GENERAL INFORMATION

PETUS description of tool in use	
Name of the case	Sustainable building on the Teglmose site in Albertslund
Name of the tool	Context analysis
Country	Denmark
City / region Total area (km2) Population Density (people/km2)	Albertslund 23 km^2 30.000 people 1.304 people / km^2
Tool user's profile a. Organisation name (municipality, NGO, national or regional department, company, etc.) b. Field of activity c. Detailed contact/feedback (project website, e-mail, address, tel., fax)	 a. The municipality of Albertslund (client), Hedeselskabet (consultant) b. holistic c. Albertslund: http://www.albertslund.dk/ Hedeselskabet: http://www.hedeselskabet.dk/ Context analysis**:** http://www.er.dtu.dk/projects/kloaklose/topsidestedsanalyse.htm
Reviewer, date	Birgitte Hoffmann and Jesper Ole Jensen, marts 2004/December 2004

Short description of the case

The case describes the use of the context analysis in the planning of a green building project 'Teglmose site' in Albertslund with app. 100 dwellings. The tool was used to support the choice of environmental initiatives in the buildings and to integrate the relevant actors in the process. The tender documents have been completed, but a final project is not ready yet.

Why was the case chosen? To which PETUS key-problem is this case study related?

The tool addresses the problems of integrating contextual conditions as well as different criteria. Furthermore the tool integrates different actors in the decision process. The tool has – at least - been used in two cases on sustainable buildings and in several cases on water; this is the newest and most holistic.

Sector	Waste	Energy	Water	Transport	Green/blue	Building and Land use
						X
Scale of project	Component	Building	Neighbourhood		City	Region
		(x)	X			
Status of project	Starting up	Ongoing	Finished		Start date	End date (exp.)
		X				

Key words

each reader (author, expert, non-expert) may add his/her own suggestions

Project a. Object (building, city park, wind farm, etc.) b. Type of activity (regeneration, renovation, new development, etc.) c. Type of product (plan, scheme, design project, etc.)	 a. Sustainable neighborhood b. New development c. Design project
Tool a. Character (according to WP3final0704.doc) b. Benchmarks (qualitative or quantitative) c. Availability (paid/ free)	 a. Process tool b. Qualitative goals c. Free
Decision-making process a. Stage of the tool implementation (preliminary, midterm, etc.) b. Level (political, technical, etc.) c. Public participation	 a. Preliminary b. Political and technical c. Residents involved in decision-making process
Other *(optional, if needed)*	

A. Detailed description of project and tool	
1. Description of context (existing strategies, laws, policy, action plans, etc.): EU, national, regional, municipal	
2. Description of project a. Background (What caused the initiation of the project?; What was the problem? Who initiated the project?); b. Objectives/aims (sustainability statement – what issues of sustainability were attacked); c. Time interval and stages of project realization; d. Financing – amount, sources, institutions involved, partnerships, levels. e. Other sectors involved in the particular project/problem (conflicts and/or links)	The case describes the use of the context analysis in the planning of a green building project 'Teglmose site' in Albertslund with app. 100 dwellings. The tool was used to support the choice of environmental initiatives in the buildings and to integrate the relevant actors in the process. The tender documents have been completed, but a final project is not ready yet.  **Figure 1.** Model of the planned project for sustainable building at Teglmose the site.
3. Description of tool a. Character (according to WP3final0704.doc) - calculation tools, process tools, assessment methods, generic tools, simulation tools, guidelines, framework tools, schemes, indicators and monitoring, checklists, case-specific tools; b. Availability of the tool (web-based / paper, paid / free, etc.) c. Based on existing tool or newly elaborated; d. Adaptation of the tool to the local context (are there local experts involved in tool's development?) e. Other tools implemented to support the project development	a. The context analysis is a planning tool for comparing and assessing the sustainability of different urban ecological initiatives or technologies. The context analysis includes 3 elements: 1. A locality analysis 2. A multi criteria analysis 3. A dialogue workshop So far the tool has been used in both the water sector as well as in the building sector. The tool can be developed to match other sectors. b. The tool is available (in Danish only) at http://www.er.dtu.dk/projects/kloaklose/topsidestedsanalyse.htm c. It was originally inspired by a Multi Criteria-tool from the transport sector. d. The aim of the tool is to take the local context into consideration, when planning for sustainability. e. The tool BEAT (for assessment of sustainability in buildings) was also used in the process
B. Tool implementation	
1. Argumentation for choosing the tool a. What were the reasons for the implementation of the tool? (voluntary or requested by what local, national, etc regulation) b. Who took the initiative for choosing /elaboration the tool? c. What were the criteria for choosing the tool? d. Was there knowledge of other tools and were they considered?	a. The municipality of Albertslund has a long tradition – and a strong profile - for being environmentally ambitious. They wanted a plan for the site based on a systematic evaluation of the initiatives. b. The municipality of Albertslund c. As there is no tradition for systematic or holistic evaluations of sustainable efforts in new buildings, it was decided to make a systematic selection, based on the methodology of 'context analysis'. Further the municipal wanted to set up a local group of key persons in the planning process, and had previously tried the method of the 'dialogue workshop'. d. See above
2. Barriers for the tool implementation What were the main problems in the tool implementation? (Regulation, information available, public awareness, lack of clear SD definitions and benchmarks, communication etc.)	A main challenge was to transform the overall environmental objectives e.g. to reduce the discharge of CO_2 to concrete demands for the buildings e.g. that the heat consumption should be kept under a third of the building code and that the power consumption must not exceed a level of 2000 kWh per year pr household.
C. Influence of the tool on the decision-making process	

