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Item 5 (b) (ii) of the provisional agenda

Strategic questions of a horizontal policy nature

Climate change and transport

Mitigation of environmentally harmful effects of inland transport – For Future Inland Transport Systems (ForFITS)

Note by the secretariat

1. Background

1. The main objective of the For Future Inland transport Systems (ForFITS) project is to enhance international cooperation and planning towards sustainable transport policies.
2. Its achievement is expected to result from capacity building initiatives organized for policy makers and training activities for technical experts, leveraging on the development of a modelling tool (called ForFITS and meant to be freely available for all UN Member States) capable to assist users in the selection of the most appropriate and effective measures to reduce CO₂ emissions in the inland transport sector (including road, rail and inland waterways).

2008	The UNECE Transport Division called on the UN Development Account (UNDA) for funds to build this project together with all UN Regional Commissions
2009	The UN General Assembly endorsed the project
2010	The UN Department of Economic and Social Affairs (DESA) approved a Project Document describing in detail the major phases and activities of this three-year project
2011	Official project launched during a video conference involving all UN Regional Commissions. The tasks and responsibilities of the lead entity and the other Regional Commissions have been finalized and included in specific Terms of References Preparation of a global review on existing statistical data, policy measures and assessment tools concerning CO ₂ emissions in transport was the first task undertaken in the project framework.

	Development of a questionnaire (available in Arabic, English, French, German, Russian and Spanish) to provide inputs for the preparation of this review. During 2011, the questionnaire was distributed worldwide with the assistance of all UN Regional Commissions.
2012	<p>Organization of an International Expert Meeting (IEM), held in April 2012, allowing the dissemination of information on this UNDA project, to share experiences and to explore possible synergies with other stakeholders.</p> <p>A peer-review workshop with selected experts was organized back to back to the IEM. The two events contributed to the finalization of the review on statistics, mitigation policies, and modelling tools (released in a draft version in April 2012 and finalized in October 2012). They also gave feedback on a draft methodology of the ForFITS tool (released in April 2012).</p> <p>Release of the prototype version of ForFITS (December 2012)</p>

2. ForFITS characteristics

3. ForFITS is a software tool allowing for the generation of transport activity from key user inputs such as macroeconomic and demographic data, the evaluation of the related energy consumption, and the estimation of the associated CO₂ emissions.

4. ForFITS covers passenger and freight transport services on nine transport modes (non-motorized transport, two wheelers, three wheelers, light road vehicles, medium and heavy road vehicles, rail, navigation (inland, short-sea and deep sea), air, and pipelines), looking at different vehicle subsets within each mode and considering several possible powertrain and fuel options for each of them.

5. The transport demand profile in ForFITS is largely determined by the relationship linking GDP and GDP per capita with vehicle ownership, passenger kilometres and tonne kilometres. The same inputs also influence modal shares (e.g. the part of the transport task being performed by light road freight vehicles rather than heavy road freight vehicles, or – in the case of passenger transport – between personal passenger vehicles and public transport) and vehicle occupancy factors. In addition, the transport demand characterizing each mode and vehicle class depends on parameters affecting the purchase and driving cost of different vehicle types. Changes in the cost of driving, in particular, influence the average annual travel distance and the average vehicle loads. In the case of freight transport, structural changes in the economic structure (such as a shift towards a greater importance of the service sector) are also reflected in terms of changes in total transport demand and modal allocation.

6. A number of input levers allow the evaluation of the impacts of different transport policies at the regional, national and/or local level. Besides macroeconomic and demographic data, key inputs include especially parameters affecting the cost of driving (such as fuel costs and taxes, but also costs, taxation and availability of different powertrain technologies equipping vehicles). Alternatively, the role of different powertrain technologies can be analysed directly with input on the evolution of technology shares.

7. The structure of ForFITS, together with the choice of key parameters characterizing it, influencing its results and determining the impacts of different policy instruments, follows a review on statistics, mitigation policies and modelling tools, identified in the global status report. It illustrates the main data requirements associated with the estimation of inland transport CO₂ emissions, examines the nature of the information available, considers existing uncertainties and availability limitations and provides recommendations

on the improvement of statistics concerning transport, energy and CO₂ emissions. The same analysis presents the methodologies available for the estimation of CO₂ emissions in transport and the tools used for the evaluation of policies attempting to mitigate them, evaluates the strengths and weaknesses of these approaches and suggests solutions that have been taken into account for the ForFITS model development.

