

WASTE MANAGEMENT PROJECT

2011



AGRO INVEST BOHEMIA CORPORATION

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AGRO INVEST BOHEMIA CORPORATION

1. The Company

1.1. Corporate structure

The Agro Invest Bohemia Corporation's establishment process began in early fall of 2009. The company has been setup as means to access the undeveloped rural areas in emerging countries, which offer high potential for the main objective of Agro Invest Bohemia Corporation („AIB“), which is to develop void outback into (natural environment friendly) artificial ecosystems providing permanent economical and social profit both for the surrounding communities and for the investors involved without causing any extensive environmental damage on the local wildlife flora or fauna.

Due to his rich experience in the field of rural re-cultivation, Mr Tomas Sobota was elected to become the CEO as he is the major shareholder of the AIB. Mr Sobota holds the 99,6% majority, the remaining 0,4% of which belongs to business affiliates, while this ownership structure guarantees presence of all the necessary know-hows for the project of proposed range.

1.2. Vision & mission

We believe the major objective of every business is to generate profit. This fact is conjoint for most of the companies all over the world. However, the way to meet the objective varies from company to company as well as management to management. The premise of AIB is based on several principles, which is to make our company beneficial for the society as well as for our shareholders. The key means are as follows:

- to use domestic products – import only when necessary
- to cooperate with local authorities – helpfulness becomes mutual
- to focus on maximal efficiency – employment rate is less dependent to actual conditions, increases profitability
- to replace good with better – the created environment must be more socially-beneficial than its predecessor
- to maximize export – entire goods value remains within its origin
- to focus on continuity of development – improves social stability, ensures regional progress
- to prefer long-range objectives – only patience and sensitive management can bring real prosperity

The thesis we urge – that re-cultivations must be profitable, not sponsored – suits the best to the states that not affected with overinflated abuse of subsidies, therefore we consider the developing countries as the perfect locations to prove the truth of what we promote once again.

1.3. Background & know-how

The strong relations among the agricultural development industry and years of experience with benefication of wastelands make the AIB very desirable partner for key projects in field of our scope. The practical experience with waste management, plantation development, animal husbandry and facility-development predetermines us to succeed even in project requiring extremely complex solutions and rapid realization. The know-how we possess comes from leading European applied-research companies and is proven by many realized re-cultivation projects, usually benefication of surface-mining areas in Europe as well as establishment of artificial plantations in tropical countries of Asia. Our experience, conjointly with the know-how of our contractual partners, guarantees unmatched work quality and lays a firm foundation for surpassing the assigned tasks.

2. AIB's waste-water bio-treatment plants

2.1. Prospectus & objective

Traditional waste-water treatment plants represent complicated facility requiring relatively high initial investment and significant maintenance, both in terms of finance and skilled personnel. This may not be important limitation for developed western countries, where the costs of sewerage are high and therefore both sufficient funding and labor capacities are available. But situation in “third world” is considerably different. Simplicity of operation and maintenance costs have far bigger importance, than uncompromising and guaranteed quality of utilized waste-water.

Due to above stated, our concept of waste-water treatment has been developed with the emphasis on low maintenance requirements, easiness of operation, great reliability and perfect cost efficiency. Big attention has been paid to apply locally available products & materials as widely as possible. This precaution shortens the probation period of newly built plant and lowers the risk of improper technological processing during construction.

2.2. Description

The unique technology we promote focuses on biological degradation and purification of waste-water. Our concept utilizes the purified waste-water in irrigation system for non-edible plants, to rise the bacterial security level as high as possible.

Our plants are designed in modular system, therefore we can offer various solutions and extensions according to specific demand of our customers. Typically, the plant can be adopted for biogas generation, if anaerobic digestion method is selected. This type of biogas comprises primarily methane and carbon dioxide. The gas can be combusted or oxidized with oxygen. This energy release allows biogas to be used as a fuel, a low-cost fuel in any country for any heating purpose, such as cooking. It can be also used to run any type of heat engine, to generate either mechanical or electrical power. Biogas can be compressed, much like natural gas, and used to power motor vehicles. In the UK, for example, It is estimated to have the potential to replace around 17% of vehicle fuel. Another very advisable option is to connect the waste-water treatment facility to a current irrigation system, whereas this solution eliminates the need of fertilization and increases water supply within the system.

