Good Practices – Group A

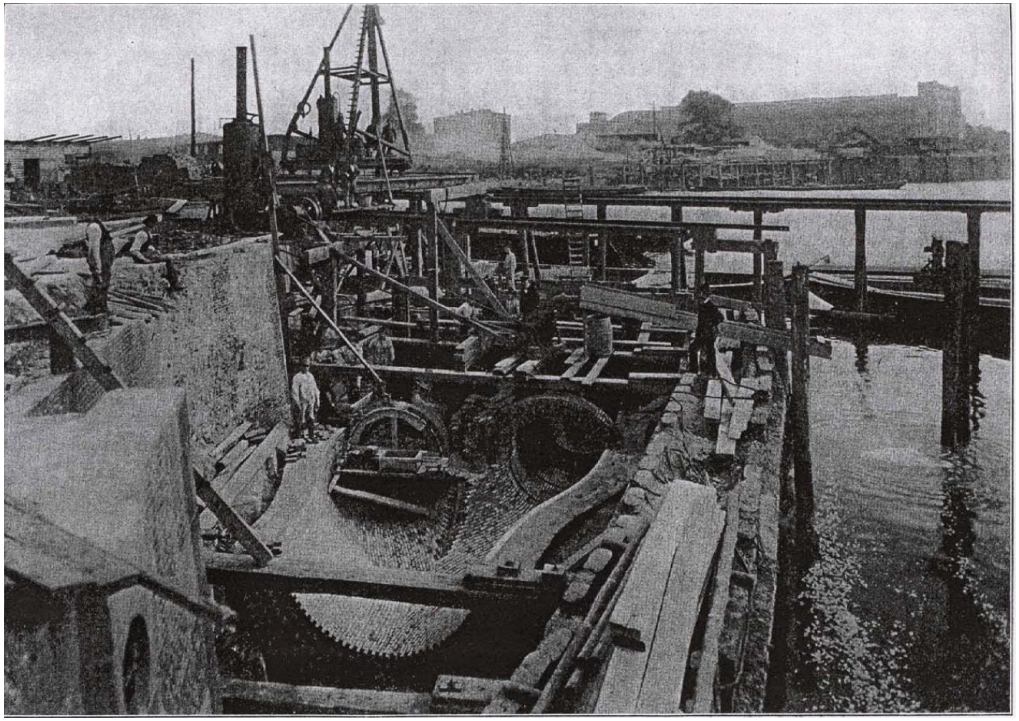
- Hamburg Wasser, Germany
- Songea Water Supply and Sanitation Authority, Tanzania
- hanseWasser, Germany

Good Practices – Group A

- Hamburg Wasser, Germany

1. Institutional setting

HAMBURG WASSER = since 1842 water + sewage



**Building site sewer 1903

A project group within the company has been commissioned in 2018 to establish

asset simulation

for all main assets using an IT-tool.

