Republic of North Macedonia
Ministry of Environment and Physical Planning

# VIRTUAL STUDY TOUR FOR GREENHOUSE GAS REPORTING

## for Macedonian climate experts to Prague

## November 11-12, 2021

Strenghtening institutional and technical Macedonian capacities to enhance transparency in the framework of the Paris Agreement (CBIT Project)

# Goal

On November 11 and 12, 2021, Macedonian climate change experts “traveled” to the Czech Hydrometeorological Institute (CHMI) in Prague to meet their counterparts for two days of discussions about improving greenhouse gas (GHG) inventories, with an emphasis on dual reporting to the UN Framework Convention on Climate Change (UNFCCC) and the European Union. The study tour included both video conferencing and live streaming to create the feeling of being on site.

# Preparation

The project team first met with CHMI in early 2020 and then again in September 2021 to re-confirm their interest and discuss the general topics to be covered. They then developed a scope of work for an audio-visual production company that could support live streaming and videoconferencing and made arrangements to secure a venue in Skopje for the Macedonian participants.

Project team members then met with the production company and CHMI to organize an agenda and select topics for video clips that would complement the presentations by the CHMI inventory team. When a site visit to CHMI indicated that there might be difficulties maintaining a strong signal for videoconferencing, the study tour team decided to use the production company's studio for the presentation and Q-and-A sessions, which would ensure steady transmission.

The production company then pre-recorded a short welcome tour of the CHMI facilities that was used to open the first session. They also pre-recorded a short tour and interview with the first carbon-neutral hotel in Prague and customized introductions to two videos covering tourist attractions, which were used throughout the two days to provide a feeling of being in Prague.

# Introduction

The virtual study tour was organized by the GEF-funded project "Strengthening Institutional and Technical Capabilities to Enhance Transparency in the Framework of the Paris Agreement," which is implemented by the Ministry of Environment and Physical Planning (MOEPP) with technical support from UNDP.

Greenhouse gas (GHG) inventories are a key part of climate action, because they provide a way of understanding how many greenhouse gases a country emits over time and a means of measuring progress toward climate change commitments.

With UNDP support, the development of the Macedonian GHG inventory was fully institutionalized in 2019, starting with the development of the 3rd Biennial Update Report on Climate Change. Four institutions (Macedonian Academy of Sciences and Arts, Institute of Agriculture, Faculty of Agriculture and Faculty of Landscape Architecture and Environmental Engineering), collect and enter data in the GHG inventory software, ensure Quality Control (QC), and develop the National Inventory Report. Their work is complemented by two additional consultants who perform Quality Assurance (QA) for the GHG inventory.

Despite the fact that the Macedonian GHG inventory has been evaluated as a high-quality inventory for a Non-Annex I country, there is still room for improvement, especially in ensuring transition from project-based to continuous reporting with a GHG inventory that is updated on a yearly basis, following EU requirements that arise from the country's candidate country status. Given the variety of data sources and complex reporting requirements, key stakeholders also require training on best practice in GHG inventory management and reporting.

**PAVLINA ZDRAVEVA, PROJECT MANAGER**

"When the COVID-19 pandemic started, we had to think creatively about how to build capacity without in-person meetings.

We have held more than 100 events online, and we have been amazed at the high level of participation.

Unfortunately, we are still unable to send experts abroad due to the pandemic.

Therefore, we wanted to organize something beyond a videoconference call or webinar for them.

This study tour will include a walk-through of the facilities and other dynamic experiences for the participants, who will be in Berovo, and it also includes a tour of other sites they might see on a trip to Prague."


Therefore, the project planned a study tour for representatives of governmental institutions to the Czech Republic. The Czech Republic which joined the European Union in 2004, was selected due to its well-regarded GHG inventory and its experience with multiple reporting requirements. The country reports each year on its emissions to the UNFCCC and to the European Union. The Czech Hydrometeorological Institute (CHMI) is responsible for collecting its own data and data from other institutions, compiling the GHG inventory, and producing reports for the Czech Government.

