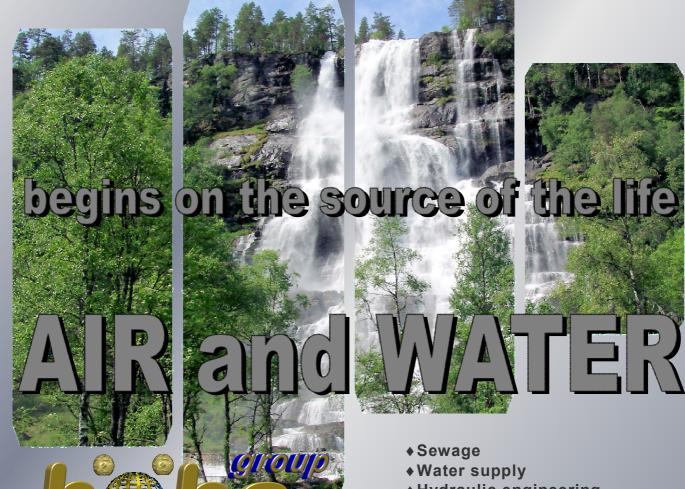
environmental conservation



hoeba j.hoereth gmbh

All from one hand

- ♦ Hydraulic engineering
- ♦ Road construction
- ♦ Site development
- ◆ Ecological planning
- ◆Sewage plants
- ◆Biogas sewage plants
- ◆Sludge burning
- ◆Water and purification of drinking



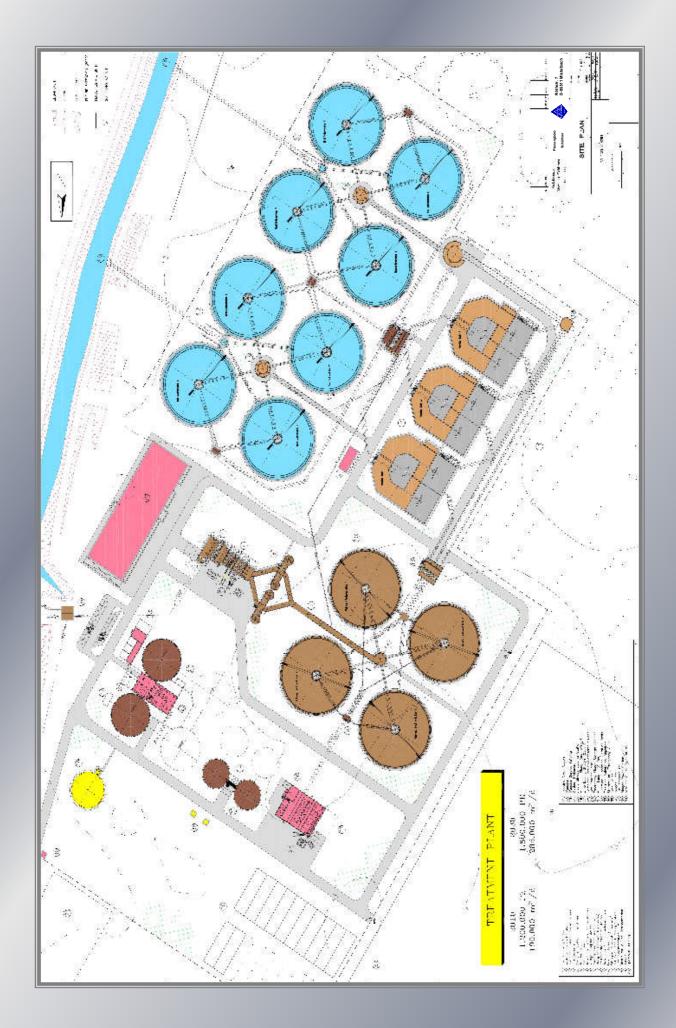
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SIDE Aerial photos sewage works Photos sewage works Architect's plan sewage work Photos of the plants Thus functions a sewage work Rake - plant Sand trap First tilting basin Revival basin Final basin Digestion tower Drainage Won energy possible use and utilization 8 Biogas from biogas plant Biogas - production 9 Operation breakdown 10 Combined heat and power un 13 climate protection projects CO² certificates 16 Clean Development Mechanism (CDM) 17 21 Our company profile Foreign country - authoritative objects 22 Plan Shanghai Biogas plant 25 Concept description 26 Guarantee / warranty 26 China inspection photos 26 Addresses info contact 27 Land - Map 28













