



Transparency- MRV and M&E

This brief explains the context and recommended approach to designing work under activity 2.1.2: Improve/develop measuring, reporting and verification (MRV) and monitoring and evaluation (M&E) systems at national and/or sectoral level for monitoring and reporting on the UNFCCC, CBD, SFDRR and SDGs in regard to mitigation and/or adaptation in land-use and agriculture, including collection of gender disaggregated data.

<p>1</p>	<p>Information and assessments used by national stakeholders to identify and appraise transformative climate actions to advance NDC/NAP priorities in land-use and agriculture</p>	<p>2</p>	<p>Climate risk-informed land-use and agriculture sector priorities integrated into national and sectoral planning, budgeting, and monitoring</p>	<p>3</p>	<p>Private sector engagement in climate action in land-use and agriculture increased</p>
<p>Output 1.1 (Country): Evidence base for implementation of transformative climate action in land use or agriculture strengthened Output 1.2 (Global): Tools for assessing implementation options for transformative climate action disseminated</p>		<p>Output 2.1 (Country): NDC and NAP priorities for land use and agriculture enhanced and integrated into sectoral planning and budgeting Output 2.2 (Global): Advocacy conducted to integrate transformative actions in NDCs and NAPs</p>		<p>Output 3.1 (Country): Enabling environment and incentives enhanced for private sector engagement in NDCs and NAPs implementation Output 3.2 (Global): Knowledge expanded on opportunities and options for private sector engagement in transformative climate action Output 3.3 (Global): Technical assistance facility to enhance private sector engagement through public-private sector collaboration in NDCs and NAPs implementation on land use and agriculture established</p>	

CONTEXT

Article 13 of the 2015 Paris Agreement establishes the [Enhanced Transparency Framework](#) (ETF). The purpose of the ETF is to provide for common transparency arrangements including tracking and reporting of national climate change actions and support towards achieving the global temperature and adaptation goals of the Convention (Article 2). The overall objective of the ETF is to build mutual trust and confidence and to promote effective implementation. Article 13 includes built-in flexibility for developing country Parties, which takes into account Parties' different capacities, and builds on collective experience, clarity and tracking of progress towards achieving NDCs, including good practices, priorities, needs and gaps. To operationalize the ETF, the Modalities, Procedures and Guidelines (MPGs) were adopted at the 24th Conference of the Parties (COP24) in 2018, which stipulate how countries will be required to transition from reporting biennial reports (BRs) or biennial update reports (BURs) to reporting **biennial transparency reports** (BTRs), starting no later than December 2024. Each BTR is expected to contain:

1. A national inventory of greenhouse gas emissions (by sources) and removals (by sinks);
2. Information necessary to track progress toward implementing and achieving their NDC;
3. Information related to climate change impacts and adaptation;
4. Information on financial, technology transfer and capacity building support needed and received; and
5. Information on any support provided to developing countries.

The BTRs will enable the COP to periodically take stock of implementation and collective progress in achieving the long-term goals of the Paris Agreement, known as the “**Global Stocktake**.” The every-five-year stocktaking process is designed to inform the review and revision of next round NDCs in order to increase their level of ambition, as well as identify opportunities for enhanced support. The first Global Stocktake is planned for 2023.

While the ETF provides for built-in-flexibility for developing nations, it establishes for the first time universal and harmonized transparency provisions for all countries. Ensuring compliance with the new transparency requirements will require a significant strengthening of national institutions and capacities responsible for tracking and reporting on NDCs. The resource-intensiveness behind the regular data collection, evaluation and management requires coordination across a large range of stakeholders and robust methodologies and systems for the measurement, reporting and verification (MRV) of mitigation and monitoring and evaluation (M&E) of adaptation actions. To date, the capacities, and resources of public institution in non-Annex I countries to meet the UNFCCC reporting requirements are stretched thin, with less than 1 percent compliance with the regular reporting cycle of National Communications, for instance.

