

Sustainable households or overworked residents? Risks assessment from ecological and conventional living.

Project director and supervisor: Jan-Olof Drangert, Dept. of Water and Environmental Studies, Linköping University

PhD student: Helena Krantz, Dept. of Water and Environmental Studies, Linköping University

Co-supervisors: Mariken Vaa the Nordic Africa Institute, Elin Wihlborg Linköping University (preliminary)

Project objectives

The overall aim of the project is to enhance the understanding of the willingness and ability of households to take on new responsibilities for improved sustainability. Studying how residents/users view and perform their roles, as guardians of nature, is important when it comes to the design of water and sanitation systems. Residents' perception of possibilities and risks is under investigation as it may affect the choice and outline of future urban water systems.

Contribution to the Urban Water syntheses

The methods used are of qualitative nature, i.e. interviews and diaries. The researcher analyses and interprets the qualitative data. The researcher, or others, can carry subjective exercise to transform these results into policy suggestions. The results from this project will provide the system analysis with sufficient material of socio-cultural criteria and indicators to produce tools for policy statements. For example could user participation concerning planning, construction and maintenance be one sustainability criteria. Risk perceptions are another example. Combining natural scientific risk analysis with the social risk analysis (as expressed by the users) will broaden the risk concept for the benefit of the system analysis. The methodology of combining diaries and interviews is in itself a contribution. It supposedly gives information of how social, cultural and physical structures constrains or provides possibilities to act in an environmentally friendly way. Hence, it could make up a tool for taking public considerations into account in future spatial planning.

Results from Phase 1 in summary

A telephone-interview study with 125 municipality officials, mainly from the water and sanitation sector, about wetlands and their use, purpose, development etc, showed a trend towards intensified wetland development in urban areas. The purpose of urban wetlands and dams were for local treatment and retention of storm water and often combined with esthetical purposes. The study was subsequently followed up by an interview study with residents and representatives for organisations in the residential area Augustenborg, Malmö. The study points out the following nine critical aspects for the social sustainability of open storm water systems; function, operation and maintenance, aesthetics and design, environmental benefit and resource use, personal safety, co-existence, participation, disturbance and economic aspects. A third interview study,

conducted in two steps, was carried out with people moving into Hammarby Sjöstad (newly constructed area). The aim of the study was to learn about determining factors for peoples' environmental behaviour and their attitudes to environmental issues concerning water and sanitation, energy and solid waste. The study shows that, the informants are generally well informed about environmental issues and they are prepared to make priorities. They do not consider it acceptable to waste resources, but also that saving resources require convincing arguments. Some argue that household performance are irrelevant in comparison with industrial pollution and that environmental efforts should primarily be undertaken where it is needed the most, like in Eastern Europe. Producer responsibility is also highlighted and service providers and building companies should for instance install water and energy saving devices and proper structures for sorting of solid waste. Changes in user behaviour are mentioned as a measure for environmental improvements, but requires convincing arguments and are of lower priority. Sorting of solid waste is however already integrated in the household routines and considered as a normal household chore.

Planned activities

The main empirical work is to be performed in the model-city Urban Enclave. Four households have initially been selected, where seven of the members are writing diaries during 16-20 January 2002. They are asked to focus on their water and sewer use and to include notes about use of chemicals; hygiene products and time devoted to water and sanitation related activities. They will also estimate the amount of water used. The diaries will be analysed and followed by interviews in the beginning of February 2002. After evaluation of the method, a revised method may be used with additional households. In the autumn 2002 a second round of interviews will be conducted with about 20 residents in the urban enclave, covering a broad range of aspects.

A reference study will be made in the suburban area Ringdansen. The area has a conventional centralised system but water meters for each household are installed, consequently the use of cold and hot water is individually paid for. However, the individual billing is not introduced until summer 2002. Selected household comparable to the ones in Gebers, will write diaries and be interviewed before the individual charging of water is at hand, spring/summer 2002. A second interview round of more in-depth interviews will be conducted after a few months of billed and metered water consumption, in autumn 2002. The collection of data, measured water consumption, diaries and interviews, will be performed in co-operation with Mattias Hjerpe.