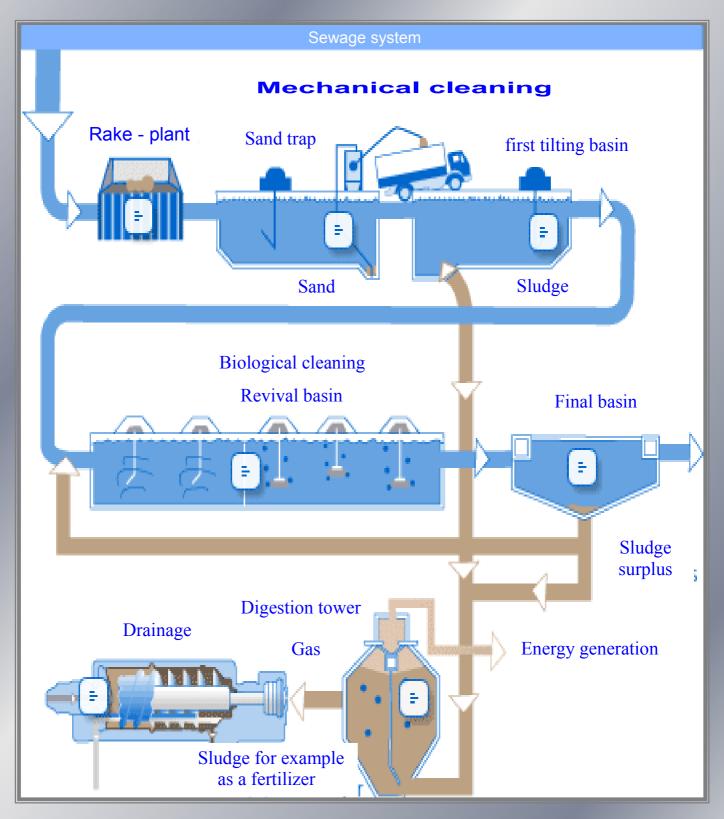


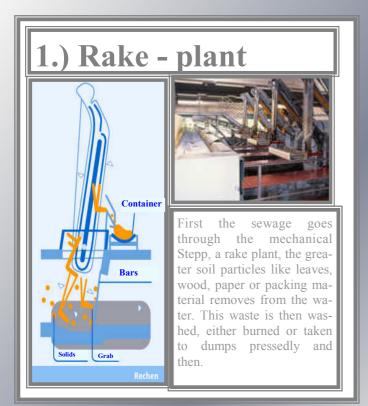
Sand trap



Spiral pump

Operating system so a sewage plant works



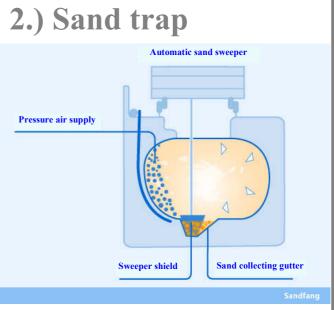


Sludge sweeper shield bridge Chute Sludge line Sludge sweeper shield Primary Sludge deduction

The smaller dirt particles are in the so-called preclarification basin to the collar. The substances matured at the basin reason which predominantly consist of organic materials form the primary Sludge. He accumulates after the clearing in the pump sump and is transported from there into

the digestion tower. With the pre-clarification the mechanical purification of sewage ends. About 60 to 70 per cent of the pollution in relaxed form which must then be dismantled biologically is in the sewage now still.

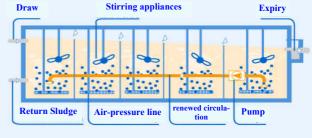




After the rake has removed rougher pollutions, the sewage passes through the sand trap. Because the sewage current here runs more slowly, the heavy sand sinks to the ground while the flow is further wearing lighter substances with herself.



4.) Revival basin



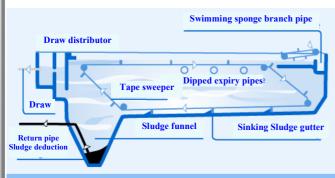
Belebungsbecken

The organic connections contained in the sewage - for example leftovers - are cleaned biologically in the context of the second treatment of sewage in the revival basin. The most frequently applied method of the biological cleaning is the busy Slud-



ge method. Vast amounts of microorganisms do whole work: The microorganisms trigger processes of transformation at which inorganic connections and biomass arise. These processes proceed without interference, if the little living beings are protected from acids, lyes and toxic substances with the sewage - always new "dirt" and they is brought to food and sufficient oxygen.

5.) Final basin



Nachklärbecker

The sewage flows into the final tank now. The cleaned sewage gets separated from the sludge involved in the clea-

ning process here. This disappears after that in the digestion tower in many cases.

Dry cleaning for problematic substances

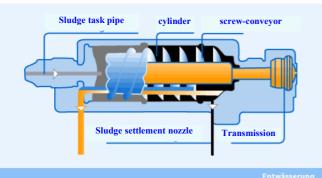
The methods in this treatment of sewage make use of chemical reactions like oxidation and reaching. Phosphorus and



nitrogen compounds as well as heavy metals are essentially removed.

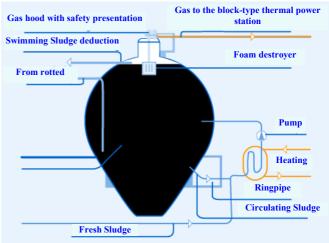
Lime, iron chloride and aluminum sulfate are very well suitable to "precipitate" phosphates from human metabolic products and detergents for example. Nitrates disappear with the help of the denitrification at which microorganisms convert the nitrate into gaseous nitrogen.