North Macedonia's candidate country status and membership in the Energy Community mean that climate experts will have to manage these types of reports as well.

The project team initiated discussions with CHMI after reaching out to the Ministry of Environment of the Czech Republic in January 2020. While an in-person study tour was envisioned for 2020, the global COVID-19 pandemic meant that international travel was not possible. Therefore, the project management decided in 2021 to design a virtual study tour that would try to capture some of the interactions that would be possible during an in-person visit.

**SUSAN LEGRO, CHIEF TECHNICAL ADVISOR**

"We identified the Czech Republic as a good counterpart for the study tour because they have already had to adapt to producing multiple inventory reports for different organizations, and they can explain how they manage that process on a practical, day-to-day basis. Every country strives to improve data collection and analysis, and there are opportunities for the experts from both countries to share the challenges that they are currently facing in reporting on GHG emissions in agriculture, waste, and forestry.

"The high-level of expertise of the Macedonian participants allows for some very substantive discussion, and because of the virtual format, more participants can attend and benefit from this discussion."

# Participants

Two countries, 12 institutions, 28 participants (60% women) attended the virtual study tour. It is worth noting that the GHG inventory development coordinators in both countries are woman. A detailed list of participants can be found in Annex II.

# Exchanging experience

The technical discussions during the two-day event included presentations of the GHG inventory and reporting arrangements in both countries, sectoral presentations on agriculture, land use, forestry, waste, and industry by Czech sectoral experts, and a discussion of the QA/QC process followed for the Czech GHG inventory. The QA/QC expert had just returned from the UNFCCC COP26 meetings and also provided an informal debrief on transparency discussions at the COP in Glasgow.

Highlights from the presentations included the following:

## Institutional setup

- Institutionalization direction: The Ministry of Environment tasks CHMI with the compilation of the National Inventory Report (NIR) – sectoral assessments are conducted by multiple institutions;
- GHGI development is time consuming, and therefore it is done throughout the year in 3 steps (planning, preparation, management);

• CHMI is officially appointed by government decree to develop the inventory (a legally binding document. Their institutional scope of work is determined by a law on their functions;
• The Government allocates budgetary funding for the GHG inventory, then CHMI pays other institutions conducting data and providing research;
• CHMI has detailed contracts (memorandum issues included) with funding and timeline; payments are done 3 times per year, as per the deadlines for the GHG inventory development
• MOUs are signed with data providers. If they need additional data from other institutions, CHMI sends an official letter to the institution. If the institution does not reply, an official letter is sent from the Ministry of Environment;
• One good practice is 4-year contracts with experts/institutions rather than one-year contracts. This allows for continuity in MRV activities;
• CHMI also benefits from government-financed research projects to obtain more detailed data or analysis. For example, they received grant money from an extrabudgetary eco-fund (Zelená úsporám);
• 4 people formed the core team needed in CHMI (at the start), then the team was scaled up (there are also experts from other institutions for energy, transport, AFOLU, and waste);
• While the GHG inventory department and air quality department are different departments, there is close cooperation;
• The national GHGI system includes a separate server for archiving (only the coordinator has access);
• There is EU support for the exchange of good practices, and the CHMI team meets with its Visegrad counterpart teams (Hungary, Slovakia, and Poland) annually to discuss common issues.

