REPORT OF
COMMISSION OF INQUIRY

MR. JUSTICE MUHAMMAD IQBAL KALHORO

APPOINTED BY HON'BLE CHIEF JUSTICE, HIGH COURT OF SINDH VIDE NOTIFICATION NO.GAZ/C.P.38/2016 SC (COMMISSION) DATED 29.12.2016, PURSUANT TO ORDER DATED 27.12.2016 PASSED BY HON'BLE SUPREME COURT OF PAKISTAN IN C.P.NO.38 OF 2016 (SHAHAB USTO V. GOVT. OF SINDH)

TERM OF REFERENCE

- **To record its findings in regard to providing/supply of clean water to the residents of Sindh besides the deteriorating condition of sanitation in Sindh.**

- **To examine the statutory role played by Sindh Environmental Protection Agency on the issues mandated by the Sindh Environmental Protection Act, 2014.**

DATED: 25TH FEBRUARY, 2017

I N D E X

PART-I

Introduction

This report is prepared in compliance of the order dated 27.12.2106 passed by the Honourable Supreme Court in Constitution Petition No.38 of 2016 (*Shahab Usto V/S Government of Sindh through Chief Secretary, Government of Sindh and others*) appointing a commission of enquiry to probe into allegations pleaded in the Petition. By the same order the Honourable Chief Justice High Court of Sindh has been requested to nominate a serving judge as Commission for the aforesaid purpose. Resultantly the undersigned was appointed as Commission vide notification No.GAZ/C.P.38/2016 SC (Commission) dated 29.12.2106 and Mr. Ghulam Mustfa Channa, Additional MIT-II of the High Court of Sindh as Registrar of the Commission.

The Order Of Honourable Supreme Court

IN THE SUPREME COURT OF PAKISTAN

(Original Jurisdiction)

Present:
Mr. Justice Amir Hani Muslim
Mr. Justice Mushir Alam

CONSTITITON PETITION NO.38 OF 2016

Shahab Usto ... ... **Petitioner**

VERSUS

Government of Sindh through Chief Secretary, Govt. of Sindh and others ... ... **Respondents**

Attendance.

Mr. Zamir Hussain Ghmro, AG Sindh.
Mr. Rizwan Memon, Chief Secy. Sindh.
Dr. Saeed A. Qureshi, Director Legal/Focal Person
Mr. Mehmood Abbas Shah, MD. NSUSC.
Mr. Muhammad Ramzan Awan, Secy. Local Govt.
Mr. Ghulam Muhammad Shaikh, Asstt. Chief PPHS P&D.
Mr. Naeem Ahmed Mughal, DG RPA.

Date of Hearing : 27.12.2016.

ORDER

We have heard the learned Counsel for the Petitioner, the Chief Secretary and the Advocate General, Sindh. Concise statements has been filed by the Chief Secretary besides Secretary, Local Govt. Department, Govt. of Sindh and M.D. North Sindh Urban Services Corporation (NSUSC), Sukkur.

2. The Petitioner has prayed for constituting a Commission to probe into the allegations made in his Petition. The Chief Secretary alongwith the Advocate General Sindh has no reservation to this request. In these circumstances looking at the

nature of controversy raised in these proceedings, we are satisfied that a Commission needs to be appointed to probe into the allegations pleaded in the Petition and after proper enquiry report to this Court.

3. This Commission shall record its findings in regard to providing/supply of clean water to the residents of Sindh besides the deteriorating condition of sanitation in Sindh. The Commission shall also examine the statutory role played by the Sindh Environmental Protection Agency on the issues mandated by the Sindh Environmental Protection Act 2014. The Commission shall examine the officials or material from relevant agencies/organizations inclusive of all the Civic and land owing agencies. The Federal Government, Sindh Government or any Organization, under their control, shall co-operate with the proposed Commission.

4. We, therefore, request the Chief Justice, High Court of Sindh, Karachi, to nominate a serving Judge, as Commission for the aforesaid purpose, in terms of the Order XXXII of the Supreme Court Rules 1980. The Commission shall hold enquiry on the aforesaid issues and record its findings in detail in the proposed report within six weeks from the date of its notification. He shall hold the enquiry on day to day basis. As a Commission it shall exercise all the powers of a High Court Judge inclusive of the powers conferred under CPC.

6. The office shall send one set of the files to the Registrar, High Court of Sindh, with the order to be placed before the Hon'ble Chief Justice, High Court of Sindh. We expect that the Commission shall be notified within a week from today.

Sd/= Amir Hani Muslim, J
Sd/= Mushir Alam, J

Karachi
27-12-2016
*Saeed/**

CERTIFIED TO BE TRUE COPY
27/12/16
Senior Court Associate
Supreme Court of Pakistan
Karachi.

The Notification of Appointment of Commission

THE HIGH COURT OF SINDH KARACHI

No.GAZ/C.P.38/2016 SC (Commission) Karachi dated the 29th December,2016

NOTIFICATION

In pursuance of order dated 27.12.2016 of Honorable Supreme Court of Pakistan passed in Constitution Petition No.38 of 2016 (*Shahab Usto v/s Government of Sindh through Chief Secretary, Government of Sindh & others*), the Hon'ble Chief Justice, High Court of Sindh is pleased to appoint a Commission of Inquiry consisting of **Hon'ble Mr. Justice Muhammad Iqbal Kalhoro, Judge, High Court of Sindh** to probe into the allegations pleaded in the above referred petition.

The Commission of Inquiry shall have the following Terms of Reference as prescribed by the Hon'ble Supreme Court of Pakistan in the said order :-

(a) To record its findings in regard to providing/supply of clean water to the residents of Sindh besides the deteriorating condition of sanitation in Sindh. The Commission shall also examine the statutory role played by the Sindh Environmental Protection Agency on the issues mandated by the Sindh Environmental Protection Act 2014. The Commission shall examine the officials or material from relevant agencies/organization inclusive of all the Civic and land owing agencies. The Federal Government, Sindh Government or any Organization, under their control, shall co-operate with the Commission.

(b) To hold enquiry on the aforesaid issues and record its findings in detail in the proposed report within six weeks from the date of its notification. The Commission shall hold the enquiry on day to day basis. As a Commission it shall exercise all the powers of a High Court Judge inclusive of the powers conferred under CPC.

29.12.2016

(GHULAM MUSTAFA MEMON)
REGISTRAR

The Publisher,
Sindh Government Gazette,
Karachi for publication.

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Endt: No.GAZ/C.P.38/2016 SC (Commission) Karachi dated the 29th December,2016

Copy is forwarded for information/necessary action to:-

1. The Court Associate to Hon'ble Mr. Justice Muhammad Iqbal Kalhoro, Judge of this Court for placing before his lordship.
2. The Secretary to Hon'ble Chief Justice of this Court.
3. The Officer Incharge, Supreme Court of Pakistan, Karachi with reference to his letter No.Const.P.38/2016 SCJ dated 27.12.2016.
4. The Principal Secretary to Chief Minister Sindh, Karachi.
5. The Principal Secretary to Governor of Sindh, Karachi
6. The Chief Secretary Sindh, Karachi.
7. The Secretary, Law Department, Government of Sindh, Karachi.
8. The Advocate General Sindh, Karachi.
9. The Managing Director, North Sindh Urban Services Corporation (NSUSC), A-14, Sindhi Muslim Cooperative Housing Society, Sukkur.
10. The Director General, Sindh Environmental Protection Agency, Plot No.ST/2/1, Sector 23, Korangi Industrial Area, Karachi,
11. The Secretary, Local Government Department, New Secretariat, Karachi.
12. The Secretary, Public Health & Engineering Department, 2nd Floor, Sindh Secretariat Building No.2 Karachi.
13. The Secretary, Planning & Development Department, New Secretariat, Karachi.
14. The Secretary, Sindh Solid Waste Management Board, Clifton, Block-2, Karachi.

29/12/2016

I/C. Assistant Registrar (Gazette)

After receiving aforesaid order and notification along with the copy of case file on 30.12.2016, and after perusing the same, I came to know that the Commission was required to record its findings in regard to providing/supply of clean drinking water to the people of Sindh, and on the deteriorating condition of sanitation in Sindh, in addition to examining the statutory role played by the Sindh Environmental Protection Agency on the issues mandated by the Sindh Environmental Protection Act, 2014. And in the course thereof to examine the officials or material from relevant agencies/organizations inclusive of all the civic and land owning agencies. The Commission was given time of six weeks for submission of report. Therefore, on the same day viz. 30.12.2016, the notices to all the concerned were ordered to be issued with the direction to appear and file their concise statements containing all necessary details concerning aforesaid issues on 02.012017. (Copy of such notice is filed herewith as **annexure A**). It may be mentioned that in order to examine the above issues at micro level, a reference dated 21.01.2017 was submitted before the Honourable Supreme Court seeking 10 days' time till 21st February, 2017 for submission of the report, which was granted. However, again on 17.02.2017 a reference seeking further four days' time for submission of the requisite report was moved before the Honourable Supreme Court which was also accepted.

Public Notice

On 31.12.2016 the Commission ordered for publication of Public Notice in three Newspapers (Sindhi, Urdu and English) inviting public at large to furnish to the Commission any information relating to above issues through statement supported by affidavit. The news for such Public Notice appeared in daily dawn dated 01.01.2017, whereas the public notice was published in daily Dawn and Kawish on 03-01-2-17 and in Jung on 04.01.2017. (Copies attached as **annexure A-1**).

Commencement of Inquiry

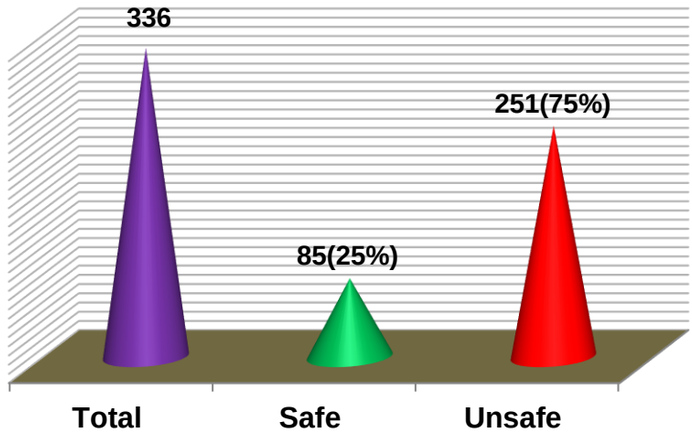
On 02.01.2017 the Commission assembled in the Court Room No.6 Annexe Building Justice Sabihuddin Ahmed Block, Karachi at 10 a.m. Learned A.A.G Mr. Sarwar sought three weeks' time for submitting the requisite reports on behalf of Government of Sindh and relevant government officials, but he was granted only one week's time for the said purpose. The proposal of Mr. Salman Talibuddin, learned Addl. Attorney General to seek services of water-quality-experts on the issues was accepted and in this regard all including the petitioner were directed to forward the names of such experts. At the same time the questionnaire (**Annexure-B**) prepared by the Commission on the subject was handed over to the Petitioner, Addl. Attorney General, Addl. Advocate General with direction to submit its reply within a week.

On 03.01.2017, the names of Dr. Ghulam Murtaza Arain, Senior Research Officer Pakistan Counsel of Research in Water Resources (PCRWR), Karachi, Mr. Adrees Rajpoot and Dr. Noman Ahmed were finalized and they were appointed as amicus curia to assist the Commission. Mr. Adrees Rajpoot appeared on 04.01.2017 and stated that he was not expert on the issues being dealt with by the Commission and sought his leave. On his proposal in his stead, Mr. Sulleman Chandio, special secretary (Retd.), Local Government

Department was appointed as amicus curia. Dr. Muhammad Ahsan Siddique, the water technologist, appeared in Hyderabad when the enquiry proceedings were held there and volunteered his services along with his team for assisting the Commission.

Order of Analysis of Water-Samples

In order to record precise findings with regard to quality of water being supplied to the people of Sindh, the Commission decided to call for Chemical and Microbiological test reports of the water-samples (sub-soil water and surface water) of different areas of the Province. For the task, the name of Pakistan Counsel of Research in Water Resources (PCRWR) was proposed and accepted. Accordingly, the Chairman, PCRWR, Islamabad was directed through a letter dated 3rd January, 2017 to get tested requisite water-samples of areas where its laboratories in Sindh are situated (Karachi, Hyderabad, Sukkar, Badin, Tando Jam etc.) and submit such report. However, it was made clear that the water-samples shall be procured in presence of District Judge and Deputy Commissioner concerned. In compliance of the same, Dr. Ghulam Murtaza, In charge (Labs) PCRWR filed the requisite report on 24.01.2017 (**Annexure. C**.). His report reveals that altogether, 336 drinking water samples from surface water and subsoil water sources from several districts were collected and analyzed for detailed physicochemical and microbiological parameters i.e. color, odor, taste, pH, Electric Conductivity, Total Dissolved Solids (TDS), Arsenic (As), Nitrate-Nitrogen (NO_3-N), Fluoride (F^-), Iron (Fe), Sulfate (SO_4), Sodium (Na), Potassium (K), Calcium (Ca), Magnesium (Mg), Hardness, Bi-Carbonates, Total coliforms and E.coli. These Water samples were collected directly from drinking water sources i.e. supply system, treatment plants, pumping stations, R.O / filter plants and hand pumps installed at house hold /community level or at public points. Out of 336 water samples, 192(57%) were collected from surface water sources, 114(34%) from ground water sources and 30(10%) from reverse osmosis (RO) filtration plants. The report has reveled in detail district-wise findings of the tests and the parameters, protocols, formulas etc. employed to achieve such results. Some portions of said report have been reproduced herein under in support of findings of this report. The report reveals that out of 336 samples, 77(23%) were found unfit due to contamination from physical & aesthetic parameters i.e. turbidity, color, odor & taste, 99(30%) samples were found unsafe due to contamination from chemical parameters i.e. TDS, Hardness, Calcium, Sodium, Potassium, Chloride, Sulfate, Fluoride, Nitrate and Iron etc., while 249(74%) water samples were found unsafe for human consumption due to microbiological contamination. Overall analysis of samples concludes that out of 336 water samples, 251(75%) were found unsafe and 85(25%) safe for human consumption.



The drinking water quality standards/ guideline and values recommended for safe drinking water by WHO and NEQS used as a reference to compare the analytical data are given in the table below.

Table: Drinking Water Quality Standards/ Guidelines Values Recommended for Safe Drinking Water.

Sr. #	**Water Quality Parameter**	**Unit**	**WHO/NEQS Guidelines**
1	Alkalinity	m.mol/l	NGVS
2	Bicarbonate	mg/l	NGVS
3	Calcium	mg/l	200
4	Chloride	mg/l	250
5	Colour	TCU/colorless	Colorless
6	Conductivity	micro-S/cm	NGVS
7	Hardness	mg/l	500
8	Magnesium	mg/l	150
9	Odor	-	Odorless
10	pH	-	6.5-8.5
11	Potassium	mg/l	30
12	Sodium	mg/l	200
13	Sulfate	mg/l	250
14	TDS	mg/l	1000
15	Turbidity	NTU	5
16	Nitrate-N	mg/l	10
17	Fluoride	mg/l	1.5
15	Arsenic	ppb	50
19	Iron	mg/l	0.3
20	Total Coliforms	cfu/ml	0
21	E. Coli	cfu/ml	0

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In the course of inquiry, the petitioner, Heads of relevant Government Departments, and Heads of all the civic and land owning agencies have been examined, they have also filed the statements supported by the affidavit, which have been perused. Besides, the Commission visited several cities of Sindh to physically see the quality of water and sanitation condition. Before I record my findings, it would be in the interest of justice to briefly reproduce the case of the petitioner and reply of the Government of Sindh and the Officials concerned.

Petitioner's claim

In brief the claim of the petitioner is that the people of Sindh are not being provided potable water and an efficient sewage and waste-material disposal system. Resultantly they suffer from many water-borne diseases, air pollution, and attendant unhygienic problems, grow in decrepit/frail physical structure, lose economic opportunities and have to live in dirty, dingy and unpalatable conditions. The respondents (the Government Officials) who being public-trustees under the law are required to ensure provisions of potable water, sanitation and hygienic atmosphere to the people, but they have individually and collectively failed to discharge such fiduciary, statutory and constitutional duty. In order to highlight his contentions, and present the case of entire Sindh suffering from the same woes, the petitioner has cited Shikarpur as a case study and has reminded that this city used to be called "Paris of Sindh" due to its modern sewerage system, clean water, and watery bodies, exquisite parks, efficient hospitals etc. but because of negligent delinquency of the respondents, all has been lost. Unplanned *Kachi Abadies* without sewage system have mushroomed that have blocked the old outlets of sewage causing multiple sanitation problems. He further claims that the North Sindh Urban Corporation Limited (NSUSC), created under the Sindh Cities Investment Improvement Program (SCIP) financed by Asian Development Bank to improve water supply, wastewater management and solid waste management services in the cluster of cities situated in north Sindh including Shikarpur has wholly failed to discharge its assigned duty despite claiming to have spent huge sums of money in this regard. And its failure has led to overflowing of gutters, broken sewage lines, inundation of entire city with sewerage water and mixing of such sewerage water with underground water making it highly contaminated and poisonous, which the people are constrained to consume as they have no other source of drinking water. And due to such state of affairs, the people have caught a host of water-borne diseases, are bearing enormous cost on the treatment and thus losing economic opportunities. The petitioner's further claim is that even the situation in the big cities like Karachi is not different, where no treatment plants for wastewater are in existence. Untreated water from industries etc. is being released to the sea directly making it highly polluted. The water-scarcity in such cities has gone out of control of the respondents due to their negligence and it has posed most serious problems to the populace. No efficient network of water-supply, proper sanitation and waste management, is available even in the big cities.

The petitioner has lastly claimed that respondents are not discharging their duty to provide said facilities to the people despite collecting different kinds of charges, fees, cess, and taxes for the same.

The Chief Secretary, Sindh

The Chief Secretary, Sindh in his statement has admitted responsibility of Government of Sindh to provide basic facilities to all the citizens. He maintains that supply of water and better Sanitation are on the priority list of the Government and in this regard various steps have been taken to improve the situation. The provisions of water, sanitation and hygiene are being looked after by a number of departments including Local Government Department, Public Health Engineering and Rural Development Department, Special

Initiatives Department, Sindh Urban Services Corporation (NUSUC) and these departments are working through an integrated approach to envision and design plans for implementation. In all 355 water supply & Drainage and Solid waste Management Schemes worth Rs.122.70 billion have been undertaken by the different departments under Provincial Annual Development Program 2016-17, and for the current year Rs.28.25 billion have been allocated out of which Rs.14.28 billion were released up to 31.12.2016. Several national and international partners are collaborating with the Government of Sindh in providing for potable water, improving sanitation and hygiene. The projects/ schemes undertaken by the Government of Sindh in this connection have been listed as under:-

i) Greater Karachi Water Supply Scheme (K-IV) at a cost of Rs.25.55 billion;
ii) Lifting of 65 MGD water from Haleji Lake at the cost of Rs.6.025 billion;
iii) Lifting of 100 MGD water from Dhabeji Pumping Station at the cost of Rs.1.50 billion.
iv) Up-gradation of Pipri Filter Plant/ Pumping Station at the cost of Rs.900.00 million.
v) Up gradation of Water Supply Scheme Naukot-Mithi up to Chelhar costing Rs.950.00 million.
vi) Establishment of Drinking Water Hubs (Phase-III) for 750 units in District Tharparkar costing Rs.5254.00 million.
vii) Water supply scheme (Filtration) Dadu costing Rs.755.00 million.
viii) Greater Karachi Sewerage Plan (S-III) at a cost of Rs.36 billion with 50.50 cost sharing between GoP and GoS (Pending approval of Central Development Working Party (CDWP)/Executive Committee of National Economic Council (ECNEC).
ix) Revamping of Gujjar Nala, Karachi costing Rs.1000.00 million.
x) Establishment of combined effluent treatment plants (5 Nos) for industrial areas of Karachi costing Rs.11.3 billion with 50:50 cost sharing between Government of Pakistan (GoP) and Government of Sindh (GoS) (Pending approval of CDWP/ECNEC).
xi) Extension and improvement of Sewerage system of Larkana city at a cost of Rs.1,406 million.
xii) Rehabilitation & Improvement of Sewerage /Drainage system Shikarpur City at a cost of Rs.505.73 million.
xiii) Sewerage system (Phase-III) at Taluka Qasimabad, Hyderabad at cost of Rs.1283.93 million.

xiv) Rehabilitation of sewerage system and waste water treatment system of Sukkur, Khairpur Mirs and Rohri at the cost of US$ 8.3 million being carried out by NSUSC through Asian Development Bank funded project “Sindh Cities Improvement Program”.

xv) Rehabilitation of water supply system Sukkur, Khairpur Mirs and Rohri at the cost of US$ 64 million being carried out by NSUSC through Asian Development Bank funded project "Sindh Cities Improvement Program".

xvi) Under Sindh Municipal Service Delivery Program (MSDP), funded by USAID at Rs.3.228 billion for water supply, sanitation and solid waste management in Jacobabad City.

xvii) Establishment of combined effluent treatment plant at SITE, Nooriabad (5 MGD) costing Rs.400 million.

xviii) Establishment of combined effluent treatment Plant at SITE, Hyderabad (5 MGD) costing Rs.400 million.

xix) Improvement of drainage system, Gambat at a cost of Rs.323 million.

xx) Drainage system Pano Akil at a cost of Rs.309 million.

xxi) WASA, Hyderabad has two sewage treatment plants in operation whereas Eastern Sewage Treatment Plant (ESTP) at the cost of Rs.915 million is under construction.

xxii) Nawabshah sewage treatment plant costing Rs.933 million is under advanced stage of completion.

In addition to above, the Chief Secretary, Sindh filed a comprehensive report on 03.02.2017 mentioning in detail the projects of short term measures and long term measures which the Sindh Government has undertaken or plans to undertake in future to improve provision of water and sanitation condition. However, it has been admitted in the said statement that currently the sewage is being discharged into watery bodies i.e. sea, river, canals etc., the Filter Plants and Treatment Plants are not functional and the industrial effluent is being thrown in without treatment. This statement has been concluded in following words.

"Government of Sindh is cognizant of the fact that the provision of safe and clean drinking water, safe disposal of sewage and industrial hazardous waste, and provision of better hygiene facilitates is one of its prime responsibilities. Government is however making all possible efforts and is continuously endeavoring to meet the desired objectives. The sizeable cost of the schemes in all the above stated sectors speaks volume of Government's commitment in addressing these issues. Since project of more than Rs.60.0 billion for treatment of sewage and its safe disposal are at various stages of implementation by different agencies. Similarly, a good number of schemes worth more than Rs.50.0 billion are being executed by the Government to ensure the availability of safe and clean drinking water to all and sundry.

The required allocation, due to financial constraints and distribution of funds to other important sectors of the society, like health and education, however affects the pace of development activities. In the wake of all these constraints Government of Sindh assures that it will not only strive to allocate sufficient funds for all ongoing schemes of water supply, drainage and sewage disposal schemes but will keep adequate amount for the new schemes emerging from the feasibility studies being conducted by Irrigation and Public Health Engineering department and Environmental Protection Agency in this regard.

This comprehensive statement is submitted along with details of current initiatives and future interventions on clean drinking water and safe disposal sewage. It is further submitted that the Government of Sindh is fully committed for providing all the essential and necessary civic facilities to the people of this Province." (**Annexure-D & D/1**)

Secretary Planning & Development Department

Mr. Altaf Ahmed Bajrani, Secretary, Planning Development Department, Government of Sindh has filed his statement reiterating mainly the same facts and yet-to-be-initiated schemes which have been already outlined by the Chief Secretary, Sindh in his statement. (**Annexure-E**)

Secretary Public Health Engineering Department

The Secretary, Public Health Engineering Department has also reiterated the same facts in his statement that are already stated by the Chief Secretary. He, however, has additionally submitted that Sindh is a densely populated and most urbanized province of Pakistan having 24% of the country's total population. The trend of urbanization and a growing population has put pressure on water supply, sewerage, effluent disposal and solid waste management services. However, the same are priority of Government of Sindh particularly because of arid and hot climate and brackish ground water spread over 83% of the total area. The Government of Sindh has taken many steps including enacting Sindh Local Government Act, 2013 and Sindh Environmental Protection Act, 2014, and has formulated a Provincial Drinking Water and Sanitation Policy, and a strategy for Behavioral Change Communication ('**BCC'**) that are in the process of approval. (**Annexure-F**)

Secretary Local Government Department

Secretary, Local Government Department has been examined, who has also submitted the statement disclosing that the Local Councils are responsible for providing such facilities in collaboration with Government of Sindh and other Departments. To support this point, he has referred to Sections 7, 72 read with schedule-II and part-I of schedule-III of Sindh Local Government Act, 2013. He has further stated that North Sindh Urban Services Corporation Limited (NSUSC), which is a corporation created/established under the Sindh Cities Investment and Improvement Program, and which is under the administrative control of Planning & Development Department, Government of Sindh, has entered into an agreement with eight Councils, that are, Sukkur, New Sukkur, Rohri, Ghotki, Khairpur, Jacobabad, Shikarpur and Larkana for providing them the subject facilities, and it is this corporation liable to account for the schemes undertaken by it in these areas. That after the establishment of the Local Councils, Government of Sindh has increased share of Councils from Rs.43 to 60 billion for improving these basic services, and is further supporting the Local Councils by taking development initiatives. It is also providing grant-in-aid to the Councils and the development portfolio of local Government in current financial year 2016-17 is Rs.37.732 billion. In respect of functions of Karachi Water & Sewerage Board (KW&SB), it has been stated that for providing water to the people of Karachi and for treatment of sewerage water before its disposal

to the sea, various schemes including S-III have been initiated/launched and transmissions lines in this connection are in the process of construction. After completion of those schemes, 650 Million Gallon water per day ('MGD') will be provided to the people of Karachi and 460 MGD sewage water will be treated before its discharge to the sea. The work on 200 MGD treatment plant has been undertaken in 1st Phase. That the Solid Waste Management Board has been created to address issues of Solid Waste in Karachi and other Districts of Sindh, which has executed agreements for lifting of "front-end" garbage and further outsourcing lifting of garbage from Garbage Transfer Stations ('GTS') to the landfill sites. In addition to above, the Local Government Department in collaboration with other departments, organizations and local councils is taking efforts to address the issues of sewage, solid waste and providing potable water to the general public and in this connection has provided adequate sources to the councils for serving people at local level. (**Annexure-G)**

Secretary Irrigation Department

Mr. Ahmed Junaid Memon, Secretary to Government of Sindh, Irrigation Department was examined by the Commission. He has also filed the statement. According to which, there are three (03) Barrages in Sindh Province viz. Guddu, Sukkur and Kotri. Sukkur Barrage was constructed in 1932, with canal command area of 7.630 million acres. The Kotri Barrage was constructed in 1956 with canal command area of 3.006 million acres. The Guddu Barrage was constructed in 1962 with canal command area of 2.179 million acres, accumulated total command area being 13 million acres. The Irrigation Department is also custodian of drainage system spread over 5 million acres of land, the network being about 5000 miles. Nine systems of Drainage network have direct disposal in sea, whereas system in upper Sindh i.e. Ghotki, Shikarpur, Larkana Districts have several small drainage schemes disposing of in Irrigation Channels. The dilution Ratio of Panchu water drainage schemes having disposal in Irrigation Channel is maintained to keep quality of water within allowable admissible range for agriculture usage. The Civic agencies mostly dispose of sewerage effluent in canals, without concurrence of Irrigation Department, which causes pollution in canal water. The action is being tolerated as there is no alternate for disposal of sewerage generated by growing population of the cities. On hindrance in such disposal the district administration intervenes as the thickly populated areas are inundated, and often sewers and water supply lines are integrated causing severe health problems. For domestic usage the source of water supply to civic agencies are Irrigation channels, but limited to provisions of Raw water. The extracting agency is liable for treatment of this water to make it fit for drinking as per WHO standard.

In his further statement, the Secretary Irrigation has stated that the Irrigation Department is responsible for provision of raw water from canal networks as per convenience of location to the civic bodies on their demand and approval of Irrigation case. Extraction of Water at source and processing of raw water i.e. disinfection, filtration and internal distribution to housing is responsibility of the Local body concerned or the Local Government; and likewise for disposal of sewerage into the water bodies, the civic agencies are responsible

to treat sewerage before discharging the same in the canal networks. (**Annexure-H)**

Secretary Health Department

Dr. Jameluddin, Additional Secretary, Health Department, Govt. of Sindh has been examined. He has also filed report/statement along-with annexure in compliance of order dated 31.01.2017. During exanimation he disclosed, that in entire Sindh only one incinerator installed in Government Hospital New Karachi is operative, in the rest of Sindh the incinerators are either not installed or they are non-functional. The hospitals all over Sindh are disposing of their waste either through burning or by washing it off in Municipal Draining System. In reply to a query, he stated that hospitals were not being provided any funds for maintenance of incinerator, and there was no separate budget for management of solid waste of the hospitals. He conceded that so far no action was taken against any hospital for not following Hospital Waste Management Rules, 2014, and the reason cited by him was that in the past this aspect was completely neglected by the Health Department. He, however, in order to show that the Government has started to look into the matter, submitted a copy of the notification dated 26.01.2017 whereby a committee comprising District Health Officers (DHO), Additional District Health Officer (ADHO) and Medical Superintendents (MS) has been formed (i) to check availability of Safe drinking water in the Hospitals of the District, (ii) to check whether Hospital Waste Management Rules-2014 are being followed in letter and spirit or otherwise and (iii) in case of non-compliance the committee has to fix responsibility and recommend action. (**Annexure.I**)

Additional Secretary Special Initiative Department

Mr. Fareed Ahmed Junejo, Additional Secretary Special Initiative Department has furnished the information about all the Reverse Osmosis/Filter Plants installed by the Department. (**Annexure J**)

D.G. Sindh Coal Authority

Mr. Danish Saeed, D.G. Sindh Coal Authority has been examined. He has also filed the statement along with annexure. He states that a contract agreement has been concluded with M/s Pak Oasis and the amount is being paid at 65% of the capacity of Plants being operated on Diesel Generators and 75% of the capacity of the Plants being operated on the electricity. The mode of the payment is quarterly. The claim of the contractor is based on the verification from Sindh Coal Authority Site Office Mithi before payment. Every Plant contains Hour, pH and TDS meters to verify the operational status, quantity and quality of the water being produced. The pretreatment filtration system is available with every R.O. Plant wherein clean saline water flows for desalination process.(**Annexure K)**

Mayor Karachi

Mr. Wasim Akhtar, Mayor Karachi, appeared before the Commission on 21.02.2017 and filed statement duly supported by his affidavit along with annexure. In his statement, he has dilated upon a brief history of Local Govt.

System in Sindh, functions required to be performed by the elected representatives of Karachi Metropolitan Corporation in respect of water & sewerage; and has submitted a working paper on the functions of Karachi municipal/metropolitan corporation, resolution No.15 of km council dated 24.01.2017 and a paper on issues of water & sewerage. Precisely, he states that Mayor's functions which remained with Karachi Metropolitan Corporation ('KMC') right from the year 1933, very inception of Municipal System, have on one or other pretext been withdrawn through notifications etc. thus depriving the KMC from its basic legal functions, which is why the City has turned into mess. Historically, functions to keep the City clean remained with KMC, but now Sindh Solid Waste Management Authority (SSWMA) has been constituted under the Sindh Solid Waste Management Board Act, 2014 headed by the Chief Minister (CM), but without any role of elected Council. The Sanitary Staff has been withdrawn from DMCs/KMC, resultantly municipal bodies have been made to suffer.

The function of water and sewerage was under the KMC Engineering Department since introduction of municipal system, and subsequently transferred to KDA in 1957 as bulk supplier but the distribution of water supply was still with KMC. However, in 1982, KW&SB was constituted as a body with Mayor/Administrator / Nazim Karachi as its Chairman. But now Minister Local Government has been notified as Chairman of it under the Sindh Local Ordinance, 2013 thereby depriving the public representatives who were always there to redress public grievances at the gross route level. In the previous Enactments, the Planning and Development of the City was the function of Civic Body / KMC, however, this function has been attempted to be performed by the Provincial Government, which has no capacity, and as a result of which, the roads have been excavated in an unplanned manner resulting in traffic jam etc.

Architect Department was historically working with KMC but after collapse of '**Bismillah Building**' in the year 1975 in Lyari, under the recommendation of a Commission, the Architect Department of KMC was merged in KDA. Later on this authority was placed under the Chairmanship of Mayor Karachi in the year 1991, but subsequently Karachi Building Control Authority (KBCA) has been converted into Sindh Building Control Authority (SBCA). On the one hand, SBCA has allowed mushroom growth of high-rise buildings in the City, which is experiencing dearth of water/sewerage system and other utilities, creating problems for common man; and on the other hand huge revenue is being usurped and spent on unknown heads of accounts.

The Town Planning was the function of KMC in respect of KMC controlled areas and of KDA on its own schemes. Now the Town Planning through a notification has been placed under administrative and financial control of the Sindh Building Control Authority, whereas previously the Town Planning & Master Plan Department was working as an independent Department with City District Government Karachi (CDGK).

Traffic Engineering is presently with KMC under SLGO 2013 and in view of the gravity of the traffic jams every day in the City, it is imperative that the Traffic Department be transferred to KMC. 1000 Wardens are already with

KMC and can be associated to perform traffic functions as and when the traffic control system is transferred to KMC.

Mr. Wasim Akhtar has lastly highlighted the following issues.

- The allocated water quota of 1200 cusecs for Karachi was fully utilized upon the completion of K-III Project in the year 2006.
- Despite the passage of more-than 10 years, not a single drop of water is supplemented in the water supply of Karachi.
- An allocation of 260 MGD water equivalent to 485 cusecs was allowed only for Phase-I of K-IV Project. While the completion of Phase-I cannot be expected in near future.
- Remaining phases of K-IV Project i.e. 260 MGD and 130 MGD are without any approved water quota / allocation and if such increase in quota is not assured the heavy cost of Phase-I / K-IV Project may go as waste.
- Around 450 MGD sewage generated in the City is dumped directly into the Sea without any treatment causing severe pollution, ecological imbalance and unhygienic conditions effecting directly or indirectly the fishery export of the Country and the beach of Karachi.
- The above is due to non-functional Sewage Treatment Plants of KW&SB which have been given least priority by the KW&SB / Govt. of Sindh. (**Annexure-L**)

Karachi Development Authority

On behalf of Karachi Development Authority, Member Technical has filed the statement, stating that KDA is the custodian of record of rights and the land in schemes launched by it. It was made defunct in 2001 and was revived only in 2016 after inception of City District Government Karachi. In all its schemes/townships namely Clifton, Korangi, Gulistan-e-Johar, North Karachi & Surjani Township, the issues of drinking water and sanitation are being looked after wholly by Karachi Water & Sewerage Board. But in all these schemes there is deficiency of water. **(Annexure-M)**

Karachi Water and Sewerage Board

Mr. Asaduulah Khan, Deputy Managing Director (TS) KW&SB has filed a summary on behalf of KW&SB, which indicates that the Establishment of KW&SB comprises 13,000 employees with annual expenditure of Rs.4,825 million. The annual contingency expenditure is Rs.462 million and O&M expenditure is Rs.1,433 million per annum. The expenditure on Development works carried out by KW&SB from its own source is Rs.57 million per annum. The source of Bulk water is River Indus and Hub dam at 550 MGD and 100 MGD respectively. The Hub dam source is totally unreliable and becomes zero when there is no rainfall in its catchment areas. There are bulk water pumping stations at Dhabeji, Pipri and Mangopir. There are 07 filter plants for treatment of the bulk raw water with treatment capacity of 450 MGD and about 200 MGD

is raw water, which is duly mixed with filtered water and after chlorination the same is supplied to all parts of the city. However, the Clarifiers, Filter beds and water reservoirs of the plants need de-silting. 120 pumping stations are intermediate in the city, which boost pressure to ensure water reaching to the tail houses. The total demand for city of 22 million people is estimated @ 54 GPCD, 1,188 MGD against which 650 MGD is available for supply. That KW&SB is self-sustaining organization and working as corporate body under GOS as per KW&SB Act, 1996. There are many issues where the resolution is out of reach of KW&SB authorities, but the required backup efforts are not made to support the collapsed financial position of KW&SB. SBCA is continuously approving thousands of multistoried and high-rise buildings without obtaining mandatory NOC from KW&SB for ensured water supply. SBCA is not paying 20% share to KW&SB from the fees levied for change of land use in the Master Plan as provided Vide new resolution 26 dated 5-6-2012. Finance Department GOS while distributing the share of local councils has declared subsidy to be paid by KMC to KW&SB @ 1% of its total resources. But no payment has been transferred to KW&SB accounts by Finance Department. There are huge arrears against all the departments of GOP, GOS, KMC and DMCs who are working in Karachi city but they are not paying off to KW&SB. About 40% of Karachi population is residing in Kachi abadies on the lands belonging to KMC, GOS and GOP, but neither the people nor the sponsor departments viz. GOS / GOP / KMC are paying off water charges of those areas.

M.D. Mr. Misbahuddin Farid and D.M.D. KW&SB Mr. Asadullah Khan have also been examined. They have stated that due to intermittent water supply on account of huge gap between demand and supply, the negative pressure is created as the pipes remain empty which lead to water contamination . Issue of contamination of water can be addressed completely if the system is operated 24/7 supply basis, the unplanned growth of Karachi population has posed serious challenge to KW&SB in providing safe clean water to every citizen of Karachi. KW&SB has 480 MGD cumulative filtration capacity from its 06 functional Filter Plants against requirement of 650 MGD. Most of the Filter Plants have outlived their services life and need rehabilitation and up-gradation and new Filtrations Plants with the capacity of more than 200 MGD are required to be established for providing 100% drinking water. Although chlorination of water takes place in Filtrations Plants but due to system insufficiency, required level of chlorination is difficult to be maintained. They have also given details about three sewerage treatment plants in their statement.

