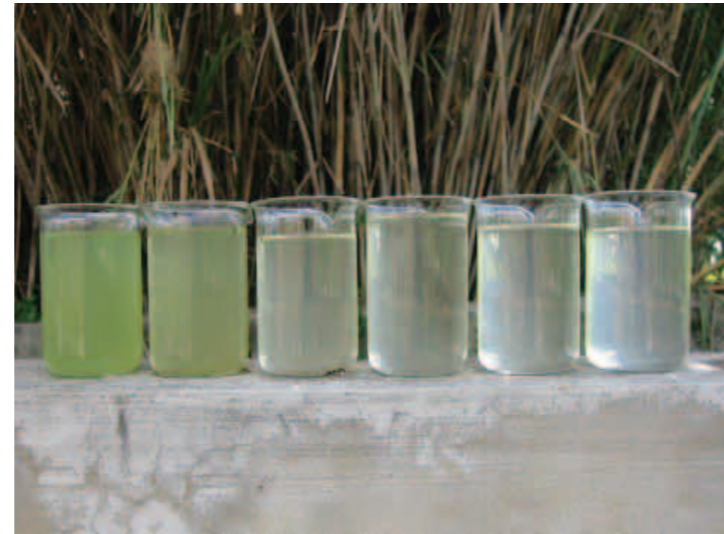


The most widely and accepted approach to control eutrophication or freshwater degradation from industrial discharges, urban and agricultural run-off is by means of conventional treatment plants.

Although very effective they are also expensive to build and maintained; added to the fact that they also require skillful personnel to be operated. In light of these fact decision makers are looking for alternatives which although may not totally replace the use of treatment plants, they could at least be used as complementary methods reducing the size and nature of these facilities as well as reducing treatment costs.



Waste Stabilization Ponds are already familiar treatment facilities in many parts of the world due to their effectiveness and low cost, robustness and stability added to the fact that they are good at removing pathogenic organisms from wastewater. The only handicap they have is the fact they require large surface area.



The application of Phytotechnologies is becoming more popular to augment water quality in freshwater bodies and waste effluents. There are already some cases where the floodplains and natural wetlands are used to reduce nitrogen and phosphorous from urban by using natural and artificially constructed wetlands as they are also capable of doing the same job besides being environmentally friendly.



Artificially Constructed Wetlands are proving to have enormous value in terms of efficiency, low cost, simple operation and maintenance when compared to waste treatment plants.

What is the value of this Manual?....

The Manual provides information for designers, builders and operators about a wide range of applications and objectives such as:

- Developing, implementing and operating Artificially Constructed Wetlands (ACW) and Waste Stabilization Ponds (WSP);
- Standard systems approach which can be adopted universally and which can accommodate a development technology with changes in information concepts and ideas with time;
- Theoretical background on the biological, chemical and physical processes of each method, the current state of the technology and technical knowledge on how to design, operate and maintain them; and
- Theoretical knowledge on how best the models may be used to describe the systems.

