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GOVERNMENT OF MAHARASHTRA
WATER RESOURCES DEPARTMENT

HYDROLOGY PROJECT (SW)
HYDROLOGY PROJECT DIVISION, AURANGABAD

WATER QUALITY LAB LEVEL-II, AURANGABAD

ANNUAL REPORT YEAR 2013-14

EXECUTIVE ENGINEER
HYDROLOGY PROJECT DIVISION, AURANGABAD

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ANNUAL REPORT YEAR 2013-14

EXECUTIVE ENGINEEER
HYDROLOGY PROJECT DIVISION, AURANGABAD

CERTIFICATE OF COMPLIANCE

This is to certify that the
QUALITY MANAGEMENT SYSTEM of

HYDROLOGY PROJECT DIVISION
WATER QUALITY LAB LEVEL II - AURANGABAD

Near Hedgewar Hospital, Garkheda, Aurangabad – 431 005, Maharashtra, India.

has been assessed by International Certification Services Pvt. Ltd. and registered as complying with the requirements of the following International Standard:

ISO 9001:2008

The Quality Management System applicable to:

Scope: **Collection, Testing And Analysis Of Water And Waste Water Samples.**

Registration No. : **RQ91/6398**
Registered Date : **11th February, 2010.**
Expiry Date : **10th January, 2013.**

RED Invalid After 16/09/2010 Unless Hologram Pasted

GREEN Invalid After 16/06/2011 Unless Hologram Pasted

RED Invalid After 16/03/2012 Unless Hologram Pasted

Director
International Certification Services

Accredited by Joint Accreditation System of Australia and New Zealand

Validity of this certificate is based on periodic audits of the management system defined by the above scope and is contingent upon prompt, written notification of significant changes to the management system and/or its components thereof shall be immediately communicated to ICS.
Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the above certification body.

International Certification Services Pvt. Ltd. E-7, Chand Society, Juhu Road, Juhu, Mumbai – 400 049, India

QUALITY POLICY

WATER QUALITY LABORATORY, LEVEL-*II*, AURANGABAD. DECLARED THE PURPOSE OF THE ORGANIZATION i.e

COLLECTION & TESTING OF WATER SAMPLES

HAS LAID DOWN THE FOLLOWING QUALITY POLICY, THAT HAS BEEN COMMUNICATED AND UNDERSTOOD WITHIN THE ORGANIZATION AND HAS PROVIDED ADEQUATE FRAME WORK FOR REVIEWING ITS QUALITY OBJECTIVES AND QUALITY POLICY FOR CONTINUING SUITABILITY AND IS COMMITTED……

- **TO MONITOR EFFECTIVENESS OF QMS TIME TO TIME & WILL ALSO WORK FOR CONTINUAL IMPROVEMENT OF THE ACTIVITIES.**
- **TO WORK FOR CONTINUAL IMPROVEMENT IN ITS TECHNOLOGY, PROCESSES AND TO INCREASE COMPETENCY LEVELS HAVE ITS PERSONNEL.**
- **TO DELIGHT THE CUSTOMER BY FULFILLING CUSTOMER NEEDS, STATUTORY/REGULATORY REQUIREMENTS AND ANY REQUIREMENT WHICH IS NOT STATED BUT WHICH IS REQUIRED FOR APPLICATION OF CUSTOMER SERVICE.**

Rev. No.: 00
DATE: 02 March 2009.

EXECUTIVE ENGINEER
HYDROLOGY PROJECT DIVISION,
AURANGABAD

PREFACE

Well equipped (level-II) grade Water Quality Laboratory at Aurangabad, is set up under technical assistance of World-Bank aided Hydrology Project, for monitoring the surface water quality of Godavari basin and East flowing rivers of Marathwada & Amravati region in Maharashtra state.

This report includes water quality data for the period of ***June 2013- May2014 (this period is known as water year),*** *to know changes occurs in the selected parameters of selecting all stations of Dams & River water body which comes under Hydrology Project Division Aurangabad. The agency* ***M/s. Papilon Enviro Engineers*** *was awarded the contract towards Operation and Maintenance of Water Quality Lab Level-II, Aurangabad for the said period. The data has been interpreted to know the trends in the water quality of the locations.*

It is a great pleasure to hand over this precise report on analysis of water samples at Water Quality Lab Level–II, Aurangabad. This booklet attempts to briefly describe an over view and general conclusion on the basis of water quality data of water samples collected from selected locations for define frequencies for the reported period.

Our efforts can always be updated through valuable suggestions.

Govt. Analyst *W. Q. Lab Level-II* *Aurangabad*	*Sub Divisional Engineer* *HP – Sub Division* *Aurangabad*	*Executive Engineer* *Hydrology Project* *Aurangabad*

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II @ Aurangabad for the Year 2013 - 2014

I N D E X

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II Aurangabad for the Year 2013-14

A N N E X U R E - II

CHAPTER – I
EXECUTIVE SUMMARY

CHAPTER-I
EXECUTIVE SUMMERY

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II @ Aurangabad for the Year 2013-2014

1.1 Preamble:

Water is the most vital resources for life. With the increasing population & changing life patterns, consumption of water has increased many folds particularly for domestic, agriculture, & industrial consumption. **"The negative change in physical, chemical & biological properties of natural water due to addition of pollutants causing adverse effect on aquatic life, & other living being, including man is known as water pollution."**

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded and utilized for preparing the Annual Report by performing some specific exercise. This data is considered in order to specify the quality of water at each location. This also helps to determine the pollution level or concentration of some parameters of water at each station.

1.2 Water Quality Monitoring – Objectives:

Observations of analysis of physical & chemical parameters are carried out as per **"Uniform Protocol for Water Quality Monitoring Order 2005"** for each location followed by Operation and Maintenance of Water Quality Laboratory Level-II @ Aurangabad. As per Standard Guidelines and mandates including collection, transportation, analysis of samples, data entry in SWDES Software and preparation of the said Annual Report as per specific guidelines issued by Executive Engineer, Hydrology Project Division, Aurangabad.

1.3 Water Quality Monitoring – Scope:

Annual Report is prepared for the period from **June–2013 to May–2014** (which is considered as Water Year period). In order to study the water quality status location wise, all stations are covered for this report which comes under this lab during the year 2013-14.

1.4 Methodology:

Analysis of Physical and Chemical parameters is done in the laboratory on the basis of Standard Analytical Methods, Instrument Operating Instructions, HIS Manuals, CPCB Guidelines and APHA 21st Ed., 2005.

Data analyzed further validated with prescribed method as per Water Quality Manuals to verify various ratios manually and is entered in SWDES Software for Water Quality Data Entry. Further the data is sent to State Data Center for further dissemination to user end.

Furthermore to get brief idea about data generated for the period it is decided and instructed to analyzed the generated data for the said period in the form of Annual Report with the help of various tools in SWDES Software to find out critical parameters and critical locations in the jurisdiction of this Lab.

1.5 Result and Observation:

In the year 2013-14, after observing all this data it is clear that most of the physical parameters are within tolerance limit except at few locations, we found that some parameter's value exceeds marginally.

1.6 Conclusion:

In the Year 2013-14 it can be concluded that all the parameter of stations are in tolerance limit.

The discharge of waste from industries, agriculture and urban communities into water bodies generally stretches the biological capacities of aquatic systems. Chemical run-off from fields also adds nutrients to water. Excess nutrients cause the water body to become choked with organic substances and organisms. When organic matter exceeds the capacity of the micro-organisms in water that break down and recycle the organic matter, it encourages rapid growth or blooms of algae. When they die, the remains of the algae add to the organic wastes already in the water, eventually the water becomes

deficient in oxygen. Anaerobic organisms (those that do not require oxygen to live) then attack the organic wastes, releasing gases such as methane and hydrogen sulphide, which are harmful to the oxygen-requiring (aerobic) forms of life. Hence it can be concluded that water from all these sources have pollution and so it requires treatment before its usage.

