DRAFT DISCUSSION DOCUMENT 3

CCXG seminar breakout session 2b

Outcomes of a workshop on setting national emissions baselines [1]

Prepared for the
CCXG/Global Forum on Environment
Seminar on MRV and Carbon Markets[2]

19-20 September 2011, Paris

The ideas expressed hereafter are those of the authors and do not necessarily represent views of the OECD, the IEA, or their member countries, or the endorsement of any approach described herein.

[1] This draft document was compiled by Ulla Blatt Bendtsen and Jacob Krog Søbygaard (DEA) and Andrew Prag (OECD), with contributions from participants at the workshop held in Hanoi, Vietnam on 31 Aug – 1 Sep 2011, hosted by the Ministry of Natural Resources and Environment (MONRE), see annex for details. Please send any comments to andrew.prag@oecd.org .

[2] The CCXG Secretariat would like to thank the Australia, Canada, the EC, Finland, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, UK and US for their direct funding of the CCXG in 2010/11, as well as OECD, IEA, Denmark and the UK for their in-kind support.

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1. Introduction and aims

1. This document provides an overview of a workshop held as part of a joint project between OECD/IEA and the Danish Energy Agency (DEA) to explore means of sharing good practice in setting national emissions baselines. The workshop was held on 31 August and 1 September 2011, in Hanoi, Vietnam, kindly hosted by the Ministry of Natural Resources and Environment (MONRE). A list of attendees can be found in the annex.

2. The project builds on recent OECD/IEA work clarifying different purposes of baselines and comparing existing experience for different purposes (Prag and Clapp, 2011). That paper defined a baseline as a reference level of emissions that can be used to set a goal or target, or to measure emissions abatement performance. The workshop focused on setting such a reference level for future national emissions, that may then be used for calculating national climate change mitigation objectives.

3. A number of non-Annex I countries were invited to share information on how they had set emissions baselines to date, to analyse issues and collectively highlight elements of good practice or missing guidance. Based on the questionnaire sent out to participating countries, discussions at this workshop aimed to share experiences among project partners on assumptions and choices made in preparing baselines and emissions projections with a view to identifying lessons learned, challenges and gaps, as well as aspects of good practice for baseline setting.

4. National emissions baseline scenarios have recently become an important discussion point in international negotiations. Many developing countries have put forward mitigation goals under the UNFCCC that are defined as reductions against a business-as-usual emissions scenario. However, there is currently no international guidance for how such baseline scenarios should be calculated, presented or disclosed publicly. Nevertheless, a robust baseline is crucial for correctly identifying mitigation goals, for implementing mitigation policies and for comparing greenhouse gas reduction pledges across countries. Many developing countries have put forward proposed Nationally Appropriate Mitigation Actions (NAMAs), some of which are dependent on international financing. Funding for such actions may be influenced by accurate quantification of the actions, which may in turn depend on robust baseline scenarios.

5. National baseline scenarios may be intended as "business as usual" scenarios, or could represent other scenarios based on differing assumptions or conditions. Setting national baseline scenarios therefore involves not only analysing technical data and making assumptions e.g. on future values of key drivers behind the projections, but also considering policy choices which are driven by the intended application of the baseline.

6. The aims of this workshop were to:

- identify elements of good practice in national baseline setting, and explore ways that good practice can be shared through guidance documents or other means
- exchange lessons learnt and improve networking among interested countries within the field of baseline setting and how to measure emissions and emission reductions
- improve comparability between country baseline scenarios by encouraging transparency on methods and data
- identify common challenges faced by different countries and ways to address those challenges through international support
- identify significant capacity gaps in particular countries with regards to resources for baseline setting, and explore ways to address those gaps.

