

Society for Urban Development in East Africa

Almaz Terrefe and Gunder Edstrom

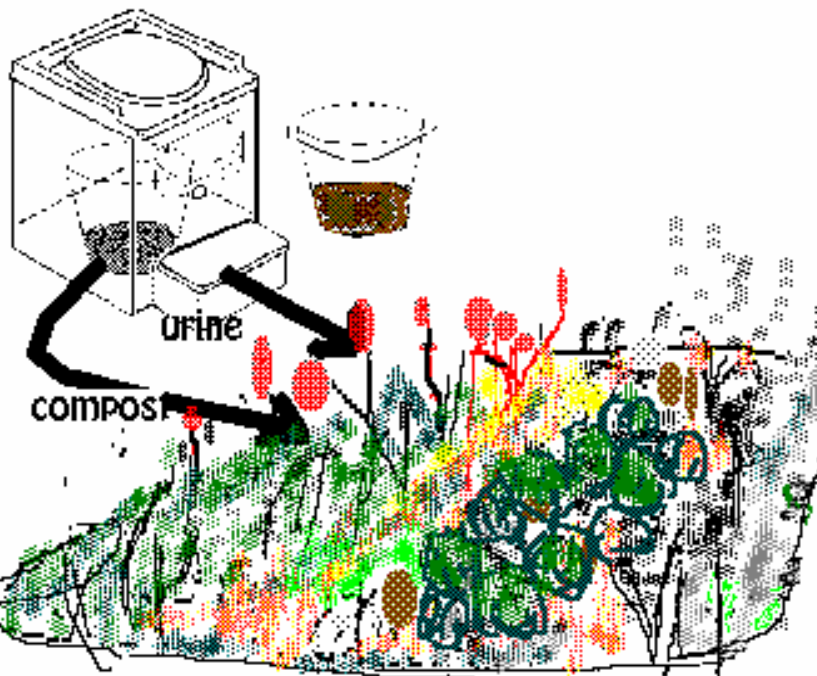
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ECOSAN

the recycling sanitation and
agricultural system
by Dr. Torsten Modig - 1989
adjusted to the Ethiopian
condition and implemented by
Almaz Terrefe and
Gunder Edstrom,
SUDEA in Ethiopia



ECOSAN, which stands for Economy,
Ecology and Sanitation, is donated
by Dr Torsten Modig from Umea, Sweden, to
Society for Urban Development in East Africa,
(SUDEA) in Ethiopia

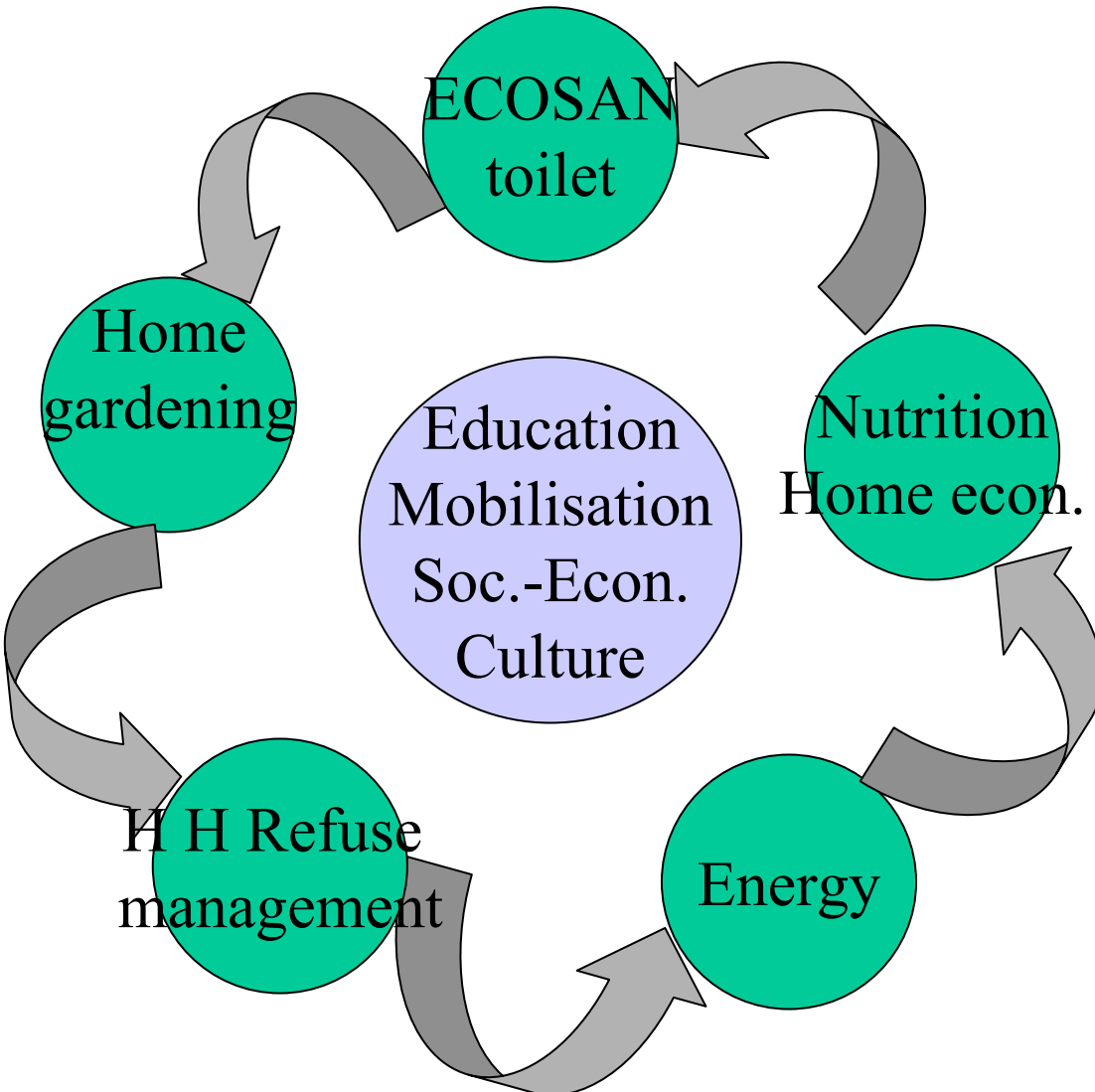
In 1995 the project proposal had been submitted
to Disop, Belgium and Sida Sweden and
approved gradually by both but financed by
Sida.