In the point of consideration for above locations, water is suitable for irrigation purpose followed by traditional irrigation method.

1.7 Recommendations/Remedial Measures:

- Domestic effluents may be treated and disinfected before discharging.
- Effluents from the non-point sources may be identified. These are required to be collected and treated.
- Use of water of such polluted locations may be useful for salt tolerance crop and is recommended based on special study.
- Use of direct source of water is to be avoided.
- Bathing at such location should be restricted.

1.8 Suggestions:

- Create mass awareness in general public regarding surface and ground water quality aspects.
- Water Quality Annual Report shall be publicly published every year and made available to everyone on demand.
- Sampling points of sampling location need to be increased to better analysis of data at different stages of that location.

1.9 Water Quality Trend in Aurangabad Division.

Water Quality Trend in Aurangabad division is based on the data available from June 2013 to May 2014 in Water Quality Lab Level-II, Aurangabad. This comparison of change is related to Irrigation parameters on their concentration.

CHAPTER –II
INTRODUCTION

CHAPTER-II
INTRODUCTION

2.1 General:

To check the pollution load & water safety for different uses there is need to regularly monitor water quality by using laboratory analysis method. The test includes physico-chemical parameters & biological parameters.

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded and utilized for preparing the Annual Report by performing some specific exercise. This data is considered in order to specify the quality of water at each location.

2.2 Water Quality Monitoring – Objectives:

Observations of analysis of physical & chemical parameters are carried out as per **"Uniform Protocol for Water Quality Monitoring Order 2005"** for each location followed by Operation and Maintenance of Water Quality Laboratory Level-II, Aurangabad. As per Standard Guidelines and mandates including collection, transportation, analysis of samples, data entry in SWDES Software and preparation of the said Annual Report as per specific guidelines issued by Executive Engineer, Hydrology Project Division, Aurangabad.

2.3 Water Quality Monitoring – Scope:

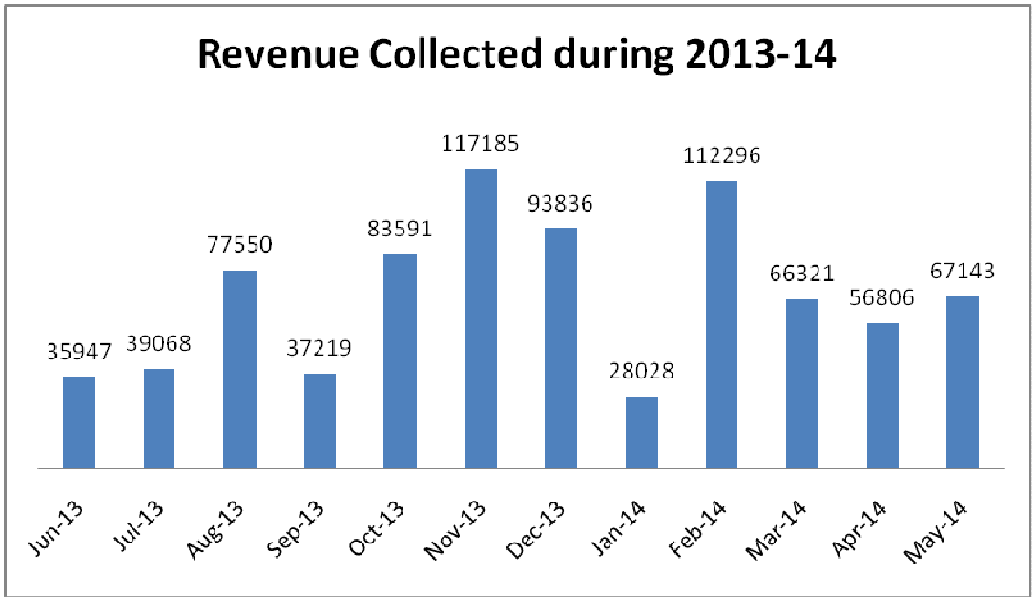
The Annual Report is prepared for the year 2013-14. The Table below shows the number of sample analyzed during the reported period. In order to study water quality status station wise, all locations covered under this lab during the year 2013-14 are considered.

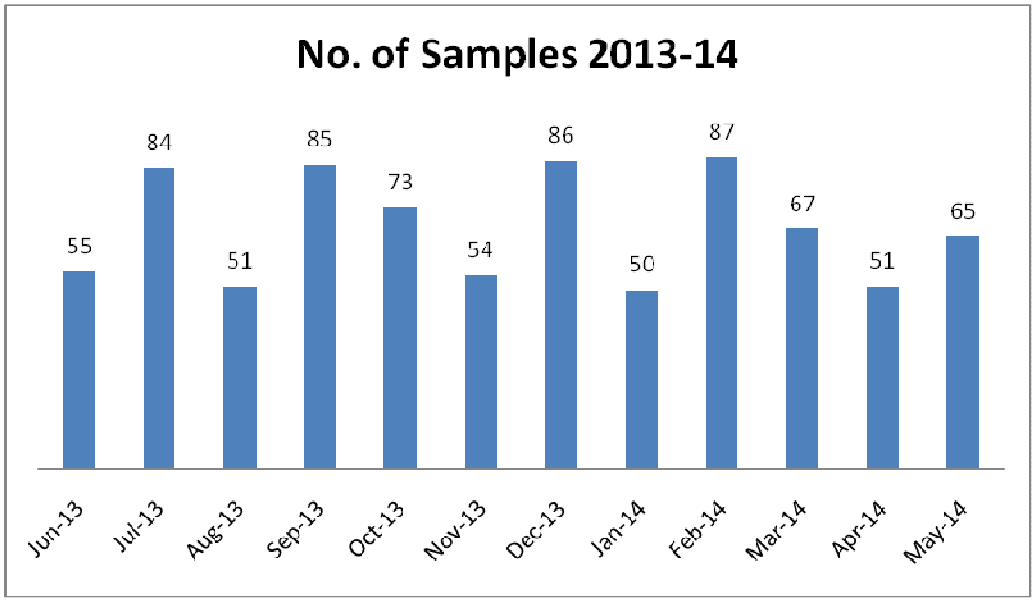
REVENUE GENERATED DURING THE REPORTING PERIOD
(June 2013 –May 2014)

Sr. No.	Water Year	No. of Samples Analyzed	Amount Received
1.	2013-2014	808	8,14,990

Month wise details are as under

Month & Year	Total Amount	No of Sample
Jun-13	35947	55
Jul-13	39068	84
Aug-13	77550	51
Sep-13	37219	85
Oct-13	83591	73
Nov-13	117185	54
Dec-13	93836	86
Jan-14	28028	50
Feb-14	112296	87
Mar-14	66321	67
Apr-14	56806	51
May-14	67143	65
Total:	**8,14,990**	**808**


Revenue Collected during 2013-14
35947
39068
77550
37219
83591
117185
93836
28028
112296
66321
56806
67143
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14


No. of Samples 2013-14
55
84
51
85
73
54
86
50
87
67
51
65
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14

2.4 Other Activities:

Apart from working for regular Water Quality Monitoring for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

The facility is availed by many users with testing of sample towards drinking purpose, ice factory, construction purpose, swimming tanks, irrigation purpose & study purpose, also in plant training facility for Students of Educational Institutes.

