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SHAPING FUTURE WITH SIMULATION

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**SUREURO:
"Sustainable Refurbishment Europe"**

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ABSTRACT

The SUREURO project supported by the European Commission in the key action "The City of Tomorrow" will stimulate and support the sustainable and consumer oriented transformation of (big most post war) housing areas. Nowadays 170 million people in total Europe are living in post war mass housing areas. Sustainability can be achieved only with an intensive and constructive participation of the tenants. Therefore SUREURO will provide: To develop, train and implement housing companies with practical management tools for integrating sustainable development and tenant participation in their refurbishment management process without exceeding the normal costs for the tenants. To develop design, monitoring and simulation tools for town planners, local decision makers, construction companies, designers and engineers and models for better planning, design and technical specifications of refurbishment projects, both at housing and neighborhood level. SUREURO will test and implement new and flexible technical concepts for sustainable transformation of existing housing areas. The project has started at March 1, 2000 and about 300 people from Sweden, Finland, Denmark, The Netherlands, Germany, France and the UK are involved in this 4 years project. The results will also be tested and demonstrated in seven post-war housing areas and demonstrated in Czech and Italy.

KEYWORDS

POST-WAR HOUSING AREAS, SUSTAINABLE REFURBISHMENT, CONSUMER ORIENTED RENOVATION, TRANSNATIONAL COOPERATION.

1 INTRODUCTION

What happens before the start of the SUREURO project and which activities have been carried out to prepare this very big project.

1.1 Sophia and Dessau Declarations

Refurbishment of large prefabricated housing estates

In the Member States of the European Union there are about 80 000 residential areas and approximately 56 million flats that were built after 1950. A special problem is the large industrial post-war housing estates in Central and Eastern Europe.

In the so called "Sophia Declaration" (<http://192.55.244.197/sofiadek.htm>) the following citations are relevant: "Between October 19 and 21, 1997 more than 120 housing experts from 25 cities from 14 central and eastern European countries met in Sofia, Bulgaria at the invitation of the City of Sofia and the European Academy for the Urban Environment in Berlin (EA.UE) with housing specialists from 4 western European countries to discuss the future of the large industrially-produced housing estates in central and eastern Europe.

"From May 10-12, 1999, more than 70 housing experts from all parts of Europe, Japan and North America met in Dessau, Germany at the invitation of the EXPO 2000 Sachsen-Anhalt GmbH. The purpose was to discuss the

future of the industrially produced housing estates in Europe. Members of the CIB Task Group Open Building participated in discussions regarding the transferability of Open Building principles, strategies and experiences to the refurbishment of large housing estates in Central and Eastern Europe. CIB is the International Council for Research and Innovation in Building and Construction. (<http://www.decco.net/~obi>)

1.2 Two years preparation

Sureuro – a European project - has been developed on the initiative of Kalmarhem - based on these ideas and visions. The planning on European level started 18 months before the submitting date of the proposal in the end of 1997.

In April 1998 the main group of partners met in Brussels for the first time for a joint discussion of a project at European level.

The consortium has in the past held some 20 transnational meetings, run two large conferences and made many contacts. Their mutual interest is to run a project for which there is a great need in the whole of the Europe. The main responsibility for the project falls on the housing companies, who are guarantors for the development of the models and tools. They will ensure that these will not merely turn into research reports, all too soon forgotten.

All the housing companies involved are part of national organizations in which there is a great interest for our project. This guarantees a wide national dissemination in seven Member States (Finland, Sweden, Denmark, France, England, The Netherlands and Germany).

1.3 Participants

The consortium is based on seven principal contractors; Boligselskabet AKB from Denmark, Logirep from France, Marzahn mbH from Germany, Wonen Centraal from The Netherlands, Sandwell Metropolitan Borough Council from England, Finnish Real Estate Federation from Finland and Kalmarhem from Sweden.