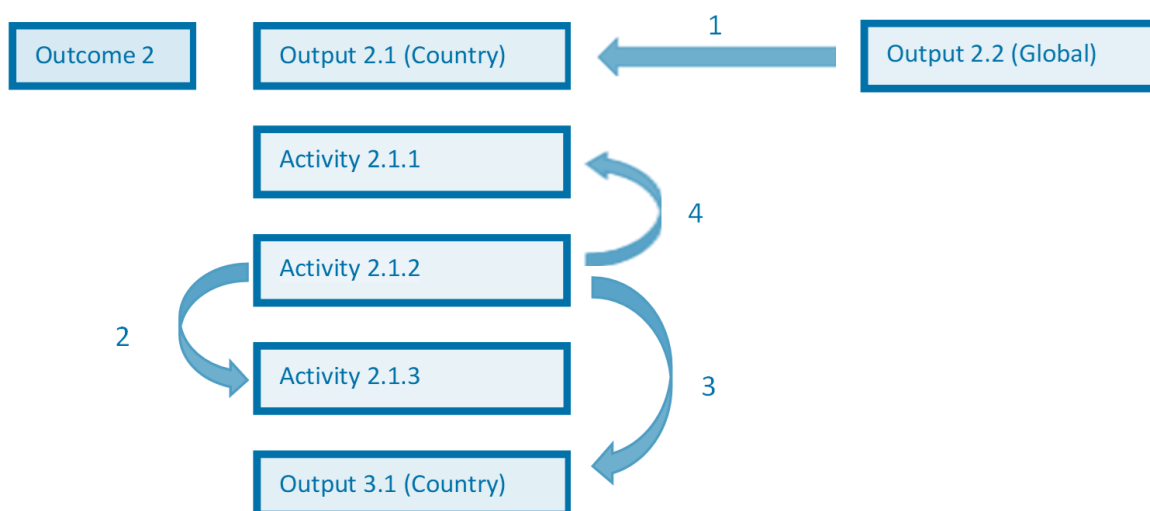
These **barriers to transparency** are particularly compounded in the **land-use and agriculture sectors**, as mitigation and adaptation baselines and actions are difficult to measure due to the complexity and diversity of land-use and agriculture systems; the inconsistency of methodologies and metrics for mitigation and adaptation; the scarcity of reliable data; and competing resources.

SCALA'S APPROACH

Activity 2.1.2 of the SCALA logical framework aims to strengthen MRV and/or M&E systems to monitor and report on progress toward mitigation and adaptation targets at domestic and international levels. The Activity is composed of various sub-activities that the country teams will choose from and tailor to the country's context and priorities for the agriculture and land-use sectors. Whether a country emphasizes MRV or M&E, Activity 2.1.2 should be conducted using an inclusive approach to ensure that monitoring systems better reflect the impacts of adaptation and mitigation on men and women as well as vulnerable groups.

While the focus will be on improving transparency-related reporting to the UNFCCC under the ETF, strengthening systems and processes will contribute to streamlined reporting on the Sendai Framework for Disaster Risk Reduction (SFDRR), the 2030 Agenda for Sustainable Development, and the Convention on Biological Diversity (CBD). In addition, these activities will also help to fill knowledge gaps around tracking NDCs in the land-use and agriculture sectors and promote peer-to-peer learning across countries and sectors.

As per the SCALA Theory of Change, Activity 2.1.2 contributes to an enabling environment (political, strategic, legal, and operational) for operationalizing the options identified in NDCs and NAPs. As depicted and explained in the below diagram, Activity 2.1.2 is not a stand-alone activity, but rather is supported by Output 2.2 and is linked to Activities 2.1.1 and 2.1.3 as well as Output 3.1. (See also the related brief, "NDC and NAP Governance", which covers Activities 2.1.1 and 2.1.3 as well as the related brief, "Private Sector Engagement", which covers Output 3.1).



1. Activities under Output 2.1 will benefit from the global expertise and resources made available through Output 2.2.
2. Deliverables under Activity 2.1.2 will contribute to Activity 2.1.3 (Enhance NDCs and/or NAPs by integrating transformative and inclusive land-use and agriculture priorities for the revision of NDCs and/or NAPs).