In respect of Water Hydrants, they have stated that KW&SB has been taking action against the miscreants for puncturing water-mains to get water illegally, and in proof thereof, they referred to 233 FIRs lodged in this regard at different police stations. That KW&SB has removed all the subsoil hydrants in compliance of orders of the Honourable Supreme Court. That there were 24 hydrants in operation at different locations but the number has now been reduced to 06. However, one hydrant has been allowed to operate under the directives of the High Court with one filling point, and therefore, presently 07 hydrants namely Landhi-I (Future), Landhi-II (Mansehra), Sakhi Hassan,

Baldia, Cattle Colony, NIPA and Safora are in operation to supply water to the deficient pockets or low pressure areas through tankers. It is further stated that in Districts West and Malir secretly the pilferage of water is going on by miscreants who keep on changing puncture points in mains to take water, however, the operations against them on regular basis is taken by KW&SB. **(Annexure N)**

Sindh Solid Waste Management Board (SSWMB)

Dr. Atur Das Sajnani, who is holding charge of the post of Managing Director Sindh, Solid Waste Management Board (SSWMB) Karachi has been examined. Besides, he has filed a concise statement duly supported by his affidavit. According to his statement, SSWMB was created by an Act of Sindh Assembly in 2014 to establish **"Integrated Solid Waste Management System"** in all cities of the Province. The SSWMB is responsible for collection and disposal of solid waste and other waste including Municipal Solid Waste, Industrial Solid Waste and Medical / Hospital Waste in the entire Province of Sindh. However, the Board is required to take over solid waste management functions gradually from the Councils and other bodies and till such time they will continue to manage the solid waste in their respective areas. It is only when Local Government will notify transfer of the functions from the Councils to the Board through official notification; the Board will take up the task of solid waste management. Mr. Atur Das Sajnani has further disclosed that in Karachi more than 12000 tons garbage is being generated per day but unfortunately Karachi has no Garbage Transfer Stations (GTS) due to which problem of solid waste has further aggravated. According to him, the Board is in the process of initiating many schemes to deal with the solid waste, which includes front-end-services (taking garbage from front of the premises etc.) to establishing GTS and landfill sites. He has further disclosed that so far only DMC South and DMC East Karachi have been transferred to the Board for the purpose of solid waste management through notification; and in these two DMCs the process of tendering has been completed and work has been awarded to **"M/s. Changyi Kangjie Sanitation Engineer Company Limited of China**", which has imported garbage vehicles that are in the process of Custom clearance. The process of tender in two more DMCs, DMCs Malir and West, has also been initiated for front-end collection, transport and disposal of municipal waste. He has submitted the expenditure reports for the financial year 2015-16 and 2016-17 which are attached with his statement. **(Annexure-O)**

KARACHI METROPOLITAN CORPORATION (KMC)

Senior Director, Municipal Services, KMC in his statement dated 09.01.2017 has submitted that supply of clean water to the residents of Karachi and maintaining condition of sanitation are the responsibility of KW&SB. Besides, sanitation problem is to be resolved by the concerned District Municipal Corporations (DMCs) in Karachi. **(Annexure-P)**

Karachi Port Trust (KPT)

Mr. Khalid Muneer, Manager Legal Affairs KPT and Manager MPCD, KPT (Marine Pollution Control Department) have filed separate statements on behalf of Karachi Port Trust (KPT). Their statements show that KPT is taking 10,000 GPD water from KW&SB, and is arranging further 2 lac GPD water through private contractor (Bowser Service). The overall demand of KPT is 250,000 gallon water per day; and to meet the shortage a desalination plant has been installed at Manora. KPT is further planning to establish a similar plant with the capacity of 2X250.000 GPD at TPX area on EPC. It is supplying water to the International Ships and the residents of KPT quarters after checking it in the laboratory of the department.

Regarding sanitation and sewage, it is stated that KPT is also suffering from sanitation problem. The sewage coming from Lyari River and other major drains opening into harbor is increasing pollution in the sea waters on daily basis. According to one study more than 400 MGD sewage is being discharged into sea deteriorating not only marine life but also affecting the infrastructure of the harbor. The sudden decreasing of pH values in the harbor waters has chocked the cooling intakes of the waters for the ships and is damaging propellers of the ships. (**Annexure-Q**)

Mr. Asad Rafi Chandana, Director General Ports and Shipping Wing Ministry of Ports and Shipping Government of Pakistan, Karachi was also examined. He has denied that any oil spillover of ships is being allowed in sea and states that all ships are inspected by KPT to ensure these ships do not cause any pollution. Performance of 'Oily Water Separator' is checked. He has further stated that an aggregate 475 MGD municipal and industrial sewage is being drained directly in and around Karachi harbor and coastline mainly from six nallahs viz. Lyari, Malir, Frere, Kalri, Railway and Nehr Khayyam. KPT is expending billions of rupees to keep the harbor clean. Such continuous flow of effluent has adversely affected marine life, ecological biodiversity, mangroves, and has caused air pollution. It has turned blue ocean water and red sand beach into grey murky waters with black sand. It is causing various skin diseases to the people taking bath in sea. (**Annexure-Q/1)**

Report of Marine Pollution and Environmental Status of Karachi Coastal Waters

A report prepared by Dr. Monawar Saleem, National Institute of Oceanography on the current condition of coastal waters has been submitted before the Commission, which reveals that six (06) Industrial Estates comprising 6,000 Industries are in Karachi. These are, Sindh Industrial Trading Estate, Korangi Industrial Estate, Landhi Industrial Estate, Bin Qasim, Gharo, North Karachi Industrial Estates. All the 6,000 industrial units are dumping their waste, mostly untreated, directly or indirectly in the Karachi and Gharo Creek areas. Approximately 500 MGD Industrial and domestic waste water is being generated, and discharged through Lyari and Malir River into western and southeastern coastal areas (Gizri, Korangi and Gharo Creek) of Karachi. Of the entire effluent, only 15 to 20 percent is being treated. The worst hit portions of Karachi coast are Harbour and Korangi/Phitti creeks

where the effluent from Korangi, Landhi, Karachi Export Processing Zone, Bin Qasim Industrial Areas having 1400 MW thermal power, and country's largest industrial unit-Pakistan Steel Mill-is being discharged into the sea. Port Qasim and Korangi fish Harbour have busy shipping and fishing boat traffic in the Gharo, Phitti and Korangi creeks causing oil discharge (an estimate some 5,00-10,000 tons), which is resulting in great damage to the flora and fauna of the Karachi coastal area. Mangrove and ecosystems of Karachi creeks are facing continuous pressures of domestic and industrial pollution and resultant degradation of water quality, habitat loss, localized eutrophication, metal accumulation in fish and shrimps. There are three (03) major types of pollution in the coastal areas which include effluent from industries, domestic sewage and oil. The Indus Delta receives pollutants from up-country use of pesticides, fertilizers and industries. Hub and Gadani Coast receives pollutants from the Hub Industrial Trading Estate and from Ship breaking Industry. Some of the heavily polluted areas by oil include Korangi Creek, Gizri Creek, Clifton Beech, Chinna Creek, Boat Basin and the main harbor. Oil slicks in coastal areas and tar balls on the beaches have been reported. The major impact of pollution has been seen around the discharge points of coastal industries.

Due to pollution many coastal areas are devoid of benthic fauna and flora. High concentration of heavy metals, such as Fe, Zn, Cu, Ni, Cd, Pb, Hg, Co and moderate levels of PAHs, PCBs, pesticides, and Dioxins has been recorded in marine biota and sediments. **(Annexure-R)** (His statement is supported by relevant reports).

Pakistan Defence Housing Authority

Brigadier (Retd.) Muhammad Tariq Khan, SI(M) A/Secretary, Pakistan Defense Housing Authority Karachi has filed concise statement stating that the requirement of drinkable water for DHA is 9 MGD but it is being supplied only 5 MGD from KW&SB. The DHA has been undertaking numerous water initiatives at its own cost for the community cause. That recycling of waste water through Sewerage Treatment Plant is operational at the huge cost being borne by DHA itself. The state-of-the-art sewerage treatment plant with the capacity of 2.4 MGD is currently functional in Phase-VIII, which is recycling 1 MGD treated water that is used in irrigation parks etc. There is an urgent need to activate Mehamoodabad STP as sewerage passing through Phase-II is being thrown directly in sea. Issues pertaining to water supply for the people of high-rise buildings fall within the domain of CBCs which obtain NOC from KW&SB. According to him, none of the waterfront high rise buildings have been occupied so far, and their occupancy shall only be allowed after the municipality/utilities services have been installed. **(Annexure-S)**

Pakistan Railway

Divisional Engineer-I, Pakistan Railways, Karachi has filed the statement stating that water for passengers and employees at Railway stations and for residents in Railway colonies is being obtained from KW&SB and WASA. No any treatment is being carried out as the supplied water is already filtered / treated. At Kotri Railway station the water is being collected from River Indus directly and after proper treatment at Water Filtration Plant at Kotri, the same

is being supplied to the passengers at Railway station and residents of Railway colony. Similarly, the sanitation overall in Railway system is operated by Railway authorities with sanitation staff working under Medical branch but ultimate disposal of sanitation is in District disposal points.

Dr. Jan Muhammad Domki, Divisional Medical Officer (DMO), Pakistan Railways Karachi Cantt, has also filed his statement detailing Railways colonies and Railway stations where fumigation spray is carried out against Dengue and Malaria during monsoon season. According to him, M/s. Nasir Mehmood Company has been awarded the contract to remove rubbish, garbage, dead animals, refuse etc. by mechanical means from Railways and station. **(Annexure-T)**

The Sindh Environmental Protection Agency (SEPA)

Mr. Naeem Ahmed Mughal, Director General SEPA has been examined. He has also filed a statement along with annexures. The brief of which is reproduced herein. SEPA is a regulatory and monitoring agency being responsible for enforcement of Sindh Environmental Protection Act 2014. The Act provides "to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development". A set of Rules and Regulations for the purpose of enforcement of the provisions of this Act have been framed. That SEPA has notified Sindh Environmental Quality Standards to regulate permissible limits for various parameters in order to address major environmental issues. SEPA in current scenario is addressing major environmental issues on priority which include Untreated Industrial Effluent, Domestic Sewage, Industrial Solid Waste, Domestic Solid Waste, Imperfect Solid Waste Management System and Shortage of Land-Fill Sites and Urban Air Quality.

The causes for environmental degradation in the Province are mismanagement of solid waste, inadequate sewerage system and ineffective or no treatment/filtration of raw water prior to supply into public water network throughout the Province. The illegal disposal of domestic and industrial effluent in the water courses, through numerous planned or makeshift arrangements, is a leading cause of water quality deterioration.

SEPA has advised various local Government organizations, including KW&SB, KMC, District Municipal Corporation, Town Municipal Authorities, Cantonment Boards, and Civic Agencies, etc. for safe disposal of wastewater, effluents, and solid waste to prevent contamination of natural resources and pollution of environment.

In pursuance of the functions provided in the SEP Act 2014, SEPA has taken concerted efforts to achieve objectives regarding Installation of Waste water Treatment Plants in the industries, besides it has initiated action against the industries operating in contravention of the SEP Act, 2014, and due to its enforcement activities, 75 wastewater treatment plants at various industrial zones in Karachi and 34 in other industrial zones mainly at Kotri SITE Limited have been installed. It has been communicated to various industrial

zones through meetings/seminars with the respective industrial associations to ensure strict compliance of Environmental Laws; however the response of Industrial Association is very poor. SEPA has issued notices to 450 major units operating in contravention of SEP Act. During implementation phase, directions have been issued to 205 industrial units to submit Environmental Management Plan, which is a first step towards compliance.

SEPA is functioning with acute shortage of human and financial resources, consequently the organization is restrained to perform its prime responsibilities i.e., Protection of Environment and enforcement of SEP Act. There are 36 Technical Officer from BPS 17 to 20 and 28 Environmental Inspectors. The budgetary allocation of 2016-17 for whole setup of SEPA including Head office and five Regional Offices is Rs.168million, out of this, employees-related expenditure is Rs.142million, and remaining amount of Rs.26 million is allocated for operational expenditure which includes utilities, travel & transport etc. During current financial year an amount of Rs.150million has been allocated for execution of five annual development schemes addressing conservation of natural resources.

Lastly, Director General SEPA has emphasized on resolution of following problems for achieving good results.

- "Expansion of SEPA is essential for establishment of offices at district level
- Inadequate manpower/human resources as well as capacity issues for training of Staff.
- Inadequate financial resources for industrial monitoring, and enforcement of SEP Act 2014 in all sectors.
- Provision of Research and Development Budget will be required for the purpose of updating the environmental profile and green environment achievements.
- It is also submitted that SEPA is also facing difficulty enforcement of Environmental Laws which required appropriate police assistance at Head offices and Regional offices.
- A Week prosecution cell is available at present with total number of three Assistant Director (legal Officers) therefore strengthening of prosecution wing with its complete hierarchy is required.
- A part from private sector the public sector organization like Local Government organizations, like KW&SB, WASA, Public Health Engineering and Public & Private Sector Hospitals, assign extremely poor response to the notices to SEPA. A direction from Honourable Commission would augments functioning of this organization.
- Extensive public awareness through print and electronic media is essential to sanitize general public for protection and conservation of natural resources.
- Environmental Impact Assessment is a mandatory requirement under the provision of Sindh Environmental Protection Act, however the public sector departments and there schemes reflected in ADP are device for fulfillment of this requirement accept the few projects, this process is essential for sustainable development in the province. The honourable Commission is requested to kindly pass on appropriate

directions strengthening of SEPA in order to compliance of Act". (**Annexure-U)**

Managing Director, Sindh Industrial Trading Estates

As in Site Estates, it is the responsibility of SITE Limited to supply water to the Industries and to manage liquid waste being generated there through its own resources, Mr. Abdul Aleem Lashari, Managing Director SITE was called and examined. He has also submitted a report, which contains following details.

Sindh Industrial Trading Estates Limited was established in 1947 under the Companies Act, 1913. The SITE Limited is managing nine (09) Estates throughout province namely (i) SITE Karachi, (ii) SITE Superhighway, (iii) SITE Nooriabad, (iv) SITE Kotri, (v) SITE Hyderabad, (vi) SITE Tando Adam, (vii) SITE Nawabshah, (viii) SITE Sukkur and (ix) SITE Larkana.

SITE Karachi

SITE Karachi consists of 2600 Industrial units, it gets water from KW&SB in bulk and distributes to the Industries through its network; and through its drainage network disposes of liquid waste into the Orangi Nala and Lyari River which finally ends up in sea. SITE Karachi is managing solid waste through collection and disposing it of to the land dumping sites through its manpower and vehicles.

SITE Superhighway Phase-I

SITE Superhighway Phase-I has 368 Industrial Units which are being provided water by KW&SB; and its liquid waste which includes untreated liquid is being discharged into Lyari River and finally into sea. SITE Limited collects its solid waste by outsourcing the same.

SITE Superhighway Phase-II

SITE Superhighway Phase-II has 50 Industries and does not have any liquid and solid waste problems. The scheme to construct Combine Effluent Treatment Plant is included in Annual Development Program (ADP) 2016-2017.

SITE Nooriabad

SITE Nooriabad has 68 Industries and it is getting water through sunken tube-well and from Keenjhar Lake. It is claimed, that SITE Nooriabad is not facing any issue concerning solid waste as it is disposing of the same through its own sources. However, regarding effluent, it is stated, that previously industries used to discharge it in Loyachh/Kaloo river, but about eight (08) years ago Irrigation Department constructed the recharge dam by intercepting Loyachh/Kaloo river at about 3 kilometers from SITE area Nooriabad, as a result of which the effluent is now being accumulated in the said recharge dam and discharged in the Keenjahar Lack during rain when dam overflows. The

scheme to construct the Effluent Treatment Plant has been included in Annul Development Project (ADP) 2016.

SITE Kotri

In SITE Kotri 145 Industries are operating and they are taking water from KB Feeder. As to solid waste, it is claimed that the SITE Limited periodically makes arrangements for its disposal and additionally many industries make their own arrangement for disposal of solid waste. The SITE kotri has been disposing of its effluent in KB Feeder through Combined Effluent Treatment Plant after its treatment which was constructed from the funds provided by Government of Sindh.

SITE Hyderabad

SITE Hyderabad has 439 Industries. Initially it used to get water only from WASA in bulk and distribute to the industries through its own network, but when the requirement increased it started taking water from Akram Wah and supplying to the Industries without any treatment. A Filter Plant has been completed but the network to connect it with the SITE Hyderabad is yet to be finished. Its wastewater is being disposed of into the drains of WASA, which subsequently ends up into the Phuleli Canal without any treatment. A Combined Effluent Treatment Plant has been proposed in Annual Development Project (ADP) 2016 and 2017.

SITE Tando Adam

SITE Tando Adam comprises 21 Industrial Units but currently none of them is operational.

SITE Nawabshah

In SITE Nawabshah only one Industrial unit was established but it could not run for a long time and was closed.

SITE Sukkur

In SITE Sukkur 76 Industries have been established. It takes raw water from Kheerthar Canal and supply to the industries. The waste water of the industries is being poured into River through Sukkur Mega Sewerage Line.

SITE Larkana

For SITE Larkana, an area 500 acres of land is being established. (**Annexure-V**)

Commissioner Hyderabad Division

Water and Sanitation Agency Hyderabad was established under HDA Act 1976. WASA in its present form is functioning as one of the Directorate of H.D.A. WASA is responsible to supply clean and healthy drinking water to the residents of Hyderabad and also to dispose of waste water. The WASA, Hyderabad inherited only one small filter plant of 10 MGD for supplying water to the citizens of Hyderabad, which was insufficient. The open drains of City and main Nallas throwing un-treated sewage water to canals at different

locations were constructed by PHED and Municipal authorities of that time. Due to topography of Hyderabad, which is in the shape of a bowl, WASA gets under heavy load to dispose of sewage and rainwater through pumping. WASA draws water from combined channel upstream of Kotri Barrage for its new and old filter plants; from Akram Wah for its Preetabad and Hala Naka filter plants; and from main River Indus downstream Kotri Barrage for its Hussainabad and Unit No: 4 Latifabad Filter Plants. The water supply system of WASA comprises five filter plants, 51 water pumping stations and 1100 km water supply network. The Filtration capacity of five filter plants is only 60 million gallon daily while water demand as per population of 3.3 million is 130 MGD. The shortfall is 70 MGD, which is not possible to overcome. The filter plant at Jamshoro road is non-functional for the last 6-7 years primarily due to non-maintenance. The water collected in the new filter plant is being diverted to the delivery system of the old filter plant to make it outreach to the area of supply of the old filter plant. Besides, frequent outages of electricity result in the compromise on pumping capacity of the intake machinery. End result is availability of water in the system not to the extent of more than 40 MGD.

Filtration system is at the most a partial system of sedimentation. Chlorination which was only way of bactericidal effect was stopped in the year 2013 due to paucity of funds. The system was augmented in the year 2008 by adding three new filter plants. Besides, a few other schemes of rehabilitation of pumping stations, distribution reservoirs etc. were also undertaken between the years 2006 and 2009. Even those could not meet the requirement of the city. To add insult to the injury even these newly constructed filter plants could not deliver quality water for the same reasons as mentioned above. The delivery system comprising 1100 km of water supply lines of varying diameters was also laid decades back. Though expanded from time to time to reach out to the newly upcoming localities but the existing network was not rehabilitated or replaced. Resultantly the rusted joints of the system, corrosion of the metallic pipelines and unauthorized punctures by unscrupulous elements resulted in leakages at various places and also infusion of the subsoil water as well as leaked sewage into the pipelines. Thus contaminated water was perforce supplied to the hapless citizens.

The engineers of WASA including senior management has been repeatedly asked to suggest short term low cost solutions for rehabilitation of water supply system especially the new filter plant but they are of the view that a long time neglect chiefly due to paucity of funds has resulted in solidified sedimentation in the lagoons and clarifiers and rusting and inoperability of the electrical and mechanical devices. Moreover, the demand on the system is so enormous that even if de-silted and rectified, the quality of the water supplied to the residents would at the best be suboptimal. The only way out is long term augmentation of the system by finding new sources from River Indus at Bhanote and Akram Wah near Zeal Pak Cement Factory; constructing new filter plants; laying primary, secondary and tertiary lines to new areas coupled with rehabilitation or replacement of the existing infrastructure including delivery network.

The sewerage system of Hyderabad consists of both, open drains as well as piped sewers. The City area of Hyderabad mainly has its drainage system

through open surface drains flowing on gravity and culminating at various points having direct drainage into the Phuleli Canal or through pumping machines. In addition to the open surface drains, the City has underground sewers also. As against that, Latifabad and Qasimabad have underground sewer system. But in all from three Divisions, the final disposal is into the Phuleli Canal and in one case i.e. Latifabad No: IV, directly into the River Indus downstream Kotri Barrage. There are in all four sewerage treatment plants for the City viz. Northern Sewage Treatment Plant with the installed capacity of 9 MGD. The plant was completed in the year 2005. But since the very first day of its inauguration it has not been utilized to its designed capacity as the sewage hardly reaches it. Most of the sewers coming from its catchment areas like Jacob Tank, Central Jail Pumping Station and Pretabad Pumping Station etc. have been damaged resulting in outflows on way.
Apart from above, the Commissioner Hyderabad has mentioned the details of ongoing projects of sewerage disposal; the schemes of sewerage disposal being undertaken under Hyderabad Development Package, Provincial funded (ADP) schemes under Hyderabad development package; Federally funded PSDP schemes (on-going); and some details about future requirements.

Financial Status of WASA

Commissioner Hyderabad has further stated that WASA's revenue comprises water and sewerage charges from domestic, commercial and bulk consumer categories. The bulk category includes water connection to Government of Sindh's offices and Federal Government agencies. The total budgeted revenue for the current financial year 2016-17 from the above mentioned categories has been estimated as Rs.1136 million. As against that, the cumulative expenditure on the salary, pension and office contingencies is Rs.820.959/- (approximately Rs.821 million). The water charges against Hyderabad based Government of Sindh's offices is Rs.406.080 million. The financial difficulty of WASA is due to non-payment of full water supply demand by the Government of Sindh. Past history suggests that WASA received only 22% of its total demand by various offices of the Government of Sindh. WASA has been consistently reaching Finance Department to clear outstanding dues on account of WASA's genuine and legitimate demand of water charges against GOS's departments which has now soured up-to Rs.2077.557 million. In the year 2014 when the net default of Government of Sindh was Rs.1466.455 million, the Government of Sindh paid only half of it i.e. Rs.733.774 million and that too, in the name of "Bailout package". The reality is that it was not a bailout but the legitimate arrears of WASA on Government of Sindh. Now this figure has been raised up-to Rs.2077.557 million as mentioned above. Whenever Finance Department is approached to clear GOS's outstanding dues, it surprisingly demands from WASA to produce its "Business Plan". The net result is chronic deficit in the accounts of WASA which compromises its ability to maintain its extensive water supply and sewerage infrastructure.

In case of WASA Hyderabad, the Government of Sindh may be obliged to make a compulsory arrangement to give at least 40% of the urban immovable property tax collected from Hyderabad. Secondly, the Sindh Building Control Authority which collects 'betterment charges' and 'commercialization charges' while approving building plans may be obligated to transfer these

funds to WASA. The reason is two folds – firstly SBCA is a non-development agency as such it does not require finances beyond its salary and office contingencies requirements and secondly, the "betterment" is that of the infrastructure, which is basically water supply and sewerage. Moreover, commercialization of buildings puts additional burden on the existing water supply and sewerage system of WASA. As such, it is imperative that commercialization charges should also be transferred to WASA. This was an ongoing practice when Building Control function was with Hyderabad Development Authority whose Governing Body in its 108th meeting held on 25.09.2008 had decided to transfer these funds to WASA. With the transfer of these funds from SBCA, it is hoped that WASA would come out of its present financial crunch resulting ultimately in better service delivery. (**Annexure W)**

Water and Sewerage Authority, Hyderabad

Mr. Masood Ahmed Jumani, M.D.WASA was examined by the Commission, he has also filed a concise statement. His statement shows that in Hyderabad WASA (Water &Sewerage Authority) has been tasked with providing potable water to the people and maintaining better sanitation. WASA maintains 51 pumping stations for water supply and 21 pumping stations for disposal of sewerage. The total reliance for drinking water is on Indus River and its off-taking canals. The M.D. has claimed that WASA has delivered five Filter Plants; three Sewage Treatment Plants, 51 Water Supply Pumping Stations; 121 Sewage Pumping Stations; 15 Diesel Generators; 1100 KM of water supply network and 1400 KM of sewage network.

The capacity of old Filter Plant at Jamshoro Road Hyderabad is 10 MGD; New Filter Plant at Jamshoro Road is 30 MGD; New Filter Plant at Hala Naka is 08 MGD; New Filter Plant at Paretabad 08 MGD and New Filter Plant at Unit No.4 Latifabad is 04 MGD. The total capacity of Filter Plants is 60 MGD; however, water demand as per population is 130 MGD. Shortfall is thus 70 MGD.

The capacity of Northern sewage treatment plant is 9 MGD; Southern Sewage Treatment Plant is 07 MGD, Western Sewage Plant is 2.5 MGD; Eastern Sewage Treatment Plant is 16 MGD but it is under construction.

WASA meets its expenditure on salaries, pension etc. from revenue generated from water charges of different categories of consumers. It spends 45 million per month on salaries and 4.8 million on monthly pension. It has three kinds of consumers i.e. domestic, commercial and bulk (Federal and Provincial Governments Departments). Against the bulk consumers, the Government of Sindh is the biggest defaulter and against reconciled monthly average demand, recovery from it is not more than 22%. With the current income, WASA is not able to meet expenditure on salaries even. It has prepared a business plan to boost up its recoveries and is also in the process of outsourcing its commercial recoveries through private parties. According to M.D, the WASA is in a desperate need of subsidy amounting to Rs.20 million per month to run its affairs in all respects. In order to bring about some improvement in WASA, the Government of Sindh in 2014 had agreed for a bailout package amounting to Rs.1466.455 million, which amount was the reconciled amount of dues outstanding against various Hyderabad based Government Departments.

However, due to some objections from the Finance Department, such package has not materialized.

M.D WASA has further informed that Mr. Ahsan Siddiqui, the Water Technologist, performs tests of water samples twice a day on behalf of WASA. Water quality varies with the flow of water, it is worst when flow is low particularly in canal closure period. It is stated that due to discontinuation of subsidy WASA's condition is getting deteriorated. All the Filter Plants require rehabilitation. A 32 diameter pipe line is being laid from upstream River Indus to the water work of Hussainabad at the cost of Rs.570 million funded by Government of Sindh to benefit about one lac people who are presently drinking raw water being drawn directly from River. A project of laying water supply lines at the cost of Rs.113.590 million funded by Government of Sindh is also under execution to remove water contamination from some parts of taluka Qasimabad. And additionally few schemes of water supply are also being executed through District Administration under MNA/MPA funds. Another project for expansion of raw water Filter Plant through HDP started with the funding of Federal Government at the cost of Rs.935 million is almost complete requiring only interconnection.

About sewerage sector, M.D. WASA states that a Sewerage Project for Qasimabad comprising three phases under Hyderabad Development Package was initiated. Phase-I at the cost of Rs.400 million in Financial Year (FY) 2015-16 is functioning properly; Phase-II at the cost of Rs.1283 million is under execution and 70% of physical work has been completed and remaining work will be completed in FY 2017-18. For Phase-III, PC-I for Rs.2000 million has been submitted to Government of Sindh through Local Government Department to be included in next FY 2017-18. The scheme for constructing Eastern Sewage Treatment Plant being funded by Federal Government at the original cost of Rs.915 million is in the process of execution and is likely to be completed in FY 2017-18 subject to approval of revised PC-I at the cost of Rs.1117 million; and with its completion almost 80% of the problem concerning discharge of untreated sewage into Phuleli canal would be resolved. And that will also give benefit to Tando Muhammad Khan, Matli, Badin up to Shah Bander and Jati Towns. A road on the right bank of Phuleli canal is going to be constructed eliminating few open drains at Sattar Shah pumping Station, Rashi Ghat pumping station and Old Power House pumping station. A project for providing sewerage facility to Aliabad, Khursheed Town, Goth Laloo Lashari and Ghamanabad is being executed by the Government of Sindh at the cost of Rs.481.767 million which shall reduce huge quantity of sewage being thrown into Pinyari canal. In Qasimabad a project to replace and rehabilitate existing sewage lines at the cost of Rs.460.737 million funded by Government of Sindh is underway. And for future, two schemes at the cost of Rs.100 million each for improvement of water supply and sewage for PS-49 Latifabad are in the process of administrative approval which will benefit one lace people.**(Annexure-X)**

North Sindh Urban Services Corporation Limited (NSUSC)

M.D. NSUSC has been examined and he has also filed the concise statement. The brief of which is reproduced herewith. The NSUSC has been created under

the Sindh Cities Investment Improvement Program (SCIIP) financed by the Asian Development Bank (ADB) for water supply, waste water management and solid waste management in the cluster of secondary cities of northern Sindh which include Sukkur, New Sukkur, Rohri, Khairpur, Larkana and Shikarpur, Jacobabad & Ghotki. Under this program ADB was to provide $300 million over a period of 10 years till 2018, to finance the Government of Sindh's (GoS) $400 million program to improve water supply, wastewater management, and solid waste management services in a cluster of secondary towns. This program (SCIIP) supports: (i) establishment of local government-owned, professionally managed utility companies; (ii) priority investment in water supply, wastewater, and solid waste management infrastructure; and (iii) urban sector reforms and capacity development, including an Urban Policy and Strategic Planning Directorate (Urban Directorate) at provincial level and for overall program implementation.

Tranche 1 of the loan i.e. $38 million equivalent, was approved on December 2008 and completed on 30 June 2014. It supported a $50 million GoS initiative to develop operations and infrastructure for water supply, wastewater, and solid waste management. NSUSC implemented the investments in six towns as per terms of the Services and Asset Management Agreement (SAMA) executed between it and Management of Sukkur, New Sukkur, Rohri, Khairpur, Shikarpur, and Larkana.

Tranche-II of the loan, of $140 million ($139.80) equivalent, was approved on 18 December 2012 to support further investments in major projects of the eight cities and for complete rehabilitation of existing municipal services.

The Services and Assets Management Agreement (SAMA) were signed with respective Town Municipal Officers (TMA) of six regions of Sukkur, New Sukkur, Khairpur, Shikarpur, Larkana and taken over between May, 2010 to December, 2010. Jacobabad was taken over on 11th January, 2016 and Ghotki is not yet taken over. The NSUSC provided facilities to these cities as per agreements, which are, Water Supply Services, Waste Water Management, and Solid Waste Management.

Whereas, agreements for Shikarpur and Larkana include only providing Waste Water Management and Solid Waste Management

In Tranche-I of the Multi-Tranche Financing Facility, 11 Projects were completed, 3 projects were partially completed which are taken up in Tranche-II. After completion of Tranche-I the following benefit were passed on to the people at large.

- Water Supply: WHO Standard water is supplied to Khairpur city after completion of project in Tranche-1 and a Water Testing Laboratory is also established. Since the takeover by NSUSC, the overall water supply in participatory towns has been increased by more than 50%.
- Waste Water Management: with the installation of generator sets and standby pumps at disposal stations, the NSUSC has managed to overcome menace of power load shedding and waste water disposal is now better managed round the clock with availability of standby pumps.

- Solid Waste Management (SWM): With the procurement of new SWM equipment and priority equipment, the secondary collection of Solid Waste has been significantly improved.

Tranche-II of the MFF (Multi Tranche Financing Facility) amounting to approximately US$ 140 million, became effective from 30th July, 2013. However, due to variety of reasons, any project under Tranche-II could not start until June-2015. The completion date of all Tranche-II projects was September 2016 and execution of the same is well on track from June 2015.

The projects under Tranche-2 are expected to be completed by June 2018.
Out of total committed loan of US$400 million, the total expenditure to date is only $70 million. It would be pertinent to mention that all expenditures, besides being subject to compliance with our Delegation of Authority Manual and Asian Development Bank (ADB) Guidelines is also subject to following additional control systems:

- Internal Audit Department: Each payment is subject to Pre-Audit by Corporation's Independent Internal Department which reports directly to Board of Directors.
- Independent Verifier: Each Operational Expenditure's reimbursement from ADB is subject to certification by Independent Verifier, which is currently one of the Big 4 Audit Firm, M/S Ernst & Young.
- External Auditor: Our Annual Accounts are subject to external audit by one of the Big 4 Audit Firm, M/S Deloitte. Besides other factors, the continuity of future funding from ADB also depends upon our Audit reports.
- Director General Audit of Sindh. The Annual Accounts of the Corporation are also subject to Audit by D.G Audit who annually provides Auditor Reports which are being submitted to ADB and GoS for their consideration and necessary action.

After the completion of Tranche-II project by June 2018, NSUSC will be able to provide WHO standard water supply to Sukkur and Rohri, just like Khairpur in Tranche-I; NSUSC will be in a position to better manage the waste water and only treated waste water will be disposed of in rivers and Canals; NSUSC will be able to better manage secondary solid waste management after the month of January 2017.

There is shortage of Sanitation staff as per Asian standard, which requires one sanitation worker for 100 households. There is a project for primary solid waste collection equipment for mechanization to overcome the shortage of sanitation workers in Tanche-2. After completion of the project, NSUSC will be able to better manage the primary solid waste collection despite shortage of man power. **(Annexure-Y)**

Dr. Safdar Ali Abbasi

Dr. Safdar Ali Abbasi has filed the statement before the Commission dilating in detail upon non-provision of clean drinking water, deteriorating sanitary condition and a need to creating healthy environment in Sindh. According to him, many factors have contributed to the present abysmal situation

concerning above issues, leakage in transmission routes of water; water thefts; poor performance of outdated and inefficient pumping stations; lake of a system to monitor the use and theft of water; water tanker mafia, illegal hydrants; and inefficiency of water board officials have exacerbated the provision of water supply to Karachi. Many diseases like “Hepatitis” etc. are on the rise, mainly due to supply of contaminated water.

He has further stated the present state of lifting of solid waste in Karachi is also deplorable; the City has been turned into a heap of garbage. High-rise buildings are being built without fulfilling legal requirements and without expanding civic infrastructure. Due to unplanned growth of commercial-cum-residential buildings, the environmental situation in Karachi has become alarming. In order to improve the present state of affairs in respect of subject issues, he has proposed, among others, that water supply and demand must be managed and monitored properly by a board which shall include members from the legal fraternity, civil society and media men; there is a need to replace all the leaks and broken pipelines supplying water to Karachi and suburbs; there is a need to have strict bane on water tankers; there shall be no permission for high-rise buildings except for a building having four stories but it shall also be subject to provision of civic amenities. He has also proposed to develop a modern drainage system with disposal of the City through four routes one each in the four corners; and to make “Sim-Nalas” functional by making improvements in faulty construction and inadequate pumping stations. **(Annexure-Z)**

Mr. Mustafa Kamal

Mr. Syed Mustafa Kamal, Chairman, Pak Sarzameen Party has also filed the statement before the Commission. The brief of which is reproduced herein. He has proposed that in order to meet the necessity of water for Karachi for next 50 years, 130 km corridor, which has already been created, having width of 1000 ft. diameter be immediately built and put in use. K-IV Project will only occupy 100 ft. space and still 900 ft. space would remain unused, which is more than enough for future requirements. As the sufficient space is available, K-IV Phase-2 or K-V Projects for acquiring more water may be undertaken. On the pumping of water from K-III Project, heavy expenses are being incurred in the shape of K-Electric bills, therefore, to cut down the expenses, at the first instance water shall be pumped up 25 km on top of rocky mountain and from that point downwards as by this way water supply will reach the identified regions by itself through gravity. Population of Karachi is about 23 million, therefore, 1280 million gallons more water is required to fulfill its needs. Keeping in view current supply of 640 million gallons, there is a huge shortage of water, therefore, operation of K-IV phase 1 shall be put in the system immediately and work on K-IV Phase-II be started. In order to get water to the different areas of the City, the network of new supply lines in the worst hit regions shall be laid. He has demanded that all the water hydrants shall be eradicated and the current quota of 12000 cusec water for Karachi be enhanced. A system of water meters to control the water supply in the City shall be installed with control and command room to manage and check possible theft of water. In SITE industrial area in the name of subsoil water, stealing of water is going on a big scale from the lines of water board, which

shall be checked and eradicated. There is no system to pay the bills of water by the departments and domestic consumers, therefore, a proper system of billing and collection of revenue be introduced for the betterment and development of the water supply schemes. In every town of Karachi there shall be an emergency tanker and hydrant with its own colour for identification to meet the emergency and to keep the infrastructure of roads safe from the leakages of tankers, which eats up the roads like a "CANCER".

He states that sewerage system of the City is also in bad condition and currently 400 gallons of waste water is going into the sea without treatment as such the sea has become a big sewerage pool. No one in the country is ready to talk about water sewerage treatment due to which humans catch 70% diseases. Instead of investing money in the hospitals, it shall be spent on quality of water. First we infect the people and then invest money to treat them, which is a wrong approach. Capacity of TP-I, II and III be enhanced and new treatment plants be built. S-III Project was made to address the sanitation condition with a cost of 7.9 billion out of which 3 billion have been spent, but now cost of S-III has been increased to 42 billion, an inquiry in this regard may be conducted to find out how this cost has increased. (**Annexure AA**)

Joint Statement of Members of Provincial Assembly Sindh

M/s. Moin Aamir Pirzada, Rehan Zafar, Saifuddin Khalid and M. Nishat Zia Qadir, Members of Provisional Assembly Sindh have also filed a joint statement duly supported by their affidavits. They have stated that Karachi is a City of 25 Million people and currently is facing 50% shortage of drinkable water. Most of the pipelines in the City are old which were laid without SOPs, hence leakages and contamination of water. There is a need to revamp existing poor faulty infrastructure of water supply lines to reduce water shortage. Contamination has been caused due to sewerage and water supply lines running side by side, resultantly thousands of people, mostly children die each year due to consumption of contaminated water. Most of the hydrants are working beyond their time duration; even legal hydrants have illegal connections, which KW&SB has not reported. Water mafia is in practice to tap or puncture dedicated lines, and through this practice they are minting millions of rupees. They have proposed that as available potable water is not sufficient for Karachi, no new connection shall be allowed at bulk and main trunk transaction lines unless K-IV Project (Phase-1) is completed. Industries and Factories have their own transaction lines; therefore, KW&SB shall not allow heavy commercial connection through lines dedicated for domestic consumers as due to such practice domestic consumers in District West and Manghopir to Pak Colony have been badly affected. KW&SB has entirely failed to supply filtered, treated and tested water to the people of Karachi in compliance of Provision of KW&SB Act, 1996. According to them during their visit in the year 2015, they had observed that water tankers were taking water for supply prior to its filtration. Since the Karachi is witnessing shortage of drinkable water, K-IV phase 2 shall be initiated to overcome such shortage. **(Annexure -AB)**.

Syed Hafeezuddin

Mr. Syed Hafeezuddin, Member of Provisional Assembly has also filed the statement dully supported by his affidavit before the Commission. He states that he along-with District Judge West, DIG West and Managing Director, KW&SB had visited Karachi Industrial areas to find out an alleged parallel net-work of water supply to the Industries and had taken water samples from the area for that purpose. According to him, the water samples were tested and found to be of potable water being supplied by KW&SB. He has alleged that KW&SB, SITE Limited and Local Administration are responsible for running the illegal parallel net-work in the name of subsoil water, which is also one of the reasons the water is not reaching the people. **(Annexure- AC)**.

Statements Filed By Representatives of Industrial Associations.

Mr. Atif Ashraf, Chairman, Pakistan Leather Garments Manufactures & Exporters Association (PLGMEA) has filed the statement stating that they use finished leather as raw material, therefore, have no link with Industrial waste water, which is basically produced at tanning level.

Mr. Aziz Ahmed, Chairman, Pakistan Tanners Association (PTA) has also filed the statement to the effect that Tanners Association comprises 100 medium and small units. All the waste water is carried through conveyance system and open Nallas to the Combined Effluent Treatment Plant where it is treated and then discharged into the open Nalla which ultimately ends into sea. That since treated effluent is ultimately discharged into the main Nalla in which thousands of factories put their untreated waste water; therefore, the final waste water discharge at the sea is the combined effluent of all the industrial units in Korangi.

Mr. Asad Nisar, President of SITE Association of Industries has filed the statement stating therein that Industries have been wrongly portrayed as main pollutant and the impression has been given that if they install in-house treatment plants, all the problems would be solved. All the industrial areas have different kind of Industries and each unit produces different kind of effluent, therefore, the installation of pretreatment plant will not be the right answer to the problem of effluent management. The problem of effluent can be resolved only by installation of a Combined Effluent Treatment Plant. There are two different effluents, one affects human life, the other is discharged into sea, which does not affect the human life. 70% of Industries of Sindh are situated in Karachi on coastal areas which discharge their effluent into sea, therefore, they have already demanded separate SEQSs for Karachi. The Government Officials, particularly KW&SB, SITE Limited and SEPA are shifting their responsibility to them. Problem of scarcity of water, supply of unclean water and damaged sanitation is due to unplanned urbanization, mushroom growth of high-rise buildings and decade's old sanitation and water supply system in the City.