Five of the principal contractors are housing companies. Sandwell is an English local Authority and the Finnish Real Estate Federation is an organization for private and social housing companies. It is the residential housing companies themselves that determine the levels of investment for refurbishment. This implies that it is the residential housing companies themselves that have the opportunity of achieving the greatest possible impact on the creation of an ecologically sustainable Europe.

The consortium have several research and development institutes associated to the housing companies in the work for development of the models and tools and close cooperation in the work of the national pilot projects. The assistant contractors are CSTB and Delphis from France, Motiva, Renova and VTT from Finland, SBI and Byfornyseselskabet from Denmark, BRE from England, Vatten & Samhällsteknik and JAB from Sweden and TNO, assisted by the Delft University and Ton Damen Consultants from Holland. In order to use the developed models and tools, the construction industry must influence the development of the concepts and accept to adapt these. This has been achieved by the involvement of the Construction Company NCC from Sweden.

1.4 Project figures

Duration of the project :	4 years, starting 1 March 2000
R & D costs:	9,5 million Euro
EU contribution:	4,8 million Euro
Total investment in national pilots	50 million Euro

2 OBJECTIVES OF THE PROJECT

The objectives are discussed during the intensive preparation time for over a year with housing companies from seven countries and several research institutes, contractors and consultants. During

this preparation period we have also been testing some of the main principal ideas of how to work in the project and the models.

SUREURO will create practical working models as part of a decision-making system where all actors concerned in a refurbishment process will be part of decisions and evaluations. The models also mean that all relevant elements, shown in computer applications, must be taken into consideration in planning and decision.

Example 1: clickable flow charts with just in time information, checklists, calculation programs etc

Example 2: geometric grid and calculation system for monitoring and simulation data from tenants, real estate and services before and after the refurbishment process. All quantitative consequences at area level can be accessed.

Objectives

To provide housing companies and local decision makers, with practical management tools for integrating sustainable development and tenant participation in their refurbishment management process without exceeding the normal costs for the tenants. Normal costs for the tenants are strictly related to the extra quality in their built environment and a flexible own choice for comfort for their interiors

To develop design tools for city planners, construction companies, designers and engineers, and models for better planning, design and technical specifications of refurbishment projects. To test and implement in national projects – seven refurbishment project done by seven housing companies in seven different countries plus two in other housing companies –in Czech and Italy- new and flexible technical concepts for sustainable transformation of existing housing areas.

After testing and step-by-step developing the models and tools for sustainable refurbishment in seven well qualified and reputed housing companies – who are signing contractors in the project – and in full scale have two housing companies – in two countries -Czech and Italy- to use the models and tools gives the project an outstanding market platform all over the world. At the same time it proves to the contractors and CEC that the models and tools are useful for housing companies who shall do sustainable refurbishment.

The models and tools will give instruments for energy saving and optimization with the following targets:

Reduction of

- Overall energy and related atmospheric emissions by 40%
- The use of scarce, non-renewable building materials and other natural resources
- Potable water by 40%
- The amount of household waste by 50%

Optimization of

- Treatment and use of surface water
- Reuse of waste products
- Use of the content of energy and nutrients in waste and sewage

Improvement of

- Indoor air quality and environment in dwellings
- Immediate outdoor environment of housing areas
- Flexibility of dwellings to tenant requirements