Technically, main part of AIB's waste-water treatment plant consists of three independent tanks, wherein (typically) the aerobic bacterial digestion of waste is held.

The primary tank is designed to store amount of approximately triple or quadruple of daily waste-water influx. Empirically was figured out, that the solid content of waste-waters in developing countries with low specific water consumption (such as countries of East Africa) is relatively high and represents up to 8% of total waste-water volume. This primary tank is called “Sedimentation tank”, as one of it's functions is to separate (by sedimentation) the solid and fluid content of waste-water. The solid and dense content is daily overdrawn (in volume of 20% of total daily influx) to separate “Decomposition tank”, while the remaining waste-water is subjected to primary bacterial digestion and continuously overflows to the “final decomposition tank/filter”.

The function of “Decomposition tank” is to provide sufficient time for bacterial digestion, because a longer period is needed to digest denser content of waste-water. “Decomposition tank” is designed to accommodate 800% of it's typical daily influx, thus providing eight days long period for decomposition of it's content. The treated waste-water is continuously pumped to the “final decomposition tank/filter”.

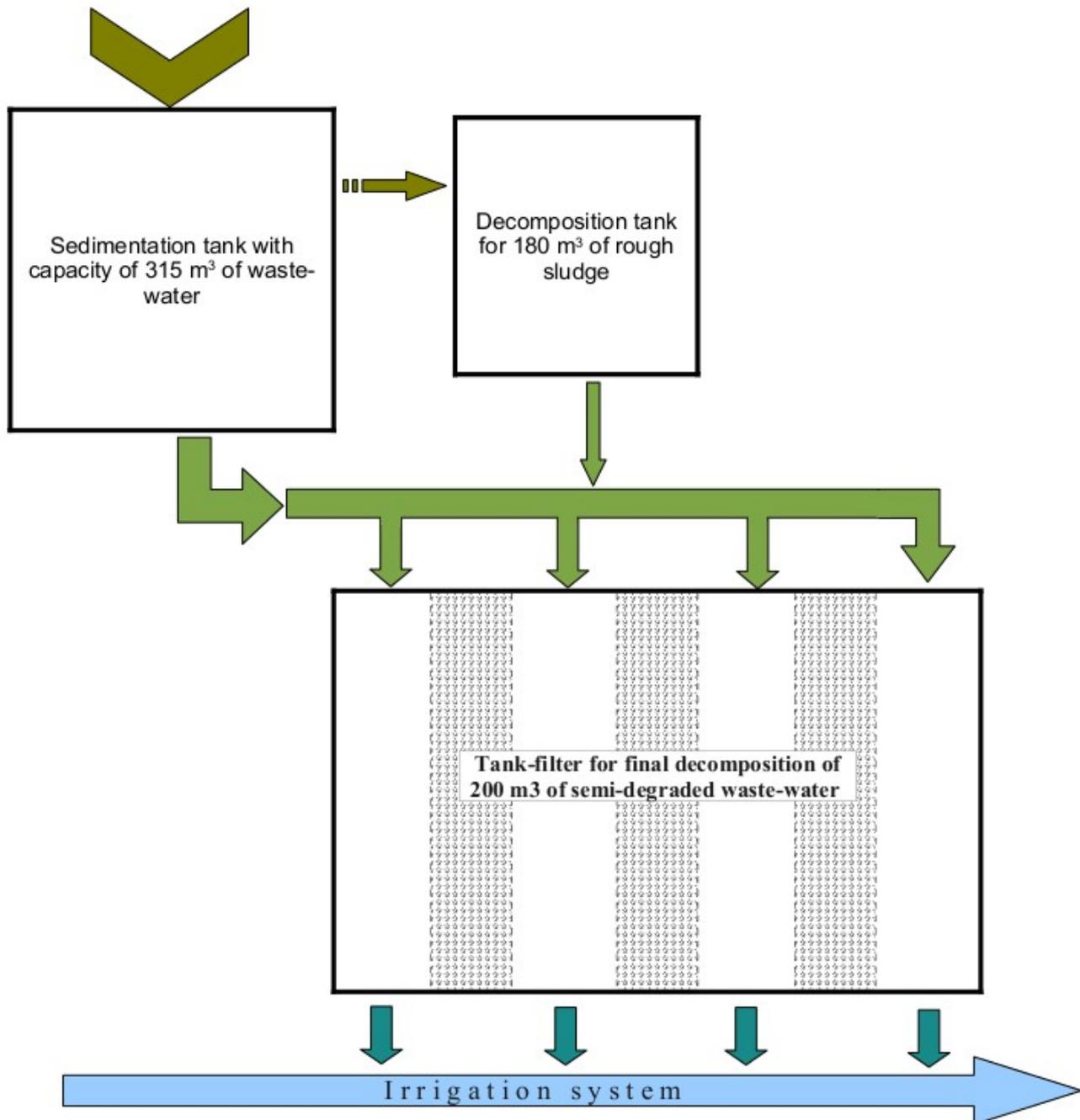
Third part, the frequently mentioned “final decomposition tank/filter” is a shallow tank designed to accommodate the double volume of plant's daily influx. The tank is inside divided by bio-filtration dikes (one 1 m² of dike area per every 3 m³ of waste-water within the tank). The dikes are planted with special mixture of woody plants and bamboo species. Their high growth rate and thus high consumption of nutrients improves the decomposition and filtration of waste-water and