Mr. Asif Inam, Chairman, All Pakistan Textile Mills Association (APTMA) has filed the statement to the effect that there are 62 members in the Associations, 39 of which are spinning and weaving Mills. There end product is yarn and cloth and they require use of water only for monitoring the relative

humidity in the Mills, which is considered a dry process. After treatment the sludge is de-watered, bagged and stacked at their facility, while the waste water is being disposed of after treatment.

Mr. Sheikh Kaiser Waheed, Chairman, Pakistan Pharmaceutical Manufacturers Association (PPMA) has filed the statement stating that pharmaceutical units are maintaining environmental and quality control obligations. Manufacturing of products is largely a dry process industry, which involves limited use of water in the manufacturing line. This is a reason that Sindh Environmental Protection Agency (SEPA) has placed the industries in Category C i.e. an Industrial Unit in Category C shall submit environmental monitoring reports on biannual basis for priority parameters in respect of liquid effluent. In most of the manufacturing units, waste water treatment plants have been installed in compliance of Sindh Environmental Quality Standards (SEQS). (Annexures-AD, AD-1 to AD-4)

PART-II

Importance of water, sanitation and hygiene

Nobody can deny that water, sanitation and healthy environment are some of the most basic needs for human health and survival. Water is life and its uninterrupted supply to the people of this province is constitutional duty of Sindh Government. The people having no access to safe and clean drinking water tend to suffer in myriad ways. Water-borne diseases caused due to use of unclean water not only bring physical sufferings to the people but keep them under economic burden as a result of increased expenditure on the treatment.

Sanitation "Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Hazards could be physical, microbiological, biological or chemical agents of disease".

"Sanitation means having ways to safely deal with human waste (feces and urine). It also includes ways to maintain hygiene by disposing of garbage, treating wastewater and managing hazardous waste".

The above two definitions manifest very clearly the importance of sanitation in human life. Sanitation improves health, hygiene and helps prevent the spread of germs and diseases. It contributes to improvement in quality of life and sets the nation on the course of reducing poverty, hunger, and child deaths. Improper or lack of sanitation is a serious challenge to human survival and national development. Proceedings conducted in this inquiry have revealed that the people of Sindh are neither being supplied clean drinking water, nor there is a proper sanitation in place to save them from related ailments. The result is poverty, malnutrition, hepatitis, anemia and retarded growth among the children. With such moribund state of affairs, we stand no chance of getting healthy, successful, and economically empowered.

FINDINGS

There are two sources for supply of drinking water to the people of Sindh, surface water i.e. Indus River or its canals or tributaries, which is the main source; and ground water. The source of surface water includes:-

i) River Indus;
ii) Tributaries of Indus River;
iii) Dug wells;
iv) Collection of rain water in Dams and ponds.
v) Natural fresh lakes and Reservoirs.

Source of ground water includes subsoil water, hand pumps, tube wells and Reverse Osmosis (R.O. Plants).

In main cities and towns, the water is being supplied through pipes. However, in some places of rural areas, water is being provided through Reverse Osmosis / Ultra Filtration Plants; or the people get water through hand pumps.

The water in Indus River that normally shall be fit for drinking gets polluted at many places in downstream due to:

i) Untreated municipal wastes;
ii) Untreated industrial wastes;
iii) Return of water through agricultural wastes through drainage structures;
iv) Waste water from Thermal Power Plants which increases River temperature by 3 degrees reducing oxygen contents in the River.

All the above facts were enquired in to reach a conclusion. It was, however, noted that, to belittle gravity of the situation, the Sindh Government tried to show that owing to high flows in the River, natural dilution and oxidation take place which resultantly make water fit for human consumption. This deduction, however, when was checked, appeared to be based only on experience, and in this regard no test report of water and other material was available. None of the Secretaries concerned or relevant Heads of the departments, who were examined during the enquiry, could point out to any scientific study in this connection either. It was, however, revealed that NSUSC has been regularly testing water in the cities under its jurisdiction before its supply to determine its drinkability. But NSUSC does not claim so; it has produced few Photostat copies of water test reports of district Khairpur only and not of all the cities under its control, which are positive in some respect but do not cover all the water parameters. NSUSC could not establish during the proceedings that the result of these reports has ever been cross-checked by some reputable water laboratory or institution dealing with water issues. More, so NSUSC has admitted in reply to the questionnaire that "**water supplied other than River Indus or any Canal only in Khairpur is tested regularly**", which is sufficient to conclude that in the past no credible procedure for water testing of surface water to check its quality has ever been adopted either by Sindh Government or by any Agency concerned. The statement of the Chief Secretary, Sindh submitted in reply to the questionnaire that water from other sources like dug-wells, rain water, collection ponds etc. is neither tested nor treated is yet another indicator in this regard. No water testing of subsoil water being pumped by the people to determine its fitness for human consumption has ever been carried out either. The excuse given in this regard by government functionaries in the statements is that there is no mechanism to bind people to get pumped-water tested before its consumption. In fact during the enquiry, it was discovered that there is no credible mechanism of water testing established by Sindh Government, and therefore there was no authentic lab data to indicate kind/nature of water being consumed by us.

Karachi Water and Sewerage Board (KW&SB) in Karachi and Water and Sewerage Authority (WASA) in Hyderabad are responsible for providing filtered water to the people of their respective areas; and treat sewage before its disposal. Both work under the administrative control of Local Government Department. None among the government officials including the heads of these organizations could deny before the Commission that the performance of these civic agencies is not satisfactory. Both these organization have conspicuously failed to provide improved service to the citizen. Same is the

position with NSUSC that is tasked with same responsibility in the cluster of cities in north Sindh. The water being supplied for drinking is mostly unfiltered and un-chlorinated. The disposal of sewage /effluent in all the cities of Sindh, which is always untreated, is mostly in watery bodies like sea, river and canals, etc. The sewage situation in most of the cities of Sindh has become more or less abysmal. In some areas, limited quantity of sewage is being used for cultivation but largely sewage goes to watery bodies. The SCARP drains/Sim Nalas have been mostly encroached upon and disconnected from each other. Their maintenance and operation does not seem to be the priority of Sindh Government.

In the course of enquiry, the Secretary Irrigation, Mr. Ahmed Junaid Memon, was examined. He has also filed the statement, which is like a brief summary on the condition of water supply and sanitation in Sindh and a reflection on disintegrated approach among various government departments dealing with the subject issues, and which I would like to reproduce here for summarizing the issue. .

He has stated that there are three (03) Barrages in Sindh Province viz. Guddu, Sukkur and Kotri. Sukkur Barrage was constructed in 1932, with canal command area of 7.630 million acres. The Kotri Barrage was constructed in 1956 with canal command area of 3.006 million acres. The Guddu Barrage was constructed in 1962 with canal command area of 2.179 million acres, accumulated total command area being 13 million acres. The Irrigation Department is also custodian of drainage system spread over 5 million acres of land, the network being about 5000 miles. **Nine systems of Drainage network have direct disposal in sea, whereas system in upper Sindh i.e. Ghotki, Shikarpur, Larkana Districts have several small drainage schemes disposing of in Irrigation Channels.** The dilution Ratio of Panchu water drainage schemes having disposal in Irrigation Channel is maintained to keep quality of water with allowable admissible range for agriculture usage. **The Civic agencies mostly dispose of sewerage effluent in canals, without concurrence of Irrigation Department, which causes pollution in canal water.** The action is being tolerated as there is no alternate for disposal of sewerage generated by growing population of the cities. On hindrance in such disposal the district administration intervenes as the thickly populated areas are inundated, and **often sewers and water supply lines are integrated causing severe health problems**. **For domestic usage, the source of water supply to civic agencies is irrigation channels, but limited to provisions of Raw water**. The extracting agency is liable for treatment of this water to make it fit for drinking as per WHO standard.

The comprehensive statement of Chief Secretary, Sindh dated 03.02.2017 also reflects the same sorry state of affairs. Additionally, this statement has depicted another side of the story, that is, the schemes to deal with the above said problems are devised, approved, funds released, and then schemes are shown completed and handed over for execution to the departments other than the ones which built them, but after some time the said schemes are shown flawed, incomplete or not maintained, etc., hence again P.C.I is floated, the same scheme is revised, money spent but again no result! It is like a vicious circle going on and on benefiting only the Executing Departments/Officials at

the cost of people. For a reference, the following piece of writing taken from the statement of the Chief Secretary, Sindh would suffice.

"**Shikarpur City:** The quality of underground water is badly affected which is main source of drinking water for Shikarpur City. Shikarpur drainage Master Plan was prepared in 2004 and a PC-I amounting to Rs.356.00 million was approved in May 2005 to implement the Master Plan by Public Health Engineering Department (PHED), however, the scheme could not be completed although an amount of Rs.264.640 million was incurred up to June 2015 by PHED. The scheme was subsequently shifted to NSUSC for its execution and maintenance. NSUSC submitted fresh PC-I of the subject scheme with additional scope at a cost of Rs.256.640 million to complete the remaining works of the scheme.

After taking over the scheme from PHED, the NSUSC could not provide the drainage facility to Shikarpur city. The Honourable Chief Minister, Sindh took serious notice of the situation and ordered to transfer the scheme to PHED for its execution. Now the sponsors i.e. PHED had submitted the revised PC-I to cover the remaining and new works at a cost of Rs.505.730 million appearing at Sr. No. 1278 "Rehabilitation and Improvement of Sewerage / Drainage System of Shikarpur" in ADP 2016-17. The scheme would help in reducing the sub-soil water contamination and safe disposal of sewage after treatment through oxidation ponds."

While visiting district Jacobabad, the same position, which later on was confirmed by the Secretary Local Government Department in his statement on a scheme namely Extension/Improvement of Urban Drainage Scheme Jacobabad was witnessed. This scheme was approved at the cost of 637.65 million in the year 2008, the amount spent was 608 million but the scheme was not completed. Revised P.C.I costing Rs.1187.000 million approved. The scheme shown completed in the year 2015-16 and phased out from ADP 2015-16. However, the ground reality was revealed by the citizen of Jacobabad who informed the Commission during proceedings, which was physically witnessed during the visit, that the scheme was a total failure, the sewerage condition of the city was as abysmal as earlier.

Reverse Osmosis/Filtration Plants

In order to examine the issue of R.O. Plants installed for providing drinking water to the people in district Tharparkar and other cities alleged to be facing scarcity of water, Mr. Ajaz Ahmed Additional Secretary Special Initiative Department (SID) and Mr. Nafees Ahmed Sheikh P.D. DWH SID; Mr. Agha Wasif, Secretary Energy Department, and Mr. Danish Saeed, Director General, Sindh Coal Authority were examined on 13.02.2017 and 14.02.2017 respectively. They have furnished details of R.O. Plants, cost on their installation and the amount being spent on operation and maintenance of each R.O. Plant. They were confronted with the facts noted by the Commission during visit of R.O Plants in district Tharparkar, Thatta, UmerKot and other places. They could not establish the quality of water being produced from the R.O Plants and were unable to deny that there was no laboratory available in UmerKot, Thatta, Tharparkar etc. where water tests on all the parameters

which include physical/aesthetic, chemical and microbiological to determine quality of water were being conducted.

However, there is a laboratory in R.O. Plant Mithi which was referred to by them and which, during its visit, was shown to the Commission conducting water tests. But the testing process there was found highly flawed, and concerned only with chemical standards of water. It was noted that merely as a formality the activity of testing was shown to be going on, which belief was further fortified from examination of a lab report dated 05.11.2016 (**Annexure AE**) showing volume of Total Dissolved Solids (TDS) as 392, against 297 volume of chloride, 193 of sodium and 8 of sulfate, which collectively is (498) more than total volume of 397 shown in said report. The staff available in the lab could not explain such glaring anomaly in the report. The test to determine quality of water at R.O. Plants requires utmost attention and scientific skill because from these R.O. Plants water for drinking is being provided, but the result of above lab report has clearly indicated an indifferent approach on this sensitive issue by the lab staff in Mithi R.O. Plant. At the same Plant it was also noted that although Pak Oasis (the company which is operating and maintaining the RO Plant having capacity of 2MGD) claims to produce and supply up-to 10 lac gallons of water per day for Rs.160/- per 1000 gallons water, but there was no measuring system to gauge such quantity of water to justify the claim and the payments it receives in this regard from the Sindh government (Sindh Coal Authority). This question was particularly asked from Mr. Agha Wasif and Mr. Danish Saeed (as this RO. Plant has been installed by Energy Department and it is paying for its O&M.) and they were shown the aforesaid lab report, but they could not reply satisfactorily and instead filed an evasive report on 15.02.2017, which too does not provide any satisfactory answers to above questions. It is also relevant to mention here that a visit of Narejo Village R.O. Plant at Thatta led to discovery of 1364 TDS volume (1000mg/L) in water being supplied to the people for drinking (**Annexure -AF**); and it was informed that this was the first time the water quality of that R.O. Plant was ever tested. These facts show clearly that payments in the name of O&M of the R.O. Plants (production and supply of water) are being made by these two departments without actually checking either the quality or quantity of the water. A perusal of the statements and details furnished by Special Initiative Department and Sindh Coal Authority have revealed that there is no proper structure or skilled manpower with these two departments to keep watch on the quality and quantity of the water being produced by the R.O. plants. Therefore, there appears no justification to continue with these R.O. Plants and spend millions and millions of rupees blindly on their so-called O&M, when we neither know the quality of the water being supplied from these Plants nor the quantity against which we are making payments. The details furnished during enquiry by Special Initiative Department reveal following facts.

A scheme was devised to install two thousand (2000) R.O Plants in three phases. The phase-I started in the year 2012 and completed in 2015. In first phase 500 R.O Plants of different types (UF/Nano/RO Technology) depending on quality of raw water at each location have been installed by M/s. Pak Oasis Industries (Pvt) Ltd., Suite No.5, 1st Floor Nadir House, I.I Chundrigar Road Karachi.

i. Nano Filtration Plant withTDS 3500 ppm = 200
ii. R.O Plants with TDS 15000 ppm = 200
iii Ultra Filtration Plant TSS = 100

The cost of installation of said Plants is Rs.3016.701,928 million (Rupees Three Thousand, Sixteen Hundred Million, Seven Lac, One Thousand Nine Hundred and Twenty Eight.). And they have been installed in different cities of Sindh viz. Karachi, Hyderabad, Tando Mohammad Khan, Matiari, Dadu, Badin, Thatta, Mirpurkhas, Umerkot, Sanghar, Tando Allahyar, Sukkur, Ghotki, Khairpur, Naushero Feroze, Shaheed Benazirabad, Larkana, Qambar, Jacobabad, Kashmore and Shikarpur under incumbency of different Project Directors of Project Management Unit Drinking Water Hub (DWH), Special Initiative Department, Government of Sindh. However, subsequently the cost of installation was revised and increased to Rs.3860,052,908/-. Out of 500 R.O Plants, only 393 are shown operational, the rest for one reason or the other are not working yet.
The annual operation and maintenance cost at each RO Plant being paid by Special Initiative Department to the contractor Pak Oasis is as under:-

PLANT	NUMBER	O&M COST PER PLANT PER MONTH	O & M COST PER MONTH.	O&M COST PER YEAR	O & M COST FOR 3 YEARS
R.O Plants with TDS 15000 ppm	200	Rs.14,500/-	Rs.29,00,000/-	Rs.3,48,00,000/-	Rs:10,44,00,000/-
Nano Filtration Plant with TDS 3500 ppm	200	Rs.10,000/-	Rs.2,000,000/-	Rs.24,000,000/-	Rs.72,000,000/-
Ultra Filtration Plant TSS	100	Rs.7,945/-	Rs.794,500/-	Rs.9,534,000/-	Rs.28,602,000/-

Going by above calculation, it is clear that Pak Oasis is receiving Rs.56,94,500/- per month and Rs.6,83,34,000/- per year and Rs.20,50,02,000/ for every three years in the name of operation and maintenance of R.O Plants installed in phase-I.

The Phase-II also started in the year 2012 and is due to be completed in 2017. In this phase 750 R.O Plants of different types depending on quality of raw water at each location are to be installed by Pak Oasis, the same company.

i. Nano Filtration Plant withTDS 3500 ppm = 150
ii. R.O Plants from TDS 3500 to 15000 ppm = 260
iii R.O Plants from TDS 15000 to 30,000 ppm = 010

iii Ultra Filtration Plant TSS = 330

The total cost of these Plants is Rs:4,000/- million (Rupees Four Thousand Million.) and have to be installed in different cities of Sindh. Out of 750 R.O Plants, 531 RO Plants have been completely installed but only 379 are operational, and work on remaining plants is said to be going on. The annual operation and maintenance cost at each RO Plant is as under:-

PLANT	NUMBER	O&M COST PER PLANT PER MONTH	O & M COST PER MONTH	O&M COST PER YEAR	O & M COST FOR 3 YEARS
R.O Plants with TDS 15000 ppm	260	Rs.30,000/-	Rs.78,00,000/-	Rs.9,36,00,000/-	Rs.28,08,00,000/-
Nano Filtration Plant withTDS 3500 ppm	150	Rs.20,000/-	Rs.30,00,000/-	Rs.36,000,000/-	Rs.10,80,00,000/-
Ultra Filtration Plant TSS	330	Rs.12,000/-	Rs.39,60,000/-	Rs.4,75,20,000/-	Rs.14,25,60,000/-
R.O Plants with TDS 30000 ppm	10	Rs.40,000/-	Rs.4,00,000/-	Rs.48,00,000/-	Rs.1,44,00,000/-

Going by the above calculation, it is obvious that Pak Oasis is charging Rs.1,51,60,000/- per month, Rs.18,19,20,000/- per year and Rs.54,57,60,000/ for every three years in the name of operation and maintenance of R.O Plants installed in phase-II.

The Phase-III also started in the year 2014 and is due to be completed during 2017. In this Phase 750 Containerized Solar R.O Plants having capacity of 2000 liters per hour with tendency to remove feed water TDS up to 10000 ppm at different villages of Tharparkar at the cost of Rs.5254.00 million are to be installed by the same company Pak Oasis. Out of 750 R.O Plants 527 R.O Plants have been installed but only 500 of them are operational, the remaining are yet to be installed.

The annual operation and maintenance cost on each RO Plant being paid to Pak Oasis is as under:-

Plant	Number	O &M cost per plant per month	O & M cost per month	O & M cost per year	O & M cost For 3 years
Containerized Solar R.O Plants with TDS 10000 ppm	750	Rs.20,000/-	Rs.1,50,00,000/-	Rs.18,00,00,000	R.54,00,00,000

Pak Oasis is receiving Rs.1,50,00,000/- per month and Rs.18,00,00,000/- per year and Rs.54,00,00,000/ for every three years in the name of operation and maintenance of R.O Plants installed phase-III.

Sindh Coal Authority has installed 118 R.O. Plants in district Tharparkar, Umerkot, Badin and Thatta. Mr. Danish Saeed D.G. Sindh Coal Authority has filed an evasive statement in respect of procedure of checking quality and quantity of water being produced and supplied from R.O. Plants, which he was asked during enquiry. When he was examined on 14.02.2017, he disclosed that they are two big R.O. Plants one at Mithi and the other at Islamkot with the capacity of 2MGD and 1.5MGD respectively, the rest are small R.O. Plants. On big R.O. Plants, Rs.160/- per 1000 gallons of water and on small R.O. Plants 0.14 per gallon water are being paid by Sindh Coal Authority in terms of agreement. And when he was asked, how the quantity of water being produced and supplied from R.O. Plants was being analyzed for the sake of payments, he could not reply satisfactorily, and conceded that there was no measuring system to gauge exact volume of production and supply of water in R.O. Plants, however he had sought time to file report in this regard. The statement filed by him on 15.02.2017 has been perused and examined in such context and found lacking in respect of above details, which is indicative of the fact that Sindh Coal Authority has no justification to show for the payments so far made by it to Pak Oasis.

Apart from abovementioned Plants, 19 R.O. Plants in Karachi have been installed through Karachi Water and Sewerage Board by Pak Oasis, 06 in Layari at the cost of Rs.2360.169 million and 13 in Kiamari Town at the cost of Rs.3407.515 million (Total Cost Rs:5767.684 million). The installation of R.O. Plants started in the year 2011 and completed in 2013. Out of 19 RO Plants, two are non-functional. On their operation and maintenance, Local Department Government of Sindh through KW&SB has been paying following cost to Pak Oasis.

O & M COST ON 19 RO. PLANTS	YEAR OF O & M	**AMOUNT** RELEASED	AMOUNT PAID
	2013-2014	Rs.62,68,50,000/-	Rs.62,68,50,000/-
	2014-2015	Rs.86,81,00,000/-	Rs.85,80,00,000/-
	2015-2016	Rs.86,81,00,000/-	Rs.82,72,65,691/-
TOTAL AMOUNT		Rs.2,36,30,50,000/-	Rs.2,30,75,24,685/-

The water quality on these RO Plants is also not being checked to ensure drinkability of water as per WHO standards.

It must be mentioned here (which I have come to understand in this enquiry) that the official version of the R.O. Plant being functional means its mechanical process i.e. rotation of pumping motors for extracting water from underground, is running. It does not mean, and it has not been established either by the departments concerned that functionality of R.O. Plants means and would imply quality of water to be potable as well, for throughout the enquiry except the mechanical process of the R.O. Plants, nothing else as a proof of their running was emphasized or shown. And it goes without saying

that mere running of mechanical process to extract water would not mean that that potable water is being provided to the people. There are no credible laboratory test reports of water of these RO Plants to disprove this conclusion.

A reading of papers has further revealed that contract of all the R.O. Plants has been awarded to Pak Oasis without completing due formalities. The report of Director General Audit Sindh **(Annexure K-1)** submitted during the inquiry has pointed out to this fact, besides revealing many discrepancies in the tendering process causing huge loss to the Government in the whole scheme of R.O. Plants. The question whether or not while awarding contract to the company the Sindh Public Procurement Rules were followed need to be examined and investigated.

The Sindh Environmental Protection Agency (SEPA)

Sindh Environmental Protection Act, 2014 (2014 Act), has been enacted by Government of Sindh to protect, conserve, rehabilitate, and improve the environment and to prevent and control pollution. And SEPA has been created under Section 5 of 2014 Act to regulate and monitor enforcement of the provisions of the Act. In the given capacity SEPA has to address environmental issues and perform its assigned duties, which, inter alia, include, to administer and implement the provisions of 2014 Act and the relevant rules and regulations; to prepare environmental policies; prepare and publish an annual Sindh Environment Report on the state of the environment in the province; to ensure enforcement of Sindh Environmental Quality Standards; to establish different standards for different areas for discharge of emission from different sources; to establish systems and procedures for surveys, surveillance, monitoring, measurement, examination, investigation, research, inspection and audit to prevent and control pollution, and to estimate the costs of cleaning up pollution and rehabilitating the environment in various sectors; to take measures to promote research and the development of science and technology which may contribute to the prevention of pollution; to identify the needs for and initiate legislation in various sectors of the environment; to render advice and assistance in environmental matters including such information and data available with it as may be required for carrying out the purposes of 2014 Act; to assist Government Agencies, local councils, local authorities and other persons to implement schemes for the proper disposal of wastes so as to ensure compliance with the Sindh Environmental Quality Standards; to provide information and guidance to the public on environmental matters; to recommend environmental courses, topics, literature and books for incorporation in the curricula and syllabi of educational institutions; to promote public education and awareness of environmental issues through mass media and other means including seminars and workshops; to establish and maintain mechanisms, including its own website, to disseminate information regarding policies, plans and decisions relating to the environment; to undertake inquiries or investigation into environmental issues; establish and maintain laboratories to conduct research in various aspects of the environment etc.

During the enquiry, M.D.SEPA and other official were called and were asked about their performance in the light of duties and functions assigned to them under the law. They filed a number of statements and documents. Their stance mainly has been that SEPA is suffering from lack of financial resources, lack of manpower, lack of structural organization, and absence of due authority to enforce completely 2014 Act; SEPA needs to be expanded at district level; fully staffed; fully resourced with provision of Research and Development Budget; needs police assistance for enforcement of Environmental Laws; better and strong prosecution cell; and rapid response from Local Government organizations, like KW&SB, WASA.

The SEPA at present is working with 36 Technical Officers from BPS 17 to 20 and 28 Environmental Inspectors. The budgetary allocation of whole setup of SEPA for 2016-17 is Rs.168 million, out of this, Rs.142 million are for employees-related expenditure and remaining amount is allocated for operational expenditure. Additionally SEPA has been allocated during current financial year an amount of Rs.150 million for execution of five annual development schemes addressing to conservation of natural resources

After examining SEPA officials and perusing the statements submitted by them, it is not hard to conclude that SEPA's initiative is mainly confined to the office files, writing letters and issuing notices. SEPA was prompted into action only after the Commission started examining its role in view of its duties and functions stipulated in 2014 Act. SEPA was reminded that majority of the Industrial Units have not installed wastewater treatment plant in compliance of 2014 Act, but it has not acted beyond issuing some notices and in some cases referring the matter to the Tribunal constituted under 2014 Act. SEPA's claim that due to its efforts 75 industrial units in Karachi division and 34 in rest of the divisions of Sindh have installed wastewater treatment plants inside the premises could not be established authentically. When on 01-02.2017, Mr. Waqar Hussain director SEPA was asked, he could not reply satisfactorily how the performance of these treatment plants was being observed. He conceded that SEPA officials do not check and test randomly effluent of the Units where treatment plans have allegedly been installed, and if ever any inspection of the Unit is carried out, its information in advance is conveyed to the Unit almost a weak prior to the date. He disclosed that the test reports of effluent were being submitted by these industries on monthly basis, but admitted that entire process of taking samples and getting them tested from the laboratory is done by the Factory itself. He could not show or establish that the cross-checking by a third party of the results of the reports submitted by factories in this connection have ever been done. Obviously, therefore, the veracity of these reports is but doubtful. There is no credible record of any visits paid by SEPA officials to the factories to monitor and check compliance of environmental provisions and monitor alleged treatment of the effluent. It must be mentioned that that the notice of enquiry to the Associations of Industries was also issued to know their response on the matter, in reply of which they have filed the statements, but none of them could show successfully that the factories are running a pretreatment plant inside the premises.

SEPA does not employ any scientific methodology to monitor ecological degradation caused by direct inflow of untreated effluent in sea. No exact data of all the industries functioning in Sindh is available with SEPA. The number of factories generating toxic effluent or not is also not known to SEPA. During the enquiry, SEPA officials informed that they had divided industries into (3) three different categories viz. category-A that produces highly toxic effluent, category-B produces less toxic effluent and category-C comprises mainly dry Units, but they could not produce any record indicating the exact number of Units falling in either of the category. Only after the Commission asked about such data, the SEPA started collecting it, and then during proceedings produced some incomplete and unauthenticated figures in this connection. The factories are directly discharging untreated effluent in watery bodies, but SEPA did not appear to be duly concerned about it, and it did not seem to have an idea as to how and to what extent the untreated effluent is destroying the flora, fauna and biodiversity of coastal waters. During the physical visit of SEPA's office by the undersigned on 12.01.2017, it was observed, which was not denied by the official present there, that in Chemical Lab, Analytical Lab and Microbiological Lab no work had been done for the last many years. The expensive laboratory equipment available in those labs seemed untouched and unused. The state-of-the-art Air Monitoring System to evaluate air pollution was installed on the roof of SEPA's office, but it appeared to have never been put in use. Besides, a modern ambulance was seen rusting in the premises. In reply to a query, the officials replied that an entire scheme was needed to put all these appliances in use.

During the enquiry, SEPA officials maintained that because of their actions, many changes have occurred, like installation of waste water Treatment Plants in factories, legal action against factories which do not install pre-treatment plants, stoppage of burning of old batteries at Hyderabad and Karachi, prevention of dumping and burning of solid waste in Karachi, management of hospital waste, monitoring of cement industries in Sindh, stone crushing units, prohibition on non-degradable plastic products, compliance of environmental law in Sugar Mills in Sindh, etc. But neither the effect of above actions could be witnessed by the Commission during the visits, nor SEPA could produce any authentic record showing tangible results so far achieved in any of the above fields. The factories are still discharging waste water without treatment, hospital waste is in disarray and is mostly being burnt inside hospital premises, and Sugar Mills do not seem to be bothered about complying with environmental laws and are discharging waste without treatment in watery bodies. The coast is constantly experiencing degradation due to constant inflow of untreated effluent and spillover of oil from ships, yet SEPA is making claims of performance.

It is obvious that SEPA, at least in the present situation and in the present set-up, is not able to deliver and perform, in spite of having ample powers under 2014 Act, which include entering into lease, purchase, sale, convey any assets and property; fixing and realizing fees rates charges; entering into contracts for proper management of its business; appointing advisors, experts and consultants for efficient performance of its functions; summoning and enforcing attendance of any person; inspecting under the search warrant any place where SEPA has information that an offence under 2014 Act has been committed or is likely to be committed; taking samples of any material,

substances etc. being discharged or emitted in air, water and on land; arranging for the testing of such samples; confiscating any article used in the commission of offence; etc.

North Sindh Urban Services Corporation Limited (NSUSC)

The NSUSC has been established under the Companies Ordinance 1984 for improving municipal infrastructure of the secondary cities located in northern Sindh which include Sukkur, New Sukkur, Rohri, Khairpur, Larkana and Shikarpur, Jacobabad & Ghotki. The NSUSC is outcome of Sindh Cities Investment Improvement Program (SCIIP), whereby under Multi-tranche Financing Facility (MFF), Asian Development Bank (ADB) was to provide $300 million over a period of 10 years till 2018 to finance the Government of Sindh's $400 million program to improve water supply, wastewater management, and solid waste management services in a cluster of secondary towns. This program (SCIIP) supports (i) establishment of local government-owned, professionally managed utility companies; (ii) priority investment in water supply, wastewater, and solid waste management infrastructure; and (iii) urban sector reforms and capacity development, including an Urban Policy and Strategic Planning Directorate at provincial level and for overall program implementation.

The concept of the program to establish local government-owned and professionally managed utility companies for improvement of above services for the cities may be good enough and meant to avoid corruption, failure, inaction and lethargy of relevant government departments in providing the said services. But in the way of executing this program, the whole idea seems to have been lost. No improvement in quality of water, and in the state of sanitation in the cities under NSUSC control was witnessed by the undersigned during the visit. The unfiltered water without even chlorination is being provided to the people for drinking in Sukkar and Jacobabad and other cites under NSUSC control. The sewerage without any treatment is being conveniently discharged in River Indus or its tributaries. During the enquiry, the stance of NSUSC officials mainly was that the relevant projects were underway and would be completed by June 2018 (the year when the contract with ADB would expire), and thereafter improved services for potable water and sanitation would be provided to the people. NSUSC officials in the statements have given reference to ongoing schemes/projects, however, in justification of the amount already spent, they have not been able to show any tangible result so far achieved in respect of supply of quality water and sanitation. It has been noted by the Commission that in Tranche-I and Tranche-II of the loaning facility, millions of dollars have been handed over to NSUSC but it has failed to extend any actual benefit to the common man. That has even been admitted by NSUSC in the words that "due to variety of reasons, any project under Tranche-II could not start until June-2015". And in NSUSC's view "The projects under Tranche-II are expected to be completed by June 2018". In Tranche-I millions of dollars are shown to have been spent on the purchase of Solid Waste Management Equipment, installation of generators at pumping and disposal stations and on providing drinking water to district Khairpur, the quality of which NSUSC could not establish, but on the contrary the report of PCRWR (reproduced in this document hereinafter)

has shown the clear picture of water quality being provided there. And in respect of solid waste or the sanitation condition of the cities nothing substantial for improving quality of service in these areas was witnessed. Most of the heavy vehicles/loaders for lifting solid waste and other equipment available at NSUSC office Larkana were found out of order. The solid waste was littered on the streets; hospital waste was being burnt inside hospital or thrown in open. No municipal service was visible. The streets in Shikarpur were also full of puddles and pungent and drainage water. Solid waste in heaps was available in front of the houses and shops. There is in fact nothing, NSUSC can boast of in terms of either quality of water or better sanitation in Sukkur, New Sukkur, Rohri, Khairpur, Shikarpur, and Larkana and justify spending huge amounts of money. Regarding water quality in Khairpur, which is the only silver lining as per claim of NSUSC, the report of PCRWR is self-explanatory, and further it may be mentioned that quality of water being provided there has never been cross-checked to determine its physical, chemical and microbiological parameters, nor has NSUSC been able to produce any water test report of any independent and reputable lab covering all the above parameters. The photo state copies of test reports of water of Khairpur submitted by NSUSC are of no use and help to it.

Following is the detail of expenditure on capital and operational charges submitted by NSUSC.

SUMMARY OF OPERATING EXPENSES AND CAPITAL EXPENSES FROM INCEPTION TILL DATE (REGION WISE)

FISCAL YEAR	HEAD OFFICE	SUKKUR	ROHRI	SHIKARPUR	LARKANA	KHAIRPUR	JACOBABAD	YEAR-WISE OPERATING EXPENSE
2009-10	16,530,922	-	-	-	-	1,068,689	-	17,599,611
2010-11	68,791,486	37,686,698	20,764,427	17,581,822	16,313,234	24,339,426	-	185,477,093
2011-12	64,062,959	118,162,768	44,595,155	29,740,588	29,354,625	39,078,939	-	324,995,033
2012-13	82,092,838	137,417,506	75,297,500	30,744,857	51,446,019	52,385,380	-	429,384,101
2013-14	93,362,102	185,284,464	56,171,195	41,832,736	69,127,316	52,321,132	-	498,098,945
2014-15	123,149,953	175,628,467	50,439,797	42,889,296	79,394,719	67,654,925	-	539,157,157
2015-16	107,968,810	404,641,067	83,502,355	83,151,917	148,353,651	142,166,912	19,997,974	989,782,685
Sub-Total	555,959,070	1,058,820,969	330,770,429	245,941,216	393,989,564	379,015,403	19,997,974	2,984,494,625

Capital Expenditure from 2010 to date	HEAD OFFICE	SUKKUR	ROHRI	SHIKARPUR	LARKANA	KHAIRPUR	JACOBABAD	TRANCHE-WISE CAPITAL EXPENSE
Tranche-1	92,934,035.85	1,056,608,174.77	137,746,689.32	168,881,598.33	458,800,877.99	1,118,924,410.37		3,033,895,786.63
Tranche-2		344,954,000.00	119,070,000.00	119,070,000.00	119,080,000.00	119,100,000.00		821,274,000.00
Sub-Total	92,934,035.85	1,401,562,174.77	256,816,689.32	287,951,598.33	577,880,877.99	1,238,024,410.37	-	3,855,169,786.63

GRAND TOTAL	648,893,105	2,460,383,143.99	587,587,118	533,892,815	971,870,442	1,617,039,813	19,997,974	6,839,664,411.45

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KARACHI

Karachi is not only the largest but most populous city of Pakistan, besides being capital of Sindh. The city is ranked as country's premier industrial and financial center. Situated on the Arabian Sea, Karachi serves as a transport

hub, and is home to Pakistan's two largest seaports, as well as the busiest airport in Pakistan. Its population is estimated to be around 23 million. The water requirement of Karachi has reached around 1100MGD, but currently the water being supplied to Karachi is not more than 650MGD. There is a huge gap between demand and supply.

The water for Karachi is transmitted first to Keenjhar Lake from Indus River through K.B Feeder and from Keenjhar Lake to Dhabeji Pumping Station and Gharo Pumping Station. A total of 582 MGD Water from Keenjhar Lake is being channeled for consumption of Karachi. 30 MGD is going to Gharo Pumping Station, 25 MGD to Pakistan Steel Mills, 07 to Port Qasim and 520 MGD to Dhabeji Pumping Station. From Dhabeji Pump House the water is being brought to a high point namely “Fore-Bay” situated 4 ½ K.Ms away at the height of 212 feet from sea level. Three conduits (viz. Pipri, K-II and K-III) originate from this point, which take water to Karachi City. Through these conduits 140 MGD water is being brought at Pipri Pump House and Filter Plant, 140 MGD at COD Filter Plant/Pump House, 100 MGD each at North East Karachi Filter Plant and University Reservoir, 20 MGD at North East Karachi Filter Plant (old) and 20 at interconnection dumlottee for supplying to various parts of the city. From Hub Dam 100 MGD water is being channeled through Hub canal to Manghopir Filter Plant and supplied, but the availability of water in Hub Dam is entirely dependent upon runoff water, which could reduce to zero in draught conditions.

Quality of water in Keenjhar Lake, which is the main source of water for Karachi, has deteriorated due to constant discharge of industrial untreated effluent in K.B Feeder by the industries located in SITE Kotri. And additionally from the recharge dam constructed about eight (08) years ago by Irrigation Department intercepting Loyachh/Kaloo river (the original dumping site of effluent) at about 3 kilometers from SITE Nooriabad where effluent of factories in Nooriabad is now being accumulated and discharged in the Keenjahar Lack during rain when dam overflows.

To treat effluent of SITE kotri, a **Combined Effluent Treatment Plant** (CETP) was installed in the year 2010 with the cost of 721.41 million born by Sindh Government, but it is not functional and is still in possession of the contractor. On 20.01.2017, the undersigned paid a visit to this facility. The staff available there claimed that CETP was fully functional and not a drop of water was being let in K.B. Feeder without treatment. Dr. Ahsan Siddique, the water technologist who was with me and who had taken samples of effluent from-there for testing, disputed said statement. He asserted that industrial effluent with high volume of COD and BOD was being discharged in K.B. Feeder. His assertion has been proved by the test results of effluent-samples taken from the outfall of CETP waste water in K.B. Feeder (**Annexure-AG**). At CETP no laboratory was available to monitor wastewater pollution, and no past record of any activity relating to treatment of effluent was produced either. Even it was not informed that when the chemical in Chemical Tanks meant for treating effluent was changed last. The oxidation ponds and clarifier did not appear functioning. The villagers of nearby area who had gathered there disclosed that CETP mostly remained closed except when any visit was paid by any government official. The person who was in-charge there said that

he was contractor and had not yet handed possession of the facility to SITE Limited Kotri for want of some financial liability still outstanding against it, but claimed that he was running the CETP. However, he could not explain how and why he was bearing its operational and capital charges. About this Treatment Plant, the chief secretary, Sindh in his statement dated 03.02.2017 has informed that "The CETP scheme was envisaged to provide treatment facility for the waste water treatment from different industrial units to prevent contamination of natural water resources. The scheme would treat 2.5 MGD of effluent and for safe disposal the combined effluent will provide physical, chemical biological treatment of waste discharge besides sludge dewatering and chlorination of waste effluent". It is further informed that "SITE Ltd. would take over the plant from the Contractor immediately and complete the remaining work on priority. For completion of the scheme in all respects a sum of Rs.35.00 million would be provided by the Government of Sindh. The Industries Department in collaboration with Kotri Industrial Estate would devise a mechanism for operation and maintenance of the CETP on sustainable basis".

From the above statement and the report of Dr. Ahsan, it is obvious that CETP Kotri is not yet functional and until it is reclaimed and rehabilitated, the wastewater of SITE Kotri would continue to pollute K.B. Feeder whose water is ultimately provided to the people of Karachi for drinking.

In the statements submitted by M.D KW&SB and other officials, they have claimed that 450MGD out of 650MGD water being supplied is duly filtered and chlorinated and there is only shortfall of 200 MGD in filtration capacity and that too is for want of new Filter Plants for which they have no resources. However, at the same time they conceded that due to system insufficiency, required level of chlorination is difficult to maintain, and further because of intermittent water supply on account of huge gap between demand and supply, the water gets contaminated as the pipes remain empty due to which negative pressure is created. But they maintained, that this issue can be completely addressed if the system is operated 24/7 supply basis. The undersigned, however, decided to visit the said filter plants to verify veracity of the statement of KW&SB's officials regarding filtration, chlorination and providing potable water from the filer plants to the people of Karachi.