2. Starting point/Project goal

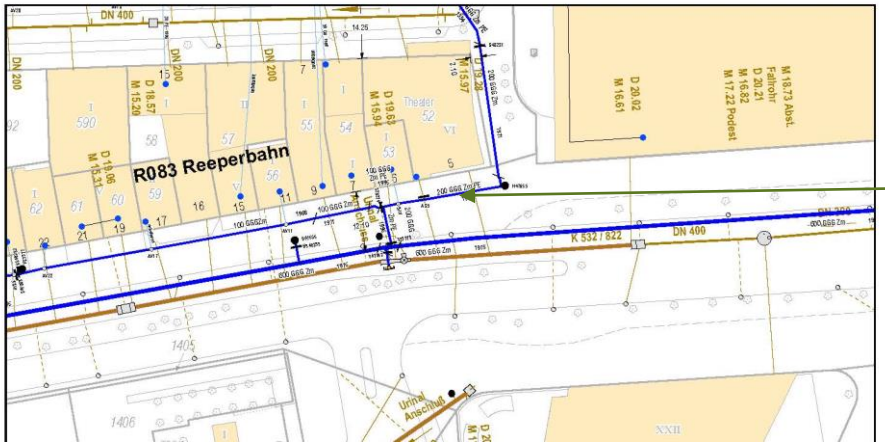
HAMBURG WASSER

Improve Efficiency by Assessing Future Investments

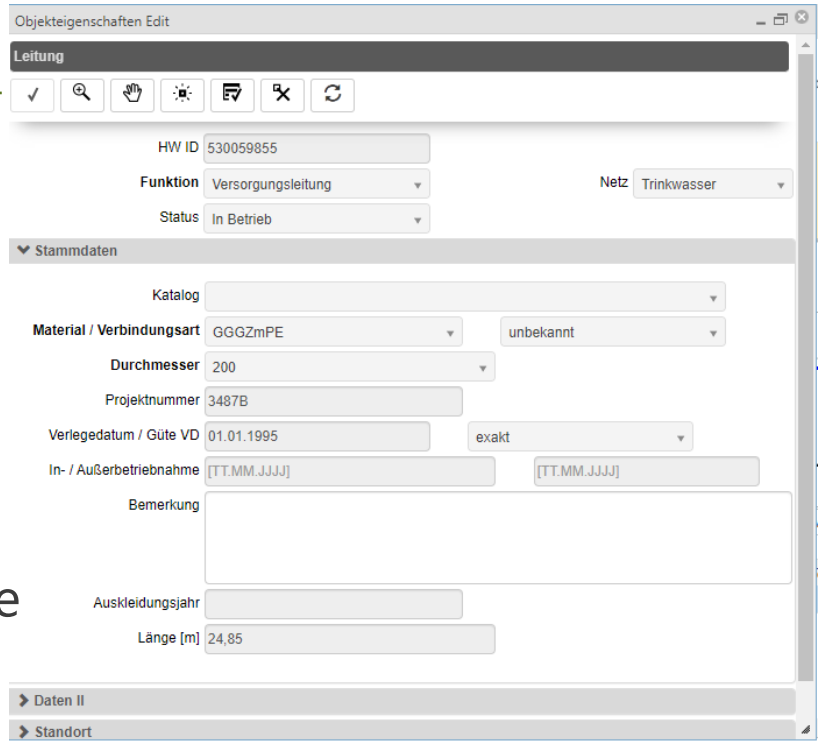
- Long-time forecast (e.g. 40 years)
- Trends of the state or repair
- Defining capital investment requirements
- Awareness of data structure and its diversity

