

## Sewage sludge mineralisation reed beds at Wadi Hassan, Jordan

### Client :

Deutsche Gesellschaft für Internationale Zusammenarbeit GIZ (GmbH)

### Consultant :

Ingenieurbüro Blumberg (Blumberg Engineers)

### Project status:

Under construction (December 2019)

### Capacity:

Wastewater per day 900 m<sup>3</sup>  
50 m<sup>3</sup>/day surplus sludge with 3 %DS (1500 kg DM)

Planning: 2018

Construction: 2019/2020

### Sewage treatment:

Extended aeration

- Aeration basin
- Settling tanks

### Sewage sludge treatment :

- Sludge thickener
- Sludge drying beds (summer operation)
- Sludge mineralization reed beds (winter operation)

### Load of sludge mineralization reed beds

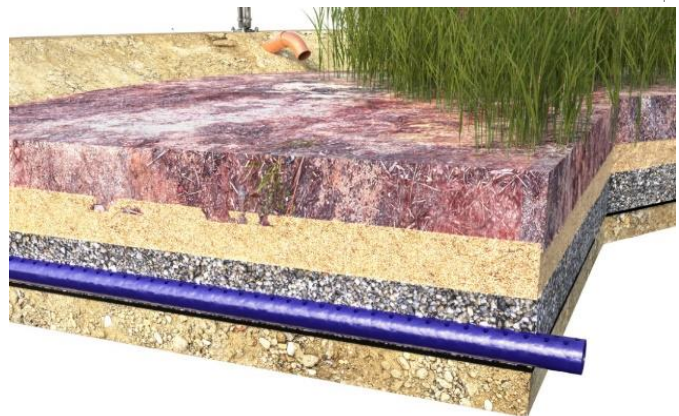
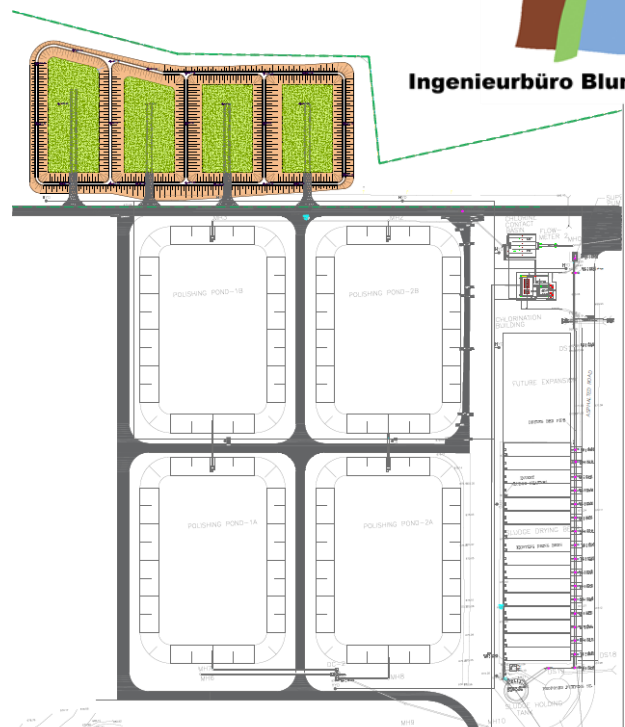
- 6 months per year (winter)
- 70 kg DM /m<sup>2</sup> x year
- 11.7 kg DM/month (operation in winter)
- Treated effluent sewage irrigation during summer and start-up period (40 m<sup>3</sup>/day)

### Output:

- Sludge liquor is pumped back to STP
- 686 m<sup>3</sup> mineralized sludge per year accumulating in the basins, first removal after 10 years.

### Advantages:

- No liquid sludge handling, storage & disposal for several 10 year-periods
- No use of chemicals and energy consumption only for pumping



### Space requirement:

- 3,911 m<sup>2</sup> (reed bed surface area divided in 4 basins)
- 9,238 m<sup>2</sup> (total area)

