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A compilation of questions to - and answers by - Hungary
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Question by Brazil at Tuesday, 31 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Mitigation actions

Regarding Table 3, does Hungary plan to estimate the impact of mitigation actions that have not being estimated (NA)? If not, what are the main reasons? If possible, give the explanation by mitigation action or by cluster/sector.

Answer by Hungary at Thursday, 28 May 2015

Regarding Table 3 mitigation actions „**Support for perennial herbaceous energy plantation by the European Agricultural Fund**” and „**Complementary financing to support the plantation of energy crops by the European Agricultural Fund**” the titles are: FVM Decree 71/2007. (VII. 27.) about the detailed conditions for having resort to the support for perennial herbaceous energy plantation by the European Agricultural Fund for Rural Development (EAFRD) and FVM Decree 33/2007. (IV. 26.) about the conditions of the complementary financing to support the plantation of energy crops by the European Agricultural Guarantee Fund (EAGF).

Currently there is no data to estimate the impact of the mitigation actions concerned. For the mid-term assessment of the 2007-2013 EAFRD period there were emphasized proposals for strengthening the monitoring system, revision of monitoring data, expansion of suppliers of data with sources from public administration, and the institution of relationship with the current suppliers of data. In 2011, the EAFRD authority has started the revision of the supplying of data, and the review of indicators and output data, which is still on-going.

Regarding EAFRD, at this point it cannot be said with hundred per cent certainty that the plantation of perennial herbaceous energy crops will not be supported in the period 2014-2020. Since it is unclear whether there will be any such measures from EAFRD anymore, there is currently no plan to further estimate the impact of this mitigation action.

Concerning forest-related issues in Table 3, it can generally be stated that the assessment of mitigation potentials and the development of projections in the forestry sector involves modelling highly complex natural and social systems, therefore, quantitative estimation is often simply not possible. This applies to the estimation of the effect of items "Support of agricultural production methods that are environmentally friendly", "Competitiveness of agriculture, forestry and food industry; Improvement of the condition of the environment; Quality of life in rural areas", and the item starting with "The objective of the Act is ...". However, just because these issues are hard to quantify, it does not mean that they cannot be effective mitigation options. It is for this reason that we included them in the table with the notation of "NA" (not applicable).

Question by China at Monday, 30 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: mitigation potential

According to the WM scenario, the emission level in 2020 is only 51% of that in the base year (excl. LULUCF), and 75% of that in 2005. However, under the EU ESD, Hungary is allowed for an emission increase of 10%. It seems that the emission reduction potential of Hungary is extraordinary. Please provide further clarification on this matter.

Answer by Hungary at Thursday, 28 May 2015

During the economic transformation process of Hungary after 1989, the energy sector also went through a profound transformation. This process was followed by a significant restructuring of the industrial and services sectors as well. Carbon emission dropped to 54% of the base year by 2011 (actual values) and to 83% if compared to 2005. So most of the emission drop already happened by now, the modelled additional emission reductions are more moderate, it is roughly 7% in the WEM scenario and 15% in the WAM scenario compared between 2020 and 2011. So the modelled economic potential is moderate, the allowed increase of 10% in the ESD is according to the economic development level of the country within the EU members.

Question by China at Monday, 30 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: projections

According to emission projection table 6, the projection data under industrial process and transport sector are identical, could you please provide further clarification?

Answer by Hungary at Thursday, 28 May 2015

In the CTF tables, table 6 has a copy paste mistake. The real values could be find in the tables 1(a)-1(b)-1(c).

Question by China at Monday, 30 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: LULUCF sector

Hungary reported on the contribution from LULUCF to achieve its target in its BR1 and CTF table 4, and on its exclusion of the LULUCF contribution from its progress to its target, please provide further information on this matter.

