

# **Projections stakeholder workshop**

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# Projections stakeholder workshop

*Initiative for Climate Action Transparency – ICAT*

## Deliverable #H

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# Introduction and overview

Stakeholder Consultation workshop was held on January 30, 2026 at Rumi Hotel, Dushanbe, Tajikistan.

Main objective of the workshop was to present and obtain the stakeholders' consensus on the main assumptions used to develop Tajikistan's GHG emission projections under the "With Existing Measures" (WEM) scenario. The specific objectives of the workshop were to:

1. Discuss the assumptions and data sources for "With Existing Measures" (WEM) scenario, for energy (including transport), industrial processes and product use (IPPU), Agriculture, Land Use, Land Use Change and Forestry (LULUCF) and waste sectors.
2. Collect insight on the Policies and Measures (PaMs) that are being implemented or planned in Tajikistan.
3. Obtain feedback from the stakeholders on the main assumptions use for projections and PaMs analysis.

The seminar was attended by 27 representatives of government agencies, scientific institutions, NGOs and the private sector (See Annex 2 for the full list of participants).

Workshop Speakers were:

Mr. Vohidjon Hamidov, projections team lead Energy

Mr. Sattor Saidov, PaMs and Projections expert - Industry

Mr. Naimjon Shokirov, PaMs and Projections expert – Agriculture and LULUCF

Mr. Stanislav Makhmudov, PaMs and Projections expert- Waste

Mr. Muzaffar Shodmonov, In country Project Coordinator

Dr. Anna Sikharulidze, GHGMI

## Workshop program

### National context

Tajikistan has been a Party to the United Nations Framework Convention on Climate Change (UNFCCC) since 1998 and ratified the Paris Agreement on March 20, 2017, adopting its first Nationally Determined Contribution (NDC), submitted in 2015. The updated NDC of Tajikistan, submitted in 2021, includes conditional and unconditional targets with actions that cover all four IPCC sectors: energy (including transport), industrial processes and product use, agriculture, forestry and other land use, and waste. Tajikistan has begun its NDC update process, which includes considering new targets, validating those targets with stakeholders, and preparing the NDC 3.0. The Committee for Environmental Protection leads the development of NDC 3.0 and is responsible for overall coordination. The Agency for Hydrometeorology is appointed with developing GHG inventories and projections to inform NDC 3.0 and its ambition-setting process.

Tajikistan has prepared and submitted four (4) National Communications (NCs) to date: the Initial National Communication (NC1) in 2002; the Second National Communication (NC2) in 2008; the Third National Communication (NC3) in 2014, and the Fourth National Communication (NC4) in 2022 as mandated by articles 4 and 12 of the Convention. Tajikistan has also prepared and submitted the First Biennial Update Report (BUR1) in 2019.

Reporting requirements under the enhanced transparency framework (ETF) for action and support (Article 13) of the Paris Agreement are more stringent and require more frequent reporting and tracking of mitigation action impacts. The Phase I of ICAT country project, implemented in 2024, supported Tajikistan in the development and implementation of GHG inventory as part of MRV process, and collecting the data on implemented Policies and Measures (PaMs) which became part of Tajikistan's first Biennial Transparency Report (BTR1), which Tajikistan

submitted in 2024 with all relevant reporting tables.

BTR1 used flexibility provisions in accordance with paragraph 6 of MPGs, in relation to the paragraphs 85 and 92 of modalities, procedures and guidelines for the transparency framework (MPGs), which require that each Party provides, to the extent possible, estimates of expected and achieved GHG emission reductions for its PaMs (paragraph 85), and the projections of greenhouse gas emissions and removals (paragraph 92).

The capacity constraints, reported by Tajikistan in BTR1 in relation to the projections and impacts of PaMs are outlined below:

- Lack of the permanent MRV framework enabling the establishment and tracking of the goals and progress indicators for the PaMs in various sectors; Such arrangements would enable to calculate expected and achieved GHG emission reductions; and to develop projections for 'with measures' scenario.
- Lack of technical capacity to develop and implement methodologies and guidelines for assessing the impacts of PaMs in various sectors;
- Lack of technical capacity to develop projections for various sectors covered by Tajikistan's NDC;
- Lack of permanent institutional arrangements needed to maintain and continuously update the projections of GHG emissions in various sectors.

The Initiative for Climate Action Transparency (ICAT) funds will, in its Phase II, assist Tajikistan to address these areas and to close these gaps. In additions to this, the outputs of the project will inform the NDC 3.0.