Filtration Plants

On 10.01.2017, Dhabeji Water Pumping Station and the Pipri Pump House cum Filter Plant were inspected, and on 11.01.2017 COD Filter Plant, NEK Filter Plants and Manghopir Filter Plant and Pumping Station were visited. It may be mentioned that water filtration means a process of removing undesirable chemicals, biological contaminants, suspended solids and gases to make it drinkable, and it involves a complete procedure whereby the water is filtered, chlorinated and tested through lab before supply for drinking.

These are 07 Filter Plants in Karachi, out of which 06, KW&SB claimed, are functional. The undersigned during the inspection of these facilities, however, did not find any evidence supporting such claim. There was no trace of 24 hours chlorination with residual doze to kill bacteria. Neither the filtration

beds were working properly, nor the Clarifiers were operational. At the time of visit some arrangements were made to show chlorination of water was going on but it was obvious that the whole preparation was contrived only for the occasion. The chlorination tanks seemed rusty and appeared to be in disuse for a long time. No record of purchasing chlorination was produced by KW&SB officials at any of the Filter Plants, nor was any confirmed figure of quantity of chlorination being mixed through chlorinators presented. At NEK Filter Plant, the chlorination tank was found leaking to such a degree that no one could stand there for a minute. None of the officials of KW&SB including DMD could explain how with such leaked tanks the procedure of chlorinating water was being accomplished. The chlorinators although were shown to be functioning at COD Filter Plant, but no record of monitoring due dose of chlorination of water or any such statistics was produced nor was it informed if there was any such mechanism in place. At Manghopir Filter Plant one out of two chlorinators was found non-functional. The official in-charge there admitted that it was in disuse for a long time and in the facility attention mainly on the quantity of water and not the quality was being paid. He admitted that chlorination was not the priority of KW&SB. The water-testing laboratory, required to regularly monitor water quality, on each filter plant was though available but was found lying dysfunctional. No record of testing turbidly, pH, TDS, Coliform, Chlorides, color, taste and E-Coli etc., the parameters for determining drinkability of water, was available. At Pipri Filter Plant, the chlorination system of reservoir, from where water is finally supplied to the people after filtration, was found in disuse and it was also admitted by the officials of KW&SB that the reservoir had never been cleaned. In central laboratory at COD Filter Plant although some activity relating to testing was witnessed but that was mainly due to said visit coming next-day of Pipri Filter Plant's visit, where the laboratory was found non-functional totally. There, a person without requisite experience was working as chief chemist on OPS basis. He tried to persuade that requisite tests were being conducted there, but could not reply the queries satisfactorily. It was noted that the staff was ignorant of importance of E-Coli test, the only criteria to determine existence of bacteria in the water. The undersigned did not find any account/bills paid against expenses of laboratory to confirm ongoing process of tests on water-samples. There was no proper mechanism to check or mark the presence of the staff posted at each laboratory. Nothing was available to indicate that the laboratories had any facility to determine presence of heavy metals. No record was presented either to show that the reports of any so-called tests were ever submitted to the high-ups for cross-check, and/or if ever any wrong in the water was detected and removed. The Clarifiers at all the Filter Plants, which are acting as circular sedimentation tanks, were found entirely non-functional with bushes sprouting disorderly in and around them and around Influent Wells, Effluent Weir Plates and Sludge Withdrawal Pipes. It was admitted by KW&SB officials that for the last many years, the Clarifiers were lying dysfunctional. The Flash Mix Tanks and Flocculation Tanks till their entire depth seemed filled with silt and the Scrapers were fully choked. The influent raw water was being by-passed from Clarifiers and sent to Filter Beds directly which were not working up-to their designed capacity, resultantly the raw water was being slipped into Clear Water Tanks and mixed with other unfiltered water. This condition, as opined

by Mr. Sulleman Chandio, the amicus curia, was very terrible because in such a way 70% of silt cannot be removed. The inspection of these Filter Plants demonstrated clearly that the water was merely being routed through them with no chlorination and inadequate filtration. As no creditable evidence of complete doze of chlorination of water was traced in any of the Filter Plants, nor were such statistics produced, it is safe to say that water full of all contamination that includes turbidity, color, odor & taste, TDS, Hardness, Calcium, Sodium, Potassium, Chloride, Sulfate, Fluoride, Nitrate and Iron etc. in high volume is being supplied to the people of Karachi. This conclusion has been further confirmed by the result of test report of water-samples submitted by PCRWR.

Total Expenditure on the Filter Plants

The 07 Filter Plants in Karachi are Hub Water Filer Plant, Manghopir; North East Karachi K-II Filter Plant; North East Karachi Filter Plant (Old); Pipri Water Filer Plant (Old); Pipri Water Filter Plant (JBIC); Gharo Water Filter Plant; and COD Bills Water Filter Plant.

Hub Water Filter Plant, Manghopir was started in 2003 having treatment capacity of 80 MGD with designed life of 14 years, and its annual maintenance budget is Rs.1,40,000,000/-. Existing strength of staff is 118, working strength is 80. 37 employees are working on deputation. The amount incurred on their salaries per month is Rs.31,11,675/-.

North East Karachi K-II Filter Plant was started in 1998 having treatment capacity of 100 MGD with designed life of 19 years. The budget allocated for its annual maintenance is Rs.90,00,000/-. Existing strength of staff is 204, working strength is 129. 33 employees are working on deputation. The amount spent on their salaries per month is Rs.34,77,686/-.

North East Karachi Filter Plant (Old) was started in 1978 having treatment capacity of 25 MGD with designed life of 39 years. The annual budget for its maintenance is Rs.40,00,000/-. Existing strength of the staff is 143, working strength is 79. 13 employees are working on deputation. The amount spent on their salaries per month is Rs.24,72,573/-.

Pipri Water Filter Plant (Old) was started in 1971 having treatment capacity of 50 MGD with designed life of 46 years. Presently neither budget is allocated for its maintenance nor is any staff working there, for this Plant is said to have completed its life and needs rehabilitation.

Pipri Water Filter Plant (JBIC) was started in 2006 having treatment capacity of 50 MGD with designed life of 11 years. Its annual maintenance budget is Rs.1,25,00,000/-. Existing strength of the staff is 345, working strength is 205. 57 employees are working on deputation and amount being spent on their salaries per month is Rs.70,52,529/-.

Gharo Water Filter Plant has two filter plants; one was started in 1943 having capacity of 10 MGD with the designed life of 74 years, and the other was started in 1952 having capacity of 20MGD with designed life of 65 years.

The annual budget allocated for their maintenance is Rs.70,00,000/-. Existing strength of the staff is 117, working strength is 102. 05 employees are working on deputation. The amount incurred on their salaries per month is Rs.28,61,932/-.

COD Hills Water Filter Plant has two filter plants, one was started in 1962 with capacity of 70 MGD with designed life of 55 years, and the other was started in 1971 having capacity of 45 MGD with designed life of 46 years. The annual budget allocated for its maintenance is Rs.2,00,00,000/-. Existing strength of the staff is 281; working strength is 212. 69 employees are working on deputation. The amount spent on the salaries of the employees per month is Rs.78,73,035/-.

Shortage of water

The total water demand of Karachi as stated above is about 1100MGD against which only 650MGD is being supplied. There is a shortage of about 450MGD. Even the supply of 650 MGD is not accurately estimated, as KW&SB officials disclosed that during supply, operational losses do occur due to poor network of water supply lines, unchecked pilferage and illegal water hydrants. On illegal hydrants initially the stance of KW&SB officials, which is reflected in their statements, was that they had removed all the illegal water hydrants and in proof thereof they referred to 233 FIRs lodged by them at different police stations. They had made further claim that all subsoil water hydrants in compliance of order of the Honourable Supreme Court had been removed. That there were 24 legally operated hydrants at different locations but the number has now been reduced to 07 which are used for supplying water to the deficient pockets or low pressure areas through tankers. However, on 01.02.2017 during proceeding of enquiry when DMD Mr. Asadullah Khan KW&SB was directed to give specific statement about illegal hydrants, he disclosed that pilferage of water through illegal hydrants has not been completely curbed despite efforts of KW&SB. Miscreants keep on changing puncture points in mains for taking water illegally, and according to him, this illegal practice has been witnessed mostly in Districts Malir and West. On this issue, DIG and S.S.P West were called on next day, who when appeared before the Commission informed that illegal hydrants were running under the umbrella of KW&SB. The police take action against them and make some arrests but the KW&SB officials are always reluctant to come forward to register FIR against the illegal-hydrant-runners. DIG West further stated that in January, 2017, only 08 FIRs were registered by KW&SB, while the problem was more intense and deep-rooted. DIG East who was also called reiterated the same facts and further informed that against illegal hydrants, the police of his area had registered 03 FIRs in January, 2017. The revelation about illegal hydrants is also strengthened by the statement of Muhammad Hassan Bakshi Acting Chairman, Association of Builders and Developers Pakistan, who states that price of 1000 gallons of water through pipelines is Rs.245/- only, whereas through tanker it costs Rs.4000/- to 5000/-. A deliberate situation of shortage of water has been created by KW&SB to earn millions of rupees illegally.

The registration of FIRs as recently as in January 2017, the statements of two senior police officials (DIGs) and a representative of ABAD (whose nature of

work takes him to deal with KW&SB on issue of water) clearly demonstrate that yet the menace of illegal hydrants has not been eradicated completely; and this (running illegal hydrants) cannot be done without the connivance of KW&SB officials. The pilferage of water in Karachi is going on and on, and it is one of the factors the water is not reaching the houses at tail, only KW&SB is to blame for it.

Multistory and High-Rise Buildings

The unchecked construction of high rise buildings has been adding to the woes of Karachi to have clean drinking water and better sanitation. Without evaluating adverse impact of such construction on water related problems, SBCA is approving building plans for multistory and high-rise buildings. D.G. SBCA was called and examined. He also filed the statement to the effect that there was no scheme in law requiring SBCA to seek any NOC from KW&SB before approving the buildings plans. Clause (c) of section 6-A of SBCO, 1979, however, clearly stipulates that a builder or developer has to furnish full and true information to SBCA regarding, among others, water charges for the purpose of obtaining NOC. By not seeking such confirmation from KW&SB before approving plan for high-rise buildings, SBCA has been apparently acting contrary to that provision of law. And therefore for the sorry state of affairs relating to shortage of clean drinking water and sanitation in Karachi, SBCA, among others, has to be held responsible to a great extent. That, officials of KW&SB have been issuing NOCs for construction of such buildings in Cantonments has been admitted by M.D. KW&SB, which is sufficient to point out to the involvement of KW&SB officials in this whole racket. This side of the story has further been confirmed by the statement and annexures filed by Muhammad Hassan Bakshi Acting Chairman, Association of Builders and Developers Pakistan (**Annexure-AH**) who has revealed that KW&SB is not only charging millions of rupees on every connection on the high rise buildings but on under-construction buildings the developer is made to pay millions. He has attached some Photostat copies of such bills along with his statement.

Karachi is already witnessing shortage of potable water and suffering from deteriorating condition of sanitation. It is mockery therefore to allow more such buildings to come up without water to feed and a system to discharge sewage. If this situation is not timely checked, the problem may become unmanageable entirely. It is therefore proposed that a complete ban on the construction of high rise and multistory buildings for the time being till the prevalent crisis-like-situation is averted may be put in place.

Test Report of Water Samples

In order to verify quality of drinking water being supplied, the water samples from different areas of Karachi were collected. Altogether, 84 drinking water samples were collected from Karachi city out of which 11 samples were collected from district Malir, 11 from Central, 15 from West, 14 from South, 11 from East, 11 from Korangi respectively and 10 samples were collected from Dhabji, Pipri and NEK filter /treatment plants.

Physicochemical Characteristics:

The analytical data compared with WHO and NEQS water quality standards demonstrated that out of 84 drinking water samples, 08(10%) water samples were found unsafe for drinking due to presence of turbidity values beyond the safe limits (5NTU). The maximum value for turbidity was measured as 24.4 NTU. One sample (1.2%) was found unfit for drinking due to presence of color, 09(11%) water samples were found unsafe due to presence of Total Dissolved Solids (TDS) contents beyond permissible limit (1000mg/l). Maximum concentration for TDS was recorded 3846 mg/l. 07 water samples (8%) were found unsafe for drinking purpose due to presence of hardness values beyond WHO permissible limit (500mg/l). The highest value for hardness was measured as 1100mg/l whereas 30mg/l as lowest. Eleven water samples (13%) were found unfit for human consumption due to presence of sodium content beyond the maximum permissible limit (200mg/l) recommended by WHO for human consumption. The highest value for sodium was measured as 835mg/l. Seven samples (8%) were found unfit for human consumption due to presence of sulfate content beyond the safe limit recommended by WHO (250mg/l). The highest value for sulfate was measured 440mg/l. Eight water samples (10%) were found unfit for human consumption due to presence of chloride ion concentration beyond maximum permissible limit (250mg/l) recommended by WHO for human consumption. The highest value for chloride was measured as 1483mg/l (Fig.)

Fluoride content was found exceeding WHO limit (1.5mg/l) in 03 (2%) water samples. The highest concentration for fluoride was measured as 2.23mg/l. Two water samples (2%) were found contaminated with nitrate–nitrogen content beyond the safe limit (10mg/l) recommended by WHO for safe drinking water. The highest concentration for nitrate nitrogen was recorded 20.45mg/l. One sample (1.2%) was found polluted with iron content beyond the safe limit recommended by WHO (0.3mg/l).

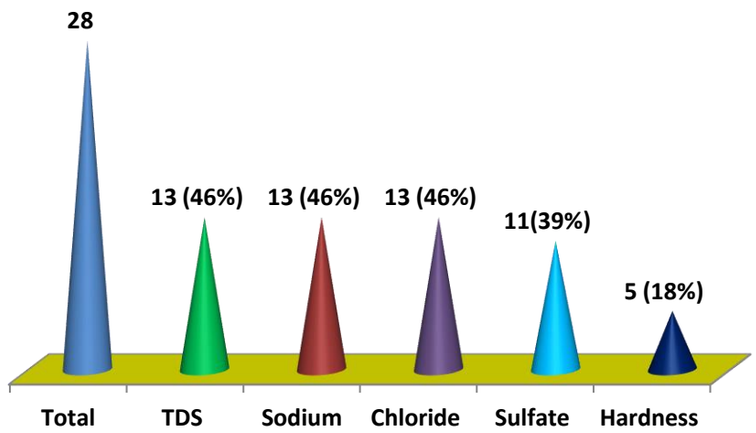

Fig. Percentage samples beyond permissible limit for different parameters in Karachi.

Microbiological Contamination:

Sixty Seven out of 84(80%) drinking water samples collected from surface and subsurface (ground water sources) used for drinking purpose were found unsafe for human consumption due to presence of Total coliforms

(bacteriological contamination) beyond the WHO recommended values (0/100ml). 30(36%) water samples were found fecal contaminated i.e. presence of E.coli (Fig.). The E.coli concentration lies in the range of 01 too numerous to count cfu/ml exceeding WHO limit recommended for drinking water (0/100ml). While, only seventeen water samples (20%) were found bacteriological safe for drinking purpose.

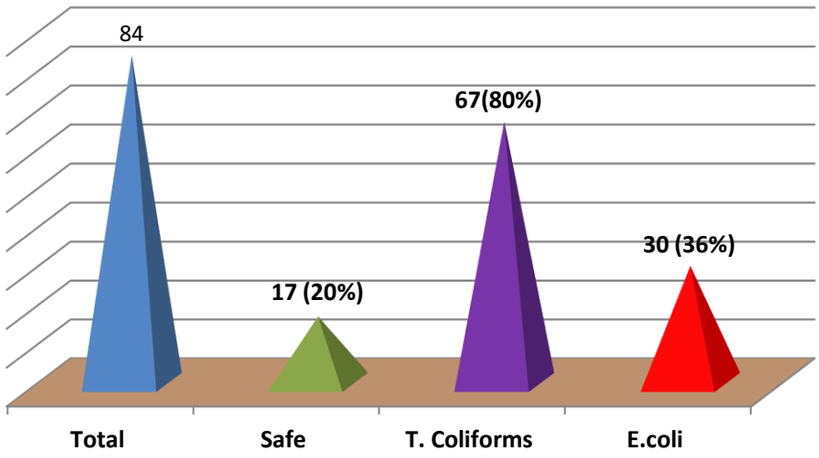

Fig. Percentage samples beyond permissible limits for bacteriological contamination in Karachi

Overall data shows that out of 84 samples 67(80%) were found unsafe for drinking purpose, while only 17(20%) samples were found fit for human consumption for analyzed parameters under prescribed standards.

Photographic view of Water Sources and Water sampling in Karachi

	
Nonfunctional / damaged water filter plant in a Hospital in district Malir.	Water cooler with damaged filters, nonfunctional UV lamps in a school
	
Water sample sealing in presence of SJ	Transportation of drinking water using contaminated containers

<table>
<tr><td>  </td><td> 
</td></tr>
<tr><td colspan="2">Poor condition of filters and water cooler used for provision of drinking water for patients in a famous hospital in district Central Karachi</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Poor Hygienic conditions at public point used for drinking purpose(inside KW&SB pumping station)</td><td>Un-Hygienic conditions outside RO plant installed in Layari (used by community for getting drinking water)</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Unhygienic conditions of water pumping station</td><td>Water sampling from a public point in the presence of SJ</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Water sampling from underground tank @ KW&SB pumping station</td><td>Water sampling from KW&SB pumping station @ safoora</td></tr>
</table>

Sanitation Issues in Karachi

Karachi is being supplied around 650 MGD and resultantly is producing more than 450MGD sewage, which includes municipal, hospital and industrial liquid waste. The entire sewage, which is mostly untreated, after going through different drainage channels fall in six nallahs/rivers viz. Lyari, Malir, Frere, Kalri, Railway and Nehr Khayyam (which have been mostly encroached upon with the connivance of the relevant departments and

authorities) and ultimately end up in sea. There are three sewage treatment plants for treating such effluent but they are all lying non-functional.

There is no proper system of removing solid waste, which is mostly thrown in different nallas of drainage system, which not only causes overflow of gutters, but adds greatly to sanitation problems and increases operational and maintenance costs of the Nallas.

Treatment Plant (STP-I) Haroonabad, Shershah Site Karachi was constructed in 1964 with capacity of 20MGD and designed life of its civil structure was 70 years, and 15 years for mechanical and electrical structure including piping infrastructure. And this Treatment Plant is lying non-functional since 2013, yet on this nonfunctional Treatment Plant (STP-I) the staff of 90 people is posted against working strength of 55 people and Rs.27,58,000/- are being spent on the salaries of these persons. Every year an amount of Rs.47,00,000/- is being expended on maintenance of this Treatment Plant.

Treatment Plant (STP-II) Mehmoodabad Karachi was constructed in 1964 with treating capacity of 20 MGD; 50-00 acres of which were leased out by the KW&SB to the City Government in the year 2009 and 40-00 acres of its land has been encroached upon by many people. It is lying nonfunctional since 2009, has a staff of 72 people against working strength of 55 people. The total amount spent on the salaries per month is Rs.19,75,000/- and on the maintenance, it is Rs.62,00,000/-.

Treatment Plant (STP-III) Maripur, New Truck Stand Karachi was built in the year 1998 with capacity of 54 MGD and designed life of its civil structure is 60/65 years. It is lying nonfunctional since 2013, has a staff of 55 persons against working strength of 34 people, who are collectively drawing an amount of Rs.13,20,000/- per month as salaries. The budget allocated every year for its maintenance is Rs.60,00,000/-.

As per statement of KW&SB even with these three treatment plants when they were working with full capacity, KW&SB was able to treat only 151 MGD out of more than 450 MGD due to non-availability of required conveyance system to carry sewage up-to the sewerage plants.

The Expenditure Incurred by KW&SB For The Last (05) Five Years On Providing Clean Drinking Water and Maintaining Sanitation

During Fiscal Year 2011-2012, amount incurred on Establishment was Rs.3,005.523 million, on Contingencies Rs.443.595 million, on repair & Maintenance/Operational Rs.1,427.213 million, on Development Works Rs.1,167.571 million. The total integrated expenditure during the financial year 2011– 2012 was Rs.6,043.902 million.

During Fiscal Year 2012-2013, the amount incurred on Establishment was Rs.3,595.774 million, on Contingencies Rs.470.352 million, on Repair & Maintenance/Operational Rs.1,082.616 million, on Development Works Rs.661.686 million. The total expenditures of Rs.5,810.428 million were made during the financial year 2012 - 2013 in respect of the above head of accounts.

During Fiscal Year 2013-2014, the amount incurred on Establishment Rs.4,138.858 million, on Contingencies Rs.514.108 million, on Repair & Maintenance/Operational Rs.1,739.886 million, and on Development Works Rs.431.894 million. Total integrated expenditures of Rs.6,824.746 million were made during the financial year 2013 - 2014 in respect of the above head of accounts.

During Fiscal Year 2014-2015, the amount incurred on Establishment was Rs.4,320.323 million, on Contingencies Rs.543.060 million, on Repair & Maintenance/Operational Rs.1,498.690 million and on Development Works Rs.194.539 million. The total integrated expenditures during the financial year 2014 - 2015 in respect of the above head of accounts was Rs.6,556,612 million.

During Fiscal Year 2015-2016 amount incurred on Establishment was Rs.4,825.635 million, on Contingencies Rs.462.617 million, on Repair & Maintenance/Operational Rs.1,433.967 million and on Development Works Rs.57.988 million. The integrated expenditures during the financial year 2015 - 2016 in respect of the above head of accounts was Rs.6,780.207 million.

Korangi Combined Effluent Treatment Plant

Apart from above stated Treatments Plants under the control of KW&SB, there is a Combined Effluent Treatment Plant (CETP) at korangi Karachi with the capacity to treat 6MGD effluent of Tanneries, which is being run by Pakistan Tanners Association. The said Association during enquiry claimed the said CETP to be functional. To verify veracity of the statement, the undersigned visited the said facility on 04.02.2014 along with Dr. Muhammad Ahsan, the water technologist, and his team, who took samples of effluent from inlet and outlet points of the treatment plant. The effluent at the point of outlet was pinkish in color, which the staff could not explain why it was so after the treatment. The test to determine few parameters was conducted at the spot, which was positive. However, for the determination of other relevant parameters i.e. COD, BOD, pH and TDS, the samples were preserved for further test. The laboratory was also visited, which appeared to be in disuse for a long time. Mr. Muhammad Ali, Plant Engineer conceded that for the last six months no test in the laboratory was performed. The Flam Photo Meter and Spectro Photo Meter meant for testing regularly sewerage parameters were out of order. No record about TDS and pH conductively test was available. It was informed that to determine all the above parameters, the samples are sent to an outside-laboratory namely Global Environmental Laboratory. The staff was asked to produce such record but in the entire visit and thereafter no record about such tests was produced. It was also informed that in the plant only biological treatment of the sewage was being done on the formula of mixing 2% municipal waste with 1% factories effluent, but during questioning it was conceded by the staff that required ratio of municipal liquid waste was not being provided to the CETP and due to this reason the efficiency of the plant is not up to the mark. This plant, however appeared to be having a good infrastructure compared to one built in Kotri. Clarifiers, settling tanks, lagoons and sludge settling ponds were operational. For a better and improved efficiency the plant needs to be properly operationalized and

monitored. The report, later on submitted by Dr. Muhammad Ahsan (**Annexure-AI)** shows that TDS, COD, BOD, TSS, Conductivity etc. were found beyond the recommended limit. In view of such report and the visit, it is now established that this CEPT is not functioning up to its designed level to achieve the goal it is built for. And the entire untreated effluent produced by all the industries in Karachi including the effluent produced by Tanneries is going into sea causing marine life gradually getting extinct.

A report prepared by Dr. Monawwar Saleem, National Institute of Oceanography on the current condition of coastal waters has been submitted before the Commission. The brief thereof being relevant to present narrative is outlined herein for understanding. It reveals that six (06) Industrial Estates comprising 6,000 Industries are in Karachi. These Estates are, Sindh Industrial Trading Estate, Korangi Industrial Estate, Landhi Industrial Estate, Bin Qasim, Gharo, North Karachi Industrial Estates. All the 6,000 industries units are dumping their wastes, mostly untreated, directly or indirectly in the Karachi and Gharo Creek areas. Approximately 500 MGD industrial and domestic waste-water is being generated, and discharged through Lyari and Malir River into western and southeastern coastal areas (Gizri, Korangi and Gharo Creek) of Karachi. Of the entire effluent, only 15 to 20 percent is being treated. The worst hit portions of Karachi coast are Harbour and Korangi/Phitti creeks where the effluent from Korangi, Landhi, Karachi Export Processing Zone, Bin Qasim Industrial Areas having 1400 MW thermal power, and country's largest industrial unit-Pakistan Steel Mills- is being discharged into the sea. Port Qasim and Korangi fish Harbour have busy shipping and fishing boat traffic in the Gharo, Phitti and Korangi creeks causing oil discharge (an estimate some 5,00-10,000 tons), which is resulting in great damage to the flora and fauna of the Karachi coastal area.

Mangrove ecosystems of Karachi creeks are facing continuous pressures of domestic and industrial pollution and resultant degradation of water quality, habitat loss, localized eutrophication, metal accumulation in fish and shrimps. There are three (03) major types of pollution in the coastal areas which include effluent from industries, domestic sewage and oil. The Indus Delta receives pollutants from up-country use of pesticides, fertilizers and industries. Hub and Gadani Coast receive pollutants from the Hub Industrial Trading Estate and from Ship breaking Industry. Some of the heavily polluted areas by oil include Korangi Creek, Gizri Creek, Clifton Beech, Chinna Creek, Boat Basin and the main harbor. Oil slicks in coastal areas and tar balls on the beaches have been reported. The major impact of pollution has been seen around the discharge points of coastal industries. Due to pollution many coastal areas are devoid of benthic fauna and flora. High concentration of heavy metals, such as Fe, Zn, Cu, Ni, Cd, Pb, Hg, Co, and moderate levels of PAHs, PCBs, pesticides, and Dioxins have been recorded in marine biota and sediments. This report is supported by the results of studies conducted by NIO scientists. This report indicates clearly that untreated effluent and spillover-oil of the ships are the main agents of degradation of sea waters.

Notwithstanding the above, the claims and counter claims regarding presence and functioning of in-built treatment plants in industrial units generating highly toxic effluent were made by SEPA, SITEs limited, Industries &

Commerce Department, and others, it was thus decided to take waste-water samples from Karachi and Hyderabad for testing and repot. Accordingly, Dr. Ghulam Murtaza Senior Research Officer PCRWR, Karachi was directed to do the job. He has submitted his report **(annexure-AJ)** showing presence of high volume of COD, BOD, TSS and TDS, and their presence to such a high degree proves that the industries are not treating their effluent. The relevant parts of his report are reproduced herein below for the purpose of understanding and context.

Test Report of Wastewater samples

Fifteen waste water effluent samples were collected from Karachi following the standard sampling methodology (APHA) and analyzed for waste water quality parameters.

The analysis results for Chemical Oxygen Demand (COD) for all the samples were found beyond the maximum permissible limits (150mg/l). The highest concentration for COD i.e. 2088mg/l was measured for the sample collected from Industrial effluent in SITE Karachi. The COD values measured in the range of 494-2088mg/l. The highest BOD value 740mg/l was measured for the sample collected in waste water Nala in SITE Karachi. All the samples collected from sewerage and industrial effluent showed BOD values beyond the recommended limit (80mg/l). Out of 15 samples, 13(87%) sample were found polluted with high TSS. The maximum amount of TSS was found 2560mg/l beyond the permissible limit 200mg/l. Five samples showed TDS values beyond the permissible limit (3500mg/l). The highest concentration of TDS was measured 6816mg/l. The unfit parameters beyond the recommended values are highlighted (Table). Heavy metals concentrations from collected samples were found within NEQS limit (Table).

Waste Water Quality Analysis, Samples Collected in Karachi

Sr. No.	Sample Code	TDS (mg/l)	pH	COD (mg/l)	BOD-5 (mg/l)	TSS mg/l
1	KHI-01	1549	6.9	**594**	**177**	**258**
2	KHI-02	15232*	6.9	**884**	**96**	**321**
3	KHI-03	5274	7.1	**793**	**154**	**836**
4	KHI-04	2925	7.5	**613**	**186**	**495**
5	KHI-05	2931	7.5	**566**	**148**	**891**
6	KHI-06	2765	8.2	**738**	**396**	174
7	KHI-07	33728**	7.1	**1326**	16	**922**
8	KHI-08	33152**	7.1	**1330**	22	**881**
9	KHI-09	2234	7.3	**512**	**200**	180
10	KHI-10	**4339**	6.9	**740**	**362**	**2560**
11	KHI-11	**4506**	7.5	**1088**	**740**	**2316**
12	KHI-12	**4198**	7.7	**518**	**297**	**1860**
13	KHI-13	**4614**	7.6	**2088**	**400**	**1680**
14	KHI-14	957	7.1	**891**	**437**	**430**
15	KHI-15	**6816**	7.6	**494**	**130**	**370**
NEQS Standards		**3500**	**6-9**	**150**	**80**	**200**

TDS Total Dissolved **Solids, TSS** Total Suspended Solids, **COD** Chemical Oxygen Demand **BOD** Biochemical Oxygen Demand.

The high concentration of BOD and COD indicates the presence of organic and inorganic substances in the sewerage and industrial effluent. The effluent from paper, textile and food industries may be the major contributors for BOD

and COD. The analysis results of BOD and COD show that the industries are disposing of their effluent without any treatment. Untreated Industrial and domestic wastewater is a source of serious hazard to the coastal area of Karachi, which is one of the highly polluted coastal belt in the world resulting in massive economic loss to the country through decrease in the export potential of fisheries.

Table- Heavy Metal Analysis Results of waste water samples Collected in Karachi

Sr. No.	Sample Code	Cu mg/l	Ni mg/l	Fe mg/l	Zn mg/l	Mn mg/l
1	KHI-01	0.04819	BDL	0.0414	0.01547	0.1606
2	KHI-02	0.06853	0.09578	0.1772	0.00286	0.2108
3	KHI-03	0.08461	0.04136	0.5961	0.08733	0.2166
4	KHI-04	0.04552	BDL	0.0708	0.02256	0.1839
5	KHI-05	0.02655	BDL	0.0719	0.02655	0.1945
6	KHI-06	0.05108	BDL	0.0523	0.05108	0.0901
7	KHI-07	0.00810	0.4238	0.4915	0.00800	0.1837
8	KHI-08	0.01209	0.4143	0.4737	0.01209	0.1845
9	KHI-09	0.02923	BDL	0.0683	0.02923	0.1149
10	KHI-10	0.04790	0.09656	0.2322	0.00510	0.0828
11	KHI-11	0.08207	0.13201	0.9829	0.18831	0.1435
12	KHI-12	0.03536	0.1362	1.0211	0.05909	0.2275
13	KHI-13	0.02810	0.06248	0.1768	0.01642	0.1627
14	KHI-14	0.04841	0.06035	0.8120	0.19020	0.2045
15	KHI-15	0.07625	0.1042	0.2539	0.02436	0.1011
NEQS Standards		**1.0**	**1.0**	**2.0**	**5.0**	**1.5**

Cu=Copper**, Ni**=Nickel**, Fe=** Iron**, Zn=** Zinc**, Mn=** Manganese **BDL=** Below Detection Limit

It is important to understand that analysis result of few samples out of thousands of industries with analysis of limited heavy metals cannot assure that the effluents are not polluted from heavy metals. For heavy metal analysis sampling from industrial effluent, type of industry, sampling time and frequency of the sampling is very important, which could not be done due the time constraints. The pH value for all the samples was found within NEQS standards.

Pictorial View of Untreated Waste Water Effluents Disposed of into Arabian Sea, Karachi

Untreated Industrial effluent being disposed of into Arabian Sea, Karachi

Untreated Sewage Effluent disposed of into Arabian Sea Karachi

Waste water effluent, Liyari River @ Machar colony Bridge, Karachi

Collection of waste water sample @ SITE, Karachi

Issue of Solid Waste in Karachi

In Karachi it is estimated that 12,000 plus tons of solid waste, which includes domestic, industrial and hospital waste, is being produced. Approximately 9000 tons of solid is being produced in the areas under DMCs, and remaining 3000 in the Cantonments, etc. Despite such huge load, Karachi has no Garbage Transfer Stations (GTS). In visits of Karachi, the garbage was mostly found littered around the corners of the streets or dumped on make-shift locations/sites or being burnt openly generating injurious smoke around. But neither the DMCs nor the Cantonment Boars or Sindh Solid Management Board appeared sensitized to that situation.

Dr. Atur Das Sajnani, the current head of Sindh, Solid Waste Management Board (SSWMB) created under Sindh, Solid Waste Management, Act, 2014 was examined. He has also filed a concise statement duly supported by his affidavit. Explaining the object of the Board, he has stated that the SSWMB has been created to establish **"Integrated Solid Waste Management System"** in all cities of the Province. The SSWMB is responsible for collection and disposal of solid waste and other wastes including Municipal Solid Waste, Industrial Solid Waste and Medical/Hospital Waste in the entire Province of Sindh. However, the Board is required to take over solid waste management function gradually from the Councils and other bodies and till such time they will continue to manage the solid waste in their respective areas. It is only when Local Government will notify transfer of the functions from the Councils to the Board through official notification; the Board will take up the task of solid waste management. He further disclosed during enquiry that so far the Board has not been assigned any operational work except maintaining two dumping sites namely Surjani Town and Goand Pass, where 40% of garbage is being brought. He also disclosed that remaining garbage mainly ends up in different nallas or burnt locally. He admitted that

no landfill site has been established so far. According to him, entire solid waste is currently being managed by the DMCs. He further disclosed that officially he had inspected budget of the DMCs for the years 2015-16 and 2016-17 and had come to know that Rs.6 + something billion per year expenditure on management of solid waste was reflected in their budget books. And it was in addition to the grants, not reflected in the Budget book, being doled out to them by the Government.

The Municipal Commissioners and other relevant officers of all the DMCs Karachi were examined on 13.02.2017. They all conceded that they were not lifting the entire solid waste from their respective areas, which, according to them, was due to shortage of vehicles and funds. However, the detail of expenditure submitted by them shows that averagely every DMC in Karachi is spending millions of rupees per month, yet they have not been able to properly manage solid waste. For the current poor management of solid waste in Karachi, the DMCs are responsible.

District Municipal Corporation Malir Karachi The staff at DMC Malir is 336. Amount incurred on their salaries is Rs.13,800,000/-. Average monthly expenditure on repair and maintenance including Diesel is Rs.7,000,000/-. Garbage generated per day is 750 tons; of which 450 tons is lifted and dumped at Sharafi Goth, whereas Garbage backlog is 9000 tons per month. 27 different types of vehicles are being used for collecting solid waste.

District Municipal Corporation Karachi Central The staff at DMC Karachi Central is 3157. Amount incurred on their salaries is Rs.64,562,333/-. Average monthly expenditure on Diesel is Rs.14,272,244/-. Garbage generated per month is 59800 tons; but only 55536 tons is lifted and dumped on a site outside of the city. Garbage backlog is 4264 tons per month. 118 different types of vehicles are being used for collecting solid waste.

District Municipal Corporation Korangi The staff at DMC Korangi is 1544. Amount incurred on their salaries is Rs.36,656,764/-. Average monthly expenditure on operation and maintenance including Diesel is Rs.29,381,546/- Garbage generated per day is 1200 tons; 800 tons is lifted and dumped on site namely Jam Chakro. Garbage backlog is 400 tons per day. 59 different types of vehicles are being used for collecting solid waste.

District Municipal Corporation Karachi East The staff at DMC Karachi East is 1531. Amount incurred on their salaries is Rs.42,696,863/-. Average monthly expenditure on operation and maintenance including Diesel is Rs.33,270,460/-. Garbage generated per day is 1200 tons, which is lifted and dumped on a site outside of the city. 116 different types of vehicles are being used for collecting solid waste.

District Municipal Corporation Karachi South The staff at DMC Karachi South is 2083 against total strength of 3372. Amount incurred on their salaries is Rs.45,842,134/-. Average monthly expenditure on operation and maintenance including Diesel is Rs.32,400,000/-. Garbage generated per day is 1150 tons; 1100 tons is lifted and dumped on a site outside of city, Garbage backlog is 50 tons per day. 124 different types of vehicles are being used for collecting solid waste.

District Municipal Corporation Karachi West The staff at DMC Karachi West is 1741. Amount incurred on their salaries is Rs.336,684,691/-. Average monthly expenditure on operation and maintenance including Diesel is Rs.1,266,144,157/-. Garbage generated per day is 1730 tons; 1210 tons is lifted and dumped on a site outside of the city, Garbage backlog is 520 tons per day. 88 different types of vehicles are being used for collecting solid waste.

Problems disclosed by KW&SB

Mr. Misbahuddin Farid, M.D, KW&SB during examination and in his statement has identified following problems, which, he claims, have hampered the efficiency of KW&SB, and which in my humble view need a consideration and may be treated as part of my recommendations.

SBCA is continuously approving plans for multistoried and high-rise buildings without obtaining NOC from KW&SB for ensured water for allottees of those buildings. Since 2006 not a single gallon of bulk water has increased. Under this situation the strict regulation of water supply is needed and that is not possible until trend of multistory and high-rise buildings is not regulated.

KBCA and entire city's growth and land use is controlled by Master Planning Byelaws 2003 with Resolution 3 dated 6-1-2004 and has been modified by addition of Section 4-1 and it has been declared that 20% share will be paid to KW&SB from the fees levied for change of land use in the Master Plan. But it is not being done.

NOC of KW&SB has been declared mandatory requirement of Sindh Building Control Authority as well as all Cantonment Boards of the city vide decision made in the meeting held with Governor Sindh and Minister LG and HTP / Chairman SBCA, Secretary LGD, DG – SBCA, and others were present in the meeting. The minutes were issued vide number bearing GS/21-102/2007(SO-IV) 739 dated 10-5-2011. But that decision is not being implemented.

Finance department GOS while distributing the share of local councils has also declared subsidy to be paid by KMC to KW&SB @ 1% of its total resources. But no payment has been transferred to KW&SB accounts by Finance department.

There are huge arrears against all the departments of GOP, GOS, KMC and DMCs, but they are not paying off the same to KW&SB.

About 40% of Karachi population is residing in Kachi abadies. The Kachi abadies upon KMC lands are called KMC Kachi abadies and on GOS/GOP lands are called GOP / GOS Kachi abadies. Neither the people nor the sponsor departments of GOS / GOP / KMC are paying to KW&SB nor GOS and GOP are giving subsidy as disbursement as Kachi abadies arrears.

Sand is being lifted from Malir river although it has been banned by imposing Section 144 but this illegal practice is continued which has exposed the water conduits supplying water for the entire city namely GK – I, K-II & K-III and

this can lead to dislocation and blast at any time stopping drinking water and creating water riots. Administration and Police department have to activate their mechanism on SOS basis to protect water conduits. Same is situation with water trunk main Lyari passing inside river bed.

Illegal water hydrants are being removed with support of administration / police operations in compliance of judgments of Honorable Courts. But within no time the same are reestablished on same or different locations. A permanent mechanism with the assistance of administration / police to stop illegal hydrants is required.

Lands of KWSB are being allotted by Revenue Department and Mines Department day by day although those lands were handed over to KW&SB (then KDA) and all the payments of these lands (Govt. & Private both) have already been made 40 to 50 years back and there is no arrears upon KW&SB in this regard but mutation has not been made in favor of KW&SB in record of rights. Even construction of compound wall is not being allowed till mutation.