3. Approach

Data analysis via GIS-system: completeness and quality



Data set with up to 50 attributes

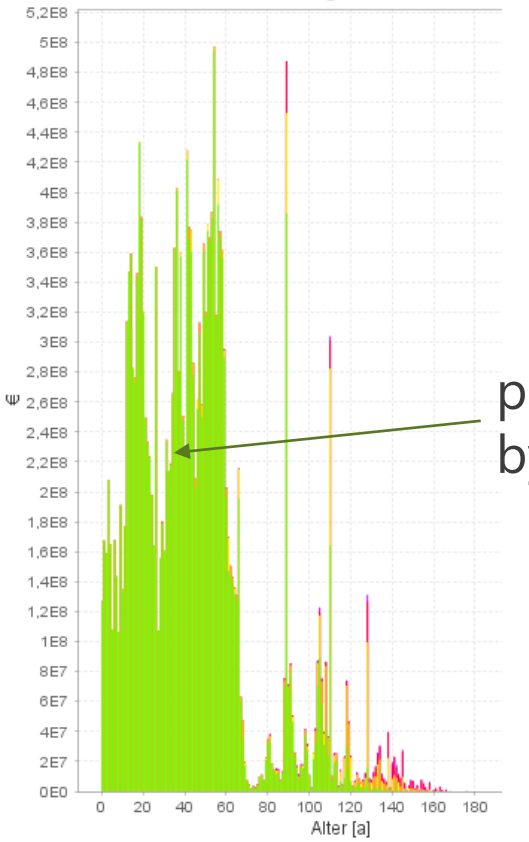


Segmentation:
800,000 data sets
in hierarchical structure

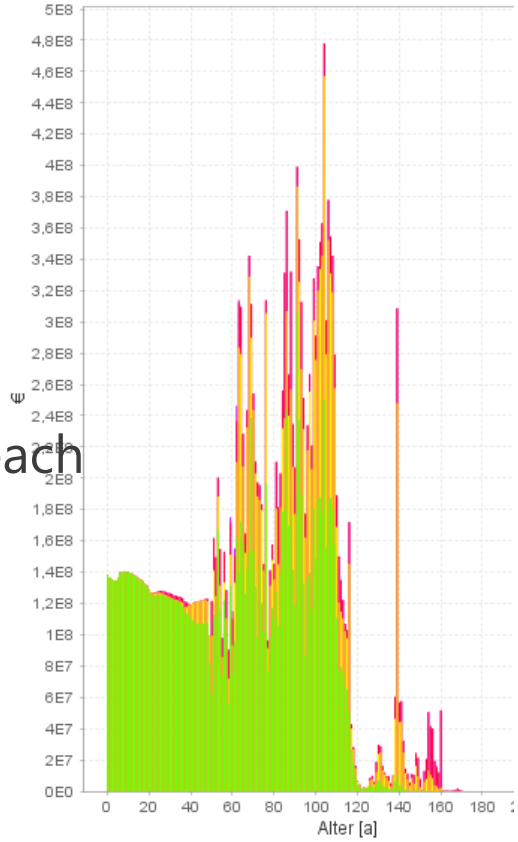
4. Outputs

Distribution by state of repair and age

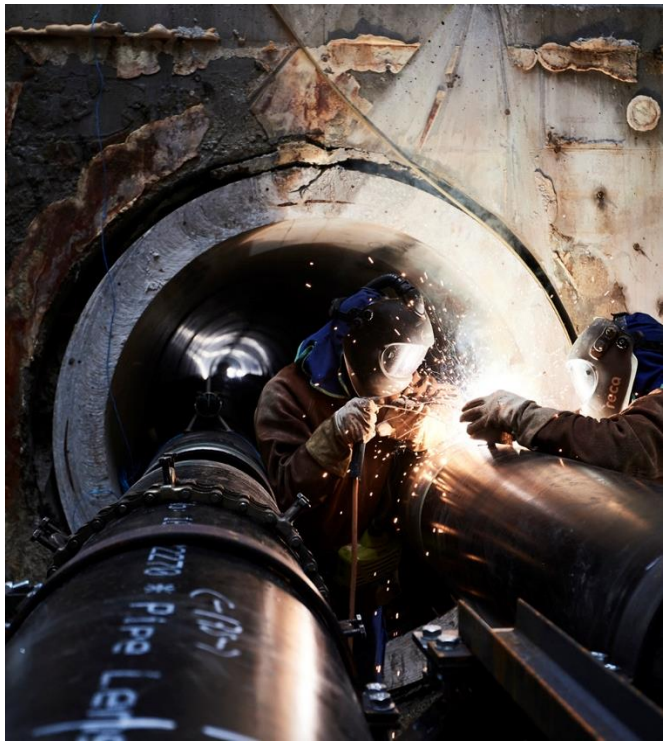
2020 replacement value related to the age 2070