3. ForFITS development and availability

8. The development of ForFITS started in 2012 at the UNECE. A prototype was released in December 2012 on the UNECE web-site. This version, updated at the end of January 2013, includes a Vensim Packaged Model file (.vpm) (containing the main model “engine” and delivering the model results) coupled with a Microsoft Excel file (.xls) (used as user interface for input data).

9. An improved version, including a better user interface and an improved capacity to take into account the impact of policy inputs, is expected to be operational by the end of March 2013. The main arrangement developed for the prototype, based on the coupling a pair of files (.vpm and .xls), will be maintained in the upgraded model.

10. Additional updates may be released in the meantime, depending on the importance of model modifications and the availability of revisions. The latest version of the ForFITS model can be always downloaded here on the UNECE web site: http://www.unece.org/trans/theme_forfits.html.

11. Relevant documentation, including a methodological description (updating the draft methodology linked above) and a user manual are expected to become available shortly after the release of the improved model version.

4. 2013: Pilot-phase and privileged partnerships

12. A piloting-out phase, involving specific trials in different world regions, is foreseen for the second quarter of 2013.

13. A number of partners interested in a closer involvement in the project have been identified. The pilot phase is being developed primarily with these partners. Discussions on the implementation of the pilots are currently involving the International Energy Agency, the Joint Research Centre of the European Commission, and the International Council on Clean Transportation. Other UN Regional Commissions developed contacts with governments (e.g. Thailand, in the case of ESCAP) for the same purpose.

14. The UNECE is interested in developing other partnerships for the pilot projects. The ideal partner is a national administration and/or a local government, an Inter-Governmental Organization, a Non-Governmental Organization, an Academic institution and/or a consulting company, or an actor in the industry sector (company/corporation, industry association):

- willing to understand the transport system that he/she is concerned about (typically a geographical region), its impacts in terms of energy consumption and CO₂ emissions;
- having access to a sufficient amount of statistical information;
- having some degree of specific competence (transport, transport policies, energy policies, environmental policies);
- having sufficient financial means to support his/her ambitions.

5. Other project development steps

15. The following project development phase foresees the organization of capacity building workshops (second half of 2013), as well as training activities for policymakers and technical experts (second half of 2013). The workshops and training sessions will take place in all the regions associated with the UN Regional Commissions (ECA, ECLAC, ESCAP, ESCWA and ECE).

6. Beyond the UNDA project

16. Developed entirely by UNECE (the demand generation module is the only one taking advantage of ad hoc external consultancy services, under UNECE guidance), ForFITS has been conceived with the primary objective to evaluate contextually transport activity, energy consumption and CO₂ emissions.

17. The flexibility of the model allows using it for the consideration of issues with relevance at the urban, metropolitan, regional or national levels, with a wide range of data availability levels. If coupled with adequate databases, ForFITS has also the capacity to be applied to international and inter-regional contexts.

18. The application of ForFITS can leverage on existing information, increasing the value already generated by their collection. Extensions of ForFITS can take advantage of the existing model to help answering a wide range of questions that are relevant for transport-, energy- and environment-oriented analyses. This is the case for the estimation of pollutant emissions, the interaction between transport networks and vehicle use, the evolution of fuel demand, the analysis of additional vehicle technologies (beyond those already under consideration), and the evaluation of fuel and powertrain options on vehicles and engines requiring a special characterization (such as non-road mobile machines). Possible extensions also include applications aimed at the analysis of material and energy demand for the manufacture and use of transport applications.

19. Aware that ForFITS has the potential to become an important asset for the UN and its Member Countries, the UNECE Transport Division as the lead implementing agency of the project, is seeking stakeholders interested in the establishment of partnerships and cooperative solutions capable to provide opportunities to maintain and further develop the model (either for ad-hoc applications or for overarching model improvements).

7. Considerations by the Committee

20. The Committee is invited to take note of the achievements made in the ForFITS Project in 2012. More concretely, the Committee is requested:

a) to encourage governments and other stakeholders to volunteer to pilot out the ForFITS model and contribute to its fine-tuning (the pilots are expected to take place in the second quarter of 2013);

b) to invite governments to indicate their interest for national or regional training of policymakers and technical experts (to take place in the second half of 2013);

c) to encourage governments and other stakeholders to consider the – financial and in kind – support of further development of the ForFITS model beyond the current UNDA project.