KW&SB foresees the day could come when all the lands including built up structures would be allotted to private persons and land grabbers. Hence Revenue Department may be requested to get KW&SB exempted from mutation from Honorable Supreme Court of Pakistan and protect the KW&SB lands on all water supply and sewerage installation in 06 districts of Karachi, and District Thatta up to Keenjhar Lake and Hub dam.

KDA Pipe Factory is legally asset of KW&SB by virtue of abolition of Bulk water Wing in KDA and the same was transferred to KW&SB as per provisions of SLGO 1983 (Amended) but the possession of the same is not handed over to KW&SB by KDA. All the assets were handed over except this pipe factory, due to which KW&SB is constrained to purchase low quality pipes from the market. Presently, the land of KDA Pipe factory is illegally being sold / encroached.

KW&SB land at University Reservoir is badly required for the expansion under the Bulk water supply schemes in hand to utilize the high altitude of the reservoir to maintain the water supply delivery with pressure to all the houses in tail end / higher pocket areas which cannot get water without such high level reservoir. The China cutting encroachment has been made on this land which may kindly be removed by the administration. Otherwise establishing multistage pump house in the city would collapse. Further such china cutting encroachments also exist on other KW&SB lands / infrastructures at many places including high pressure pipelines, conduits, and distribution mains etc. but the administration does not help KW&SB to remove all such illegal encroachments upon the lands which are to be used for centuries for the public.

Summary on Karachi

People of Karachi are being supplied contaminated water for drinking. At none of the Filter Plants any attention to remove undesirable chemicals, biological contaminants, and suspended solids is being paid. The concern of the KW&SB officials has been only to provide water. They do not appear to

be bothered about filtration of the water before its supply for drinking, due to which many water-borne diseases are on the rise in Karachi. The water of Keenjhar Lake is getting polluted from the effluent of industrial waste of SITE kotri and from the effluent of Nooriabad SITE, which virtually without any filtration is being supplied by KW&SB to the people of Karachi. The Combined Effluent Treatment Plant of kotri built at the cost of more than 700 million by Sindh Government to treat effluent produced by the factories located in SITE Kotri is lying non-functional since 2010 owing to sheer negligence and lethargy of Industries & Commerce Department and SITE limited.

KW&SB, which is responsible to supply potable water to the people of Karachi as provided in chapter VII of KW&SB Act, 1996 " *The Board shall ensure, that the water supplied by it is duly filtered, treated and tested and is fit for human consumption."* has failed to live up to said statutory duty. KW&SB has also failed to undertake construction, improvement, maintenance and operation of water works; and sewerage works for collecting, pumping, treating and disposing of sewerage and industrial waste as provided in chapter V of KW&SB Act, 1996.

KW&SB has proven to be inefficient, and poorly managed. It has failed to meet water requirement and maintain sanitation. It is over-staffed and needs to be purged of all the unnecessary staff first to make it performance-oriented organization. There is no accountability and monitoring system in KW&SB due to which its performance regarding delivery system has materially declined. In the case of issuing NOCs to Cantonments Boards for approving plan for high rise buildings, the lack of administrative control by KW&SB hierarchy was noted, therefore element of underhand dealings cannot be ruled out. KW&SB does not appear to be interested in serving the people. General apathy, lack of interest, and indifferent attitude to the people and problems was witnessed. It did not take action when its lands were occupied or encroached, the houses were built and housing colonies established. It has mostly remained complacent on the issue of encroachments of its lands and although in some cases it has registered the FIRs, but never pursed them in the court of law to have impact and result of such FIRs. The involvement of the officials of KW&SB in the whole encroachment episode of its lands and establishment of housing colonies is conspicuous by their inaction to retrieve the encroached lands.

KW&SB has mismanaged itself; during enquiry officials of KW&SB were found making wrong statements. KW&SB officials do not take initiatives to improve service delivery. They are supplying unfiltered water without even chlorination, yet they claim otherwise. The condition of all the Filter Plants is poor and abysmal; Clarifiers are out of order, Sedimentation tanks are full of sludge. Virtually the water from these filter plants is only passing through them without any process of filtration and chlorination but KW&SB is not undertaking any actual work to rehabilitate the filter plants and supply purified water to the people. The illegal water hydrants have not been completely rooted out by KW&SB but in the enquiry it initially made contrary claims, the involvement of its officials in this illegal racket is but conspicuous.

All the three effluent treatment plants under KW&SB control have gone awry, out of order and partially encroached, but instead of trying to rehabilitate them immediately and put them in the system, KW&SB is trying to hide behind excuse of paucity of resources. KW&SB refuses to realize that, due its negligence to maintain and operationalize the treatment plants, not only municipal effluent but industrial effluent also is directly going into sea destroying marine life.

District Management, KW&SB and other concerned have failed to stop sand-lifting from Malir River. Initially no one disclosed about this fact, but when the Commission, in view of reports of such illegal activity asked KW&SB and others to explain the position, this illegal activity was admitted to be going on there and the fact that the sand-lifting has exposed the water conduits supplying water to the entire city namely GK – I, K-II & K-III to danger and this situation, if unchecked, can lead to dislocation and blast of said water conduits at any time stopping supply of drinking water and creating water riots.

KW&SB has completely failed to devise a mechanism or a working strategy to realize its dues from government departments or agencies. It has also failed to generate it revenues or strengthen its billing system. KW&SB has an staff of 13000 people and is spending averagely an amount of Rs.565.02 million per month on establishment (salaries and pensions), contingencies, repair & maintenance and development works, yet it has not been able to perform up-to its capacity. KW&SB is mainly responsible for poor quality of water being supplied and insignificant sanitation available in Karachi,

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Ecology of coastal areas is worsening day by day, because more than 500MGD untreated sewerage both municipal and industrial is being released in sea. The industries are continuously discharging untreated effluent and appear to refuse to conform to Sindh Environmental Protection Act, 2014. They are not even ready to admit their responsibility and install pretreatment plant inside the factory to treat effluent within the premises before it causes any pollution. From their untreated toxic effluent and oil-spillover of ships, the sea has been highly polluted and is gradually becoming a big Sewer Pool. Its marine life is getting extinct, the fauna and flora of coastal waters has sustained immeasurable degradation.

SEPA has not played any role to check such degradation of ecology and of coastal waters and areas. Besides, it has also failed to stop disposal of solid waste through indiscriminate burning and consequent pollution.

There is no proper dumping site or landfill site for Karachi or anywhere in entire Sindh to dispose of solid waste. The drain Nalas in Karachi including layari and Malir Rivers, and irrigation canals in rest of Sindh have become dumping sites where solid waste is being dumped on.

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There is unplanned and unchecked mushroom growth of industries. No relevant government department is monitoring such growth. The Industries & Commerce Department has become totally irrelevant so far as registration and monitoring the performance of industries to comply relevant environmental laws and rules is concerned. No survey to show either number of the factories, registration or nature/kind of the factory has ever been carried out by SEPA, Industries & Commerce Department, Labour and Human Resources Department, Site Limited and Sindh Small Industries Corporation. Even there is no data available with any of the Government Departments to show that how many industries require in-house treatment plant. It was only after the Commission took note of the matter, Secretary Industries & Commerce Department wrote a letter on 26.01.2017 to Secretary Labour and Human Resources Department for such survey and streamlining registration process, and only thereafter SEPA also started collecting such statistics.

HYDERABAD

The Commission held proceedings in High Court of Sindh Circuit Bench Hyderabad on 19th and 20th February 2017. Besides, the water supply and drainage schemes of the city were visited. Hyderabad is the second largest city of Sindh with population of around 3.3 million. Water and Sanitation Agency Hyderabad (WASA) is responsible to supply clean drinking water to the residents of Hyderabad and to dispose of waste water after treatment. WASA draws water from combined channel upstream of Kotri Barrage for its new and old filter plants; from Akram Wah for its Preetabad and Hala Naka filter plants; and from main River Indus downstream Kotri Barrage for its Hussainabad and Unit No.4 Latifabad Filter Plants. The water supply system of WASA comprises five filter plants, 51 water pumping stations and 1100 km water supply network. The Filtration capacity of five filter plants is only 60 MGD while water demand as per population is 130 MGD. The (old) filter plant at Jamshoro road is non-functional for the last 6-7 years primarily due to non-maintenance. The water collected in the new filter plant is being diverted to the delivery system of the old filter plant to make water reach to the areas connected with the supply-system of the old filter plant. It was informed that frequent outrage of electricity adversely affects pumping capacity of the intake machinery, which results in reduction of water in the system.

During the visit of the Filter Plants, it was noted that filtration system of the water is at the most a partial system of sedimentation. Chlorination to have bactericidal effect on the water is not taking place in any of the filter plants; when WASA and District Management were asked about the reason of such negligence, they simply cited paucity of the funds. In the year 2008 three new filter plants were added in the system but even these newly constructed filter plants could not be maintained properly resulting in degradation in quality of drinking water. The delivery system comprising 1100 km of water supply lines of varying diameters has neither been rehabilitated ever nor replaced. Presently, the distribution system of water supply lines in Hyderabad consists of only rusted joints and corroded metallic pipes, unauthorized punctures, and leakages. And on top of it, these lines at various places have been infused into

saline subsoil water and sewage lines. No wonder, the citizens of Hyderabad are being provided only contaminated water for drinking.

Potable Water

As stated above WASA draws water from River Indus to its Filter Plants first and then supply for drinking. The capacity of old Filter Plant at Jamshoro Road Hyderabad is 10 MGD; of New Filter Plant at Jamshoro Road is 30 MGD; of New Filter Plant at Hala Naka is 08 MGD; of New Filter Plant at Paretabad is 08 MGD; and of New Filter Plant at Unit No.4 Latifabad the capacity is 04 MGD. The total capacity of Filter Plants is 60 MGD, whereas the demand as per population is 130MGD. There is a dearth of 70 MGD of drinkable water in Hyderabad, which WASA has not been able to overcome. During the visit of the city and the sFilter Plants, it transpired that the water was not being filtered, the Filter beds, the Clarifiers, etc. at any of the Filter Plants were not working. There was also no system of dosing the water with chlorination. It was observed, which was not denied by M.D. WASA, that merely after getting the water through these Filter Plants (without actually filtering or chlorinating), it is being supplied to the people. Although M.D. WASA claimed that after mixing alum, or through settlement procedure, which is to retain water for some days in lagoons/settlement ponds, the water is being provided for drinking. However, no such traces of mixing alum or settlement procedure through lagoons were seen by the undersigned during the inspection. Moreover, as per Dr. Muhammad Ahsan Siddiqui, the water technologist, there is a scientific procedure for mixing alum with the water whereby the alum dosing is done through Clarifier as per volume of turbidity in the water and if such procedure is not followed; such mixture could bring more harm than good because sludge accumulates in the bottom of the lagoons, which then becomes a breeding ground for Nigleria. The infrastructures of these Filter Plants seemed worth billions of rupees but due to apathy and negligence of its managers (WASA and HDA) the entire structures have been rendered useless. WASA is receiving huge amounts per year from the Government including expenditure on the Filter Pants, yet it has failed to supply potable water to the people of Hyderabad. Presently, the water being supplied in Hyderabad contain all the contamination that include turbidity, color, odor & taste; TDS, Hardness, Calcium, Sodium, Potassium, Chloride, Sulfate, Fluoride, Nitrate and Iron etc. beyond recommended limit. The result of water-sample-tests by PCRWR has confirmed this fact.

The visit of Kotri city on 20.02.2017, located nearby Hyderabad, revealed that water for drinking was being taken from K.B. Feeder and supplied to the people merely after getting it through Water Filter Plant Kotri. Mr. Agha Imran Durani, CMO Kotri disclosed that neither filtration nor chlorination of the water was taking place in the Plant and merely after alum dose, which too without scientific procedure, the water is supplied.

The money spent by WASA from 2011 to 2016 on supply of water is detailed herein below.

WATER SUPPLY / TREATMENT DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	6,967,660	396,295	26,918,758		11,126,266	2,222,964		47,631,943
2012-13	10,462,995	456,378	42,929,790		9,606,339	1,600,000		65,055,502
2013-14	9,533,112	619,566	39,392,889		6,275,708	1,000,000		56,821,275
2014-15	11,415,109	876,355	56,313,288		10,535,658	1,435,898		80,576,308
2015-16	11,685,485	627,207	65,047,570		11,785,917	-		89,146,179
	50,064,361	**2,975,801**	**230,602,295**		**49,329,888**	**6,258,862**		**339,231,207**

LATIFABAD WATER SUPPLY (MAINTENANCE) DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	8,758,722	466,909	27,957,991		4,688,791	-		41,872,413
2012-13	11,612,652	756,693	47,082,492		4,789,230	-		64,241,067
2013-14	12,480,628	662,998	45,710,218		5,561,202			64,415,046
2014-15	13,987,927	497,917	55,594,628		7,268,441	-		77,348,913
2015-16	14,650,953	880,559	62,366,077		8,079,364	-		85,976,953
	61,490,882	**3,265,076**	**238,711,406**		**30,387,028**	**-**		**333,854,392**

CITY WATER SUPPLY (MAINTENANCE) DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	9,495,641	648,395	32,377,793		5,383,357	-		47,905,186
2012-13	11,736,126	532,409	57,226,871		4,553,104	-		74,048,510
2013-14	10,584,580	641,485	51,916,095		2,790,949	-		65,933,109
2014-15	16,527,257	392,681	68,388,203		4,749,077	-		90,057,218
2015-16	17,436,935	496,537	69,380,576		4,324,175	-		91,638,223
	65,780,539	**2,711,507**	**279,289,538**		**21,800,662**	**-**		**369,582,246**

QASIMABAD WATER SUPPLY (MAINTENANCE) DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	3,579,657	477,919	9,843,273		1,851,071	-		15,751,920
2012-13	4,507,321	661,396	16,550,756		2,593,014	-		24,312,487
2013-14	4,578,658	816,309	17,761,760		4,338,162	-		27,494,889
2014-15	5,753,610	455,747	26,332,536		7,030,990	-		39,572,883
2015-16	6,771,436	419,154	31,996,129		4,832,430	-		44,019,149
	25,190,682	**2,830,525**	**102,484,454**		**20,645,667**	**-**		**151,151,328**

Sanitation

The sewerage system of Hyderabad comprises both, open drains as well as piped sewers. The Hyderabad City mainly has its drainage system through open surface drains flowing on gravity or through pumping machines and culminating at various points having direct discharge into the Phuleli Canal. At some places there are underground sewers also in the city. And against that, Latifabad and Qasimabad have underground sewer system. But from all the said three areas, the final disposal of drainage is into Phuleli Canal and in one case i.e. Latifabad No: IV, it is directly into River Indus downstream Kotri Barrage. It was reported that Hyderabad is producing more than 40MGD sewerage, which is being discharged without treatment into surrounding Canals and River Indus. During enquiry and visit of the city, it transpired that there are three Treatment Plants namely Northern Sewage Treatment Plant (capacity of 07 MGD), Western Sewage Plant (2.5 MGD), and Eastern Sewage Treatment Plant (16 MGD), but all of them were found non-functional. At various points of the city, the effluent which included industrial effluent was seen being directly poured in Phuleli Canal. D.G. SEPA, who was with the undersigned during the visit, had confirmed the fact that SITE Hyderabad's toxic effluent was being discharged in Phuleli Canal without any treatment. As the visit took place coincidently during the closure period of water, it was noted that Phuleli Canal was almost empty, but still from Darya Khan Disposal Pumping Station the mixed effluent (municipal and industrial) in huge quantity was being released in it and only that effluent was going to the people of Tando Muhammad Khan, Sujawal etc. located down that point for drinking and other purposes. Apart from witnessing the mixed effluent being poured in watery bodies recklessly, it was also observed that the building structures comprising many stories, slaughter houses and cattle-pans built on the banks of Phuleli Canal were disposing of their waste directly into it.

In the course of enquiry, the undersigned came to know that a Sewerage Project for Qasimabad comprising three phases under Hyderabad Development Package was initiated. On Phase-I Rs.400 million in (FY) 2015-16 were spent, and on Phase-II Rs.1283 million, but yet the physical work has not been completed. During the visit, the undersigned was shown by M.D WASA, as a proof of work on that project, a seemingly complete RCC structure of Nalla in Qasimabad running behind some residential colonies, but ending up abruptly before Western Sewage Treatment Plant (non-functional). President High Court Bar Association Hyderabad and some advocates who along many other advocates had chosen to accompany the Commission and who happened to reside in the same vicinity disclosed that the same RCC Nala was lying in disuse for a long time. M.D. WASA in reply to a question disclosed that when he took over the charge as Project Director of the above project, Rs.10 billion had already been spent by the previous P.D., yet the schemes were stagnant but after he took over the charge of P.D., more funds were released and he completed Phase-1 and Phase-II by laying sewerage system namely Bliss, and further a drainage system on eastern side of Wadhu Wah. He, however, admitted that none of the drainage systems were connected with the network of sewage lines of domestic users. M.D. WASA boasted of Sewerage Project for Qasimabad and his efforts to complete it, but

there was no apparent result on the ground indicating improvement in sanitation condition of the city and justifying above expenditure. Further it was disclosed that in Qasimabad a project to replace and rehabilitate existing sewage lines at the cost of Rs.460.737 million funded by Government of Sindh is underway. In the case of Hyderabad also, it has been noted that the schemes are proposed, funds released and spent but nothing beneficial to the public materializes, and this all is happening because there is either no or a very poor and stereotype system of cross-checking feasibility of the schemes. If Sindh Government is serious to change all this, it shall have to take a policy decision to revamp the whole system of making and executing such schemes.

Northern Sewage Treatment Plant

This plant was installed with capacity of 9 MGD. The plant was completed in the year 2005. But since the very first day of its inauguration it has not been utilized to its designed capacity as the sewage hardly reaches it. Most of the sewers coming from its catchment areas like Jacob Tank, Central Jail Pumping Station and Pretabad Pumping Station etc. have been damaged which often result in outflow of sewerage on the roads.

Southern Sewage Treatment Plant

This treatment plant was built in the year 1988. It is located at Unit No: 11 Latifabad on the bank of River Indus. It has an installed capacity of 7 MGD. At present it is nonfunctional. It was disclosed that the plant ran for about four years but with the passage of time its supply lines were punctured by the surrounding agriculturists, who started using waste water for their agricultural farms. The broken pipe was rehabilitated a year back but owing to the chronic neglect of the WASA, collecting channel, aerobic pond and maturation pond have developed thick growth of bushes converting whole Plant into a jungle. The effluent drain was also broken at various spots.

Western Sewage Treatment Plant

Hyderabad Development Authority started construction work on this plant in 1980s. The work continued for many years but ultimately the project was abandoned half way through. The plant has an installed capacity of 2.5 MGD and it is supposed to treat sewage of portion of Qasimabad on the west side of Wadhu Wah. Currently it is non-functional due to which the untreated sewage is being poured into River Indus downstream Kotri Barrage.

Eastern (Darya Khan) Sewage Treatment Plant

This treatment plant is under construction and is being funded by Federal Government. The installed capacity would be 16 MGD. Reportedly, Rs.348.822 million have been spent on this Project.

The amount incurred by WASA from 2011 to 2016 on maintenance of sewerage is given herein under.

LATIFABAD SEWERAGE (MAINTENANCE) DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	11,607,217	1,638,502	85,599,756		17,770,160	-		116,615,635
2012-13	16,222,352	2,036,046	127,736,009		21,596,451	-		167,590,858
2013-14	13,686,815	1,293,420	117,727,834		17,777,976	-		150,486,045
2014-15	17,860,305	809,977	153,904,679		26,255,226	-		198,830,187
2015-16	19,526,550	864,339	157,062,916		30,209,468	-		207,663,273
Total	**78,903,239**	**6,642,284**	**642,031,194**		**113,609,281**	**-**		**841,185,998**

CITY SEWERAGE (MAINTENANCE) DIVISION, WASA
DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	**Contingency**	**Salary & Allowance**		**O & M**	**Chemical**		**Total**
	Regular		**Labour**					
2011-12	6,532,102	1,252,693	19,539,633		9,615,911	-		36,940,339
2012-13	9,180,864	1,094,703	31,211,330		9,400,147	-		50,887,044
2013-14	8,104,103	934,836	29,912,410		14,159,236	-		53,110,585
2014-15	10,068,820	667,386	39,149,541		16,233,094	-		66,118,841
2015-16	9,738,203	666,431	41,122,910		11,710,714	-		63,238,258
Total	**43,624,092**	**4,616,049**	**160,935,824**		**61,119,102**	**-**		**270,295,067**

QASIMABAD SEWERAGE (MAINTENANCE) DIVISION, WASA

DETAILS OF EXPENDITURE FROM 2011 TO 2016

	"A"				"B"			
	Salary & Allowance	Contingency	Salary & Allowance		O & M	Chemical		Total
	Regular		Labour					
2011-12	6,222,103	726,861	14,564,910		11,798,153	-		33,312,027
2012-13	10,046,648	1,509,492	20,956,746		8,700,421	-		41,213,307
2013-14	8,357,487	775,130	20,844,722		8,038,620	-		38,015,959
2014-15	11,769,809	604,201	32,209,912		15,554,946	-		60,138,868
2015-16	11,368,168	656,924	36,253,315		12,331,377	-		60,609,784
Total	**47,764,215**	**4,272,608**	**124,829,605**		**56,423,517**	**-**		**120,748,652**

Solid Waste

Hyderabad is producing a huge quantity (there is no study to indicate exact amount) of solid waste including hospital waste, but the system to manage it is simply non-existing. No designated dumping or landfill sites are available for disposal of solid waste in Hyderabad. People make their own arrangements for disposing of solid waste. Resultantly, the garbage is mostly dumped on the banks of irrigation canals located around the city or it is burnt around the corners of streets. The hospital waste is being disposed of by either washing it off into municipal drainage system or by burning it inside the hospital. The dangerous and infectious waste of hospitals (government and private) that is

required to be segregated and burnt in incinerator is being thrown openly in the hospital premises. The incinerator available in Liaqat Medical University Hospital (LMUH) is completely non-functional. Medical Superintendent LUMH was examined on this issue but he could not satisfactorily reply as to why the incinerator was not being made functional for disposal of infectious waste. It is obvious that the Hospital Waste Management Rules, 2014, which provide for a complete guideline on the subject, are being flagrantly violated with impunity by LMUH or for that matter by all the government hospitals over all Sindh. In fact there is no mechanism in Health Department to monitor waste being produced by the hospitals including private hospitals! The Health Department has completely failed to take any action in this regard or to chalk out a strategy to deal with the situation.

During enquiry, Mr. Zahoor Ahmed CMO Municipal Committee Qasimabad, in reply to a question to explain failure of Municipal Committee in dealing with solid waste, disclosed that many Muslims have been appointed as sanitary workers who do not perform janitorial duty, as a result of which garbage is being accumulated in the localities. However, he could not satisfy the Commission why the action against them was not being taken and why they were being paid salaries. It is relevant to mention here that this situation i.e. Muslims being appointed sanitary workers, who subsequently refuse to perform janitorial duty, has been witnessed by the Commission in many cities of Sindh.

Test Report of Water Samples

Altogether, 33 drinking water samples were collected from district Hyderabad out of which 27 samples were collected from surface water sources i.e. WASA treatment plant, pumping station, supply system at consumer end. Four water samples were collected from underground water sources.

Physicochemical Characteristics

It was found in the analytical data compared with WHO and NEQS water quality standards that out of 33drinking water samples 06(18%) water samples were unsafe for drinking due to presence of turbidity values beyond the safe limit (5NTU). The maximum value for turbidity was measured as 60.2 NTU. Two samples (6%) were unfit for drinking due to presence of color, three samples (9%) were unfit for human consumption due to presence of sulfate content beyond the safe limit recommended by WHO (250mg/l). While, one ground water sample (3%) was unsafe due to presence of TDS, Hardness, Calcium, Chloride and Iron content beyond the permissible limit (Fig).

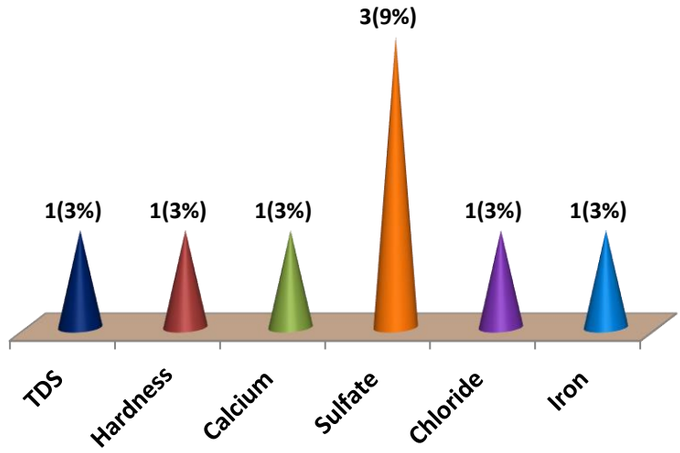


Fig. Percentage samples beyond permissible limits for different parameters in district Hyderabad.

Microbiological Contamination:

Twenty Eight out of 33(85%) water samples collected from surface and subsurface (ground water sources) were unsafe for human consumption due to presence of Total coliforms (bacteriological contamination) and 09 (27%) water samples were found fecal contaminated i.e. presence of E.coli beyond the WHO recommended values for safe drinking water (0/100ml) (Fig.). The E. coli concentration was found in the range of 01-11cfu/ml exceeding limit (0cfu/100ml). Five water samples (15%) were found bacteriological safe for drinking purpose.

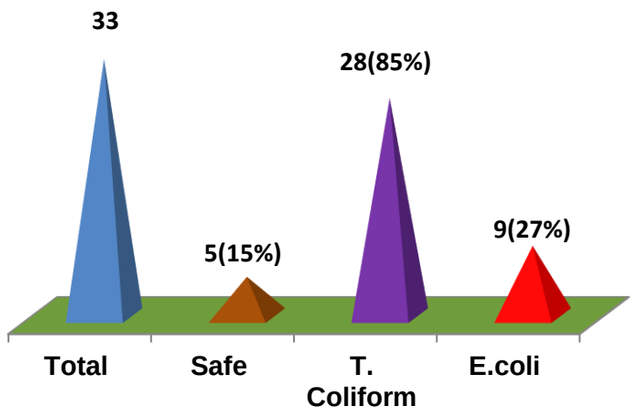
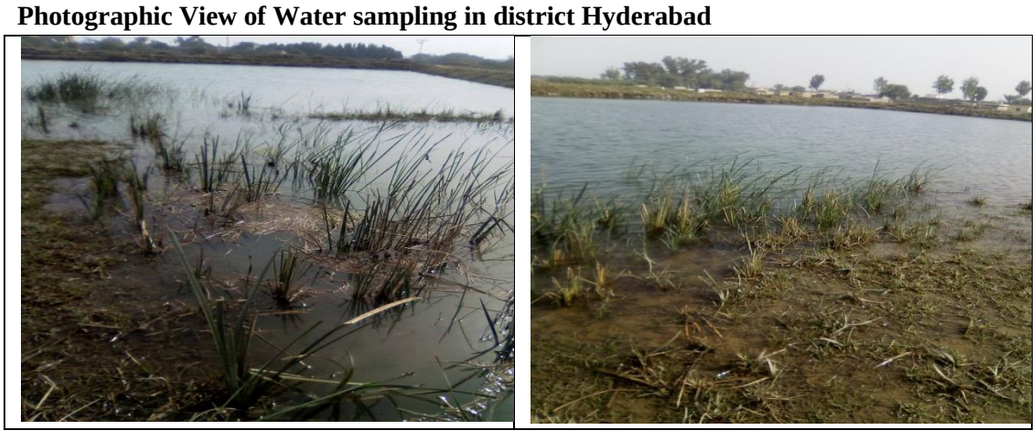


Fig. Percentage samples beyond permissible limits for bacteriological contamination in district Hyderabad

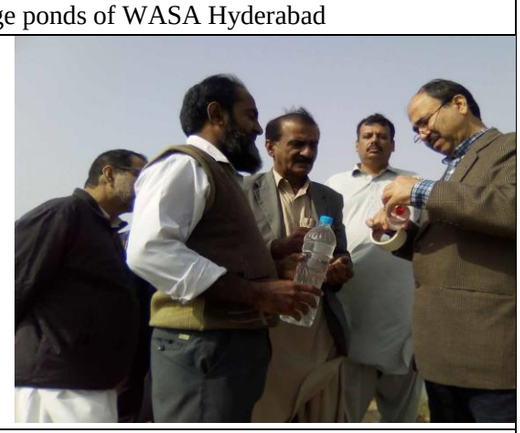
Overall analytical data shows that out of 33 samples 28(85%) were found unsafe for drinking purpose, while only 5(15%) samples were found fit for human consumption for analyzed parameters under prescribed standards.

Photographic View of Water sampling in district Hyderabad



Poor condition of water storage ponds of WASA Hyderabad

View of water treatment plant WASA Hyderabad



Samples sealed by honorable D.C T.M.Khan

Disposal of untreated municipal and industrial waste water into Phulelli canal, Hyderabad. The canal water is used for irrigation as well as human consumption @ downstream.

Test Report of Wastewater Samples

In order to assess the damage caused by industrial effluent being poured in the irrigations canals of Hyderabad, Dr. Ghulam Murtza, Senior Research Officer PCRWR was tasked to collect the wastewater samples and report. He has submitted his report showing presence of high volume of Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), TSS and TDS, and their presence to such a high degree proves that the industries in Hyderabad are not treating effluent before discharge. His most important observation is that the NEQS standards, the criterion to examine the effluent, for waste are only followed when municipal/industrial effluent is disposed of into treatment plants or in sea after treatment and not for the disposal of industrial or sewerage effluents into the fresh water / irrigation canals or into River Indus being supplied for drinking purpose (which under no circumstance is permissible). The relevant parts of his report are reproduced herein below for the purpose of understanding and context.

Seven waste water samples were collected from four main effluent disposal sites. The analysis results of BOD & COD shows that effluents are disposed of into River Indus and irrigation canals without any treatment. All the samples are found highly polluted with BOD and COD. The highest values were measured 580 & 1583 mg/l for BOD and COD respectively in the sample collected from the point where industrial effluent of SITE Latifabad (Behind Fateh Mill) Hyderabad was being disposed of into the Phulleli canal. The sample collected from Phulleli Canal at Darya Khan pumping satiation where industrial plus sewerage effluent was being disposed of was also found

polluted with excessive amount of BOD and COD i.e. 257mg/l and 433 mg/l respectively. The water sample collected from the sewerage effluent being directly disposed of into River Indus at Sehrish Nagar Phase-II Qasimabad, Hyderabad was also found highly polluted with BOD and COD values i.e. 132mg/l and 372 mg/l respectively. The unfit parameters beyond the recommended values are highlighted (Table-).

Table- Waste Water Quality Analysis, Samples Collected in Hyderabad

Sr. No.	Sample Code	TDS (mg/l)	pH	COD (mg/l)	BOD-5(mg/l)	TSS mg/l
1	Hyd-1A	1734	7.1	**372**	**132**	**325**
2	Hyd-1B	870	7.2	**274**	**96**	**408**
3	Hyd-2A	2272	7.1	**433**	**257**	**265**
4	Hyd-2B	1459	7.1	**235**	**90**	**273**
5	Hyd-03	1587	6.8	**1583**	**580**	**7773**
6	Hyd-4A	851	7.1	**280**	**96**	**353**
7	Hyd-4B	531	7.3	69	21	**278**
NEQS Standards		**3500**	**6-9**	**150**	**80**	**200**

TDS Total Dissolved **Solids, TSS** Total Suspended Solids, **COD** Chemical Oxygen Demand **BOD** Biochemical Oxygen Demand

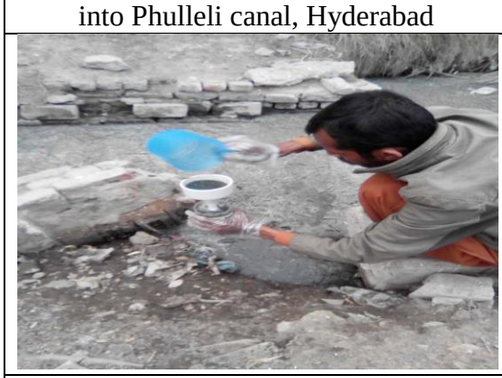
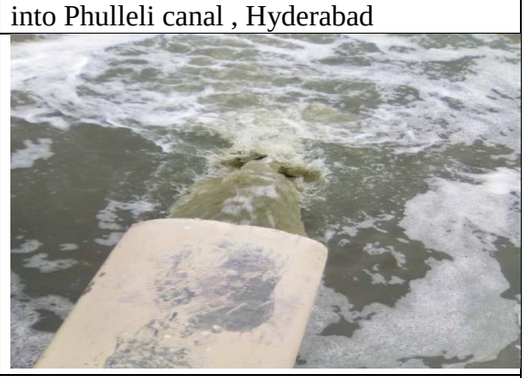
The water sample collected (sample # Hyd-4B) from downstream River Indus at Kotri barrage have also been found polluted with BOD =21mg/l and COD = 69mg/l. However; the heavy metals concentrations from collected samples were found within NEQS limits (Table-).

Table- Heavy Metal Analysis Results of waste water samples Collected in Hyderabad

Sr. No.	Sample Code	Cu mg/l	Ni mg/l	Fe mg/l	Zn mg/l	Mn mg/l
1	Hyd-1A	0.03620	BDL	0.09482	BDL	0.2699
2	Hyd-1B	0.04355	BDL	0.07429	BDL	0.1917
3	Hyd-2A	0.04889	BDL	0.20980	0.01015	0.2350
4	Hyd-2B	0.04473	BDL	0.16601	0.00438	0.1934
5	Hyd-3	0.03273	BDL	0.08629	BDL	0.2734
6	Hyd-4A	0.03401	BDL	0.09031	0.00110	0.1810
7	Hyd-4B	0.04353	BDL	0.09739	BDL	0.1466
NEQS Standards		**1.0**	**1.0**	**2.0**	**5.0**	**1.5**

Pictorial View of Waste Water Effluents disposed of into Fresh water bodies @ Hyderabad Sindh

Disposal of Industrial effluent of SITE Latifabad, Hyderabad into Phulleli Canal @ Darya Khan Pumping Station

	
Disposal of Municipal Sewage Water into Phulleli canal, Hyderabad	Disposal of domestic sewage effluents into Phulleli canal , Hyderabad
	
Sampling from industrial effluent SITE area Latifabad disposed of into Phulleli Canal	Municipal effluent disposed of into River Indus @ Sehrah Nagar, Qasimabad Hyderabad

Remarks

All the wastewater samples collected from Hyderabad exceed NEQS limits recommended for BOD and COD values. The maximum values for BOD and COD were recorded 580mg/l and 1583 mg/l respectively. The worst situation was seen at places of Hyderabad where untreated industrial and sewerage effluent was disposed of into River Indus and irrigation canals which are also source of rural water supply schemes being used for supply of drinking water. The heavy metals were found within the NEQS permissible limits. The reason of which Dr.Ghulam Murtaza has already given in his report of wastewater samples of Karachi that *"it is important to understand that analysis results of few samples out of thousands of industries with analysis of limited heavy metals cannot assure that the effluents are not polluted from heavy metals. For heavy metal analysis sampling from industrial effluents, type of industry, sampling time and frequency of the sampling is very important, which could not be done due time constraints and therefore the pH value for all the samples was found within NEQS standards*".

Problems of WASA

The commissioner Hyderabad has identified following problems which, according to him, have compromised ability of WASA to perform better; and which in my view need a consideration and may be treated as part of recommendations.

WASA's revenues are generated through water and sewerage charges from domestic, commercial and bulk consumer categories. The bulk category includes water connection to Government of Sindh's offices and Federal Government agencies. The total budgeted revenue for the current financial

year 2016-17 from the above mentioned categories has been estimated as Rs.1136 million. As against that, the cumulative expenditure on the salary, pension and office contingencies is Rs.820.959/- (approximately Rs.821 million). The water charges against Hyderabad based Government of Sindh's offices is Rs.406.080 million.

The financial difficulty of WASA is the outcome of non-payment of dues by the Government of Sindh. Past history suggests that WASA received only 22% of its total demand from various offices of the Government of Sindh. WASA has been consistently reaching Finance Department to clear off outstanding dues on account of WASA's genuine and legitimate demand of water charges against GOS's departments which has now soured up-to Rs.2077.557 million.

In the year 2014 when the net default of Government of Sindh was Rs.1466.455 million, the Government of Sindh paid only half of it i.e. Rs.733.774 million and that too, in the name of "Bailout package". The reality is that it was not a bailout but the legitimate arrears of WASA on Government of Sindh. Now this figure has risen up-to Rs.2077.557 million. When Finance Department is approached to clear off GOS's outstanding dues, it surprisingly demands from WASA to produce its "Business Plan". The net result is chronic deficit in the accounts of WASA which compromises its ability to maintain its extensive water supply and sewerage infrastructure.

In the case of WASA Hyderabad, the Government of Sindh may be obliged to make a compulsory arrangement to give at least 40% of the urban immovable property tax collected from Hyderabad. Secondly, the Sindh Building Control Authority which collects 'betterment charges' and 'commercialization charges' while approving building plans may be obligated to transfer these funds to WASA. The reason is two folds – firstly SBCA is a non-development agency as such it does not require finances beyond its salary and office contingencies requirements and secondly, the "betterment" is that of the infrastructure, which is basically water supply and sewerage.

Moreover, commercialization of buildings puts additional burden on the existing water supply and sewerage system of WASA. As such, it is imperative that commercialization charges should also be transferred to WASA. This was an ongoing practice when Building Control function was with Hyderabad Development Authority whose Governing Body in its 108th meeting held on 25.09.2008 had decided to transfer these funds to WASA. With the transfer of these funds from SBCA, it is hoped that WASA would come out of its present financial crunch resulting ultimately in better service delivery.

Summary on Hyderabad

WASA has not been able to shape up as a people-serving and result-producing agency. The figures of amounts shown in the tables reproduced above indicate that millions of rupees have been spent in the name of providing water and improving sanitation condition by WASA but there is no tangible result on the ground in both the sectors. In Qasimabad under Hyderabad Development Package, phase-wise development work on sewerage system is going on and

although two phases with the cost of about 1700 million have been completed, yet WASA has not been able to pass on its benefit to the people. The Western Treatment Plant, where the said sewerage system is proposed to outfall is left abandoned and is non-functional, and unless the said treatment plant is rehabilitated, there will accrue no benefit to the citizens from this sewerage project. This project is the testimony of skewed planning of the Government and it shows lack of dexterity of WASA to make good use of money entrusted to it for development. The planning, feasibility and execution of this sewerage project with the cost shown above calls for an investigation. WASA has failed to maintain and operationalize filter plants and provide potable water to the people of Hyderabad. It has failed to take steps to overcome shortage of drinkable water in Hyderabad. WASA has not been able to maintain and operationalize treatment plants to treat liquid waste before throwing it into irrigation canals. WASA's pumping stations to draw municipal waste are often out of order resulting in overflow of drainage gutters, puddles and accumulation of sewage on the roads. WASA has failed to plead its case properly or devise a mechanism or a plan to realize its outstanding dues from Governments Departments and Agencies.

Irrigation department on its part in Hyderabad has failed in its duty to protect and save sweet water of irrigation canals i.e. Phulleli Canal, Akram Wah and Pinyari Wah from being contaminated by municipal and industrial effluent. It has overlooked this criminal practice going on for the last many years not only in Hyderabad but in every hook and corner of Sindh without reporting and complaining; therefore involvement of its officials in this whole scam is but conspicuous.

