

12

Preparation of the National Greenhouse Gas Inventory

12.1. State statistical reporting used in the preparation of GHG inventory, and existing constraints

At present, there are 237 forms for statistical reporting on all sectors of the national economy in the republic. The periodicity, timeframes and forms of state statistical reporting are affirmed and financed by the Government of the Republic of Tajikistan.

The republic operates the system of environmental reporting at state and departmental levels. The Governmental Order N°500, December 29, 2000 authorizes appropriate forms of statistical reporting.

The State Statistical Committee, the Ministry for Nature Protection and its structural divisions are the basic owners of environmental data.

Form 2-KS provides data on capital investment into environmental protection and rational use of natural resources. This form contains information on specific measures to be implemented by planned or existing businesses.

Reporting form 2-TP-air (atmospheric air protection) provides information on emissions from industrial enterprises, energy and transport. It is prepared annually by the ministries and departments of the republic and contains data on stationary sources of air pollution, quantity of caught, utilized and released polluting substance emissions into the atmospheric air. The national methodology of emission calculation is different from the international one; thus, the data on the volume and composition of emissions are strongly underestimated. The reporting does not contain the data on GHG emissions. Also, there are no data on mobile sources of pollution, including motor vehicles.

Reporting form 2-TP-water (water resources protection) provides information on the use of water resources, and discharges of wastewater from industrial enterprises and households. Since 1996, the given reporting has not been compiled.

In the energy sector, annual reporting form 6-TP provides information on the functioning of hydro- and thermal power engineering, 23-N (internal) and annual reporting form 24-Energy deals with the electricity balance of the economy, and energy capacities. Fuel and energy balances of Tajikistan have not been compiled for the last 11 years. Forms 3-SN, 4-SN, 11-SN and their annexes cover the issues of fuel stocks in the hands of the consumers and suppliers, fuel remainders, fuel use, thermal energy and electricity. There is also report 1TeP - on thermal energy supply, and 1-GAS - on gaseous fuel.

In the transport sector, annual reporting form 1TRShOS reports on transport operations, and reports 1-KF and 11-SN provide information on fuel use, thermal power and electricity consumption in transport.

In the industrial sector, there are monthly reporting forms 1-P, 3-P, and annual reporting forms 29-APK, 1-KMChP that provide information on industrial production.

Reporting forms 9-Sh and 29-Sh contain data on the application of mineral fertilizers, agricultural crop productivity etc. Reporting forms 24-Sh, and 7-Sh contain data

on cattle breeding and cattle inventory. The reporting form on rice cultivation called 7-Sh includes data on the cropland area. Reporting forms 1-zag, 3-zag, 7-zag, 8-zag, 9-zag, 11-zag, and 21-zag provide information on the status of agricultural production manufacturing and cattle breeding. The parameters of the financial status of households, fuel stocks and agricultural machines, and the overall status of farms are reflected in such reporting forms as 8-Sh, 6-mech, 1-farmer, 1-Hn, 2-Hn.

On forest resources there is a monthly reporting form 1-LH "Report on implemented activities", annual reporting form 3-LH "Report on sanitary forest cuttings", 5-LH "Flora and fauna" that deal with the state of flora and fauna in nature protected areas.

Reporting form 4-Sh provides information on land use. Institutional reporting includes information about land resources, their quality, area, and rehabilitation activities.

The inventory of the formation and disposal of solid communal wastes, as well as agricultural wastes is not conducted.

In the course of national GHG inventory preparation for the period 1990-1998, the weakness of the statistical reporting system, particularly the lack of activity data and their accuracy, has been revealed. In all existing reporting forms, there is no information on GHG emissions.

The basic problem of statistical information is the absence of data on energy balance by sectors of energy consumption and by types of fuels. It considerably complicates the preparation of a greenhouse gas inventory in the category "Energy activities" and causes large potential uncertainties in calculations, whereas energy-related activities are the largest source of GHG emissions and its precursors in the republic.

The experts marked the necessity for the improvement of existing statistical reporting, introduction of new or alternative reporting forms to improve the quality of data, and the completeness of GHG inventory in the next stages, and to introduce a regular inventory in accordance with relevant articles of the UN Framework Convention.

In this connection, there is a necessity for the development and implementation of measures aimed at the solution of the above mentioned problems.

The priority directions of measures are recommended by the ministries and departments and included into the National Action Plan. Other measures can be elaborated and implemented in the light of new considerations and needs for the improvement of national and international methodologies for preparation of anthropogenic greenhouse gas emission inventories.

12.2. Regular preparation of the national GHG inventory

In accordance with national commitments to the UN Framework Convention, including the preparation and submission of a GHG inventory for consideration by the Conference of the Parties, the Government intends to implement the following measures:

- To improve the legislation in the area of the preparation of national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases;
- To establish within the existing institutional framework the entity on preparation of GHG inventory;
- To improve and unify the state statistical reporting system that is used in the course of preparation of the national GHG inventory, within the frameworks of measures indicated in the National Action Plan;

- To find opportunities for adequate application of international GHG inventory methodologies, including their translation to local languages and training of experts on their use;
- To reconsider national methodologies on emission calculation and adapt them in conformity with the IPCC recommendations;
- To develop a database on the sources, volumes and components of greenhouse and other gases emissions in comparable formats;
- To create adequate conditions for selection and attraction of qualified personnel on relevant sectors of the inventory;
- To ensure a necessary level of financing the activities related to the process of inventory preparation;
- To train and retrain the personnel, and arrange the exchange of experience to improve the quality of the inventory.