7.) Drainage



After the sludge has passed the digestion tower, he is drained. Centrifuges, screen belt or chamber filter press for use, frequently come. The mud treated so is used as a fertilizer, for example.

6.) Digestion tower



Faultuen

Anaerobic microorganisms partly dismantle the sludge in the digestion tower without bonus of oxygen. As in the case of all anaerobic processes any amount biogas arises. Many wastewater treatment plants use it to cover her current demand or reduce the current purchase.



Won energy

Sludge gas

The use of biogas from the sludge reaching has a long tradition. Within the 1940s to 1960s years a prepared biogas was handed in as motor vehicle fuel.



Since 1957 the biogas is exuded in the wastewater treatment plant with gas engines. The waste heat is used for having the heating on. The "gas strength plant" was replaced in the wastewater treatment plant in 1998 by a modern block-type thermal power station (BHKW) in which current and warmth are produced from biogas.

With more than 12 million kilowatt hours (electric) made the biogas use in 2005 the greatest share at the electricity generation from renewable energies. The current and the warmth from biogas are used in the operation of the respective wastewater treatment plant.

Treatment plant for for fermentation bio gas







FOR AGRICULTURAL APPLICATIONS

The provision of energy for the supply of an efficient society can be ensured in remarkable proportions with natural resources of a modern agriculture.

Biogas plants can produce high-quality energy ("biogas") out of agricultural residues like e.g. liquid manure from the keeping of pigs, cattle or poultry. Afterwards the biogas is refined in fully developed gas engines to electricity and heat.

RENEWABLE RESOURCES / ENERGY PLANTS

Biogas can be produced from specially grown energy plants so called "NAWAROS". For this, plants like maize, grass and grain are suitable. These plants can be grown easily and stored all-season as silage, so that the supply with necessary raw material for the operating of a biogas plant is guaranteed all-the-year.

BIOGAS PRODUCTION

The technique of the biogas production is known for decades and all over the world small and large biogas plants are operated successfully.

The heart of a biogas plant is the digester, in which the methane bacteria use e.g. the maize silage as "food" to produce biogas out of it. Biogas consists of approximately 50-65 % flammable methane. The methane provides the required energy for the gas engine so that the engine can power a generator, which produces electricity as a good sellable product.

According to the german "Renewable Energy Law" an attractive remuneration for electricity from renewable resources/ energy plants is paid. Therewith a high profitability of the biogas plant and the agricultural enterprise can be ensured.

Beside the digester and the combined heat and power unit (CHP) a biogas plant has a few more components such as a substratum receiving station, pumps, gas treatment, gasholder and a storage tank for the fermentation product.

FERMENTATION RESIDUE AS FERTILISER

The fermentation residue plays an important roll in the operating of a biogas plant which runs on renewable resources / power plants. Inside the digester only the carbon is extracted from the renewable resources. The carbon is contained in the biogas as methane and carbon dioxide, which were metabolised by the methane bacteria. The rest of the nutrients are still contained in the fermentation residue. The nitrogen is available as the attractive ammonium. Consequently the production of renewable resources can be realised with a low amount of non-operating fertiliser. The energy is produced by the sun!

HEAT UTILISATION

Beside the electrical power also heat is produced. This heat can be used for the heating of buildings and glasshouses, drying of several goods, for fish farming and many more purposes to increase the efficiency of the biogas plant. The intelligent utilisation of the produced heat is remunerated by the legislator with an additional bonus.

PROCESS DESCRIPTION

The biogas process is based upon the activity of so called methane bacteria. These bacteria "eat" organic substances which are available from the manure or the energy plants (renewable resources). A small part of the "food" is needed for the growth of the bacteria, but the largest part of these substances is excreted as gas. The principal constituents of the biogas are flammable methane and not flammable carbon dioxide. Substantial amounts of methane are produced which can be transformed with gas engines into electricity and heat.

The biogas plant consists of several components so that biogas can be produced out of the organic substances:

In the first instance the substances out of which the biogas is produced, such as e.g. maize silage or liquid manure, is stored in a receipt station. If required in this container fermentable substances, such as e.g. fats, can be added as co-substratum. The sludge is pumped constantly from the container in the digester. The digester is a completely closed tank made of steel or reinforced concrete. The digested sludge in the digester has a temperature of approximately 35°C. This high temperature provides optimal living conditions for the methane bacteria, so that an effective gas production can result. The digester is equipped with heat insulation to keep the self energy consumption low. Furthermore the digester is constructed gas-proof because the bacteria only survive and work under the absolute elimination of oxygen.

The produced gas is discharged in a pipeline. In a purifying unit condensate and contaminants are eliminated. Afterwards the gas is stored intermediately in a gas holder and from there is transformed by a combined heat and power unit (CHP) into electricity and heat. The electricity can be used internally or fed gainfully in the public electricity network.

The heat is used partly for the heating system of the digester. The surplus of the heat quantity from the CHP can be used for e.g. keeping of pigs, glass houses, drying processes, etc..