SEPA in Hyderabad has utterly failed to play its due role to save sweet water from being contaminated by industrial effluent, and to strive for improvement in the situation except issuing some notices.

The management of solid waste is deplorable in Hyderabad. Muslims have been appointed as sanitary workers, who do not perform janitorial work and yet they are being paid salaries. Neither the TMAs nor the District Management is willing to take action against them. The TMAs of Hyderabad along with District Management are responsible for deplorable management of Solid Waste in Hyderabad.

District Management tried to justify its inaction on the subject issues on the excuse of paucity of funds without fist explaining past spending of millions of rupees by showing any ground result. Only after the Commission sought explanation of the position, answers were contrived.

LARKANA

The commission held proceedings at High Court of Sindh circuit court Larkana on 16.01.2017. In Larkana, the people use underground water for drinking. As per estimation of M.D. SEPA (which, however, did not appear to be based on any study), the municipal waste of about 20MGD is generated in the city, and all that sewage is being discharged in Rice Canal and Dadu Canal and on from these two canals the water, for water supply schemes of various cities i.e. Dadu, Johi, etc., is taken. In the visit of the City, the Commission found out that the four oxidation ponds namely Pir Sher Road, Akil Road, Phull Road and Mahar

Wada Road built in the year 1998 for treatment of wastewater with the designed life of more than 50 years are lying non-functional since 2007 mainly due to encroachments. NSUSC is tasked with the responsibility of managing solid waste of about 300 tons of this city. It has spent Rs.393 million on operational work and Rs.360 million on capital work for this purpose, yet no tangible result in this respect was witnessed in the City. The garbage was seen either on the streets, or dumped on the banks of Rice and Dadu Canals, or being burnt openly. This position during the visit could not be denied by M.D. NSUSC. There is no dumping or landfill site in the city for management of solid waste in Larkana. One R.O plant installed by PHED at Rehmatpur Dargah Larkana is lying non-functional for the last 3 years

During the visit of Chandka Medical College Hospital, it was observed that waste which includes toxic and infectious waste was being disposed of like ordinary municipal waste and/or washed off into municipal drainage system which ultimately ends up in Rice and Dadu Canals. The incinerator meant to burn infectious and toxic waste of hospital was lying non-functional since years together. The wards were filthy and unhygienic having no proper arrangement of waste disposal. Same was the position of private hospitals. It was obvious that hospitals were not following the Hospital Waste Management Rules, 2014, but no action was being taken by Health Department. Apart from visiting other localities of the city which led to discovery of many points being used for directly throwing liquid waste in the Rice and Dadu Canals, the undersigned went to Mashori Pumping Station located out of the main city, where untreated municipal effluent from SCARP drain was being pumped in Rice Canal, which due to closure was almost empty, and down that pumping station countless human inhabitants taking water for drinking and irrigation purpose from the canal were available. There was not even a proper drainage system for disposal of waste from the city.

Test Report of Water Samples

Thirty three water samples were collected from district Larkana. Out of 33 samples 32 were collected from subsoil sources i.e. hand pumps while one sample was collected from surface water source i.e. rice canal.

Physicochemical Characteristics:

The analytical results shows that out of 33 water samples collected, 7(21%) samples were found unsafe due to presence of turbidity beyond the safe limit (5NTU). The highest value for turbidity was measured 42.4 NTU. 20(61%) samples were found unsafe due to presence of Total Dissolved Solids (TDS) content beyond the maximum permissible limit (1000mg/l). Highest concentration for TDS was measured 4646mg/l. Twenty one samples (64%) were found unsafe due to the presence of sodium and sulfate content beyond the maximum permissible limit (200 & 250mg/l) recommended for safe drinking water. The highest concentrations were measured 1270mg/l, and 1440mg/l sodium and sulfate respectively (Fig.).

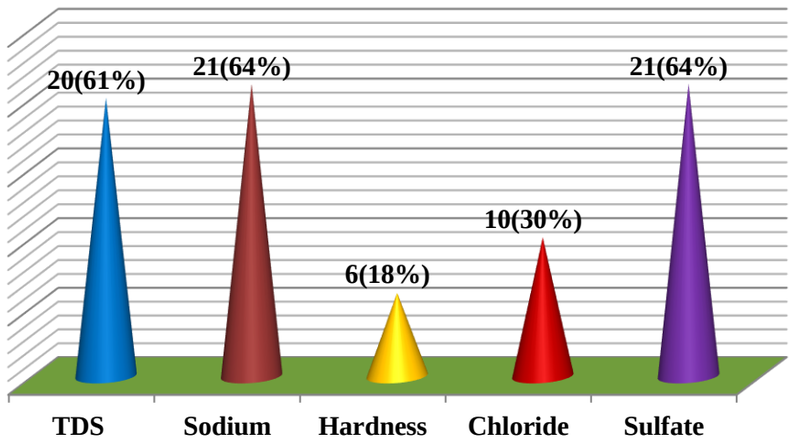


Fig. Percentage samples beyond permissible limits for different parameters in district Larkana

Ten water samples (30%) were found unfit for human consumption due to presence of chloride ion beyond the permissible limit (250mg/l). The highest concentration of chloride ion was measured as 886mg/l. Six samples (18%) were found unsafe for drinking due to the presence of hardness beyond the maximum permissible limit (500mg/l). The highest value of hardness was measured 820mg/l (Fig.).

Microbiological Contamination:

Twenty nine (88%) water samples collected were found unsafe for human consumption due to the bacteriological contamination i.e. presence of Total coliforms. Five (15%) samples were found fecal contaminated i.e. presence of E.coli. Only four water samples (12%) were found bacteriologically safe for human consumption (Fig.).

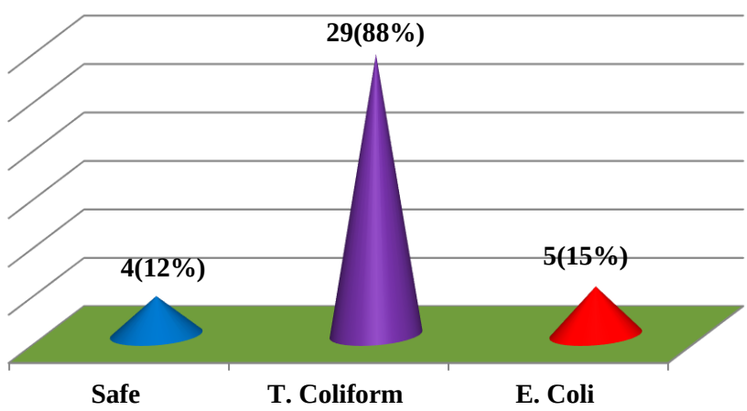


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Larkana

Overall analytical data shows that out of 33 samples 29(88%) were found unsafe while only 4(12%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

Summary on Larkana

For the citizens of Larkana, the underground water is the only source of drinking, and therefore, it is the responsibility of the Government to save it. But, the Government in the past has never got the underground water analyzed to

determine the parameters set by WHO in respect of drinking water. The above report of PCRWR has unambiguously revealed that underground water of Larkana has become mostly unsafe for drinking. And this fact points out to the failure of Sindh Government to supply drinking water to the people of Larkarna and/or to take measures to save underground water from being polluted.

About 20MGD municipal waste is generated in the city, which all goes into Rice Canal and Dadu Canal from where people of Dadu, Johi etc. are taking water for drinking. The four oxidation ponds namely Pir Sher Road, Akil Road, Phull Road and Mahar Wada Road built in the year 1998 for treatment of waste water with the designed life of more than 50 years are lying non-functional since 2007 due to encroachments, but District Management has failed to take any action against the encroachers and rehabilitate them. NSUSC is tasked here with the responsibility of managing solid waste of about 300 tons being produced by the city, and it has spent millions of rupees but has not been able to bring about some tangible result in this regard. Mostly the streets were seen littered with the solid waste and in some area the solid waste was seen being dumped on the banks of Rice and Dadu Canals or being burnt openly. There is no dumping or landfill site in the city for management of solid waste. One R.O plant installed by PHED at Rehmatpur Dargah Larkana is lying non-functional for the last 3 years due to negligence of PHED and District Management.

In Chandka Medical College Hospital, the waste which includes toxic and infectious waste was witnessed being disposed of like ordinary municipal waste and/or washed off in municipal drainage system which ultimately ends up in Rice and Dadu Canals. The incinerator meant to burn infectious and toxic waste of hospital was lying non-functional since years together. The wards were filthy and unhygienic with no proper arrangement of waste disposal. The Medical Superintendent has failed to manage hospital waste in accordance with the provision of Hospital Waste Management rules, 2014. Same is the position of private hospitals, but the Health Department has conspicuously failed to attend to this issue and to take steps for enforcement of the law. At Mashori Pumping Station located out of the main city, the untreated municipal effluent from SCARP drain was being pumped in Rice Canal and down that pumping station countless human inhabitants are available, which take water for drinking and irrigation purposes from the canal. Overall condition of Larkana in respect of sanitation was poor; no improvement under NSUSC was seen. There was not even a proper drainage system for disposal of waste from the city.

SHIKARPUR

The Commission held proceedings in District & Sessions Court Building Shikarpur on 17.01.2017. Population of Shikapur city is almost 5 lac and people here use underground water for drinking purpose. However, as PCRWR report suggests, the water of Shikarpur is no more safe for drinking, and this has happened due to constant overflow of gutters and accumulation of sewerage on the roads,. The outlets meant for rain-water drainage have been illegally occupied by the different people, but the District Authorities are not taking any action to reclaim such outlets. Chief Engineer PHED, Mr. Ram Chand Sanjhri admitted before the Commission that in the past no effort to

test the underground water in the city has ever been made to determine its drinkability.

Mr. Saeed Ahmed Channer P.D. SCARP Sukkar also admitted that through various pumping stations, sewage water available in SCARP Drains was being discharged without treatment in irrigation canals i.e. Begari Canal and Rice Canal, whose water is being used by many people not only for irrigation but also for drinking. Mr. Muhammad Waseem, Additional Chief Secretary Development who was present before the Commission in Shikarpur conceded that not only in that region but in entire Sindh the Pumping Stations over SCARP Drains were discharging sewage water in irrigation canals.

The Commission also noted that TMAs were appointing Muslims as sanitary workers, who do not perform their duties but no action is being taken against them, which in turn has worsened sewerage situation. In Shikarpur there are two Oxidation ponds situated on Larkana Bypass Road and Zarkhail Road, but both have been illegally occupied by the people. For disposal of solid waste, no landfill site is available in Shikarpur. The land measuring about 135 acres situated in Deh Rais wah opposite old Seven up factory Larkana belonging to TMA Shikarpur earmarked for that purpose has also been illegally occupied.

The undersigned also visited Shikarpur city. The waste water was seen being drained in Chhota Begari Wah without any treatment. People disclosed that from the canal they take water for drinking purpose. While doing rounds of the city, the filth, dirt, puddles and mud were seen available on the streets and roads. At some places pungent sewage water was witnessed pooled over the roads in front of the shops and hotels. No proper network for draining out such waste water was noted. Solid waste in heaps was lying in front of the houses and shops. Municipal services for removal of such solid waste were absent. It was apparent that people were living in a highly unhygienic and filthy atmosphere. On the site of Sim Nala Larkana Bypass meant for draining out the sewage water, the encroachments comprising building structures were seen. It was pointed out by the District Officials that if said drain Nala was made functional fully, half of the sewerage problems of the city would be solved. The undersigned also visited office of NSUSC in Shikarpur City where, it was informed that only one complaint from the entire city, facing myriad sanitation problems, was received. But no one from the staff of NSUSC could explain properly that how the said complaint was being processed and the grievance of the complainant redressed.

It was also noted that cattle-pans available in the hub of city were worsening sanitation problems as the dung and other wastes being produced by the animals were being openly washed off in drainage system of the city choking sewerage lines and main gutters leading to overflow of sewage on roads and streets.

Test Report of Water Samples

Water samples n=28 were collected from underground water sources i.e. hand pumps in district Shikarpur. There was no surface water sampling in Shikarpur as water supply schemes are nonfunctional there.

Physicochemical Characteristics:

The analytical results show that out of 28 water samples collected, 4(14%) samples were found unsafe due to presence of turbidity beyond the safe limit (5NTU) and 01(4%) sample was found unsafe due presence of color.

Whereas; out of 28 water samples 13(46%) samples were found unsafe due to presence of Total Dissolved Solids (TDS), sodium and chloride content beyond the maximum permissible limit. The highest concentrations were measured 2470mg/l, 670mg/l and 851mg/l for TDS, sodium and chloride respectively. Eleven samples (39%) were found unfit for human consumption due to presence of sulfate content beyond the maximum permissible limit (250mg/l). The highest value for sulfate was measured as 510mg/l. Five samples (18%) were found unsafe for drinking due to presence of hardness beyond the maximum permissible limit (500mg/l). The highest value of hardness was measured 850mg/l (Fig.).

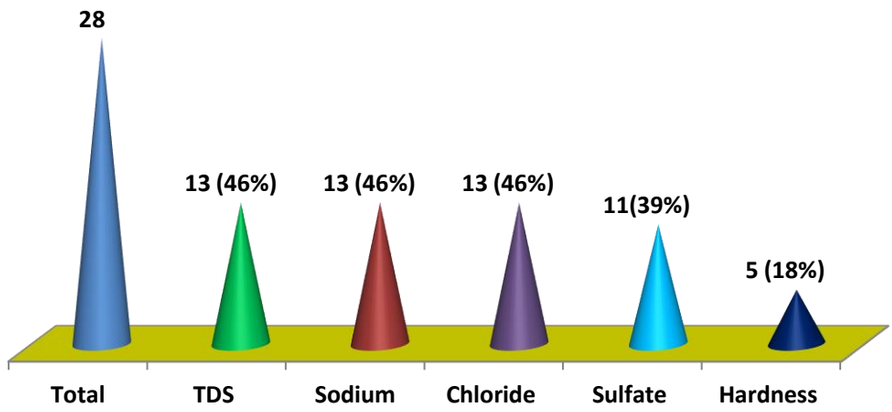


Fig. Percentage samples beyond permissible limits for different parameters in district Shikarpur

Three samples (11%) were found unsafe due to the presence of potassium content beyond the safe limit (30mg/l). The highest concentration of potassium was measured 96mg/l in the sample collected from Hand Pump installed @ house of Mr. Mohammad Dawood, Ward No.17 Shikarpur. However; one sample (4%) was found polluted with iron content beyond the permissible limit with concentration of 0.7247mg/l (Fig.).

Microbiological Contamination:

Twenty Two (79%) out of twenty eight water samples collected were found unsafe for human consumption due to the bacteriological contamination i.e. presence of Total coliforms. Only six water samples (21%) were found bacteriologically safe for human consumption (Fig.).

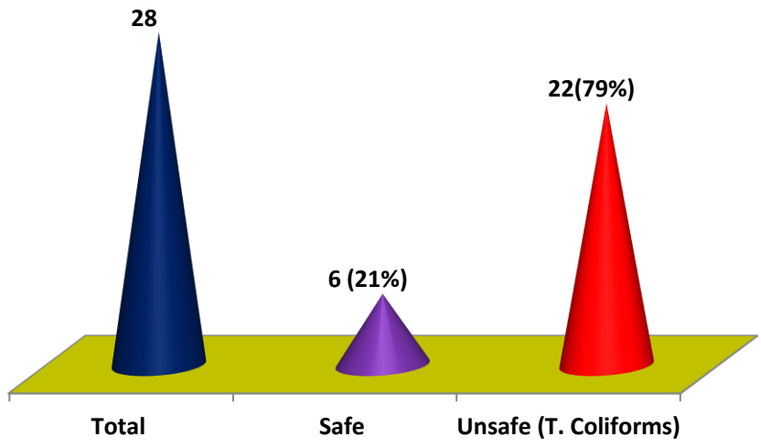


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Shikarpur

Overall data shows that out of 28 samples 22(79%) were found unsafe while 6(21%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

Summary on Shikarpur

In Shikarpur people use underground water for drinking purpose, therefore it is the duty of Sindh Government to protect it, but history shows that never in the past the Government made any effort to get the water analyzed to determine its drinkability. The above report has, however, proved that the underground water of Shikarpur has become mostly unsafe for drinking. It is obvious therefore that the Government has failed to not only supply drinking water to the people of this city but to take some measures to save the purity of underground water here.

The outlets meant for rain-water drainage have been illegally occupied by the different people, which is the main cause of overflow of gutters and accumulation of sewage on the streets and roads. The Oxidation Ponds on Larkana Bypass Road and Zarkhail Road have been illegally occupied by the people. But District Management including Irrigation Department, the custodian of SCARP drains, does not take any action against encroachers to reclaim such outlets.

From various pumping stations, sewage water available in SCARP Drains is being discharged without treatment in irrigation canals i.e. Begari Canal and Rice Canal, whose water is being used by many people for drinking. Many Muslims have been appointed as sanitary workers, who do not perform their duties but no action is being taken by the TMAs against them. There is no landfill site for disposal of solid waste in Shikarpur, the same is being thrown on the roads or on make-shift sites. On the roads of the city, the filth, dirt, puddles and mud was seen and at some places pungent sewage water was observed pooled on the roads in front of the shops and hotels. No proper network for draining out such waste water was noted either. Solid waste in heaps was lying in front of the houses and shops. The cattle-pans are situated inside the city and are worsening sanitation problems as the dung and other

wastes being produced by the animals are being washed off in drainage system of the city, which is ultimately choking sewerage lines and main gutters causing overflow of sewage on roads and streets. The people of Shikarpur are living in a highly unhygienic and filthy atmosphere. The NSUSC has not been able to improve condition of the city viz-a-viz wastewater and solid waste management. The District Management not only failed to check encroachment in the past on SCARP drains, but has also not taken any action recently to remove them to solve sanitation problem. Irrigation department has also failed to stop fallout of waste water into irrigation channels.

JACOBABAD

The Commission held proceedings in District Court Building Jacobabad on 08.01.2017.

Population of Jacobabad City is about 2,50,000 to 275000. The source of drinking water for this city is from Kheerthar Canal. From Kheerthar canal the water is brought in three lagoons / water ponds by way of gravity and pumping and from these three water ponds the water is being brought to a Filter plant through pumping. The said Filter plant is situated at Moladad road and is said to be built by FWO at the cost of Rs.1250 million, half of the funds were provided by Federal Government and half by Sindh Govt. and after completion was handed over to TMA Jacobabad in the year 2008. This Filter Plant worked for a year continuously and people received ample potable water without witnessing shortage of water. However, after a year, the supply of water to the people started deteriorating from this filter plant and eventually it stopped working. Now according to the prevalent situation, only raw water having all the contamination is being provided to the people. In January, 2016 the Filter Plant along-with all its operational equipments was handed over to the NSUSC, as the NSUSC in view of agreement with M.C. Jacobabad has been tasked to provide clean water to the people of Jacobabad. Mr. Ashfaque Ali Assistant Manager and Mr. Babar Hussain, Assistant Manager NSUSC informed that through this Filtration Plant 5MGD is supplied to the people of Jacobabad but without filtration. However, Mr. Saeed Zubair and Mr. Syed Ali Shah Project Manager Jacobabad PSQ disclosed that rehabilitation of the Filter Plant under the US funding was in full swing and hopefully it would be completed till June, 2017 where after the capacity of filter plant would increase from 5 MGD to 13 MGD per day. On the one hand, the unfiltered water is being supplied to the people of this city, and on the other distribution system of water supply lines has blended with drain/sewage lines/ Nalas, which has further exacerbated the situation. When confronted with these facts, it was disclosed by Deputy Commissioner that along-with rehabilitation work of the filter plant, repairing work of water supply lines was in progress.

There are four oxidation ponds to treat drain water of the city but currently none of them is functional and the effluent generated by the city is being released to the lands belonging to the people. But a scheme to make all the four oxidation ponds functional was in progress. In the year 2014 an Urban Drainage scheme program was built at the cost of 1500 million. It was executed by P.D i.e. D.C. Shahzaman Khuhro, RCC as consultant and four private contractors under the supervision of Buildings Department headed by

Mr. Muhammad Ali Depar XEN. Citizen of Jacobabad informed that said project failed in no time rendering the roads of Jacobabad inundated with sewage. Latter on during the visit this position of the city was confirmed. Subsequently Secretary Local Government Department was called on to file the statement on this issue. He has filed the statement, which reveals that a scheme namely Extension/Improvement of Urban Drainage Scheme Jacobabad was approved at the cost of 637.65 million in the year 2008, 608 million were spent but the scheme was not completed. Revised P.C.I at the cost of Rs.1187.000 million was approved. Then the scheme was shown completed in the year 2015-16 and phased out from ADP 2015-16. It was disclosed by NSUSC representative that under the said project four disposal stations with the merger of 20 small disposal stations were to be built but when they took over no work was seen by them in this regard. It is obvious that despite spending huge sums of money, the scheme neither could be completed nor any benefit of it extended to the people. The filter plant situated in the vicinity of the city was visited. Its infrastructure appeared in good shape, but it was not functional.

Summary on Jacobabad

The source of drinking water for this city is Kheerthar Canal. There is a Filter Plant built by FWO which was handed over to TMA Jacobabad in the year 2008 after completion, but due to inefficiency of TMA this Filter Plant worked only for a year and people received potable water. However, after a year, the supply of water to the people started deteriorating from this filter plant and eventually it stopped working. Currently, the water supplied to the people is raw water with all the contamination. NSUSC has been tasked to provide clean water to the people of Jacobabad, but so far it has not been able to revive and rehabilitate the said Filter Plant. However, it was noted during the visit that some repair work on that filter plant was going on. The water supply lines of the city have been mixed with drain/sewage lines/ Nalas, which has further worsened already poor condition of water supply.

The four oxidation ponds to treat drain water of the city are lying non-functional and the effluent generated by the city is being released to the lands belonging to the people. In the year 2014 an Urban Drainage scheme program was built at the cost of about 1200 million. It was executed by P.D i.e. D.C. Shahzaman Khuhro, RCC as consultant and four private contractors under the supervision of Buildings Department headed by Mr. Muhammad Ali Depar XEN, but this scheme did not work since inception and completely collapsed within no time. During the proceeding, the report on this scheme was called which was submitted by the Secretary Local Government Department confirming the above facts. But still the responsibility has not been fixed by the Local Department on the Executing Officials and others concerned and no action has been taken against the responsible officials. The Commission humbly proposes that investigation into the said matter may be ordered.

SUKKUR

The Commission held proceedings at High court of Sindh, Bench at Sukkur on 18.01.2017.

The Deputy Commissioner Sukkur, M.D. NSUSC were present, they were examined. Their statements would reveal that population of Sukkur City is about 10,000,00. The sources of drinkable water for the people of this city are Indus River and Kheerthar Canal. From River Indus and Kheerthar Canal 18/20 MGD water is being pumped to lagoons situated at Numaishgah and Airport Maka Goth, and then water is transmitted to two Filtration Plants situated at Numaishgah and Bandar road, where the water is retained in retention tanks and then supplied. And by such procedure, M.D. NSUSC claimed that turbidity volume in the water is reduced substantially, but he admitted that by this procedure the turbidity was not reduced to a level fit for human consumption, which could only be achieved after full filtration of the water. During the visit, the two Filtration Plants available in the city were found non-functional in that there was no procedure of filtration of water. The water being supplied to the people of Sukkar is raw water. It was revealed that a scheme namely Water Intake at Bakhar Island was in progress and only after completion of the said project, clean water would be provided to the people. The undersigned visited Filter Plant situated in front of Pumping Station Bander Road, where only the arrangement of mixing alum with the water was seen. At Filter Plant namely Azizabad 04 lagoons were noted with some retained water available on the bottom. At the start Pumping Motors were not functional there but after some time were put on. Laboratory in the said facility was also visited. The record of Lab tests reflected that physical, chemical and microbiological parameters in high volume not fit for human consumption were present in the water. Mr. Sulleman Chandio, amicus curia, disclosed that the lagoons and retention tanks contribute nothing except reducing turbidity nominally and such procedure does not kill biological bacteria, which was not denied by NSUSC officials. It was clear that people of Sukkur were being provided contaminated water.

Sukkur City produces 11 MGD sewerage per day which also includes effluent generated by about 76 industrial units available there. During visit, at a point near Miani Disposal Station municipal sewage was seen being directly released in bulk quantity into River Indus without any treatment. NSUSC representative could not explain the position, and he in reply to a question revealed that the quantity of discharged sewerage was 3 MGD. During visit it was noted that in Sukkur there are two intake points in the Indus River to take water from for drinking. Before and after these two points the municipal and industrial sewage from Azizabad Disposal Pumping Station and Bakhar Disposal Pumping Station is being released in the River without treatment. Sukkur Barrage, from where various irrigation canals/ tributaries originate, which cater to, inter alia, needs of drinking water of different cities, is also located down these disposal points of sewerage. When asked, it was disclosed by NSUSC and District Officials that there was no scheme for treatment of sewage being released directly in River Indus.

Test Report of Water Samples

Altogether, 40 drinking water samples were collected from district Sukkur out of which 32 samples were collected from surface water sources i.e. water supply schemes at source & consumer end, eight water samples were collected from underground water sources.

Physicochemical Characteristics:

The analytical results compared with WHO and NEQS water quality standards found that out of 40 water samples collected, 16(40%) samples were found unsafe due to presence of turbidity beyond the safe limit and 10(25%) samples were found unsafe for drinking due to presence of color, while 03(8%) samples were found unfit due to objectionable taste.

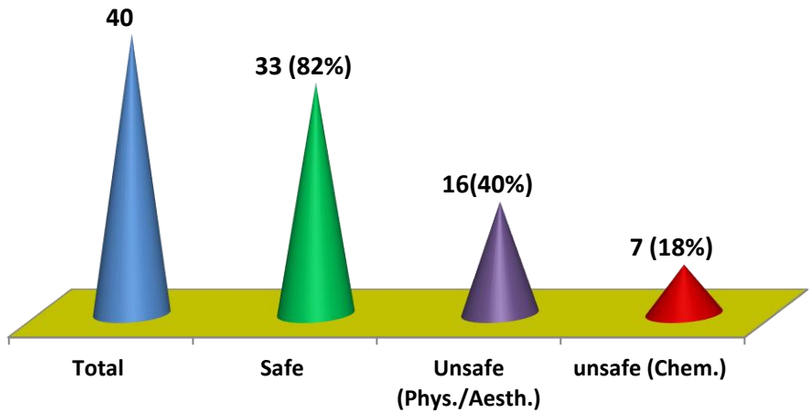


Fig. Percentage samples beyond permissible limits for different parameters in district Sukkur

Whereas; out of 40 water samples, 02(5%) samples were found unsafe due to presence of Total Dissolved Solids (TDS), hardness, sodium and chloride content beyond the maximum permissible limit. The highest concentration for TDS, hardness, sodium and chloride were measured 2470mg/l, 680mg/l, 410mg/l and 319mg/l respectively. Five samples (12.5%) were found unsafe for drinking due to presence of potassium content beyond the permissible limit (30mg/l, PSQCA). The maximum concentration of potassium was measured 75.5mg/l.

Three samples (8%) were found unfit for human consumption due to presence of sulfate content beyond the maximum permissible limit (250mg/l). The highest value for sulfate was measured as 1120mg/l. Three samples (8%) were found unsafe due to the presence of fluoride content beyond the safe limit (1.5mg/l). The highest concentration of fluoride was measured 2.53mg/l. Seven (07) samples (18%) were found polluted with iron content beyond the maximum permissible limit (0.3mg/l). The maximum concentration of iron was measured 1.7406 mg/l (Fig.).

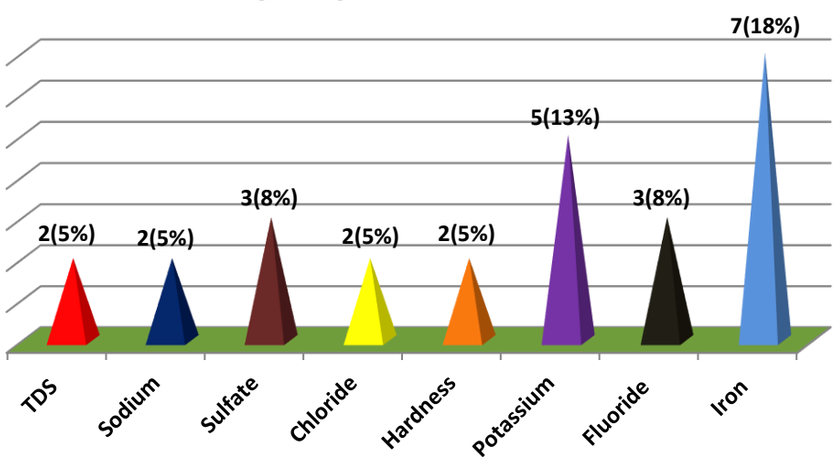


Fig. Percentage samples beyond permissible limits for different parameters in district Sukkur.

Microbiological Contamination:

Thirty Three (82.5%) out of 40 water samples collected were found unsafe for human consumption due to bacteriological contamination i.e. presence of Total coliforms. Twelve (30%) samples found fecal contaminated i.e. presence of E.coli. Only seven water samples (17.5%) were found bacteriologically free and safe for human consumption (Fig.).

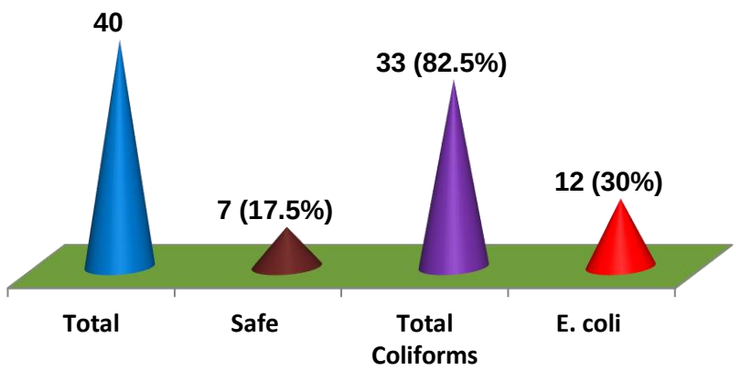


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Sukkur

Overall analytical data of samples collected in district Sukkur shows that out of 40 samples 33(82%) were found unsafe for drinking purpose, while 7(18%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

Summary on Sukkur

The source of drinkable water for the people of this city is Indus River. The water is transmitted to two Filtration Plants where only procedure of sedimentation is taking place. Even M.D. NSUSC admitted that by this procedure the turbidity cannot be reduced to a level fit for human consumption. The said two Filtration Plants during visit were found non-functional; and at only one filter plant the procedure of mixing alum with the water was seen, that too without scientific procedure whereby the alum dose shall be given through Clarifier according to volume of turbidity. The water being supplied to the people of Sukkur is raw water and is not safe for drinking which is confirmed by the repot above. At Filter Plant namely Azizabad, an examination of record of Lab tests revealed that the water being provided from there was not entirely fit for human consumption.

11 MGD sewerage being produced by the city per day is going into River Indus from three points, and before and after these points intake pumping stations of drinking water are located. There is no scheme for treatment of sewage. The NSUSC, which is responsible for providing potable water and keep sanitation, has not been able to achieve and tangible result in both the areas. The water being supplied is raw and unsafe. Instead of laying network of drainage lines for disposing of sewerage after treatment; NSUSC is very

conveniently throwing all the sewerage of the city in watery bodies. The Irrigation Department whose duty it is to protect watery bodies from such contamination has failed to stop this situation and take action.

THATTA

The Commission assembled in District & Sessions Court Building, Thatta on 06.02.2017. The population of Thatta is between 04 to 05 lac. The Deputy Commissioner being overall head of the district is responsible along with Municipal Authorities and PEHD to provide drinking water to the people of Thatta and keep sanitation; however the situation which was witnessed there speaks volumes about failure, intransigence, lethargy, and inaction on the part of the District Management. During visit it was found that unfiltered and un-chlorinated water was being provided to the people for drinking from Thatta Wah and Jam Wah, which originate from K.B. Feeder. In so-called filter plants, only settlement procedure is being adopted, which is to retain water in lagoons for some time for settling turbidity. People were seen fetching water on donkey-carts despite claims of water-supply schemes by the District Management and Municipal Authorities. At Water Supply Schemes Thatta City, the water wells where water is stored before supply seemed filthy and unhygienic.

In Thatta City only, 04 RO. Plants viz. Dargah Shah Ibrahim, Christian Colony Thatta, Shaikh Mohallah Thatta and Islampur Mohallah Thatta have been installed, out of which, one RO plant namely Shaikh Mohallah Thatta is non-functional. Since installations of the RO plants in 2013, the membrane, which is used for removing minerals and reducing turbidity volume to some extent, has never been changed. The water, supplied from the RO Plants has never been got tested through any laboratory to determine its drinkability.

In the entire district Thatta, 51 RO plants have been installed, but only 25 are functional. Huge amounts of money are being spent on the operation and maintenance of these R.O. Plants by Special Initiative Department. At R.O. Plant namely Narejo Village situated on Makli Thatta, TDS volume was checked by Dr. Ahsan Siddique and his team, at inlet it was 1416 and at Outlet it was 1364 which is beyond maximum limit (1000).

Municipal sewerage is being discharged in SCARP drains which ultimately end up in the creeks. As for Hospital waste, the same is being disposed of by burning inside the hospital without incinerator and liquid waste is thrown in pits and then mixed with municipal waste.

BADIN

Commission assembled in District and Sessions Court, Badin on 06.02.2017at about 6:00 pm.

The population of Badin City is about 1,40,000/-, and of entire District, it is 300,00,000/-. There are two Water Supply Schemes namely Phase-I and II. Water is being supplied to the people for drinking from Akram Wah which originates from River Indus. Additionally there are six R.O Plants in the city providing water for drinking. But there is no lab system to check water quality at these R.O Plants. The District Management including Executive Engineer

PHED admitted in the proceedings that no lab test of water samples supplied from R.O. plants has ever been carried out to determine its drinkability. And on operation and maintenance of these R.O. plants, PHED at the end of every financial year pays all expenditure to the Pak Oasis, the contractor entrusted to run R.O. plants. The XEN PHED in reply to a question revealed that they do not verify the expenditure shown or conduct inspection or check the condition of R.O. Plants before making payments. There are 16 lagoons where initially water is stored after taking from Akram Wah and then supplied. At these lagoons, the Deputy Commissioner claimed, the water is mixed with Alum and Bleach powder and then supplied. This procedure according to the opinion of Dr. Ahsan Siddiqui, the water technologist, is against the recommended technique whereby alum dosing has to be done as per turbidity volume only through Clarifier to have requisite results; otherwise sludge accumulates in the bottom of the lagoons creating paradise for Nigleria.

Badin has no dumping or landfill site. There is no solid waste management plan either in Badin. The solid waste after collection is thrown outside of the city in open and left unattended.

Same is the position of hospital waste in Badin. The incinerator installed in the Hospital is nonfunctional for a long time. The waste which also contains infectious waste is being disposed of into municipal system like ordinary garbage. There is one R.O. plant in the hospital which was installed by Pak Oasis, but neither its maintenance has ever been done nor the quality of the water checked to ensure whether or not it is potable.

At Old Water supply scheme Phase II, there are 03 lagoons where raw water is taken from Qazia Wah, stored and supplied. But in the said Wah before the point of intake, the municipal waste is being discharged by many house-holds built on both of its banks. The 04 R.O. Plants at this water supply scheme, and 02 R.O Plants at water supply scheme (New), all operated and maintained by Pak Oasis, were inspected, but no lab reports to establish regular monitoring of the water quality was produced by In charge, Pak Oasis.

The visit of Improvement and Extension of Urban Drainage scheme Badin revealed that waste water was going into SCARP drain falling in LBOD, which ultimately outfalls into sea. There is no treatment of liquid waste at any stage.

Test Report of Water Samples

Altogether, 45 drinking water samples were collected from district Badin out which 29 samples were collected from surface water sources i.e. water supply schemes at source & consumer end, sixteen water samples were collected from underground water sources.

Physicochemical Characteristics:

The analytical results compared with WHO and PSQCA water quality standards found that out of 45 drinking water samples collected, 22 (49%) water sample were unsafe due to presence of turbidity beyond the safe limit and 09 (20%) samples were found unsafe for drinking due the pH values beyond the safe limits (6.5-8.5) Fig.

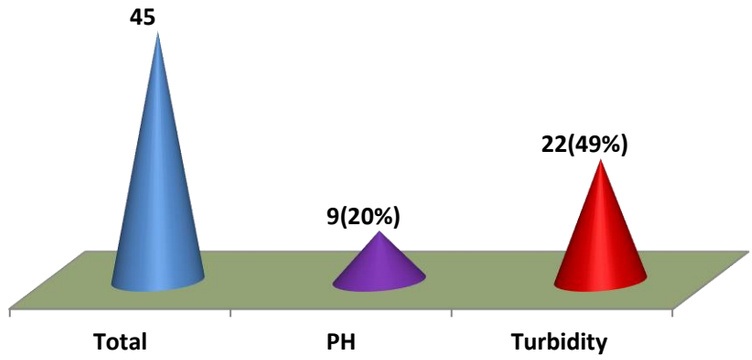


Fig. Percentage samples beyond permissible limits for different parameters in district Badin

Whereas; out of 45 water samples, 12(27%) were found unsafe due to presence of Total Dissolved Solids (TDS) content beyond the maximum permissible limit (1000mg/l), maximum concentration for TDS was measured 2214mg/l. Six samples (13%) were found unsafe due to presence of hardness values beyond permissible limit (500mg/l). The highest value for hardness was measured as 880mg/l. Water samples n=11 (24%) were found unfit for human consumption due to presence of sodium content beyond the maximum permissible limit (200mg/l). The highest concentration for sodium was measured 424mg/l. Twelve samples (27%) were found unsafe for human consumption due to the presence of chloride content beyond the safe limit (250mg/l). The highest value for chloride ion was measured 730mg/l. Seven samples (16%) were found unfit for human consumption due to presence of sulfate content beyond the maximum permissible limit. The highest value for sulfate was measured as 440mg/l. One sample (2%) was found unsafe due the presence of calcium and potassium content beyond the safe limit. Three samples (7%) were found unsafe due to the presence of fluoride content beyond the safe limit (1.5mg/l). The highest concentration of fluoride was measured 2.24mg/l. Two samples (4%) were found polluted with iron content beyond the maximum permissible limit (0.3mg/l). The maximum concentration of iron was measured 0.4553mg/l.

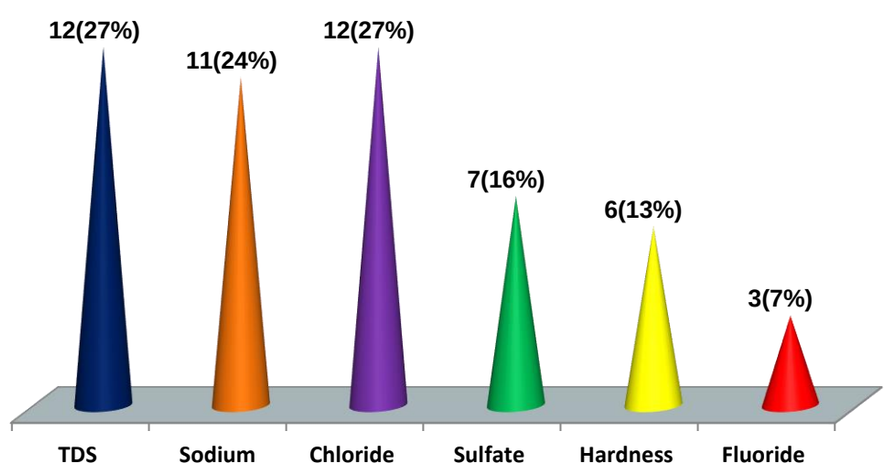


Fig. Percentage samples beyond permissible limits for different parameters in district Badin

Microbiological Contamination:

Thirty (67%) out of 45 drinking water samples were found unsafe for human consumption due to the bacteriological contamination (presence of Total coliforms). Eight (18%) samples were found fecal contaminated i.e. presence of E.coli. Only Fifteen water samples (33%) were found bacteriological safe for human consumption (Fig.).