pipes, 30 years, length multiplied by the mean construction costs each



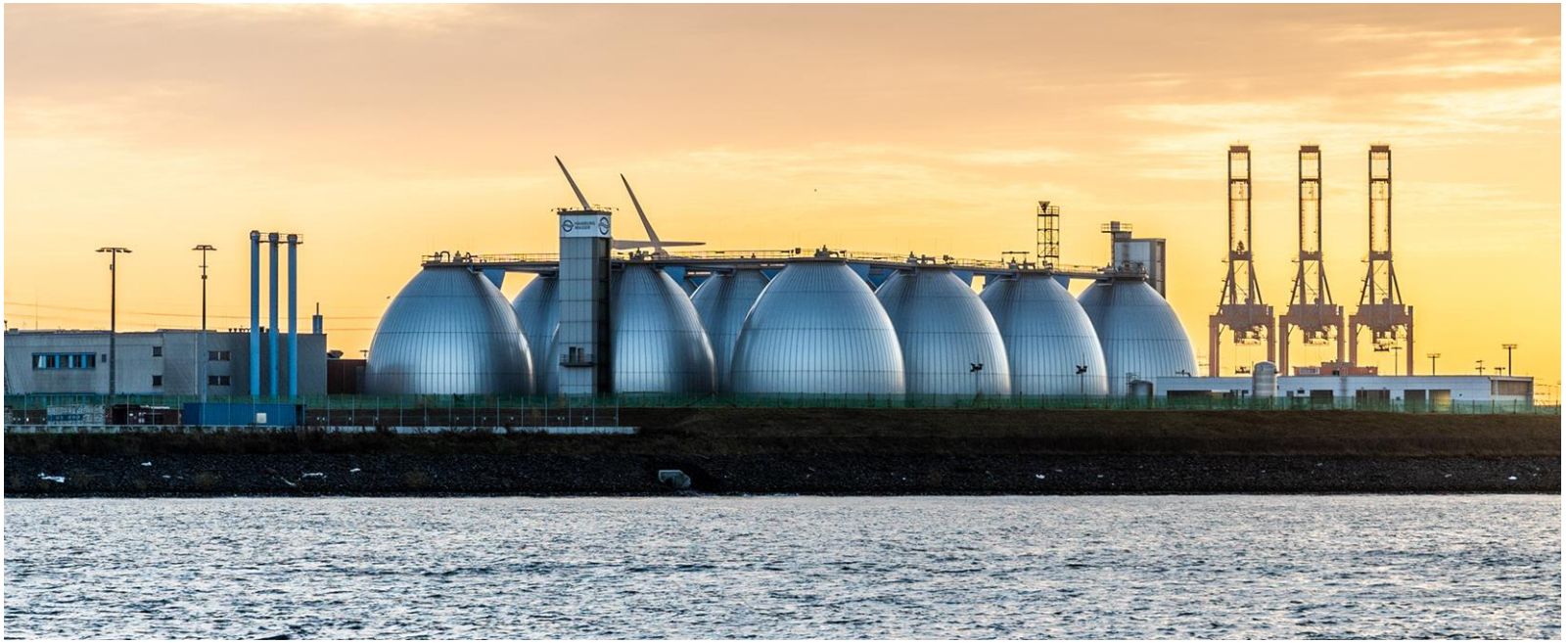
5. Lessons learnt



Results are depending on:

- data availability
- data reliability
- exchange of know-how between staff
- cooperation within the company
- courage to look to the future with uncertain parameters

6. Follow-up



Extending the methodology to the sewage treatment plant, water works

Life-cycle modelling of digesters, basins, pumps, sludge tanks, switch cabinets…

Good Practices – Group A

- Songea Water Supply and Sanitation Authority, Tanzania

1. Institutional setting

Songea Water Supply Sanitation Authority is a water utility owned by the government of Tanzania and currently operates under the Ministry of Water. It was established on 1st July, 1997 as a semi-autonomous authority and became autonomous on 1st January, 1998 under Act No. 8 of 1997, repelled by the Water Supply and Sanitation Act no. 12 of 2009 and latter by Water Supply and Sanitation Act no. 5 of 2019. The water demand for urban structured area is 15,149 m^3/day and the Authority is serving 18,285 water customers and 1,486 sewerage customers.

Vision Statement;

"To be an efficient and effective service provider of water supply and waste water disposal services in Tanzania".

