

## TRIAS – SUSTAINABILITY IMPACT ASSESSMENT OF STRATEGIES INTEGRATING TRANSPORT, TECHNOLOGY AND ENERGY SCENARIOS

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**CLIENT:** *European Commission, DG TREN*

**YEARS:** *2005 – 2007*

### DESCRIPTION OF ACTIVITIES

#### *Objective of the study*

The main objective of the TRIAS project consisted of developing and testing strategies to reduce greenhouse gas emissions and noxious emissions from transport, on the basis of the trilogy (trias) of transport, technology and energy scenarios. The assessment was based on an integrated model-based approach looking at environmental, economic and social impacts (Sustainability Impact Assessment).

TRIAS was particularly focused on the potential for the introduction of new technologies for all surface transport modes, estimating quantitatively the potential of conventional and alternative vehicle and fuel technologies until 2050.

The geographical scope of the project is EU27.

#### *Content of the study*

The project developed the following main activities:

- A review of the existing studies, projections, policy documents about the future development of the energy sector: demand, supply, prices, etc. aimed at developing a set of scenarios to be analysed by means of modelling tools.
- A detailed analysis of the technological perspectives for the biofuels and the hydrogen, in order to identify paths for the introduction of such technologies in the transport sector, expected costs, learning curves, etc. also in the light of providing inputs to the modelling tools for simulating the scenarios.
- The simulation of the scenarios by means of two established models in the field of transport and energy policy analysis with ASTRA being an integrated economy-transport-environment assessment model and POLES being an energy-environment model. Since the scope of these two models is on (supra-)national level respectively one level below additionally two further models, VACLAV and Regio-SUSTAIN, were interlinked with the former models to generate results for detailed zoning levels in the range of NUTS-III zones.

- The organisation of two workshops with stakeholders and experts in order to discuss the assumptions for the scenarios and the outcomes of their simulation.

#### *TRT activities*

Within the project, TRT dealt was responsible for the definition of the scenarios and cooperated to the modelling simulations. The TRIAS scenarios were mainly defined within a matrix-based approach, where one can recognise three main elements:

- A *Business-as-Usual scenario* is defined to simulate the extension of the existing trends from the base year 2000 the year 2050. At the same time, a *do-nothing scenario* is also defined to serve as reference for comparing modelling results.
- *Policy measures* that can be used to contrast the current trend are focused on the two main fronts: transport energy demand and supply. Concerning demand, the use of the economic leverage to influence individuals choices is preferred to command-and-control rules as it can play a double role: directly changing the behaviour and at the same time raising funds to finance the infrastructures required to allow the new technologies entering in the market. On the supply side, i.e. the *technology side*, bio-fuels and hydrogen are the two alternatives that are explored as the most promising ways to reduce the dependency on conventional oil-based fuels
- Finally, it is assumed that the success in achieving a trend inversion in energy consumption will be strictly linked, in the future, to the possibility of setting an international agreement on this issue, developing a *common policy* at least at the European level.

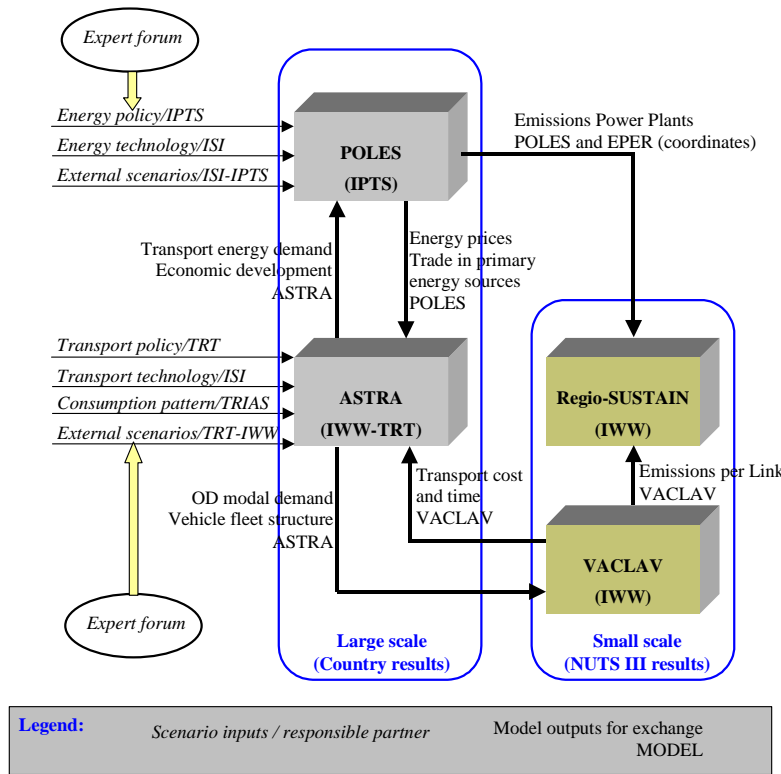
The combination of assumptions concerning such dimensions allowed to define different scenarios, selected from all the possible combinations in order to avoid the simulation of implausible scenarios.

#### *The Consortium*

The TRIAS project is led by ISI, Karlsruhe, (GER), other members of the consortium are TRT Trasporti e Territorio (ITA), IWW, Karlsruhe, (GER), Joint Research Centre – IPTS Seville (SPA).

More information on the project web-site: <http://www.isi.fhg.de/trias/index.htm>

**Components and structure of linkages of models and external inputs in TRIAS**



**The TRIAS scenarios**

