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Ecological Sanitation (ecosan)

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Worldwide, 2.6 billion people (4 out of 10) have no access to sanitation facilities. They live in conditions of open defecation.



In India, 700-800 million people defecate in the open. They ingest 10 gram of fecal matter everyday. Feces transmits about 50 diseases.





Worldwide, 2.2 million people – including 1.8 million children – die every year from sanitation-related diseases. In India, 1,500 children everyday - more than one every minute.



Worldwide, diarrhoea – almost 90% caused by lack of sanitation – kills one child every 15 seconds.



Hygiene and sanitation are among the most cost-effective public health interventions to reduce childhood mortality.

Every \$ invested in excreta sanitation gives returns of \$7-9 value.

Indian Government launched largest national public-health-related program ever Total Sanitation Campaign (TSC) in 1999 with a focus on excreta sanitation.

Millenium Development Goals declared by a UN Development Summit (2000) aim at improvements by 2015 and include “access to improved sanitation”.

Worldwide, at the present pace of development, this target will be reached later than 2070.

Conventional sanitation

The technology package
Its components & costs
Its achievements, historically
Its disadvantages ecologically



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The ecosan concept

Aims & objectives

Hygienic management / disposal of human excreta;

Saving water resources;

Recycling plant nutrients & organic matter into agricultural soils instead of polluting the water cycle.

Ecosan Toilet Features

Advantages (besides above aims) of a composting & urine diversion toilet:

Stand-alone system without need for sewerage and sewage treatment – economically superior;

No handling of excreta or sewage before not completely sanitized – hygienically superior;

Sustainable management of resources, in particular of phosphorus – ecologically superior.



Technical challenges of ecosan (in India)

Fecal drying and composting much easier and easier stink-free than processing of wet excreta or sewage - composting & drying composts preferred.

Washers (not wipers) require water - water supply facilities needed.

Preferred technique: separation of urine and of anal cleansing water.

Producers of ecosan “products” are concentrated in cities; the market (farmers) is located in the villages - logistics and its economics has to be worked out.



Indian experience with ecosan till date

Easy to move from zero sanitation (rural conditions) to ecosan

In Musiri (T.N.) communal ecosan toilet: users get paid – demonstration of product value.

Reservations against use of human-excreta-based compost disappear when agricultural benefits are realized.

A Gujarat village: first agricultural benefits, then benefits in political power, school education, village development, etc.

Tamil Nadu leading state in India with more than 5,000 ecosan toilets.

Crucial issues: hardware-plus-software

No hardware without software.

Target need to change from “construction of toilets” to “construction, use and maintenance of toilets with measurable benefits in public health”.

Perceived benefits:

Privacy / dignity

Safety, in particular for women

Comfort

Status

Absence of stink and flies

Health



Crucial issues: workmanship & dignity of labour



Crucial issues: ownership/ operation & maintenance

Since TSC has been initiated, sanitation coverage is increasing by 7.5% per year.

But, many latrines are incompletely constructed, unused, misused or differently used, or collapsed.

Eco-Pro activities

From 2004 onwards, collaboration with NGOs in Ecosan programs

Organization of an Ecosan conference in 2006

Technical guidance of several NGOs in Ecosan programs

Production of educational films

Active participation in Ecosan and sanitation conference on state and on national level

Construction of two Ecosan toilets in village households in Krishnagiri Dt. in 2009.



Ecosan promotion

In 2010, Indian Govt. has integrated option of ecosan into program of TSC – differentiating it against scavenging of non-sanitized excreta.

Development of urban middle-class and upper-class models.

Converting a village community to 100% (eco-) sanitation.

Linking urban collection of excreta-based produce with agricultural market and users.



Suggestions for practice

Full adoption of ecosan for eco-tourism establishments.

Installation of flush-free urinals.

Implementation of urine diversion (from urinals) and re-use in gardening.

Composting of bio-waste – stink-free and fly-free – and its demonstration.



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