Answer by Hungary at Thursday, 28 May 2015

Hungary reported on the contribution from LULUCF as it is a “shall requirement” as according to Decision 19/CP.18 [Common tabular format for “UNFCCC biennial reporting guidelines for developed country Parties”]:

„...information reported on the emission reduction target shall include the following:
(a) total GHG emissions, excluding emissions and removals from the LULUCF sector;
(b) emissions and/or removals from the LULUCF sector based on the accounting approach applied taking into consideration any relevant decisions of the Conference of the Parties and the activities and/or land that will be accounted for...”.

The emissions and/or removals of the LULUCF sector are not counted towards achieving Hungary’s emission reduction targets under the Climate and Energy Package and emissions and removals from LULUCF are not part of the EU's joint commitment under the Convention. However, LULUCF is part of the binding commitment of the EU and of Member States under the Kyoto Protocol. The EU and its Member States apply all the relevant rules related to LULUCF under the Kyoto Protocol. The emission reduction capacity of the sector was mentioned in the tables to be in compliance with above mentioned COP decision.

Question by China at Monday, 30 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: base year

According to CTF table 1, the base year is not 1990. Could you please provide further information regarding the linkage with EU’s base year of 1990?

Answer by Hungary at Thursday, 28 May 2015

The information provided by Hungary as 'base year' in the CTF table 1 includes the emissions relevant to the base year under the Kyoto Protocol.

Hungary's international base year is not 1990 but the averaged value for the years 1985, 1986 and 1987. Besides Hungary has chosen 1995 as its base year for HFCs, PFCs and SF6. The base year of 1990 is the European Union's basis, and valid for our targets inside the EU under the Climate and Energy Package and to the joint EU target under the UNFCCC.

Next section could be taken out as it explains the KP commitment but it is not necessarily relevant for this question. If decided to be kept in, the fact that it is related to KP could be clarified.

[Under the first commitment period of the Kyoto Protocol, Hungary's international quantified emission reduction commitment is 94 per cent as included in Annex B to the Kyoto Protocol, since at the time of our first commitment towards the UNFCCC, Hungary was not a Member State of the European Union. In the second commitment period of the Kyoto Protocol and in the EU INDC, Hungary has the same base year and targets as the other EU Member States.]

Question by China at Monday, 30 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: national mitigation target

As a member of EU bubble, Hungary doesn't pledge a national mitigation target under the UNFCCC. According to the BR, for those sectors not covered by EU-ETS, the emission limitation target for Hungary is not exceeding 10% above the verified emissions from the 2005. However, it is not clear how much effort Hungary is going to make on sectors covered by EU-ETS, nor the effort as a whole, compared with its base year level. What additional information would Hungary provide in order to make its effort transparent? What is the emission volume of those entities covered by EU-ETS in the base year, and in the target year?

Answer by Hungary at Thursday, 28 May 2015

The Climate and Energy Package sets a 20% GHG emission reduction target for EU-28 by 2020 compared to 1990. This effort is divided between EU ETS and non-ETS sectors as follows:

(a) 21% reduction in EU ETS sector emissions by 2020 compared to 2005; and

(b) the Effort Sharing Decision sets binding annual emissions allocations for each Member States for the sectors not covered by the EU ETS. This represents for the EU a reduction of around 10% by 2020 compared to 2005 (limitations based on absolute targets at the level of each Member States). The Effort Sharing Decision mainly covers emissions from transportation, buildings, small businesses and services, agriculture and waste.

Total EU emissions against the scope of the Climate and Energy Package (excluding LULUCF and including international aviation) were in 2012 18 % below 1990 level and are estimated to be around 19 % below 1990 level in 2013. According to the projections provided by Member States based on existing measures, emissions would be 21 % lower in 2020 than in 1990. The EU is thus on track to meet its GHG emission reduction target.

The EU ETS is a market based mechanism setting a cap on the total amount of greenhouse gases that can be emitted by operators. As a result, emissions cannot exceed this cap. Regarding the ETS sectors every EU Member State, including Hungary has the same target which is 21%. The EU-wide cap under the EU ETS is determined for all EU Member States and the three EEA EFTA States (Iceland, Norway and Liechtenstein) without reflecting a specific share for each Member State.

