

SYSTEM FOR PLANNING AND RESEARCH IN TOWNS AND CITIES FOR URBAN SUSTAINABILITY (SPARTACUS)

CLIENT: *European Commission DGVII - IV Framework R&D Programme for Transport*

YEAR: 1996 - 1998

DESCRIPTION OF ACTIVITIES:

The context

The project was part of the research studies awarded by EC Directorate General XII -Environment -in the IV Framework Research Programme launched by the Commission on achieving the objectives of the Common Transport Policies.

The project which is co-funded by local, regional and national authorities started in 1996 and ended in 1998. In the project, a system for testing the sustainability of urban policies was developed using three pre-existing land-use transport models calibrated for the Helsinki Metropolitan Area, Naples and Bilbao.

The domestic co-funders and other local authorities and organisations acted as Client-Partners of the project. They participated in the shaping of the system throughout the project as well as in the identification and assessment of the urban policies tested.

The objectives

The general objective of the study was to develop and pilot the use of a comprehensive analytical modelling framework with a sound and theoretically consistent basis for building and evaluating long term strategies for sustainable urban development especially in Europe.

The study focused on the interactions between transport, land use, economy, the environment and social factors. Existing methodology for modelling the relations between transport, land use and economy served as the starting point. This was developed further to assess and predict the environmental and social sustainability implications of different policies (such as regulatory and pricing measures and investments) that were tested during the study while also taking into account their economic effects.

The indicators

Environmental, social and economic sustainability indicators were developed. The economic consequences of achieving the targets as well as any distributional issues that the modelling process raised were taken into account. Also, the project aimed at developing the quantitative aggregation of results using a hierarchical indicator system.

The analytical framework

Three existing Meplan land use/transport integrated urban models, which the members of the team have

previously implemented, were adopted as the foundation on which the study was based. The northern Helsinki Metropolitan Area, the major southern Italian city of Naples and the declining industrial conurbation of Bilbao in Spain's Basque Country were selected as representing very different urban forms and environments. A specific module produced run reports and illustrated the results in a user-defined way (maps, graphs, diagrams and tables) using commercial GIS and database applications. It also further processed the results into indicator values.

A Raster methodology was used to increase the spatial desegregation of the system to analyse certain effects such as exposure to noise and pollutants in a small scale grid. The study areas of the three test cities were divided into $100 \times 100 \text{ m}^2$ cells for each of which a land use category was attached. USE-IT (Urban Sustainability Evaluation and Interpretation Tool) was an independent computerised decision-support software which reads in the indicator values produced by the system and allows the user to define the value functions and weights. It also included the choice of the theory of justice to be used in calculation of the equity indicators.

The policy testing process

The policies tested were related to transport and land use policies, but, also, because of the economic features of the model, to fiscal and pricing policies. The process started with the definition of *the policy element* tests, in order to better understand the effects of single policy measures. After analysing the policy element tests, different sets of policies and policy combinations were defined and tested. The project showed that it was possible to use an urban land-use transport model as a platform to produce environmental, social and economic indicators of urban sustainability.

It was focused on medium-long term impacts of the policies and then was capable to pick up also the counter-intuitive effects of some policies: i.e. many measures intended for decreasing travel demand may eventually in the long term lead to increasing private car mileage.

The consortium

The international consortium in charge for completing the study was led by LT Consultants Ltd (FI). The other partners were Marcial Echenique & Partners

(UK), TRT Trasporti e Territorio, Marcial Echenique y Compañia (ES) and IRPUD Universität Dortmund (DE).

TRT's Client-Partner was the Transport Planning Department of the Municipality of Naples.

NO₂ concentration

Naples Metropolitan Region