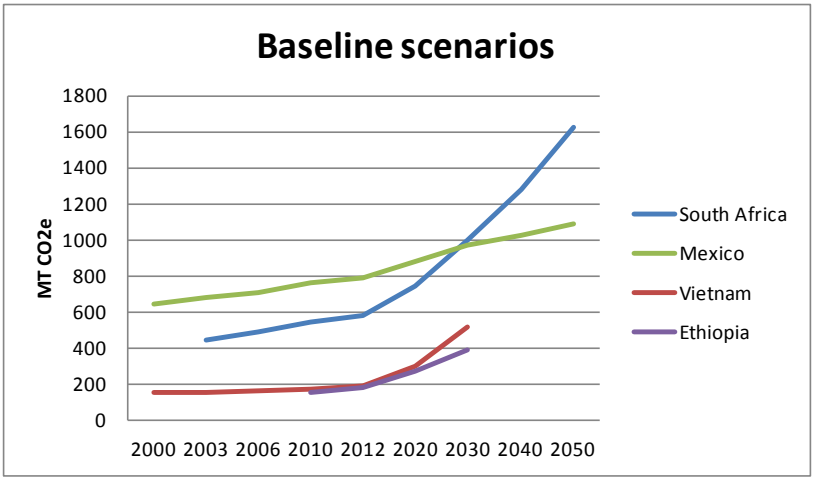
7. The workshop ran over two days, involving presentations from participant countries, presentations from other invited experts, and extensive discussions in breakout groups and plenary

format. This document presents some of the findings from the workshop and suggests some next steps forward.

2. Country presentations

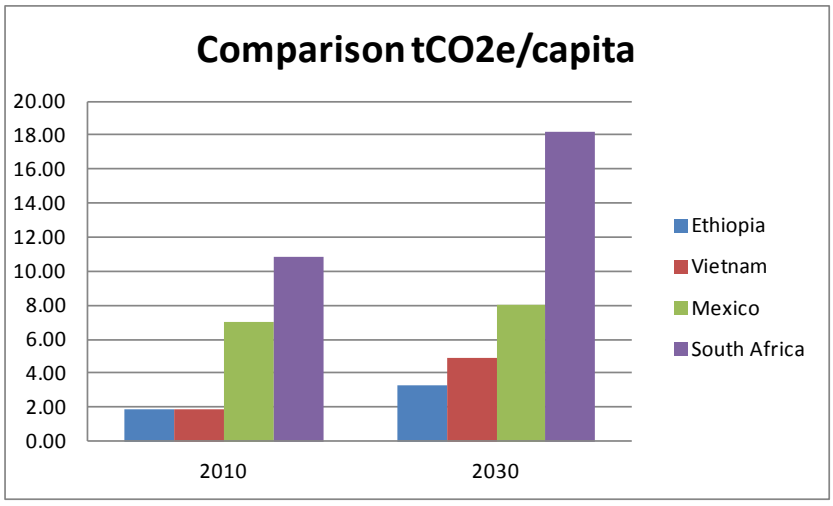
8. During the workshop Ethiopia, Kenya, Mexico, South Africa and Vietnam presented their work on GHG emissions baselines. An overview of the baselines and the expected growth in per capita emissions is shown in Figures 1 and 2. No data are yet available for Kenya as the baseline work is still on-going. The following sections contain a summary of each presentation with focus on data availability, methodology used and key drivers.

Figure 1: Baseline scenarios participant countries



Source: Authors, based on data provided by countries

Figure 2: Emissions per capita participant countries



Source: Authors, based on data provided by countries

2.1 Baseline setting in Ethiopia as part of the Climate Resilient Green Economy Strategy

9. The Ethiopian baseline work is outlined in what is known as the Climate Resilient Green Economy (CRGE) Strategy. The draft is undergoing government consultation and is not yet publicly

available. It will be released publicly after government endorsement in September 2011. The sectors covered in the baseline emission projection of the country are: power supply, buildings and green cities, REDD+, Soil based emissions, livestock, transport and industry. The baseline is developed for NAMAs.