In 2013, total verified emissions were 182 Mt CO₂ eq below the cap for that year. Verified emissions in 2013 decreased by 4 % compared to verified emissions in the year 2012. Compared to 2005 verified emissions (scope-corrected), the reduction achieved in 2013 was about 19 %. Further emissions reductions are projected until 2020.

In **the non- ETS sectors**, each Member State has a national emission reduction target depending on their economic situation, determined by measuring their GDP. As for Hungary, our GDP is well under the EU average. The national targets are changing between -20% (LU, DK, IE) and +20% (BG) in 2020 compared to 2005 levels. It is a fair, flexible system built on significant differences between EU Member States.

According to Member-States' projections (with existing measures), the EU as a whole will achieve the emission reductions foreseen in the non-ETS sectors. According to the projections of Member States, a total overachievement of around 700 MtCO₂ eq. can be expected in the non-ETS sector over the period 2013-2020. The transport sector in the EU is the largest contributor to GHG emissions in the non-ETS sector and emissions are projected to remain stable with existing measures. European Union energy efficiency measures in the residential and service sectors (the second largest source of emissions in the non-ETS) are expected to contribute towards three quarters of the projected savings in the non-ETS sectors. Emissions reductions are also projected to occur in other sectors in the EU (waste, transport, a share of industrial processes and energy supply and a share of energy use, mostly direct combustion in households/services) but with more limited effect in absolute term. Planned additional measures will mainly deliver reductions in the residential and

services sectors and in the transport sector. Hungary contributes to these efforts with several governmental greening programs such as the Green Investment Scheme (ZBR) and Greeneconomy Finance Scheme (ZFR) which are aiming at greening the transport and building sectors.

The report from the Commission "Progress towards achieving the Kyoto and EU 2020 objectives" (see http://ec.europa.eu/clima/policies/g-gas/docs/kyoto_progress_2014_en.pdf) provides every year the progress towards the Kyoto and EU 2020 GHG emission reduction targets. Further information can be found in EEA publications (<http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2014>)

Question by China at Monday, 30 March 2015

Category: All emissions and removals related to its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: consistency of GHG emission

According to IRR, Hungary chose inconsistent emission factors for different years under the energy sector, which might lead to inconsistency in the time series, could you please provide further clarification?

Answer by Hungary at Thursday, 28 May 2015

Indeed, as the ERT detected, the time series of the non-CO₂ emissions in road transportation were not completely consistent. This fact was acknowledged also by the inventory compilers in the National Inventory Report. The main reason for the inconsistency is that Hungary has recently introduced the internationally acclaimed COPERT model for its emission calculations. Due to the significant input data requirements of the model, as a first step, Hungary has applied the model for the years 2005-2013. For the preceding years, a domestic method based on the stock of different vehicle types and their average fuel consumption was used. The emission factors applied in the domestic method were taken from the literature, mostly from the IPCC Guidelines, whereas the latest COPERT model provided the emission factors for the period 2005-2013.

This inconsistency occurred in a non-key category. The error caused by inconsistent CH₄ and N₂O emission factors can be estimated as 0.3% of the total emissions.

The 2015 official submission of Hungary will address the above inconsistency, i.e. it will contain revised time series of non-CO₂ emissions in road transportation, and the time series consistency will be improved.

Question by China at Monday, 30 March 2015

Category: All emissions and removals related to its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: completeness of GHG emission information

According to the IRR, 5 categories of mandatory reporting information are missing, could you please provide further clarification?