The overall objective of this project is to develop and enhance Tajikistan's capacity to develop and regularly update GHG projections that inform NDCs update and enhance reporting on GHG projections under the ETF. The technical support provided to Tajikistan by this ICAT project is expected to contribute to the following results:

1. Establish a core national team for GHG projections to support NDC update process
2. Enhance technical and institutional capacity to develop, and regularly update GHG projections in line with the requirements of the MPGs
3. Strengthen capacity to assess the GHG impact of PaMs, inform future ambition-raising efforts, and track PaMs implementation.

## Session 1: Introduction

Welcome remarks were given by Mr. Muzaffar Shodmonov, In country Project Coordinator.

Then Anna Sikharulidze reminded the participants the objectives of the second phase of ICAT's support to Tajikistan. In addition, she highlighted the requirements for reporting on GHG emission scenarios under ETF and the expectations from the current stakeholder consultation workshop.

## Session 2: Analysis of trends and drivers for GHG projections

**Mr. Vohidjon Hamidov** presented the analysis of historical trends and key assumptions for the **energy sector**, covering energy industries, transport, and other end-use sectors.

In the energy industries sector, emissions increased significantly from 70 kt CO<sub>2</sub>e in 2013 to 1,960 kt CO<sub>2</sub>e in 2022, primarily due to the commissioning of coal-fired thermal power plants. Over the same period, electricity generation grew at an average annual rate of 3.1%, with hydropower remaining dominant, accounting for 92.7% of total generation in 2022. The main drivers of emission growth in this sector are increasing electricity demand and assumptions regarding the installed capacity and generation of renewable and thermal power plants, which will depend on the assumptions aligned with policies and measures under the "With Measures" (WM) and "With Additional Measures" (WAM) scenarios.

In the transport sector, GHG emissions increased by 183% between 2013 and 2022, although considerable year-to-year fluctuations were observed. Road transport is the dominant source, contributing 97% of sectoral emissions, followed by domestic aviation and rail transport (approximately 1.5% each). Petroleum products (diesel and

gasoline) constitute the primary energy sources. A limited amount of coal is used in rail transport, and electricity is consumed by trolleybuses and passenger rail. Significant annual variability in energy consumption was also noted, partly due to uncertainty in allocating liquefied petroleum gas (LPG) consumption between the transport and residential sectors. Currently, LPG consumption is reported under the “Other” sector in the GHG inventory, as the annual share attributable to transport is not known. As a result, historical emission and energy consumption trends are not considered robust drivers for projections. Instead, alternative drivers were proposed, including freight turnover, passenger turnover, and vehicle fleet data.

Freight turnover is generated predominantly by road transport (97.7%), with a minor contribution from rail. It shows a strong correlation with GDP growth (correlation coefficient: 0.93). Therefore, GDP projections will be used to forecast freight turnover.

Passenger turnover is also dominated by road transport (97.7%), excluding taxis, with only a small share from other modes. The highest correlation was observed with GDP per capita growth (0.60). Accordingly, GDP per capita projections will be applied.

The vehicle fleet expanded by 35.6% over the past five years. Passenger cars recorded the largest increase, growing by approximately 167,000 units. These vehicles are primarily gasoline-powered (47–50%), while the share of LPG vehicles declined from 41% to 37%. In 2024, electric passenger cars accounted for 4.8% of the fleet (29,166 units). Assumptions regarding the future composition of the fleet will be aligned with policies and measures under the “With Measures” (WM) and “With Additional Measures” (WAM) scenarios.

In the “Other” sectors (commercial, residential, agriculture, and others), total emissions increased by 41.2% over the past decade. The residential sector is the largest contributor, accounting for 52% of emissions. The commercial sector relies almost entirely on electricity (99.5%), with consumption increasing at an average annual rate of 18.4% over the past ten years. The residential sector also primarily consumes electricity (54%), in addition to bioenergy; however, data on changes in bioenergy consumption are not available. Overall energy consumption in these sectors grew by an average of 3.8% per year over the past eight years. In agriculture, electricity accounts for 73.1% of energy use, with consumption steadily declining. Petroleum product consumption in agriculture has remained broadly stable, with an average annual growth of 0.5%.

