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Title	**Inter-disciplinary research on Ecological sanitation in seven west African countries**
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Inter-disciplinary research on Ecological sanitation in seven west African countries

Several of the francophone countries in west and central Africa are found on the bottom of the UNDP list of human development indexes. The populations are living under materially small circumstances and sanitary facilities, safe handling of water and hygienic knowledge are often absent and subordinated the daily provision of food for the family.
The target groups of Crepa, the regional centre for water supply and sanitation, are disadvantaged populations in urban, peri-urban and rural areas who do not have access to basic water and sanitation services.
With support from the Swedish international development cooperation agency (Sida) Crepa has initiated a research programme on ecological sanitation, running from 2002 until 2005. The programme is part of the international research programme EcoSanRes and is administered by Crepa headquarters in Ouagadougou. Pilot projects are executed by the Crepa national offices in eight countries: Benin, Burkina Faso, Congo, Guinea, Côte d'Ivoire, Mali, Senegal and Togo. The countries present a variety of geographical, social and cultural differences and each national research team has elaborated its own project document in order to adopt the specific conditions of the country to the research.
The aim of this programme is to develop a strong expertise regarding ecological sanitation in west and central Africa through the pilot projects in the region.
By initiating this program Crepa has the long term objective to ameliorate the social and sanitary living conditions of the targeted populations by facilitating their access to appropriate sanitary strategies and systems, adapted to their financial capacity.
The objective for the first two years of research is to study the feasibility of Ecosan systems in given socio-cultural contexts.

Three main results are expected from this programme:

- Ecosan pilot projects for research and demonstration are satisfactory realised in the eight countries.
- Tools for the promotion of Ecosan are developed.
- The Ecosan system is disseminated in the countries where Crepa is active.

The research programme is carried out in three phases: the preparatory phase, the phase of research and testing and the dissemination phase.

The project approaches now the end of the second phase and the collection and restitution of research results and data is going on. By the end of 2004 documentation will be published and the dissemination phase will focus on capacity building in the region and spreading of research results world-wide as well as scaling up the system.

Social aspects

The preparatory phase included profound socio-cultural studies of the populations' habits, preferences, opinions on excreta, household compositions, economical status, religions and beliefs. The national research teams have, on the basis of these results, elaborated appropriate solutions to meet the demands due to e.g. Muslim populations, that uses water for anal cleansing, gender inequalities in the ownership of the collected urine and animistic traditions that decree certain manners.

Technical aspects

The design and functions of the latrines were elaborated in dialogue with the households. In the initial Ecosan training, one model was presented, which is now developed into five, including separation of water for anal cleansing, wet pit and public urinals. By the end of 2003, more than 100 Ecosan toilets had been constructed by local masons and were in use. In the work of phase two, emphasis will be put on using more local materials, lower the cost and increase the diversity of technical solutions.

Agricultural aspects

The countries represented in the programme show a variety of climatic conditions. In the southern coastal areas, agricultural activities are possible throughout the year, whilst in Sahelian regions the precipitation is concentrated to four months and methods for storage of urine, with minimal loss of nitrogen, are therefore being developed.
The populations have in general great belief in the outcome of the agricultural tests. In one pilot site, the chief of the village have started his own experiments with continuous dosage of urine and the results were immediate and visible to other villagers.

Sanitary aspects

In 5 of the 8 pilot sites there is no sanitation facility and the project is met by interest and enthusiasm from the beneficiaries. To investigate the veritable impact on the public health, the frequency of cases of illness and the personal hygiene habits, are followed. The urine and compost of faeces are applied on different types of crops: yam, cassava, tomato, maize and papaya, to study the possible contamination by direct or indirect contact.

Conclusions and Recommendations: Much can be expected from this Ecosan research programme. The first results indicate that the Ecosan concept is feasible in the region and that the multidisciplinary approach is a key to success. For the poorest populations in the world, the closed loop concept can be the opportunity to achieve health, sustainability and increased autonomy.