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helps to monitor the quality of digestion process.

Finally, the water treated in “final decomposition tank/filter” overflows into the affiliated modular irrigation system. The system can supply purified waste-water to various areas, such as plantations of industrial crops, leisure parks, timber plantations etc.

The image below shows a typical layout of AIB's waste-water treatment plant. The volumes shown are calculated for 5,000 specific users in circumstances of East African region.



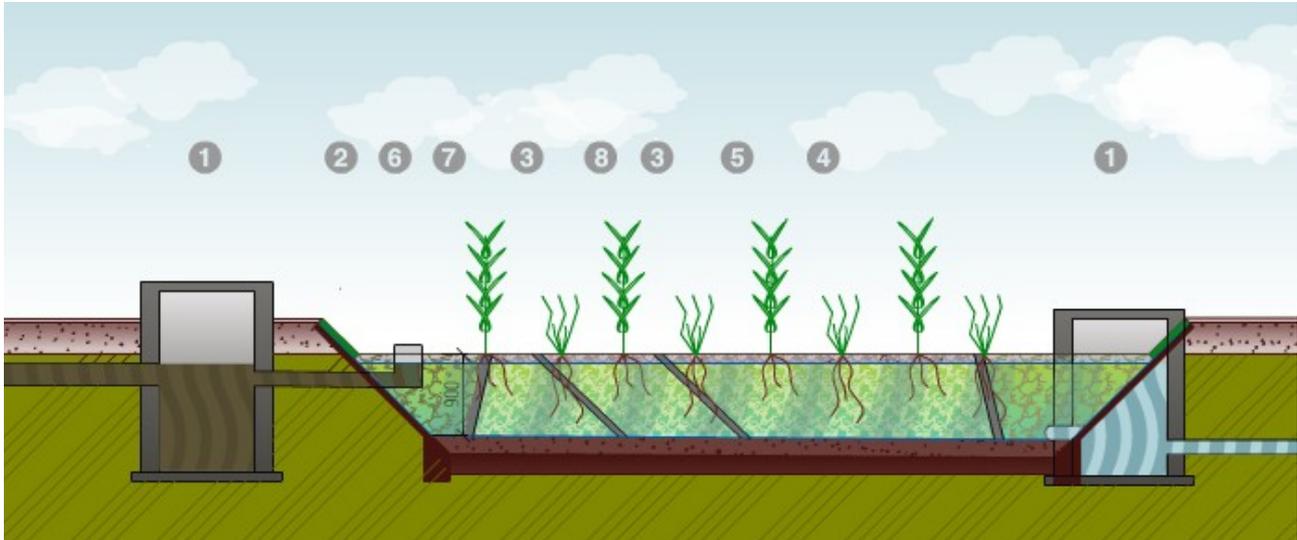
2.3. Alternatives

Just as we stated above, the AIB's waste-water treatment plant bears modular design and therefore multiple optional configurations of individual facilities are available.

