

A new and scalable approach for rural sanitation in Egypt

The village of Deir Gabal El-Tair as a pilot

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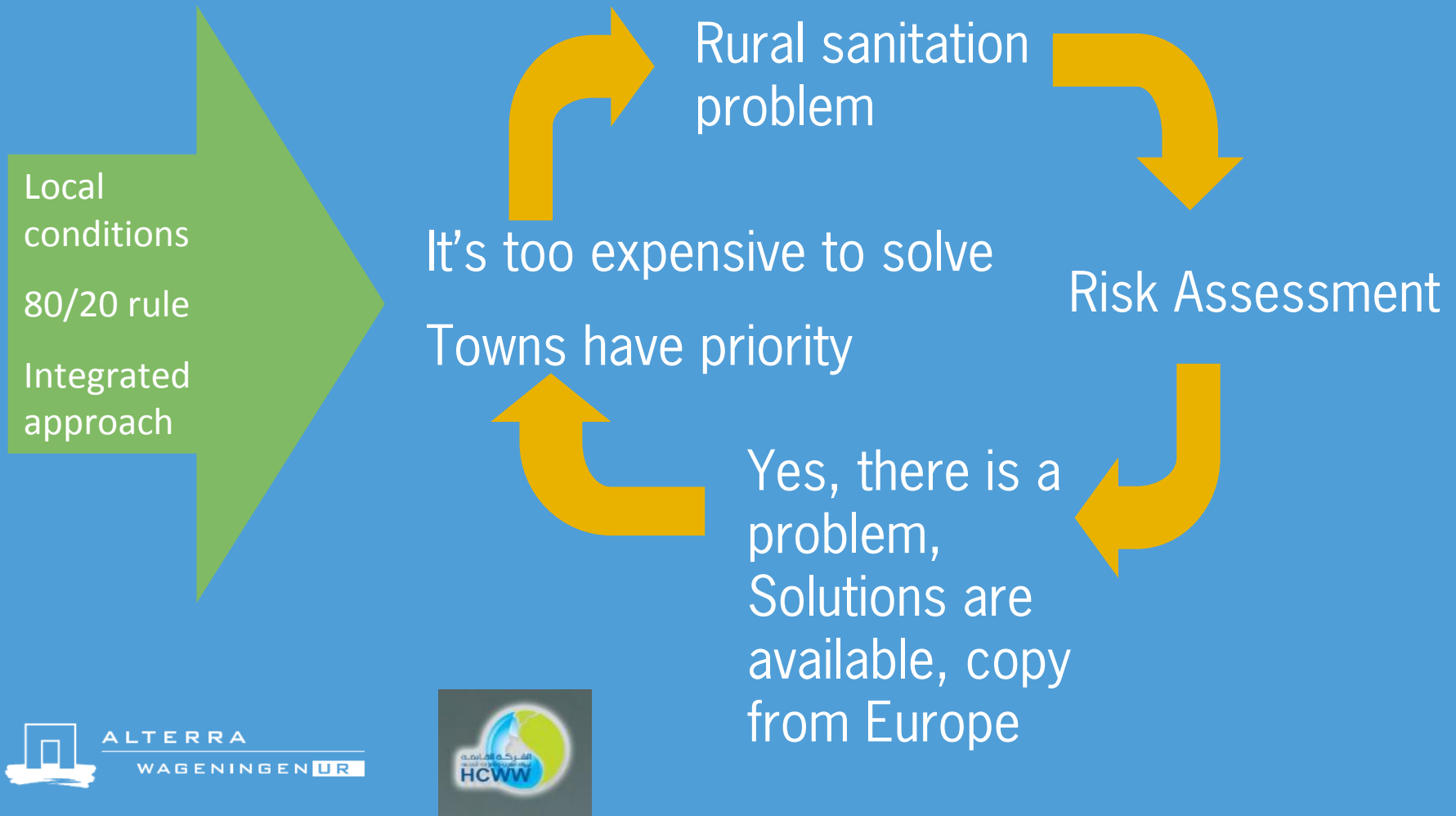
Starting point of this project