Mission Statement;

"To provide sustainable water supply and waste water disposal services while adhering to WHO and TBS standards".

2. Starting point/Project goal

The utility has conventional water treatment plant comprises of aeration, sedimentation, coagulation, flocculation, filtration and disinfection units of capacity 11,500 m^3/day, 10 storage tanks of capacity 4,490m^3, water network of 495km and sewerage network of 37.7km with wastewater treatment plant comprises of anaerobic, facultative and maturation ponds of capacity 2,100 m^3/day. Therefore the water treatment plant capacity does not suffice the current and future water demand.

Goals:

i) To have an improved infrastructure for sustainable and efficient water supply and sanitation services;
ii) To put in place a mechanism for the protection of water sources from encroachment of land around water source areas;
iii) To have a tariff setting mechanism which will ensure that water users pay for full cost recovery;
iv) To prevent wasteful water use and control water leakages;
iv) To improve water and sanitation services in low income and peri-urban areas;
vi) To have a wastewater treatment system which is environmentally friendly.

3. Approach

To address the challenge, the review of design for improvement of water supply in Songea was carried out under India financing window. The objective is to improve the water supply through:

- Construction of reservoir dam of capacity 5,000,000 m^3,
- Expansion of treatment plant by constructing additional clarifier and two pressure filters of capacity 11,500 m^3/day,
- Construction additional storage tanks of capacity 14,000 m^3,
- Extension of water supply network of length 190.4 km in Songea municipality for customer outreach.

Cross-cutting issues such as digitilisation is taken into consideration in which all assets of water and sewerage are now put in GIS format using open source QGIS after data model being agreed by all water utilities in Tanzania. All other issues of gender and climate are taken into consideration in the provision of water supply and wastewater services because during design, climatic conditions were taken into account to derive average discharge of water sources.

4. Outputs

- The Authority is currently serving 18,285 customers with 212,388 inhabitants. Generally, water services coverage will be increased and serving about 317,966 (2025) and to 532,705 (2040) respectively.
- The project will contribute to the national efforts for the improvement of wellbeing of the country population, enhance environmental public health, ensure households have access to safe drinking water, reduce household health expenditure, increase productivity as a result of reduction of water borne diseases, which will lead to improvement of quality of life hence poverty alleviation among Songea urban and peri-urban areas population.
- Furthermore the project will lessen the burden of women enhance productivity for both men and women.
- To ensure sustainability of the project, the Authority will perform regular maintenance of water and wastewater assets infrastructure through assessment of the condition of the assets and required corrective action to maintain the asset.

