

Inventories and Nationally Determined Contributions Network Meeting Summary

2nd & 3rd June 2021

On the 2nd and 3rd June 2021 the Inventories and Nationally Determined Contributions Network held two virtual meetings. The purpose of the meetings was to increase the visibility of international collaborative efforts with presentations by international research partners on inventory research and capability building initiatives, followed by a facilitated discussion.

There were presentations from the AFOLU IPCC-TFI TSU, The US EPA, FAO-Enhanced Transparency Framework Network, GHGMI, ACIAR, NZAGRC and the Modeling and Inventory Development Subgroup of the Low Carbon Livestock Research Network.

Collectively, the meetings were attended by nearly 60 participants from Africa, Europe, North American, ASEAN and LAC countries with diverse backgrounds in Inventory compilation, research and development and international collaboration.

Some key themes emerged during the discussion session in both meetings following the presentations. Firstly, international multi-partner collaboration will ensure we avoid any duplication of work. Participants discussed the importance of inventory frameworks such as institutional Arrangements and having a clear inventory structure both for personnel and data management. Identifying and addressing inventory capacity gaps is a focus for all research partners and avoiding outsourcing resources and ensuring regional institutions are supported to develop inventory capacity is crucial.

A summary of each presentation is below, and the meeting recordings for the [2nd June](#) and 3rd June are now available.

Valentyna Slivinska, IPCC AFOLU TFI TSU: Summary of IPCC Inventory tools, software and guidelines

Valentyna Slivinska on behalf of the IPCC AFOLU TFI TSU provided a summary of the IPCC Inventory Software, the IPCC Emission Factor Database, and major changes with respect to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories presented in the 2019 IPCC Refinement.

The [IPCC Inventory Software](#) (free download) was produced in 2012, and assists inventory compilers to use the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The software contains default data, has data management systems, a data archive, worksheets for data entry, QA/QC, uncertainty and key category analysis tools.

The [IPCC Emission Factor Database](#) (EFDB) serves as a depository where national inventory compilers can find emission factors that may be applicable to their national circumstances and may be implemented based on their expert opinion. Please note it has not been subject to formal IPCC review processes but there is a review and acceptance procedure.

A high level summary of the [IPCC 2019 Refinement](#) to 2006 IPCC Guidelines for National Greenhouse Gas Inventories is below.

General guidance:

- New and updated default data and new and updated information and guidance,
- updated and new guidance on land representation,
- new guidance on the use of allometric models and biomass density maps for estimation of biomass
- Elaborated guidance on application of tier 3 inventory methods
- New guidance on inter-annual variability when deriving emissions for managed land and natural disturbances
- Elaborated guidance on developing consistent time series through extrapolation based on functional relationships
- Tier 2 steady state method for SOC changes in cropland
- Updated stock change factors (FLU, FMG, FI) for Tier 1 (tier 2 steady state method can be used to estimate country specific stock change factors)
- New guidance on Tier 2 estimation of SOC change in mineral soils associated with biochar amendments

Flooded land (CH 5):

- For flooded land remaining flooded land there is new guidance for estimation of CH₄ emissions.
- For land converted to flooded land there is updated guidance for estimation of CO₂ emissions and new guidance for estimating CH₄ emissions.

Livestock (CH 10 & 11):

- Fifty percent of all livestock equations have been updated, 10 new equations have been added and 27 new equations have been annexed.
- The Tier 2 gross energy calculation has been extended to goats.
- Enteric fermentation: A new CH₄ emission factor has been derived from DMI. There are new CH₄ emission factors for enteric fermentation for llamas and ostriches
- Classification for enteric fermentation emission factors: There is a new advanced Tier 1a method for consideration of classifying differing productivity systems (high and low derived from IPCC definitions), and the previous distinction between developed and developing countries has been removed. The default parameters and emission factors have been recalculated by climate zone or by regions and productivity systems.

John Steller, US EPA: Tools and Software for Inventory Development

The Transparency Accelerator for GHG Inventories is a tool designed by the US EPA to help developing countries transition to the 2006 IPCC Guidelines as part of reporting requirements under the Enhanced Transparency Framework. The Accelerator covers all GHG inventories with special emphasis on agriculture and land use sectors.

The EPA's capability building approach is centered on developing strong institutional arrangements as necessary to ensure a sustainable inventory system.

The EPA [Toolkit for National GHG Inventory systems](#) takes key elements of the UNFCCC and IPCC guidance condensed into a series of templates on:

1. Institutional Arrangements,
2. Methods and Data Documentation,
3. QA/QC Procedures,
4. Key Category Analysis,
5. Archiving Systems and
6. National Inventory Improvement Plans.

The Agriculture and Land Use National Greenhouse Gas Inventory [Software](#) (ALU) is undergoing updates to incorporate all guidance in the 2006 IPCC guidance, and also the 2013 Wetland Supplement for National Greenhouse Gas Inventories. Following updates will look at incorporation of the 2019 Refinement to the 2006 guidance. The UNFCCC Reporting tables can transfer data seamlessly to ALU.

In terms of comparing the IPCC Software and ALU, ALU allows for incorporation of GIS based data on LULUCF remote sensing imagery data where IPCC is not designed to capture this type of data. ALU develops emission maps to demonstrate emission factors variation spatially. A focus of ALU is that it facilitates and encourages mitigation analysis. Methods of both softwares are based on 2006 Guidelines therefore both use the IPCC principles of TACCC.

Andreas Wilkes, NZAGRC: International Inventory Capability Building Initiatives

There are gaps in national inventory capacities to track emissions, which is crucial to be able to document progress toward emission reduction ambitions.