The biogas process proceeds continuously, that means every day sludge is pumped into and a corresponding amount is taken out of the digester. The digested sludge is stored in a storage tank till it is used as fertiliser for the arable land. The pre- and the final storage are installed beside the digester. The pump technology, gas treatment and the CHP are installed on strip foundations in factory-made pre-assembled containers.

CONSTRUCTION OF A BIOGAS PLANT

A biogas plant is a small factory, the various appliances, containers and equipment such as pumps and motors, in order to produce biogas and electricity to be able to convert. The components need to be sensible voted for an effective and trouble-free operation can achieve. The main components of a biogas plant are described below for an idea of building a biogas plant to receive.

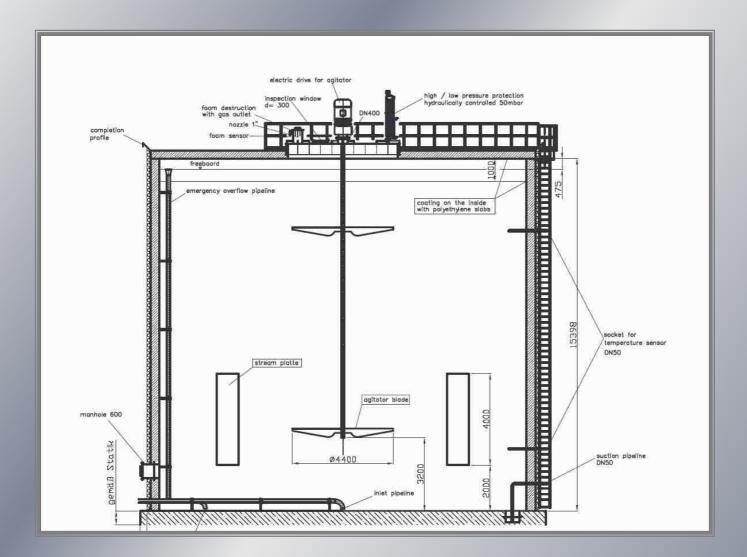
FERMENTER

The fermenter, or septic tanks, is the most important part of a biogas plant. In fermenter, the renewable raw materials converted into biogas. The fermenter consists of a large gas-tight containers, made of reinforced concrete or steel is. We can, depending on the desired and necessary requirements Fermenter both systems (s u) offer.

CONSTRUCTION OF FERMENTER

The fermenter is a stationary cylinder with a ratio of diameter to the height of approximately 1:1 and is made with a special shuttering on the spot. The slim reinforced concrete container can be executed into heights of 8 to 20 m. Is established either from reinforced concrete or from stainless steel plates the ceiling or roof structure of the container and closes gastightly. The roof is usable so that in the maintenance or repair case all important safety and machine technical equipments of the fermenter can be reached.

Fermenter with vertical stirring work



The safety and machine technical equipments of the container are essentially in the gas cathedral which is installed in the roof structure. The withdrawal of the biogas takes place in addition over this gas cathedral from the fermenter. Optional two different radical change systems provide a sufficient radical change and by mixture of the container contents. The first system is the radical change with a vertical stirring work which is installed over the gas cathedral in the roof structure. The concrete used for our reinforced concrete containers is a high-quality special concrete which is constant against attacks by a variety of aggressive media. A special PE-high-density coating which effectively protects the concrete from sulphur corrosion is in addition attached in the gas room of the bad container. On the outside the fermenter is thermally insulated and with trapezoidal sheet covered with mineral wool. Work platform and ladders are in the extent of supply. Connections for the supplying and eduction of the mud and the gas are included like the vertical stirring work for an effective by mixture. The warming of the mud is carried out via a double tube heat exchanger lying on the outside.

SLIM STYLE

In comparison with fermenters in a flat style bad containers stand out due to the following advantages in a slim style:

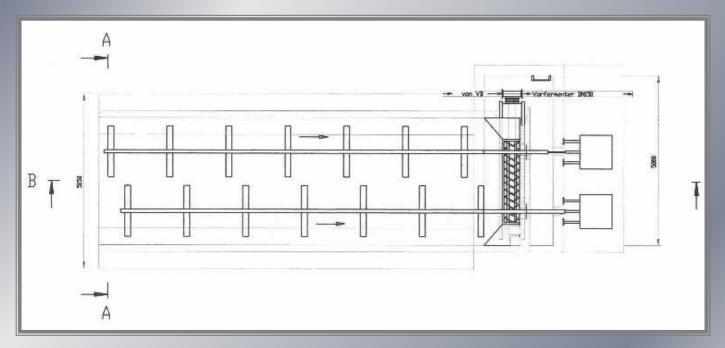
Roof structure

By the relatively small diameter of the containers stable roofs have to be established easily. Stirring appliances working effectively can be integrated in stable roofs. Heat losses can want to a good insulation be made minimised also in the roof there. With a good insulation the warmth of one's own need of the bad container is minimised so that the warmth can be used economically and increases the yield of the biogas plant. In comparison with thin membrane roofings the heat losses are up to 75% lower. The slim style is the prerequisite for an optimal homogenization of the bad container contents. The relationship height: Diameter = 1:1 is advisable for a good by mixture of the contents. The surface is smally, through this be able to sink and swim stack be fought better. A good distribution of the warmth and the fresh fermenting good is obtained with that with a low expenditure of energy, this is an essential prerequisite for an optimal bio gas-production. This can be much more simply and more safely to operate reached unlike fermenters in a flat style. At a disturbance the stirring appliance can be dismantled without the one emptying of the fermenter becomes necessary.