2.5 Extended Scope of Laboratory:

Water Quality Lab Level – II is certified by **ISO 9001-2008** in the year 2009-10 and it is now renewed in the month of Jan 2013. We are working as per the standards of ISO to maintain the quality of work to streamline the process of work to achieve the set objectives.

CPCB AQC Exercise:

In the month of Dec. 2013 CPCB conducted the AQC Exercise, in which this lab had not participated as test parameters (Metal) required AAS for analysis.

Training and Visits:

Infrastructure facility is made available to many college students for in plant training and their research purposes. Many visitors from various institutes like Dr. B. A. M. U. Aurangabad, College students & students of various schools visited the laboratory.

The infrastructure facility is also made available to all institutional organization for visit and study purposes and the generated data of Water Quality is also made available to the users who are a member of Hydrology Project.

WATER QUALITY LABORATORY LEVEL-II @ AURANGABAD
SALIENT FEATURES OF LABORATORY

1.	Latitude	: 19° 51"30"
2.	Longitude	: 75° 21"18"
3.	River Basin	: Godavari
4.	Year of Establishment	: 2001
5.	Actual Working Started	: October-2001
6.	Sampling Locations As	
	Per W.Q. Network covered in this lab.	: 28
7.	Monthly sample collection	: 28 samples
8.	Samples Frequencies	
	a) Baseline	: --
	b) Trend/Flux	: Monthly
	c) Reservoir	: Bi-monthly
9.	Level of Lab	: Level II
10.	W.Q. Parameters for Level II Lab	: 39 Nos.
11.	Observation Frequency	: Daily
12.	Govt. Staff related to the	: 1) Mr. F. L. Doiphode (Ex. Engineer) 2) Mr. S. H. Latkar (S.D.O) 3) Mr. S. B. Kolte (A.E. II)
13.	Lab. Operating Agency & Staff on contract basis	: 1) Papilon Enviro Engineers
14.	Staff Position	: 1) Ms. Vaishali P. Pawar (Chief Chemist) 2) Ms. Shilpa Gujar (Microbiologist) 3) Mr. Sandeep Bhale (Field Chemist) 4) Mr. S. Gangawane (Lab Assistant)

SCOPE OF WORK: OPERATION AND MAINTENANCE OF WATER QUALITY LABORATORY LEVEL-II AURANGABAD.

Outdoor work: Surface water sampling from selected water quality network sampling points as per schedule of sampling, to be collected as per norms given by World Bank including field test to be carried out on site as per specific Performa of sampling to be collected from laboratory and sample should be reached in the lab, within 24 hrs with field determination test as specified by lab in charge etc.

The Surface Water sampling includes:

- Field determination as per standard guideline.
- Field parameters to be tested on site & entry to be taken on ID form.
- Sample to be transported to laboratory within prescribed time limit. Work is carried out as per flow chart.

Transportation: Transportation of collected samples from selected sampling points as per list including transportation sampling material as per check list from lab and transportation samples from sampling points back to laboratory as per schedule within 24 hrs.

Indoor work:- Operation & Maintenance of Water Quality Laboratory Level-II @ Aurangabad including analysis of water samples as per test procedure & taking entry of collected samples, operating instruments as per manual & keeping data record, primary & secondary validation, participating in AQC Exercise, analysis of samples under AQC, operation within Laboratory AQC exercise including analysis of samples within 32/30 parameters for Dam Samples and 30/28 parameters for trend samples as directed by Lab Incharge each from every station per month within stipulated period by using scientific staff including instrument operations data record maintenance & laboratory Management etc complete.

Steps in Indoor work:

- Day to Day Operation and Maintenance of Water Quality Laboratory Level II.
- The work includes analysis of water samples as per the test procedures.
- Operating the instruments as per specified instruction manual.
- Entry of data in SWDES Software.
- Conducting Analytical Quality Control Exercise (AQC) round.
- Within Laboratory AQC ii) Intra Laboratory AQC
- The Laboratory staff employed;
    - Chief Chemist: 1 No.
    - Sr. Research Officers: 1 No.
    - Research Assistant: 2 No.
    - Lab. Assistant: 1 No.
- The Indoor work also includes keeping data record.
- Log book of Lab equipment
- Preparation of monthly sampling Schedule.
- Keeping sampling record, instruments operation, Laboratory Management, demonstration
- Training to Departmental staff as and when required.
- Information to Visitors & Customer

Water Quality Lab Level-II @ Aurangabad

Statement Showing Number of Samples proposed to be collected for the Period of Work- June 2013 to May 2014

The Water Quality Laboratory Level-II at Aurangabad data for the period of June 2013 to May 2014 is taken for report preparation. Total no of 28 sampling location covered, out of which 20 locations are from river stations of Aurangabad division & Amaravati division, 7 Dam Stations & 1 is creator station. Actual sample from Pategaon Trend Station is collected from Jayakwadi Project.

Table showing No. of Locations Covered under the Jurisdiction of Water Quality Lab level – II, Aurangabad.

Sr. No.	Name & Type of Sampling Stations			Monthly Frequency of sampling	Remark
	Type	Station	Name of River		
Location as per W.Q. Network					
Aurangabad Division: River Location					
1	Trend	Newasa	Godavari	Monthly	
2	Trend	Raheri	Purna	Monthly	
3	Trend	Kesrali	Manar	Monthly	
4	Trend	Sundagi	Lendi	Monthly	
5	Trend	Nandednaga	Godavari	Monthly	
6	Flux	Yelli	Godavari	Monthly	
7	Trend	Purnabridge	Purna	Monthly	
8	Trend	Takalidhangar	Godavari	Monthly	
9	Trend	Aurangabad	Kham	Monthly	
10	Trend	Parli Vaijanath	Wan	Monthly	
11	Trend	Gangakhed	Godavari	Monthly	
12	Trend	Latur	Manjara	Monthly	
13	Trend	Killari	Terna	Monthly	
14	Trend	Udgir Takali	Manjara	Monthly	
15	Trend	Hirapur	Sindaphana	Monthly	
16	Trend	Auradshahajani	Terna	Monthly	
17	Trend	Shendurwada	Kham	Monthly	
18	Trend	Rahati	Purna	Monthly	
Amarvati Division: River Location					
19	Trend	Padalse	Tapi	Monthly	
20	Trend	Bhusaval	Tapi	Monthly	
Aurangabad Division: Dam Location					
21	Dam	Lower Terna	Terna	Bi-Monthly	
22	Dam	Manjara	Manjara	Bi-Monthly	
23	Dam	Majalgaon	Sindaphana	Bi-Monthly	
24	Dam	Yeldari	Purna	Bi-Monthly	
25	Dam	Vishnupuri	Godavari	Bi-Monthly	
26	Dam	U.P.P.	Penganga	Bi-Monthly	
27	Dam	Pategaon	Godavari	Bi-Monthly	Sample is collected from Jayakwadi project
28	Creator	Lonar	Natural Creator	Bi-Monthly	

Statement Showing Water Quality Parameter
Tested at W.Q. Lab Level-II Aurangabad.

