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Inventory QA/QC Planning in Mongolia

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Introduction

The Mongolian inventory follows the methodologies recommended by the IPCC (IPCC, 1996).

Inventory barriers

- ***Information***
  - Lack of standard data for inventory
  - Lack of system in collection and checking
  - Lack of institutional framework

Methodologies and tools

- Lack of country specific emission factors

QA/QC Planning

For the future improvement and recalculation of GHG inventory by using IPCC Good Practice Guidance it is important to develop and implement Quality Assurance/Quality Control (QA/QC) Plan.

The Development of the Inventory QA/QC plan should be prepared according to the General QC Procedures (Tier 1) of IPCC Good Practice Guidance.

QA/QC Planning

Definition of QA/QC plan

- A QA/QC plan is a fundamental element of a QA/QC system
- According to the IPCC GPG the plan should include:
  - outline QA/QC activities that will be implemented, scheduled time frame that follows inventory preparation from its initial development through to final reporting in any year.
  - outline of the processes and schedule to review all source categories.
- The QA/QC plan is an internal document to organize, plan, and implement QA/QC activities.

QA/QC Planning

Pole of Inventory agency (Inventory Team)

The inventory agency is responsible for coordinating QA/QC activities for the national inventory.

The inventory agency may designate responsibilities for implementing and documenting these QA/QC procedures to other agencies or organisations.

The inventory agency should ensure that other organisations involved in the preparation of the inventory are following applicable QA/QC procedures.

The inventory agency is also responsible for ensuring that the QA/QC plan is developed and implemented.

It is good practice for the inventory agency to designate a QA/QC coordinator, who would be responsible for ensuring that the objectives of the QA/QC programme are implemented.

Development of the inventory QA/QC plan

QC Plan should be developed by sector category :

Energy sector

- **Stationary combustion**
- **Mobile combustion**

Industry

Agriculture

Waste

QC Activity mainly should focus on:

Activity data

Emission factors

Comparison of emission estimates using different approaches

QC procedures should focus on

Sector specific checks and controls

QC should include:

responsible and contribution organizations

time frame of implementation and

others

Development of the inventory QA/QC plan by sector category

Energy

1. Stationary combustion of fossil fuels

Activity data check

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
National energy balance	• Check the energy balance in mass unit • Check the energy balance in energy unit • Energy balance should be checked by energy data and calorific values • Check the statistical differences between supply and demand in the energy balance	Climate change Coordination Office (CCO), Energy Research Institute (ERI)	Ministry of mineral recourses and Energy (MMRE),	During the National Inventory Preparation
National energy statistics	• Internal consistency checks using the commodity balances and external consistency checks using other sources of similar data. • Energy statistics should be compared with those provided to international organisations to identify Inconsistencies	Climate change Coordination Office (CCO),	National Statistical Office (NSO), MMRE, ERI	During the National Inventory Preparation

Energy
1. Stationary combustion of fossil fuels
Activity data check

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Large Combustion plants	•Use these plant-level data to cross-check national energy statistics	Energy Research Institute (ERI)	Large Combined Heat and Power Plants	During the National Inventory Preparation

Energy
1. Stationary combustion of fossil fuels
Emission factors

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Emission factor	• Check the NCV of focal fuels • Check the carbon content of fuels, especially of coals in different coal mines • Expert (peer) review of emissions from biomass combustion • Compare with default values	CCO ERI, Mongolian University of science and technology (MUST)	Coal suppliers and fuel consumers	During the National Inventory Preparation
Monitoring systems	• Monitoring systems at large combusting plants could be used to check the emission and oxidation factors in use at the plants	CCO	Large Combined Heat and Power Plants	During the National Inventory Preparation

Energy
1. Stationary combustion of fossil fuels
Emission factors

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Direct measure ment	• Ensure that the direct measurements are made according to good measurement practice QA/QC procedures. • Compare the direct measurement with results delivered from using IPCC default factors	CCO	Large Combined Heat and Power Plants	During the National Inventory Preparation

Energy

1. Stationary combustion of fossil fuels

Comparison of emission estimates using different approaches

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Compare estimates of GHG emissions using different Approach with the Reference Approach	• Account for any significant differences. • In this comparative analysis, emissions from fuels other than by combustion, that are accounted for in other sections of a GHG inventory, should be subtracted from the Reference Approach	CCO	Individual experts, International organizations	During the National Inventory Preparation

Energy
2. Mobile combustion

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Comparison of top down and bottom up approaches	• Compare fuel use statistics with fuel use estimated from vehicle mileage. • Investigate and explain gaps between the approaches revising assumptions such as of-road transportation fuel use, vehicle fuel efficiency, vehicle breakdowns by type, technology age ect.,	CCO	Ministry Transport (MOT), NCO	During the National Inventory Preparation
Activity data check	• Review the source of the activity data to ensure applicability and relevance to the category. • Ensure the reliability of activity data regarding fuels with minor distribution, fuel used for other purposes, on and off-road traffic • Check the double counting of agricultural and off-road vehicles. • Compare activity data with data of vehicle control yearly campaign. Make scientific and technical expertise the data, emission factors and approach used from the scientific background.	CCO Peer Review fromMUST and Transport Research Institute (TRI)	National Statistical Office (NSO), MOT, TRI	During the National Inventory Preparation

Energy
2. Mobile combustion

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Emission factor	• Check that IPCC default factors are applicable and relevant to the categories • IPCC default factors should be compared to local data to provide further indication that the factors are applicable. • Develop country specific emission factors	CCO	MUST, TRI	During the National Inventory Preparation
External review	• Perform an independent, objective review of the calculations, assumptions, and documentation of the emissions inventory to assess the effectiveness of the QC programme	MUST, TRI	Road Transport Agency	During the National Inventory Preparation

Industry

QC Activity	QC Procedures	Responsible organization	Contribution organization	Time frame
Activity data check	• Review of Plant-Level Information on the bases of close cooperation with plant owners and personnel to ensure that production data are accurate. The review should include a review of records, comparison with historical plant data, recommendations for improvement, such as better data management methods. • Compare plant data with other plants • Compare the plant level data with national statistics	CCO	Cement Plants NCO, Ministry of Industry	During the National Inventory Preparation
Emission factors	• Ensure that emission factors and activity data are developed in accordance with internationally recognized and proven measurement methods.	CCO	Ministry of Industry	During the National Inventory Preparation

Industry

QC Activity	QC Procedures	Responsible organization	Responsible organization	Time frame
External review	If necessary, NIA should include key industrial trade organisations associated with cement and clinker production in a review process. This process should begin early in the inventory development process to provide	CCO	Ministry of Industry	During the National Inventory Preparation
Completeness	Check that except cement production whether other industrial processes in the country might produce GHGs.	CCO	MUST Road Transport Agency	During the National Inventory Preparation

Thank you for your attention