

## Karachi Water Crisis: Simple Yet Complicated

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In 2015, international community signed a Sustainable Development Goals (SDGs) that enlightens a new compass for sustainable economic, social and environmental development. Sixth goal of SDGs is ensuring availability of water and sanitation for all<sup>1</sup>. Integrated water resource management system is essential for sustainable water availability. Vision 2025 of Pakistan addresses the water security and strives for 20% improvement in agriculture efficiency, increasing storage capacity and ensuring clean drinking water to all Pakistanis.

Pakistan Council of Research and Water Resource (PCRWR) predicted that if government does not take any viable measures, the country will run out of usable water by 2025. According to the report, over 80% of water supplied is considered unsafe.

Karachi is facing a very drastic unnerving water short fall. This shortfall is both natural and managerial in nature. As main water source of Karachi is Keenjhar lake, its huge dependency creates natural barriers whereas inefficient distribution and water management techniques inflates this shortfall drastically. This policy note attempts to identify causes of water menace which is threatening and has a capacity to unrest the city on many fronts.

Supreme Court of Pakistan constituted a commission<sup>2</sup> on water issue headed by a High Court Judge and later verdicts a Judgement on CONSTITUTION PETITION NO. 38 OF 2016 in the light of recommendations by the commission<sup>3</sup>.

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<sup>1</sup><https://sustainabledevelopment.un.org/sdg6>

<sup>2</sup> 27 Dec, 2016

<sup>3</sup> 06 Mar, 2017

## Distribution:

Mr. Asadullah Khan, deputy managing director for technical services of Karachi water and Sewerage board (KW&SB) stated only 450 to 480 millions gallon per day (mgd) KW&SB supplies to karachiites which has an estimated requirement of 1100 mgd with an expanding population of 25 million. Half of those lives in an unstructured colonies which is one of the problems.

Karachi gets its water from Keenjhar lake through canal system which is nearly 122 KM long. To understand the distance, it takes almost 17 days for water to reach Karachi. At the terminal end this water is supplied to the consumer with the existing storage/pumping/depleted supply line infrastructure.

## Illegal Hydrants and Tanker Mafia

Illegal hydrants and tanker mafia is the biggest issue KW & SB faces. Despite numerous crack down and measures government is unable to tackle it. Supreme Court took action recently and ordered KW&SB to dismantle illegal hydrants. On 7<sup>th</sup> of December, 2017 MD KW&SB submitted a report stating 187 hydrants were dismantled with the help of rangers and police. 2130 illegal connections were also disconnected during this action on the orders of SC. Cases has been registered in their subsequent police stations<sup>4</sup>.



Image: Express Tribune

## Theft

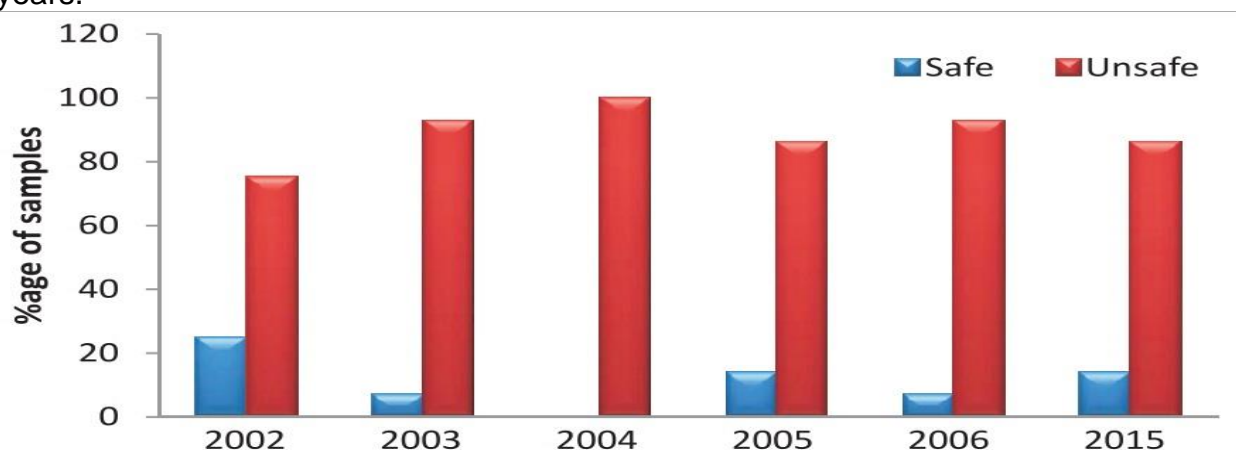
Theft is another issue that needs to be addressed. Illegal connections, both industrial and domestic creates hurdles in water distribution mechanism. Mainlines that distributes water across areas got punctured hence creates hurdles and leakages from it. Water theft is relatively difficult to apprehend as it's not kunda in case of electricity which can be seen. It's more systematic, disguised therefore very hard to apprehend. These illegal connection creates leakages in the main line results containing water.

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<sup>4</sup> <https://tribune.com.pk/story/1578799/1-sc-orders-immediate-closure-illegal-hydrants-karachi/>

## Contamination

Over 86% of water in Karachi is contaminated and unsafe for drinking<sup>5</sup>. The major contamination was bacteria. The residents of Karachi receive water from multiple sources. Both line and tankers are the key source of water for most of the residents. There is no significant improvement in water quality of Karachi over the period of 13 years.



