



Ecological Sanitation

Ecological sanitation (Ecosan) is a concept that treats various types of waste generated by us as a resource which can be safely collected, treated and reused to prevent pollution of water bodies and the environment. Currently, various types of Ecosan practices such as promotion of Ecosan toilets, compost pits, bio-gas plants, reed-beds for treatment of waste water, etc., are being taken up to treat waste generated by us in an ecologically sound manner.

Ecosan Toilets

In the context of rural sanitation promotion in India, Ecosan toilets can play an important role especially in coastal, mountainous and water scarce regions where promotion of conventional toilets is environmentally not suitable.

However, as the Ecosan concept demands greater involvement of the users in the day to day management its components, sensitization of the users is very essential to change traditional taboos attached to handling of waste. Also, the high cost of construction of Ecosan toilets (around Rs.5000-7500) can be brought down significantly through innovative designs as awareness on the concept increases among the practitioners and users.



View of an Ecosan Toilet (Scope)

What is an Ecosan Toilet

In Ecosan Toilets, human excreta, urine and wash water are separated through specially designed toilet seats (various types are available now) unlike the conventional water closets where all these are collected together. Excreta is collected in the chamber constructed below the toilet seat, urine is collected in a drum/pot kept outside the toilet and wash water is diverted to a plant bed raised near the toilet.

Functional Aspects of Ecosan Toilet



Inside view of Twin Chamber Ecosan Toilet (Plan)

Excreta collected in the chamber (in most cases two separate chambers are constructed for alternative use) constructed below the toilet seat are allowed to decompose for a period of 6-9 months after a chamber gets filled up. After every use, ash and mud is sprayed into the chamber to prevent contact of flies/insects with excreta and also to facilitate decomposition process. A vent pipe is also attached to the chambers to release foul smell and also to facilitate faster decomposition. The compost harvested from the chamber is used as manure in the agricultural fields.



Arrangements for collection of urine and wash water

Urine collected in a covered pot kept outside the toilet can be applied to crops as fertilizer after storing it for certain period to inactivate the disease causing organisms normally present in urine. The wash water is diverted to a plant bed, preferably planted with cannas plants for effective absorption, near the toilet block.



Composted matter in an Ecosan Toilet (Plan)

Ecosan Toilets are suitable for;

- Coastal and shallow water table areas
- Flood Prone areas
- Water scarce areas
- Mountainous areas

Merits of Ecosan:

- Treats human excreta and urine as a useful resource rather as waste.
- Environmental friendly and prevents pollution caused by conventional sanitation systems.
- No water is needed for flushing (an individual saves 6-8 liters per day)
- No additional treatment process/infrastructure is needed to treat the waste collected.
- Reduces expenditure on chemical fertilizer as compost of excreta and urine is rich in NPK



Sri Shanta Sheela Nair, Secretary DDWS, Gol inspecting compost of an Ecosan

(i.e. Fertilizer needed to grow food for one person can be met by reusing his excreta and urine collected in an Ecosan toilet).

- Prevents pollution caused by chemical fertilizer for agriculture.
- Enriched compost and urine increases the yield of crops when used as fertilizer.

Precautions to be adopted:



Application of urine in an agriculture land (Unicef)

- Earth/ash must be used to cover excreta after every use and cover the tank with lid when the toilet is not in use.
- Construct the excreta collection tank properly to prevent leakage of the contents.
- Allow sufficient time for

decomposition of excreta collected in the tanks (6-9months).

- Ensure proper collection and distribution of urine at regular intervals.
- Manage the wash water diverted to the plant bed regularly.
- Practice proper safety measure while handling urine, wash water and compost.
- Properly wash the vegetables and fruits grown using compost & urine to prevent any potential health risks.