REGERINGSKANSLIET

Memorandum

31 January 2005

Ministry of Sustainable Development

United Nations Environment Programme

Innovative practices to enhance implementation of WSSD targets – Swedish initiative for ecological sanitation

1. Description of initiative

Sanitation and Water Policy in Tanum Municipality, Sweden

Tanum Municipality has initiated a progressive water and sanitation policy, which was chosen as one of six Swedish examples of how Agenda 21 has been implemented in connection with the World Summit on Sustainable Development in Johannesburg 2002. In water-based sanitation, urine and faeces are flushed with drinking water into sewage systems with inadequate reduction of nutrients. To deal with this problem the local municipal government council in Tanum, Sweden, has decided that, whenever possible, urine-diverting toilets are to be installed in new houses. The urine is channelled into sealed tanks and collected by farmers, who spread the nutrient-rich urine in the crop fields. An ecocycle of nutrients is thus created.

By these actions Tanum Municipality is working towards several objectives, such as:

- Reducing marine eutrophication so as to preserve biodiversity and fishing values
- Reducing the risks associated with contamination of fresh water resources, including groundwater
- Reducing the consumption of household drinking water
- Reducing the need for commercial fertilisers on farmlands.

The initiative taken by Tanum Municipality towards policy change implies the involvement of several local level stakeholders, such as farmers, private entrepreneurs, government and the general public. Due to the policy taken on water and sanitation, 440 urine-diverting permits have now been granted in the municipality. Most of them concern private residences, although several larger structures, such as the local public library and high school, also have urine-diverting systems that allow for the reuse of urine.

2. Mainstreaming sustainability

From the beginning, the water and sanitation policy in Tanum Municipality has been linked to the Swedish Parliament's 15 environmental quality objectives, four of which relate to the quality of the water supply and treatment of wastewater, namely:

- Flourishing lakes and watercourses
- High-quality groundwater
- A balanced marine environment, flourishing coastal areas and archipelagos
- Zero eutrophication.

The municipal initiative also promotes the goals set out in Sweden's national strategy for sustainable development concerning marine eutrophication and protection of marine ecosystems.

The Tanum policy has received national and international media recognition and has served as a model and inspiration for other municipalities that have embarked on similar projects within the framework of the Local Investment Programmes (LIP). The Swedish International Development Cooperation Agency (Sida) has also arranged courses in Tanum called *Groundwater Development and Management in Hard Rock Areas*, which gave several participants from developing countries in Africa, Asia and Latin America an opportunity to learn from experiences in Tanum Municipality.

Lessons learned from Tanum Municipality include the following, namely:

- The implementation of urine-diverting sanitation systems has been a long process, which was stimulated by several external events, such as marine eutrophication, rampant deaths of sea-living seals and regional water scarcity.
- It is important to have a vision and set tangible goals.
- Reliable techniques and management systems must be developed so that the project properly functions and is adapted. Otherwise there is a risk that the project will peter out, or worse, be considered a failure.
- Farmers play a central role by collecting and spreading the nutrient-rich urine on farmlands. It is therefore important to make sure that the logistical chain functions properly.

3. Replicating the initiative

Sweden is currently supporting other countries in their implementation of similar ecological sanitation systems with urine-diversion and reuse of sanitisised nutrients and soil conditioners. The EcoSanRes Programme (ecological sanitation research) is an international environment and development programme on ecological sanitation that is financed by

Sida, and managed by Stockholm Environment Institute (SEI) and has a worldwide network of several hundred scientists, organisations, companies and individual experts. Over the past decade the EcoSanRes Programme has supported ecological sanitation projects in many countries, e.g. El Salvador, Mexico, Bolivia, South Africa, Uganda, West and Central Africa, Vietnam and China.

Elements of Ecological Sanitation are:

- Essential features: containment, sanitisation and reuse
- Requires a change in attitude about human excreta and use of water
- Source-separation of urine, faeces and grey water
- Closing the nutrient and water loops
- Ecosystem approach
- Polluter Pays Principle
- Protection of downstream health and environment
- Local management and financing
- Decentralisation of infrastructure
- Equitable services for all.

In 2003 an agreement was signed between Stockholm Environment Institute/EcoSanRes and the City of Dong Sheng, Erdos Municipality, Inner Mogolia in China, to build an ecotown with multi-story buildings based on the principles of ecological sanitation, the first of its kind in the world.

The Erdos ecotown is a pilot project that is locally sponsored and supported by Sida. It is currently being constructed and will comprise 1 600 dwellings in 4 and 5 storey buildings. The eco-town apartments will be with modern urine-diverting toilets and urinals, while grey water from kitchen and bath will be collected and treated separately using soil filtration and a constructed wetland. Storm water will not be allowed to mix with household-produced water.

In the neighbourhoods ecostations are built for collection of household fractions and the nutrients and soil improving products will be reused, i.e. urine (contains 80% of the nutrients leaving the human body and an excellent fertiliser), sanitisised faeces and household organics (soil conditioner).

The ecotown in Inner Mongolia is a large-scale R&D effort to further develop and standardise various urban ecosan applications. Rural ecosan has already taken off in a big way in China with some 800 000 urine-diverting dry toilets installed over the last few years. Urban ecosan has been tested in a few multi-story housing complexes in Sweden over the past 5–10 years. This China-Swedish collaboration represents a breakthrough from which many urban centres around the world will be able to benefit.

It is important to acknowledge the gender dimension in these projects. Women are generally most affected by investments in sanitation since they often tend to take the main responsibility for activities in the domestic domain. The general lesson is that it is easier to involve women in ecological sanitation projects since there is less emphasis on high technology solutions.

In the Erdos ecotown project the majority of team members are, indeed, women and it is the women who have the deciding power. In all ecosan projects there are built-in advantages for women, which the project in Erdos illustrates very well.

In contrast to what ecological sanitation systems offer, the current sanitation system in Erdos offers public toilets at a considerable distance from dwellings. As a result, every time women have to go to the lavatory they must leave their homes and stand in line (in winter, in the cold). When a child, an elderly or sick person needs assistance to the lavatory the same woman has to go through the same procedure.

Women are also forced to leave children, cooking and perhaps sick people when they have to leave their dwellings for up to half-an-hour for every visit to the lavatory. What the ecological sanitation solution offers in the new multi-storey buildings is the opportunity for urination and defeacation to take place within the residence. The toilets are also designed to physically suit women, men and children.

The EcoSanRes Programme has pilot projects in South Africa in Kimberley and Buffalo City, where Sida is currently funding urban support, which is defined by each municipality. Sanitation is a prioritised issue. The need for alternatives to conventional waterborne sanitation is becoming urgent. The reason for channelling EcoSanRes activities to these two different locations in South Africa is that sanitation developments over the next few years will be extremely rapid. If we want ecosan technology to make a significant impact on South African sanitation delivery, prove that the technology works, and participate in the process of finding more ecological sanitation systems, there are opportunities with these urban municipalities.

The two locations will provide widely differing experience, with Kimberly targeting middle-class groups and Buffalo City poor communities in urban upgrading and renewal areas. Experiences from these areas will provide a good base for large-scale implementation in many different areas in the near future. Furthermore, the two municipalities will learn from each other and exchange experiences and knowledge for their own future developments.