

# LOW-COST ALTERNATIVE WASTEWATER TREATMENT for COMMUNITIES and HOMES (LOCALWATCH)

LOCALWATCH is a package of low-cost appropriate technologies for treating municipal and household wastewater. Its advantage over more-conventional wastewater technologies is its radically low cost, simplicity of construction and maintenance, and adaptability to a wider range of wastewater situations.

Low cost and simplicity are achieved by using rational design and sizing, ferro-cement construction methods, and locally-available construction materials and skills. It can be adapted to de-centralized wastewater treatment down to household-scale, an advantage in situations where space and funds are limited such as in congested urban poor communities. It is also applicable whether the project will be a new construction or retrofitting existing wastewater facilities to conform to new standards. Power requirements are low, as systems are designed to be gravity-flow whenever possible. It incorporates principles of ecological sanitation such as water conservation, separation of wastes at source when feasible, and the recovery of nutrients and energy from waste.

LOCALWATCH Technologies:

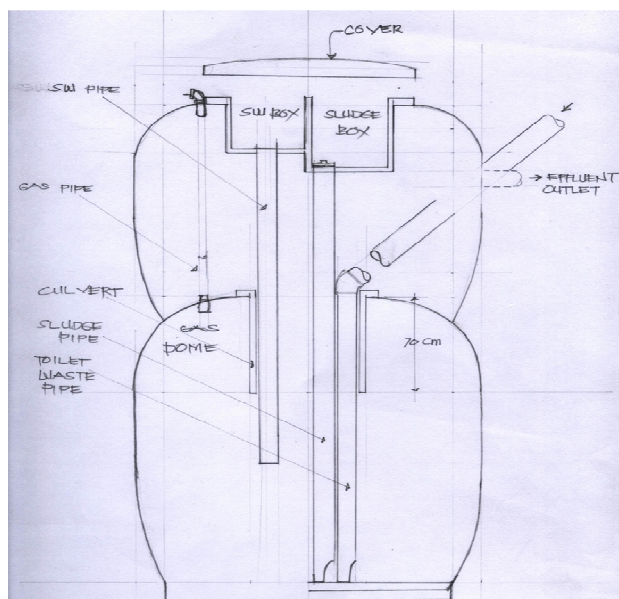
1. Use of low- water-using toilet bowls

With less flushing water used, generated black water will also be less, reducing the size and cost of wastewater facilities.

2. Urine diversion toilet bowls and gray water separation and reuse; infiltration trenches

Separating the different kinds of wastewater is always a good idea. Urine and gray water for example are a lot cleaner than black water and in most situations can be disposed off in infiltration trenches. Urine can also be used in fertilization while gray water can be reused for flushing toilets and watering plants. With only the black water as the in fluent, treatment facilities can be much smaller and therefore a lot cheaper. Urine can be separated at the toilet bowl by fitting it with a receptacle and a drain pipe conducting the urine to its collection or disposal point.

3. Biogas septic tanks-



All septic tanks produce methane, a potent greenhouse gas but also a useful energy source for cooking, heating, lighting and running engines. Biogas tanks are septic tanks that collect the methane and store it before use. They also store the sludge and wastewater for reuse as fertilizer. LOCALWATCH-designed biogas and other tanks costs only a third of conventional reinforced concrete designs. This is possible because of their biogas and plastic tarp construction.

4. Baffled reactors

Raw or partially treated wastewater enters the chambers of this four to seven-chambered vertical-flow tank to be removed of up to 90% of its BOD.



5. Anaerobic filters

Septic tank and baffled reactor effluent then enters this one to four-chambered vertical-flow tank and pass through submerged gravel filters to be cleaned of a up to a further 67% of its BOD.

6. Horizontal Gravel beds

Effluent of the above can be further cleaned by passing it through this horizontal-flow aerobic filter, to bring BOD down to as little as 5ppm, and e-coli count to as few as 5 per 100ml, or swimming-water quality. Odor is also reduced. Much of the ammonia load is also converted to nitrate here. Horizontal gravel beds are usually planted to extensive-rooting hydrophytes to increase cleansing effectiveness.

7. Others- LOCALWATCH is compatible to desired accessories such as small ventilation fans, pumps, air-pumps and chlorinators.

*For more information please contact:*



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*WASH Philippines is a loose coalition of organizations, local governments, communities and individuals working with national and local policy makers as well as the poorest communities to improve access to water supply, sanitation, health and hygiene in areas of the Philippines most in need of them. WASH Philippines Coalition is a partner of the Water Supply and Sanitation Collaborative Council ([www.wsscc.org](http://www.wsscc.org)).*