5. Lessons learnt

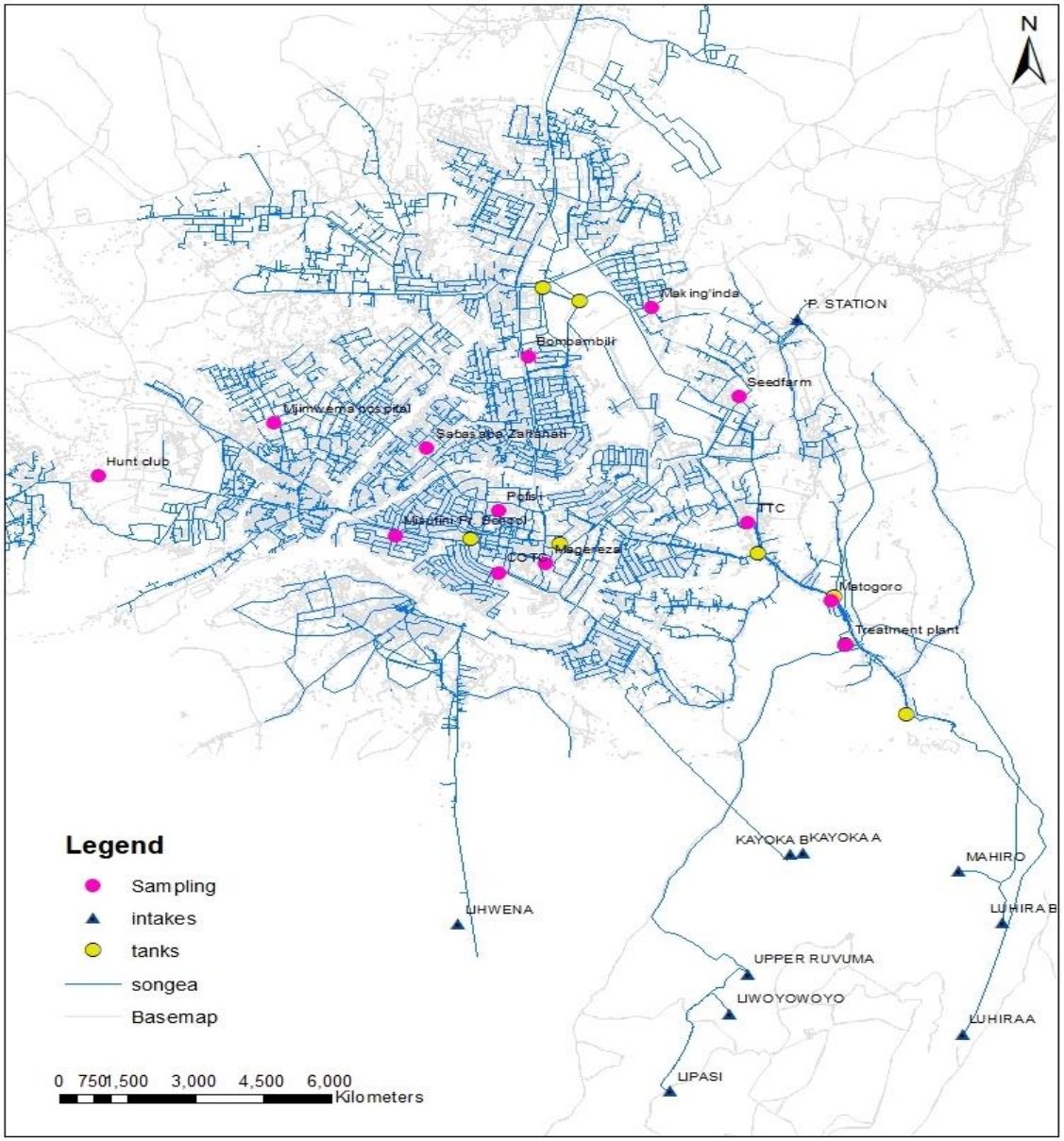
- In order serve all inhabitants of Songea municipality, investment for new water and wastewater infrastructure assets is required for improvement of water sources, expansion of water treatment plant, increase of storage reservoirs in the water distribution network and extension of water network for customer outreach..
- Maintenance of water and wastewater infrastructure assets to deliver water wand wastewater is required for reduction of non revenue water to avoid financial loss
- Documentation of the water and wastewater assets using modern technologies(e.g. GIS format) is required for accessing the condition and functioning of the asset

6. Follow-up

- The Authority is using its own fund accrued from collection of water and wastewater services billing to finance extension of water supply network of length 26km and sewerage 2.5km per year for customer outreach.
- The Authority is communicating with Ministry of Water for major investment of water supply and wastewater infrastructure through external grants like India financing window.