SUBSTRATUM SUPPLYING

The substrata made of which the biogas can be won are very various. A biogas plant can be operated with liquid substrata like dung or with solid substances, e.g. silage made of maize or corn. An adapted supplying technology is therefore an indispensable necessity for a trouble-free operation. The supplying and preparation of the substratum takes care that the substances are brought in liquidly into the Biogasfermenter to obtain an effective operation.

PUSH GROUND WITH SUPPLYING SNAIL



FERMENTING SUBSTRATUM RESIDUE

The mud which leaves the Biogasfermenter is still a valuable substance. Only the carbon has been withdrawn from the renewable raw materials for the biogas extraction. Furthermore nitrogen, phosphorus and the further plant nutrients are available and n can be used optimally for the manuring in the agriculture. The fermenting remains are therefore stored in a store bin which can take a stock of 180 days. Particularly the nitrogen is in the ground wholesome ammonium form and can be used effectively in the growing season.

GAS CLEANING

The biogas which leaves the fermenter still must be processed for the use in the gas engine, so that the engine has a long life time. Condensate (water) must essentially be removed from the gas. As well the hydrogen sulphide which is contained in different concentrations in the biogas must be removed. Hydrogen sulphide is poisonous and very corrosive. The HÖBA corporate group has extensive experiences and techniques for the effective elimination of pollutants of gas. A pressureless gas carrier serves the even supply for the block-type thermal power station to guarantee an uninterruptable operation. A need torch rounds off the gas cleaning and provides an environmentally favourable and sure disposal of the gas in the disturbance case.

COMMUNAL HEATING/POWER STATION

The block heating work changes the biogas in electric current and warmth, two energy forms are valuable secondary energies which gain large proceeds and make the biogas plant profitable that way. Block-type thermal power stations can be delivered in all sensible sizes. For the fast assembly the block-type thermal power stations can prefabricatedly be delivered into containers. An assembly in buildings is also possible. The current from the block-type thermal power station is escorted and tempered correspondingly about a transformer station after the conditions of the energy-feeding in law into the public power supply system. The warmth can be used variously e.g. to the heating of buildings and hothouses in the fish farm or too technical processes like the drying of wood or other goods.



Gas hood







Sludge heat exchanger





Climate protection projects

Climate protection projects can with

Clean Development Mechanism (CDM)

being carried out.

With the CDM under the Kyoto Protocol committed governments and companies generate mitigation credits. These are investments in saving projects in developing or emerging countries. The mitigation credits

Certified Emissions Reduction – CER

these by these projects arise, can be credited to the investor since 2005. These credit notes are tradable.

Why climate protection projects?

Carbon dioxide contributes considerably to the warming of the atmosphere - CO ² as a waste product of combustion of fossil energy carriers like carbon, mineral oil, natural gas.

This has serious effects on the environment and the social structure. Methane - CH⁴ - arises in large quantities at the rice growing and in the cattle keeping.

At the unchecked storage of dung large quantities of methane are handed in into the atmosphere. At methane, the harmfulness for the atmosphere is greater than at carbon dioxide around the factor 21!

Project types - examples

Energy efficiency project - co. ²

Rise of the degrees of effectiveness from power stations cogeneration of power and heat

Renewable energy - co. ²

Biomass - particularly procedure to the methane avoidance

Methane avoidance - CH4

Landfill gas, gas from purification plants Minegas

Manure slurry management - Cattle ranching

Criteria of sustainable development - Sustainability - :

After the Kyoto Protocol a sustainable development can be described with the following criteria:

Economy: Creation of prosperity and livelihoods concrete generation of incomes job creati-

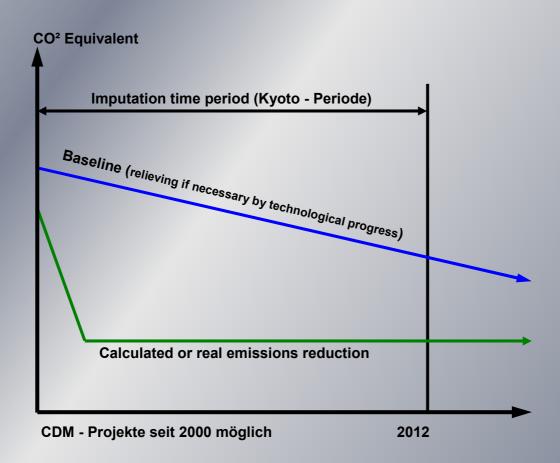
on.

Sozial: Improvement on the quality of life, abolition of poverty concrete development of

the water supply, sewage system energy supply.