Answer by Hungary at Thursday, 28 May 2015

As it reveals from the Table 3 of the UNFCCC Annual Review Report for Submission 2014 (FCCC/ARR/2014/HUN), hereafter referred to as ARR, 2014, regarding the Annex A sources Hungary's Greenhouse Gas Inventory is complete. The missing mandatory categories are LULUCF sub-categories, which are not accounted under the Kyoto Protocol, as the Kyoto Protocol restricts the accounting of the LULUCF sector to net emissions and removals from specific activities that are defined under Article 3, paragraphs 3 and 4, of the Kyoto Protocol (so called KP-LULUCF categories). According to the Table 3 of the ARR, 2014 regarding the KP-LULUCF categories Hungary's Greenhouse Gas Inventory is also complete. As a consequence, the missing LULUCF categories do not influence the accounted emissions under the Kyoto Protocol.

The reasons for not reporting some LULUCF sub-categories are as follows:

In case of 'Settlements converted to Cropland' and 'Settlements converted to Grassland' the reason for not reporting emissions is that, the IPCC methodologies do not provide methodology for the estimation of emissions from biological re-cultivation of former surface mines, nevertheless the biological re-cultivation probably results in an increase in the carbon stocks, therefore the omission of these categories can be considered as a conservative approach.

Regarding the 'Grassland converted to Other Land' the land-use conversion takes place on unmanaged land, while the greenhouse gas inventories restricts the reporting of emissions from anthropogenic sources. In the LULUCF inventory the managed land is a proxy for the anthropogenic emissions, thus the conversions on unmanaged land cannot be considered as an anthropogenic emissions.

In case of 'Settlements converted to Forest Land' and 'Grassland converted to Forest Land' emissions from DOM are not reported because Settlements and Grasslands are land use categories usually with very little dead organic matter, if any, therefore, the Tier 1 assumption is made that the stock change is zero.

For Land converted to Forest land (L-FL), and for similar reasons, Hungary does not explicitly quantify emissions and removals from deadwood and litter pools, but demonstrates (under the Kyoto Protocol) that these pools are not a source. The

demonstration for deadwood (DW) and litter (LI) is based on reasoning and expert judgment which is a practicable method in our situation. We currently do not have a monitoring program that could provide accurate estimates for the amount of carbon stock or carbon stock change in the DW and LI pools on L-FL land.

When an area is afforested, first it is cleared of all above-ground biomass in case there was any, however, no DW and LI are usually present on these lands prior to afforestation. Somogyi et al. (2013) measured zero carbon stocks for these pools on pre-conversion land. After afforestation, stocks of dead woody debris, litter as well as dead trees start to accumulate. In lack of representative measurements, the rate and timing of the accumulation is not known, however, standard forestry experience suggests that they depend on species, site and silvicultural regime, and quickly accumulate over time. Fast growing species are usually planted so that no large amount of deadwood is produced or thinned so that self-thinning does not ensue, but litter is continuously produced even in these stands. On the other hand, slow-growing species tend to produce dead wood and litter even at an early stage. Overall for all L-FL land, and also considering that stands on L-FL land are usually younger for deadwood and litter accumulation to saturate (and reach just under 9 tCha⁻¹ for both pools as suggested by Heil, Kovacs and Szabó, 2012), it can safely be concluded that the carbon in the deadwood and litter pools in L-FL lands are currently still increasing, i.e. these pools are not a source.

Following a recommendation arising from the centralized review conducted in 2014 Hungary starts to report on emissions from soils on ‘Grassland converted to Forest Land’ in its 2015 annual submission.

Emissions from soils on land that is converted from grassland to forest land are estimated for each converted area and for the default time period of 20 years (applied for both emissions and removals for converted lands) by taking the difference of carbon stocks of consecutive calendar years (and then converting it to CO₂) using a country-specific formula (Horváth, 2006, Hiederer, 2009).

Concerning organic soils, there is no afforestation on such soils, therefore, there are no emissions from this source.

Following a recommendation arising from the centralized review conducted in 2014 Hungary starts to report on non-CO₂ emissions from wildfires on L-FL land, although very few forest fires occur in the Land converted to Forest Land category.

Regarding CO₂ emissions from wildfires on L-FL land, these are accounted for in the biomass pool on L-FL as part of the carbon stock change estimation.