PROJECT

PROPOLIS

Planning and Research of Policies for Land Use and Transport for Increasing Urban Sustainability

Funding: European (5th RTD Framework Programme)
Duration: Jan 2000 - Sep 2003
Status: Complete with results

Background & policy context:

The project was conducted under Task 4.4.1, which established the Land Use and Transport Research (LUTR) programme. The task focused on strategic approaches and methodologies in urban planning towards sustainable urban transport.

Its target was to develop planning tools, assessment methodologies and best practices aimed at managing future transport demand through integrated land use and transport planning.

PROPOLIS focused on developing methodologies and tools for assessment of urban sustainability and on evaluation of different land use and transport policies in seven European cities.

Objectives:

The main goal of PROPOLIS is to research, develop and test integrated land use and transport policies, planning tools and comprehensive assessment methodologies in order to define sustainable long-term urban strategies and to demonstrate their effects in European cities. The more detailed goals are described as follows:

1. To develop further theory of urban transport and land use systems;
2. To develop the planning and assessment methodologies;
3. To execute a policy testing process in 7 European urban regions using the knowledge already gained from the tests made in the case cities and executing a systematic process of policy testing;
4. To analyse the test results in order to define general urban strategies, to demonstrate their effects aiming at generalised conclusions (not depending on the cities nor the models used);
5. To identify policy packages useful to reduce urban pollution and congestion and, at the same time, ensuring accessibility and mobility without compromising economic efficiency and social sustainability;
6. To establish close contacts with the policy/decision makers and users of the system, involving them in some phases/tasks of the project;
7. To adopt an effective dissemination and exploitation programme dealing with sustainable urban development during and after the project.

Methodology:

PROPOLIS views urban sustainability from three perspectives:

- environmental,
- social, and
- economic.

Each of these dimensions is divided into themes and each theme comprises a set of indicators. Indicators under each dimension and its themes are used to measure the state of sustainability for a set of policy options. In addition to indicators, a set of background variables is defined to help understand and illustrate the different impacts of the tested policies.
Indicator values are based on integrated land use and transport model outputs which are further processed with tools developed for disaggregation of data, economic evaluation, decision-making support and presentation of results.

This PROPOLIS system is used to define and measure the effects of the policy options offering the most potential. The policy options are mainly based on a literature review and the partners' experience. Policy combinations have been successfully formed from the individual policy options in order to obtain cumulative positive effects.

**Related Projects:**
- ARTISTS
- ASI
- CITY-FREIGHT
- ECOCITY
- ISHTAR
- PROMPT
- PROSPECTS
- SCATTER
- SUTRA
- TRANSPLUS
- VELOINFO

**Parent Programmes:**
- FP5-EESD KA4 - City of Tomorrow and Cultural Heritage

**Institute type:** Public institution

**Institute name:** European Commission, Directorate-General for Research (DG Research)

**Funding type:** Public (EU)

**Partners:**

Belgium:
STRATEC S.A. (STR)

Germany:
LT Consultants Ltd (LT); Spiekermann & Wegener, Urban and Regional Research (S&W)

Italy:
TRT Trasporti e Territorio srl (TRT)

Spain:
Marcial Echenique y Compañía S.A. (MECSA)

United Kingdom:
WSP Policy & Research Unit (formerly ME&P); University College London, Institution incorporated by Royal Charter (UCL)

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**Key Results:**

The PROPOLIS project has shown that it is possible to use urban land use and transport models as a platform for producing urban environmental, social and economic sustainability indicators that can be used in assessing policy options. The research has demonstrated what types of policies are likely to produce positive results and has highlighted areas in which further work would be fruitful.
General recommendations have been made based on the research and the new methodologies applied. The results show that the environmental sustainability deteriorates in all case cities compared with the current situation if no actions are taken and even if city specific reference scenarios, including local investment programmes, are adopted. This is mainly due to the deteriorating global climate change and the environmental quality indicators as well as the increased consumption of natural resources. Also the social index deteriorates, except in Helsinki, Naples and Brussels, where the current old polluting car fleet is expected to improve, thus improving the health indicators. However, equity and accessibility indicators deteriorate in all cities.

The deteriorating trend is related to the growth of the cities population, sprawling land use and the resulting growth of car traffic. A 1% growth in population leads to more than 1% growth in car traffic (Helsinki 1.7%). Regulating car speed policies had positive effects on traffic accidents, as intended, but they were not enough to compensate the effects of the worsening opportunity, accessibility and air pollution related indicators. This points in the direction that, instead of general speed reduction policies, the locations for speed reductions should be considered case by case. Also the tested public transport policies, increasing speed and service and reducing fares, worked well.

In most cases they were environmentally, socially and economically feasible. However, special attention has to be paid to the land use effects. In most cases the public transport policies contributed to city sprawl. The optimum level for the public transport fares is city specific and should thus be locally defined.

The combination of public transport policies with car pricing policies produced cumulative positive results and the negative land use effects of the individual policies could be avoided or mitigated. With a few exceptions (social indices in Bilbao and Naples) all dimensions of sustainability could be improved in all case cities, compared with

Policy implications

Urban sustainability could be improved only with the coordinated intervention of both local and national decision-making levels. The good results obtained by the combination policies emphasises the need of a close cooperation between the different levels of authorities, as local authorities cannot implement all the policy measures. They may need decisions at national or even European levels.

A good urban policy consists of co-ordinated elements that work together to produce cumulative long-term effects that attain a balanced set of environmental, social and economic goals. These elements may include:

- combination of pricing policies directed at car users, with differentiation between peak and other hours as well as congested and non-congested areas, with an appropriate level of pricing of public transport fares;
- investment programmes supporting the demand changes caused by the above policies and especially responding to the increased requirements for better public transport speed and service;
- a land use plan supporting the new need for people to live close to central areas, in satellite cities or along well served public transport corridors and enhancing the opportunity to use the public transport.

STRIA Roadmaps: Smart mobility and services
Transport mode: Multimodal transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Environmental/Emissions aspects, Societal/Economic issues
Geo-spatial type: Urban