At the kick-off, the project team wanted to have a pilot started at the end of 2014

Kick-off in Minya, June 2014

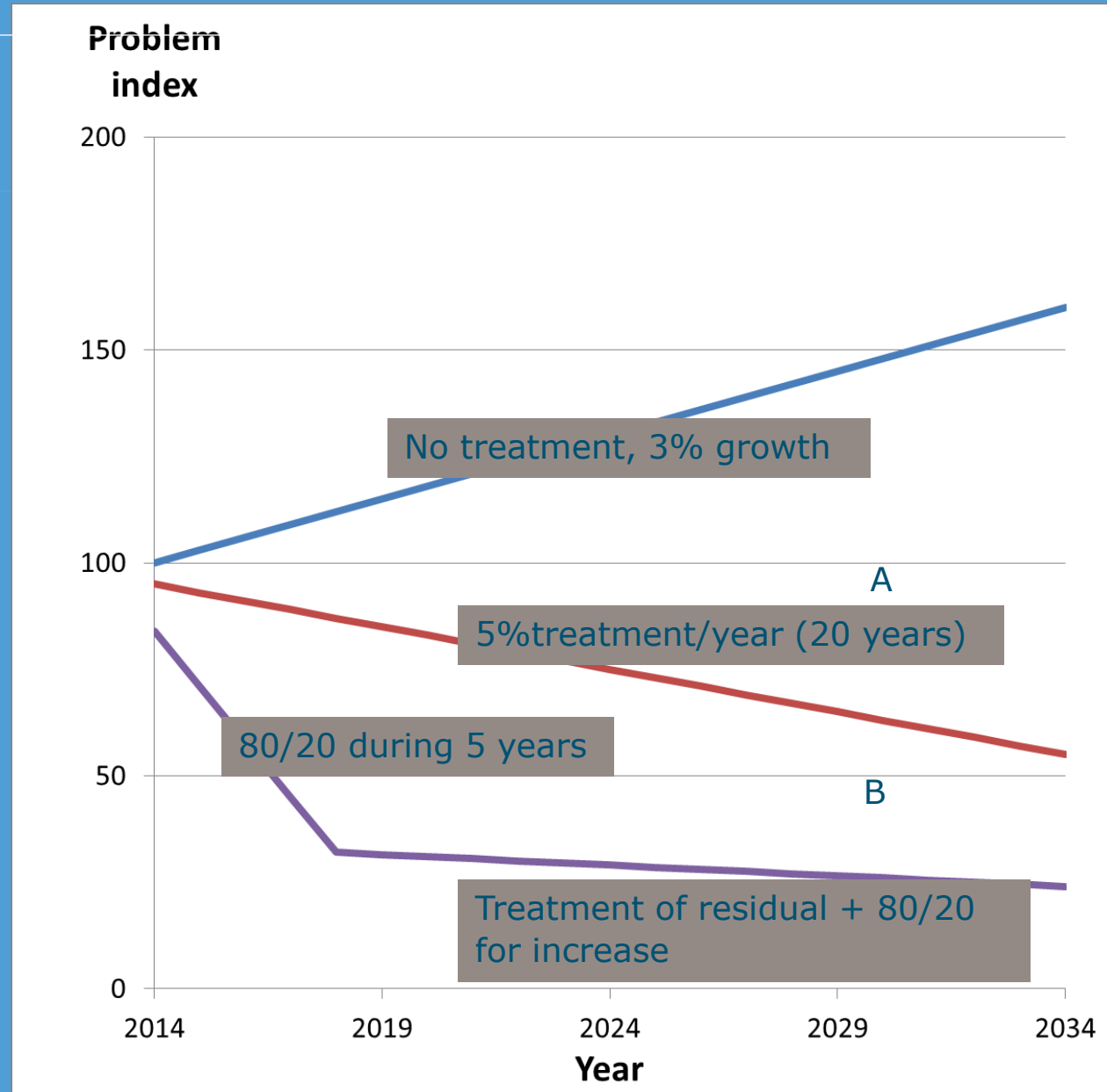


Breaking the assessment circle



80/20 rule

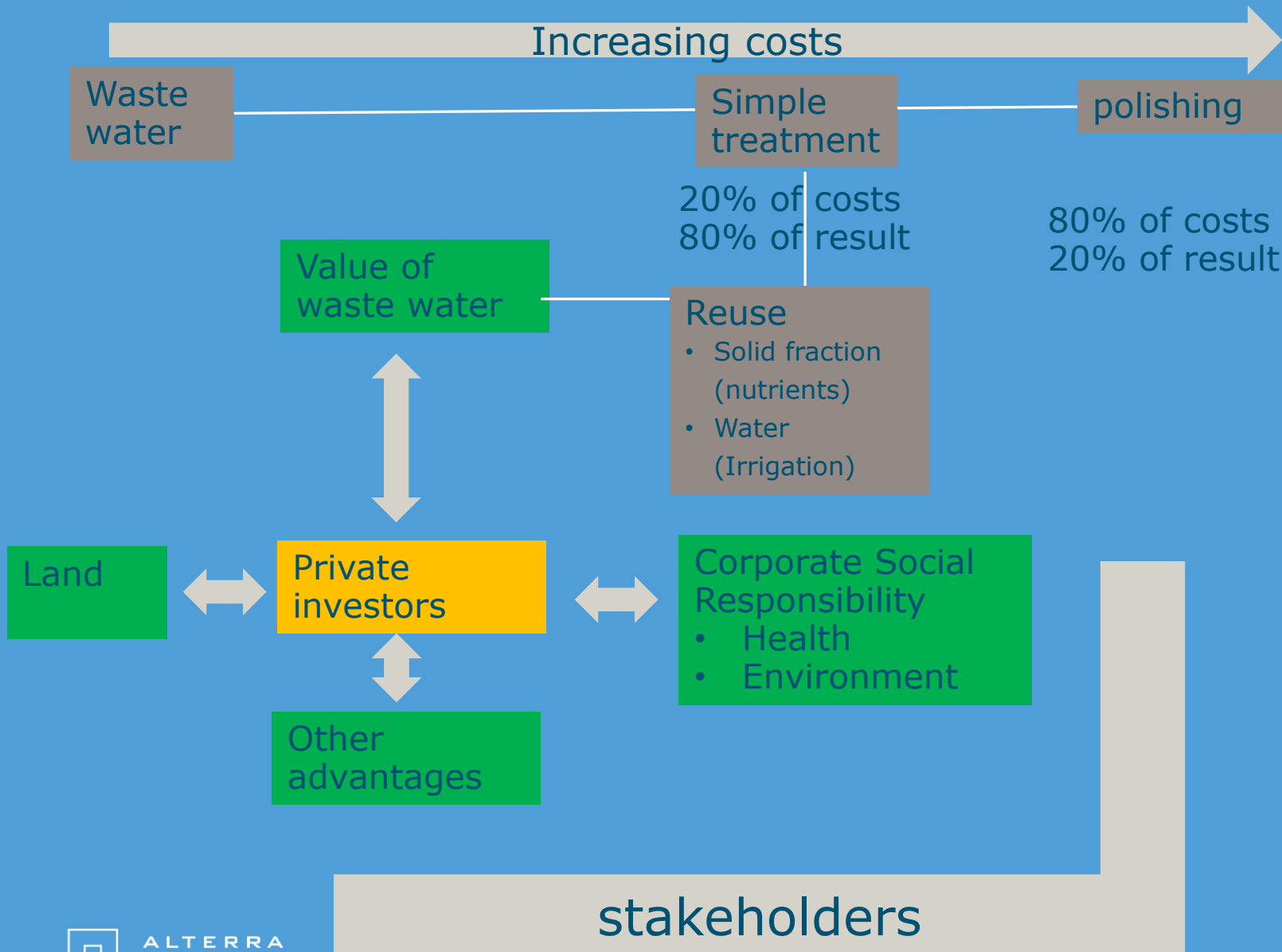
80% of result,
using 20% of
