

## Research on Processing which separates Blackwater and Glaywater

Year of Research

2008

### (Purpose)

"Water Supply and Sanitation" sector relates to not the independent subject but many subjects, and mutual. Water and Sanitation sector is very important at Sustainable Development. In the Millennium Development Goals (MDGs), Sanitation is one of subjects most late. Processing which separates Blackwater and Glaywater is in one of solution, such as global warming, resources recovery, and eutrophication.

A high effect is acquired when making this technology into the sub institution of a sewer supply or interlocked sewer supply. The investigation purpose is arranging the feature and subject for introducing, on processing which separates blackwater and glaywater.

### (Results)

A sanitation subject is often planned after a drinking water improvement. However, the sanitation is closely related to subjects, such as environment, education, gender, and poverty curtailment.

Sanitation systems are divided roughly into decentralised sanitation (such as sewerage system) and Intensive sanitation (such as pit-latrine). However, maintenance of sewerage takes many expense and long term. Moreover, pit-latrine may pollute environment owing to unsuitable management.

Many nutrients are contained in blackwater. About 90 percent of P, 70 percent of N, and 50 percent of organic matter among the ingredients under urban sewer. This corruption thing causes environmental pollution. Furthermore, the shortage of fresh water is serious all over the world, and needing a lot of water in a flush toilet also poses a problem.

In such a situation, ecological sanitation (ecosan) is proposed by this approach, while health environment is improved, the nutrient in human waste is returned to soil. Thereby, the productivity of agricultural products can be raised and the quantity of a chemical fertilizer can be reduced.

Ecosan attracts attention not as the alternative technology of a sewer in developing countries but as sustainable sanitation technology of performing resources recovery. Ecosan is not only introduced into developing countries, but is introduced in Northern Europe, Germany, and China.

<Criteria>

- 1) Disease prevention : A sanitation system must be capable of destroying or isolating faecal pathogens.
- 2) Acceptability : A sanitation system must be aesthetically inoffensive and consistent with cultural and social values.
- 3) Environment protection : A sanitation system must prevent pollution and conserve valuable water resources.
- 4) Affordability : A sanitation system must be accessible to the world's poorest people.
- 5) Simplicity : A sanitation system must be robust enough to be easily maintained with the limitations of the local technical capacity, institutional framework and economic resources.

<A technical outline>

- 6) Don't use a lot of water for flush toilet (It is a quantity slight when using it.)
- 7) Nutrient recycling (A sanitation system should return nutrients to the soil.)
- 8) Separates Blackwater and Glaywater (It is more better to divide urine and faeces.)

One side of "conventional sanitation" and "Ecosan" is not chosen, but the coexistence which cooperated is desirable. There are many subjects -- on a law, on a technical, on a social custom-- in introduction of ecosan. Moreover, the high consciousness in everyday maintenance management is required for the user. For the factor of failure, hasty introduction is it. Therefore, the introductory examination in a model area etc. is also promising.

Independent research

Researchers : Hiroaki Morita, Yoshio Ehara, Kaoru Kato

Key words

Decentralised Sanitation, Ecological Sanitation (Ecosan), Reuse