10. The base year for the emissions baseline is 2010. A **top down approach** was used to estimate future emissions in the business as usual scenario using official government projections for population, GDP, etc. Based on these figures the relevant emission drivers were calculated, and BAU emissions were determined using relevant emission factors (default factors from the Intergovernmental Panel on Climate Change (IPCC) guidelines were used where possible and where these were not deemed realistic, experts were consulted to find proxies for Ethiopian conditions. The modelling technique also used direct sector specific projection (e.g. electricity production) from sector specific development plans of the government. and for REDD+ a 10 year historical time series was considered. No historical time data is considered for the other sectors. Multiple time periods were used to calculate projections. Emissions are expected to grow from 155 Mt CO_2e in 2010 to around 390 Mt CO_2e in 2030 in the BaU scenario. A large share of the emissions in the BaU in both 2010 and 2030 comes from agriculture and forestry, whereas emissions from energy use are relatively low (close to zero) due to renewable energy use (hydropower). The key drivers are GDP and population growth but the current migration pressure has not been included in the baseline. According to the CRGE strategy Ethiopia's energy mix will continue to grow based entirely on hydropower, which might leave room for electricity export depending on the international line carrying capacity. This development is, however, not part of the BaU development.

2.2 Kenya's baseline underway as part of the National Climate Change Response Strategy

11. In Kenya, a National Climate Change Response Strategy (NCCRS) is in place and the development of an action plan to implement the strategy is under way. Several adaptation and mitigation programmes, projects and activities are currently being implemented by different stakeholders but the aim is to ensure future coordination under the NCCRS. Kenya's baseline work is on-going building on historical emissions from all records. A consultant has been hired to facilitate the work, and it is expected that some results will be communicated in Durban. Kenya has put in place mechanisms to identify energy use and emission trends and to build on its current and past development. Also, different energy and emission indicators, which provide insight in historic trends and aspects of policy effects, will be inventoried to help in setting the baseline and guiding the decision–making process. The results of the inventory will contribute to ongoing energy and emission monitoring.

2.3 Construction of Mexico's National Emission Baseline

12. Mexico's official baseline was published in 2008 as part of the Climate Change Special Program (PECC, "Programa Especial de Cambio Climático" in Spanish). The baseline used a top-down modeling technique using global data from the OECD Environmental Outlook to 2030 (OECD, 2008). The model includes both energy and non-energy and builds on 2006 data from the National Emissions Inventory of GHG in Mexico's Fourth National Communication to the UNFCCC as well as the Energy Sector Prospects 2008-2017 (electricity, oil, natural gas and liquefied petroleum gas). For the years 2020, 2030 and 2050, the baseline indicates that Mexico will maintain growth and evolution of the sectoral distribution of emissions in alignment with OECD average global emissions baseline (OECD, 2008). The baseline considers an average annual GDP growth of 3.5% and population growth stabilizing in 122 million after 2040 – these two parameters being the key drivers in the PECC baseline. No special consideration of accelerated penetration of new technology was considered in the baseline.

13. Mexico's baseline indicates that the country's total emissions will grow 50% by 2030 and 70% in 2050 compared to 2000, while energy intensity (energy consumption per unit of GDP) would decline 0.7% per year over the period 2008 - 2050, and carbon intensity (CO_2/GDP) decrease 1.8%

annually during the same period. Although emissions continue to rise, because of economic growth, energy and carbon intensity decrease due to energy efficiency measures and introduction of new technologies.

14. In 2010 a revised baseline was developed based on a bottom-up approach using sector-specific conditions with the purpose of complementing the efforts previously made under PECC and assessing the robustness of the previous top-down approach. Some improvements and updates were introduced and the revised baseline was based on official figures provided by sector institutions in Mexico. Although the approaches and assumptions on some key drivers (e.g. lower GDP growth rate in the revised baseline) are different, the two baseline trajectories are quite similar. The revised emissions baseline expects slightly higher emissions in 2030 (3%) than the official PECC baseline. There are some changes at the sector level, notably increases in Transport and Waste, and declines in Oil and Gas, due to the sector-specific data used. PECC is still the official baseline. Sensitivity to GDP growth was analyzed showing that some sectors are not very sensitive to changes in GDP growth: petroleum and gas, agriculture and forestry, whereas other sectors are very much affected, e.g. transport.

