CLIMATE CHANGE AND GREENHOUSE GAS (GHG) STATISTICS BASED ON FDES

EGM on FDES 2016
CONTENT

- Reporting requirements on CC
- GHG Inventories
  - Extensive data requirements for
  - Energy and its sub categories
  - Industrial processes
  - AFOLU/LULUCF
    - Agriculture
    - Forestry
    - Land use and land use change
  - Waste: solid and liquid
- Adaptation: by sector – e.g. agriculture, coastal zone, etc
- Mitigation – based on GHG emission scenarios
- Others: education, information, national circumstances, research, etc
Parties to the UNFCCC
Annex I parties - **Green**
Non-annex parties - **Yellow**
Observer states - **Blue**

- Percentage (on average) will climate change negatively affect the GDP of poor countries (the group that will be most greatly affected)
REPORTING REQUIREMENTS

Different reporting requirements for Annex I (AI) and Non Annex I (NAI) countries

- Annex I: mandatory annual with national communications (NCs) + National Inventory Reports (NIRs) for GHG inventories
- Non Annex I: Occasional NCs - recommended NCs every 5 years or earlier + optional NIRs
- Additionally a bi-annual update report (BUR) every 2 years –flexible for SIDS
GHG INVENTORIES

- GHG Inventories – using IPCC Guidelines (GLs) now AI countries require to use the 2006 IPCC GLs which slightly changes the sectors by merging the Agriculture and LULUCF sectors
- Additionally, there are some added sub sectors or categories
- Extensive data requirements for
  - Energy and its sub categories
  - Industrial processes
  - AFOLU/LULUCF
    - Agriculture
    - Forestry
    - Land use and land use change
  - Waste: solid and liquid
**GHG INVENTORIES**

- Institutional requirements –AFOLU Example

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**PROPOSED INSTITUTIONAL ARRANGEMENTS**

**Legend:**
- **ACD:** Agricultural Chemistry Division
- **AREU:** Agriculture Research and Extension Unit
- **AS:** Agricultural Services
- **CSO:** Central Statistics Office
- **FS:** Forestry Services
- **FSC:** Farmers Service Corporation
- **LUD:** Land Use Division
- **MCA:** Mauritius Chamber of Agriculture
- **MMPA:** Mauritius Meat Producers' Association
- **MoA:** Ministry of Agro-Industry and Food Security
- **MoESD:** Ministry of Environment and Sustainable Development
- **MoHL:** Cartography Section, Ministry of Housing and Lands
- **MSA:** Mauritius Sugar Authority
- **MSIRI:** Mauritius Sugar Industry Research Institute
- **NPCS:** National Parks and Conservation Service
- **SIFB:** Sugar Insurance Fund Board
- **UoM:** University of Mauritius
- **VS:** Veterinary Services

*(Note: Other institutions will be co-opted as the need may be).*
The GHG inventory cycle

Finalize
- Submit to U.N., Prepare National Inventory Improvement Plan
- Cycle Begins Again
- Finalize Inventory Draft, Key Category Analysis, and Prepare Archives
- Address Errors and Comments from Review

Plan
- Inventory Kickoff Meeting: Meet with Sector Experts, Data Providers, and Data Compilers
- Invite all those identified in Step One
- Choose Methods and Identify Available Data
- Send Letters to Collaborators and Organizations

Collect
- Collect and QC Data and Emission Factors
- Organize Activity Data, Emission Factors

Write
- QA of Draft Report
- Prepare and QC Draft Report

Estimate
- Prepare and QC Initial Estimates
- Draft and QC Key Category Analysis
GHG INVENTORY SECTORS

- **Energy and its sub categories**
  - Basically follows the national energy balances and statistics – FDES could be used as support

- **Fuel combustions in**
  - Energy industries, including electricity generation
  - Transport, incl. road, railways, navigation and aviation
    - Incl. also some pipeline transport
  - Manufacturing and construction
  - Commercial and residential
  - Agricultural
  - Others

- **Fugitive emissions** – e.g. from oil drilling, mining, oil transport etc
GHG INVENTORY SECTORS

- **Industrial Processes and Product Use (IPPU)**
- Non fuel combustion processes
  - Mineral manufacturing
  - Metals
  - Chemicals
- Ozone Depleting Substances substitutes – manufacture and use
GHG INVENTORY SECTORS

- **AFOLU/LULUCF**
- **Agriculture**
  - Livestock heads by type (cattle, sheeps, pigs etc) and other factors such as average live mass, feed intake, etc
  - Manure management for each livestock type
- **Land use, land use change and Forestry (LULUCF)**
- **Land areas and their changes between two time points**
  - Forest land by type, climate, soil etc
  - Cropland
  - Wetland
  - Grassland
  - Settlements
  - Others
- **Soils and emissions**
## HOW FDES CAN BE USED - EXAMPLE