1. Description of the decision-making process/ procedures

a. Stages

a. The evaluation and selection of initiatives consisted of the following phases:

- An analysis of local physical conditions and local supply systems and an evaluation of the flows of energy- and material that the buildings would cause. The analysis covered a registration of the architectural characteristics of the municipality, and the local infrastructure and landscape. This included environmental problems, actual and planned capacity of the infrastructure plants etc. for heat and electricity supply, waste and wastewater treatment.
- A dialogue workshop with local key persons produced visions and criteria for the Teglmose site. Also, the environmental demands from the municipality of Albertslund and their Agenda 21-plan were as incorporated. On the basis of this the municipal developed a list of overall criteria for the building. This included goals to reduce fossil fuels, reducing groundwater consumption, encourage local percolation of rainwater, reduce the number of environmental harmful substances in the wastewater, and minimising waste.
- In the fall of 2000, an idea competition was completed for the site. 6 contributions were submitted, including suggestions for the buildings and the green initiatives.
- Multi criteria screening. All the green initiatives presented in the different contributions in the competition were collected in a gross-list. The screening was based on a rough estimation of the importance for environment, community etc., contrasted the expected barriers in terms of economy, organisational conditions, technology and comfort (see below).
- The screening led to a number of demands for the buildings and tender documents were produced.
- The municipality made a legally registration (tinglysning) of the demands on the Teglmose site, so that they will apply for all owners and users in the future.

The multi criteria screening

Elec. Prod.	Env. Impact	Economy	Technology	Comfort	Self-management	Robustness	Demo value	Priority
CO_2 neutral windmills	++	++	+	0	0	++	+	1 /++
CO_2 neutral PV's	+	--	+ (new)	0	0	++	~~0~~	/+

Table 1. Example on the screening-scheme set up for a quick assessment of the different possible efforts suggested in the idea-competition. The benchmarks were assessed according to the performance compared to traditional practices – and in relation to the local context

Formulation of the demands

The demands were formulated in a hierarchical way: The building had priority compared to the building parts, and the building parts compared to the building components. The idea of defining general goals was to give the designers large degrees of freedom to establish creative solutions on how to achieve these goals. E.g. no specific guidelines were given on which materials to use. Recommendations and minimum demands for the future building were described in 3 levels according to the traditional decision levels in the Danish building process: a master plan (official approval), a building scheme (official approval) and a detailed project. The demands were further detailed in relation to functions and methods. An e.g. of a functional demand is that the heat