2.4 South Africa's Baseline "Growth without Constraints" in the Long Term Mitigation Scenarios

15. South Africa's emissions baseline, known as the "Growth without Constraints" (GWC) scenario, outlines the country's emissions if national development continued to be based purely on least-cost, without any constraints on growth, including carbon constraints. It assumes also that there are no climate impacts highly damaging to the economy, no significant oil constraints and that the country's energy economy continues to evolve around the minerals-to-energy complex. The scenario covers the entire economy disaggregated by sector as follows: Industry, Transport, Electricity, Coal-to-liquids (CTL), Industrial Processes excluding CTL and Non-Energy emissions. South Africa's emissions in the GWC scenario increase four-fold from 446 $MtCO_2$-eq in 2003 (base year) to 1637 $MtCO_2$-eq in 2050. Most of the emissions in this scenario continue to come from coal-based fuel combustion for energy supply and use, with non-energy emissions (industrial processes, waste, agriculture and LULUCF) contributing roughly a fifth throughout the whole period. 14 new power plants and 10 new refineries (5 of which use CTL technology) would be built in the GWC scenario to satisfy growing energy consumption and transport demand.

16. The GWC forms the reference scenario for South Africa's Long Term Mitigation Scenarios (LTMS) which were concluded in 2007 and accepted by Cabinet in 2008. South Africa has pledged in the Copenhagen Accord to reduce emissions to 34% below BAU by 2020 and 42% below BaU by 2030. MARKAL, a technology-optimisation model, was used to model the energy sector, while a spreadsheet model was used for non-energy emissions. Specific activity data for all sectors were used as input. In general, data availability for the energy sector in South Africa is relatively good and easily available from annual national energy balances and other energy databases. The LTMS was coordinated by the University of Cape Town's Energy Research Centre and combined scientific research with a comprehensive stakeholder process. The key drivers in the South African baseline were economic growth (time-dependant GDP) and population. Population is expected to be approximately constant in line with expectations of the ongoing impacts of HIV/AIDS in South Africa). Other drivers include future fuel prices, discount rate, and technology learning.

17. Another scenario put forward under LTMS is the "Current Development Plans" (CDP) scenario. This assumes that existing and planned policy measures have some abatement impact in future, and the emissions trajectory is therefore lower in 2030 and 2050. However, this scenario is not usually used as the baseline scenario.

18. The MARKAL model and the LTMS results were subjected to rigorous international Peer-review process performed by the World Bank. The Peer-review concludes that: "*The methodologies used in the research were consistent with international best practice and the results are robust*".

2.5 Vietnam's National GHG Inventory and Emissions Baseline

19. The emission baseline for Vietnam was developed to provide information to UNFCCC as part of the Second National Communication and the expected further submission on Vietnam's mitigation pledge and list of NAMAs. The National greenhouse gas inventory for the year 2000 was conducted in accordance with the Revised IPCC guidelines for energy, industrial processes, agriculture, land use, land-use change and forestry (LULUCF), and waste sectors. The inventory was carried out for CO_2, CH_4 and N_2O. In 2000 the total greenhouse gas emissions amounted to 151 million tons of CO_2 equivalent (tCO_2e). Amongst that, 65 million tCO_2e was from agriculture, 53 million tCO_2e from energy, 15 million tCO_2e from LULUCF, 10 million tCO_2e from the industrial processes, and 8 million tCO_2e from waste. Activity data for the national GHG inventory were compiled based on the published data in the National Statistical Yearbooks, from ministries, agencies and the published research results from institutes, research centers, companies and private businesses. Lack of data still causes considerable uncertainty in the baseline.

20. GHG emission projections for 2010, 2020 and 2030 were made for energy, agriculture and LULUCF sectors. Total GHG emissions are expected to grow to 516 million tCO_2e in 2030, a 240% increase from 2000. The increase in overall emissions is chiefly due to an increase in emissions from energy use. The projections were made based on the following drivers of which an expected annual growth in GDP of 7% for 2010-2030 is the most important: projections of energy demand, sectoral GDP growth rate, GDP contribution by sector, population growth rate, forest coverage and forest land, population of cattle and agricultural land area in 2010, 2020 and 2030.