Definitions for terrestrial pools used in the LULUCF sector

<table>
<thead>
<tr>
<th>Pool</th>
<th>Description (see also notes below in italics)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Living Biomass</strong></td>
<td><strong>Above-ground biomass</strong></td>
</tr>
<tr>
<td></td>
<td>All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage. Note: In cases where forest understorey is a relatively small component of the above-ground biomass carbon pool, it is acceptable for the methodologies and associated data used in some tiers to exclude it, provided the tiers are used in a consistent manner throughout the inventory time series as specified in Chapter 5.</td>
</tr>
<tr>
<td><strong>Below-ground biomass</strong></td>
<td>All living biomass of live roots. Fine roots of less than (suggested) 2mm diameter are often excluded because these often cannot be distinguished empirically from soil organic matter or litter.</td>
</tr>
<tr>
<td><strong>Dead Organic Matter</strong></td>
<td><strong>Dead wood</strong></td>
</tr>
<tr>
<td></td>
<td>Includes all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.</td>
</tr>
<tr>
<td><strong>Litter</strong></td>
<td>Includes all non-living biomass with a diameter less than a minimum diameter chosen by the country (for example 10 cm), lying dead, in various states of decomposition above the mineral or organic soil. This includes the litter, fumic, and humic layers. Live fine roots (of less than the suggested diameter limit for below-ground biomass) are included in litter where they cannot be distinguished from it empirically.</td>
</tr>
<tr>
<td><strong>Soils</strong></td>
<td><strong>Soil organic matter</strong></td>
</tr>
<tr>
<td></td>
<td>Includes organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series. Live fine roots (of less than the suggested diameter limit for below-ground biomass) are included with soil organic matter where they cannot be distinguished from it empirically.</td>
</tr>
</tbody>
</table>
GHG INVENTORY SECTORS

- Wastes
  - Solid
    - Solid waste generation and disposal
    - By type of wastes – municipal, industrial
    - By categories from the above types – food, paper, garden, etc – degradables and others
    - Biological treatments – e.g. composting
    - Open burning
    - Incineration
GHG INVENTORY SECTORS

**Wastes**

- **Liquid**
  - Liquid waste generation, treatments by type
  - By type of solid wastes – municipal, industrial
  - By categories from the above types – sludges, etc – degradables and others
  - Biological treatments – e.g. aerobic and anaerobic

- **Sewerage**

- **Non sewered disposal**
GHG INVENTORIES

- Requirements for quality inventories
  - TACCC
    - Transparent
    - Accurate
    - Complete
    - Consistent
    - Comparable
  - The inventories are subject to reviews – mandatory for AI countries and flexible for NAI – for BUR – requires an international consultation and analysis (ICA)
  - Both by designated experts
Figure 10:
Key elements of the International Consultation and Analysis process

- **SUBMISSION OF BURS**
  - Composition of TTE
  - Technical analysis of BURs by TTE
  - Draft summary report (SR)
  - Review and comment on draft SR by the Party concerned
  - Final SR by TTE and the Party concerned

- **INTERNATIONAL CONSULTATION AND ANALYSIS**

- **TECHNICAL ANALYSIS**
  - Final SR noted by SBI and posted on UNFCCC.int
  - Record of the facilitative sharing of views

- **FACILITATIVE SHARING OF VIEWS**
  - A workshop under SBI — a one- to three-hour session for each Party or group of Parties
  - A brief presentation by the Party or Parties concerned on their biennial update report, followed by oral questions and answers among Parties
OTHER CC REPORTING REQUIREMENTS

- **Adaptation**: by sector – e.g. agriculture, coastal zone, etc
  - Modeling used in certain cases, e.g. to predict future CC in particular areas and anticipate adaptation measures to be taken
- **Mitigation** – based on GHG emission scenarios
  - Projections based on auxiliary statistics, e.g. GDP, Populations, energy needs, etc
- **Policies** etc
- **Others: education, information** – sensitisation of population, students, etc
- **National circumstances** - climate, population, economy etc
- **Research and systematic observations** – climate, water, agriculture, etc
REPORTS SUBMITTED BY COUNTRIES

**NEWSROOM**
Get News on the Latest Climate Action

**KEY STEPS**
The Convention
Kyoto Protocol
Paris Agreement

**NEGOTIATIONS**
Meetings
Documents & Decisions
Bodies

**FOCUS**
NDC Registry
INDC Portal

Overview
Adaptation
Climate Finance
Mitigation

**Submitted biennial update reports (BURs) from non-Annex I Parties**

<table>
<thead>
<tr>
<th>Total number of submitted BURs from non-Annex I Parties</th>
<th>Most recent submissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>First BUR: 39 (as of 18 April 2016)</td>
<td>Israel (18 April 2016)</td>
</tr>
<tr>
<td></td>
<td>Republic of Moldova (5 April 2016)</td>
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<tr>
<td></td>
<td>Serbia (28 March 2016)</td>
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<td>Indonesia (18 March 2016)</td>
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<td>Mauritania (14 March 2016)</td>
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<td>Malaysia (3 March 2016)</td>
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<td>India (22 January 2016)</td>
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<td>Montenegro (13 January 2016)</td>
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<td></td>
<td>Paraguay (30 December 2015)</td>
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<td></td>
<td>Thailand (29 December 2015)</td>
</tr>
</tbody>
</table>

**Support for the Preparation of National Reports**
- E-Network Collaboration
- E-Learning Courses
- GHG Inventory Software
- Guidelines and Manuals
- Consultative Group of Experts (CGE)
- External Links and Information
- COP decisions / SBI conclusions
- Key COP decisions relevant to non-Annex I Parties
- SBI conclusions relevant to non-Annex I Parties
CONCLUSIONS AND WAY FORWARD

- CC statistics need to be developed as agreed in Stats Comm. 2016
- GHG included
- FDES to underpin such efforts to develop CC stats