Trend & Flux		
	First Round	**Second Round**
Sr. No.	**Parameters**	**Parameters**
1	Colour	Colour
2	Odour	Odour
3	Temperature	Temperature
4	pH	pH
5	Electrical Conductivity	Electrical Conductivity
6	DO	DO
7	Turbidity	Turbidity
8	Total Solids	Total Solids
9	Dissolved Solids	Dissolved Solids
10	Suspended Solids	Suspended Solids
11	Ammonia NH_3	Ammonia NH_3
12	Nitrite NO_2	Nitrite NO_2
13	Nitrate NO_3	Nitrate NO_3
14	T Phosphorous	T Phosphorous
15	B.O.D	B.O.D
16	C.O.D	C.O.D
17	Potassium K	Potassium K
18	Sodium Na	Sodium Na
19	Magnesium Mg	Magnesium Mg
20	Carbonate CO_3	Carbonate CO_3
21	Bicarbonate HCO_3	Bicarbonate HCO_3
22	Calcium	Calcium
23	Chloride Cl	Chloride Cl
24	Fluoride F	Total Coliforms
25	Boron B	Fecal Coliforms
26	Total Coliforms	Alkalinity
27	Fecal Coliforms	Total Hardness
28	Alkalinity	Sulphate
29	Total Hardness	
30	Sulphate	

Statement Showing Water Quality Parameter
Tested at W.Q. Lab Level-II Aurangabad.

Dam Sample (Reservoir)		
	First Round	**Second Round**
Sr. No.	**Parameters**	**Parameters**
1	Colour	Colour
2	Odour	Odour
3	Temperature	Temperature
4	pH	pH
5	Electrical Conductivity	Electrical Conductivity
6	DO	DO
7	Turbidity	Turbidity
8	Total Solids	Total Solids
9	Dissolved Solids	Dissolved Solids
10	Suspended Solids	Suspended Solids
11	Ammonia NH_3	Ammonia NH_3
12	Nitrite NO_2	Nitrite NO_2
13	Nitrate NO_3	Nitrate NO_3
14	T Phosphorous	T Phosphorous
15	B.O.D	B.O.D
16	C.O.D	C.O.D
17	Pottassium K	Pottassium K
18	Sodium Na	Sodium Na
19	Magnesium Mg	Magnesium Mg
20	Carbonate CO_3	Carbonate CO_3
21	Bicarbonate HCO_3	Bicarbonate HCO_3
22	Calcium	Calcium
23	Chloride Cl	Chloride Cl
24	Fluoride F	Total Coliforms
25	Boron B	Fecal Coliforms
26	Total Coliforms	Alkalinity
27	Fecal Coliforms	Kjeldahl Nitrogen
28	Alkalinity	Chlorophyll-a
29	Kjeldahl Nitrogen	Total Hardness
30	Chlorophyll-a	Sulphate
31	Total Hardness	
32	Sulphate	

HYDROLOGY PROJECT DIVISION, AURANGABAD

WATER QUALITY LAB, LEVEL – II AURANGABAD

ORGANISATION CHART

EXECUTIVE ENGINEER,
HYDROLOGY PROJECT DIVISION, AURANGABAD
Mr. F. L. Doiphode

↓

SUB DIVISIONAL OFFICER/ HOD TRAINING/MR
Mr. S. H. Latkar

↓

LAB INCHARGE / STORE AND PURCHASE INCHARGE/Asst. MR
Mr. S. B. Kolte

↓

OPERATING AGENCY
M/s Papilon Enviro Engineers

↓

CHIEF CHEMIST
Mrs. Vaishali P. Pawar

↓

ASSISTANT CHEMIST
Ms. Shipla Gujar (Microbiologist)
Mr. S. Bhale (Field Chemist)
Mr. S. Gangawane (Lab Attendant)

CHAPTER – III
METHODOLOGY

CHAPTER-III
METHODOLOGY

3.0 General:

This Water Quality laboratory covers Surface Water component Rivers like Godavari, Purna, Manjara, Terna and Reservoir like Dams & Lonar Creator from different district locations.

3.1 Rivers:

A river is a natural watercourse, usually freshwater, flowing toward an ocean, a lake, a sea or another river. In a few cases, a river simply flows into the ground or dries up completely before reaching another body of water. Small rivers may also be called by several other names, including stream, creek, brook, rivulet and rill.

Fortunately almost the entire country is criss-crossed by rivers. Geographical area of the state is divided in different river basins viz. Godavari, Purna, Manjara, Terna etc.

3.2 Methodology

Analysis of Physical and Chemical parameters is done in the laboratory on the basis of Standard Analytical Methods, Instrument Operating Instructions, HIS Manuals, CPCB Guidelines and APHA, 21st Ed., 2005.

Data analyzed further validated with prescribed method as per Water Quality Manuals to verify various ratios manually and is entered in SWDES Software for Water Quality Data Entry. Further the data is sent to State Data Center for further dissemination to user end.

Furthermore to get an idea about data generated for the period it is decided and instructed to analyzed the generated data for the said period in the form of Annual report with the help of various tools in SWDES Software to find out critical parameters and critical locations in the jurisdiction of this Lab.

Methodology For the analysis of Water Quality samples the following parameters were analyzed during the Period 2013-14

Table showing List of parameters and the methodology used for analysis.