Ecology: Improvement, increase and expansion of the natural resources concrete reduc-

tion of use of fossil energy Improvement of the air quality Improvement of the land utilization



Baseline

The baseline serves and to find the consequence of a project out. A scenario is built in the front-end and to grasp the situation without execution of the project.

It is tried also to include the technological progress and changes of the legal framework conditions.

Course of the project

Working steps

Responsibly

Project idea	CDM Registrierung	Project developer
Short documentation (Projekt idea note) PIN	1.09.00.0.0.0	Project developer
Development of the PDD with Baselineszenario		Project developer
Audit of the PDD		Independent Operational Entity
Participation of the public		Project developer
Validation		Independent Operational Entity
International audit		CDM Executive Board
International registration and re- cognition		CDM Executive Board
Planning and conversion	CDM Realisierung	Project developer
Monitoring (yearly)		Project developer
Certification		Independent Operational Entity
Expenditure of certificates		Project developer

Project Idea Note PIN

In the Project Idea mark the project bearer states general information about the project. The PIN serves for the preliminary examination of the project.

Project design Document PDD

The successful registration of a CDM project assumes the production of a comprehensive project documentation – PDD. She is comparable with a licence application and puts high requirements for the proof of the additionality (Additionality).

- Marketing and transactions
 - Garbage dumps with high domestic waste interest High issue in methane injurious to climate!
 - Keeping of pets with liquid manure production (pigs and bovine animals)

the liquid manure is not allowed up to now treats and up to the application on the field the storage for longer time follows, e.g., in lagoons.

High issue in methane injurious to climate!

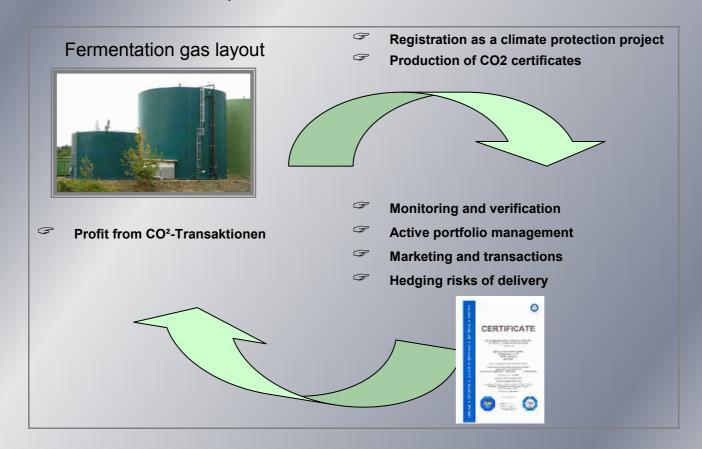
Realisation

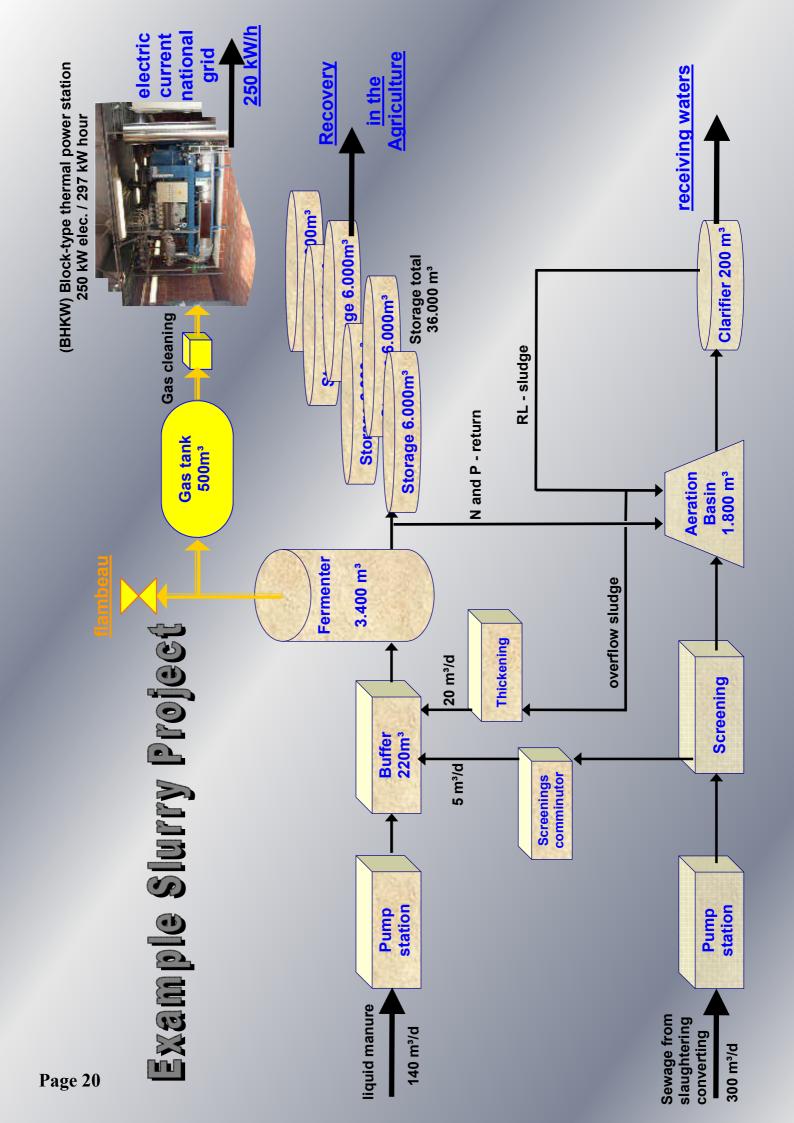
After registration of the project as a climate protection project and the necessary formal liquidation by a specified service company the condition is created created for the generation of the certificates. The certificates have a tradable value and serve the Refinanzierung of the layout.