21. For the energy sector the Long-range Energy Alternatives Planning (LEAP) model was used to forecast energy demand for both baseline and mitigation scenarios in the course of GHG mitigation options development and evaluation. LEAP is a simple top-down modelling tool used to systematically analyze energy-environment interdependence, from primary energy development (i.e. extraction, production, transformation, distribution) to end-use energy consumption based on the assumed inputs**.**

22. For agriculture the development and evaluation of GHG mitigation options is in compliance with the Greenhouse Gas Mitigation Assessment guidebook (Sathaye, 1995), which provides guidance for the development of baseline and mitigation scenarios, and the assessment of mitigation potential, mitigation options cost-effectiveness and benefits.

23. For LULUCF the Comprehensive Mitigation Analysis Process (COMAP) model was used in the development and evaluation of LULUCF mitigation options. The forestry plan is included in Vietnam's BaU baseline but other policies and measures are not. The level of uncertainty has been assessed for both activity data and emission factors. For activity data the largest uncertainty was found to be in agriculture and forestry.

2.6 Other presentations

24. The workshop also included presentations from other experts representing UNEP Risoe, Global Green Growth Institute (GGGI), DEA and the OECD. Short summaries of these presentations can be found in the annex.

3. Addressing baseline issues

3.1 Issues of baseline setting and challenges identified

25. Workshop participants identified a number of issues faced by countries when constructing emissions baseline scenarios. The principle issues discussed were as follows:

- Data availability – many countries face difficulty in gathering sufficient data, partly because activity data can be sensitive. This includes both the quality and quantity of activity data of

underlying emissions sources for compiling an effective inventory. Data issues are also encountered when establishing assumptions for forward projections as the base of scenarios.

- Emissions factors – even when underlying activity data is available, countries often lack country-specific emissions factors to convert that data into emissions values. Further, in some cases it is not clear when an IPCC standard emissions factor is relevant or not, and capacity is often lacking to develop country-specific factors.
- Methodological choices – although participants agreed that bottom-up, sector-based models are preferable for constructing forward emissions scenarios at the national level, such models are not always available, and some participants suggested that it is not always clear when a more simple top-down modeling approach could be appropriate.
- No standard guidelines of baselines and data – participants recognised that there is currently no international process for comparison of baseline scenarios put forward by non-Annex I countries (Annex I countries have emissions projections reviewed as part of the UNFCCC process). Participants agreed that this lack of comparison process means it is difficult for individual countries to ensure that they are using good practice for baseline setting. Some participants noted that any peer review of baselines should not go as far as constituting a review or assessment of baseline scenarios or data.
- Presenting multiple baseline scenarios – participants highlighted that baseline scenarios are not predictions of the future, but are simply feasible scenarios. Multiple scenarios may therefore be presented for different reasons, participants noting that choosing which scenarios to present, when and how is not always straightforward.
- Effect of planned or identified policy measures – a key issue when constructing baseline scenarios is whether or not to include the effects of pre-existing or planned emissions abatement policy in the baseline. Some participants argued that all mitigation actions should be excluded from the baseline scenario and instead counted as reductions from the baseline. Others suggested that there may be instances where some measures should be included as one of a number of baseline scenarios, but that it is often not clear how the measures should be incorporated.
- Selecting key drivers/indicators and performing sensitivity analysis – a robust baseline requires careful assumptions made for the economic, demographic and other drivers affecting emissions growth. Participants noted that it is not always straightforward to select the right parameters. Furthermore, once key assumptions have been made, sensitivity analysis can aid to verify the importance of each driver and the assumptions made.
- Frequency of baseline revisions – participants noted that there is currently no clear guidance or common agreement on when and how baselines should be revised or updated, although different views were presented on how frequent such updates should be. Some argued that a formal baseline scenario, once published should remain as a fixed reference point. Other suggested that regular updates, based on changed economic, environmental or other factors would be appropriate. It was identified that the frequency of updating baselines may be affected by the purpose of the baseline, e.g. whether it is used for assessing international targets.
- Transparency of how the baseline is constructed – participants noted that transparency of methodologies used to construct baselines is desirable for international comparability, but that such transparency is not required for any existing baselines put forward by developing countries.
- Technical capacity – participants highlighted that in some countries, limited technical capacity can constrain the robustness of baseline scenarios.