b. Levels (political, technical, etc.) c. Sources of information used during the dmp; d. Who are the decision-makers? e. Who made the final decision for the project implementation? Was it political or technical decision?	consumption is to be max 33% of the standard in the building code (BR 95). Thus the demand is not directed towards a specific component e.g. windows, but the designer has to document that the buildings live up to the demand. An example of a methodological demand was that alternatives for central building parts had to be environmentally compared, using the LCA-tool BEAT 2000 (see WP 2 or description). b. Technical and political c. Discussions and decisions on different solutions were taken at workshops with key actors. d and e. The main decision-maker is the municipality of Albertslund. This includes both politicians and municipal planners and technicians, who were very proactive in making a 'green' project. As the municipal owned the building site they could increase the requirements for the green qualities of the building project The other actors included in the process were primarily: • A group of local key persons (citizens) including representatives from the future inhabitants participated in a dialogue workshop creating visions for the Teglmosegrunden. During the process an association of future residents was established with the objective to build on the site. The cooperated with the municipality to establish high quality green buildings and surrounds. • 6 firms were invited to join an architectural competition to produce a unified plan for the area and for the green residents. • The consultant was in charge of the process including the application of the tool. The consultant was part of the team who developed the tool.
2. Tool in decision-making process a. At what stage was the tool implemented? By whom? (experts, politicians, etc.) b. How did the tool output influence the process (added or skipped levels/stages in the existing decision-making process, etc.)? c. Quantitative goals or benchmarks defined? (If YES, which – and what were they compared to?) d. Was the tool used to support argumentations?	a. see above b. the tool implied a new type of decision-making procedure, compared to traditional buildings (including stakeholders, defining goals etc.). c. Yes. The tool operates with quantitative benchmarks of different aspects involved in the planning process. The benchmarking compares to traditional building qualities, as defined in the building regulations. The idea was to define quantitative goals, and let the consultants and designers decide how they would accomplish these goals. d. see above.
3. Transparency of decision-making process a. How was the information of the dmp disseminated? - directly (decision makers – public) or indirectly (decision makers - NGO, PR company, etc. - public); sources of dissemination used (mass media, internet, brochure, etc.) b. How was the public involved? c. Was there a public discussion over the project and at what stage of the project development?	a. Decisions and alternatives were open discussed at workshops with key actors involved. b. The coming residents of Teglmosen were participating in the workshops c. Other citizens are invited to give their opinion through the local planning procedure, which, according to the planning act requires a hearing period for neighbours
D. Expert assessment/analysis/comment of the tool effectiveness	
1. Assessment by tool users a. Were there measurable improvements as a result of the tool implementation? If YES, what? If no: why not? b. Were there any spun-off's or unintended consequences? c. General view on the tool? Lessons learned?	a. The project is ongoing; therefore no measurable improvements have been reached yet. b. it is too early to say c. The tool enabled the municipality to set up a systematic analysis

d. Potentials for further use of the tool? e. Will the actors recommend it or use it in other cases - why / why not?	and thus demands for the building of the site. Further the tool contributed to integrate the citizens and to strengthen a transparent planning process. Thus it is concluded that the case shows that it is possible to achieve large advantages in relation to environmentally sustainable building and at the same time obtain high architectonic and social qualities – without making the building much more expensive. d. The Danish Ecological Council has further developed the multi criteria method used in this case. They have simplified the method, and made it more visual, in order to used it to communicate good and bad aspects of a project, in a manageable way. With this method they have assessed 8 green projects in Copenhagen, covering buildings and infrastructure: • Munkesøgård (Roskilde) • The Green Laundry in Folehaven (Copenhagen) • Hedebygade green buildings (Copenhagen) • Water savings and groundwater protection (Greater Copenhagen) • Waste sorting at Nørrebro (Copenhagen) • LO-house at Islands Brygge (Copenhagen) • "Stenurten" (the "Stoneweed"), green children institution at Nørrebro (Copenhagen) • The Ecological Inspiration House (Copenhagen) The method and the cases have been presented on a poster exhibition, designed for presentation and exhibitions on different places (libraries, schools, etc.). e. Yes
2. Reviewer's assessment of the tool (usefulness, sustainability relevance, who are the actors excluded? etc.) Suggestions and needs for further development of the tool	See D.1.c It was very important that the political level in Albertslund was active in formulation the main objectives, so that these could work as a basis for the idea competition – and a basis for focusing on the set of criteria instead of on specific technical details.
E. Additional information on the case study available	
Websites	http://www.er.dtu.dk/projects/kloaklose/topsidestedsanalyse.htm
References *concerning the case but also the key words or problem* (papers, articles, reports, laws, etc.)	• DOMUS-arkitekter og Gabriel, S (2001): *The performance and assessment of urban ecological initiatives on the Teglmose site – the Background for urban ecologcial demands and suggestions* (In Danish: Opstilling og vurdering af byøkologiske tiltag på Teglmosegrunden – Baggrund for byøkologiske krav og anbefalinger). The municipal of Albertslund kommune. • DOMUS-arkitekter og Gabriel, S (udateret): *Suggestions to urban ecological demands and recommendations to the builing on the Teglmose site* (in Danish: Forslag til byøkologiske krav og anbefalinger til byggeriet på Teglmosegrunden). The municipal of Albertslund kommune. • Aaberg, H. et. Al. (2002): *Visions and perspectives for ecological building* (In Danish: Visioner og perspektiver for økologisk byggeri. Stads- og Havneingeniøren no. 8, 2002.
Other sources (Interviews, conferences, discussions, etc.)	Søren Gabriel, Hedeselskabet.
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