

Report on AltWater follower city workshop, Surabaya, Indonesia. 02-03 May 2018.

This report summarises the second Follower City workshop for the AltWater project. The project workshop was held in Surabaya, Indonesia on 02-03 May 2018. Dr. Janez Sušnik from IHE Delft attended.

The workshop was organised by ITS, the main AltWater project partners in Indonesia. In particular we thank Adhi Yuniarto and his team for their help in arranging the workshop, attendance of local stakeholders and logistics. The location for the workshop was the Surabaya Suites Hotel in Surabaya. The workshop was well attended, with a total of 25 participants from the following organisations:

- ITS
- East Java Province Department Planning Agency
- East Java Province Water Supply Agency
- Surabaya Municipality Development Planning Agency
- Surabaya Water Supply Enterprise
- Gresik District Development Planning Agency
- Gresik Water Supply Enterprise
- Gresik Public Works Agency
- Gresik Investment Agency

A copy of the workshop programme is shown in Appendix 1. The idea was to put the cities in centre stage, guiding and contributing to the event. The programme started with a welcome and opening by Prof. Wahyono Hadi and Dr. Adhi Yuniarto of ITS. Dr. Sušnik briefly introduced the project and the purpose and format of the workshop. Presentations were given by Surabaya and Gresik representatives on the current status of the local water supply system. Prof. Hadi also gave an introduction to reverse osmosis (RO), and in particular showed how various resources could be scavenged from the waste of the RO process. Most of the rest of the workshop was dedicated to the partner cities presenting 'interview issues' (see below) to be discussed in an open forum. All presentations are available at www.altwater.un-ihe.org.

Throughout the programme, there was a good spirit of interaction from all participants, and IHE staff also learned a great deal about the local context and challenges. The presentations by local partners were very informative, and there was a lively Q&A following from the alternative water systems presentation. Photos from the workshop can be viewed in the Photo Gallery section of the website. A joint dinner was held for all participants on the evening of 02 May.

The interview sessions

Each city (Surabaya and Gresik) were asked to bring two issues to discuss in an open forum. The idea was the presenting city introduced the



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problem/issue, which was then questioned and discussed by all participants. By the end of the session, each participant should have gained a clearer understanding of the problem, and the presented will have learned from relevant experiences of other participants through the discussion. In this way, city representatives learned from each other, and started a fruitful collaboration. One of the major conclusions was in fact that participants felt that collaboration between cities would now be easier than previously, which in itself is a major achievement.

The sessions focussed around three main topics:

- water demand and the current state of the existing water systems
- financial and operational constraints in water supply and demand management, and an overview of the institutional settings
- water quality, non-revenue water (NRW), and the possibility to split water production and distribution.

The main points from these sessions are written up by Dr. Sušnik, and are summarised in Appendix 2.

Appendix 1: Copy of the workshop programme

**AltWater Training Programme
Surabaya & Gresik,
Indonesia. May 2nd – 3rd 2018.
Workshop timetable**

Wednesday, May 2nd 2018		Hilight
08.30-09.00	Registration	
09.00-09.30	AltWater Introduction.	Presentation by Dr. Janez
09.30-10.30	Introduction to AltWater. State of play of the AltWater project – Update. Project partner requirements. Purpose and format of this Workshop.	Presentation by Dr. Janez
10.30-11.00	Coffee Break	
11.00-12.30	Panel Discussion Current conditions regarding to water supply related to the development of Surabaya and Gresik districts.	Presentation by Mr. Adjie : high-rise building growth.
12.30-13.30	Lunch	
13.30-15.00	Presentation Issue I: water demand, existing water supply system, and potential alternative water supply in Gresik Regency.	Presentation by Mr. Harissun (Technical Director of PDAM Gresik).
15.00-15.30	Coffee Break	
15.30-17.00	Presentation Issue I: water demand, existing water supply system, and potential alternative water supply in Surabaya City.	Presentation by Mr. Dody (Operational Director of PDAM Surabaya).
18.00-19.30	Welcome Dinner.	
Thursday, May 3rd 2018		Hilight
09.00-09.15	Summary of day 1 and introduction of day 2.	
09.15-10.00	Introduction by practitioner of reserve osmosis (R.O.) treatment system as alternative water resource.	Presentator will be confirmed later.
10.00-10.30	Coffee Break	
10.30-12.00	Presentation Issue II: financial & operational constrain, and institutional settings in Gresik Regency.	Financial (operational cost) and Role of private parties. Presentator will be confirmed later.
12.00-13.00	Lunch	
13.00-14.30	Presentation Issue II: financial & operational constrain, and institutional settings in Gresik Regency.	Water quality, NRW, possibility to split production and distribution institution. Presentator will be confirmed later.
14.30-15.00	Coffee Break	
15.00-16.30	Discussion: summary of key findings and conclusions (best practices which can be adopted and future development plans).	Wrap Up by AltWater team.
16.30-17.00	Closing	