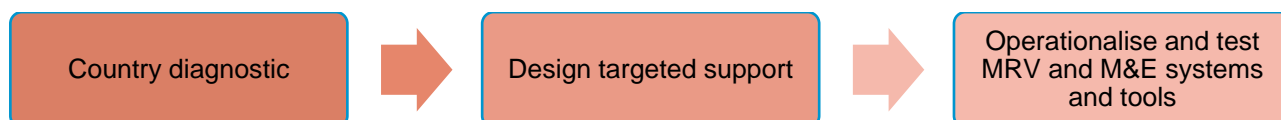
3. Deliverables under Activity 2.1.2 will contribute to Output 3.1 by providing metrics on climate solutions and informing private sector and financiers' decisions.
4. Deliverables under will Activity 2.1.2 will contribute to Activity 2.1.1 (Strengthen multi-stakeholder coordination and institutional capacities for the integration of NDC and/or NAPs' priorities on land-use and agriculture in policies, plans, and budgets) by providing information for the refinement of the planning and budgeting processes.

PROPOSED INTERVENTIONS

The objective of the proposed interventions is to enable key institutions to establish and improve the national MRV or M&E systems for continuous data collection, analysis, and reporting. The scope is to improve institutional capacities, awareness, and knowledge of key Ministries and relevant stakeholders on reporting to the UNFCCC under the ETF, as well as to review their ambitions under their NDCs.

Each country should prioritize either intervening on M&E and/or MRV based on the Ministry of Agriculture and Ministry of Environment's request. The work may also assist countries to integrate information from ongoing adaptation efforts at local level (e.g. GEF, GCF programs) by improving information flow from local to central levels, which can lead to planning and decision making which is based on real needs. The work should promote integrated approaches to the design and implementation of MRV and M&E systems to leverage the unique opportunity found in the land-use and agriculture sectors. The proposed interventions will be designed to reach target 2.1.B: at least 12 (1 in each participant country) MRV and/or M&E systems are operationalized at national and/or sectoral level for monitoring and reporting on mitigation and/or adaptation in land-use and agriculture, including sex-disaggregated data.

A **three-pronged approach** is proposed to reach the target. The SCALA global and national teams will coordinate with country counterparts to acquire an understanding of areas where tailored support is needed, followed by designing targeted approaches to provide capacity support for enhancing those systems:



The proposed interventions will build on existing FAO and UNDP methodologies and tools that are relevant to a) develop a national GHG inventory for the AFOLU sector, b) estimate (ex-ante) GHG reductions and removals from land use and agriculture management practices, c) assess potential impacts from current and projected climate trends and hazards, d) assess the resilience of farmer and pastoralist households, including sectoral, economic, social and/or environmental vulnerabilities, e) track progress for the Sendai Framework for Disaster Risk Reduction Indicator C-2 on reducing direct agricultural loss attributed to climate related events, f) design national M&E frameworks for monitoring the implementation and evaluating the impacts of adaptation actions (see Annexes).

The global team proposes to provide support to interested countries on the following activities:

- **Activity 2.1.2 (a):** Design/improvement and implementation of a sustainable and robust MRV system for the land-use and agriculture sectors.
- **Activity 2.1.2 (b):** Design/improvement and implementation of a sustainable and gender-responsive M&E system for the land-use and agriculture sectors.

Activity 2.1.2 (a): Design/improvement and implementation of a sustainable and robust MRV system for the land-use and agriculture sectors

With the aim to improve/establish and implement a sustainable and robust MRV system for tracking and reporting on mitigation in the land-use and agriculture sectors, the focus of this workstream would be to invest in capacity support for:

- Institutional arrangements for MRV
- Technical capacities for MRV

The global team will work with country focal points and ministries on the following proposed activities organized around a three-pronged approach:

1. Country Diagnostics

A country situation assessment will assess countries’ level of advancement in MRV and what specific support they need to successfully improve and implement their MRV system at the national and sectoral levels. The assessment will unpack the level of technical and institutional capacity behind the existing MRV system and readiness to report to the UNFCCC in line with the ETF requirements.

The country diagnostic will identify areas for tailored support and entry points by looking across the following main parameters, for example:

Parameter	Key example questions for country diagnostic on MRV advancement
Existing data systems and available tools	<ul style="list-style-type: none"> - Is data readily available from statistical offices/relevant ministries for estimating sectoral emissions? - Does the current GHGI time series reflect updated data? - Are QA processes set up to ensure data is reliable?
Existing institutions and coordination mechanisms	<ul style="list-style-type: none"> - Is there a clear body with mandates, authority, and capacity to coordinate MRV processes at the national and sector level? Is the institution well-funded and sustainable? - Are there other institutions/partners involved in the MRV activities (e.g: universities, research institutions, private sector) - Are there procedures established regulating the flow of GHG emission data between the relevant authorities/stakeholders? - Is there a QA/QC plan developed? - Is there a national archiving system established? - Are current reporting cycles and content compliant with the UNFCCC reporting cycle? Is there an internal plan to meet the ETF requirements?