In 1996 a pilot project, the first of its kind in
Africa had been initiated by (SUDEA) financed
first by Sida and later by Forum South in
Sweden. We are thankful to Torsten, Sida and
Forum Syd.

The contribution of the scientific advisory group
and board members of SUDEA from a multi-
disciplinary and multi-national background has
been invaluable.

In year 2002 the pilot project was
evaluated by a multi disciplinary group and
recommended for up-scaling and
sharing the Ethiopian experience with
the rest of the world .

An Eco-system approach



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ECOSAN - is a recycling **sanitation and agricultural system**, which indicates that all bio degradable substances from the household including human excreta are used as fertiliser **in a hygienically safe way**. The urine which contains most of the nutrients is used under the top soil. The faeces are composted with household refuse and used as soil conditioner. This leads to an increased production of food and vegetation which sustain the environment.

When faeces and urine are not mixed it reduces the bad smell and the breeding of flies. Besides that household refuse including human excreta used as fertilizer helps to break the vicious circle of **ill health, environmental degradation food deficiency, and poverty**.

The technique is a low cost sanitation system and the pay back time is normally less than one year if recycling is used.

Objective of ECOSAN

- Reduce diseases spread through, garbage and faeces
- Reduce the pollution of air, rivers and streets
- Secure food, flowers and or fodder for the household
- Reduce the need for chemical fertilisers
- Save water for drinking and irrigation
- Save energy and other natural resources
- Save the environment
- Empower women and youth in particular and the family in general



Addis Abeba, Ethiopia

ECOSAN
toilet



Masai Mara, Kenya



Kotebe, Ethiopia



Tarasaa, Kenya



Sweden



Ethiopia



Ethiopia



Inside



Inside





Pottuvil, Sri Lanka



Home
gardening



Grown in one month



Used gardening techniques:
ECO-sandwich,, ECO-baskets
ECO-containers and
ECO-walls
The original idea of Growing Walls
by Gus Nilsson - Botswana





Production of seeds and natural pesticides should also be done in a home garden, to make it ecological.





Fertilising effect

Tests made on Swiss Chard at Bethlehem Training Centre, Addis Ababa, with a urine dose corresponding to 380 kg N per ha show a **four times higher biomass** than the control



Waste sorting



Waste management



Globe Compost



SAVE the Ethiopian trees, air and water

Use solar cookers to save energy and
ECOSAN and ECO-lilies to save water and
produce fertilisers for food and trees!



Solar cookers are used in many parts of the world
as a complement to other energy sources. With a
solar cooker You can boil water for drinking and
cleaning, prepare different dishes of food and dry
food like *injera*, fish or mushrooms.

SUDEA is preparing a cookbook and users book
for the Ethiopian household.



Energy

And any natural resource
like water and air



Nutrition
Home econ.



Community participation

When SUDEA introduces and implements the ECOSAN system it is done in close collaboration with the community. Households are involved in the process of discussing where to build the toilet, how to make use of the fertiliser and how to maintain the system. All family members are trained and in other ways informed about how to use the toilet and the



Education
Mobilisation
Soc.-Econ.
Culture

Economic value of urine and faeces as fertilisers

**Estimated from the chemical content
of urine and faeces the value per
person is around 8.60 US\$ per year
or for**

Addis Ababa 38.7 million US\$ per year

Urban agriculture is a new frontier to food production where 1/5 of the world population are actively engaged, producing 15% of the total food (UNDP-survey). Mostly simple, inexpensive and environmentally sensitive techniques are utilised.



The products from ECOSAN are organic fertilisers - urine and composted faeces and household refuse - very useful within home gardens.