Energy consumption in the commercial sector demonstrates a strong correlation with GDP growth (0.85); therefore, GDP projections will be used to forecast future consumption. In the residential sector, energy consumption correlates closely with population growth (0.89), and population projections will be applied to project energy demand. In agriculture, oil product consumption correlates with GDP; accordingly, GDP forecasts will be used to project future energy demand. Electricity consumption in agriculture does not show a positive correlation with either GDP or population growth, and it was therefore proposed to maintain electricity consumption at its 2024 level for projection purposes.

**Mr. Sattor Saidov** presented the analysis of historical trends and key assumptions for the **industry sector**.

Overall, GHG emissions from fuel combustion in manufacturing industries and construction (energy-related emissions) have increased significantly over the past decade. However, it should be noted that coal consumption in this sector was recorded only from 2016 onward, which affects the observed emission trends. In 2022, the largest share of energy-related emissions originated from Non-Metallic Mineral Production—primarily clinker production—accounting for 65% of total emissions in this category.

Emissions from Industrial Processes and Product Use (IPPU, non-energy emissions) have doubled over the past ten years, mainly driven by growth in cement production. Within IPPU, the Mineral Industries category—again largely clinker production—accounted for the highest share of emissions (81%) in 2022.

The sector’s energy mix consists primarily of electricity (47%) and coal (39%), with smaller shares of natural gas and petroleum products. In recent years, total energy consumption in the sector has remained relatively stable. This trend reflects a decline in non-ferrous metal production and the gradual transition to the dry method in clinker production, which has improved energy efficiency. Due to these structural and technological changes, no strong correlation was identified between industrial emissions and key macroeconomic drivers such as GDP, population, or GDP per capita.

Nevertheless, it was proposed that future emission growth in the sector be projected using GDP growth rates as the primary driver. This approach is justified by the assumption that the transition to the dry method in clinker production has largely been completed, and no further significant reductions in energy intensity are expected in

cement production or in the non-ferrous metals industry.

For product use emissions, population growth will be applied as the driver for projecting hydrofluorocarbon (HFC) emissions under category 2.F (Use of Substitutes for Ozone-Depleting Substances), reflecting the strong observed correlation (0.99).

**Mr. Naimjon Shokirov** presented the analysis of trends and key assumptions for the **agriculture and LULUCF** sectors.

GHG emissions from the agricultural sector (non-energy emissions) increased steadily over the period 2013–2022. Total emissions rose by 22.11%, reflecting growth in agricultural output (primarily livestock production), as well as increased application of nitrogen fertilizers. Enteric fermentation is the largest source of emissions, accounting for 66% of total sectoral emissions, due to the dominant role of livestock production in the country's agricultural system. The presenter emphasized that the data confirm enteric fermentation as a key emission category in the agricultural sector of the Republic of Tajikistan, warranting priority attention in the context of climate change mitigation and improved livestock management practices.

The presentation also included an assessment of the main drivers influencing emission growth in the sector, examining correlations with population growth, GDP growth, and agricultural production. A strong positive correlation was identified for most major categories, with the exception of the enteric fermentation and manure management subcategories related to dairy cows. This suggests that mitigation measures may already have been implemented to limit emission growth in these specific subcategories.

Accordingly, for the dairy cow subcategory, two additional parameters were suggested to be incorporated into the modeling framework: total milk production (tons) and milk yield per head (tons/head). Milk production was found to be highly correlated with population growth (correlation coefficient of 0.99). Therefore, future milk production volumes will be projected based on population growth assumptions. Milk yield per head is largely determined by breed composition and animal productivity; Therefore, related assumptions and methodological approaches will be aligned with the policies and measures defined under the "With Measures" (WM) and "With Additional Measures" (WAM) scenarios.

In 2022, the LULUCF sector functioned as a net CO<sub>2</sub> sink, with total net removals amounting to –723 kt CO<sub>2</sub>-eq, as total removals exceeded total emissions. Forest land represented the most significant component of the sector, consistently acting as a greenhouse gas sink throughout the entire time series.

Over the past decade, sectoral emissions decreased by an average of 249.07 kt CO<sub>2</sub>. This reduction was mainly attributable to increased removals in pasture land (an average increase of 15.37%, equivalent to 84.14 kt CO<sub>2</sub>) and decreased emissions from other land (an average reduction of 6.23%, equivalent to 162.32 kt CO<sub>2</sub>). Thus, in recent years, the sector transitioned from being a net emitter to a net sink. This shift was primarily driven by this expansion of pasture areas resulting from the reclassification of land from the "other land" category to pasture.