Existing knowledge and human skills	<ul style="list-style-type: none"> - Were the 2006 IPCC Guidelines used to estimate the latest GHGI? - Is there national capacity to estimate and analyze sectoral emission data and baselines? - Is there national capacity to perform QA/QC of the GHGI? - Is there national capacity to perform uncertainty analysis? - Is the national MRV system suited for UNFCCC reporting? - Do officials receive training on GHGI estimates and sectoral analysis? - Do officials receive training on ETF reporting requirements?
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2. Targeted technical assistance and capacity building

Based on a thorough understanding of country needs, support options can potentially be configured around two broad areas:

a. Institutional arrangements for MRV

- Assistance with the institutionalization of BTR planning process.
- Guidance on the establishment of institutional arrangements and coordination mechanisms for streamlining MRV processes at national/sectoral level.
- Training on data collection and sharing protocols.
- Provide follow up support to countries throughout the data collection process

b. Technical capacities for MRV

- Training on estimates for GHGI using 2006 IPCC Guidelines.
- Guidance on moving to Tier 2 GHG estimates for key categories.
- Training on uncertainty estimates in AFOLU.
- Training on the use of common reporting tables.
- Training on QA/QC processes, including design of improvement plan.
- Training on archiving national inventory information.
- Training on updating national GHG inventories in line with ETF for the AFOLU sector.
- Trainings on monitoring the implementation and impacts of priority adaptation and mitigation actions and tracking NDC implementation and progress.
- Trainings on data management and GHG archiving system.
- Trainings on the establishment of baselines for climate change mitigation.

The specific modalities for supporting countries will broadly include: trainings, regular consultations with countries to assess progress, experience sharing and further support needs, and peer-to-peer exchange between countries at different stages of MRV advancement.

3. Testing MRV systems and tools

Over the course of the project, countries will be supported in testing the new tools and methods adopted at the national/sectoral level_in the operationalization of tailored approaches for enhanced transparency of mitigation in the land-use and agriculture sectors. A more sustainable and robust MRV system is expected to better inform national budgeting and planning processes.

This would include:

- Testing of tools and methods for GHGI estimates under 2006 IPCC Guideline.
- Testing of tools and methods for UNFCCC reporting under the ETF.

- Testing of tools and methods for GHGI archiving.
- Testing of tools and methods for GHG accounting tools.
- Testing Tools for tracking the NDC implementation and progress.

Support available from the global team includes technical expertise of global MRV experts, provision of MRV tools and regular, follow up support on the application of tools and data collection process (refer to Annex 3), and technical and institutional MRV capacity building training materials.

Activity 2.1.2 (b): Design/improvement and implementation of a sustainable and gender-responsive M&E system for the land-use and agriculture sectors

With the aim to improve/establish sustainable and gender-responsive national M&E systems for assessing adaptation, the focus of this workstream would be to invest in capacity support for:

- improved reporting to the UNFCCC under the Enhanced Transparency Framework,
- enhanced gender-responsive monitoring and evaluation, and
- improving national and sectoral M&E processes to inform planning, budgeting, and investment decisions.

Country focal points and ministries will be supported to improve monitoring and evaluation systems by first understanding areas where tailored support is needed, followed by designing bespoke approaches to provide capacity support for nurturing M&E systems. A three-pronged approach is proposed to achieve this objective.

1. Country diagnostic

A country situation assessment will assess countries' level of advancement in M&E and what specific support they need to successfully design and implement their M&E systems. The assessment will unpack the level of existing M&E system and their readiness for UNFCCC reporting, gender-responsive monitoring and evaluation and suitability to guide national and sectoral planning. For example, countries will likely be at different levels regarding the three areas mentioned above.