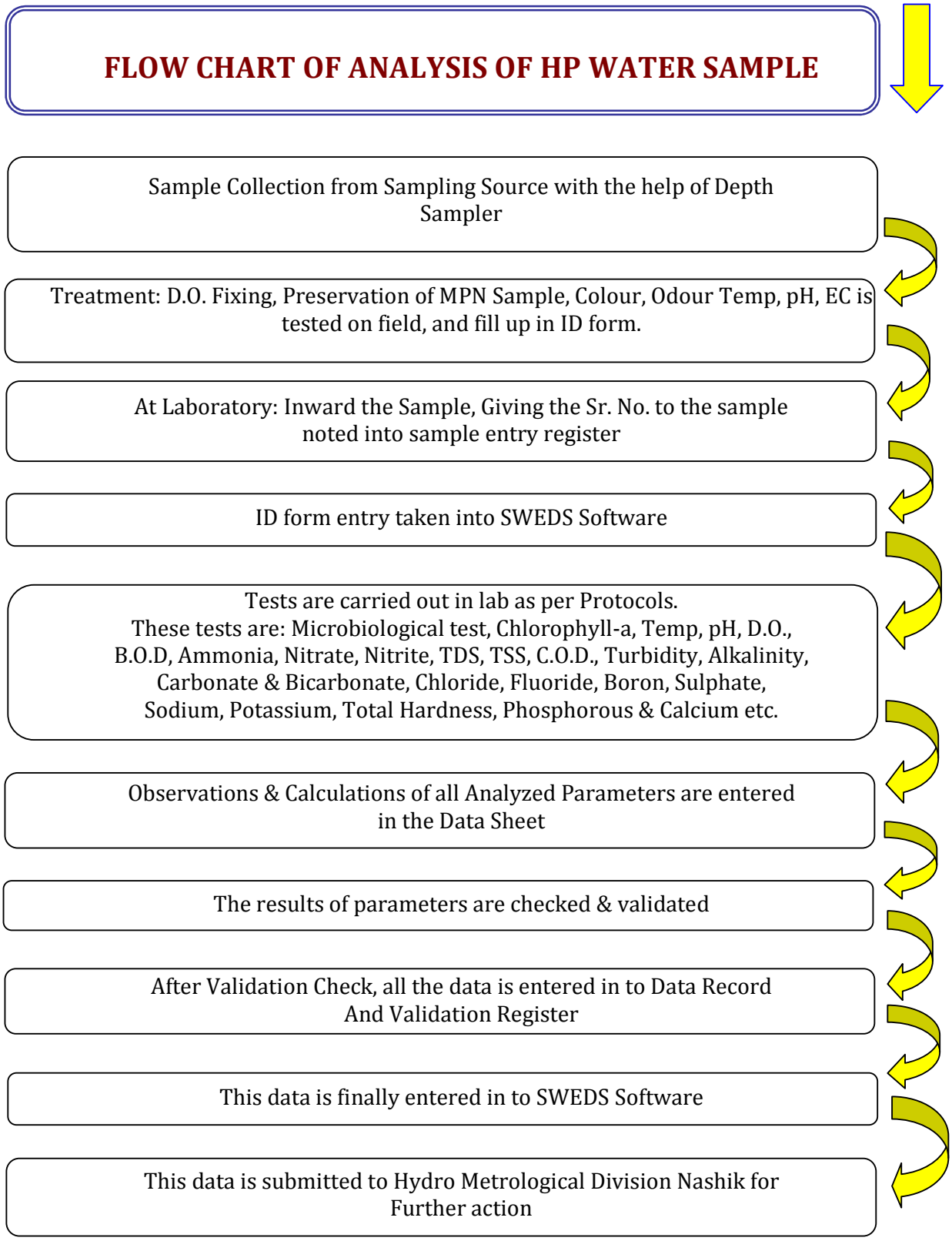
Sr. No	Parameters	Methodology
1.	Colour	APHA, 21st Ed., 2005, 2120-B, 2-2
2.	Odour	IS 3025 (Part 5): 1983, Reaffirmed 2006
3.	Temperature	APHA, 21st Ed., 2005, 2550-B, 2-61
4.	pH	APHA, 21st Ed., 2005, 4500-H^+- B, 4-90
5.	Electric Conductivity	APHA, 21st Ed., 2005, 2510- B, 2-47
6.	Dissolved Oxygen	APHA, 21st Ed., 2005, 4500-O, 4138
7.	Turbidity	APHA, 21st Ed., 2005, 2130-B, 2-9
8.	Total Solids	APHA, 21st Ed., 2005, 2540 B, -266
9.	Dissolved Solids	APHA, 21st Ed., 2005, 2540 C, 251
10.	Suspended Solids	APHA, 21st Ed., 2005, 2454 D-258
11.	NH_3-N	APHA, 21st Ed., 2005, 4500-NH_3 F, 4-110
12.	NO_2^-	APHA, 21st Ed., 2005, 4500-NO_2-B, 4-118
13.	NO_3^-	APHA, 21st Ed., 2005, 4500-NO_3, B -4 -120
14.	Total Phosphorous	APHA, 21st Ed., 2005, 4500 P, E, 4-153
15.	Biochemical Oxygen Demand	APHA, 21st Ed., 2005, 5210-52
16.	Chemical Oxygen Demand	APHA, 21st Ed., 2005, 5220-B, 5-15
17.	Potassium K^+	APHA, 21st Ed., 20053500K,388
18.	Sodium Na^+	APHA, 21st Ed., 2005, 3500NA,398
19.	Calcium Ca^{++}	APHA, 21st Ed., 2005, 3500-B, 3-65
20.	Magnesium Mg^{++}	APHA, 21st Ed., 2005, 3500-Mg, B, 3-84
21.	Total Hardness	APHA, 21stEd., 2005, 2340-C, 2-37
22.	Carbonate CO_3	APHA, 21st Ed., 2005, 2320-B, 2-27, 5 -1 & 4500-CO_2-D, 4-34
23.	Bi-Carbonate H CO_3	APHA, 21st Ed., 2005, 2320-B, 2-27, 5 -3 & 4500-CO_2-D, 4-34
24.	Chloride Cl	APHA, 21st Ed., 2005, 4500-Cl, B, 4-70
25.	Fluoride F	APHA, 21st Ed., 2005, 4500-F^-, D, 4-85
26.	Boron B	APHA, 21st Ed., 2005, 4500-B-C, 4-23
27.	Total Coliforms	APHA, 21st Ed., 2005, 9221-B, 9-49
28.	Faecal Coliforms	APHA, 21st Ed., 2005, 9221-E, 9-56
29.	Alkalinity	IS 3025 (Part 23): 1986, Reaffirmed 2003, Amds.1

3.4 Flow Chart:

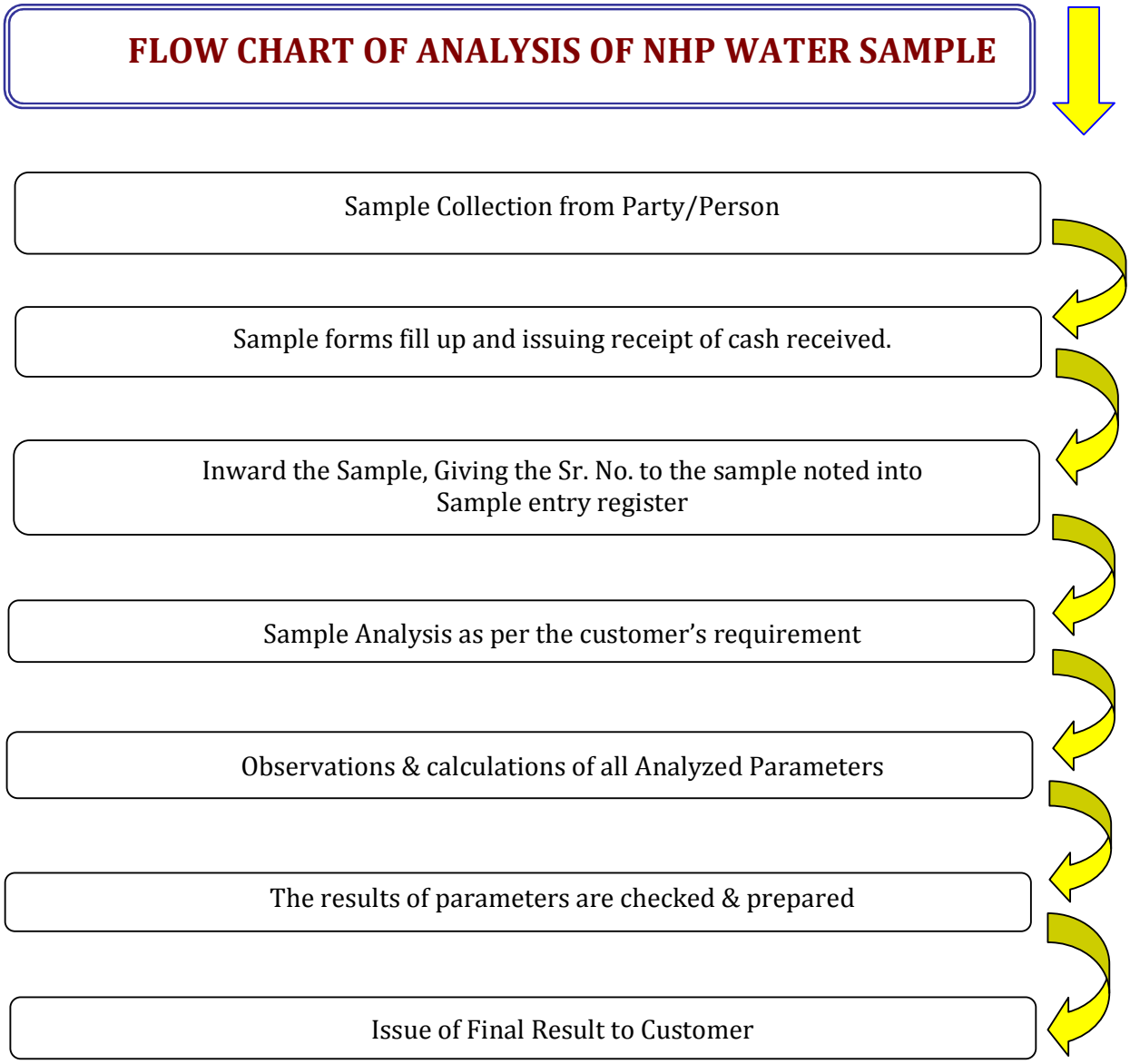
The work of analysis of sample is being monitored on the basis of flow chart generated in the lab as per standard guidelines and analysis of sample is performs as per guidelines of world bank with HIS manuals and APHA, 21st Ed, 2005 as a standard procedures for analysis of samples.