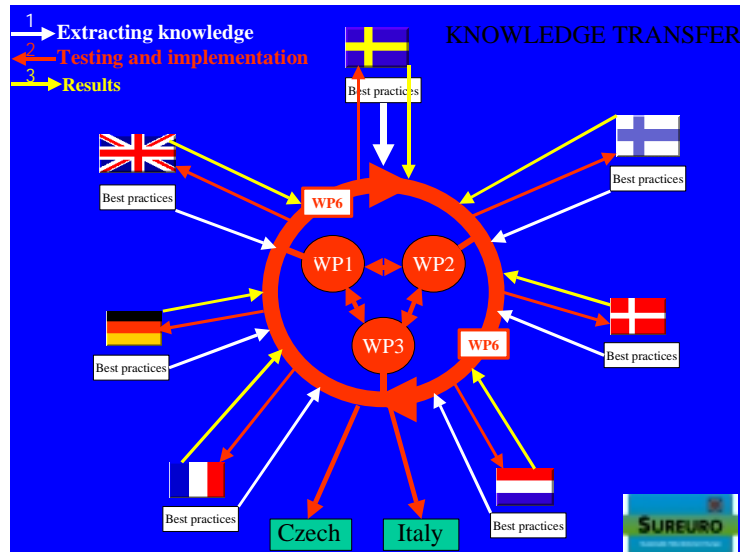
3 PROJECT MANAGEMENT APPROACH

In the project are beside the project management part 6 work packages have been defined to organize the work in this big project.

- WP0 Project management
- WP1 Strategic Management for the housing companies
- WP2 Building Process and design and construct tools
- WP3 Technical solutions for sustainable building

- WP4 Seven National Demonstration Projects
- WP5 Two demonstration projects in Czech and Italy
- WP6 Knowledge and Information System

The knowledge transfer has been showed in the next diagram



First phase in the project was the knowledge transfer from the seven countries to the international working groups. The results are the several state of the art reports as reported at the public web site www.sureuro.com

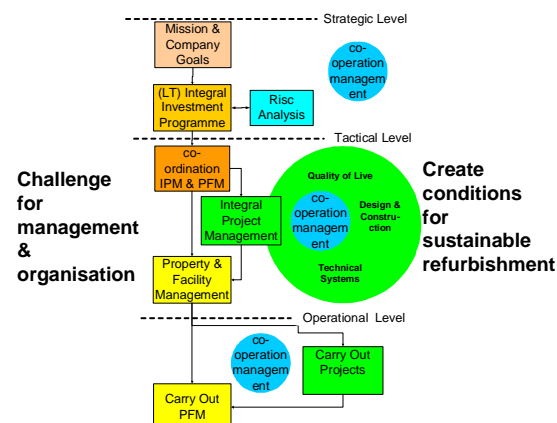
After analyzing and modeling this knowledge in prototype toolboxes the testing phase could start. The final toolboxes will be improved with the knowledge from the seven demonstration projects and this knowledge will be integrated in the Information System. (WP6)

4 RESULTS FIRST YEAR

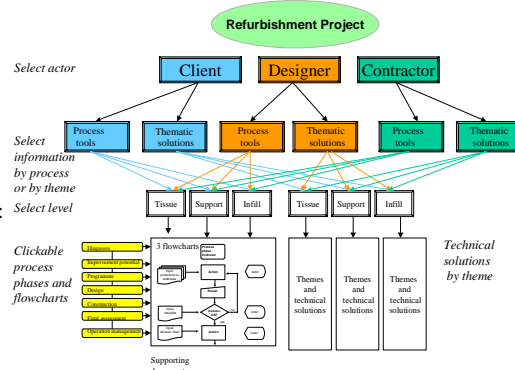
4.1 Milestone 1, Conceptual models

Conceptual models have been developed for:

1. Strategic Management
2. Project Diagnose, Brief, Design & Construct
3. Technical knowledge databases



Model for the strategic, tactic and operational aspects.



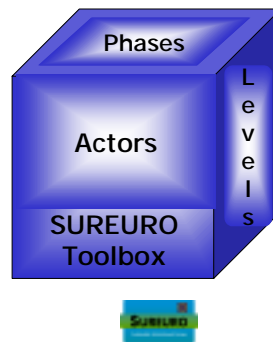
Model for the information about the Refurbishment project

4.2 Milestone 2, State of the art in 7 countries

At the public web site www.sureuro.com the national reports and a summary have been published.