- Some countries may have a well-developed national M&E system and a sectoral agriculture M&E system, but it may not be ready for ETF reporting.
- Some countries may have systems in place for ETF reporting, but it may not be gender-responsive.
- Some countries might have a very nascent M& E context with only project-based ways to inform adaptation planning.

The country diagnostic will identify areas for tailored support and entry points by looking across following main areas, for example:

Parameter	Key example questions for country diagnostic
Existing M&E systems and country capacities	<ul style="list-style-type: none"> - Is there a climate M&E system in place at the national, sectoral, and sub-national level? - Are the M&E systems aligned with principles to assess the adaptation goal i.e., gender-responsive, address context-specific

	<p>vulnerabilities, and is designed to measure adaptation considering current and future climate risks?</p> <ul style="list-style-type: none"> - Are the M&E systems suited for UNFCCC reporting
Existing data systems and available tools	<ul style="list-style-type: none"> - Is data available and accessible for assessing vulnerabilities, climate risks, disasters, etc. - Is there capacity to use current and projected climate information for M&E purposes?
Existing institutions and coordination mechanisms to assess adaptation actions	<ul style="list-style-type: none"> - Is there a clear body with mandates, authority, and capacity to coordinate M&E processes at the national and agriculture sector level? - Is the institution well-funded and sustainable? - Are there sufficient coordination processes between national, sectoral, project level, and climate funds results reporting systems?

2. Targeted support

Based on a thorough understanding of country needs support can potentially be configured around two broad areas:

a. Supporting countries to enable ETF monitoring and reporting systems

- Identify existing ways for assessing climate-related impacts, risks, impacts, and adaptation responses¹.
- Construct or improve indicators.
- Build and identify data systems.
- Testing methodologies for resilience/adaptative capacity/vulnerability assessments to assess how well climate risks are managed and the extent to which they are contributing to improving resilience/adaptative capacity and reducing vulnerability².
- Develop sector adaptation M&E.
- Advice on appropriate tools to populate data and report.
- Integrate key climate-related loss and damage in the agriculture sector data into the M&E system, including creating/updating a centralized database for ease of access in decision making and investment planning.
- Making existing M&E systems for climate and agriculture ready for reporting to UNFCCC (ETF), Agenda 2030, and SFDRR.
- Ensure coordination between sectoral, national, results frameworks of funds, Sendai Framework for DRR (SFDRR), and SDG reporting.

b. Gender-responsive M&E

- Appropriate and effective ways to monitor and evaluate gender-responsive adaptation efforts.
- Methods, tools, and approaches to ensure gender-sensitive M&E processes.

¹ Downscaling of climate change scenarios to inform the identification of medium- and long-term risks and impacts.

² Conduct/build on existing vulnerability assessment of climate change impacts of agriculture, forestry, fisheries sectors. The results of the assessments will be used to inform the selection of the dimensions (risk, resilience, adaptive capacity, vulnerability) and relevant indicators to be measured.

3. Testing M&E approaches or tools

In addition to direct support, customized tools and methods will be tested to operationalize tailored approaches in national and sectoral adaptation M&E system for enhanced transparency of adaptation in the land-use and agriculture sectors, tracking and reporting of adaptation progress as well as to inform national budgeting and planning processes. This would include:

- Testing of tools and methodologies for resilience/adaptative capacity/vulnerability assessments to assess how well climate risks are managed and the extent to which they are contributing to improving resilience/adaptative capacity and reducing vulnerability.³
- Testing the use of data systems to strengthen linkages among national data-collection, data-sharing, production, and dissemination under SDGs and the Sendai Framework reporting process.
- Testing of tools and methods for UNFCCC reporting under the ETF.

Support available from the global team includes technical expertise of global M&E experts, provision of tools for tracking loss and damages, adaptation actions in land use and agriculture (refer to Annex 2), and technical and intuitional M&E capacity building training materials.

PARTNERSHIPS AND BENEFICIARIES

The **main partners** would be identified during the initial stages of program implementation, these will include the Global Environment Facility (GEF) and its Capacity Building Initiative for Transparency (CBIT), Partnership on Transparency in the Paris Agreement (PAPTA), NDC Partnership, and its Climate Action Enhancement Package (CAEP) and Tracking and Strengthening Climate Action (TASCA), amongst others.