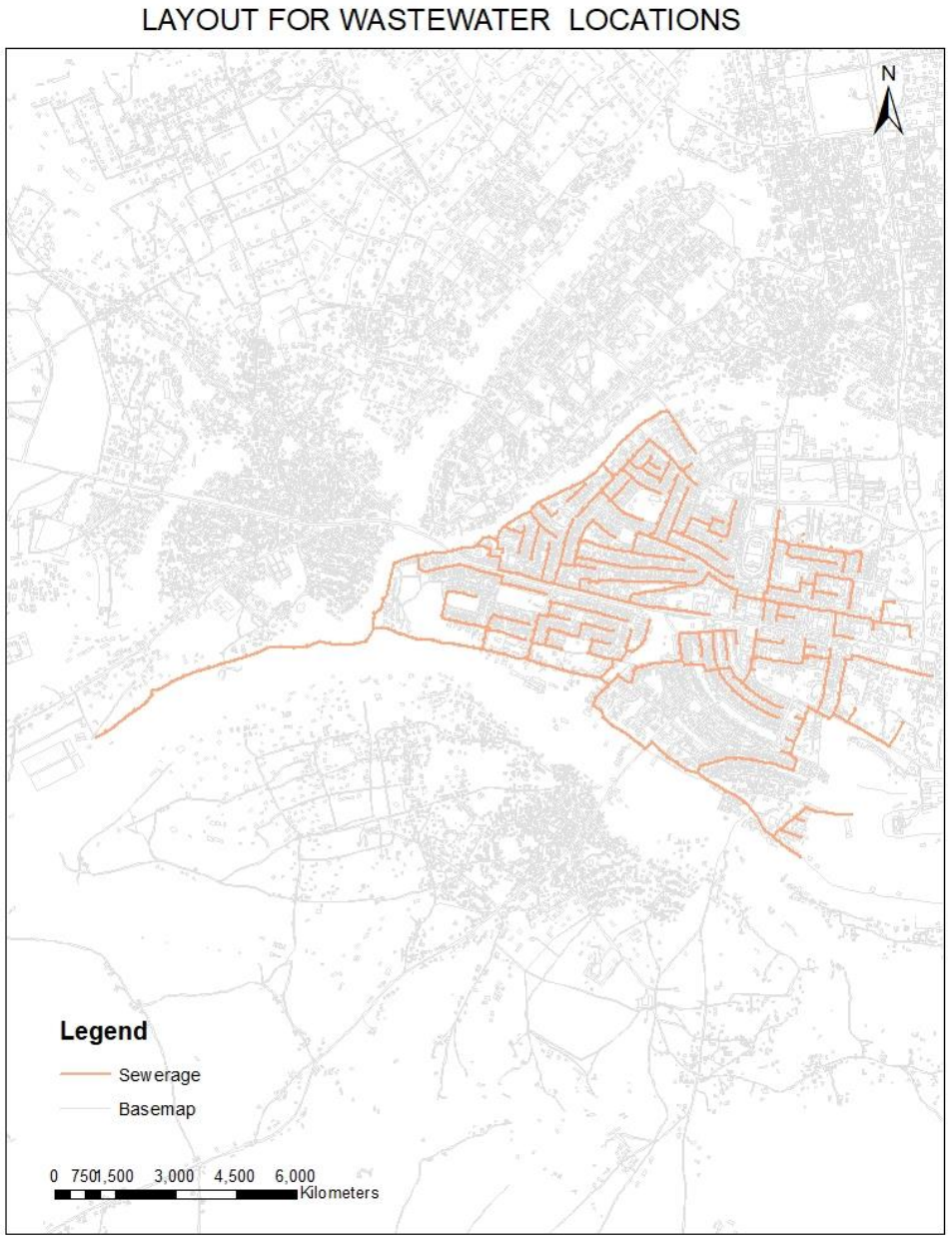
7. Annex

Water supply network



7. Annex

Water sewerage network



Good Practices – Group A

- hanseWasser, Germany

1. Institutional setting

hanseWasser

2. Starting point/Project goal

Example: Asset management maturity index for sewer networks

** Maturity index based on Institute of Public Works Engineering Australasia (2015): International Infrastructure Management Manual: IPWEA

1 aware
2 basic
3 core
4 intermediate
5 advanced

Goal: Gaining a common understanding and holistic asset management system that is generally accepted.