investment



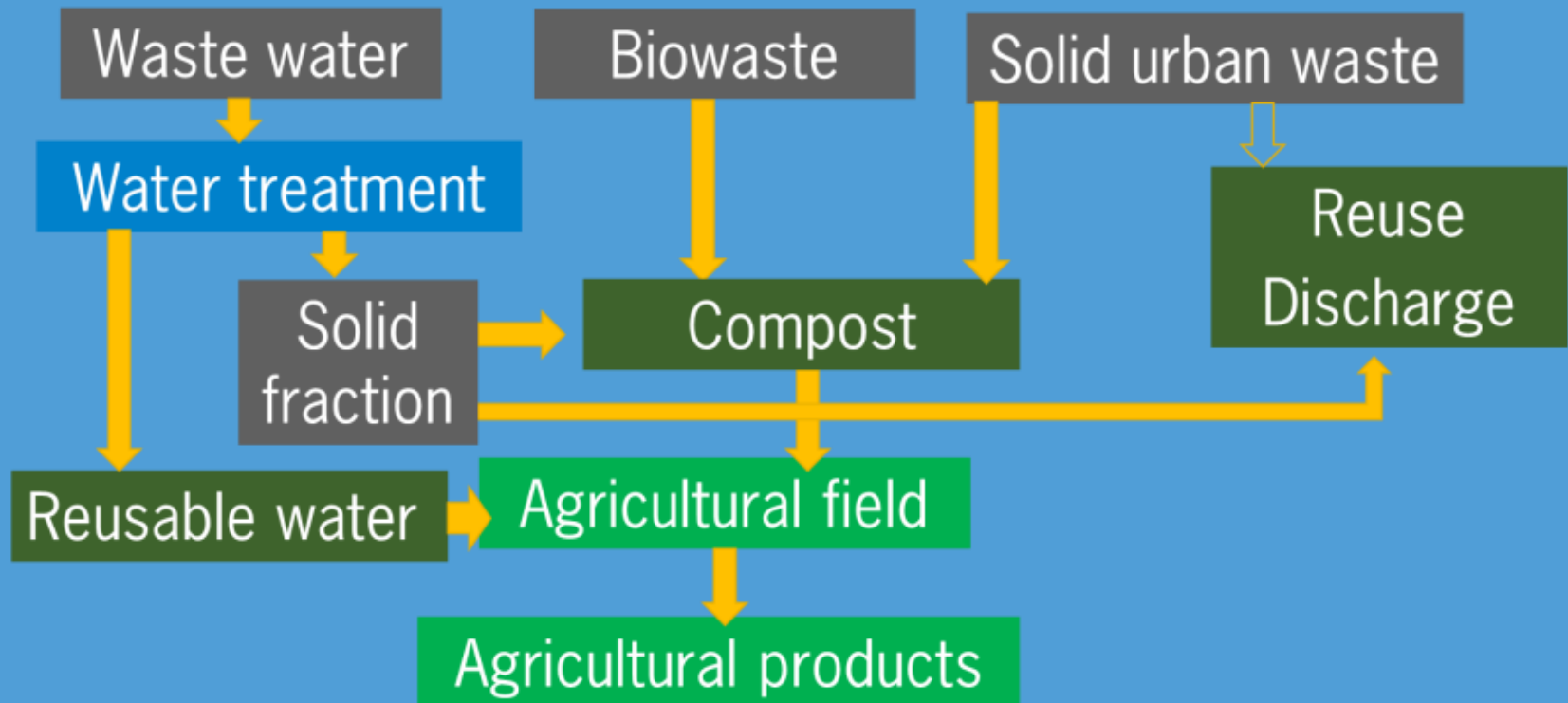
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Value of waste water



Integrated approach



The approach

- Description of the local situation regarding waste water production, discharge, topography etc. (**broad view**);
- Inventory of water resources (surface water, groundwater).
- Present sanitation;
- Identifying local possibilities to improve the water quality using the 80/20 rule:
- Identifying stakeholders willing to invest (money, labour or material) in improving the situation.