Economic efficiency

The climate protection projects should show a least size.

The formal liquidation is cost-intensive, so that bigger projects or "convoy projects" can lower these expenses.











company profile

The company group HÖBA together with the company group Weidmann, itself in the family estate consider, contain an amount in special companies, starting from media, Internet about trade up to the real estate as well as structural engineering and civil engineering, Streets and canal construction, rubber recycling and a rubber production factory. Gravel and sand reduction as well as a concrete sewer pipe factory belong in Spain Mallorca and Tenerife just as there as inland and foreign real estate.

Our head office is in Bayreuth Germany. Other offices in the USA; Chicago, in England; London and Russia; Moscow are escorted by our independent employees. You find further information and details on our Internet pages: www.hoeba-jh.de; www.stellenmarkt-hoeba.de; www.immobilienmarkt-hoeba.de; www.weidmann.de/pdf/beteiligungen.pdf; www.RTWfuture.de;

The department Sewage plants Biogas sewage plants Sludge burning Water and purification of drinking water in which we may call upon you, we would like to name some foreign projects that have already been implemented, as a reference.

Of course we can also show numerous German projects that we would like to catch up on during our visit in person and with detailed planning material, images and presentations to convince of the need for these facilities.

Our powerful team is characterized not only by the well-known German thoroughness, but also by the pricing deals.

Technical know how always comes from Germany as well as the single components.

Well-known German companies like Siemens, Bosch, etc., are parts suppliers for these systems.

Our planning - office for such projects is the Leader - Function and always will occur towards the buyer as the seller of the overall system.

From planning through to final production, that is handed over for operation of the facility, everything is done by us and our subcontractors.

I hope, you persuade the following authoritative projects of our achievement spectrum. It would be to us an honour to come with you to the business.

Yours sincerely

Johann Höreth

Foreign countries - reference object

Sewage plant Mersin (1.100.00 inhabitant); Turkey

New building of the revival plant on nitrogen and Phosphorelimination with an anaerobic mud stabilization, sludge dewatering, solar drying and cofiring of the sludge in the cement industry:

Making the sludge disposal concept for the Turkish Ministry of state
Variant comparison of sludge disposal paths with economy comparison
Draft of the advantage solution (solar drying and cofiring in the cement trick tube furnace.)

Construction company executive: Turkish construction companies

Customer: Municipality of Mersin Execution: 7/2002 - 12/2002





Sewage plant Malatya (1.200.00 inhabitant); Turkey

New building of the revival plant on nitrogen and Phosphorelimination with an anaerobic mud stabilization, sludge thickening and sludge dewatering:

Processing of the financing study of the KfW.

Processing and identifying the basis of static analysis of the effluent sampling and analysis programs

Processing of the preplanning and the processing and hydraulic interpretation.

Preparing the functional tender documents

Evaluation of the bidders

Machines and electrical engineering: Contractor company: Turkish building contractor

Customer: Municipality of Malatya Execution: 6/2000 – 10/2001





Sewage plant Diyarbakir (900.000 inhabitant); Turkey

New building of the revival plant on nitrogen and Phosphorelimination with an anaerobic mud stabilization, sludge thickening and sludge dewatering:

Processing of the financing study of the KfW.

Processing of the basis inquiry and static evaluation of the sewage analyses and Beprobungsprogramme

Processing of the preplanning and the processing and hydraulic interpretation

Preparing the functional tender documents

Evaluation of the bidders

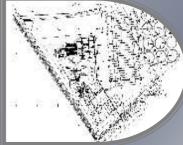
Contractor company: Turkish building

contractor

Customer: Municipality of Diyarbakir

Execution: 2/1999 - 8/2000





All projects mentioned above were planned by our office with participation in Germany, Machines and electrical engineering also of German large-scale enterprises (delivered to Bosch, Siemens etc.

German engineers had the making direction at these projects and were responsible for the proper planning, construction and putting into operation.

Ground plan Shanghai Biogas plant



Guarantees and concept description our style

With various inquiries and invitations regarding making of wastewater treatment plants we have done a China journey from September 4th, 2007 until September 11th, 2007 to a picture make us ourselves about the short-term situation.