The New Zealand Government have investment in this area and are focused on improving national greenhouse gas inventories via building capability with training and research grants, improving the evidence base of inventories and identifying priority emission sources and mitigation options, building physical infrastructure (MRV hubs, regional research projects and small scale pilot projects) to provide activity data for mitigation options and national inventories.

In the early stages of this work, New Zealand is in discussion with Kenya, Malawi, Uganda, Zambia, Zimbabwe, Cambodia, Indonesia, Philippines and Vietnam. In Kenya and Malawi, collaboration under this project is assessing priority needs in the livestock sector. In Uganda, the collaboration has agreed a work plan and are now at the stage of discussing implementation modalities. In Zambia and Zimbabwe, the project coordinators are discussing the work plan for developing a Tier 2 Inventory. In South East Asian countries, project coordinators are discussing priority needs for inventory development specifically for the livestock sector.

In a few months the exact plans for each country will be shared widely. Discussions are currently underway to ensure alignment with existing projects and work of GRA partners.

Eduardo Fuentes Navarro & Florencia Garcia, The Low Carbon Livestock Research Network (LCL RN)

The Low Carbon Livestock Research Network (LCL RN) is a new group of over 65 Latin American researchers from Argentina, Brazil, Colombia, Chile, France, Mexico, Peru, Spain and Uruguay with a subgroup dedicated to Modeling and Inventory Development.

The goals of the Inventory subgroup are to evaluate and propose alternatives for sustainable livestock management and to develop better emission factors for national inventories through modelling.

The Inventory subgroup is connected with ministries in the area and other stakeholders to encourage data collection, and compiling regional data to develop improved emission estimation methodologies. They are collaborating to transfer knowledge, develop databases for emissions, determine research gaps and intend to publish a policy brief to highlight their research findings to guide countries to achieve their NDC's.

To learn more about the Inventory Development Subgroup please contact co-chair Eduardo Fuentes Navarro (efuentes@lamolina.edu.pe).

Natalie Doran Browne, ACIAR: Agriculture based emission-reduction options to support NDC's in Fiji and Vietnam

This project supports the development of agriculture inventory and mitigation systems with Fijian and Vietnamese partners. The project has already identified priority areas for research and future research projects, assessed these priority areas alongside the co-benefits of mitigation options and has developed a governance checklist to ensure emission reduction actions will be able to be captured in the countries national inventories.

The project has encountered a number of capacity gaps for example calculating the agricultural portion of national emissions, the project will focus on improving communication between data providers and collators, more comprehensive data archiving systems and a

central data repository to ensure greater transparency of methods and emission factors used in the national inventory.

The project is focused on developing Tier 2 emission factors so that mitigation actions can be justified by policy implementers and cost benefit analyses may be conducted, developing mitigation options and climate policies and national inventory systems.

Discussions are underway to ensure that work is aligned across other research groups working in this region and to prevent any duplication of efforts.

Olia Glade and Alissa Benchimol: GHGMI led ICAT Fiji Project

GHGMI provided an update on the capacity building project in Fiji, with the objective of developing national MRV systems, building national capacity for managing the MRV systems and applying the ICAT policy impact assessment guidance to determine and implement two mitigation strategies to reduce emissions. GHGMI are delivering a series of workshops to facilitate collaboration and building national capacity.

Mirella Salvatore, FAO Enhanced Transparency Framework Network

The [FAO ETF Network](#) focuses on issues of transparency in agriculture and land use sectors and comprises members from nearly 90 countries internationally. Members are registered to a **Roster of Transparency Practitioners** intended to enable knowledge sharing and capacity gaps to be filled. This roster of expertise is searchable on the FAO website linked above. In addition, the Network has a discussion group and a [LinkedIn Group](#). The network is addressing issues of transparency through knowledge transfer in webinars and training, E-learning series (see links at the end of this document), connecting practitioners internationally and collaboration with relevant research partners and organisations.

Presentation Links

- I&NDC Network Overview and GRA Secretariat Update
- Valentyna Slivinska, IPCC AFOLU - TFI TSU
- John Stellar, US EPA
- Andreas Wilkes, NZAGRC
- Natalie Doran-Browne, ACIAR
- Olia Glade, GHGMI
- Mirella Salvatore, FAO Enhanced Transparency Framework
- Eduardo Fuentes Navarro, Low Carbon Livestock Research Network (LCL-RN)

Resource Links

- [IPCC Inventory Software](#) (free download)
- [IPCC Emission Factor Database](#) (EFDB)
- [IPCC 2019 Refinement](#) to 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- [FAO ETF Network](#) and [LinkedIn Group](#)
- FAO ETF eLearning courses for GHG Inventories
 - [Preparing a greenhouse gas inventory under the Enhanced Transparency Framework](#)
 - [The national greenhouse gas inventory for land use](#)
 - [The national greenhouse gas inventory for agriculture](#)
- Low Carbon Livestock Research Network (LCL-RN) Modeling and Inventory Development Subgroup: Eduardo Fuentes Navarro efuentes@lamolina.edu.pe
- [ALU Software](#)
- [US EPA Toolkit for National Inventory Compilation](#)
- www.AgMRV.org: publications and links to tools, but not up to date information on who is doing what now
- [GHGMI Experts Forum](#); GHGMI encourage inventory questions to be posted there, note this forum is not limited to agriculture sector experts

Background:

The Global Research Alliance's [Inventories and Nationally Determined Contributions Network](#) connects governments, relevant experts and related research projects and capability building efforts to improve the scientific evidence base and quality of agricultural NDC's. The I&NDC Network's activities aim to ensure that the achievement of targets set under the Paris Climate Agreement are reflected in national agricultural GHG inventories. Currently, the Network has nearly three hundred international and interdisciplinary registered members.