With this information it becomes possible to design a site-specific solution to improve the situation.



Selection of village

Scoring of selected sites regarding criteria

Criteria	Deir Gabal El-Tair	Deir Abu Hinnis	EL-Shaikh Masoud	Sharona	Minya WWTP
Cheap cleaning technology	+	+	+	+	0
Quick start	+	+	+	+	++
Covering whole village	+	+	+	+	-
Possibilities for reuse	+	+	+	+	++
Total score	2	2	2	2	4

++	Easy to fulfil crit
+	Possible to fulfil
0	Not possible to f
-	Not applicable fo

Deir Gabal El-Tair (selected village)



Cave where
Jezus, Jozeph
and Maria
stayed



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Limestone and risks of rock slide

- Waste water makes lime stone instable
- Risk of collapse (example in Cairo with 90 deaths)
- Deir Gabal El-Tair site has high potential risk
- Cave and church important for Muslims and Christians
- Cave is in danger & Site of Holy Family route
 - 2 Millions pilgrims/year
 - Touristic potential



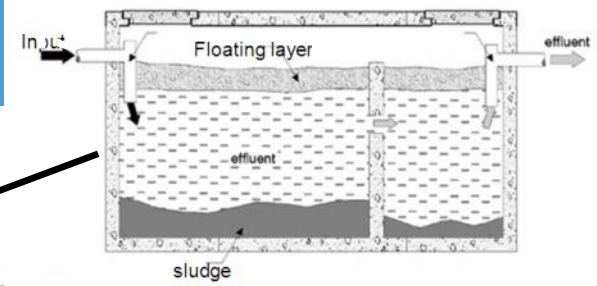
Manshiyet Nasron , 2008



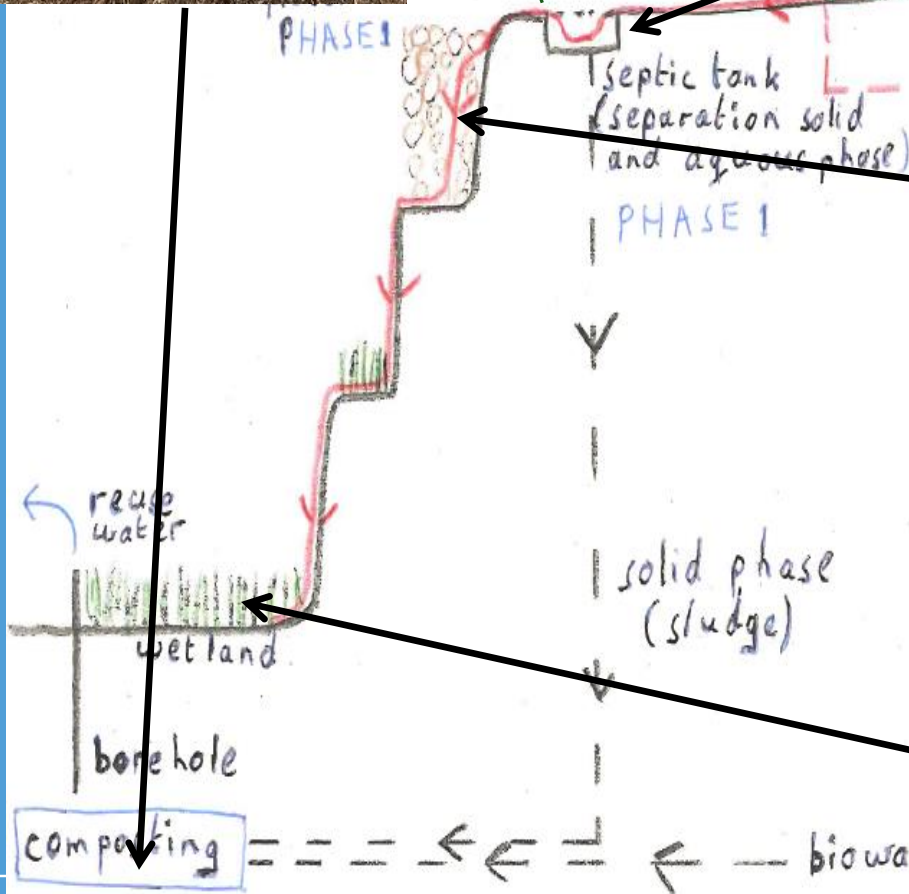
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Use local conditio