One of potentially desired options is to replace the aerobic digestion process with anaerobic process. This allows to set the plant with biogas generation facilities and thus, for example, with a co-generation plant (combined electric/heat production) or pressurized biogas bottling station.

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Another interesting variant of AIB's waste-water treatment plant replaces the “final decomposition tank/filter” with an artificial swamp (see image bellow this paragraph), which significantly improves the purity of outgoing water. On the other hand, it also lowers the amount of water to be used in irrigation system. The artificial swamp filter facility requires area of approx 2 – 3 m² per each specific user in circumstances of East African region, ergo, following the previous example, the artificial swamp-filter would cover area of 1 – 1.5 hectare.



Scheme: 1. - Distribution shafts (divide influx among the filters); 2. - Bank reinforcement; 3. - infiltration dikes (secures the flow of waste-water); 4. - filtering herbs; 5. - Filtering gravel dike (here the main filtration processes are held - nitrification, denitrification, shrinkage etc.); 6. - control shaft; 7. - distribution gravel dike; 8. - filtering herbs

2.4. Advantages

Our unique concept of waste-water purification offers several important advantages:

- Environment friendly – can be easily incorporated into the nature. Anywhere.
- Made in destination – can be constructed and operated using locally available labor, technologies and materials
- Great value – construction of AIB's waste-water treatment plant requires significantly lower initial investment than conventional waste management solutions
- Smooth operation – the facilities are easy to use and require minimal maintenance and even lower subsequent investments
- Purely BIO – all the waste-water treatment is held solely in natural way, by harmless microorganisms and bacterias, which can also be proliferated locally.
- Powerful – our system also offers very high purification efficiency:

Substance	Influx (mg/l)	Reflux (mg/l)	Efficiency
BSK5	150 mg/l	14,4 mg/l	85,80%
CHSKCr	333 mg/l	53 mg/l	76,10%
Suspended solids	165 mg/l	11,9 mg/l	84,80%
Total N.	56 mg/l	27,6 mg/l	47,00%
NH4+ -N	27,5 mg/l	18 mg/l	33,40%
NO3- -N	5,8 mg/l	2,45 mg/l	40,90%
Total P.	6,8 mg/l	3,3 mg/l	41,40%

3. Overview

3.1. Economical aspects

In comparison with machinery-based waste-water treatment plants, the AIB's concept saves typically about 10 – 15% in initial investment and up to 60% in annual operational expenses. It's mainly because of low energetic requirements of our concept, minimal maintenance needs and only simple machinery incorporation.

Furthermore, the waste-water treatment plant offers an economical potential due to available biogas technology and due to production of high quality fertilization. An affiliated irrigation system (for a plant from our example) “powered” solely by the waste-water treatment plant could irrigate approximately 6 hectares of forestry plantation or equivalent. In case of additional water source, even larger areas could be irrigated.

3.2. Social effects

All our projects bear common characteristics, such as extremely wide use of domestic materials, labor and locally available technologies. Our system of management then brings the necessary expertise and quality guarantees. The Waste Management Program is not an exception, at least 80% of necessary budget for plant's construction is to be spent locally, mostly for services of local labor and contractors.

Equally important is the improvement of live for people connected to sewerage affiliated to AIB's waste-water treatment plant. The unmatched affordability and reliability of our concept allows even the governments and authorities with limited budgets to obtain facility of great characteristics and long service life.

The contribution to public health in sewers-networked areas can ignite rapid development of tourism and reveal the hidden potential of then underestimated sites.





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