

IM@GE OF ECO-SANITATION FORM FOLLOWS FUNCTION? FUNCTION FOLLOWS FORM?

10 projects of eco-sanitation, designed by students of the School of Architecture of the Vienna University of Technology.

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1. Introduction

The South-Western Towns Water and Sanitation Project (swTws) is designed to ultimately cover small towns and centres of rural growth with appropriate infrastructure for water and sanitation in the SW of Uganda. The project is run by the Directorate of Water Development (DWD) funded by the Austrian Development Cooperation.

The Institute for Water Provision, Water Ecology and Waste Management (IWGA-Sig) is responsible for programming, planning, technical and managerial supervision. It is still involved in monitoring and development of the Ecological Sanitation component.

The IWGA-Sig invited our School of Architecture to cooperate on this project. The main aim of the project **Im@ge of Eco-Sanitation** is to design a contemporary architectural form using Eco-Sanitation appropriate to the location. Main purpose of our project is to highlight the ecological, technical and economic values of Eco-Sanitation by a high quality in architectural design. Therefore two topics are to be fulfilled in this project:

a The creation of a positive image of Eco-Sanitation.

We draw on graphic and visual methods used in advertising to promote a broader acceptance for the use and spread of Eco Sanitation Systems.

b Functional and architectural solutions of concrete planning requests.

The application of Eco-Sanitation is presented on the basis of 3 concrete locations in the city context of Kisoro: Family Housing, the Market Square and an Elementary School.

The project Im@ge of Eco-Sanitation was developed within the context of a seminar organized by the Institute of Urban Design and Planning; a group of 13 students of architecture were involved during the winter term 2000/01.

2. The Project

The project **Im@ge of Eco-Sanitation** is based on the „*current knowledge about Ecological Sanitation Systems and their weaknesses and strengths*“, as presented in the well known book by Sida.

Further bases are composed by:

- analysis of the urban structure of kisoro
- analysis of local typologies of houses
- climatic conditions and available building material as well as

- the conclusions drawn for the planning of Eco-Sanitation projects

Further reference points were:

- the experiences of Hans Schattauer in the application of water- and sanitation management in kisoro as well as
- the explanations of Austin Tushabe and Herbert Nuwamanya about the sociological value of eco san projects in Uganda.

Based on that information we operated on the two topics of the project mentioned above, although it was not possible to visit kisoro and to analyze these data on location.

2.1 The creation of a positive Im@ge of Eco-Sanitation

In that context we as architects particularly dedicated ourselves to the requirement of image and acceptance of Eco-Sanitation within the population. We hold the opinion that an innovative and sustainable idea and its distribution should also claim a high aesthetic quality to facilitate the creation of a positive image.

For this purpose the principles of the advertisement are to be used: advertisement is seen as a “machine” to convince people; it carries a specific ideology as well as produces desires.

As advertisement is transported primarily by images, we try to create a positive acceptance of Eco-Sanitation in using architectural design. Working on the construction of a simple and small building does not mean that the design is to be neglected. Building functions within the technical-ecological area also have the right to quality of shape.

The pictures presented shall be understood as an image campaign. They present a promising technology in a contemporary setting. The pictures should attract attention and should bring the topic of Eco-Sanitation for discussion, even provoke it.

2.2 Functional and architectural solutions of concrete planning requests.

A further requirement of the project **Im@ge of Eco-Sanitation** is to integrate Eco-Sanitation Systems functionally into the housing-units and into the urban structure.

Exemplary model designs are created for 3 locations in the city context of Kisoro:

2.2.1 Family housing - Typology

A typological analysis of existing housing buildings shows the frequent use of the u-shaped ground-plan. For this type of ground-plan therefore several versions are offered for localizing the Eco Sanitation:

- outside the housing unit
 - clearly separated - visually and functionally - from the living areas.
- inside the housing unit - two options are offered:
 - the Eco-San Toilet is situated in the back area of the housing federation; visual contact with the living areas is reduced to a minimum
 - in the second option the Eco-San Unit is located directly next to the main entrance of the building and is clearly visible from the street. This is a quite provocative location and operates with the premise: *architecture as carrier of an ideology*. This solution communicates the most innovative element of the building proudly to the outside and will influence the image of public space.

- **Conclusion:** the application of Eco San Technology in Family Housing highly influences form and function of the residential building itself.

2.2.2 Market Square

The Central Market Square in Kisoro is frequented by hundreds of peoples daily. The central topic here is the demand for sanitary infrastructure. The application of Eco-Sanitation offers two alternative solutions with different designs:

- **Single public toilet**

The first solution is focussing on the functional requirement and is generally placed at the edge of the Market Square. In the design several Eco-San Toilets are situated side by side; men's and women's toilets are separated. In each case, the emptying of the hygenized faeces is effected from the back. An private operater is responsible for running and cleaning of the public toilet.

- **“Social” public toilet**

Additional uses of the public toilet are highlighted in the second solution, for example by installing public telephones or showers or by simply creating a meeting point. Another design presents the „social“ public toilet as a centralized building in form of a ball-segment opening upwards.

The Eco-San Toilets are located around a central open space, containing social and communicative functions as meeting place or a space for rest. The signification of this building is in its self-confident centrality, bringing the topic of Eco-Sanitation into the centre of discussion. Here functional requests are also linked with the question of image.

2.2.3 School

The third location concerns the design of a Eco-San System for a primary school. It is based on a similar principle as the public toilet at the Market Square. Depending on the size of the school several Eco San Toilets are situated side-by-side with openings for emptying from the back. The demands of children are to be taken into account when it comes to the dimensions of the premises.

3. Methodology

On the theoretical level the lecture covered the questions of cause and effects as well as the handling of urbanisation process in Southern countries and its consequences on design conditions. The process of designing took place in interdisciplinary workshops. Technical knowledge about Eco-Sanitation was gained by detailed studies and descriptions. Existing housing- and settlement typologies in Kisoro were analysed in order to optimize the locations and to specify the design conditions. Furthermore the specific architectural and constructional demands for integrating an ecological disposal system into the design were studied as well as climatic aspects and the chosen material. Extensive thoughts were given to sociological components in order to define the final aims of the designing process and to ensure its effectiveness in the image campaign.

The workshops were realized in cooperation with:

- Austin A. Tushabe (former Project Coordinator) and Herbert Nuwamanya (Technical Officer), South Western Towns Water & Sanitation the Project, Kabale/Kisoro/Uganda
- Hans Schattauer, Dept. for Sanitary Engineering and Water Pollution Control, Institute for Water Provision, Water Ecology and Waste Management, University of

Agricultural Sciences, Vienna

- Guenther Stachel Austrian Ministry of Foreign Affairs, Division for Development Cooperation, Vienna.

4. Conclusions

The projects presented are reflecting the diversity of individual architectural and technical thoughts, whereby the fulfilment of functional requirements was of great importance.

The projects answer the initial question about the relation of form and function in that way, that image and design are closely connected to technical solutions.

Finally the project **Im@ge of Eco-Sanitation** tries to make a contribution to a broader acceptance of Eco-Sanitation Systems. To intensify this discussion process we are using architecture as a carrier of ideology.

Moving on the verge of creating an image-campaign on the one hand, and the concrete functional demands for planning on the other hand is a seductive and interesting journey which naturally leads to provocative and daring solutions