Appendix 2: Summary of the main points from the three intervention sessions

Session 1: water demand and the current state of the existing water systems

It was noted that the cooperation with the utilities is going well in the project. Estimating supply and demand to 2030 is useful for medium term planning. In Surabaya, the concern is that production capacity is at maximum, so there is little room for expansion. A new production plant is required. The role therefore of alternatives in reducing the demand from traditional supplies is therefore acknowledged – it could delay the need to build a new plant if sufficient water can be sourced from alternative sources. There is concern over the rapid development of Surabaya (hotels, apartments and the growth of the hospital) – how to cope with all this demand. New water sources are being considered, but many unknowns. Again, the role of alternative was acknowledged as potentially useful here.

The province of east Java was very interested in this project, particularly from the point of view of utilising alternative water sources for more rural towns and villages. Also the need to address the efficiency of water use in bigger cities.

It was noted that the per-capita use of water is high in Surabaya due to the very low cost. There is little incentive therefore to save water. It was acknowledged that not all uses require drinking quality water. Alternative water systems can diversify supply options and increases system resilience. PDAM (supply utility) also concerned though that if demand drops too much, profits will be impacted.

In Gresik, 46% of water used is not 'essential', and therefore does not need to be of drinking quality. Supply is constrained, and there are service and supply issues. The cost of electricity for water pumping is also of concern, and is a major expense.

More groundwater wells are being considered, although sustainability of this resource needs to be considered. Desalination is also being looked into, as is recycling treated waste-water for non-human uses.

Umulan water supply is now at maximum (c. 11000 l/s). In some areas it is declining, which is worrying.

Gresik

Current Gresik supply = 2391 l/s to 987 444 people. In 2030 estimate 3732 l/s to 1 217 654.

There is a large demand from industrial areas (c. 6000 l/s). Surabaya River supplies 1400 l/s, with additional supply from Umbulan (1000 l/s) and Solo rivers. Production costs 6000 Rup/m³.

Current supply seems insufficient – new sources being considered. Cost of desalination is very high. Metering could be a way to reduce demand.

Surabaya

10 971 l/s is the 2017 production capacity.

24.65% NRW, 557336 clients with 97% coverage

Energy costs are high, and in some areas, coverage is not 24hrs a day.

Desalination is being considered, but again there are questions over the cost.

There are concerns over rainwater as a resource, especially related to the quality and reliability of the supply.

Session 2: financial and operational constraints in water supply and demand management, and an overview of the institutional settings

There is a need for an expansion of investment.

Noted that the water tariff in Surabaya is cheap – no incentive to cut use.

There is a need to keep better track of maintenance costs regarding the network. This can then be used to reconcile with increases in tariffs for the consumer. There may also be the option of expanding into the bottled water industry to boost revenue. But there is also a need to manage domestic water consumption.

The cost for chemical treatment is high generally. Perhaps automation and optimisation could be of benefit here. There is a recognised need to reduce NRW in both cities. A big difference between Surabaya and Gresik is the ability to fund projects. Surabaya has capital to fund itself, but Gresik needs help in raising funds for projects – this is difficult.

Session 3: water quality, non-revenue water (NRW), and the possibility to split water production and distribution

NRW

-Surabaya = 26.8%

-Gresik = 23.8%

Usage (m³/connection/month)

-Surabaya = 28.6

-Gresik = 19.2

It was acknowledged that only 5 l/day is for drinking. Most of the rest does not need drinking quality water – opportunity for alternatives to contribute.

There are concerns over water quality, especially of the raw water and microbiological indicators.

There are high pressure issues in the network that contribute to losses – need to address this. Also the aforementioned issue of introducing wider metering to reduce consumption and get better idea of water balance in the network. But this has a cost associated with it. There is a concern over a lack of technical expertise, and the need to provide in-house training in order to get good work done. Once large obstacle in the supply domain is customer perception about water quality. Most use bottled water for drinking as the supply is not deemed of good quality to drink. Campaigns and trials are ongoing in test regions to try and reverse this view and to get people to use the supply to drink. The results are not ready yet. Because of the growing demand in industry and hotels, these sectors are being targeted to reduce the usage. This is

mostly so that the current capacity can be used to serve the population. If demand grows too quickly, then it could exceed production capacity quite soon.

Overall, the workshop was deemed very useful to get the stakeholders together, listen to each other's points of view, to learn from each other and to promote collaboration within the AltWater and in a wider sense.