## AFOLU

• Data availability: the sectoral experts work closely all year long to improve data availability;
• The Czech Statistical Office changes the structure of subcategories from time to time, which creates issues in calculations – close cooperation with CSO has been essential;
• The sectoral experts have had to identify other institutions that need similar data and jointly ask data from the institutions identified as data providers and then officially request the data from the responsible institution. However, this is a time consuming process, and it can take several years to establish a sustainable process for data collection
• When the Crop Research Institute and Forest Ecosystem Research Institutes need consultation/ support, they ask for advice/support from country close to them (Slovakia) then find online scientific sources or other EU countries' NIRs (the Netherlands, Austria, Denmark, Germany)
• Agriculture, land use and livestock UNFCCC and EU reporting (GHG inventory developers do not develop inventories for the EEA, they closely cooperate with the other department, use same inputs, working on harmonization of outputs);
• Germany and the Netherlands were suggested as good practice in the agriculture sector;
• The team has made many improvements in the last several years;
• Country-specific factors are needed (they are currently working on enteric fermentation, feed digestibility, estimation of NOx). These factors can improve both reporting to UNFCCC and the EEA;
• The team uses Remote sensing to estimate emissions for methane emissions from agriculture (note: this would be very expensive to introduce in MK);
• It is possible to update forestry data in the Czech Republic annually despite the fact that some of the forest data are collected over long time periods (forest management plans cover 10 years; on average, data on growing stock is 5 years old). Estimates of forest harvests are essential, and that is done every year by a survey conducted by the Czech Statistical Agency, which provides the best data source;
• The forest inventory is essential for a good GHG inventory;
• The Cadaster office provides excellent baseline data for the GHG inventory in Czech Republic, but the process of digitalization has been going on for many years and is still not yet complete.

## Waste

• The Czech GHGI in the Waste sector covers all sub-sectors except for 5.e. (Other);
• Data from the sector comes from a wide variety of sources;
• The two most important sources are the Information System on Waste Management, which is housed at the Czech Environmental Information Agency, and the Czech Statistical Office, which reports on waste to the EU (EEA);
• Other sources include the Ministry of Industry and Trade (for landfill methane utilization) and municipalities and universities (for the composition of municipal solid waste);
• Waste to energy is reported under Energy sector emissions, and nearly all of the emission factors in this area are the IPCC default emission factors;
• There is huge uncertainty in the amount of emissions from burning household waste;
• Wastewater data come from the Czech Statistical Office and also from FAOSTAT (protein consumption for domestic wastewater) and the Ministry of Industry and Trade (for sludge);
• The methodology behind waste flows is available in the National Inventory Report.

## Industrial Production and Product Use (IPPU)

• Data on the chemical industry includes EU Emissions Trading System (EU ETS) data, data from the statistical office, and country-specific data from factories. These data arrive at different times throughout the year;
• Data on F-gases have more diverse sources, such as the Center for Transport Research, car factories, the State Institute for Drug Control (inhaler propellants), and the Ministry of Environment, which houses the F-gas register;
• CHMI has its own database for polluting particles (ISPOP);
• The EU ETS has a different approach to reporting, and companies may report in the wrong categories;
• It is a challenge to avoid overlaps in reporting in certain areas, e.g. ironworks, which produce energy sector emissions and IPPU emissions due to the role of coke as a reducing agent;
• The IPCC guidance can be very complicated, and it can be useful to keep the real processes in mind and highlight the major drivers of the calculation, working from there;
• Checking NIRs from other countries can also be very helpful.

## QA/QC

- The ultimate measure of success for the team's work are the findings of the UNFCCC and the ESD (for the EU inventory report) review teams;
- CHMI current priority is to harmonize QA/QC work across the sectors;
- There is currently a 3-year project underway to interview sectoral experts and gather their feedback on QA/QC;
- The team recognizes that the NIR coordinator needs to support the sectoral experts in their dealings with other agencies when collecting data;
- Strong professional relationships between experts, ministries, and data providers are extremely important for sectoral inventories;
- CHMI holds an annual summer workshop for the sectoral experts to communicate plans and hear their concerns about the inventory;
- They have identified, for example, a need to document expert judgements on expert judgement forms in all sectors;
- Reviews from the UNFCCC are essentially free capacity building. It can be helpful to address some of the comments as they arrive;
- There are cases where an ESD reviewer may ask the team to change to a default emission factor.
- The annual improvement plan is based on review recommendations;
- Review teams may ask about discrepancies in data between the data reported to Eurostat by the Czech Statistical Office and the data from other sources;
- The Czech team receives some guidance on developments (i.e. the IPCC 2019 refinement) and their impact on inventories from the EU. The EU also provides capacity-building workshops for sectoral experts every autumn.

