Session SB63 (2025)

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Facilitative, Multilateral Consideration of Progress

A compilation of questions to - and answers by - Finland exported on 16-10-2025 by the UNFCCC secretariat

Question by United Kingdom of Great Britain and Northern Ireland
at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Question to Finland on their agriculture & LULUCF sectors

Thank you, **Finland** , for the opportunity to comment on your 1 st Biennial Transparency Report. In your report you mention the "Catch the carbon project" where you fund innovation projections for the agriculture and LULUCF sectors. Do you have any examples you could share that were a succesSave draft question s thanks for this project?

Answer by Finland
Thank you for your interest regarding the Catch the Carbon Programme. The Ministry of Agriculture and Forestry funded more than 150 development, research and innovation projects under the Catch the Carbon Programme. List of all projects and their final reports & policy briefs can be found here (in Finnish):
https://mmm.fi/maankayttosektorin-ilmastosuunnitelma/hankkeet

A few concrete examples of innovation projects' results are:

- **Project on Advanced Spatial Data on Agricultural Peat Soils in Finland** (MaaTu) produced refined spatial data on the occurrence and depth of peat soils using remote sensing, empirical field data, and machine learning methods. The produced spatial data are map-based, and allow the identification of field parcels with peat soils, as well as the implementation of field parcel-specific mitigation measures. More accurate soil data will allow development of sustainable and climate-smart land-use practices. More comprehensive soil data will improve the accuracy and reliability of the national greenhouse gas inventory. The product of the project, a new countrywide peat thickness dataset has been taken into use in the national greenhouse gas inventory already.

- **Food without Fields project** focused on development of disruptive food production technologies that have substantial potential to contribute to reach the Finnish carbon neutrality goals. "Food without Fields" stands for disruptive

food production solutions that are not heavily dependent on agricultural lands. The solutions included cellular agriculture technologies, i.e. harnessing microbes and plant cells to produce feed and food, controlled environment agriculture for plant production, i.e. novel plant factory and greenhouse solutions to grow vegetables and protein plants, and greenhouses with LED lighting to provide optimized growth environment for protein rich crops. When compared to existing food production systems, these new solutions are expected to enable substantial reductions in GHG emissions (up to 90%) and freeing land to other than agricultural use. The substantial reduction in land use (up to 95%) can enable returning the land back to natural state and reforestation with expected increase in biodiversity and carbon sequestration.

- **Project on Comprehensive Assessment of Climate Measures in Catchments (SysteemiHiili)** developed an operating model for the planning of catchment areas. Strengthening carbon sinks in soil and tree biomass is important, but water bodies also process carbon and nutrients leached from terrestrial ecosystems, accumulate terrestrially fixed carbon and act as a source of greenhouse gases. The main goal of the SysteemiHiili project was to improve methodological capacity and understanding of the impact chains and overall impacts of land use change, and to support the introduction of climate-wise, sustainable and cost-efficient solutions at national, regional, catchment and local levels. The project developed an evaluation system based on the ecosystem service concept, for managing carbon flows at the catchment level, studied the release of carbon from the catchments under different land use, studied the climate impact of carbon leached into water bodies and looked for solutions that mitigate climate impact and brownification of waters.

Question by Republic of Korea at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Projections – WOM scenario, pp. 116, 134

Finland indicated that its previously developed WM projections (2005, 2008) could be considered reasonable WOM projection substitutes, which is noteworthy given that

many Parties face difficulties in defining WOM projections. Does Finland consider that comparisons between past WM projections could be an alternative approach for establishing WOM projections?

Answer by Finland
Yes, absolutely. Climate mitigation and reporting has a long history by now and, therefore, a comparison to past WM projections gives a good picture of the total impact of measures over time. Data for past WM projections are often well available and the WM projections are typically more realistic than fictious WOM projections defined and modelled afterwards.

Question by Republic of Korea at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Projections – linkage between PaMs and projections, p. 133

Finland has aligned the expected mitigation effect of its policies and measures (PaMs) with the years 2025, 2030, 2035, and 2040 for its GHG emission projections, which is noteworthy. Could Finland share the experiences and challenges encountered in estimating mitigation effect through 2040?

Answer by Finland
When estimating the mitigation effect, the assessment method and the exactness of the result differ from measure to measure. In general, although not always, the effect is easier to estimate for the near future than for a year far away such as 2040.