3.2 Ideas for identifying and sharing good practice

26. During breakout groups and in further plenary discussion, ideas were proposed for how good practice in baseline setting might be identified and shared internationally. The principle ideas put forward were as follows:

- Enhancing the data collection process, improving bottom-up sectoral information gathering, establishing a central database and implementing data validation and verification were mentioned as initiatives to overcome data gaps and incomplete data collection. Also the need for a stringent government policy (perhaps passing a law) on data collection was mentioned.
- Given that some countries have stated difficulty assuring accessibility of data even when it exists, examples on good practice for sharing data could be elaborated.
- Encouraging peer review as the norm for baselines presented internationally – in the absence of any formal review process for national baselines, encouraging external peer review can be a way of strengthening work through expert review and increasing transparency between countries. A key question is against what criteria or indicators such peer review should be carried out, whether these indicators should be made public or whether review should remain entirely independent.
- In addition to international peer review, in-country reviews by relevant experts to give opinions on data quality, assumptions and other nationally-specific factors could also be encouraged as good practice for baseline setting (where not already occurring).
- Independently of any review process, encouraging transparency and disclosure of all major assumptions on key emissions drivers used in a baseline scenario should be considered as good practice. If countries were to agree to disclose information on, for example, key drivers and assumptions made, this could go some way towards increasing mutual trust of countries in other baselines.
- Baseline scenarios are plausible representations of future emissions pathways, not intended as accurate predictions. Therefore one aspect of good practice could be to encourage more than one baseline scenario to be put forward to highlight uncertainty in key drivers, technology and policy development.
- When discussing the issue of how to deal with policies and measures in the baselines, it is important to determine at what time PAMs should be included, if at all, and to have a clear cut-off point while at the same time maintaining incentives for early action and mitigation.
- Given that many countries lack nationally-specific emissions factors, guidance on good practice for under which circumstances and sectors to develop specific emissions factors, as well as methodologies for doing so. This could facilitate channeling of international support to this area which is crucial to the accuracy of baseline scenarios.
- National emissions baselines represent a combination of pathways for many sectors across the economy. Robustness of assumptions can be improved by ensuring strong stakeholder engagement combined with scientific research and modeling early in the baseline setting process. This can be considered an element of good practice.

4. Recommendations and next steps

27. Building on these ideas for identifying and sharing good practice in baseline setting, a number of recommendations for how to take this project forward were suggested by participants. Initially, this summary document will be presented to other countries and experts participating at the Global Forum for Environment/CCXG seminar in Paris on 19 September, thereby beginning a process of seeking wider views on the issues and ideas suggested. Participants requested that documentation from this workshop, including the Terms of Reference for the project, the agenda for the workshop in Hanoi

and presentations provided by countries at the workshop be made available on the DEA and/or OECD websites.

28. Participants agreed that establishing a system of guidance for good practice in baseline setting, possibly accompanied by a peer review or other form of review process, would be a useful outcome of the process initiated by the workshop. The guidance would be based on existing good practice and would primarily be aimed at countries that have stated a lack of capacity for developing robust baseline scenarios. The guidance could cover some of the aspects put forward in section 3. Whether this guidance would develop into a document that could be brought into the UNFCCC process in the future, remains to be discussed. The guidance would respect national sovereignty and would not be prescriptive nor mandatory, but would provide examples of good practice and encourage transparency

29. Participants suggested that engaging with more countries, to gather more experiences on good practice in baseline setting, would provide a useful way forward for the project. However, participants are keen to build on the ideas established at this initial workshop, rather than starting again with a similar workshop for different countries or independent experts.

30. Participants identified a lack of capacity in many countries as hindering baseline development. It was suggested that this project could play a further role in identifying such capacity gaps and exploring sources of specific support for developing capability, for example in modeling techniques, in particular countries. This could be extended in the future to 'implementation pilots' in specified countries, working on some of the issues in section 3.2 to reinforce baseline scenarios. Even if international guidance on baseline scenarios is developed, implementation and use of guidance can be very expensive. Such pilots could focus on a particular sector or group of sectors, as a form of "deep dive" to assess data quality, emissions factors and key drivers and assumptions.