We show you pictures have we made this one on-site in China, this one show the serious differences and defects opposite German wastewater treatment plants followingly.



Mechanical iron parts with blue colour painted.

Rust eats these parts away and these parts must expensively be replaced into high-grade steel parts as marked with green happened.

One sees clearly the wrong material also here which must be replaced now after 6 years.





Seeing here clearly, concrete not taken off correctly. Rips and columns arise, water and frost tear up the concrete and the basins get leaky.

Too early remote shutters let the concrete get brittle fast; The concrete basins must remain at least 28 days in the framework.





These moving high tide valves must be dry and the shaft locked waterproofly.

This type of the electrical equipment transfer is highly dangerous and leads wear on the electromotors to disruptive incidents as well as early.



This type of the fault view still could for our part be represented and listed over innumerable sides.

Our concept is as follows:

- Sale and construction of a sewage plant according to a German standard.
- Mechanics and electronics, all iron parts, like banisters, outlets etc. made of high-grade steel.
- Concrete work is executed by a domestic building firm with domestic workers according to our planning concept and by construction supervision of German engineers.
- After completion of the first sewage plant we want to build a factory in the town which has bought the first sewage plant from us
- The mechanical parts (snails, bars, banisters, all iron parts made of high-grade steel) shall for further wastewater treatment plants are produced in the country and the costs therefore could be reduced again in this factory.
- Training vacancies and trainings shall just be set up for workers for operating wastewater treatment plants in this factory.

To have a comparative possibility, pictures from sewage plants are added to Germany by us followingly. These pictures point wastewater treatment plants are these more oldly than 6 year and demonstrate the German style according to which we proceed.









Guarantee and warranty

On all mechanics and control electronics sections maintenance we give free exchange guarantee for 3 years as well as on the entire plant for 5 years - service.

You wish more information?

for example calculations of profitability

Contact us. Request our CD with detailed information or talk directly to us.

You find our addresses on the back.



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Sewage treatment plants Biogas plants

execution consulting planning

- Sewage
 Water supply
 Hydraulic engineering
 Road construction
- Site development
- Ecological planning
 Sewage plants

- Biogas sewage plants
 Sludge burning
 Water and purification of drinking water



Wilhelm Hollmann (Chefing. Architekt) Spezialist for process engineering and Hydraulik

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Sole agency of CIS countries

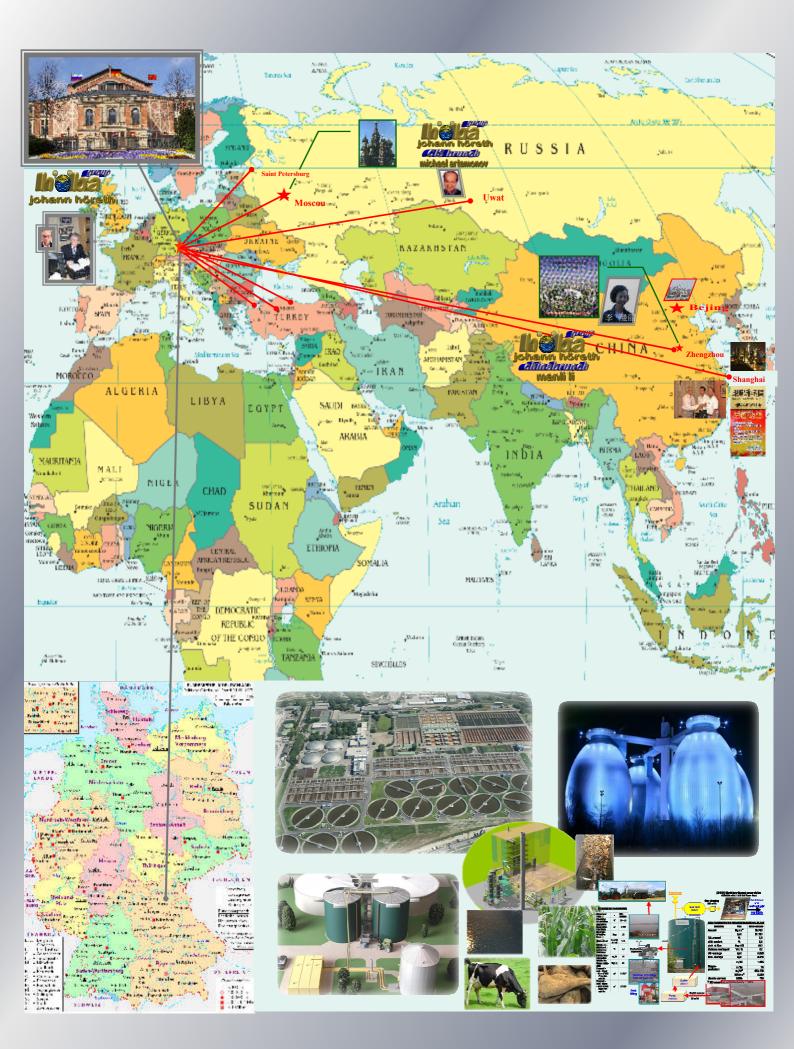


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