For some measures it is impossible or difficult to quantify the impact (f.ex. complementary measures, overlapping measures, soft measures such as information campaigns). A solution is to assess a group of measures instead of individual measures (f.ex. lump all measures promoting wind power together).

Due to the relatively long time span to 2040, one main challenge lies in estimating the developments in the base projection on top of which the policy measures come: the

technology development is fast, economic development of sectors is uncertain, global and national crises are difficult to forecast, domestic policy can change suddenly etc.

Another challenge is that the impact of new measures often depends on people's and companies' choices and behaviour which we do not always have knowledge or studies about. Projections require numerous assumptions and many simplifications must be made.

Question by Republic of Korea at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: PaMs – Wind power expansion, p. 39

Finland's energy consumption data show a sharp increase in the share of renewable energy, particularly wind power. Could Finland share the background and experiences that enabled the successful expansion of wind power fully on a market basis without subsidies?

Answer by Finland
In 2000's and 2010's Finland promoted wind power modestly with investment subsidies and production premiums. There was, however, no automatic right to feed electricity into the grid nor total compensation for the production. The producer had f.ex. to find a buyer to the electricity himself and had to pay network costs. The number of enterprises along the whole supply chain grew as well as the knowledge and skills on all levels. The step to totally market based growth was not long, it required only technology and construction costs to decrease to a feasible level. In the 2020's all onshore wind power has been developed on market basis without subsidies.

Question by Republic of Korea at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: PaMs – Coal phase-out, pp. 20, 77, 114

Finland has set a notable target to ‘phase out’ the use of coal in the energy sector by 2030. Could Finland elaborate on the challenges and response measures associated with ensuring a just transition in the process of achieving this target?

Answer by Finland

The bill for phasing-out coal was prepared with care in 2016-2018: several studies were conducted considering legal aspects, possible sanctions, security-of-supply issues, economic impact on parties, recognising plants that would be affected by the ban etc.

The studies concluded that the impact of phasing out coal by 2030 would be relatively limited. For example, Finland does not have coal mines and the use of coal in the energy sector was becoming more costly mainly due to the European Union’s Emissions Trading System (EU ETS), which had already been reflected in the lack of investments in new coal power plants. The impact on security of supply was considered not too severe as the legislation stipulates to maintain reserves of other storable fuels. It also looks likely that almost all coal power plant operator workers can be transferred or retrained for new positions.

To speed up the phase-out, companies phasing-out coal completely already by 2025 could apply for investment subsidy. The phase-out had greater effect on district heating than on electricity generation due to the regional characteristic of the district heating systems (there are hundreds of individual district heat networks in Finland, contrary to the power system that is European wide).

Together with the relatively high EU ETS-price and an increased climate change awareness, the coal-ban seems to have succeeded to phase-out coal in energy production 4 years in advance as the last coal fired plants shut down in the spring 2025.

Question by Japan at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Comprehensive modelling for projections

Finland comprehensively reported expected emission reductions for PaMs in CTF Table 5. Also, it reported that the projections were modelled in an extensive project. Could you please share any challenges and lessons learnt from this extensive assessment? Also, how are these projection results being utilized for policy and measure formulation and enhancement? Could you please share them if there are good examples?

Related pages : CTF-NDC Table 5, BTR1 p.120

https://unfccc.int/documents/645025

https://unfccc.int/documents/645026

Answer by Finland

The project partners were research institutes and agencies in various fields (technology, environment, natural resources, transport, economy). A large number of experts took part in modelling and analysis. The same consortium had done similar studies together before and some partners are involved in calculating Finland's GHG inventory, so best available knowledge was ensured, and the project risk was low. Good cooperation and dialogue between the researchers and civil servants are key questions. There are numerous modelling details to fix and to clarify, and a challenge was to keep the schedule of the project.

Energy system and GHG emission modelling quantify the overall need for policy measures in order to reach GHG emission and energy targets. Sectoral modelling and analysis help to dimension policy measures.

Question by Japan at Wednesday, 10 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Assessment of the effect of policies and measures on longer-term trends

According to the BTR1 (p.111), Finland has a long tradition of assessing longer-term energy and climate development. It seems this assessment has been conducted about every 5 years and has had meaningful results on climate change policy in Finland so far. On the other hand, projections of GHG emissions and removals are to be estimated for

the BTR every two years. Could you please elaborate on the difference/linkage between this assessment and projection for the BTR?