References

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Annex – Presentations by other organisations at the workshop

UNEP Risoe

UNEP Risoe presented work on Technology Needs Assessments (TNA) and Technology Action Plans (TAP) involving 36 developing countries. UNEP Risoe mentioned their sector guidelines 2010-11 (building, agriculture and transport) and the upcoming NAMA 'initial guidance' to be released for COP17 in Durban. UNEP Risoe are also now underway on the 'Facilitating Implementation and Readiness for Mitigation' (FIRM) project supported by the Danish Government. FIRM builds directly upon TNA/TAP and will in addition to country activities develop or enhance guidelines for development of Low Carbon Development Strategies (LCDS) and NAMA criteria, MRV approaches, and tools for analyzing and prioritizing mitigation actions.

UNEP Risoe underlined the importance of baselines as a way to quantify and compare the progress made toward achieving LCDS goals and international mitigation pledges, and thereby also to attract international funding of NAMAs. The importance of baselines for NAMAs was emphasised. UNEP Risoe discussed how to ensure that the NAMA is not part of the BaU scenario and how to avoid double-counting when more than one NAMA exists. Also, it was recognized that experience from CDM baselines can be valuable in developing baselines for certain types of NAMAs.

Global Green Growth Institute (GGGI)

GGGI presented their main activities, i.e. Green Growth Plans (GGP) in developing countries, Research, Knowledge Sharing, Capacity Building and Public-Private Partnerships. GGGI has on-going GGPs in Brazil, Ethiopia, Indonesia, Cambodia, Kazakhstan, UAE, PRC, Rwanda etc. and in terms of 'research' GGGI develops Green Growth theory and models including development of methodologies, statistics and databases. GGGI has branch offices in Copenhagen and Abu Dhabi.

GGGI briefly presented Korea's midterm GHG mitigation goal from 2009 where emissions are to be cut by 30% below BaU in 2020, the most ambitious of three potential targets considered. The background analysis was based on a range of research institutes, e.g. a MARKAL model was used for energy modelling. An important element to support this goal is the GHG Emissions and Energy Target Management Scheme (initiated April 2011), where the coverage of companies to undertake energy efficiency measures etc. will be expanded over time towards 2014. The importance of transparency and stakeholder process was stressed, but also at the same time the challenges of dealing with confidentiality of data etc. that could have competitive aspects.

Danish Energy Agency (DEA)

DEA briefly presented their carbon market tool COMPARE ('a global agreement simulator') that was developed in the run up to COP15. It is a global model covering GHG from energy use (energy, industry, residential and transport incl. bunkers) from the POLES model and non energy use (agriculture, waste) and forestry from IMAGE/TIMER (PBL, NL) and G4M (IIASA) respectively. COMPARE is calibrated to baselines in IEAs World Energy Outlook 2010 ('Current Policy

Scenario') and identifies the mitigation potentials by sectors and countries and assess the emission levels and abatement costs attached to different scenarios and design of a global climate 'agreement'.

DEA presented GDP sensitivity analysis in energy use and energy emissions across countries and sectors based on alternative scenarios in the POLES model (commissioned by DECC, UK). The analysis stressed the importance of GDP as a key driver for baseline projections. For example with a 5% increase in GDP levels in 2020 total global energy emissions was seen to increase by approximately 3%. Emissions from the power sector were in general more sensitive to GDP than emissions from industry and transport, but for some countries emissions from transport seem to be relatively sensitive (e.g. Mexico and South Africa).

COMPARE covers a number of large developing countries enabling comparisons of e.g. national baselines and mitigation potentials made by e.g. South Africa and Mexico. Pros and cons of using a global model ware discussed, i.e. trade-offs between consistency in methodology across countries and regions versus less precise description on a country level compared to national models.

OECD

OECD presented recent work on baselines undertaken as part of the Climate Change Experts Group (CCXG). This included a recent short clarification document on the different types and purposes of baselines (Prag and Clapp, 2011) and a study comparing mitigation potentials in a selection of OECD countries based on a wide range of available models (Clapp *et al.*, 2009). Whilst this study did not focus on baselines in particular, it provides data to compare differences in the baseline scenarios calculated for the same countries by various models. Severe variation was found in baseline scenarios to 2030 for all countries, including Mexico, the EU and US.

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