Inheriting the "soon to be discarded"

A glance upon the current wastewater situation in Costa Rica

By EcoEng-Correspondent Stewart Dallas, Costa Rica

Instituto Monteverde
Apado. 69-5655
Monteverde, Puntarenas
Costa Rica, C.A
Tel/fax: 506 645 5219
http://www.mvinstitute.org

Introduction

Population growth in mega-cities and other urban areas of the developing world, and associated water-related pollution and public health problems are raising the question: Should the developing world be following the North American and western European model of wastewater treatment technology? Or is there an alternative 'sustainable sanitation' approach?

Ralph Otterpohl believes that one of the major obstacles to wider application is that people in developing regions are very well aware that those in Europe and North America use "flush and drain system", and see this as the model to adopt. I would also add that where the existing culture is a product of European colonization, such as in Latin America, this tendency is even stronger.

Figure 1:
Aerial view of San Jose, Costa Rica
Photo: Tourism Costa Rica [4]

Situation in San Jose Metropolitan Area

Costa Rica's national Water and Sewerage Board (Acueductos y Alcantarillados, AyA) recently received a draft report, prepared by the Spanish consulting firm Nmas1([1],[2],[3]) which detailed the current status of the water and sewerage system serving San Jose's metropolitan area. This study was conducted with a view to upgrading the existing antiquated water and sewerage systems which connect some 800'000 people.

The report estimates that over US$289 million will need to be spent over the next 25 years overhauling the sewer system alone, which currently discharges untreated sewage directly into the environment. The local Rio Virilla receives over 250'000 m3/day of raw sewage daily.

Unfortunately the current combined (sewage and stormwater) system has to cope with flows of upto 70% greater in the wet season compared to the dry season. It also suffers from illegal connections and significant groundwater infiltration. A 25 year plan to provide some form of end-of-pipe treatment facility as well as the connection/replacement of existing septic systems within the region has also been proposed. Nmas1's report also proposes that the system be operated under a concession - a recommendation which has created substantial local opposition as it is seen as being as the first step towards privatization of San Jose's water and sewerage system.

Figure 2:

Raw sewage pouring straight into the Rio Varilla
Photo: La Nacion [3]

Going down the well trodden path?

It would appear that San Jose's sewage solution is heading down the well trodden path of "business as usual" wastewater technology&Mac226; transfer. Why would a developing country adopt a technology which developing countries are now turning away from - after more than 25 years of experience with problematic end-of-pipe combined sewer systems. Is there an alternative 'sustainable sanitation' approach? And when will alternative 'sustainable sanitation' approaches enter the mainstream dialogue? Will San Jose be lamenting its decision 25 years hence?

Source control and reuse (albeit often hi-) technologies are gaining momentum in the so-called developed nations and represent the future in sanitation (for example, urine diversion in Sweden, the Lubeck project in Germany, work by Winblad in ecological sanitation, or the ecological wastewater treatment and utilisation systems (EWTUS) such as the 100 ha eco-pond/land system in Jiaozhou Shandong, China) - why are developing regions still likely to inherit the "tried, tested and soon to be discarded"? Perhaps it is because conventional answers are always close at hand - alternative or innovative ones unfortunately are not so convenient and often lack sufficiently persuasive and politically savvy proponents.

Alternatives...

The San Jose metropolitan area is currently facing water restrictions and regularly suffers water shortages and restrictions during the dry season. Instead of anticipating per person consumption figures of 225 litres/day in 2025 (currently 195 l/pp/day) due to an "increased standard of living" perhaps a well publicized water conservation program could in itself produce substantial savings not only in water supply but wastewater treatment as well. Perhaps smaller localized treatment facilities could avoid industrial wastewater contributions and provide treated wastewater and soil-amending biosolids suitable for agricultural application in San Jose's central valley during the dry season.

"*To avoid a water crisis, many countries will have to seriously examine their current and projected water demands. Not only will they have to consider water reuse options, they will have to use water more efficiently, manage supply and demand, and pollute less whilst reducing the environmental impacts of their growing populations*" (Anderson J., IWA).

The possibilities appear enormous for Costa Rica if the right thinking was to be applied, or very limited if conventional thinking rules the day.

Here at the Monteverde Institute, we will be hosting an International Water Association Foundation Workshop in conjunction with Murdoch University, Australia and the UNEP International Environmental Technology Centre, July 16-19, 2002 entitled Sustainable Sanitation.

References

- [1] Nmas1 company web site: http://www.nmas1.com/
- [2] More about San Jose project: http://www.construfacil.com/internacional/principal.asp?pais=Costa%20Rica
- [3] Newspaper report about the NMas1 report: Ángela Ávalos R., Proponen privatizar acueducto, La Nacion, San Jose, Costa Rica, Sep. 27, 2001
- [4] http://www.tourism-costarica.com/tourism-costaricacom/html/know/Paisajes/landscape4.htm

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