

Efficient sewage plants for fast-developing nations

As it is well known, the environmental protection also in fast-developing nations becomes substantially more important since a fairly long time. A special attention is put on the prevention of water pollution which leads among others in an increasing need for waste water treatment plants for the purification of sewage. The production of such plants often is difficult because of a limited availability of financial means in fast-developing nations. Moreover, the guarantee of a reliable and lastingly assured plant operation often is not given due to a missing technical know how. On the basis of decades of experiences in comparable countries worldwide BIOGEST AG today is able to adapt her own waste water treatment technology based on the SBR-process to the requirements of fast-developing nations needs and consequently to contribute to the local prevention of water pollution. This is made possible by the:

1. adaption of the process engineering to the respective cleaning aims
2. use of robust equipment components for the maximization of the longevity respectively the sustainability of the sewage plant

3. training of the plant staff, so that an independent plant operation is guaranteed
4. imbedding of local companies in the plant construction to the most possible creation of value locally
5. observance of the investment volume available for the concerned fast-developing nation. Also demand-orientated funding models can be provided if necessary.
6. guarantee of a plant support also after the plant's start-up, oriented to the local requirements

The combination of the above-mentioned project planning aspects for an integral solution makes sure that the required waste water treatment plant is not only adapted to the local investment opportunities but that by the comprehensive orientation at sustainability aspects a long-standing availability is also guaranteed (longevity of the plant equipment, establishment of a continuous transfer of knowledge, middle- and long-term provision of spare parts etc.).

Exemplary for the practical realization of the above-mentioned project planning aspects is a waste water treatment plant, that



Figure 1: WWTP in Latin America: Aeration phase with surface aerators

is actually under construction by BIOGEST AG for a large latin american city.

The waste water treatment plant will be extended stepwise and has the task after its finalization to purify the sewage of a drainage area of approx. 400,000 inhabitants. Actually the waste water treatment plant is operating with a connection load of 200,000 inhabitants.

The waste water treatment plant itself mainly consists of the following process stages:

1. an inflow chamber for the limitation of the plant inflow provided by an electrically controlled flow regulation system
2. a coarse screen system
3. an inlet pumping station for the charging of the waste water treatment plant
4. a pre-treatment stage for the separation of solids and sand
5. a distribution channel for the charging of the SBR-reactors
6. four SBR-reactors for the biological waste water treatment (final stage)
7. an effluent channel for the discharge of the purified clearwater
8. an UV-system for the disinfection of the purified clearwater usable for irrigation
9. a High power decanter for the dewatering of the excess sludge originating during the waste water treatment, finally usable as fertilizer
10. a central control panel for the automatic operation of the complete waste water treatment plant.

The scope of engineering and delivery services by BIOGEST AG contains the waste water treatment plant itself starting with the mechanical pre-treatment stage and also the flow regulation control system inside the inflow chamber. Therefore the BIOGEST AG provides the complete procedural, mechanical and control technical engineering and also the delivery and ready-to-use installation of the necessary technical equipment.

With the creation of value in mind the customerside services, especially the construction works (reinforced concrete tanks, operation building, piping and funnels), are executed by highly productive companies. In the same way BIOGEST AG also binds small- and middle-sized companies of the region for the plant construction. Considering the sustainability for the technical equipment only exclusively noted suppliers mainly from Germany have been selected, which veritabily have a longtime experience in their field of action. Here the main focus has been also at the selection of technical components with a high working quality and with possibly easily handling. Finally the sustainability is taken into account comprehensively by longevity.

In the same way important for the long-term availability of the waste water treatment plant is not only a suitable plant technology, but also the possibility, that the plant will be operated with the necessary know how. Therefore BIOGEST AG provides a comprehensive training of the future operation staff, complemented by yearly inspections and maintenance services at the waste water treatment plant and also with the basically guaranteed availabiltiy of the BIOGEST-support via the actual communication channels (telephone, email, skype etc.).



Source: BIOGEST AG

Figure 2: WWTP in Latein America: SBR-reactors

Through this, finally a distance between the operation staff and the mostly new plant technology can be avoided. Furthermore the operational staff is able to get familiar with the new plant knowing that they could already acquire a sufficient plant specific knowledge and that there is also a support by BIOGEST AG available, that can help to overcome absolutly natural challenges during the new handling of the plant.

Another aspect to be not underestimated in conclusion is still mentioned, which influences the sustainable usage of a waste water treatment plant significantly: the acceptance of the waste water treatment plant by the local population. Only if the population sees a benefit for their daily life - provision of purified clearwater for irrigation purposes, provision of excess sludge as fertilizer - the waste water treatment plant will be accepted and perpetuated.

This actual project execution of BIOGEST AG in Latin America demonstrates, that the practically construction of a ready-for-operation waste water treatment plant under consideration of the initial catalogue of requirements can be executed for a large city of approx. 400,000 inhabitants with an investment volume of approx. 78 €/inhabitant, including the construction works and the technical equipment.

Plant Data

Location:	Latin America
Connection load:	400.000 inhabitants
Peak flow:	700 l/s
Footprint Plant Area:	140 m x 140 m
Electrical Connection Load	2500 KW
Price:	Approx. 78 €/PE

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