The key beneficiaries will be the Ministries of Agriculture, Environment, and Disaster Risk Reduction, as well as inter-ministerial climate change coordination entities and NDC working groups established to plan, track and report on mitigation and adaptation at the sub-national, national, and international levels. Key actors will oversee the following:

- Coordinating implementation of the provisions of the UNFCCC and related agreements.
- Responsible for the development of climate change policies and strengthening institutional cooperation in climate change.
- Responsible for reporting progress in climate change-related progress.
- National Focal Point to the UNFCCC and CBIT.
- Implementers of policies, activities, and projects that directly and indirectly impact climate change mitigation and adaptation.
- Responsible for reporting to the Sendai Framework and for reporting on SDGs.
- Responsible for collecting, processing, and disseminating data about the demographic, social, economic, and environmental situation in the country.

³ Conduct/build on existing vulnerability assessment of climate change impacts of agriculture, forestry, fisheries sectors. The results of the assessments will be used to inform the selection of the dimensions (risk, resilience, adaptive capacity, vulnerability) and relevant indicators to be measured.

- Representatives of the research and teaching community, primary source of research on climate change issues, climate vulnerability and other key sectoral issues (AFOLU, agriculture) and cross-cutting issues (gender).
- Channel for providing country-specific climate change research to the international research community.

Partners and beneficiaries can contribute to the proposed activities in the following ways:

- Serve as the implementing partner for this activity and be directly involved in the design and running of the proposed MRV/M&E systems.
- Work closely with the national SCALA project committee on data collection, analysis, and reporting issues related to the mitigation and adaptation tracking systems for NDC reporting.
- Participate in capacity strengthening, training, and communication activities.

ANNEX 1: EXISTING FAO AND UNDP M&E METHODOLOGIES AND RESOURCES

- *Tools and methods for assessing climate impacts*

Modeling System for Agricultural Impacts of Climate Change (MOSAICC) is an integrated package of models which allows users to assess the impact of climate change on agriculture at the national level. The models are organized in five main components: climate, crops, hydrology, forests, and economy. The aim of MOSAICC is to build capacities of experts in countries to understand potential climate change impacts better, and to help policymakers define adaptation strategies, programmes, projects, and investments (FAO, 2015).

- *Tools for assessing impacts, vulnerability, and resilience of agro-ecological and agro-economic systems*

Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) (FAO, 2018b) is designed as an instrument to assess the resilience of farmer and pastoralist households to climate change. Following a survey-based evaluation of households' climate resilience (Phase 1), gaps and weaknesses in the response of farmers and institutions to climate variability are analyzed (Phase 2). Finally, information gathered through the first two phases is integrated with broader-level climatic data, with the aim of assisting farmers in prioritizing actions to build the resilience of their agro-ecosystems – as well as orienting institutions towards the best possible policy approaches to strengthen climate resilience (Phase 3).

- *Tools supporting adaptation planning and development of M&E systems tracking adaptation in the agricultural sector*

Tracking adaptation in agricultural sector (TAAS) (FAO, 2017) is an integrated M&E methodology aiming to provide a comprehensive picture of the progress and effectiveness of climate adaptation in the agricultural sector at the national level. TAAS combines different types of indicators including context-specific and generalized indicators, process and outcomes indicators, and quantitative and qualitative indicators. Context-specific indicators and nationally defined targets are designed by national actors supported by international experts. The individual indicators are

combined into generalized groups - categories and subcategories. Four main categories include Natural resources and ecosystems; Agricultural production systems; socioeconomic, Institutions, and policymaking. Each category is divided into four sub-categories, reflecting specific areas of adaptation. The values for individual indicators are estimated by ranking the actual value against the target value (score from 1 to 10). The values are individual indicators aggregated at the level of sub-categories. Common sub-categories allow comparison between the countries.

The approach aims to balance the needs of addressing unique local contexts and comparing countries on the progress towards achieving their adaptation goals. Since the goals are defined at the country level, the methodology does not directly support assessing ambitions in the broader context of international adaptation goals (e.g., Global Adaptation Goal). The TAAS also addresses cross-cutting issues and makes connections between the suggesting indicators and other international goals and requirements, although does not provide direct guidance on how to use indicators and M&E system for reporting under different international obligations (e.g., SDG, SFDRR).