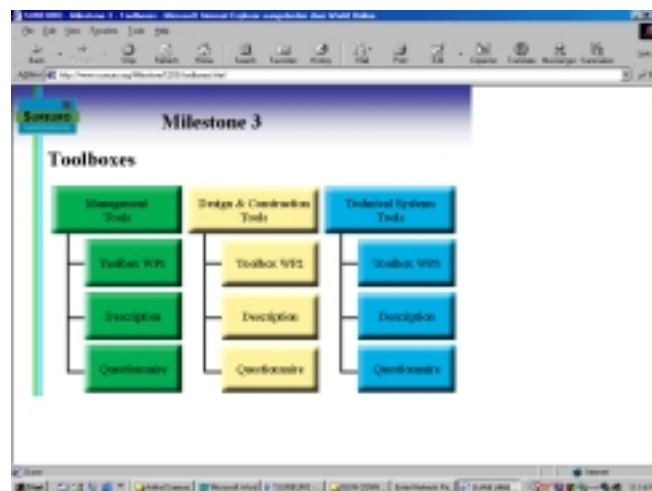


4.3 Milestone 3, Prototype toolboxes



Milestone 3 was the delivery of the concept toolboxes for Management, the design and construct processes and the technical tools for sustainable refurbishment.

In the next months the housing companies will test this toolboxes and in September 2001 the evaluation of this work will be published.



Toolbox SUREURO as delivered to the housing companies.

5 COMMUNICATION

5.1 During preparation

Also during the preparation a project web site has been established to communicate with all the partners. Because of many of the involved people did not have experience with E-mail and Web browsers the first period has been used as exercising and learning period for information exchange modern with E-mail and the project web.

5.2 General principles of communication during the project

The communication in the project has been organized round the project web site Sureuro.org. To the outside world the public web site will be used for explaining the work and giving parts of the results. In the next parts the principles for communication and documentation will be explained.

5.3 Web site

5.3.1 Public web site

The public web site www.sureuro.com is accessible for everyone without restrictions.

At this web site you can find the principles of the project, the partners, the press releases, the conference information and the description of the seven National projects.

5.3.2 Project web site

The project web site is accessible for registered participants in the Sureuro project. All relevant information about planning, budget, addresses, actual developments, meetings e.a. is available on this web site. The use for the first year is given in the next table. The extra number of hits in December has been caused by an attempt to hack the site.

Summary by Month										
Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Mar 2001	764	386	172	11	113	278643	341	5185	11591	22942
Feb 2001	758	595	145	14	144	147703	387	3918	16078	20489
Jan 2001	620	522	138	14	139	176647	439	4153	15669	18617
Dec 2000	132669	420	132286	14	153	2137332	440	3968588	12629	3980098
Nov 2000	335	201	186	21	213	166993	632	5602	6053	10050
Oct 2000	245	131	180	19	237	140447	596	5587	4063	7611
Sep 2000	305	162	207	16	211	362314	499	6227	4882	9162
Aug 2000	314	169	187	13	118	359550	403	5802	5239	9734
Jul 2000	76	50	54	4	42	34989	135	1621	1515	2294
Jun 2000	289	158	183	13	122	66942	394	5506	4758	8689
May 2000	179	123	87	6	65	79024	209	2723	3832	5550
Apr 2000	380	279	141	10	119	111199	323	4234	8387	11418
Totals						4061783	4798	4019146	94696	4106654

5.4 Mailing system

The web masters have organized a mailing system for the SUREURO project.

Internal mail between partners and participants will be addressed according the rules of the mailing system.

All mail addresses will have the syntax: <xx@sureuro.org>

<xx> stands for a person of a group to be addressed. For example:

- <ann@sureuro.org> means: Ann Romeis
- <all@sureuro.org> means: all participants
- <WP1@sureuro.org> means: the participants in WP1

The groups and persons which have been defined are listed at the web server. The first time the participants will receive the list by E-mail. This mailing list will be updated weekly by the coordinating partner and after receiving requests from partners for changes. From April 2001 people not on the mailing list are not allowed to login to the project web site. Registered participants are allowed to edit their own personnel data using the normal web browser.