Given that the underlying drivers and permanence of this land conversion are not yet fully understood and require further assessment, projections of GHG emissions under the WEM and WAM scenarios will use 2022 as the baseline year. These projections will be supplemented by estimated removals and emissions associated with the implementation of sector-specific policies and measures (PaMs), in line with the assumptions defined under the respective scenarios.

Mr. Stanislav Makhmudov presented the analysis of trends and main assumptions for waste sector. Overall, emissions in this sector have increased by 21.90% over the past 10 years. The category with the highest emissions is 5.D Wastewater Treatment and Discharge. The best correlations (0.98-0.99) were found in all sub categories with the growth of population and therefore population growth will be used to project the GHG emissions in this sector.

Presenter also outlined some other important parameters (Waste generation per capita, Waste distribution by municipal solid waste disposal sites, volume of waste burned openly and others) which will be also used in the projections to assess the impacts of Policies and measures included in the WEM and WAM scenarios.

**Mr. Muzaffar Shodmonov** presented the **main assumptions regarding main drivers**. The assumptions were developed jointly with representatives of the Statistics Agency. The population growth assumptions are based on the analysis of historical trends, while the GDP assumptions were obtained by the Agency from the Ministry of Economic Development and Trade of the Republic of Tajikistan, with a forecast through 2030. It is assumed that this growth will continue until 2050.

Table 1 presents the assumptions for three socio-economic scenarios: realistic, intensive and pessimistic.

Table 1. Assumptions for main drivers in three different socio-economic scenarios

Socio-economic Scenario	Driver	Real growth (2015-2025)	Projection (2026-2030)	Projection (2031-2050)
Realistic	GDP growth (%)	7.5%	7.6%	7.6%
	Population growth (%)	2.2%	2.2%	2.2%
Intensive	GDP growth (%)	7.5%	8.5%	8.5%
	Population growth (%)	2.2%	2.4%	2.4%
Pessimistic	GDP growth (%)	7.5%	6.4%	6.4%
	Population growth (%)	2.2%	2.0%	2.0%

The presenter indicated that the assumptions for the realistic scenario will be used to project the main WEM and WAM scenarios, while the other two scenarios will be used in a sensitivity analysis to the main assumptions.

The presentations were followed by short questions and answers session. All feedback is summarized in the section “Discussion” below.

### Session 3: Policies and Measures under WEM scenario

The session discussed main assumptions related to the Policies and Measures to be included in the “with Existing measures” scenario.

Mr. Vohidjon Hamidov presented the main assumptions for PaMs in energy industries, transport and other sectors. The following PaMs were covered:

- Expansion of Renewable Energy and Generation Capacity (2026–2030), with the following additional planned capacity under the Electricity Sector Development Program: 2,680 MW of new hydropower capacity; 253 MW from rehabilitation of existing plants (including restoration of 440 MW of previously lost capacity); 1,500 MW of solar power capacity.
- Modernization of District Heating in Dushanbe, with reductions of heat losses in distribution networks from current 20–30%, to approximately 15% by 2040.
- Electric Grid Modernization and Loss Reduction, with reductions of electricity losses in distribution networks from current 22%, to 9% by 2030.
- Promotion of Electric Vehicles, with assumption of up to 35% by 2050 for light duty vehicles and 15% for buses.
- Energy-Efficient Street Lighting in Dushanbe - replacement of 2,377 inefficient lamps with LED units.

Mr. Naimjon Shokirov presented the main assumptions for PaMs in agriculture and LULUCF sectors. The following PaMs were covered:

- Increasing the number of highly productive milk cause, that result in the average increase of milk yield of 2% annual (consistent with the current trends)
- Afforestation/reforestation activities, with increased 4000 ha of forest lands by 2030;
- Pasture improvement activities on the pastures covering 12000 ha by 2030.

Mr. Stanislav Makhmudov presented the main assumptions for PaMs in waste sector. The PaMs covered activities from Action Plan to Ensure the Implementation of the Housing and Public Utilities Development Program of the Republic of Tajikistan for 2021-2024, as well as the regulations concerning the open burning of waste. Activities covered the increase consumer (household) access to sanitation services by 15% by 2024, which will be assume both for municipal solid waste services as well as for connection to the sewage systems as well as for wastewater treatment plants.

