

DRUPSSuC

Design and renovation of urban public spaces toward sustainable cities

DURATION OF THE PROJECT

Phase 1: 01/01/2007 – 31/01/2009
Phase 2: 01/02/2009 – 31/01/2011

BUDGET

795.169 €

KEYWORDS

Sustainable development, city, urban design, public space

CONTEXT

Urban public areas are a crucial issue in social, environmental and economic development of Belgian and European cities. This research concerns the design and renovation of public urban areas for a sustainable city. This is a transversal research project that deals with the development of concrete tools to promote sustainable territorial development policies on the scale of urban public space. Our network deals with the problematic of public space on a national scale as it includes four interdisciplinary teams from all three regions of the country. This project covers several fields of research defined as a priority by the Federal Science Policy: energy, mobility, environment, climate, biodiversity.

Initially, a typology will be established that is characteristic of Belgian urban zones and their public areas. Public spaces will then be studied starting from each field of competence using a common methodology:

- taking account of this typology. Streets, squares, and green areas have priority importance.
- developed on the scale of the district, but integrating the standpoint of the morphological city.
- based on scientific and technical criteria associated with the users' criteria.
- studying the quantitative and qualitative aspects.
- integrating the interactions between this field of competence and the other research fields studied.

PROJECT DESCRIPTION

Objectives

The objectives of this research are

- favouring sustainable development of our urban areas thanks to the development of methodological and technical aiding tools for decision taking and design-renovation of public spaces;
- proposing possibilities for standardization;
- broadly disseminating the results of the research project.

Methodology

In this research, the sustainable development issues of public spaces are approached from eight specific standpoints and their interactions :

- urban density,
- mobility,
- the users (perception, utilisation, appropriation, participation),
- microclimate and air pollution,
- biodiversity and vegetation,
- water,
- artificial lighting,
- acoustics.

The methods and specific tools used in the development of each of the eight fields of research include in particular numerical modelings of urban environments (ECOTECT, FLUENT, IMMI, SOUNDPLAN...), empirical models based on data extracted from numerical cartography systems of the three Belgian areas and in situ tests (binaural sound recording,...). This study will develop a global theory grouping all the covered subjects.

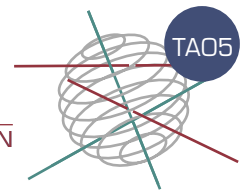
Phase 2 consists of the validation of the global theory developed in phase 1 thanks to various case studies of public areas in the three regions of Belgium and in a few European cities, as well as the implementation of concrete decision taking aids and design/renovation aids for urban projects. This second phase will also include a broad dissemination of results.

INTERACTION BETWEEN THE DIFFERENT PARTNERS

The various fields of competence are for:

- partner one: microclimate-pollution, water and artificial lighting,
- partner two: acoustics,
- partner three: the users and biodiversity-vegetation,
- partner four: urban density and mobility.





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The common typology and methodology serve as groundwork to facilitate transversal character of this research. The quality of transversality is also ensured by the close cooperation between partners and their many exchanges:

- out of the 25 tasks of this research, only seven of them are done by only one partner.
- there are 10 joint meetings between all four partners in phase 1 and 15 in phase 2.

Link international programmes

The global theory will be compared with results of the international projects COST and IEA.

EXPECTED RESULTS AND/OR PRODUCTS

Phase 1 consists in working out a global multidisciplinary theory based on the study of public spaces starting from results of the eight fields of competence of our network. The results of phase 1 will be:

- the typology of the urban areas and urban public spaces and the definition of the issues of the sustainable development of urban public spaces,
- the results of each research field,
- a global theory.

All the results developed in the first phase will be used as a basis for the development and the validation, in the second phase, of practical tools to promote design and renewal of urban public spaces. The result of phase 2 will be:

- the case studies in Brussels, Antwerpen, Leuven, Namur and in European cities.
- decision taking and design-renovation aiding tools for urban projects,
- the definition of sustainable development policies and proposals for standards,
- an Internet site for the dissemination of the results to a broad audience and specialized workshops for the diffusion of the aiding tools towards the decision takers and the designers of urban projects.

PARTNERS - ACTIVITIES

The principal activities are for

- partner 1 : research, education, design, modeling and construction for the best adequacy between urban zones, buildings, climate and occupants, within the framework of sustainable development.
- partner 2 : education, research and consultancy in relation to acoustics and noise control.

- partner 3 : research and education in the fields of territorial development, environmental evaluations, study of the landscapes and biological evaluations.
- partner 4 : research and education on the interactions between populations, territory and environment and on the assessment of local, regional and supra-regional policies.

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Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>