5.5 Document system

Uploading files to the WEB server

The web site Sureuro.org has a special document mode for uploading, archiving and viewing documents.

The screenshot shows a web browser window titled 'SUREURO - Microsoft Internet Explorer ausgegeben durch World Online'. The address bar shows 'http://www.sureuro.org/project.htm'. The page content is titled 'File upload form' and includes a sidebar with a navigation menu. The main form area contains fields for 'File to upload', 'Title', 'Description', 'Author', and 'Category'. Below these is a 'Distribution' table with checkboxes for various groups. At the bottom of the form are 'Upload', 'cancel', and 'Archive' buttons. A footer banner at the bottom of the page states 'The SUREURO project is funded by the European Commission'.

File upload form

Please fill out the following information:

File to upload:

Title:

Description:

Author:

Category: ☒ Manuscript ☐ Presentation ☐ Report ☐ Tool ☐ Final Document

Distribution:

<input checked="" type="checkbox"/> Webmaster	<input type="checkbox"/> Partners	<input type="checkbox"/> Staff	<input type="checkbox"/> Steering C.	<input type="checkbox"/> Scient. C.
<input type="checkbox"/> WP0	<input type="checkbox"/> WP1	<input type="checkbox"/> WP2	<input type="checkbox"/> WP3	<input type="checkbox"/> WP6
<input type="checkbox"/> WP4.1	<input type="checkbox"/> WP4.2	<input type="checkbox"/> WP4.3	<input type="checkbox"/> WP4.4	<input type="checkbox"/> WP4.5
<input type="checkbox"/> WP4.6	<input type="checkbox"/> WP4.7			
<input type="checkbox"/> WP5.1	<input type="checkbox"/> WP5.2			

The SUREURO project is funded by the European Commission.
Information: [Information](#) [Contact](#) [Feedback](#)

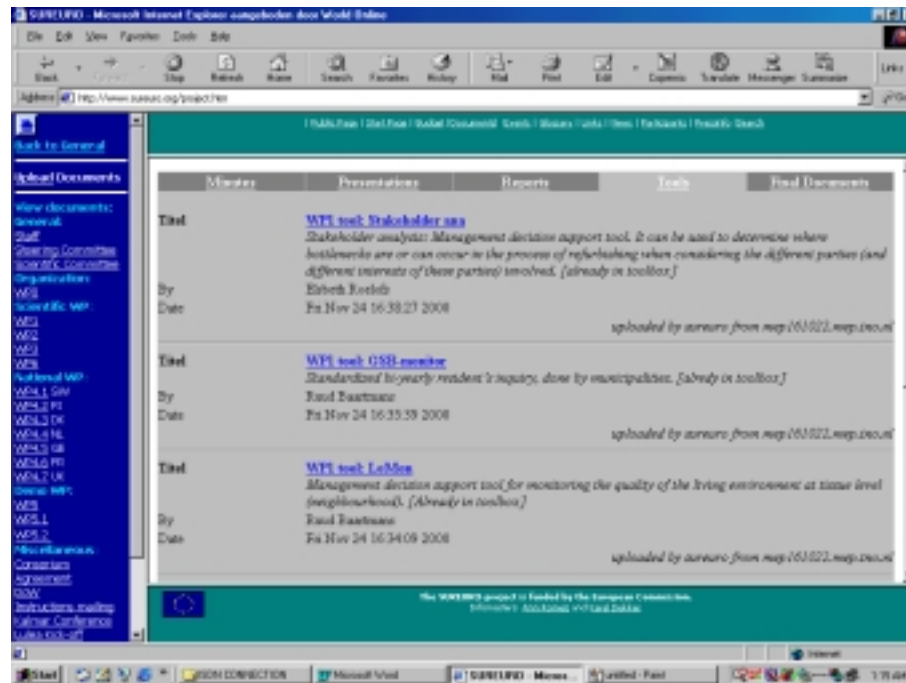
The upload form has to be filled in with the required data about the file and the instructions for dissemination. On this form the table for distribution can be used for distribution of the information. All the participants as listed at the distribution list send with the file will get a mail automatically with the information of the uploaded document. The document can be browsed at the web server. Also they can download the document for own use and work.