The study in the suburban area Ringdansen has three purposes:

1. To analyse peoples' water-behaviour, having the economical incentive to save water.
2. To work as a reference study to the study in the urban enclave
3. To evaluate the method of using diaries. As it is possible to measure the actual use, the effectiveness of the diary-method could be evaluated. What is written down, how often do one miss out?

A second round of interviews with the same informants in Augustenborg will complement the stormwater study in spring 2003. The open storm water system was not

completed at the time of the initial study (spring 2001). Time of operation could be crucial for the set of critical factors and therefore a follow-up is important. There is an interest from Stockholm Water Co to follow up the Hammarby Sjöstad study in 2003. A similar study as the previous one will be done, but of somewhat lesser dignity. Seminars, conferences and workshops of different kinds and locations will be attended throughout the remaining time of the doctoral studies. The empirical material will be gathered until spring 2003. The following year is for analysis and writing. The final thesis should be completed and defended in the autumn 2004.

Participation in the model cities

The empirical studies are carried out in the model-cities Urban Enclave (Gebers) and Suburban Area (Ringdansen, Augustenborg). Throughout, the studies are performed in close co-operation with Mattias Hjerpe (economics). In the Urban Enclave co-operation are primarily imminent with Therese Westrell (MRA project), Jan-Olof Drangert (institutional studies) and Helena Palmquist (distribution of substances). I am partly involved in The Newly Constructed Area (Hammarby Sjöstad) as students under our supervision have done a study there, a study which is planed to be followed up.

Networks

Co-operation primarily takes place with colleagues in UW. There is collaboration with others researchers active in stormwater issues in Augustenborg, Malmö, and also Peter Stahre and Lars-Erik Widarsson at Malmö Waterworks. Contacts are established with Technische Universität, Berlin, Danish Technical University, Copenhagen, EAWAG, Zurich. There is also contact established with Harald Kraft (consultant in the water and sanitation sector).

Budget

Funding by the Urban Water Programme. Malmö Waterworks will partly fund the interviews in Augustenborg and Stockholm Water Co the planned studies in Hammarby Sjöstad.

Deliverables

Deliverable	Time	Delivered	Comment
Handling stormwater in open structures; a case study of critical factors for sustainability. Co-written with the economics project. Study area is Augustenborg.	2001		Poster presented at the IWA conference in Berlin 15-19 October 2001. Poster manuscript in conference proceedings. Report to Malmö Waterworks, printed early 2002.
Report on environmental awareness before and after moving in to an area with an	2001	✓	Conducted by students from the SKA-programme in Norrköping. Supervised by

ecological profile (Hammarby Sjöstad).		Helena Krantz and Jan-Olof Drangert. A Stockholm Water Co report.
Develop and test the method of combining diaries and interviews.	2001 - 2002	Empirical studies in January-February 2002 (Gebers) and summer 2002 (Ringdansen). Methodology to be presented at conference in 2002.
Report on perceptions of technology and the physical infrastructure concerning water and sanitation in households. Reactions to new technology.	2002	Comparison between integrated system (conventional) and alternative systems. Thesis chapter presented at seminar.
An analysis of perceptions of sustainability at various organisational levels: households, system managers, consultants and producer of sanitary equipment.	2002 - 2003	Part of a joint paper with project B 1.2 and B 1.3. Ambio, potential journal for publication
Design criteria for technical development in line with user attitudes, values and perceptions of risk.	2003	Delivery to the system analysis group for policy formulation.
Quantitative health risk assessment versus qualitatively perceived risk in water and wastewater systems.	2004	Co-operation with Therese Westrell. Jointly written article.
Final thesis on households perceptions of risks concerning changes in the water and sanitation system and how that is connected with the concept of sustainability.	2004	PhD Thesis