Anaerobic treatment



flow of
waste water

Peak discharge



- Do not design on peak discharge, but make a solution for this



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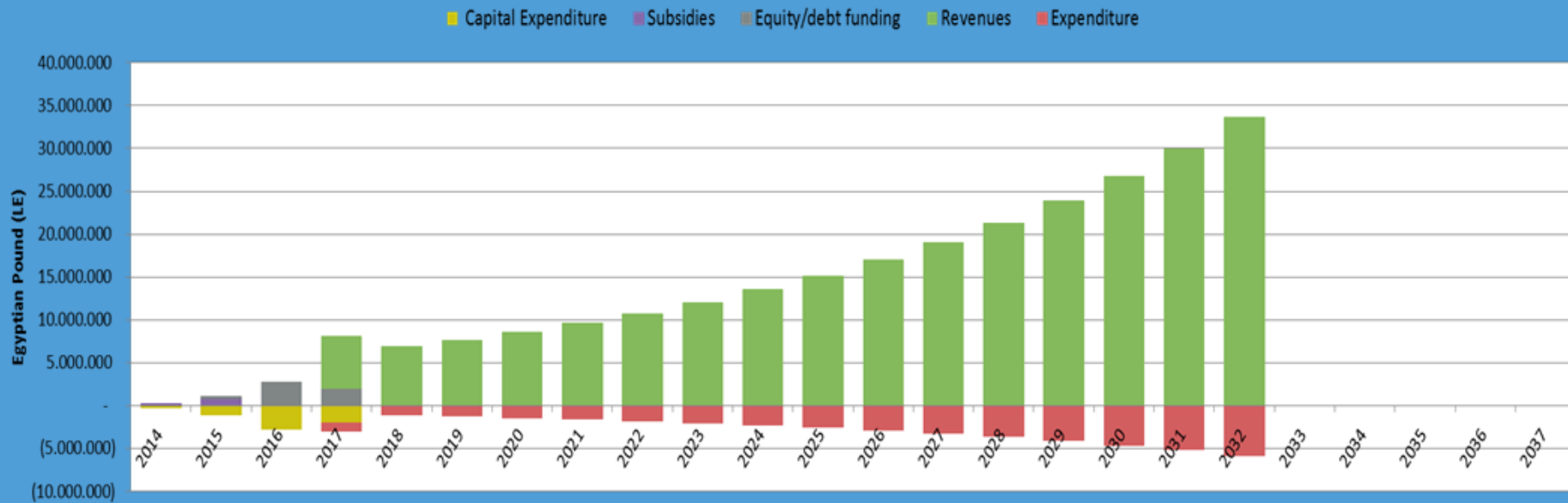


Stakeholders

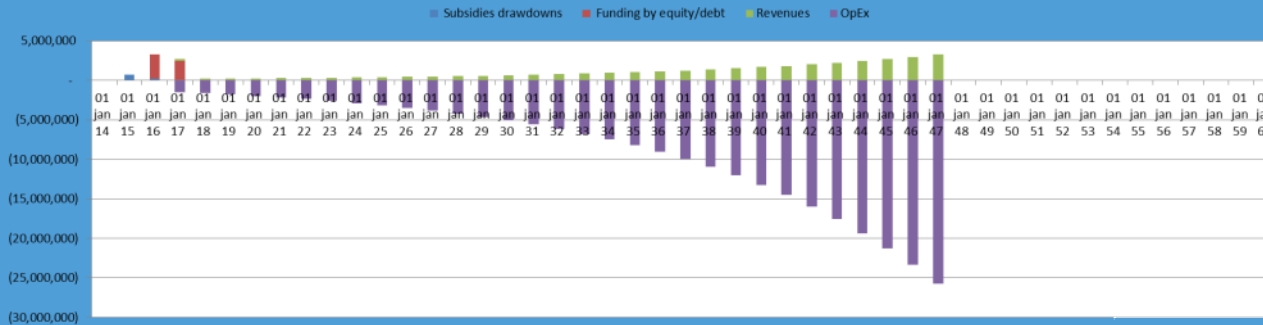
- Church (saving the cave)
- People in the village
- Visitors of the village
- Local government (governor is very positive)
- Several ministries
- Agriculture (landscape/production)