Electronic Documentation Processing

The uploaded file will be stored in the file database of the web server. Also the former files of the same subjects will be remained at the server. Links to this files(URL's) will be available in all WP

folders that are mentioned in the distribution list send with the file. In all WP folders there is a standardized set of folders for documentation and browsing:

- minutes
- presentations
- reports
- tools and instruments
- final documents (approved by Scientific Committee)



Example of documents in the WP1 folder.

5.6 Administrative system

The web site has been used also for the whole administration, budget information and budget control during the project. All information has been stored in relational databases which can be edited using a internet browser but only if the authorization is given to the person logged in.



Main menu administrative system

Search for Company (by Name)

Company (link)

Company Info		Actions	
TNO-industrie			
Wwwname	Subcontractor	Code	SL3.4
Type	+31 35 269-6800	Fax	+31 35 269-6300
Address	P.O. Box 6031	City	Delft
PC/Reg.	NL-2580 JA Zuid Holland	Country	Netherlands
State			
Company Details			
Persons Budget Control Bankaccounts Institutions Relations			
TNO Building and Construction Research			
Wwwname	TNO	Code	P12
Type	Assistant Contractor	Fax	+31 35 269-5359
Address	P.O. Box 49	City	Delft
PC/Reg.	NL-2580 JA	Country	Netherlands
State	Zuid Holland		
Company Details			
Persons Budget Control Bankaccounts Institutions Relations			

Example of company information

Person Details of Mr K.H. Dokker

Personnel

Salutation *

Title

Initials (Use period after initial, for example: J.D.)

Firstname

Middlename

Lastname *

Acronym *

Nationality

Birthdate (dd-mm-yyyy)

Contact business

Phone

Fax

Mobile

E-mail

Contact private

Phone



Example of information about persons

Add new Timesheet by TNO Building and Construction Research

Timesheet Info

Person *

Period *

Group

Scientific Committee

Staff

Steering Committee

Text

vp0

vp1

vp2

vp3

vp4.1

vp4.2

vp4.3

vp4.4

vp4.5

Example of monthly time sheet to fill in by the partners themselves

Selection: Period December 2000

Timesheet(s) of TNO Building and Construction Research

Period	Person	Group	Hours	Labour	Overhead	Actions
December 2000	Mr E.H. Dekker	vp0	20.00	£ 62.26	£ 80.21	Details
December 2000	Mr E.H. Dekker	vp1	2.00	£ 62.26	£ 80.21	Details
December 2000	Mr E.H. Dekker	vp6	20.00	£ 62.26	£ 80.21	Details
December 2000	Mr R. Lanning	vp1	2.00	£ 45.54	£ 72.46	Details
December 2000	Mr R. Lanning	vp6	20.00	£ 45.54	£ 72.46	Details
December 2000	Mr G. van der Brand	vp2	22.00	£ 36.30	£ 57.18	Details
December 2000	Mr L. van der Heijden	vp0	3.00	£ 22.76	£ 36.23	Details
December 2000	Mr P. Bessopoot	vp1	17.00	£ 140.00	£ 0.00	Details
Subtotal			112			

Expenses of TNO Building and Construction Research

Example of information about used resources during one month

6 DISSIMINATION AND EXPLOITATION

6.1 Web site

Main results and news about the projects will be published at the public web site www.sureuro.com

6.2 Conferences and seminars

First official international conference held in Kalmar in Sweden (see www.sureuro.com)

The next international conference will be organized in Delft from 2 till 8 October 2001.

This conference will be held in combination with the international CIB W104 conference.

6.3 Exploitation after the project

The consortium will establish a special company to exploit the results in Europe after finishing the Sureuro project.

ACKNOWLEDGEMENTS

The SUREURO-project is partly funded by the European Commission.