



Peshawar Water and Sanitation Hackathon

PROBLEM STATEMENTS

Submitted by	TiEIslamabad
Date of Submission	December 18, 2018

1. Unavailability of Critical Data for Future Planning

WSSP is tapping underground water aquifers through tube-wells and water so obtained is distributed to households through distribution pipes. During the last 3 years, the water table has dropped more than 30 feet, which has created an alarm among authorities. Old bores were kept up to a depth of 150 ft but new bores are being drilled to a depth of around 500 ft to ensure sustainability for a longer time. At this pace, it is very visible that WSSP would have to plan for other resources but without any data of underground water levels, consumption rates and remaining water, there is no urgency or solid ground for planning alternative resources. Depleted bores add to the operational cost not only in terms of re-drilling but also by sanding the tube-well engines that lift water from boreholes. Therefore, a mechanism to make the data for underground water available and rate of usage is needed on an urgent basis.

2. Low Revenue Generation

WSSP has divided Peshawar in four zones, i.e. A, B, C & D, for administrative convenience. The total number of households in these four zones is estimated at 200,000 to 250,000. However, WSSP has only 65,000 registered users and even those who are registered cannot be authenticated. Moreover, not all the registered users are paying water bills. With low revenue generation, WSSP has to rely on government grants every year in order to sustain its operation, which costs billions of rupees every year to the national and provincial exchequer. There is a dire need to come up with out-of-box ideas to increase revenue generation and efficiency of WSSP.

3. Poor Solid Waste Management

Water drainage in old city and most of the city is open (Naalian). Due to improper handling of solid waste both at domestic and municipal levels, sewerage and drainage lines get blocked. There is no mechanism present to communicate to users the timings and route of garbage collection vehicles. Due to this reason,

people mostly take out garbage at their own convenience and it creates blockages in water drainage as it gets scattered. There is also no mechanism to monitor the status of manholes and drainages in real time. Reporting an overflow takes time and it results in sewerage water blocking streets, roads and passage ways.

4. Water Contamination

Underground water in Peshawar is fit for drinking however when it passes through long and old pipelines, it gets contaminated and does not remain fit for drinking any more. Clean water distribution lines and sewerage lines are running close to each other. As distribution lines and sewerage lines get older, they develop leakages, which cause sewerage water to mix with clean drinkable water. There is no mechanism to monitor the quality water being delivered to users and to check if the water is contaminated, so corrective actions can be taken immediately.

5. Absence of Inter-departmental Communication at WSSP

Most of the users register their complaints at zones and these complaints are handled at zonal level. No record for complaints, registered, resolved or pending, is available at the central office. Similarly, no online communication system exists to share working information between the departments in real time, which causes inefficiency and delayed response in many situations that require more than one department to act simultaneously. There is a strong case for studying inter-departmental communication systems around the world and tailoring them according to WSSP's needs in order to improve information flow and ultimately, efficiency.

6. Lack of Hygiene Awareness

A substantial portion of the populace in Peshawar lacks awareness about the health hazards due to lack of hygiene and are not hygiene conscious. There is a need to come up with cost effective communication solutions that can inculcate the value of hygienic practices among the citizens. There is also a need to create responsible usage and civic sense so that citizens start taking ownership of the services being provided to them and use them in a responsible manner.

7. Factory Water Waste Solutions

There are several industrial units that do not treat the waste they generate and dispose it in an irresponsible manner. Rather, they just dump in the nearest water way, nullahs or drainage line available. This untreated industrial waste creates several health hazards, especially if it gets mixed with lines carrying clean usable water. There is a need to come up with innovative solutions to handle industrial waste so that it can be disposed in a cost-effective manner.

8. Wastage of Water

Distribution lines being used to deliver water to the consumers have grown old and several pipelines have started to wear-out. This results in leakages that are reported really late, if at all, by the citizens because they do not see water as a valuable resource that has to be efficiently used. Moreover, since a vast majority

of consumers in Peshawar are using water for free, they do not value it. Most people think of it as an infinite resource so many of them do not even install taps on water pipes and leave it running 24/7.

This situation calls for an original solution that can minimize water wastage both on supply and demand sides. On supply side, we need to have a system that can detect possible leakages even before they happen. On the demand side, we want a solution that can help educate the users about issues of water shortage and conservation and can also report any leakages to the home-owners as well as authorities if, for example, a pipe is left running round the clock.

9. Inefficient Old Machinery

WSSP has many machines that are old and outdated. These machines are an operational burden as they have to be constantly serviced and maintained. Their running is also high cost as they are old, inefficient machines with high fuel consumption. Needless to mention that these machines are also becoming a liability as they often breakdown when they are most urgently needed. In order to avoid high operational cost and unreliable machinery, there needs to be a solution that can detect when machines need servicing and when they have run their productive life so that they can be disposed of.

10. Recycling the Solid Waste

WSSP has recently acquired around 870 kanals of land in the outskirts of Peshawar. This land is currently only being used as a landfill where the solid waste is dumped, and a layer of clay is added over it in order to allow it to decompose naturally. The waste is not being categorized or recycled, at least for now. Looking at examples of other countries, there are a lot of solutions available for categorizing waste and recycling it to minimize wastage. WSSP also welcomes ingenuine and cost-effective solutions that make use of learning from other countries and contextualize it for Peshawar in particular and Pakistan in general.