CONSULTATION ON EC4MACS MODELLING METHODOLOGY

Please fill in one questionnaire for each model, and provide your comments in the respective boxes.

Please return the questionnaire to the EC4MACS coordinator Hans Benzinger (benzing@iiasa.ac.at) before June 15, 2009.

Name	*Anco Hoen*
Institution	Netherlands Environmental Assessment Agency
Country	Netherlands
Phone	+31-30-2743654
E-mail	anco.hoen@pbl.nl

Model	*GAINS*

1 Assessment of model design

To what extent does the structure of each model provide a scientifically credible representation of the reality?

Please fill in text here …

What are the limitations of the model structure and the implied system boundaries and to what extent may these restrict the validity of the conclusions and policy

The NOx/PM emissionfactors for road vehicles in GAINS are expressed in kton NOx/PJ or kton PM/PJ. This relation between the NOx emissions and the energy-efficiency might give a problem if the energy-efficiency of the vehicles improves. In reality the relation between energy use and NOx emissions is not so straight forward. The energy-efficiency of vehicles could improve without improving the NOx emissions because the latter is regulated by the Euro-standards. This problem has become more prominent now that the European CO2 emission legislation for passenger cars has been agreed upon. If CO_2 emissions of cars drop with 20% (and consequently energy efficiency increases with 20%) emissions of NOx, PM10 in GAINS will also become 20% lower. This however will (most likely) not occur. NOx and PM legislation for cars is not affected by CO2 legislation and a car will have to comply to the same NOx and PM10 emission limits no matter how high its CO2 emission is. Moreover, an increase in real world NOx emissions as a result of reduced CO2 emissions is even possible since there is a trade-off between CO2 and NOx emissions. Improving engine efficiency (and reducing CO2 emissions) results in optimized fuel combustion with higher NOx emissions as a result.

2 Representation of reality in the modules

To what extent does the structure of each model provide a scientifically credible representation of reality?

Please fill in text here …

3 Treatment of uncertainties

Have the most policy-relevant uncertainties (related to variability of the system inexactness of input data and lack of knowledge) been adequately addressed?

Please fill in text here …

Is there an alternative formulation conceivable that could provide better policy-relevant insights into uncertainties?

Please fill in text here …

Do available model results represent uncertainties accurately? Are there other ways conceivable for attaining more robust conclusions?

Please fill in text here …

Is there a risk that the model gives policy advice that systematically underestimates or overestimates the need for policy measures to protect the environment? What are the major reasons for a bias, if any?

Please fill in text here …

4 Communication with stakeholders, policy-makers and public

How do the modelling teams verify the quality of input data that are used in model? Is the quality of the input data obtained from national sources and from other models sufficiently guaranteed? In what way do teams give feedback to providers of input to maximise the robustness of model results?

Please fill in text here …

In what way are users and stakeholders involved in the modelling process, and is this sufficient to ensure transparency and acceptability of the results for policy advice?

Please fill in text here …

Are the presentations of the results clear? If not, can the communication and dissemination of the results be improved?

Please fill in text here …

Is the model structure transparent? (e.g., are the assumptions clearly exposed and motivated, and is their influence on the model-results explained?)

Please fill in text here …

5 Other comments

Please fill in text here …

Thank you for providing this feedback to the EC4MACS team!

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You will receive information on the EC4MACS review workshop that is planned for October 2009.