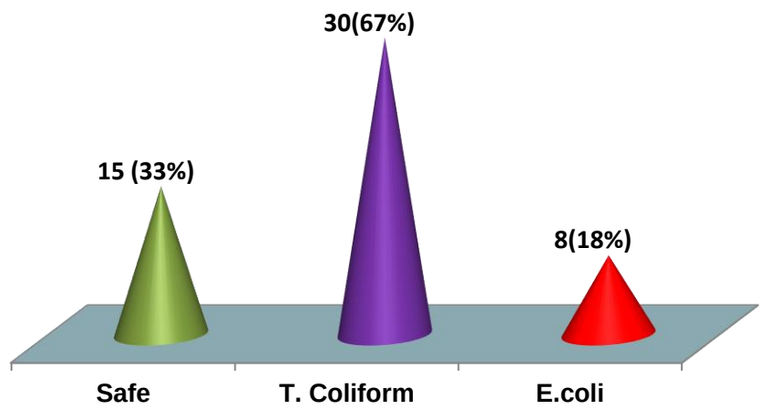


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Badin

Overall data shows that out of 45 samples, 30(67%) were found unsafe for drinking purpose, while 15(33%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

Summary on Badin

From the above report, it is clear that District Management and Municipal Authorities have failed to supply potable water to the people. There is no shortage of sweet water in Badin, but R.O. Plants have been installed on the pretext of providing clean water to the people. But surprisingly there is no lab system to check quality of water in the light of physical, chemical and biological parameters set by WHO. However, on maintenance and operation of R.O. Plants millions are being paid by Sindh Government to Pak Oasis without even verifying the expenditure shown by it.

THARPARKAR

Commission assembled in District & Sessions Court Building Tharparkar @ Mithi at 1.00 pm on 07.02.2-17.

The Commission was informed that population of District Tharparkar is about 9,15,000. There is a water supply scheme to provide water from Rin Shakh Pumping Station Naon Kot, which gets water from Mithrao Irrigation Canal, but water is rarely provided from this scheme. Hence to provide potable water to the citizens 778 R.O. Plants have been installed, 700 R.O. Plants by Special Initiative Department, Government of Sindh, and 78 by Sindh Coal Authority. However, during the proceedings, it transpired that only 412 R.O. Plants are functional, 156 are nonfunctional, 92 are under construction and for 118 R.O. Plants proposals have been sent. All the R.O. Plants have been entrusted to Pak Oasis, a private company, for maintenance and operation by Special Initiative Department and Sindh Coal Authority. On maintenance and

operation of small R.O. Plants Pak Oasis is charging Rs.20,000/- per month, whereas in the case of big R.O. Plants the company is charging Rs.160/ per 1000 Gallons from the Government of Sindh, and it is claimed, that every day from big R.O. Plants, 10 Lac gallons of water or more is being produced and supplied to the people. There is only one Laboratory in the entire district, which is situated in R.O. Plant at Mithi, but the staff there claimed that water tests only on chemical parameters were being carried out to determine drinkability of the water, one of the lab reports dated 05.11.2016 produced as a proof of testing water was taken, the close analysis of which has revealed that the entry in respect of TDS is recorded as 392, whereas the volume of Chloride is recorded 297, Sodium is 193 and Sulfate is 8 which collectively becomes (489) more than the volume of TDS shown in the report. This has established unreliability of the lab reports conducted inside the Plant. Therefore in order to rely on the water quality of these R.O. Plants, a system of cross-checking the results of such reports by any independent and reputable lab/organization shall have to be introduced. Waste water of the R.O. Plants is stored in ponds inside the premises of R.O. Plants which gradually percolate in the ground making O&M of the plant more costly as the underground water (feed) gets more heavy and polluted as a result of which. This R.O. Plant has been installed without Environmental Management Plant to determine its feasibility and inspection protocols. As for the other plants in the surroundings of Mithi, the water from there is being provided without determining its quality in the light of parameters set by WHO in respect of drinking water.

Pak Oasis is charging Rs.160/- on every 1000 gallons of water being produced from big R.O Plants and it claims to be producing and supplying 10 lac gallons of water every day from such Plants, but to verify such quantity of production and supply, there is no meter or any other measuring system installed in any of the Plants. This aspect of the matter was particularly attended to in the visit. The In-charge and other staff available at Mithi R.O. Plant (having capacity of 2MGD) were asked to show any meter whereby the production and supply of the water from the Plant was being measured, but they failed. The claim of producing and supplying water up to 10 lac gallons per day from big R.O. Plants is a simple guess work of the staff available at these R.O. Plants, and against such unsupported claim the payments are being made by Special Initiative Department. This Department does not appear to be interested in metering system to ascertain quantity of water being produced or supplied and has been continuously making payments without raising any objection against the figures of bills which are simply based on guess work. This Department has also never attended to the quality of water being produced and supplied as during enquiry no such correspondence was produced or shown. At Rin Shakh Pumping Station Naon Kot, 19 MGD from Mithrao Irrigation Canal is brought and stored in 09 big sedimentation ponds/tanks. This much water is sufficient to cater to water need of entire district, but only 12 inch diameter pipe line has been laid and through which the water to different Talukas of district Tharparkar is being supplied by turn. The citizens and advocates had informed during the proceedings on that day that only twice a month, the sweet water from that pumping station was being provided to the people. The report of water samples taken from district Tharparkar is as under:

Test Report of Water Samples

Seventeen water samples were collected from Sixteen Reverse Osmosis (RO) plants as product water. The source of these RO plants is underground water.

Physicochemical Characteristics:

The analytical results show that out of 17 water samples collected, 2(13%) samples were found unsafe due to presence of objectionable taste. 09 (53%) samples were found unsafe due to presence of Total Dissolved Solids (TDS) content beyond the maximum permissible limit (500 mg/l). Highest concentration for TDS was measured 10067mg/l. Eleven samples (65%) were found unsafe due to presence of sodium and chloride content beyond the maximum permissible limit recommended for safe drinking water. The highest concentrations were measured 2820mg/l and 5123mg/l sodium and sulfate respectively (Fig.).

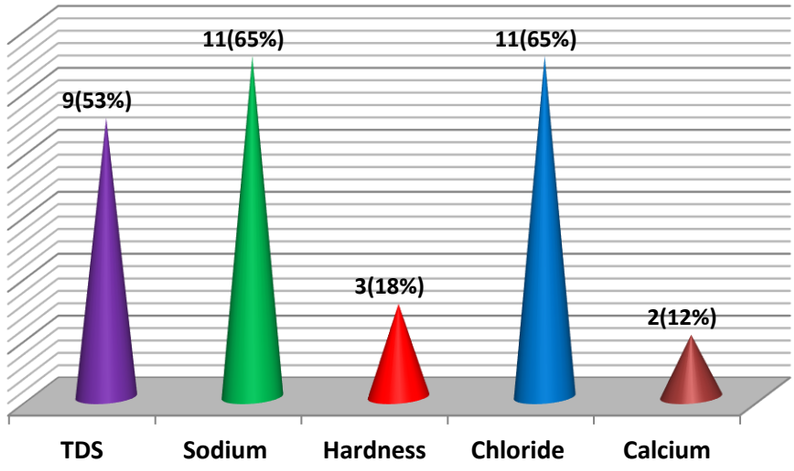


Fig. Percentage samples beyond permissible limits for different parameters in district Tharparkar

Three water samples (18%) were found unfit for human consumption due to presence of hardness beyond the permissible limit (500mg/l). The highest concentration of hardness was measured as 1480mg/l. Two samples (12%) were found unsafe due to the presence of calcium content beyond the permissible limit recommended for human consumption. However; one sample (6%) was found unsafe due to the presence of magnesium, potassium, Nitrate-Nitrogen and Fluoride content beyond safe limit. The highest concentrations were measured as 216mg/l, 74mg/l, 10.42mg/l and 2.09mg/l respectively (Fig.18, Annexure XVI).

Microbiological Contamination:

Nine (53%) water samples were found unsafe for human consumption due to bacteriological contamination i.e. presence of Total coliforms. Three (18%) samples were found fecal contaminated i.e. presence of E.coli. Eight water samples (47%) were found bacteriologically safe for human consumption (Fig.).

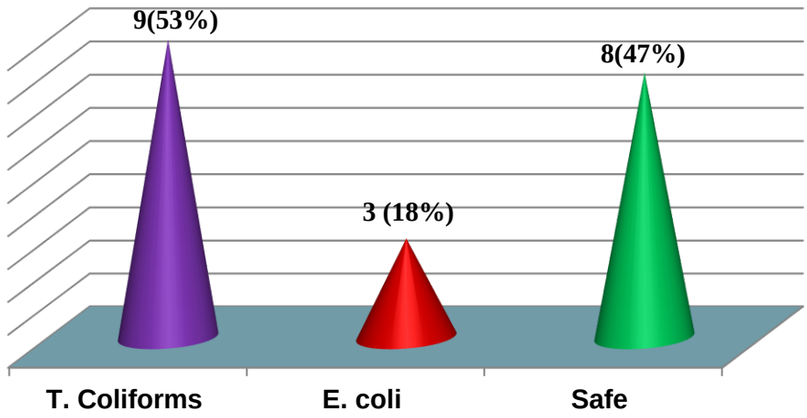


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Tharparkar

Overall analytical data shows that out of 17 samples collected from product water of Reverse Osmosis (RO) plants, 11(65%) were found unsafe while 6(35%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

Pictorial View of Water Sampling in District Tharparkar @ Mithi

Summary on Tharparkar

The result of above report has established that quality of water being produced and supplied through R.O. Plants is not being maintained. There is no system or equipment in the only lab in Mithi R.O. Plant to examine all the parameters of water i.e. physical, chemical and microbiological as per WHO standers. The lab report collected wherefrom showed inconsistency in the entries highlighting its unreliability and pointing to malfunctioning in the system. The Special Initiative Department has never attended to the quality of water being produced and supplied. Pak Oasis is charging Rs.160/- on every 1000 gallons of water and it claims to be producing and supplying 10 lac gallons of water per day from big R.O. Plants but to verify that much quantity of production and supply, there is no meter or any other measuring system installed in any of the Plants. The claim of producing and supplying water up to 10 lac gallon per day from big R.O. Plants or as per their capacity which ranges between 1.5 MGD to 2MGD is a simple guess work of the staff available at these R.O. Plants, and against such unsupported claim the payments are being made by Special Initiative Department, which does not seem to have ever tried to ensure installation of a metering system to ascertain quantity of water being produced and supplied to justify payments. At Rin Shakh Pumping Station Naon Kot, sufficient water (19 MGD) in 09 big sedimentation ponds/tanks taken from Mithrao Irrigation Canal remains available but deliberately only 12 inch diameter pipe line has been laid to curtail water supply time to justify business of R.O. Plants. In this whole scheme, the involvement of officials of Departments concerned cannot be ruled out. The District Management has completely failed to note this situation and to take steps to redress the wrong.

UMERKOT

Commission held proceedings in District &Sessions Court Building Umerkot on 08.02.2017.

Mr. Naeem Memon, Deputy Commissioner Umerkot, was examined. He informed population of Umerkot City as 100,000. The drinkable water here is taken from Thar Canal, which originates from Nara Canal, and supplied through water supply scheme, but without any filtration. From Chotyaroon Dam also water is supplied to this region. Apart from above two sources, the water through R.O. Plants is also being provided to the people. Mr. Abid Ali, Zonal Head Pak Oasis, the company which is tasked with installation and maintenance of R.O. Plants, was examined. As per his statement there are 52 R.O. Plants in District Umerkot, but only 41 of them are in operation. He confirms that at all the R.O. Plants only volume of TDS was being maintained. His statement further revealed that there is no system at any of the R.O. Plants to check Arsenic and Fluoride which according to Dr. Ahsan, the water technologist, are found in the underground water of Umerkot. There is no Laboratory in entire District Umerkot for verifying quality of water being produced by the R.O. Plants. The water without determining the recommended parameters set by WHO is being supplied to the people here. Although the R.O. Plant in Town Samaro is lying nonfunctional for the last 04 years, but Pak Oasis has three officials posted there and is receiving charges on its maintenance and operation.

There is a fully constructed Filter Plant in the City, but the same is lying nonfunctional for want of electricity connection, although the payment of Rs.24,00000/- (twenty four lac) against the demand note of HESCO was paid by PHED in the year 2012. When the HESCO officials were examined on this issue, their stance was that due to non-compliance of certain formalities, the electricity connection could not be provided, however, they could not justify keeping such amount in their kitty since 2012 without providing requisite connection.

The sewerage of the city is going to agricultural lands after initially accumulating in pits outside of the city. When opinion of Dr. Ahsan was sought on this point, he informed that if vegetables or fruits are irrigated through sewerage water, they would contain aflatoxin bacteria up to 3000 microgram against recommended volume of 20 microgram.

Hospital waste that includes infected waste is burnt inside the hospital without taking any precaution.

The visit of Urban Water Supply scheme Umerkot, where, allegedly 1,80,000 Gallons of water is stored, revealed that only raw water without chlorination is being supplied. At Urban Drainage scheme; Chhore Road Umerkot no proper maintenance or management was witnessed. And at R.O. Plant Vuhro Sharif installed in 2013 and operated by Pak Oasis, no mechanism to monitor quality of water was witnessed. The TDS of waste water with TDS of inlet water were checked to verify proper functioning of the Plant with the assistance of Dr. Ahsan, but the two did not match with each other pointing to malfunctioning of the Plant.

Summary on Umerkot

The water for drinking is supplied to the people from Thar Canal and Chotyaroon Dam but without filtration and chlorination. Many R.O. Plants are lying non-functional in the district. And even the performance of functional

R.O. Plants in supplying quality water is questionable as there is no laboratory in the whole district to verify water parameters, and no efforts have been made by Pak Oasis either to check Arsenic and Fluoride which are found in the underground water of Umerkot. At R.O. Plant Vuhro Sharif installed in 2013 and operated by Pak Oasis, no mechanism to monitor quality of water was witnessed. The TDS of waste water with TDS of inlet water were checked to verify proper functioning of the Plant, but the two did not match with each other pointing to malfunctioning of the Plant.

Although the R.O. Plant in Town Samaro is lying nonfunctional for the last 04 years, but Pak Oasis is receiving charges on it maintenance and operation. A fully constructed Filter Plant in the City is lying nonfunctional due to inaction of District Management. HESCO after receiving Rs.24,00000/- (twenty four lac) on its demand note in the year 2012 preferred to hide behind some unimportant formalities than to supply electricity connection.

The sewerage of the city is going to agricultural lands poisoning vegetables and fruits.
There is no incinerator in the Hospital; the infected waste is being burnt openly inside the hospital.

MIRPURKHAS

Commission assembled in District &Sessions Court Building Mirpurkhas at 2.30 pm on 08.02.2017.

Syed Mehdi Ali Shah, Deputy Commissioner Mirpurkhas was examined. He stated that population of entire Mirpurkhas District would be about 15 lac and of the city about 3,30,000. In Mirpurkhas city water for drinking is supplied from irrigation canals namely West Jamarao and East Jamrao. According to him, the water is brought at two Filtration Plants through pumping stations and after filtration and chlorination; the same is supplied to the people of Mirpurkhas. To support his stance, Mr. Jawad Zahoor, in charge water supply, informed that about 12 years back chlorine was provided by UNICEF, which, Municipal Committee had been using over the years to chlorinate water. But, when he was asked, he failed to produce any record of chlorine donated by UNICEF, year of donation, etc. or the dosage of chlorination in water. However, in order to verify the claim of filtration and chlorination of water, the Commission visited one of the filter plants namely East Jamrao Water Filter Plant. Neither the Clarifier nor the Filter Beds were seen in working condition. Only the procedure of sedimentation of the water was witnessed there. It was admitted by said supervisor, that the reservoir of water from where the water was being supplied had never been cleaned. The water was not seen being filtered and chlorinated there as claimed. This fact was further confirmed through spot testing of the water by Dr. Ahsan. The Jarwari shakh used for taking drinking water was found full of filthy water and in it municipal waste was being poured from the buildings built on its banks. At R.O Plant Satellite Town Mirpurkhas, the parameters of water quality were examined by the team of Dr. Ahsan, which were found inconsistent with each other.

It was claimed that entire sewerage of the city through 04 Nalas viz. Umerkot Nala, Sindhiri Nala, Khan Nala and Jamnadas Nala was being brought at a point namely SLD and then pumped to Puran Dhoro, the natural drain, which ultimately ends up in a creek.

When civil hospital Mirpurkhas was visited, no incinerator to destroy infectious waste was found, the entire solid waste was being disposed of alike municipal solid waste. The two R.O. Plants which the Civil Surgeon claimed earlier in enquiry to be functional were found out of order and although there were many communal points linked with water tank for providing water but only on one such point, the water-tap was installed. The inside system of R.O Plants was in a dilapidated condition and in one of the water tanks attached with the R.O. Plants from which water was being taken for drinking, a dead lizard was seen floating. The solid waste including infected waste was lying in open and was being burnt, although the Civil Surgeon earlier during the proceedings had claimed that the same was being buried.

The solid waste of the city is being dumped on 06 collection points and then taken to a place nearby PCB ground situated outside of the city and left unattended. There are several cattle pans situated inside the city which are further aggravating sewerage issues as dung and other waste from these cattle pans are choking municipal drainage system. There is no town planning in the city, the housing societies / schemes are being allowed to crop up without attending to the issues of water supply and sanitation and this situation is being observed by the District Management with utmost complacency.

Summary on Mirpurkhas

Mirpurkhas city having population of about 3,30,000 is being supplied water for drinking from irrigation canals namely West Jamarao and East Jamrao. There are 04 Filtration Plants, but in none of them the filtration and chlorination of water is taking place, only the procedure of sedimentation is going on which the District Management and Municipal Authorities claim as filtration of water. At Filter Plant neither the clarifier are in working condition nor the filter beds, the reservoir of water of the Filter Plant from where the water is being supplied has never been cleaned. The Jarwari shakh used for taking drinking water is full of filthy water and in it municipal waste is being poured from the buildings built on its banks. At R.O Plant Satellite Town Mirpurkhas, the parameters of water quality are not satisfactory.

Sewerage of the city is being brought at a point namely SLD and then pumped to Puran Dhoro, the natural drain, which ultimately ends up in a creek.

There is no incinerator in the Hospital; the solid waste is being disposed of like municipal solid waste. The two R.O. Plants in the hospital to provide drinking water to the people in hospital are out of order and dirty. The solid waste including infected waste is either lying in open or is being burnt. The Civil Surgeon has failed to check the rot and has made no efforts to improve the situation.

The solid waste of the city is being dumped on a place nearby PCB ground and left unattended. There are several cattle pans situated inside the city which

are further aggravating sewerage issues as dung and other waste from these cattle pans are choking municipal drainage system. There is no town planning in the city, the housing societies / schemes are being allowed to crop up by District Management without attending to the issues of water supply and sanitation. The complacency of District Management and TMA over the degradation of water quality and sanitation is conspicuous.

Test Report of Water Samples of District Tando Mohammad Khan and Khairpur Mirs

To have the overview of quality of water being supplied to the people, the water samples from different districts of Sindh were taken for examination through PCRWR. District Tando Mohammad Khan and Khairpur Mirs are among them.

TANDO MUHAMMAD KHAN

Report of PCRWR indicates from that Tando Mohammad Khan altogether 15 drinking water samples were collected, out of which 05 samples were collected from surface water sources and ten water samples were collected from underground water sources (hand pumps).

Physicochemical Characteristics

The analytical data compared with WHO and NEQS water quality standards demonstrated that out of 15 drinking water samples collected, 01(7%) water sample was found unsafe for drinking due to presence of turbidity and color beyond the safe limit, 08(53%) were found unsafe due to presence of Total Dissolved Solids (TDS) content beyond the permissible limit (1000mg/l). Maximum concentration for TDS was recorded 3898mg/l. Four water samples (27%) were found unsafe for drinking purpose due to presence of hardness values beyond permissible limit (500mg/l). The highest value for hardness was measured as 2050mg/l whereas; 180mg/l as lowest. Two water samples (13%) were found unfit for human consumption due to presence of calcium, magnesium and sodium content beyond the maximum permissible limit. The highest values were recorded 320mg/l, 304mg/l and 570mg/l for calcium, magnesium and sodium respectively. Five samples (33%) were found unfit for human consumption due to presence of sulfate content beyond the safe limit (250mg/l). The highest value for sulfate was measured 290mg/l and 66mg/l at lowest.

Three samples (20%) were found unfit for human consumption due to presence of chloride ion concentration beyond the maximum permissible limit (250mg/l). The highest value for chloride was measured as 1860mg/l whereas, 75mg/l measured as lowest. One sample (7%) was found polluted with iron content with 1.277 mg/l beyond the maximum permissible limit (0.3mg/l). Arsenic, fluoride and nitrate contents were found within safe limits (Fig.).

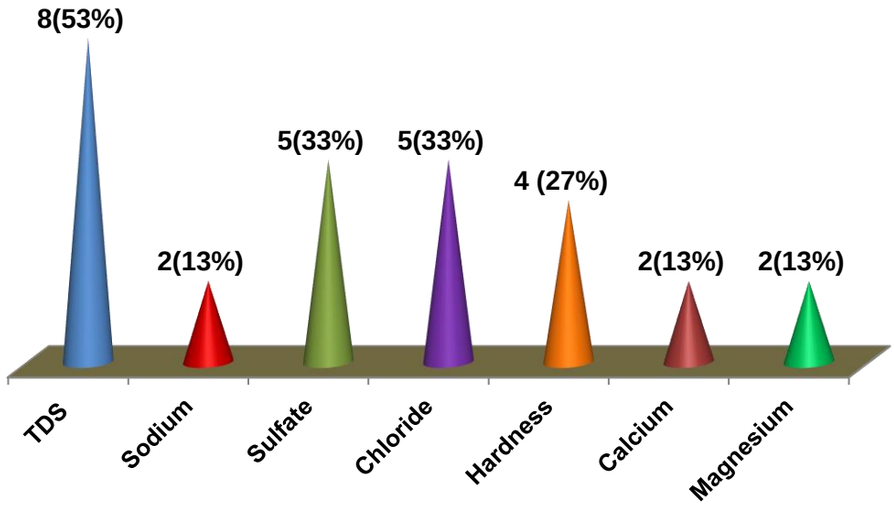


Fig. Percentage samples beyond permissible limits for different parameters in district Tando Mohamamd Khan

Microbiological Contamination

Eight out of 15 drinking water samples (53%) collected from surface and underground water sources were found unsafe for human consumption due to the bacteriological contamination (presence of Total coliforms). Two samples (13%) were found fecal contaminated i.e. presence of E.coli (Fig.). while seven water samples (47%) were found bacteriological safe for drinking purpose.

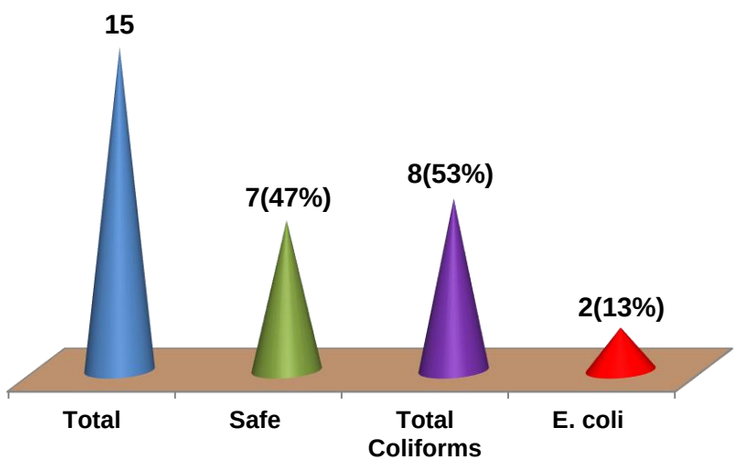


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Tando Mohammad Khan

Overall analysis results show that out of 15 samples 8(53%) were found unsafe for drinking purpose, while 7(47%) samples were found fit for human consumption for analyzed parameters under prescribed standards**.**

KHAIRPUR MIRS

Altogether Forty one water samples were collected from district Khairpur Mirs. Out of 41samples, 33 were collected from subsoil sources i.e. hand pumps while 08 samples were collected from surface water source i.e. water supply schemes.

Physicochemical Characteristics

The analytical result shows that out of 41 water samples collected 11(27%) samples were found unsafe due to presence of turbidity beyond the safe limits (5NTU). The highest value for turbidity was measured 28.3NTU whereas, 06(15%) samples were found unsafe due to appearance of color. 12(29%) out of 41 samples were found unsafe due to the presence of total dissolved solids (TDS) content beyond the maximum permissible limit (1000mg/l). Highest concentration for TDS was measured 6170mg/l. Eleven (27%) samples were found unsafe for drinking due to the presence of hardness beyond the permissible limit (500mg/l). The highest value of hardness was measured 1950mg/l. Twelve (29%) samples were found unsafe due to the presence of sodium content beyond the maximum permissible limit (200mg/l) recommended for safe drinking water. The highest concentration for sodium was measured 1280mg/l. Eleven (27%) samples were found unsafe for human consumption due to the presence of chlorides beyond the safe limit (250mg/l). The highest value for chloride was measured 1667mg/l. Thirteen (32%) samples were found unsafe for human consumption due to the sulfate content beyond the safe limit (250mg/l) recommended for safe drinking water. The highest concentration of sulfate was measured 2010mg/l. Out of 41, eight samples (20%) were found unsafe for drinking due to the presence of iron beyond the safe limit (0.3mg/l). The highest concentration of iron was measured 0.92mg/l. Two samples (5%) were found unfit for the presence of potassium content beyond safe limit recommended for drinking water (30mg/l, PSQCA). The highest concentration of potassium was measured 53.5mg/l. One sample was found unsafe or drinking due to the presence of calcium, magnesium and fluoride contents beyond safe limit (200mg/l, 150mg/l, and 1.5mg/l respectively) (Fig.).

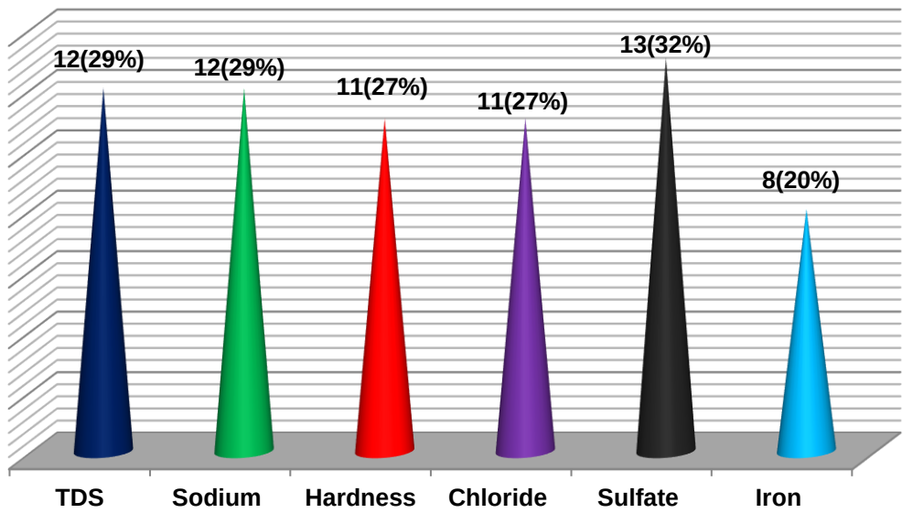


Fig. Percentage samples beyond permissible limits for different parameters in district Khairpur

Two (5%) samples were found unsafe for human consumption due to the presence of arsenic beyond the maximum permissible limit recommended for safe drinking water (50ppb, NEQS). The highest concentration for arsenic was measured 100ppb.

Microbiological Contamination

Out of forty one, 23(56%) water samples were found unsafe for human consumption due to bacteriological contamination i.e. presence of total coliforms. However; 11(27%) samples were found fecal contaminated i.e. presence of E.coli, while 18(44%) samples were found bacteriologically safe for human consumption (Fig.).

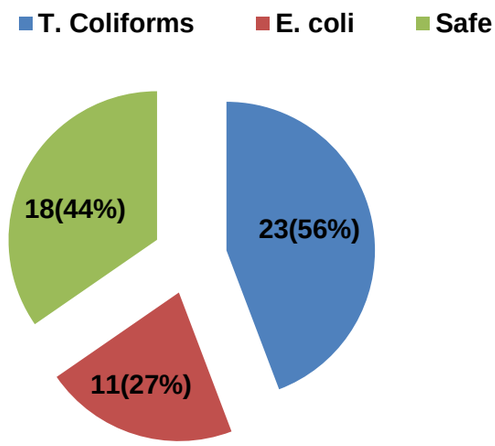


Fig. Percentage samples beyond permissible limits for bacteriological contamination in District Khairpur

Overall analytical data shows that out of 41 samples, 23(56%) were found unsafe while 18(44%) samples were found safe for human consumption for analyzed parameters under prescribed standards.

DETAILS SUBMITTED BY DISTRICT JUDGES REGARDING WATER SUPPLY, SANITATION AND OTHER RELEVANT SCHEMES / PROJECTS DEVELOPED DURING THE LAST FIVE YEARS

In order to examine the issues of water supply and sanitation at micro level, a reference was made to the Honorable Supreme Court on 21.01.2017 seeking directions for the District & Sessions Judges to collect data and details from the heads of the Government Departments and Agencies in their respective Districts regarding potable water supply, sanitation and other relevant schemes/projects claimed to be initiated in the last five years by the Government of Sindh. The same was accepted and in pursuance whereof, following pro forma was prepared and sent to all the District & Sessions Judges, who have submitted the requisite reports. The brief of these reports is reproduced herein under.

Sr. No.	Name of scheme with location	Estimated cost (M)	Year of start	Year of completion	Incumbency of executing officer/official	Year-wise cost incurred on maintenance	Present status functional / nonfunctional	Remarks

District Khairpur

District Judge Khairpur has submitted the following report:-
In District Khairpur in all 59 schemes were initiated in the last five years for supply of drinking water and sanitation. Money spent on these schemes collectively is **Rs.2,885.361** Million. Out of 59 schemes, 31 are nonfunctional, and 28 are functional. Original report showing name of each scheme, estimated cost and money spent, and name of Executing Official is submitted herewith as **Annexure-AK-1** .

District Larkana

District Judge Larkana has submitted the following report:-
In District Larkana in all 45 schemes were initiated in the past five years for supply of drinking water and sanitation. Money spent on these schemes collectively is **Rs.2,001.664** Million. Out of 45 schemes, 32 are nonfunctional, and 13 are functional. Original report showing name of each scheme, estimated cost and money spent, and name of Executing Official is submitted herewith as **Annexure-AK-2** .

District Kashmore @ Kandhkot

District Judge Kashmore @ Kandhkot has submitted the following report:-
In District Kashmore @ Kandhkot in all 07 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.275.057** Million. Out of 07 schemes, 04 are functional and 03 nonfunctional. Original report showing name of each scheme, estimated cost and money spent, and name of Executing Official is submitted herewith as **Annexure-AK-3**.

District Malir Karachi

District Judge, Malir Karachi has submitted the following report:-
In District Malir in all 140 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is Rs.**1,663.931 Million**. Out of 140 schemes, 126 are functional and 14 nonfunctional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-4**.

District Tharparkar @ Mithi

District Judge, Tharparkar @ Mithi has submitted the following report:-
In District Tharparkar @ Mithi in all 24 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.683.76 Million**. Out of 24 schemes, 16 are nonfunctional and 08 are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-5**.

District Karachi South

District Judge, Karachi South has submitted the following report:-
In District Karachi South, in all 04 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.424.834 Million**. Report further reveals that all 04 schemes are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-6**.

District Karachi West

District Judge, Karachi West has submitted the following report:-
In District Karachi West, in all 19 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.215.97** Million. Out of 19 schemes, 16 are functional and 03 are nonfunctional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-7**.

District Sanghar

District Judge, Sanghar has submitted the following report:-
In District Sanghar, in all 128 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.1,373.0489 Million**. Out of 128 schemes, 52 are nonfunctional and 76 are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-8**.

District Naushero Feroze

District Judge, Naushero Feroze has submitted the following report:-
In District Naushero Feroze in all 83 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.733.771** Million. Out of 83 schemes, 59 are nonfunctional and 24 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-9**.

District Karachi East

District Judge, Karachi East has submitted the following report:-
In District Karachi East, no any scheme of water supply and sanitation has been initiated for last 5 years however since 2001 in all 27 schemes were initiated for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.364.163 Million**. Out of 27 schemes, 5 are nonfunctional and 22 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-10**..

District Korangi

District Judge, Karachi East has submitted the following report:-
District Korangi was established in 2014. In the year 2016, repair and maintenance was carried out at six schemes with the cost of **Rs.12.357 Million**. The work of maintenance was found in progress at some places however overall condition of the work was not satisfactory. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-11**.

District Tando Muhammad Khan

District Judge, Tando Muhammad Khan has submitted the following report:-
In District Tando Muhammad Khan, in all 62 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.150.562 Million**. Out of 62 schemes, 32 are nonfunctional and 30 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-12**.

District Matiari

District Judge, Matiari has submitted the following report:-
In District Matiari, in all 10 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.197.095 Million**. Out of 10 schemes, 4 are nonfunctional and 6 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-13**.

District Badin

District Judge, Badin has submitted the following report:-
In District Badin, in all 38 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.1,569.427 Million**. Out of 38 schemes, 18 are nonfunctional and 20 are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-14**.

District Thatta

District Judge, Thatta has submitted the following report:-
In District Thatta, in all 08 schemes were initiated in the past five years for supply of drinking water and sanitation (06 for water supply and 02 for sanitation). The money spent on these schemes collectively is **Rs.442.55 Million**. All 08 schemes are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-15**.

District Sujawal

District Judge, Thatta has submitted the following report:-
In District Sujawal, in all 10 schemes were initiated in the past five years for supply of drinking water and sanitation (05 water supply and 05 sanitation schemes). The money spent on these schemes collectively is **Rs.309.582 Million**. All 10 schemes are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-16**.

District Shikarpur

District Judge, Shikarpur has submitted the following report:-
In District Shikarpur, in all 55 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.466.0928 Million**. Out of 55 water supply and sanitation schemes, 6 are nonfunctional and 33 are functional and work on 16 schemes is under progress. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-17**.

District Jamshoro

District Judge, Jamshoro has submitted the following report:-
In District Jamshoro, in all 59 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.245.80** Million. Out of 59, 25 are nonfunctional and 06 are functional. Regarding remaining 28 schemes, no report has been filed due to non-identification of the same by the department concerned. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-18**.

District Umerkot

District Judge, Umerkot has submitted the following report:-
In District Umerkot, in all 140 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.1,699.359 Million**. Out of 140, 10 are nonfunctional and 130 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-19**.

District Hyderabad

District Judge, Hyderabad has submitted the following report:-
In District Hyderabad, in all 80 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.4707.46 Million**. Out of 80 schemes, 41 are nonfunctional and 39 are functional. According to report work on most of the schemes has not yet started. Original report showing name of each scheme,

estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-20**.

District Sukkur

District Judge, Sukkur has submitted the following report:-
In District Sukkur, in all 189 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.606.67 Million**. Out of 189 schemes, 130 are nonfunctional and 59 are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-21**.

District Mirpurkhas

District Judge, Mirpurkhas has submitted the following report:-
In District Mirpurkhas, in all 11 schemes were initiated in the past five years for supply of drinking water and sanitation (09 water supply and 02 drainage schemes). The money spent on these schemes collectively is **Rs.115.53 Million**. Out of 11 schemes, 05 are nonfunctional and 06 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annex-AK-22**.

District Tando Allahyar

District Judge, Tando Allahyar has submitted the following report:-
In District Tando Allahyar, in all 61 R.O plants and 07 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.720.426 Million**. Out of 61 R.O Plants, 43 are functional and 18 are nonfunctional. Out of 07 water supply and sanitation schemes, 03 are functional and 04 are partly functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-23**.

District Shaheed Benazirabad

District Judge, Shaheed Benzairabad has submitted the following report:-
In District Shaheed Benzairabad, in all 35 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.3,044.35 Million**. Out of 35 schemes, 10 are nonfunctional and 25 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-24**.

District Karachi Central

District Judge, Karachi Central has submitted the following report:-
In District Karachi Central, in all 03 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.198.855 Million**. All 03 schemes are functional. Original report showing name of each scheme, estimated cost, and money

spent and name of Executing Official is submitted herewith as **Annexure-AK-25**

District Jacobabad

District Judge, Jacobabad has submitted the following report:-
In District Jacobabad, in all 10 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.1,602.449 Million**. Out of 10 schemes, 08 are nonfunctional and 02 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-26**.

District Dadu

District Judge, Dadu has submitted the following report:-
In District Dadu, in all 25 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.537.12 Million**. Out of 25 schemes, 04 are nonfunctional and 21 are functional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-27**.

District Ghotki

District Judge, Ghotki has submitted the following report:-
In District Ghotki, in all 07 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.82.92 Million**. All 07 schemes are nonfunctional. Original report showing name of each scheme, estimated cost and money spent and name of Executing Official is submitted herewith as **Annexure-AK-28**.

District Kamber Shahdadkot @ Kambar

District Judge, Kambar Shahdadkot has submitted the following report:-
In District Kamber Shahdadkot, in all 20 schemes were initiated in the past five years for supply of drinking water and sanitation. The money spent on these schemes collectively is **Rs.680.95 Million**. Out of 20 schemes, 09 are nonfunctional and 11 are functional. Original report showing name of each scheme, estimated cost, and money spent and name of Executing Official is submitted herewith as **Annexure-AK-29**.

REPORT ON APPLICATION OF LAL KHAN JATOI

During inquiry, the under signed received a copy of application written by Lal Khan Jatoi r/o Hyderabad from P.S to Honorable Justice, Mr. Justice Amir Hani Muslim with the order of his lordship directing the undersigned to seek information thereon and report. The applicant has alleged in the application that Mr. Jam Khan Shoro, Minister Local Government has illegally occupied almost all lands admeasuring hundreds of acres meant for New Water

Filtration Plant situated at Jamshoro Road, Hyderabad, and has thereon constructed petrol pump, CNG station, bungalows, and is also selling out lands in shape of plots. The undersigned instructed the District and Sessions Judge Hyderabad to conduct enquiry into the allegations and report. He submitted report on 18.02.2017 disclosing that Deedar Hussain Shoro father of Jam Khan Shoro filed a F.C. Suit No.40/2009 in respect of survey No.204, 206, 215, 216 admeasuring 12.31 acres and other land of Deh Jamshoro before II-Senior Civil Judge, Hyderabad against H.D.A. & others, wherein Mukhtiarkar (Revenue) Qasimabad, Hyderabad being Defendant No.14 filed his written statement asserting therein that all the above survey numbers are government land and have been acquired by H.D.A. for construction of water lagoons and link Channel of Fasadi Wah at Deh Jamshoro Taluka Qasimabad through Land Acquisition Officer. In the said suit father of Jam Khan Shoro sought not only compensation of Rs.8,7450,000/- from H.D.A. but return of the said land. The said suit was decreed on 24.12.2012, which, however, has been challenged in Civil Appeal No.24/2013. But then during the pendency of appeal and without any execution application and order thereon, the record of rights in respect of said survey numbers was mutated in favour of Mst. Sahib Zaidi, Deedar Hussain, Kiran Khan, Master Karim Khan, Master Zain-ul-Abidin, Hasnain Noor Nabi, Mst. Saima and Mst. Zahida vide entry No.205, dated 27.09.2013. The said land was again mutated in favour of Kashif Ali vide entry No.208 on 31.10.2013. That, in spite of such mutation, the said land is still under the acquisition with H.D.A. In the year 2013 the decree-holder of above suit filed an execution application No.42/2015 praying for compensation of Rs.1 Crore per acre (total Rs.11 Crore) which is pending before II-Senior Civil Judge Hyderabad. The actual position on the spot, disclosed by learned District & Sessions Judge, is that on the above survey numbers several people have built residences, shops, etc. but none of them have any title documents. There is however, no properly-managed Fish-farm over the said land, although the plaintiff in the above suit has admitted existence of a Fish-farm there. It has been further reported that the father of Jam Khan Shoro namely Deedar Hussain has filed another F.C. Suit No.817/2014 in respect of Survey No.347, 437, 438, 439, 441, 442, 473, 491, 505, 492, total measuring 39.15 acres, which are entered in the record of rights in favour of H.D.A. claiming compensation and return of land, which is pending before the VI-Senior Civil Judge, Hyderabad.