3. Approach

hanseWasser

Exchange of experiences
- Exchanging with other large water and wastewater utilities in Germany.
- Being involved in technical committees.

Evaluation of transferability of standards and guidelines
- Evaluating international standards and guidelines and transferring them to own specific context.
- Learning from other sectors, such as hydraulic engineering.

Further development of tools and methods
- Using research cooperation for further development of methods.
- Collaborating with software and hardware providers for development of tools.

Internal reorganization of asset management teams and tasks
- Creating a new, agile project team for strategic asset management.
- Creating a new team and restructuring other teams.

4. Outputs

Exchange of experiences

Example:
- Standardised criteria for condition assessment and same decision level for asset management.

Evaluation of transferability of standards and guidelines

Example:
- Analysis of current state with AM maturity index.

Further development of tools and methods

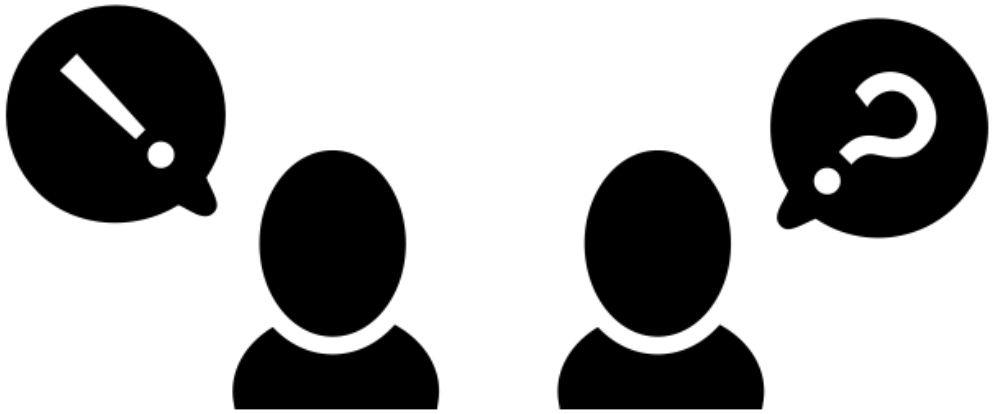
Examples:
- Classification model for the structural substance to derive future options for action.
- Creating an asset database for all asset groups.

Internal reorganization of asset management teams and tasks

Examples:
- Unified processes for sewer networks and treatment plants.
- Unified AM methods for all asset groups.

5. Lessons learned

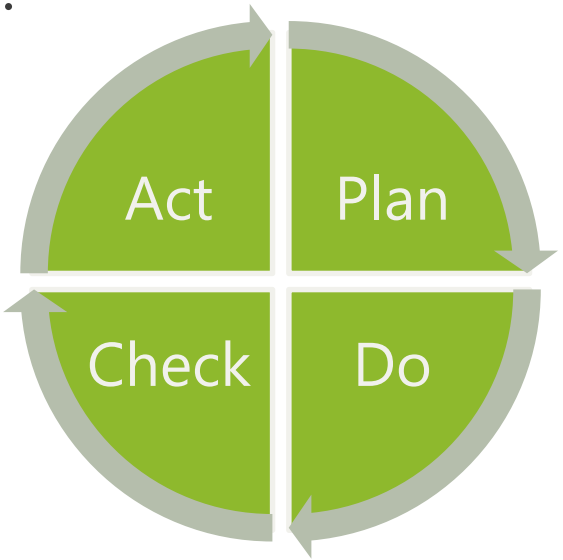
- It takes time and can be exhausting.
- A common language is crucial for constructive collaboration.



Icon „Confusion“, created by Silviu Ojog from the Noun Project

6. Follow-up

- Shift thematic focus on lifecycle planning under consideration of the technical asset structure.
- Keep broad portfolio of exchange and activities.
- Use Plan-Do-Check-Act-Cycle for continuous improvement of each element of the implemented AM management system.



Deming's Plan-Do-Check-Act-Cycle for continuous improvement