As well refers BIS standards IS:10500 and other relevant BIS standards for analysis of various samples received from users for various purpose like drinking, irrigation, bathing (swimming tank), construction, study & various R & D activities.

FLOW CHART OF ANALYSIS OF HP WATER SAMPLE



FLOW CHART OF ANALYSIS OF NHP WATER SAMPLE



Annual Report
On Water Quality Monitoring through
Water Quality Lab level - II
Aurangabad for the year 2013-2014

TABLE SHOWING SAMPLES ANALYSED DURING THE REPORTING PERIOD

Year	Trend Sample (First Round)	Trend Sample (Balance Round)	Dam Sample (First Round)	Dam Sample (Balance Round)	Total
2013-14	20	50	8	48	126

CHAPTER – IV
RESULT & OBSERVATIONS

CHAPTER - IV
RESULTS AND OBSERVATIONS

4.0 Results and Conclusions:

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded are utilized for preparing the Annual Report by performing some specific exercise. These data are considered in order to specify the quality of water at each location. This also helps to determine the pollution level or concentration in each source of water at each station.

4.1 Water Quality status- Stations wise Exercise:

In order to study water quality status station wise, all locations are considered which comes under the jurisdiction of this lab during the year 2013-14.

4.2 Objectives:

Observations of respective parameters in view with use of water i.e. for drinking purpose or irrigation purpose, analyzed for each location individually & interpretation of data has done to identify the trend at that location. Also critical parameters are identified at every location.

4.3 Irrigation Water Quality Criteria:

Soil scientists use the following categories to describe irrigation water effects on crop production and soil quality:

- Salinity hazard - total soluble salt content
- Sodium hazard - relative proportion of sodium (Na+) to calcium (Ca2+) and magnesium (Mg2+) ions
- pH
- Alkalinity - carbonate and bicarbonate

Specific ions: chloride (Cl), sulfate ($SO4^{2-}$), boron (B), and nitrate-nitrogen ($NO3^{-N}$). Other potential irrigation water contaminants that may affect suitability for agricultural use include heavy metals and microbial contaminants

ICAR Standard for Irrigation Water

Sr. No.	Parameter	Limit	Unit
1.	pH	6.5-8.5	-
2.	Electrical Conductivity	2250	Micromhos/cm
3.	Total Dissolved Solids	2100	mg/Lit
4.	Chloride	600	mg/Lit
5.	Sulphate	1000	mg/Lit
6.	Boron	2	mg/Lit
7.	% Sodium	60	%
8.	SAR (Sodium Absorbance Ratio)	26	Meq/L

4.4 Effects of water pollution:

The effects of water pollution are not only devastating to people but also to animals, fish and birds. Polluted water is unsuitable for drinking, recreation, agriculture and industry. It diminishes the aesthetic quality of lakes and rivers. More seriously, contaminated water destroys aquatic life and reduces its reproductive ability. Eventually, it is a hazard to human health. Nobody can escape from the effects of water pollution.

4.5 Critical parameters Identified:

After observing all this data it is clear that most of the physical parameters are within tolerance limit, Physical parameters like TDS and Chloride are within tolerance limits of Dam Samples & some of the River samples but in case of few stations it is observed that the value of TDS is increased. Tested parameters of rivers & dams are within tolerance limit as per Irrigation ICAR Standards. Most of the chemical parameters are also within tolerance limit.

4.6 Classification of locations on the basis of results for the year 2013-2014

OBSERVATION ON THE BASIS OF CLASSIFICATION OF LOCATION			
Sr. No.	**River**	**Year**	**Observations**
1	Aurangabad Division – Trend (River) Station (18)	2013-14	Water is good for irrigation without any further treatment. Except Aurangabad
2	Amaravati Division - Trend (River) Station (2)	2013-14	Water is good for irrigation without any further treatment.
3	Dams Stations (7 +1)	2013-14	Water is good for irrigation without any further treatment. Except Lonar.

CPCB Water Quality Criteria

Designated best use	Quality Class	Primary Water Quality Criteria
Drinking water source without conventional treatment but with chlorination	A	➢ Total coliform organisms (MPN/100 ml) shall be 50 or less ➢ pH between 6.5 and 8.5 ➢ Dissolved Oxygen 6 mg/l or more, and ➢ Biochemical Oxygen Demand 2 mg/l or less
Outdoor bathing (organized)	B	➢ Total coliform organisms(MPN/100 ml) shall be 500 or less ➢ pH between 6.5 and 8.5 ➢ Dissolved Oxygen 5 mg/l or more, and ➢ Biochemical Oxygen Demand 3 mg/l or less
Drinking water source with conventional treatment	C	➢ Total coliform organisms(MPN/100 ml) shall be 5000 or less ➢ pH between 6 and 9 ➢ Dissolved Oxygen 4 mg/l or more, and ➢ Biochemical Oxygen Demand 3 mg/l or less
Propagation of wildlife and fisheries	D	➢ pH between 6.5 and 8.5 ➢ Dissolved Oxygen 4 mg/l or more, and ➢ Free ammonia (as N) 1.2 mg/l or less
Irrigation, industrial cooling, and controlled disposal	E	➢ pH between 6.0 and 8.5 ➢ Electrical conductivity less than 2250 micro mhos/cm, ➢ Sodium Aborption Ratio less than 26, ➢ and Boron less than 2 mg/l.
	Below E	➢ Not Meeting A, B, C, D & E Criteria

Graphical Representation of ICAR Standards Parameter of Rivers for the Year 2013-14

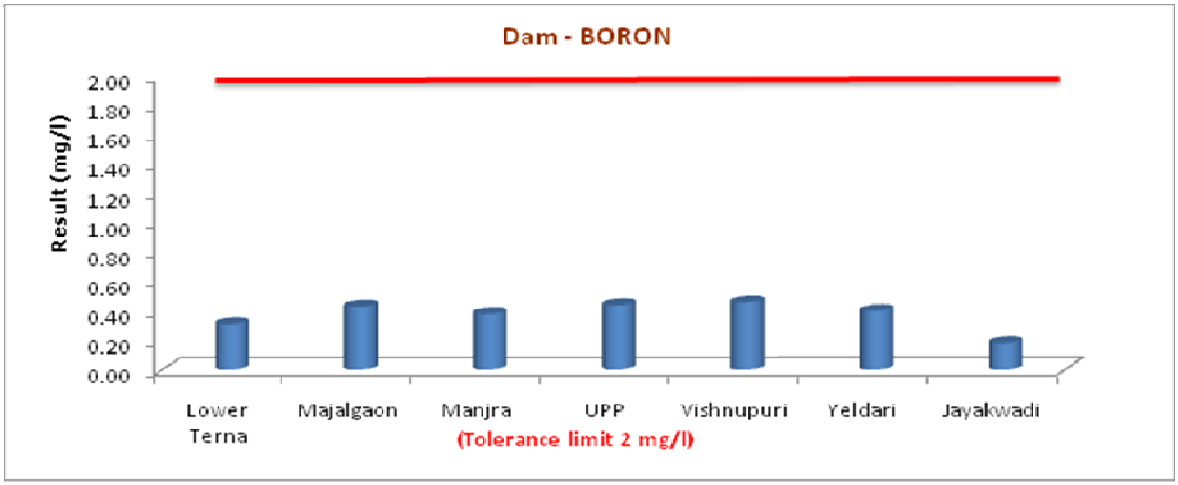
In the monsoon period for the year 2013-14, only one river sample is collected by Aurangabad water quality lab level – II which is Aurangabad station sample. Following are the reasons for non sample collection at other sample collection stations.