Source: Year wise drinking quality status of Karachi (PCRWR)

## Development

Development projects are essential to provide efficient water distribution. Population growth, lack of planning, fiscal constraints and unstructured development are major issues in developing infrastructure for water distribution. Long term and short term projects both are equally important. Vision, planning and capacity are essential for initiating a long term project.

In 1998 **K-II** water project were completed with the assistance of World Bank which added 100 mgd to the system. Further in 2006, with the assistance of Government of Pakistan **K-III** were completed adding another 100 mgd to the system.

## Long Due Projects

**K-IV** water project is the showcase longterm project of KW&SB. Federal and Provincial government has started this project with an estimated cost of Rs. 25.5 billion<sup>6</sup>. It has three phases which would provide additional 650 mgd water to Karachi by the end of 2020. The supply of water is extracted from Keenjhar lake through three water canals.

Phase one of the project was started in June 2016 and would be completed by June 2018. Phase 1 of the project would add 260 mgd water to the system. This project is

<sup>5</sup> Water Quality Status of Major Cities of Pakistan 2015-16 .PCRWR Ministry Of Science and Techonology.

<sup>6</sup> <https://www.dawn.com/news/1238979>

started after a long delay of almost 7 years, if started on time this project would have provided relief by now<sup>7</sup>.

### Short Term Projects

Short term projects are essential to upgrade the existing infrastructure and improving water distributing mechanism. Upgradation of dhabeji pumping complex and construction of Clifton pumping station are initialed projects<sup>8</sup>. Repair and installation of new pipelines for water supply is neglected.

### Pumping station issues

Pumping station is the vital block of water distribution mechanism. Unplanned maintenance, Electricity and other operational issues disrupts the flow of distribution hence resulting poor service delivery. These issue are operational in nature and can be tackled by arranging the alternate before abrupting the supply. For Example, on 16 Oct, 2017 Kelectric suspended the power supply of Dhabeji and Gharo pumping station resulting the entire city to face a shortfall<sup>9</sup>.

KW&SB has a responsibility of assuring quality of water supplied for human consumption. For this, Chlorination process is applied but the quality of water suggests no chlorination is conducted in these storage tanks and pumping stations.

### Ground Water Depletion

Ground water depletion is another alarming issue. It has a capacity of creating a drought like situation<sup>10</sup>. Measures have to be taken on war footings to avoid this crisis. It can lead Karachi

### Supreme Court Judgement on Water Issue

On 27 December 2016, Supreme Court constituted a Judicial commission headed by Justice Muhammad Iqbal Kalhoro of Sindh High Court to investigate the quality of water and its supply in Sindh. The commission submitted its report on 06 of March 2017.

The Commission reveals a very drastic situation of water facilities in Sindh. Supreme Court issued a judgement CONSTITUTION PETITION NO. 38 OF 2016 in the light of the conclusion and recommendation by the commission. 49 recommendations were outlined which were later reproduced in the judgement.

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<sup>7</sup> <https://www.dawn.com/news/1187431>

<sup>8</sup> KW&SB project details

<sup>9</sup> <https://www.geo.tv/latest/162934-karachi>

<sup>10</sup> Pakistan Council of Research in Water Resources (PCRWR) report

SC instructed Chief Secretary to formulate a task force/committee of experts with the approval of competent authority. Later Chief Secretary placed a notification of 14 March 2017 of a committee formulation headed by Secretary Irrigation Department.

## Policy Recommendations:

### Long Term Recommendations

- **Inter provincial policy must be developed and implemented by provinces<sup>11</sup>, for facilitation in legal ambit Supreme Court would see it on priority basis.** If the dispute is not resolved through Indus River System Authority, the only resort is Council of Common Interest. The problem is council of common interest can only resolve the issues in the light of Indus Water Treaty<sup>12</sup>.
- **For long term stability, SC must monitor through a quarterly progress report of the projects so that if any obstruction arises, it could be removed on a priority basis.** K-IV would have been completed in 2015 if unwarranted delayed wouldn't have happened. In order to avoid these long haul delays SC monitor's the progress quarterly.
- **SC recommend KW&SB to estimate and forecast water demand and supply for next 25 years.** For proper water allocation and distribution, its essential to foresee both short term and long term needs.

### Short Term Recommendation:

- **KW&SB must develop an E-monitoring mechanism for water distribution. This will ensure transparency and helps curbs hegemony of Line mans and Tanker Mafia.** Water meter with e-monitoring mechanism would help monitor water distribution and with its access to the residents, people would be well informed<sup>13</sup>.
- **RO plants must be used to cater the needs of at least industrial sector.** This would release the dependence from Keenjher Lake its water would be primarily used for domestic consumption. Middle East and Africa are using RO plants to take off load from there fresh water sources which is limited and depleting rapidly<sup>14</sup>.
- **Develop an effective billing mechanism.** Revenue generation is very important in order to make water delivery efficient and sustainable.
- **Effective masses awareness program must be initiated to educate the conserve and judicious use of water.** Without behavioral change, its very difficult to curtail the water problem.

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<sup>11</sup> Hisaar Foundation Think Tank on Rational Use of Water, First report 2016.

<sup>12</sup> <https://www.dawn.com/news/1273760>

<sup>13</sup> <https://www.pitb.gov.pk/fms> Flood Monitoring System is an example developed by Dr. Umar Saif of PITB. It can be extended and customized to the needs of KW&SB.

<sup>14</sup> <http://www.waterworld.com/articles/wwi/print/volume-27/issue-1/regulars/worldwide-news/middle-east-africa.html>