12.3. Study of local emission factors

In the course of the national GHG inventory preparation, the experts have revealed some discrepancies in regional emission factors recommended by IPCC for separate sectors that influence the quality of the inventory and its international comparability.

In Tajikistan, the research and inventory of greenhouse gas emissions by sources and removal by sinks has not been carried out before. In this connection, a few potentially high uncertainties on emission factors exist.

The following measures can be determined for the initial study of local emission factors:

- Scientific research on natural and anthropogenic processes influencing GHG emissions;
- Instrumental monitoring of GHG emissions, especially large emission sources;
- Expert assessments of local emission factors and international cooperation for unification of the inventory results with regional data.

Priority sectors for the study of local emission factors are:

- a. Aluminum production (perfluorocarbon emissions);
- b. Transport (GHG emissions and its precursors);
- c. Cattle breeding (intestinal fermentation and manure management);
- d. Plant growing (agricultural soils and rice cultivation);
- e. Forestry (change of carbon stocks in forests and other woody biomass);
- f. Land use (change of carbon stocks in soils);
- g. Waste (solid communal waste and wastewaters);
- h. Oil and gas systems and coal production (fugitive emissions).

12.4. Collection of information on response measures

At the present stage, the national inventory of anthropogenic emissions by sources and removal by sinks of greenhouse gases does not include information on the response measures aimed at the reduction of polluting substance emissions into the atmosphere. This is caused by a few objective factors:

- Absence of rationale and the lack of experience in gathering and assessment of such information, which is worsened by the formerly existing system of emission inventories;

- Absence of uniform format, rules, procedures and a system of communication about response measures;
- Absence of a coordinating body and institutional base for gathering and analysing the appropriate information;
- Lack of economic interest at ministerial, departmental and private sector levels in communication about response measures on GHG emission reduction.

Taking into account the importance of information on response measures, which is required for policy planning and preparation of subsequent National Communications on climate change it is necessary:

- To develop a consistent format, rules and procedures of communication of information about response measures on GHG emission reduction with respect to national circumstances and relevant COP decisions;
- To create a competent coordinating body responsible for gathering and analysing such information and disseminating it;
- To develop a system of provision of economic incentives to the ministries and departments that declare their response measures on GHG emission reduction in accordance with a consistent format, rules and procedures;
- To oblige the ministries and departments to declare, according to the consistent format, rules and procedures, their response measures on GHG emission reduction;
- To take into consideration the efficiency of GHG emission reduction measures already undertaken in the course of the preparation of national inventory and the development of GHG emission scenarios.

12.5. Solving the problem of comparability and improving data quality

Expert analysis shows that in the existing practice of national GHG inventory compilation, there are problems of data comparability, including statistical reporting, in respect of the distinction of units of measurement and translation factors.

The important condition for national GHG inventory preparation is the high quality data utilization. Some initial data contain factors of uncertainty that reach significant values and influence inventory results. It requires further specification and submission of information about uncertainty factors for initial data.

For the improvement of initial data quality and their comparability at state and departmental statistical reporting levels it is necessary:

To unify the units of measurement and translation factors, according to the IPCC recommendations, to the extent the framework of national legislation allow;

At all levels of initial data gathering to estimate their quality and reliability, with the application of mathematical analysis methods;

To ensure high accuracy of data processing and an adequate level of their final presentation;

To take into account specific needs of the regions for material maintenance and the financing of activity related to the initial data gathering and analysis, considering the economic circumstances and their geographical positioning;

To increase a level of expert proficiency in terms of initial data gathering, reliability and primary analysis.

12.6. Regional exchange of information and collaboration with world data centers

The comparison of national GHG inventory results with international information sources shows the distinction of characteristic quantitative parameters of emissions and the scope of considered sectors. It is caused by:

- The use of various information sources, which are more aggregated at international level;
- Not complete scope of categories of greenhouse gas emissions and removals;
- Application of local emission factors, which do not coincide with regional and other factors, recommended by IPCC.

For ensuring the uniformity of methodological approach, the use of adequate information sources and best national inventory data comparability with the world data centers, the implementation of the following measures is expedient:

- Improvement of regional information exchange with national centers on climate change engaged in GHG inventory preparation, and the development of dialogue between the experts in appropriate sectors;
- Submission of inventory updates and new data on GHG emissions to the UNFCCC Secretariat in a compatible electronic format, recommended by IPCC for the Parties not included in Annex I of the Convention;
- Strengthening cooperation with world data centers, such as the UNFCCC Secretariat, the International Energy Agency, the World Resources Institute, the Carbon Dioxide Information Analysis Center, on issues representing mutual interests;
- The training of national experts at the world data centers engaged in the preparation of the GHG inventories.

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