Related pages : p111

https://unfccc.int/documents/645025

Answer by Finland

Finland prepares a national energy and climate strategy once per every parliamentary term (i.e. appr. every fourth year). The preparation of the strategy includes substantial modelling of projections and assessment of policy measures. The schedule for this modelling is independent from the BTR reporting cycle. The most recent modelling results form the base in the BTR reporting. If new policy measures are adopted, the projections are updated if there are appropriate data available – this does not require carrying out the whole modelling effort. Impact assessment of some individual policy measures (f.ex. renewable energy) are updated yearly.

Question by New Zealand at Tuesday, 09 September 2025
Category: Progress towards the achievement of its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Renewable electricity in Finland

New Zealand notes Finland has increased the share of renewables in electricity generation. Could Finland elaborate on how grid stability and flexibility are being managed as electrification expands? Could Finland share if any modelling has been done to assess future system resilience?

Answer by Finland

Finland is part of the Nordic synchronous power system and the Nordic-Baltic electricity market. The national grid is relatively strong without permanent internal bottlenecks and there are several interconnectors to neighbouring countries. Despite the strong infrastructure, the fast growth of intermittent renewable electricity generation together with shut-downs of conventional power plants is a challenge for the system.

Studies have been conducted to further identify challenges and possible solutions. Volatile spot prices and intra-day markets have already led to the storage capacity and demand side response (DSR) increasing manifold in a relatively short period, which has significantly alleviated issues related to short-term flexibility and grid stability. In addition, the European-wide adoption of 15-minute electricity trading intervals in the electricity market will likely create additional incentives for storage and DSR capacity.

The greatest challenge is related to flexibility that is required for longer periods than what conventional storage capacity is typically capable of, which can mean 10 consecutive hours or even more. There is a clear need for adding such flexible capacity to the electricity system from the security of supply perspective. However, challenging incidents do not occur often, which is why the current energy-only market does not make such investments very profitable because of high capital expenditure and low expected full load hours. Finland is currently negotiating with the European Commission about implementing the so-called Non-fossil flexibility support scheme defined in EU legislation to subsidize such new flexible capacity. At the same time, other EU-compatible options for a targeted investment subsidy are investigated as well.

Question by Canada at Wednesday, 03 September 2025
Category: All emissions and removals related to its quantified economy-wide emission reduction target
Type: Before 10 September
Title: New technologies in GHG Inventory development

How have you been able to leverage new technologies such as artificial intelligence to improve GHG inventory development?

Answer by Finland
We have identified some tentative subjects in which use of artificial intelligence, for instance, could be useful but we have not yet developed such methods in the GHG inventory. However, machine learning has been used to produce data products supporting the GHG inventory such as new countrywide peat thickness dataset that has been taken into use in the inventory.

Question by Canada at Wednesday, 03 September 2025
Category: All emissions and removals related to its quantified economy-wide emission reduction target
Type: Before 10 September
Title: GHG Inventory methodologies and mitigation measures

What processes do you have in place to ensure inventory methodologies effectively reflect changes in activities/practices resulting from mitigation measures?

Answer by Finland
Needs for changes in the GHG inventory calculations are assessed in the so-called quality meetings which are organized for each sector by the Statistics Finland every year for the planning, assessment and continuous improvement of the GHG inventory. Changes can be method updates, adaptation of new methodologies and methods or introduction of new activity data or inclusion of an effect of a new policy measure or changed practice.

Short- and long-term plans to improve and develop the inventory calculations are updated by the sectoral experts each year, discussed and assessed in the quality meetings in which also the progress of individual areas of improvement is monitored. In addition, sectoral experts discuss and analyze the needs to develop and improve their calculations also within their own organizations— in the case of agriculture and LULUCF also guided by an internal steering group within the governmental research institute. The advisory board of the entire GHG inventory, consisting of representatives of the ministries and government agencies and expert organizations, may also discuss the needs for further improvement of the inventory in regular meetings of the board.

Question by Canada at Wednesday, 03 September 2025
Category: All emissions and removals related to its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Archiving system of GHG Inventory

Could you please give a brief overview of key processes part of your national GHG inventory archiving system that support its efficient maintenance?