As per report, presently H.D.A. is holding 209.50 acres in Deh Jamshoro which are reserved for lagoons, whereas the remaining land i.e. 163.5 and 12.31 acres of above mentioned survey numbers is not under the control of Hyderabad Development Authority (HDA). 324 Acres of land has been mutated in favour of H.D.A., and mutation on 17 Acres is pending with Revenue Department, whereas correspondence for mutation of 31.14 Acers of land for lagoons is in process.

Report of District and Sessions Judge, Hyderabad along with annexures and record is submitted herewith as directed. (**Annexure-AL**)

CONCLUSION

1. From the perusal of above discussed facts, reports, statements, and from examination of the officials and people concerned, it has now been established that, we the people of Sindh, are not drinking clean water. The Indus River, its tributaries and channels, which are the source of drinkable water, have become polluted due to constant inflow of untreated municipal and industrial effluent right from Guddu Barrage to Kotri Barrage. Relevant departments/agencies or for that matter Sindh Government are cognizant of this water pollution, which is evident from various statements filed by them during the enquiry, but they are not taking any substantial steps to stop the water pollution by either treating the effluent through Treatment Plants etc. before discharging it in watery bodies or by diverting the inflow of effluent to SCRAP drains etc.

2. We do have filtration plants installed in several cities of Sindh to provide us potable water after treatment, but due to inefficiency, lack of interest and corrupt practices of officials of agencies/departments operating these filter plants, they have been rendered almost redundant. The Clarifiers, Sedimentation Tanks, Chlorinators, Lagoons, etc. at the filter plants are out of order for the last many years. These filtrations plants are at the most being used as pumping stations for pumping water to their respective areas of delivery. Water purification that is to remove contaminants, suspended solids and gases from the water to make it consumable for humans is not taking place at any of the filter plants all over Sindh. The process of water testing, which is the integral part of water treatment as it ensures fitness of water to be potable is not being adopted either at any filter plants/R.O. Plants. The labs, which are available at some of the filter plants, are merely an eye-wash, as no test to determine physical, chemical and microbiological parameters is being conducted at any of such laboratories. Simply, without any sense of responsibility or any remorse, the raw water full of bacteria is being supplied to the people for drinking. It is therefore no wonder to see that due to use of contaminated water for drinking, many diseases like hepatitis, liver cancer, anemia, stunted growth among children, etc. are on rise in Sindh. The Treatment Plants in Karachi have been lying nonfunctional for a long time and one of them i.e. STIP-II has been encroached upon, yet no rehabilitation work by KW&SB has been undertaken to make them functional, and due to such apathy the untreated effluent is going into sea causing heavy damage to marine life.

3. During the enquiry all the departments concerned whose duty is to protect the sweet water of irrigation channels from fall of effluent were found sleeping over such state of affairs. In major cities like Karachi and Hyderabad water shortage has multiplied due to illegal water hydrants, water theft, and illegal connections and because of construction of the high-rise buildings without expanding civic infrastructure. However, Sindh Government does not seem to have a

thought-out-plan, or a strong will or any interest to alter such moribund situation by making some changes in water policy i.e. to monitor strictly quality of water being supplied to the people and to protect watery bodies from constant inflow of effluent, and take stern action against those who do not follow it. The case of R.O. Plants in Sindh is sufficient to reflect with what strategy, approach and intention the Sindh Government is pursuing policy of provision of potable water in Sindh. It has paid billions of rupees to the contractor (Pak Oasis) in the last four/five years without even bothering to know quality and quantity of water being supplied by Pak Oasis against which all such payments have been made.

4. It cannot simply be assumed that the department concerned (Special Initiative Department, Sindh Coal Authority and KW&SB) are not aware of this state of affairs and/or the way this whole deceit of providing drinkable water as per WHO standards from the R.O. Plants is being played. Rather the manner in which the payments by these departments have been made blindly in the past to Pak Oasis points out to their active connivance in the whole scheme.

5. Except in Karachi and Hydrated, the water supply schemes are built/developed by PHED, but after completion the whole infrastructure is handed over to local municipal administrations for operation and maintenance, which do not have structural capacity to do the same, resultantly the schemes fail to deliver, and the people are left with almost no water to drink.

6. Even the polluted water, being supplied to the people for drinking, is gradually getting scarce thanks to leakages in main transmission routes; water theft and lack of a system to monitor it; poor performance of outdated and inefficient pumping stations; water tanker mafia and illegal hydrants; mushroom growth of vertical buildings; old and rusted distribution system of water supply and inefficiency of officials of civic agencies and deliberate mismanagement in water distribution.

7. In many cities like Shikarpur and Larkana, the people are using underground water, the quality whereof has degraded due to lack of sanitation (caused, inter alia, by encroachment on sub-drains), use of pesticide in agriculture and constant inflow of effluent in irrigation canals. However, there is no initiative on the part of the Government to build filter plants in such areas to provide purified water and increase capacity of water supply.

8. The sanitation to keep us safe and healthy is notably absent because it seems to be the lost priority of Sindh Government. In some posh areas of the big cites, some semblance of sanitation is being maintained but that is done against heavy cost and taxes, the situation of sanitation, however, in rest of the localities of the big cites is as deplorable as it is in relatively small cities of Sindh, where sewerage, garbage, puddles and dirt seem to be permanent feature of the roads and streets. The sub-

drains to take wastewater out of the city have been encroached, the gutters have been choked and some of the drains have been made dumping sites for disposal of solid waste. Despite spending huge amount, we have not been able to establish and run even a single modern drainage system having disposal of sewerage of the City through routes/channels culminating in Sim-Nalas, Treatment Plants, etc.

9. The present state of lifting of solid waste in Sindh is likewise lamentable; no adequate arrangement for lifting of solid is visible, the Cities have been turned into heaps of garbage. In Karachi, millions and millions of rupees have been spent by the DMCs in the name of garbage-lifting but without any tangible result. There is no designated landfill site in any of the cities where the garbage could be disposed of. Presently, the garbage is dumped on drain nallas, irrigation canals or is being thrown on some makeshift places and left unattended or burnt openly.

10. **R.O. Plants:** The way these R.O. Plants are shown to be working and producing drinkable water as per WHO standards is nothing but a farce. Pak Oasis seems to be earning millions of rupees through these R.O. Plants, which do not produce good quality water for drinking. So far billions of rupees, as is shown in this document above, have been wasted in the name of these R.O. Plants without any justification for these Plants in some cases to even exist. Neither the quality of water through labs nor its quantity through any metering system is being analyzed at any of the R.O. Plants, yet the payments are being made by Sindh Government.

11. The whole scheme from feasibility to awarding contract and making payments on operation and maintenance of the R.O. Plants from the very inception needs to be investigated, so that the responsibility on the officials concerned making payments blindly could be fixed, and punishment awarded. The Annual Audit Report submitted by Director General Audit Sindh in respect of the R.O. Plants shows that the process of installation of the R.O. Plants has not been up-to the mark and in the said process a loss of millions of rupees to the Government has been caused on account of acceptance of bid on a rate higher than stipulated in PC-I; mis-procurement; non-verification of water Filtration Plants and solar generation systems by Engineers, irregular expenditure without inviting open tender; installation of R.O. Plants not according to specifications and on very high rates; irregular appointment of Project Directors; non-conducting of Lab. tests of water. (The report of water samples taken from several R.O. Plants of district Tharparkar is available at page 100-102 of this document, which establishes unequivocally that the water being produced from the R.O. Plants does not meet the quality standards).

12. Unless a metering system to gauge the quantity of water and a Lab. to verify quality of water at each R.O Plant is introduced/installed, purpose

of R.O. Plants to provide drinkable water would not be achieved nor would there be any justification to spend such huge amount on their O&M.

13. **SEPA:** Sindh Environmental Protection Act, 2014 deals comprehensively with environmental issues, and is best suited for the current circumstances. SEPA has been created as a regulatory and monitoring authority to enforce provisions of this Act and for this purpose SEPA has been vested with all the necessary powers, but SEPA'S performance so far is not enviable or commendable, it has yet to establish justification for its existence. The excuse cited by SEPA official that the authorities do not respond to their actions is simply untenable, and on the contrary reflects against it. The untreated industrial effluent is going into sea in Karachi, in Phulleli Wah in Hyderabad and in K.B. Feeder in Kotri, but the SEPA's initiative has not transcended beyond holding meetings with the management of industries and/or writing letters to them. SEPA has not played any role to check disposal of infectious hospital waste in municipal drainage system which ultimately goes into watery bodies. SEPA has also failed to ensure destruction of infectious hospitals waste through incinerator as provided by the Hospital Waste Management Rules, 2014. It has not taken note of environmental degradation in coastal areas of Karachi precipitated by industrial effluent. Instead of becoming a result-producing organization, it has so far remained content with writing routine letters and issuing notices. SEPA has not been able to even realize the mandate given to it by the law. It has failed to even exploit the resources available to it in the shape of latest equipment and laboratory.

14. However, it is not irrelevant to state that at present, the organizational structure of SEPA appears to be weak and is mostly concentrated in Karachi. If we wish to have good results on environmental issues and strict compliance of 2014 Act, SEPA shall have to be strengthened, and expanded down to the district level.

15. **NSUSC:** Looking to the condition of the cities with NSUSC and keeping in view the amount it has shown to have spent on these cites (which is subject to verification of each scheme) it is not difficult to conclude that NSUSC has materially failed to deliver on basic targets it was mandated for. It has failed so far to take any adequate measure to either supply clean drinking water or make proper arrangement for disposal of solid waste and wastewater in the cities coming under its operation. Pools of sewerage water were seen in the streets of the cities under NSUSC control. NSUSC has not been able so far to establish anywhere the dumping and landfill sites for management of solid waste. Solid waste collected is disposed of by dumping onto open spaces by the side of roads or is thrown on makeshift dumping sites, which creates more hazards for the people. NSUSC has failed so far to cause sewage treatment in any city; the entire wastewater without any kind of treatment is very conveniently being disposed of in watery bodies i.e. River Indus and its tributaries. NSUSC claims to

have spent huge sums of money to improve service delivery in respect of water supply and sanitation but its claim is not supported by any tangible result. NSUSC was also not able to establish that before execution of any such schemes, the relevant drawings, design and engineering, estimates etc. along with financial impact on approved cost prepared and supplied were duly scrutinized, checked and approved. NSUSC has failed to comply with environmental policy for which it was mandated. Since there is no improved system of service delivery in the cities with NSUSC, it is safe to say that NSUSC has not succeeded to ensure performance of the relevant persons (consultants, contractors, etc.) in delivering the services. NSUSC has provided the details of expenditure but it has failed to show that payments on operational charges were recommended after complying with all necessary formalities including site inspection to verify specification of work. Managing Director NSUSC was entrusted with Intermediate Payment Certificates for payments to the contractors, but NSUSC officials were not able to show that payments through Intermediate Payment Certificates were as per rules and any audit or verification of the executed work was done before making payments in this way to the consultant and contractors.

16. These facts coupled with the condition of cities under the operation of NSUSC (described below in this document) reveal that NSUSC has mismanaged finances entrusted to it. It has wasted public money for which it shall be held accountable. It has not been able to execute relevant projects yet, and has even failed to maintain the system of providing drinking water and sanitation which it inherited. NSUSC has been running with the staff of 3127 out of which 2994 were borrowed from relevant TMAs on 20% additional allowance in their salaries, but it failed to make them deliver. It has run into issues with borrowed staff of TMAs, and has been repatriating them, which has further compromised its ability to deliver. It has not been able to shape up as a competent, honest and service-provider organization.

17. There is, therefore, a need to review the over lapping functions of North Sindh Urban Service Corporation (NSUSC) with Town Municipal Administration (TMA) and Public Health Engineering Department (PHED), which under the law are assigned the duty of providing clean drinking water, maintaining sanitation and hygiene.

18. **Responsibility of Government of Sindh:** Nobody would deny that it is the constitutional duty of Government of Sindh to ensure provision of potable water, better sanitation and healthy and clean environment for its citizens. Water is life and access to unpolluted water is the fundamental right of every citizen. Under Sindh Local Government Act, 2013 (SLGA), the local Councils (Metropolitan Corporation, Municipal Corporation, Municipal Committee, Town Committee, District Council, Union Committee or Union Council) have been assigned the duty to supply clean drinking water, improve sanitation condition and place an adequate system of public drains. Part II of schedule II of the ibid law

depicts how such duty has to be executed. However, the council has to perform such duty in collaboration with and under the supervision and control of Government of Sindh. Chapter-IX of the said law lays down that general supervision and control over the Councils shall remain with the Government to ensure that their activities conform to the purposes and provisions of this law. If it is found that the Council has persistently failed in discharging its duties, the Government can suppress the Council from working and during the period of such suppression can appoint the person or authority to run the affairs of the Council till the Council is reconstituted. Section 74 of SLGA amply empowers Sindh Government to take over the management and control of any institution or service maintained by a Council in such situation. Nonetheless, Sindh Government, as is clear from the above discussion, has not been able to check the rot and improve services of potable water, sanitation and to create better environment. The relevant departments i.e. PHED, Irrigation Department, Local Government/Council, and Planning & Development Department are more interested in development schemes and getting P.C.I etc. approved than doing some actual work to serve the people. This approach was witnessed during the proceedings i.e. the schemes are happily introduced, approvals are granted, money is spent but, since there is no monitoring of execution and sustainability of such schemes, the end-result is always more chaos than order. Never responsibility is fixed and action taken against those who have failed us. This approach of the Sindh Government is never going to bear any fruit. Merely devising schemes for the above purposes and approving P.C-I etc. and releasing funds for execution of them would not absolve the Sindh Government of its statutory responsibility of providing clean drinking water and healthy hygiene. The failure of the Government to monitor execution of such schemes and their sustainability, and in case of shortcomings to fix responsibility on the all concerned, is itself a failure. There are, no doubt, relevant institutions/officials and infrastructure to deal with this all, but apparently, the way these institutions are being run and operated by the concerned, they have notably failed to deliver on the issues under discussion.

19. At times, it is noted that there is no dearth of initiative on part of the Government to devise schemes for water supply and sanitation (as the reports of District Judges suggest), and approving P.C-I for execution of such schemes. But these schemes often do not produce the requisite results due to shortcomings left in their execution. Instead of finding out what went wrong with the schemes already put, the approach of the Government has been to approve more schemes in this regard or/and revise already completed schemes but, expectedly until now, to no avail. This process appears to be going on and on without producing any tangible result regarding improvement in delivery system. Another stumbling block in the way of real development appears to be the policy whereby water supply schemes after completion by PHED are transferred to Local Councils/Municipalities, etc. for operation and maintenance. But since the councils have no structural capacity to maintain the same according to the requirement, no real improvement in service delivery to

the people is materialized. Nonetheless, Sindh Government does not appear to be keen to take any policy decision to change the current course of affairs and to save whatever is left.

20. The Irrigation Department which is custodian of irrigating canals and River Indus has not been able to stop disposal of solid and untreated liquid waste including industrial effluent into natural watery bodies, which is the main cause of pollution and contamination in the sweet water. The Secretary Irrigation has admitted that they cannot stop inflow of effluent in irrigation canals because they are prevented by District Management from doing so. This statement reflects not only a failure of irrigation department but of the District Management and TMAs, etc. which see the irrigation canals as an easy way to offload their responsibility of managing liquid waste. The Local Councils, Municipal Authorities and PHED or their part have conspicuously failed to make SCARP drains functional and take steps to treat sewage before its discharge in irrigation canals. Due to collective apathy and negligence of these departments, watery bodies have been virtually turned into drainage nallas and people have been made to drink water from these nallas.

21. The hospitals are disposing of their waste with municipal waste or wash it off to municipal drainage system that ultimately ends up in watery bodies. As for infectious waste, the Hospital Managements are either burning it openly or throwing it on the grounds inside the hospital. Generally there in no incinerator in the hospitals but if there is one, it is non-functional and hospitals of both the sectors (government and private) have completely failed to follow the Hospital Waste Management Rules, 2014 for management of hospital waste. The Health Department was found sleeping over this matter, and only after the Commission took up the issue; a committee was formed by the Health Department to look after the issue of waste management.

22. Drainage problem in entire Sindh has gone from bad to worse as there is no network of drains to dispose of sewage in a central outfall drain to carry sewerage to sea in environmentally safe manner without polluting River Indus, lands and water supply schemes etc. The RBOD-II on right side of River Indus which is designed for this purpose i.e.to carry drainage effluent from RBOD-I and RBOD-III for disposal in Arabian Sea in environmentally safe manner without polluting Manchhar Lake, River Indus, Culturable Lands and water supplies for domestic purpose, has become victim of delay, apathy, lack of interest, corruption of executing agencies/officials in the name of inadequacy of funds and dis-connectivity between Sindh Government and Federal Government.

23. It may also be mentioned that there are outstanding bills in respect of water and sanitation charges against Government departments, but they are not paying off the same.

RECOMMENDATIONS

1. At present Karachi has been receiving 650 MGD for drinking against the demand of 11 MGD. Yet for the last 10 year not a gallon of water has been added in the system to overcome the shortage, therefore, new sources of water supply (like K-IV 260MGD) may be acquired immediately for Karachi.

2. Karachi has quota of 1200 cusecs water at present and will receive 260 MGD further after completion of k-IV Phase-1, but still the shortage of water will not be overcome, hence this quota may be enhanced in proportion to its population (23 million approximately). And at the same time, it is also necessary to stop unchecked urbanization in major cities to keep the water requirement under control.

3. For providing water to the houses on tail and to the areas where still the water supply system is not available, new distribution lines of water supply may be laid before start of K-IV (260MGD) etc.

4. Orders may be issued for replacing existing poor and faulty infrastructure of water supply lines to reduce water shortage and water contamination.

5. A system of water-meters for bulk purchasers may be introduced immediately. And gradually the domestic users shall be brought in the said net.

6. M.D. KW&SB, SSP concerned and the SHO of the area may be made responsible for eradicating menace of illegal water hydrants, and in case of discovery of the illegal water hydrant, the cases may be registered against them instead of some unknown miscreants.

7. Instead of manually monitoring water distribution, whereby it is not possible to check water theft, puncturing of water lines and running of illegal water hydrants, a modern system based on computer technology with command and control room to monitor water supply and water theft may be immediately put in place.

8. Official water hydrants to meet emergencies may be installed in each location within a radius of 03 kilometer to save transport expenses and erosion of roads caused due to water spillover from tankers.

9. All the Filter plants may be immediately rehabilitated fully and put to work, so that the process of purification of water should commence. And additionally, as the existing Filter Plants' capacity is short of actual requirement, new filter plants may be built to meet current and future requirements.

10. The dosing of chlorination of water to kill bacteria at Filter Plants and water supply schemes may be declared mandatory. And if the

KW&SB, WASA, PHED, etc. officials fail to dose water with chlorination, immediate action may be taken against them and punishment awarded. The functionality of Labs at each Filter Plant may be ensured to maintain water quality as per WHO standards.

11. Directions may be issued for establishment of the water-lab at Taluka level near water supply schemes for monitoring quality of drinking water before its supply to the people. The system of a third party monitoring viz. crosschecking by the independent and reputable Labs may be made integral part of water examination in entire Sindh.

12. In Karachi and Hyderabad, from main trunk transaction lines dedicated for domestic consumers, new bulk connections are being allowed resulting in water shortage for domestic users. KW&SB, WASA etc. may be directed to immediately stop this practice.

13. There may be put a complete ban on the construction of multistory and high rise (vertical) buildings till the water shortage is overcome and new resources of drinking water are put in place.

14. Granting no objection by KW&SB to provide water to multistory or high-rise (vertical) buildings except to a residential unit having ground plus two stories may be put on hold till the new sources of water are added to the existing system.

15. The Sindh Building Control Authority collects betterment charges while approving building plans, although the same charges relate to water supply and sewerage, therefore, the same charges/funds may be ordered to be transferred to KW&SB, and WASA.

16. In the governing board of KW&SB and WASA, the representation of civil society etc. to safeguard interests of the citizens may be introduced.

17. In KW&SB, WASA, TMAs, etc. a single-window system may be introduced for sanctioning of water connection and other water-related issues to discourage corruption and corrupt practices.

18. In the Government Departments/Institutions/Agencies/ Offices, hospitals, judicial complexes, etc., the water meters may be installed.

19. The private concerns like Shopping Malls, Private Hospitals, Hotels, Restaurants, and Industries etc. may also be subjected to water-metering system immediately.

20. Orders may be passed to install a credible metering system on all the R.O. Plants to verify their production and supply.

21. The present policy of installation of R.O. Plants and their maintenance and operation on public money may be re-examined, as admittedly the quality of water produced and supplied from these R.O. Plants is not being maintained as per WHO standards. The policy of awarding contract of R.O. Plants may be made more transparent and there must be introduced a component of water quality checking at each R.O. Plant through credible lab process.

22. Orders may be passed for removal of the encroachments from all the Effluent Treatment Plants including TP-II Mehmoodabad Karachi, so that they should start treating outgoing toxic effluent of the industries falling in sea. Additionally, more treatment plants, as the capacity of current effluent plants is maximally 150MGD, which is too short to cope up the inflow of 500MGD of sewage, may be built to meet the requirement.

23. Installation of Pre–Treatment Plant within the factory to treat toxic effluent inside the Unit may be declared mandatory and violation thereof be made a cognizable offence. In this regard the responsibility shall be fixed on Industries & Commerce Department and Management the factories themselves.

24. Directions may be issued to the District Management Malir, Irrigation Department, KW&SB and others concerned to immediately take appropriate measures to stop sand-lifting from Malir River bed as this illegal activity has exposed the water conduits supplying water to the entire city namely GK – I, K-II & K-III to damage, and if this practice is allowed to continue, it can lead to dislocation and blast of said water conduits at any time stopping supply of drinking water to the entire city.

25. The coastal water of Karachi harbor is being damaged due to constant untreated effluent of industrial units and spillover of oil from visiting ships, therefore Karachi Port Trust may be directed to ensure stoppage of oil-spillover from the ships to protect marine life.

26. The possession of Combined Effluent Treatment Plant, Kotri may be ordered to be taken from the contractor immediately and handed over to SITE limited Kotri for operation and maintenance, so that the water of K.B. Feeder, the supply line of Keenjhar Lake, shall be protected.

27. There is lack of awareness among the people about importance of clean water, water-borne diseases due to use of polluted water and other water-related issues. Therefore, the Education Department may be directed to include the subject of provision of safe potable water, sanitation and healthy environment in the curriculum from primary level to create awareness about these issues among the children.

28. Provision of potable water and keeping sanitation at all public offices including schools, and hospitals etc. may be declared mandatory and its non-compliance a cognizable offence. Head/In-charge office/building, school shall be made responsible in this regard.

29. To control water pilferage in Karachi through illegal water connections, illegal hydrants etc., and in rest of Sindh through illegal modules or pipes in irrigating canals, a command and control room may be established in each district.

30. Instead of entrusting water related issues to several civic agencies, there may be constituted a single civic agency or authority like Water Regulatory Authority in each district having representation of persons from civil society etc. to attend to all water supply and sanitation related issues. It shall have a fast, easy, reachable, time-bound and result-oriented system in place for addressing complaints of the people. It may also be mandated to collect all the charges for development, maintenance and up-gradation of infrastructure of the buildings to meet water related requirements on one hand, and on the other to curb red-tape and conflict of interest.

31. In the urban and rural areas of Sindh except Karachi and Hyderabad, Public Health & Engineering Department may be made responsible for providing drinkable water to the people.

32. Directions may be given to the Irrigation Departments and other Departments concerned to establish a water Lab. at Guddu Barrage to examine quality of water of River Indus coming from Punjab so that the exact volume of water pollution may be gauged for taking necessary steps.

33. The irrigation department may be directed to protect surface water from untreated municipal and industrial effluent being directly discharged into watery bodies, and in case of failure along with related field officers, the Secretary Irrigation Department shall be held responsible. In this regard a network of drains with outfall in RBOD or LBOD as the case may be with a system of siphoning off the drain water from under the irrigation canals at the place of crisscrossing may be laid to save watery bodies from effluent.

34. In order to save sweet water from contamination, the Irrigation Department may further be directed to remove all encroachments (houses, slaughter houses, cattle pans etc.) from the banks of irrigation canals all over Sindh as they are directly discharging their effluent in the irrigation canals.

35. The cattle pans, which cause choking of drains and gutters, may not be allowed to be established within the residential areas of the city. The District Management of each District may be directed to remove all the cattle pans already established within the residential areas of the city.

36. If we have to get rid of effluent being discharged into irrigation channels, the completion of RBOD-II appears to be a must. Directions may be issued to the Government of Sindh and Government of Pakistan to revise and restart the remaining work for early completion of RBOD-II on right side of River Indus, which is designed to carry drainage effluent from RBOD-I and RBOD-III for disposal in Arabian Sea in environmentally safe manner without polluting Manchar Lake, River Indus, Culturable Lands and water supplies for domestic purpose. According to estimation, the latest financial progress of the project up to June 2016 is Rs.28.43 billion which is 97% of the approved cost, whereas the physical progress is 72%.

37. There is no dumping or landfill site in any of the cities of Sindh to manage solid waste, the solid waste is either being burnt in open or thrown in irrigation canals or nallas in some case, or being dumped on makeshift dumping sites and left unattended. Direction may be issues to Sindh Government to immediately establish such landfill and dumping sites so that healthy environment could be created.

38. The Health Department may be directed to ensure installation of incinerators in all government and private hospitals and to take further steps for disposal of all kind of hospital waste in terms of the Hospital Waste Management Rules, 2014, and in case of failure, the Secretary Health shall be held responsible.

39. As the reports of District and Sessions judges have revealed expenditure of billions of rupees for the last five years on the schemes of water supply and sanitation, but many of them are lying non-functional and even from functional schemes no tangible result improving provision of potable water supply and sanitation is being achieved. The directions to launch investigation into the finances incurred on all such schemes may be ordered.

40. Directions may be issued for investigating the failure of scheme namely Extension/Improvement of Urban Drainage Scheme Jacobabad fixing responsibility on those Executing Officials who are at fault as despite spending about 1200 million on the said project no benefit from it has been extended to the citizens of Jacobabad.

41. Directions may also be issued for investigating the failure of Sewerage Project for Qasimabad, which is part of Hyderabad Development Package, fixing responsibility on those Executing Officials who are at

fault as in spite of spending 1700 million on this project, yet no benefit from it has been extended to the citizens of Hyderabad.

42. The direction to the Sindh Government may also be issued for reviewing the current lax Anti-corruption laws and/or replacing them with more stringent laws against corruption, as the current Anti-corruption laws have failed to discourage corrupt practices, which is the main reason of failure. The investigation into corruption matters and the trial thereafter may be ordered to be made time-bound.

43. The whole procedure of devising schemes, decision of technical committee on feasibility of the schemes, administrative approval of funds, release of funds and execution of schemes shall be reexamined and revamped and in this regard some component of judicial overview on the execution of the schemes may be introduced to discourage and curb menace of kick-backs and commissions.

44. All the Department/Agencies of Government of Sindh and Government of Pakistan etc. may be directed to clear off the outstanding dues/bills of civic bodies (KW&SB, WASA etc.). And they may be bound down for future not to commit default in respect of water and sanitation charges so that improvement in service delivery system could be achieved.

45. Due to lack of town planning, the unchecked mushroom growth of housing societies has increased in the cities, which has further aggravated the service delivery in respect of supply of drinkable water and sanitation. Sindh Government and District Management may be directed to strictly monitor such growth of housing societies by adhering to law, rules and regulations concerned with town planning.

46. Public Health & Engineering Department (and any other department) which develops/completes water-related schemes may be made responsible for operation and maintenance thereof, instead of any other department/council.

47. The over lapping functions of North Sindh Urban Service Corporation (NSUSC) with Town Municipal Administration (TMA) and Public Health Engineering Department (PHED), which under the law are assigned the duty of providing clean drinking water, maintaining sanitation and hygiene, may be reviewed.

48. At present SEPA’s organizational structure is weak and it is mostly concentrated in few major cities of Sindh; therefore it has failed to deliver. For achieving good results in respect of provisions and objectives of Sindh Environmental Protection Act, 2014, the SEPA needs to be strengthened, reorganized and expanded down to the District level.

49. Last but not the least, until and unless, we implement a system of strict monitoring and fierce accountability within the institutions, we would not be able to realize fruits and results of any hard work undertaken to provide for potable water, better sanitation and healthy environment to the people of Sindh. The current situation, if we have to survive, prosper economically and prove our utility as viable people contributing to the collective betterment of our country, shall not be allowed to continue. We will have to shake off the mind-set of an ostrich who when pursued hides its head in the sand and believes to be unseen. A system of fierce accountability and monitoring is overdue.

Before I conclude, I must appreciate invaluable efforts, time and energy put in by my staff i.e. Mr. Andal Khan Channa Private Secretary, Mr. Muhammad Rafiq Memon Personal Assistant, Mr. Bashir Ahmed Narejo Jr. Court Associate and Mr. Ghulam Mustafa Channa Registrar of the Commission in completing this enquiry report within stipulated time. Simultaneously, I shall not forget Dr. Ghulam Murtza Senior Research Officer PCRWR, Dr. Muhammad Ahsan Siddiqui and Mr. Sulleman Chandio, the amicus curia, for providing technical and scientific support to this Commission.

Mr. Justice Muhammad Iqbal Kalhoro
Commission of Enquiry

PICTORIAL VIEW OF VISITS OF DIFFERENT CITIES

NON FUNCTIONAL FILTER BEDS AT PIPRI FILTER PLANT

CLORINATING TANKS AT NEK FILTER PLANT

KARACHI HARBOUR

CLORINATING TANK AT COD FILTER PLANT

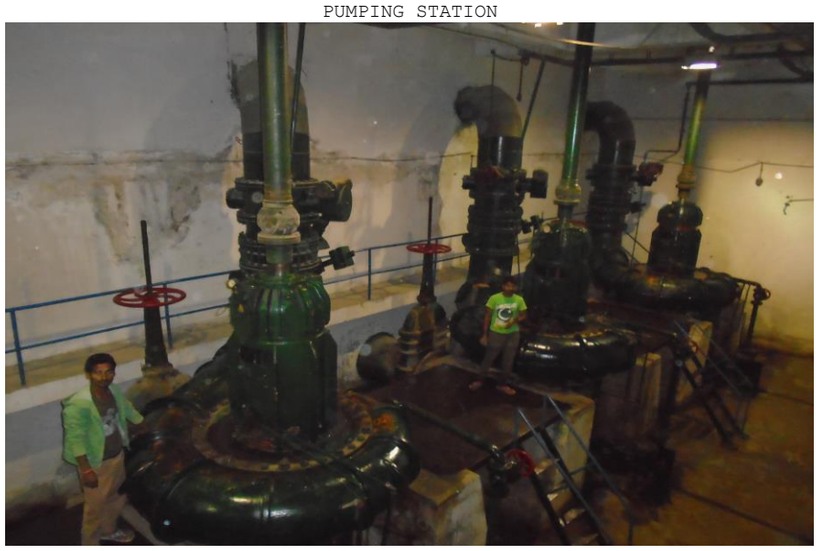
NON FUNCTIONAL CLARIFIER AT COD FILTER PLANT

CHANDKA MEDICAL HOSPITAL LARKANA

DHABEJI PUMPING STATION

FOUR-BAY POINT

PUMPING STATION



INDUSTRIAL EFFLUENT OF KOTRI SITE IN KB FEEDER

KOTRI MUNICIPAL DRAIN IN KB FEEDER

SOLID WASTE IN AKRAM WAH

INDUSTRIAL EFFLUENT IN PHULLEJLI

MIXTURE OF ALUM AT KOTRI FILTER PLANT

RO PLANT BADIN

WATER TESTING AT WATER SUPPLY SCHEME UMERKOT

RO PLANT MIRPURKHAS HOSPITAL

MIRPURKHAS HOSPITAL

Sukkur: Drainage Disposal at Indus River Near Makrani Masjid Bunder Road sukkur 18.01.2017

Sukkur: Drainage Disposal at Indus River Near Makrani Masjid Bunder Road sukkur 18.01.2017

COMBINED EFFLUENT TREATMENT PLANT KOTRI

OPEN MAIN HOLE IN SHIKARPUR CITY

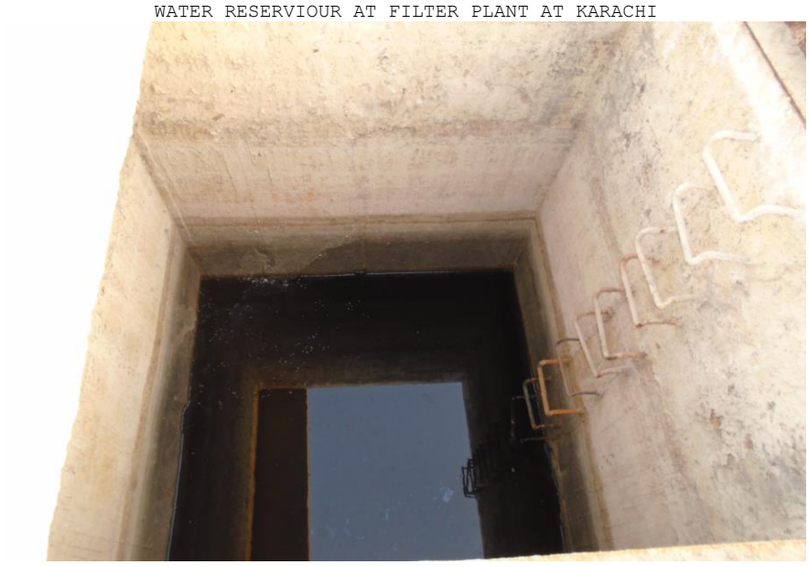
SHIKARPUR CITY

PIPRI FILTER PLANT LAB

CHLORINATOR TANK AT COD FILTER PLANT

CLARIFIER AT COD FILTER PLANT

WATER RESERVIOUR AT FILTER PLANT AT KARACHI



TREATMENT PLANT AT BIN QASIM

TREATMENT PLANT AT BIN QASIM

DRY SLUDGE TANKS TREATMENT PLANT AT BIN QASIM

OUT FALL OF TREATMENT PLANT BIN QASIM IN CREEK WITHOUT TREATMENT

SEWAGE OF STEEL MILL IN THE CREEK

FILTER BEDS AT FILTER PLANTS PIPRI

WATER RESERVIOUR AT PIPRI FILTER PLANT

WATER LAB AT COD FILTER PLANT

NON FUNCTIONAL CLARIFIER AT COD FILTER PLANT

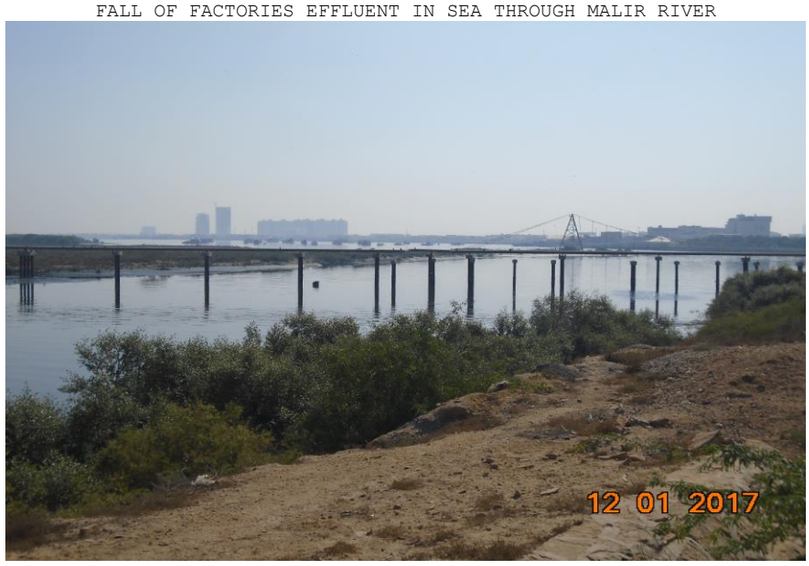
PIPRI FILTER PLANT

MAHMOODABAD NALA PIC-1

MAHMOODABAD NALA PIC-2

FACTORIES EFFLUENT

FALL OF FACTORIES EFFLUENT IN SEA THROUGH MALIR RIVER



EFFLUENT COMING FROM TANNERIES KORANGI ROAD

KPT HARBOUR

NON FUNCTIONAL INCINERATOR AT CHANDKA MEDICAL HOSPITAL LARKANA

RICE CANAL LARKANA

WATER SUPPLY PUMPING STATION SHIKARPUR

SHIKARPUR CITY

SHIKARPUR

Azizabad Drainage Disposal Qureshi Goth Sukkur (18.01.2017)

Sukkur: Drainage Disposal at River Indus Near Maskrani Masjid Sukkur 18.01.2017

Sukkur: Drainage Disposal at Indus River Near Makrani Masjid Bunder Road sukkur 18.01.2017

COMBINED EFFLUENT TREATMENT PLANT KOTRI

OUTFALL OF COMBINED EFFLUENT TREATMENT PLANT KOTRI IN KB FEEDER

KOTRI WATER FILTER PLANT

DUMPING OF SOLID WASTE AT IRRIGATION CANAL IN HYDERABAD

OUT FALL OF FACTORIES EFFLUENT IN PHULLELI CANAL FROM DARYA KHAN

NARAYJO VILLAGE RO PLANT THATTA

WATER TESTING AT NARAYJO FILTER PLANT AT THATTA

WATER SUPPLY SCHEME THATTA

WATER TESTING AT NAUKOT LAGOONS THARPARKAR

RO PLANT MITHI

RO PLANT MITHI LAB

NAUKOT LAGOONS THARPARKAR

MUNICIPAL SEWAGE SCHEME UMERKOT

WATER SUPPLY SCHEME UMERKOT

RO PLANT AT MIRPURKHAS CIVIL HOSPITAL

MIRPURKHAS CIVIL HOSPITAL

MIRPURKHAS CIVIL HOSPITAL

WATER SUPPLY TANK AT RO PLANT MIRPURKHAS

FILTER PLANT AT MIRPURKHAS

DHABEJI PUMPING STATION

RO PLANT MIRPURKHAS

JARWARI SHAKH MIRPURKHAS USED FOR TAKING DRINKING WATER

WATER SUPPLY SCHEME MIRPURKHAS