



BGR-Symposium

“Coupling Sustainable Sanitation with Groundwater Protection”

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**Groundwater Protection through
improved Wastewater Management
In Kafr El Sheik, Egypt**



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Challenges in regard to Groundwater Protection

■ High Population Density

- 1 Mio. km² Land area
- 79 Mio. Population (2007)
- 1.9% Population growth
- 97% of Egyptians live on 4% of total land
- 1600 inhabitants per km² in Nile Delta

■ Low Sewerage Coverage

Public water supply

- 98.7% urban areas
- 92.8% rural areas

Public sewerage

- 82% urban areas
- 24% rural areas

Kafr El Sheikh Governorate

Water supply: 99% (urban) and 96% (rural)
Public sewerage: 86% (urban) and 34% (rural)

■ High / Rising Groundwater Tables





Looking for Sustainable Solutions...

- owned and managed locally
- technically appropriate
- financially viable
- tailored to the needs of the target group



The 10 Key Step Process

- 1 Project Identification and Formulation
- 2 Project Structure Establishment
- 3 Village Selection
- 4 Village Preparation
- 5 Overall Project Work Plan Development
- 6 Technology Development and Selection
- 7 System Design and Construction
- 8 Operation & Maintenance (O&M)
- 9 Project Consolidation
- 10 Exit of External Support Agency



Financial Viability

- **Previous** trench payment **2.0 to 3.5 Euro or more/month.**
- **Present** trench payment **1.0 Euro (2007)**
1.5 Euro (2008)

Monthly collection **320 Euro**

Monthly expenditures **210 Euro**

- **Surplus** for repairs, replacements +
 contribution to future extension/upgrading
 (e.g. surface aeration)
- **No profit taking**
- **Cost recovery** – policy of Egyptian Government to cover O&M costs only



Kafr El Sheikh - Decentralised Wastewater Management Project

Success Factors

- Highly participatory decentralised approach
- Simple operation and maintenance
- Simple technology used
- Low investment (0.5 Mio. US\$) and running cost (100% covered by CDA)
- Effluent concentrations in accordance with Egyptian Standards
- Supervision by Kafr El Sheikh Water & Sewerage Company





Conclusions

- Approach is appropriate and expectations for sustainability are high
- 24/7 fault free service
- Payment moral good
- about 20 new villages signed MoU accepting similar project conditions

Main Lessons Learned

- Promote ownership and responsibility
- Get all stakeholders involved
- Share financial responsibility at the early stages
- “Bottom-up” approach absolutely essential





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**Thank you
for your attention**

gtz

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