## Discussion

The following section presents the feedback provided by participants during the stakeholder consultation workshop held to support the development of greenhouse gas (GHG) projections in Tajikistan:

- The stakeholders agreed that the “Other sector” in the GHG inventory and energy balance should be disaggregated for projections and reallocated to other sectors (mainly residential, transport and industry). The Agency of Statistics will support the disaggregation of energy consumption currently reported under the “other” sector. In addition, further discussions are required to refine the allocation of energy use within industrial sub-sectors, which currently show strange fluctuations.
- Chemical production activities in the country utilize a portion of natural gas as feedstock rather than for energy purposes, although this is not reflected either in energy balances, or in GHG inventory. Coordination with the Agency of Statistics will be required to appropriately separate feedstock use from energy consumption.
- The observed reduction in electricity consumption in the agriculture sector is linked to the temporary suspension of agricultural pumping stations. As these stations are expected to resume operation, future projections should reflect an increasing trend in electricity demand, potentially aligned with population growth and sectoral recovery.
- Oil consumption in the agriculture sector should be verified in consultation with the Agency of Statistics to ensure data consistency and accuracy.
- Biomass consumption data should be cross-checked against the findings of the 2016 residential survey. Urbanization trends may have implications for biomass use patterns.
- Energy consumption in the residential sector is significantly influenced by urbanization dynamics and should be analyzed accordingly in future projections.
- According to current plans, the third aggregate of Rogun HPP is expected to become operational in 2027, and the Khatlon HPP (800 MW) is projected for commissioning by 2032.
- A higher share of electric vehicles could be assumed in future scenarios. This assumption should be discussed and validated with the Ministry of Transport.
- The reported increase in pasture areas appears to be linked to the privatization process. However, the previous land classification and ownership status of these areas prior to the transition period require further investigation.
- It is recommended to include urbanization projections among the key demand drivers, as both residential energy consumption and waste generation are strongly influenced by urban population growth, which has increased significantly in recent years.

## Conclusions

### Final remarks

The workshop provided valuable insights and recommendations on key assumptions for development of GHG emissions. The participants expressed their readiness for further cooperation and implementation of the proposed measures.

### Thanks

We thank all the participants, speakers and organizers for their active participation and contribution to the successful holding of the seminar.

# Annex 1: Workshop Agenda

STAKEHOLDER WORKSHOP - Agenda		
9:00 – 9:30	Arrival and registration	Venue (Rumi Hotel)
<b>Session 1: Introduction</b>		
9:30 – 9:40	Welcome Remarks	Abduloev U., Deputy Director of the Agency Hydrometeorology
9:40 – 10:00	The development and reporting on GHG projections under Paris Agreements	Anna Sikharulidze, GHGMI
10:00 – 10:10	Official opening and photo	
10:10: – 10:30	Tea break	All
<b>Session 2: Analysis of trends and drivers for GHG projections</b>		
10:30 – 10:50	Analysis of trends and main assumptions for energy sector (energy industries, transport and other sectors)	Vohidjon Hamidov, projections team lead Energy Firdavs Asmatbekzoda, Energy statistics expert
10:50 – 11:10	Analysis of trends and main assumptions for industry sector	Sattor Saidov, PaMs and Projections expert - Industry
11:10 – 11:30	Analysis of trends and main assumptions for agriculture and LULUCF sectors	Naimjon Shokirov, PaMs and Projections expert – Agriculture and LULUCF; Khurshedjon Qosimov - Agriculture statistics expert
11:30 – 11:50	Analysis of trends and main assumptions for waste sector	Stanislav Makhmudov, PaMs and Projections expert- Waste
11:50 – 12:00	Projections of main demand drivers	Muzaffar Shodmonov, In country Project Coordinator
12:00 – 12:30	Questions and answers	
12:30 – 13:30	Lunch	ALL
<b>Session 3: Policies and Measures under WEM scenario</b>		
13:30 – 13:45	Policies and measures in energy industries, transport an buildings sectors	Vohidjon Hamidov, projections team lead Energy
13:45 – 14:00	Policies and measures in Industry and industrial processes sectors	Sattor Saidov, PaMs and Projections expert - Industry
14:00 – 14:15	Policies and measures in agriculture and LULUCF sectors	Naimjon Shokirov, PaMs and Projections expert – Agriculture and LULUCF;
14:15 – 14:30	Policies and measures in waste sector	Stanislav Makhmudov, PaMs and Projections expert- Waste
14:30 – 15:00	Discussion around the Policies and Measures	
15:00 – 15:30	Tea break and departure	All

# Annex 3. Photos of the workshop