Preliminary feasibility projections

SLIDE 14



Deir Gabal El Tair)



No revenues, without reuse



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Potential Reuse: Large scale WWTP near Minya



- Groundwater of good quality present
- Investors will be interested



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Other villages

- Infiltration and simple septic tanks
- No sewer system
- No pilot on short term
- Improvement necessary



Sand

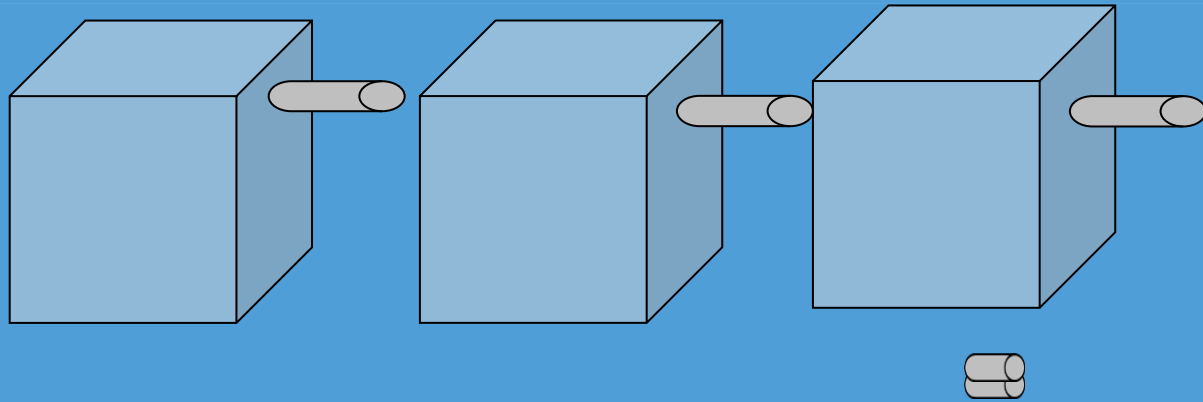


Clay

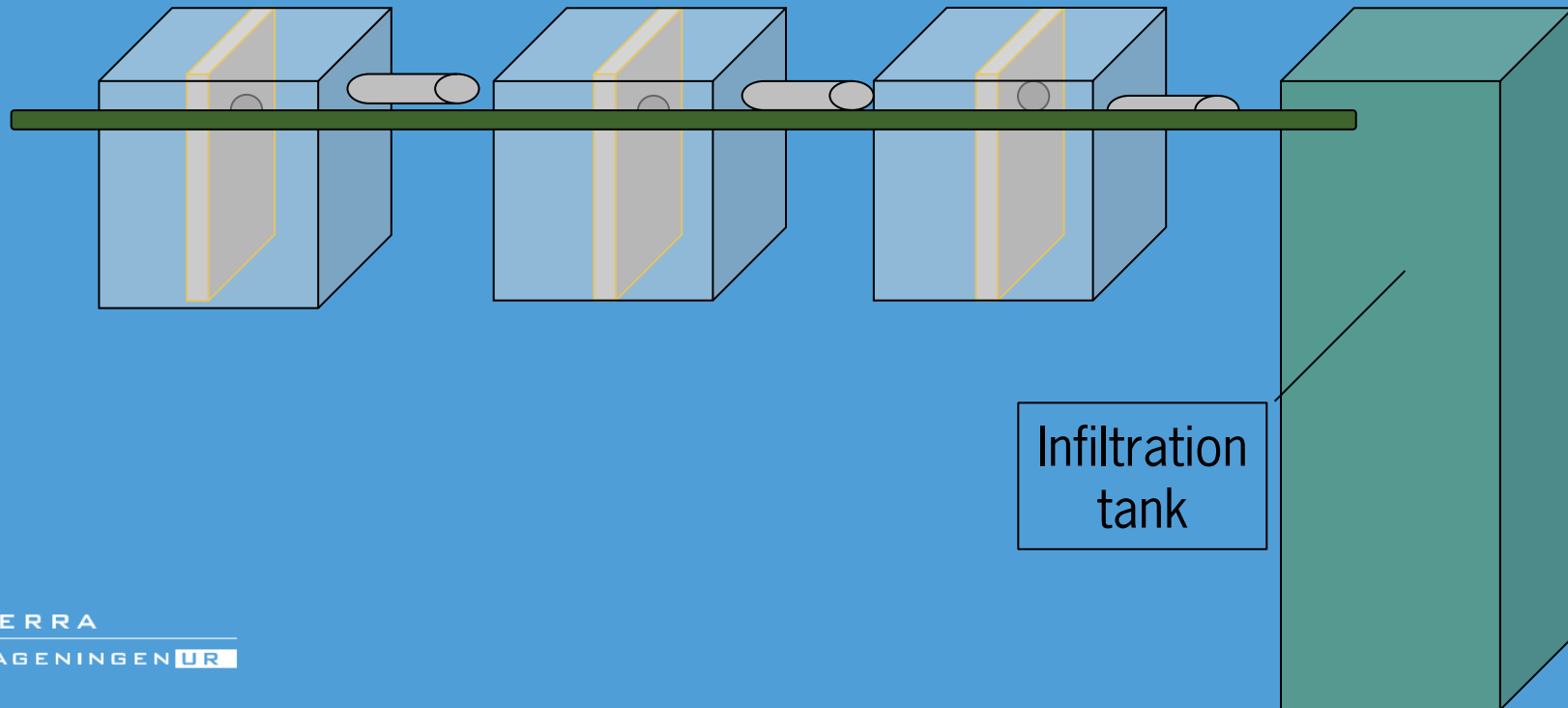


Improvement in other villages

Present



Future



Lessons learned

- Use of landscape for building a treatment
- Consider natural conditions when designing a treatment plan (Building with nature)
- Look for possibility of replication
 - General Approach (80/20 rule etc.) is applicable in the whole country
 - The specific approach of Deir Gabal El-Tair is applicable on the river banks in Upper Egypt
- Involve stakeholders including private sector
 - Using the report, resources (money, man-power) will become available?



Next steps Deir Gabal El-Tair

- Use momentum (Enthusiasm in Egypt and **The Netherlands**)
- Implementation of pilot Deir Gabal El-Tair
 - In cooperation with stakeholders (ministries, church)
 - Solution for peak discharge (mobile toilets, buffer). HCWW, **TA, private sector**
 - **Backstopping from The Netherlands and reporting of success story**
 - Mobilization of sponsors to save the Holy Cave (Egypt, **The Netherlands**)



Next steps demonstration pilot Minya WWTP

- Investors are interested in this site (scale and quality of soil)
- Demonstration projects on small scale are not successful (SWIM-conference, Dec 2014)
- Availability of clean water is essential (crop quality!)
- Set-up of irrigation/cropping pattern approach which combines treated waste water and clean water
- Design demonstration plan



The 600 villages Mega Project

- Use the developed approach in the 600 villages
- **Apply approach with Dutch knowledge**
 - **Alterra**
 - **TU-Delft and LEAF (anaerobic treatment)**
 - **Waterboards**
- Capacity building
 - **Training of HCWW, local stakeholders**
- Mobilization of extra support (besides private investors)
 - **EU, Nuffic, Worldbank,**
- Corporate Social Responsibility around large (**Dutch**) investments



Benefits

Saving of the cave



Better health



Water and
nutrients for
agriculture



Landscape and
reuse of water



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