Answer by Finland
The greenhouse gas inventory unit at Statistics Finland has prepared a working instruction for archiving, which also serves as a plan for archive creation, describing how and which records are being archived and the manner they are preserved. According to the working instruction, the archiving takes place between January and May each year, after submission of the inventory to the EU or UNFCCC.

The main archive of the inventory is located on a server in Statistics Finland's local area network, which is physically located in the premises of the Government ICT Centre. This server has restricted writing privileges and daily back-up copies are created automatically. The folder structure of the archive and the naming policy of the archived files have been designed to facilitate the utilization of the archive. In addition to the guidelines for national systems of GHG inventories, Statistics Finland must comply with the general record management obligations laid down in Finnish legislation (for instance, the Archives Act 831/1994).

In addition to the main archive, the expert organisations involved in the GHG inventory compilation have their own archiving plans and electronic archives. In some cases, there is historical information such as original survey forms stored in paper archives too.

Question by Canada at Wednesday, 03 September 2025
Category: All emissions and removals related to its quantified economy-wide emission reduction target
Type: Before 10 September
Title: Quality management system of GHG Inventory

Could you please share some examples of good practices used to ensure that QA/QC checks are done thoroughly for all sectors as well as for cross-cutting areas of the GHG inventory?

Answer by Finland
The objective of Finland’s GHG inventory system is to produce high-quality GHG inventories, which means that the structure of the national system (i.e. all institutional, legal and procedural arrangements) for estimating greenhouse gas emissions and removals and the content of the inventory submissions comply with the requirements

and principles. The quality control and quality assurance elements are integrated into the inventory production system, which means that each stage of the inventory process includes relevant quality management procedures. This has been shown to be a good practice to ensure that QA/QC checks are carried out thoroughly for all sectors as well as for the cross-cutting areas of the GHG inventory.

The Greenhouse Gas Inventory Unit at Statistics Finland is the national entity responsible for the GHG inventory. The quality coordinator at Statistics Finland steers and facilitates the quality assurance and quality control (QA/QC) and verification process and elaborates the QA/QC and verification plan. The expert organisations contributing to the production of emission or removal estimates are responsible for the quality of their own inventory calculations. Experts on each inventory sector implement and document the QA/QC and verification procedures.

The quality objectives and the planned general and category-specific QA/QC and verification procedures for all sectors are defined in the QA/QC plan. This is a document that specifies the actions, schedules and responsibilities in order to attain the quality objectives and to provide confidence in the Finnish national system's capability to deliver high-quality inventories. The QA/QC plan is written in Finnish, updated annually, and consists of instructions and a QA/QC form. The instructions include descriptions of, e.g., quality objectives, general and category-specific inventory QC checks, information on quality assurance and verification, schedules, and responsible parties. The QA/QC form addresses the actions to be taken in each stage of the inventory preparation. Sectoral experts fill in the form the QA/QC and verification procedures performed, and the results of the procedures. QA/QC plans together with reporting and monitoring of the QA/QC and verification procedures performed annually in a written, structured format for each sector and for cross-cutting issues have been found to be a good practice to ensure the coverage, completeness and thoroughness of the QA/QC checks.

Several QC checks are implemented at Statistics Finland during the compilation of the CRT Tables and the NID. A specific excel workbook is established to assess results, emission trends and to ease the detection of errors and inconsistencies. In addition, the NID tables and figures are produced based on CRT data as much as possible to ensure consistency between the CRT Tables and the NID. This is continuously improved in order to avoid any discrepancies. Structured and scheduled checks and assessments in the compilation phase of the inventory submission have been found to be a good practice to ensure high quality of the inventory.

Issues related to QA/QC and verification are discussed at the meetings of the inventory working group (three to five meetings per year) and at the annual bilateral quality meetings or in conjunction with the quality desk reviews between the inventory unit and the expert organisations responsible for inventory calculations for specific sectors. The main findings and conclusions concerning the inventory's quality and the needs for improvement are communicated to the advisory board which has representatives from the expert organisations and the responsible Government ministries. A shared workspace including, e.g., guidelines, plans, templates and checklists is in place and available to all parties involved in the national inventory system via the Internet. Close cooperation as well as annual sector-specific quality meetings with the expert organizations producing the inventory estimates have been found to be a good practice to ensure the coverage, completeness and thoroughness of the QA/QC checks.