Strengthening Monitoring and Evaluation for Adaptation Planning in the Agriculture Sectors. Technical Guidance Note Integrating Agriculture in National Adaptation Plans (NAP-Ag) Programme (FAO, 2019) gives a detailed description of the objectives and process of designing and applying M&E systems for planning and tracking climate adaptation in the agricultural sector, in connection with the broader development objectives. The guidance document provides theoretical basis and practical examples for practitioners at the national and local levels, enabling them to design and implement adaptation planning. NAP-Ag promotes the theory of change (TOC) approach as the basis for adaptation planning process; it specifically focuses on the objectives and needs of stakeholder involvement, co-design and knowledge integration. It suggests sources for selecting indicators and other related resources.

- *Methodologies addressing specific indicators under international conventions*

FAO'S Methodology for Damage and Loss Assessment in Agriculture: methodology for evaluation SFDRR C-2 indicator.

- *Analysis of the existing methodologies, tools and gaps*

Dare to Understand and Measure (DaTUM) – A literature review of Monitoring and Evaluation (M&E) frameworks for Climate-Smart Agriculture (Jacobs, H. and Al-Azar, R. 2019) – a comprehensive review of the monitoring and evaluation (M&E) frameworks, tools and guidance for Climate-Smart Agriculture (CSA), in particular for “pillar” two on adaptation and resilience. The report is a literature review that summarizes the main M&E frameworks. It serves as a valuable resource of the methodologies and indicators.

Tracking progress on climate resilience for agriculture and food systems at national, sub national and local levels (FAO 2019) – a study of the M&E approaches, methodologies, and indicators for evaluating risk and resilience of agricultural systems to climatic disasters. The study mostly focuses on DRR domain, also looking for possibilities for an integrated approach to M&E including DRR, CCA, and cross-cutting issues. Based on the extensive overview of the existing methodologies, the study defines three groups of capacities for intervention (anticipate, absorb, reshape) and ten main types of interventions are suggesting evaluation indicators and methodologies.

- *Data and information sources*

FAO statistical units (FAOSTAT, FAO AQUASTAT) support data gathering, analysis and provision for international and national actors in different areas of agricultural economy, ecosystems and production.

ANNEX 3: EXISTING FAO AND UNDP MRV METHODOLOGIES AND RESOURCES

- *Tools and methods for UNFCCC reporting on mitigation under the Enhanced Transparency Framework*

The BTR Process Guidance Tool (GIZ/FAO, forthcoming) - This tool helps Parties to take concrete, incremental, and sustainable steps towards the preparation and submission of their Biennial Transparency Report (BTR). It serves countries in guiding them in the new process under the ETF and provides an approximate calendar for the roadmap.

Toolkit for Building National Greenhouse Gas Inventory Systems (United States Environmental Protection Agency, U.S. EPA) - The materials (templates) of the toolkit specifically operationalize and institutionalize the plans outlined in the Institutional Arrangements template. This toolkit helps the national greenhouse gas (GHG) inventory coordination team design, develop and advance a sustainable national GHG inventory management system.

- *Tools and methods for GHGI estimates under 2006 IPCC Guideline*

The national greenhouse gas inventory for agriculture (FAO 2017) - The e-learning course provides the necessary knowledge to build a sustainable National Greenhouse Gas Inventory (NGHGI) and assess greenhouse gas (GHG) emissions from the agriculture sector. It focuses on the biological and physical processes that lead to the production of emissions from agriculture-related activities.

The national greenhouse gas inventory for land use (FAO 2019) - The e-learning course provides the necessary knowledge to build a sustainable National Greenhouse Gas Inventory (NGHGI) and assess greenhouse gas (GHG) emissions and removals from the land use sector. It focuses on the biological and physical processes that led to GHG fluxes from land use-related activities.

Uncertainties in the AFOLU (FAO forthcoming) - The e-learning course provides the main knowledge needed on the uncertainties accompanying the GHG emissions/removals estimation in the AFOLU and addresses ways to estimate these uncertainties and ways to increase the accuracy of the inventory results.

