Experience report on livestock waste in Russia
Krieg & Fischer Ingenieure GmbH

Torsten Fischer and Dr. Katharina Backes

Krieg & Fischer Ingenieure GmbH
Bertha-von-Suttner-Straße 9, D-37085 Göttingen, Germany
Tel.: ++49 551 900 363-0, Fax: ++49 551 900 363-29
Fischer@KriegFischer.de
www.KriegFischer.de

Biogasworld, Berlin, Germany
April 1, 2014
Krieg & Fischer Ingenieure GmbH

Engineering Office, specialized in Design and Engineering of Biogas Plants
Foundation: 1999
Team: 20
Experience: > 25 Years
References: ca. 150 Biogas Plants
in: Germany, Japan, Netherlands, Austria, Switzerland, Lithuania, Italy, Slovakia, Canada, USA, Spain, France, Ireland, Russia and India
Partner in: Japan, Korea, Canada, Bulgaria, France, Poland, Italy, Spain, Ireland, Serbia, Greece and China
Key account
The configuration of the biogas plant depends on the substrates!
Projects in China

Consultancy contract with GIZ
Under construction (K&F)
Belgorod, Russia

Russlands Premier füttert Bakterien auf Biogas-Station

- Build: 2012
- Substrate: pig manure, sewage sludge, slaughterhouse sludge (entrails, rests of skin with bristles, meat particles), corn silage
- Digester: 2 x 3,035 m³ steel tank
- CHP: 2 x 1.2 MWel
- 2 primary digester, 2 secondary digester, mesophilic
- Adoption to cold climate
Belgorod, Russia
Digester: 2 x 3,035 m³ steel tank
Input of silage
Hall

- Solid input device
- Receiving liquid
- Storage tank manure
- CHP
- Office, sanitary rooms
Silage production and storage
Underground reception pit
Storage of digestate in lagoon
## Time table

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<thead>
<tr>
<th>Tätigkeit</th>
<th>2010</th>
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<th>2012</th>
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### Real Time

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- **K&F on site:**
- **Plant management**
Operation of the biogas plant

- Many stones in the silage
- Many problems with the pump
Interfaces

• The Russian power supply fails every 2 days
• Grid connection is not capable of receiving the performance of the CHP
• The dimensioning of the power cable is too small → cable fire in the ground
• Poor communication with energy supplier
Challanges

- Poor building ground → pillar foundation necessary for digester tanks
- Foundation was constructed without pillars and in bad quality
- Digester foundation had to be done again on a new place (site layout had to be changed)

- Digester foundation could not be used

- Foundation of sec. Digester: first layer above reinforcement had to be removed (600 m²)
Project organisation

- BD agro: project organization, communication with client, knowledge of local structures
- K&F did the main work as project leader
Customs
A complete piece of biogas plant was delivered to Russia
→ Increased effort for the clearance at customs: every part, to the smallest screw, had to be listed in the customs documents. 2 persons have been working on this 2 month!

Duration of customs clearance 4-6 weeks →
Special problems in case of subsequent delivery
Projects in Russia are only possible with experienced partners
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