



The “SHERPA into SMARTER” Project

FAIRMODE Technical Meeting - October 7-9, 2019 - Madrid

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Background

- SHERPA is a local/regional integrated assessment model (IAM) developed by the Commission's Joint Research Centre in Ispra.
- In the last three years (following on from the Clean Air Programme for Europe) this tool has gained acceptance by the FAIRMODE community as key tool to assist Member States in developing local air quality plans to meet the requirements of the Ambient Air Quality Directive (AAQD)
- With the growing recognition that compliance with the AAQD increasingly requires tailored regional/local plans rather than European-wide measures, this tool will inevitably be more widely used
- The tool has some significant advantages over current IAM models, in the current version these include:
 - Source-Receptor (SRs) functions at much finer scale (7x7km);
 - SRs not only for a “country to all other grids” but also for specific regions within a country (e.g. Urban, Extra-Urban and Rural areas) to all other grids

Background (cont.)

- The current 'released' version of SHERPA focusses on PM_{2.5} concentrations and their impacts, since this has been the primary driver in EU AQ policy design in recent years e.g. the CAPE, the resulting revision of the TSAP and the associated revision of the NECD
- A limitation within the current version is that the cost element is excluded, this means a cost-optimisation cannot currently be performed by SHERPA
- The incorporation of the SHERPA 'country to grid' and 'sub-country to grid' source-receptor functions into the CONCAWE IAM facilitates such cost-optimisation
- This opens the door for a consistent (and sub-country) optimisation strategy across the whole of the EU that specifically targets the 'non-compliant' urban areas
- This inclusion of sub-country area S-Rs in a full IAM framework will provide an important insight into 'where to reduce emissions' within a country to achieve compliance or to close the compliance gap, in the most cost-effective way

The SHERPA-into-SMARTER Project

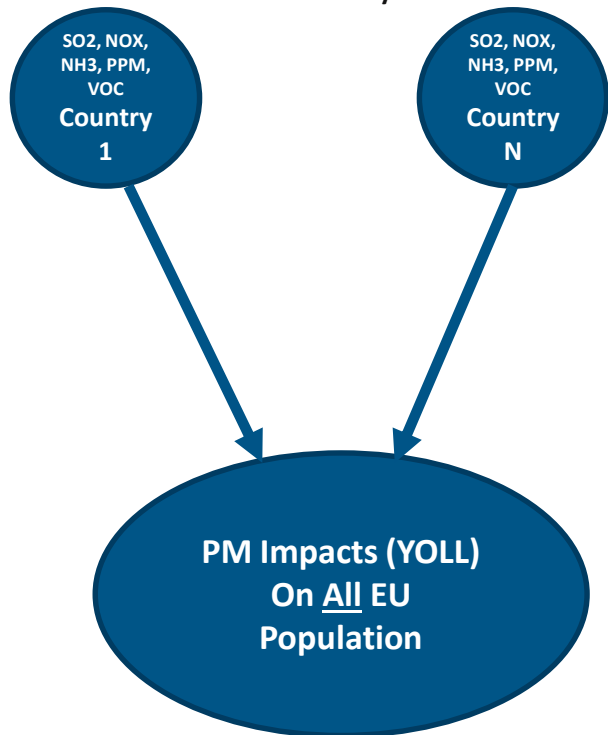
- The project involves incorporating the PM2.5 SR functions derived from SHERPA into the current framework of CONCAWE's IAM
- As a first step, these would be generated for five 'sub country areas' within each of the EU countries:
 - Compliant Urban Areas; Non-Compliant Urban Areas; Compliant Sub-Urban Areas (or Commuter Zones); Non-Compliant Sub-Urban Areas; Rural Areas
- Along with these SR functions, for each country, corresponding 'sub-country area' cost functions for further abatement measures will be developed
- When incorporated, a wide range of 'optimised' scenarios will be run e.g. for the current AQLV, and for a number of lower AQLVs down towards the WHO guide value
- The results will also be benchmarked to the Concawe's current (GAINS consistent) IAM version results
- The first results anticipated before year end
- Completion of this phase by 1Q20

SHERPA Enabled Optimisation Strategy At Sub-Country Level

Current SMARTER

S-Rs: Country-Country

Cost Curves: Country-Pollutant



SHERPA Enabled SMARTER

S-Rs: Country Region-Country Region

Cost Curves: Sub-Country-Pollutant

