

Ecological Sanitation in the Philippines

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Abstract

The Programme involves introducing Ecological sanitation, or Ecosan, in the Philippines. Ecological sanitation, Ecosan for short, is a holistic and sustainable approach to sanitation. This approach is based on the principles of preventing pollution, sanitizing human excreta and using urine and feces as resources for agriculture. The basic approach is to separate the two fractions of human excreta, i.e., urine and feces. Urine is relative clean and rich in nitrogen, phosphorous and potassium (NKP). Through proper treatment and handling, feces can be turned into a valuable soil conditioner rich in carbon, providing good soil structure and good medium for essential soil micro-organisms

The Programme has three components. The Ecosan Component focuses on the building of Ecosan Toilets in the City; the Waste Venture Component deals with developing livelihood and business opportunities related to Ecosan; and the Knowledge Sharing Component conducts research and publication, capacity building, information and education campaigns.

The Ecosan Component is primarily being implemented in San Fernando City, in the Province of La Union.

Some of the results are poverty alleviation through better health and sanitation conditions, practice of urban agriculture, livelihood enhancement and Ecosan promotion in general.

1. Introduction

The Programme involves introducing Ecosan in the Philippines and is being implemented by the Center for Advanced Philippine Studies (CAPS). It aims to:

- a. Alleviate poverty and its effects through local initiatives in urban waste management and ecological sanitation;
- b. Develop and build models in waste management and sanitation that consider the social environment (private and community sector participation) while recognizing local resources constraints; and
- c. Direct or re-direct valuable resources to support livelihood opportunities among the poor and harness accumulated knowledge and experience to practical application.

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The Programme has three components. The Ecosan Component focuses on the building of Ecosan Toilets in the City; the Waste Venture Component deals with developing livelihood and business opportunities related to Ecosan; and last but not least, the Knowledge Sharing Component conducts research and publication, capacity building, information and education campaigns.

The Pilot Project Component of the Programme is primarily being implemented in San Fernando City, in the Province of La Union. As of the year 2000, the City of San Fernando had a population of 102,082 residents (National Statistics Office, May 2000) with an annual average growth rate of 2.265%. This number is expected to reach 114,178 persons by 2005, and 127,708 by 2010.

In terms of sanitation, San Fernando City is beset by three major interrelated problems, namely, lack of toilets among the poor residents, scarce water supply problem and contaminated ground water sources.

2. Situation Analysis

Although a large percentage of the population has access to water-sealed or flush type toilets, there are still those in the coastal and upland barangays who defecate in the open or make use of unsanitary open pit toilets. These types of toilets are potential sources of diseases and water pollution, especially since most are unlined and are not maintained or used properly because of lack of water. Water resources along the coastal and upland areas are inherently difficult.

The same can be said for the communal toilets in the three coastal barangays, the public toilets, and those sharing such facilities. Although some of them are of the water-sealed type, their improper use and poor maintenance, mainly due to lack of water for flushing, makes them potential sources of groundwater and/or surface water pollution. Most of these toilets are located very close to existing water wells for convenience, and/or because of lack of space due to population density. On the other hand, studies showed that there is excessive water extraction in coastal areas of the city. Excessive water extraction can also cause contamination of the groundwater from domestic liquid wastes since the porous underlying formation in the area facilitates the movement of contaminants from nearby septic tanks or waste disposal pits. Thus, the Mines and Geosciences Bureau (DENR Region 1) study recommends that excessive pumping of groundwater should be avoided as much as possible. In addition, industrial development and population increase are exerting greater demand on the water resources of the city. And as San Fernando City grows, its neighbors are also growing. With most of the water sources of the MLUWD coming from San Fernando City's neighboring municipalities, water shortages will be much more pronounced than as is now being experienced by the city. Increased groundwater pumping is inevitable, increasing the likelihood of contamination especially in coastal areas. (ISWM Assessment, 2004)

3. Description of Intervention, Approaches or Projects

Technical/Engineering: Ecological sanitation, Ecosan for short, is a holistic and sustainable approach to sanitation. This approach is based on the principles of preventing pollution, sanitizing human excreta and using urine and feces as resources for agriculture. The basic approach is to separate the two fractions of human excreta, i.e., urine and feces. Urine is relative clean and rich in nitrogen, phosphorous and

potassium (NKP). Through proper treatment and handling, feces can be turned into a valuable soil conditioner rich in carbon, providing good soil structure and good medium for essential soil micro-organisms (Ecosan Book, 2004).

Legal/Institutional: The Project has four major Phases. These are the Inception Phase, the Pilot Project Phase, the Enabling Environment Phase and the Strategic Planning Phase. The Inception Phase includes the conduct of Baseline Studies and the formation of the Management Consortium, which was tasked to plan, manage and implement the Programme. The Pilot Project Phase mainly involves the putting up of the Ecosan Toilets in the two barangays including the capacity building at City and Barangay levels. The Enabling Environment Phase refers to the creation and enhancement of a favorable attitude and perception towards Ecosan at the City, Provincial and at the National level through policy advocacy, networking and education and information campaigns. Lastly, the Strategic Planning Phase aims to integrate Ecosan in the City and Provincial Development and Sanitation Plans and Programs.