- In adequate rain fall during the monsoon.
- Less & non-continuous flow at sample collection station.
- Delay in tendering process of outsourcing work of sample collection and analysis.

Due this there was only one sample collection at Aurangabad Lab; other river station's sample is not collected, which leads to no data of river samples to represent the quality of water for ICAR standards parameters.

DAM STATIONS

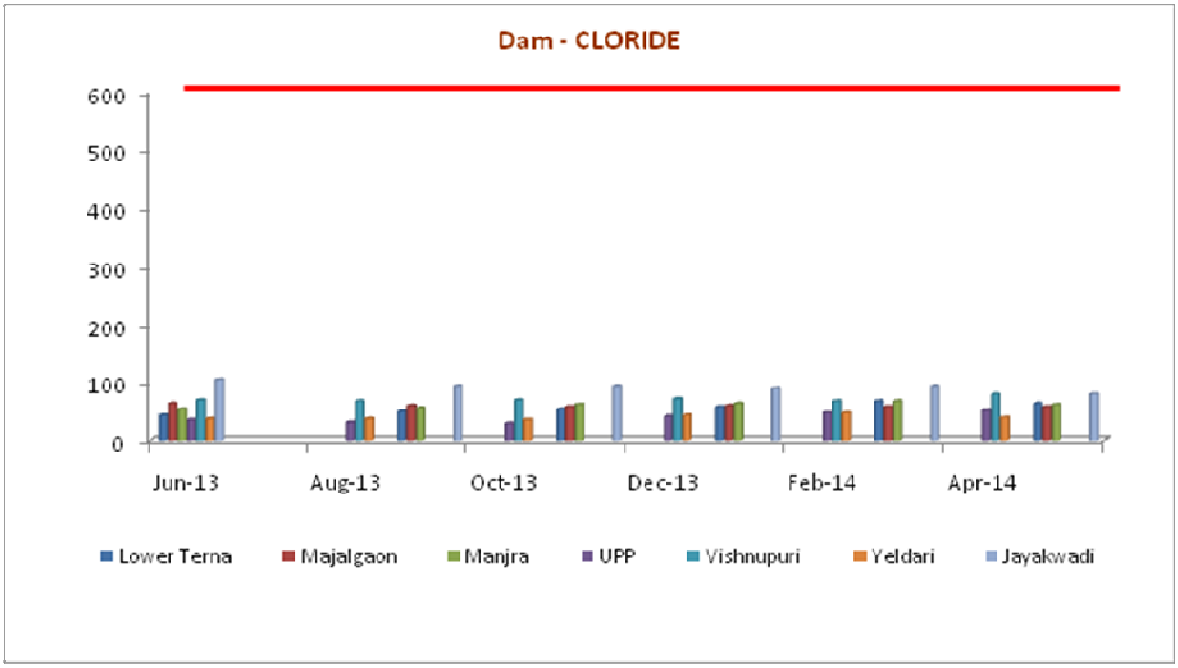
Graphical Representation of Boron of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



Boron is the element that is essential in low amounts, but toxic at higher concentrations. In fact, toxicity can occur on sensitive crops at concentrations less than 2.0 ppm.

From above station's graph it is observed that Boron is within tolerance limit.

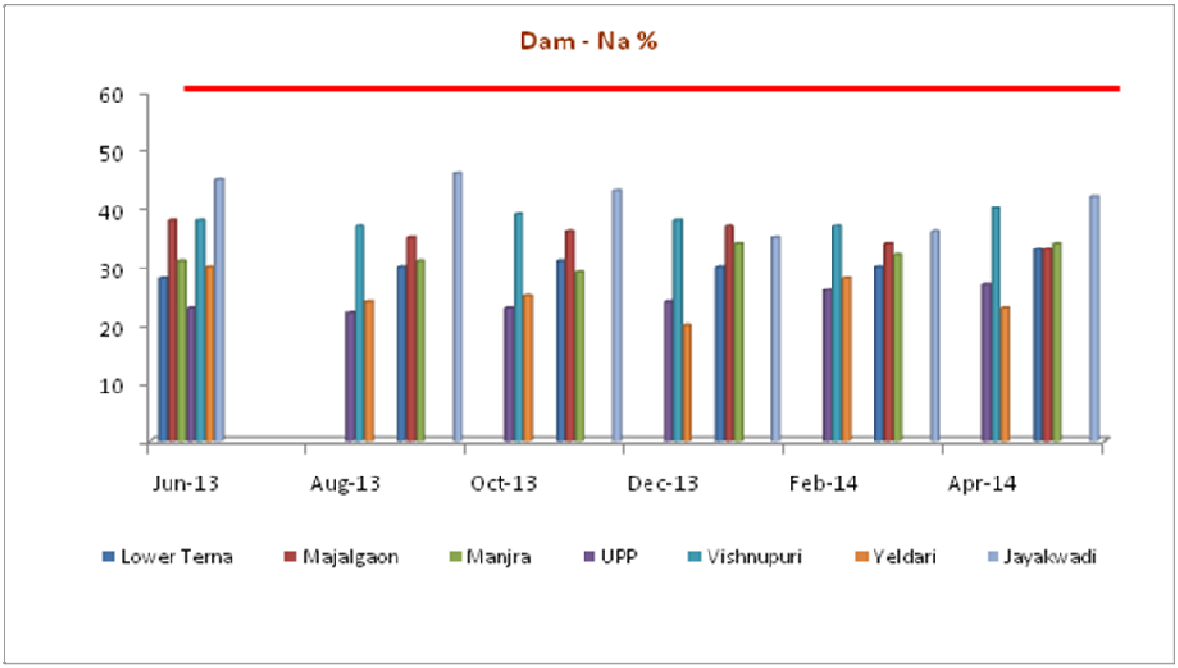
Graphical Representation of Chloride of Dams for the Year 2013-14 (As per ICAR Standards Parameter)



Chloride is a common ion in irrigation waters. Although chloride is essential to plants in very low amounts, it can cause toxicity to sensitive crops at high concentrations, like sodium high chloride concentrations cause more problems.