A detailed agenda is provided in Annex 1 of this report.

**Suzana Stojanovska, Macedonian State Statistical Office**

"The virtual study visit was an excellent experience to look at the practices of compiling a Greenhouse Gas Inventory in the Czech Republic as an EU member state. We have seen that data from statistical surveys of official statistics are mostly used, which opens up opportunities to improve our databases to better meet the requirements of the GHG inventory. This is also significant since the State Statistical Office develops Air Emissions Accounts in the area of Environmental Accounts for Eurostat, the compilation of which is based on the inventories of GHG and Air Emissions."

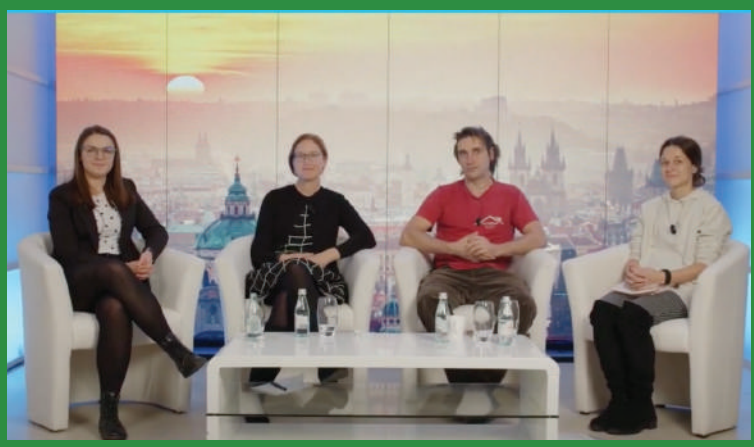
# Results

The study tour established relationships between sectoral and QA/QC experts in both countries, and participants from both countries expressed satisfaction with the non-traditional virtual format of the tour. The Czech inventory team felt that the meeting was also a very good professional development opportunity for their sectoral experts.

Specific results related to transparency activities in Northern Macedonia included the following:

- Establishment of formal communication between GHG inventory developers and the State Statistical Office (SSO) to obtain data needed for the GHG inventory
- Initiation of steps to improve cooperation between the institutions that develop the GHG inventory and the SSO and to develop a sustainable way of cooperating
- Decision to include all updates in the 5 year plan statistical programme 2022-2027 (to be developed)
- Decision to include the Foreign Trade Department of the SSO in future communications
- Major revision in the approach to data collection by MOEPP in the waste sector

# Good practice / lessons learned



- One initial difficulty was describing to CHMI what a “virtual study tour” would entail, as they were not sure what to expect and how they would participate. Fortunately, the press releases and “making of” video will make it easier to describe the concept for future tours.

- Introductory presentations were very important. Both countries found the presentations useful, and several Czech participants suggested exchanging the presentations in advance. The Czech sectoral experts also suggested that the “visitors” should be able to submit questions in advance so that they would know how to focus their presentations.

- Concrete examples of challenges and responses to UNFCCC reviews were helpful. These discussions gave the Macedonian participants insight into the ongoing challenges of inventory improvement even in a country receiving annual government funding for GHG inventory development and reporting.

• Having a moderator on each end was helpful for collecting questions from the participants and eliciting more detailed responses from the presenters.

• The inclusion of the SSO was very helpful. The CHMI hosts were impressed with the SSO's participation and repeatedly emphasized that their involvement was a very positive sign for data exchange and GHG inventory development.

• A reliable internet connection is essential to the success of the virtual event. In this case, the project team made the decision to meet in a studio with a guaranteed connection rather than on-site at CHMI. This problem might not have been identified without a site visit by the production company.

• On a related note, having an experienced production company made it possible to develop a high-quality experience on very short notice. In this case, the company was able to provide a studio for the event, produce two short films and customized introductions for other videos (and arrange for licensing), and edit and produce a "making of" video. For subsequent virtual tours, it would be helpful to have an AV professional review the ToRs to ensure the right "fit" and technical capacity depending on where the visitors are (one location vs. multiple locations) and whether the event will be streamed on a social media channel.