Social/Poverty Alleviation: The Ecosan project aims to provide proper sanitation to those who do not have access to proper sanitation. These are the poorest of the poor who could not even afford to put up their own toilet. These are the people who either used their neighbor's toilet or defecate in the open fields or open water/sea.

Financial: the Dutch Government through WASTE, an NGO based in the Netherlands, funds The Programme. In the Philippines, the funds are used to provide technical assistance in terms of capacity building, training, research and development, information and education. It also provides a facility for loans or credits to promote and enhance viable economic and livelihood related to Ecosan. The City is in charge of the construction of the toilet facility. The household cooperators provide construction labor, the roof, walls and two plastic drum containers for the urine and feces, as their counterpart.

Organization and Management: In terms of organizational set-up, a Consortium of five organizations is managing the programme. These are the City Government of San Fernando, La Union (CSFLU), and the Center for Advanced Philippine Studies (CAPS) as Programme Coordinator, the Solid Waste Management Association of the Philippines (SWAPP), the Foundation for Sustainable Society, Inc. (FSSI), and the Institute for the Development of Ecological Alternatives (IDEAS). At the City level, a Technical Working Group (TWG) composed of Department Heads was formed to supervise day-to-day Ecosan activities. At the Barangay level, Barangay Ecosan Committee was formed to monitor the household beneficiaries on their use and maintenance of the toilets.

4. Results

Better sanitation and health conditions for the poor project communities. With introduction of Ecosan, the barangay leaders of one pilot community decided to pass an ordinance prohibiting defecating along the seashore and public places. This City is now in the process of formulating its 10-year Strategic Sanitation Plan.

Urban Agriculture: Majority of the households who now own an Ecosan toilet in the urban poor barangay are practicing urban agriculture, planting tomatoes, ampalaya, water melon, papaya, egg plant, and other vegetables.

Additional business for a ceramic toilet maker: The project contracted a small ceramic maker to develop (design and mould-making) a ceramic urine-diverting toilet at the cost of P255,000.00. An initial order of 500 units worth P300,000.00. For 2006, the projected number of units to be ordered is 2,000.

Ecosan in the Clean Water Act: Although it was not even mentioned in the CWA, Ecosan was accepted as a viable sanitation option in the Implementing Rules and Regulations. This was achieved through active networking and knowledge sharing. Through this, a Philippine Ecosan Network (PEN) is now formed.

5. Lessons Learned

Social Preparation: The main challenge in terms of viability of Ecosan is its social acceptance by the target city stakeholders and partner-beneficiaries. In the case of San Fernando, this challenge was hurdled through effective social preparation, information and education campaigns. The concept of “dry sanitation” is a new and innovative approach, but Ecosan became viable because its benefits and advantages were successfully conveyed and concretely shown through knowledge sharing, capacity building and project piloting.

Capacity Building and Ownership of Programme and Projects: The programme conducts seminars, workshops, trainings and meeting with various sectors from the city level, to the barangay level, to the household level and now at the provincial level. This is to develop a more positive attitude among all stakeholders, especially at the household level, about the concept of ecological sanitation. The successful implementation of the pilot projects in the two barangays has served a powerful tool in educating the people at large.

After several months of piloting from January to June 2005, Ecosan has gained tremendous acceptance not only from the City but also from the Provincial Government and other municipalities. CAPS is now processing several request for Ecosan project implementation from several local government units.

Political Will: It was the Mayor of San Fernando, Hon. Mary Jane C. Ortega, who first saw the applicability, advantages and benefits of Ecosan for her city. She was and still is the key factor in the pushing through and implementing in the City and now in the whole province of La Union.

6. Proposed Best Practices

Ecosan as an alternative to conventional sanitation: Ecosan is the most viable solution to the problems cause by conventional sanitation. Conventional sanitation, like flush toilets, consumes huge amounts of clean drinking water and consequently generates huge amounts of wastewater. On a global scale, only 5 percent of domestic wastewater is properly treated. The rest is discharged to water bodies untreated or partially treated resulting in massive water and soil pollution. Ecosan system separates urine and feces and treats them as resources. With dry Ecosan system, wastewater generation is avoided and therefore preventing water and soil pollution. In addition, food security is enhanced because Ecosan provides for the reuse of the urine and feces as fertilizer and soil conditioner. Ecosan follows the principle of closing the nutrient loop between sanitation and agriculture.

Stakeholders' Participation and Ownership of the Project: The programme is being implemented with deep involvement of the city and barangay officials in terms of planning and execution of programme components and activities and legislative support from the local council. There is a high level of ownership and capacity building being develop at the local level. The withdrawal of CAPS in 2007 is not seen to cause any disruption in service delivery.

References:

CAPS, Integrated Sustainable Waste Management Assessment in San Fernando City, La Union, May 11, 2004. Other studies and progress reports are available upon request.

Winblad, Uno, Mayling Simpson-Herbert, et. al., Ecological Sanitation, Revised and Enlarged Edition, 2004