- *Tools and methods for GHGI archiving*

IPCC Inventory Software: Archive Data (IPCC 2019) - The IPCC Inventory Software implements the simplest Tier 1 method for all sectors and Tier 2 methods for most categories under Energy, IPPU, and Waste Sectors as well as Agriculture categories under AFOLU Sector in the 2006 IPCC

Guidelines for National Greenhouse Gas Inventories. The TFI is currently working on making it compatible with the Tier 2 methods for the Land component of the AFOLU sector.

- *Data and information sources*


FAO statistical units (FAOSTAT, Google Earth Map) support data gathering, analysis and provision for international and national actors on different areas of agricultural economy, ecosystems and production.

- *FAO Toolbox for environmental Impact assessment*

The Nationally Determined Contribution Expert Tool (NEXT) is a **greenhouse gas accounting tool that supports** annual environmental impact assessment for the agriculture, forestry, and other land use (AFOLU) sector. NEXT provides a **30-year time series** of annual and cumulated estimates of **carbon removal** and **greenhouse gas emissions reductions** from climate actions made by Parties to the Paris Agreement. NEXT provides a high temporal series of results and a wide set of indicators, including the **social value of carbon**. This makes it possible to have a comprehensive environmental and economic overview of climate actions in achieving a mitigation target. Finally, the tool helps countries interpret, track and scale up the ambition of their NDCs and this could ultimately feed into, and inform, the global stock take of the Paris Agreement in a harmonized way.

The NDC Tracking Tool (FAO Forthcoming): The tool supports countries in tracking their progress made in implementing and achieving NDCs. It compares planned versus implemented mitigation and adaptation actions in all sectors and estimates the GHG reduction achieved from the implementation of mitigation actions (and mitigation co-benefits of adaptation) compared against the sectoral and/or national baseline and NDC target scenario. The tool offers a multi-sectorial modular approach tailored to the Modalities, Procedures, and Guidelines (MPGs) of the Enhanced Transparency Framework (ETF), to facilitate data collection of the information category necessary to track progress on achieving NDCs, based on the currently available information in each country. As such, the tool aims to inform country-level NDC enhancement planning, as well as contribute to the review of collective progress towards achieving the global goals of the Paris Agreement (PA) under the Global stock take.

The NDC Tracking Tool: The NDC Tracking Tool supports countries in tracking their progress made in implementing and achieving NDCs. It compares planned versus implemented mitigation and adaptation actions in all sectors and estimates the GHG reduction achieved from the implementation of mitigation actions compared against the sectoral and/or national baseline and NDC target scenario. The tool offers a multi-sectorial modular approach tailored to the Modalities, Procedures and Guidelines (MPGs), of the Enhanced Transparency Framework (ETF), and particularly the MPGS III and the decision 4/CMA.1, particularly annex II, to facilitate data collection of the information necessary to track progress on achieving NDCs, based on the current available information in each country. As such, the tool aims to inform country-level NDC enhancement planning, as well as contribute to the review of collective progress towards achieving the global goals of the Paris Agreement (PA) under the Global Stocktake.



The Support Programme on **Scaling up Climate Ambition on Land Use and Agriculture through Nationally Determined Contributions and National Adaptation Plans (SCALA)** is a five-year initiative led by FAO and UNDP, with funding from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) through the International Climate Initiative (IKI). SCALA responds to the urgent need for increased action to cope with climate change impacts in the agriculture and land use sectors. The twenty million euro programme supports at least twelve countries in Africa, Asia and Latin America to build adaptive capacity and to implement low emission priorities.

Country support includes strengthening policies, adopting innovative approaches to climate change adaptation and removing barriers related to information gaps, governance, finance, gender mainstreaming and integrated monitoring and reporting. To achieve this shift, the programme engages the private sector and key national institutions.

SCALA supports countries to develop the capacity to own and lead the process to meet targets set out in their National Adaptation Plans and Nationally Determined Contributions under the Paris Agreement, and to achieve the Sustainable Development Goals. The SCALA initiative builds on another FAO-UNDP led programme, Integrating Agriculture in National Adaptation Plans (2015-2020) which has closed.

**Food and Agriculture Organization
of the United Nations**

www.fao.org/in-action/scala/en

United Nations Development Programme

www.adaptation-undp.org/scala

International Climate Initiative (IKI)

www.international-climate-initiative.com

**German Federal Ministry for the Environment,
Nature Conservation, Nuclear Safety and
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