# Follow up

Participants have expressed interest in an in-person visit when the global public health situation allows for easing travel restrictions. UNDP will monitor this situation.

All of the videos and still photos will be shared with CHMI and made available on the Macedonian national climate change website.

The "making of" video will be shared with other UNDP-CBIT countries that might benefit from similar exchanges.

# Media

• Introduction to the LOW-CARBON VIRTUAL STUDY TOUR
• RUNNING THE LONG RACE FOR BETTER INVENTORIES
• STRONGER TOGETHER

• VIRTUAL STUDY TOUR MAKING OF (video)

• Prague sightseeing: HOW TO SEE THE BEST of PRAGUE in 2 HOURS
• Climate champion – Carbon neutral hotel Green Mosaic House Hotel (video)

**VIRTUAL STUDY TOUR VIDEOS:**

• Livestream walk-through of the CHMI offices
• OPENING & INTRODUCTION of Macedonian and Czech GHG inventories
• AGRICULTURE AND LIVESTOCK
• LAND USE CHANGE AND FORESTRY
• WASTE AND QUALITY ASSURANCE/QUALITY CONTROL PROCESS
• INDUSTRIAL PROCESSES AND PRODUCT USE
• VIRTUAL STUDY TOUR CLOSING

**PRESENTATIONS:**

• Macedonian GHG inventory: Introduction
• Czech GHG inventory:
  - General introduction,
  - Agriculture,
  - Land use change and forestry,
  - Waste,
  - Quality assurance,
  - Industrial processes part 1 &
  - Industrial processes part 2.

# Annex I: Agenda

**THURSDAY, NOVEMBER 11TH**

*Block 1 – Introductions and Management*

[Start with a video welcome and walk-through of the CHMI offices starting at the front door of the main building of CHMI and meeting team members where they work]

09:00: Participant introductions on both sides
09:30: Presentation of the Macedonian GHG Inventory, clarifications
10:00: Introduction to the Czech GHGI, the current institutional setup, and dual reporting requirements
(Speakers: Eva Krtková, Markéta Klusáčková)
Presentation followed by Q&A and discussion
11:00 Short break
11:15 Virtual sightseeing tour of Prague (running through Prague)

*Block 2: Sectoral Topics*

11:30 GHG Inventory Sector Focus: Agriculture--data collection, methodologies, current challenges
(Speakers: Jana Beranová)
Presentation followed by Q&A and discussion
12:30 Discussion on Livestock
13:00 Continued Q&A and discussion
13:30 Lunch break
14:30 GHG Inventory Sector Focus: Land Use Change and Forestry (LULUCF)
(Speakers: Emil Cienciala)
Presentation followed by Q&A and discussion
16:15 Wrap-up remarks and any logistics announcements

**FRIDAY, NOVEMBER 12TH**

09:00 "Coffee Warm up" (virtual sightseeing tour of Mosaic House, the first carbon-neutral hotel in the Czech Republic)
9:30 GHG Inventory Sector Focus: Waste
(Speakers: Jana Esterlová, Risto Saarikivi)
Presentation followed by Q&A and discussion
11:30 Break and tour of Prague's astrological clock by the Honest Guide
12:00 GHG Inventory Sector Focus: IPPU
(Speakers: Zuzana Rošková, Šimon Svoboda)
Presentation followed by Q&A and discussion
14:00 Macedonian climate change video spots
14:10 Wrap up – final impressions, questions, discussion (What are the biggest challenges moving forward for each team? Any initial implications from COP26? Etc.)
14:50: Closing remarks
15:00 Virtual study tour ends

# Annex II: Participants

**Facilitators: Pavlina Zdraveva, Project Manager & Susan Legro, CBIT Project Chief Technical Advisor**

*Participants from the Republic of North Macedonia:*

| Institution | Name | Role/Sector | Contact |
|---|---|---|---|
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| Institution | Name | Role/Sector | Contact |
|---|---|---|---|
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