analysis: the first part of the international consultation and analysis process, which aims to ensure that the information reported in a biennial update report is transparent. It is conducted by a team of technical experts, guided by the relevant provisions and principles of the Convention and modalities and guidelines contained in the decisions of the Conference of the Parties. A summary report is the outcome of this first part of the technical analysis.

Transparency: in the context of the technical analysis, refers to openness and clarity in the communication of information, to enable others to see, understand and replicate the information reported within the biennial update report.