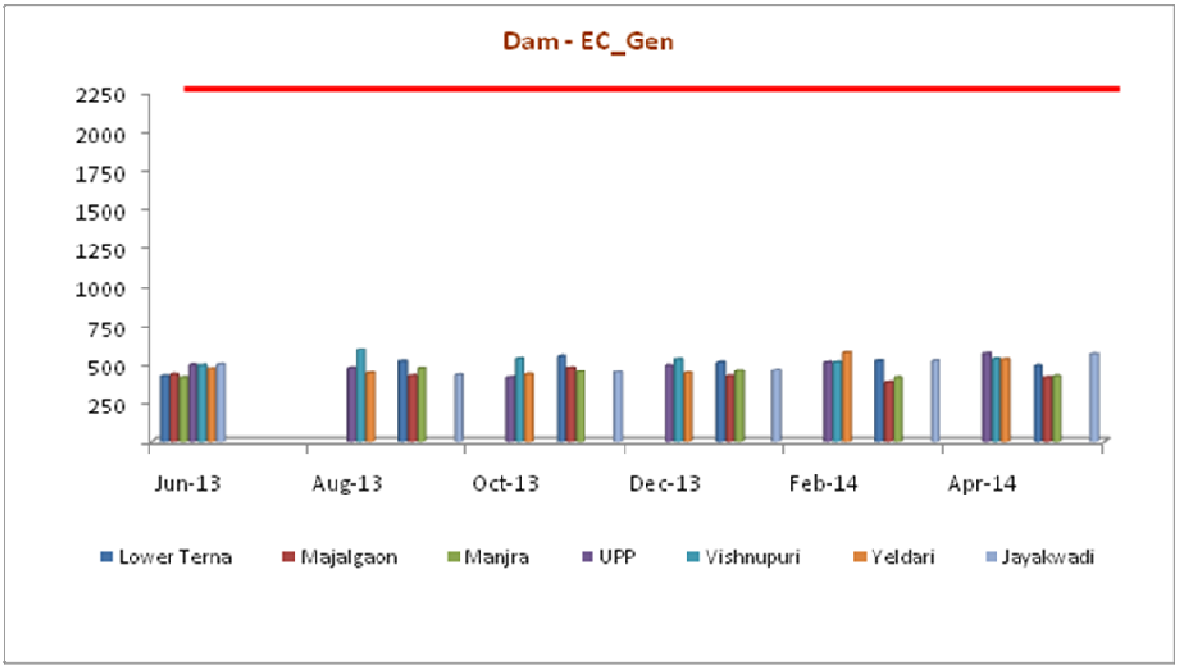
From above station's graph it is observed that Chloride is within tolerance limit.

Graphical Representation of Na% of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



From above Graph it is observed that the Na% value has fluctuation at every station. However many factors including soil texture, organic matter, crop type, climate, irrigation system and management impacts on how sodium in irrigation water affects soils. Though as per ICAR standards it is within limit.

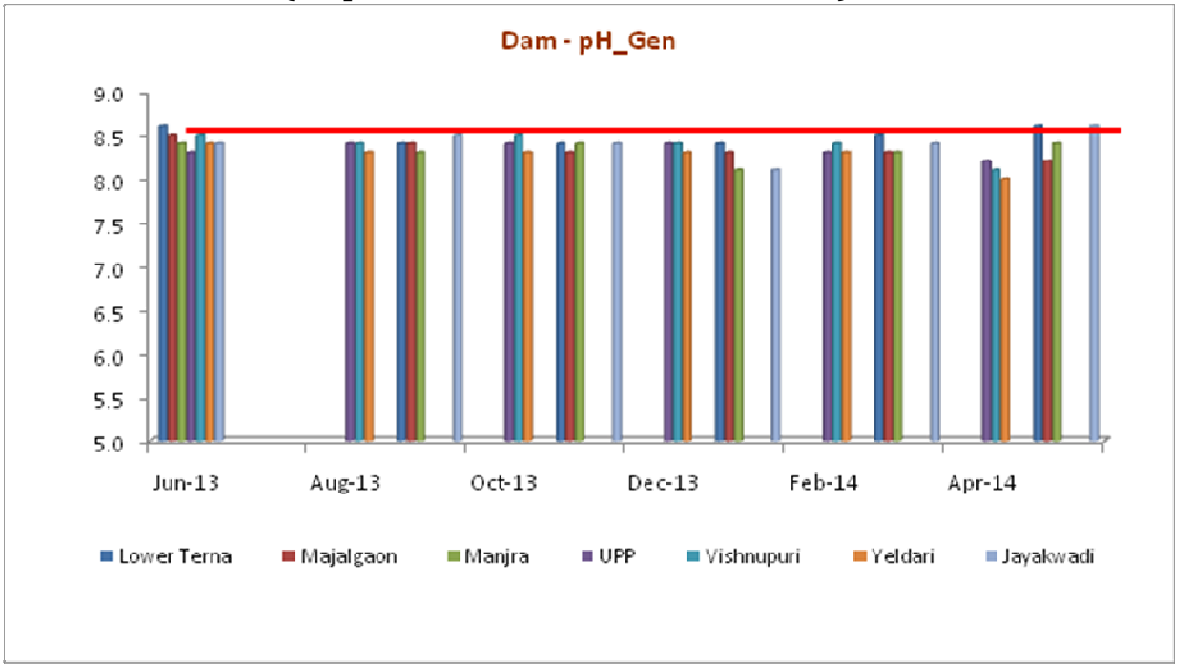
Graphical Representation of EC of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



Electrical conductivity is an indicator of dissolved metals. Some common metals that may be found in surface water include iron, aluminum, calcium, magnesium and others. High conductivity levels may be due to several different factors.

From above graph it is observed that as per ICAR Stds Electrical Conductivity at all stations is within tolerance limit.

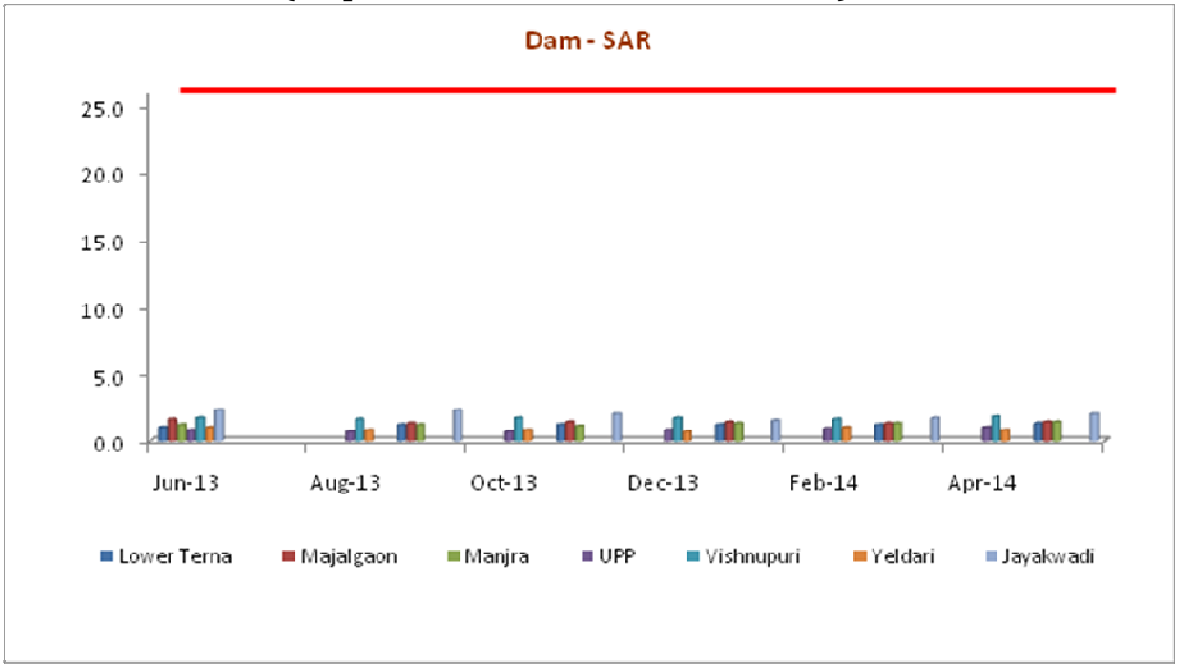
Graphical Representation of pH of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



The acidity or basicity of irrigation water is expressed as pH (< 7.0 acidic; > 7.0 basic). High pH's above 8.5 are often caused by high bicarbonate (HCO_3^-) and carbonate (CO_3^{2-}) concentrations, known as alkalinity.

From above graph it is observed that as per ICAR standards water of all station's pH is not within tolerance limit, many times it exceeds the maximum limit slightly.

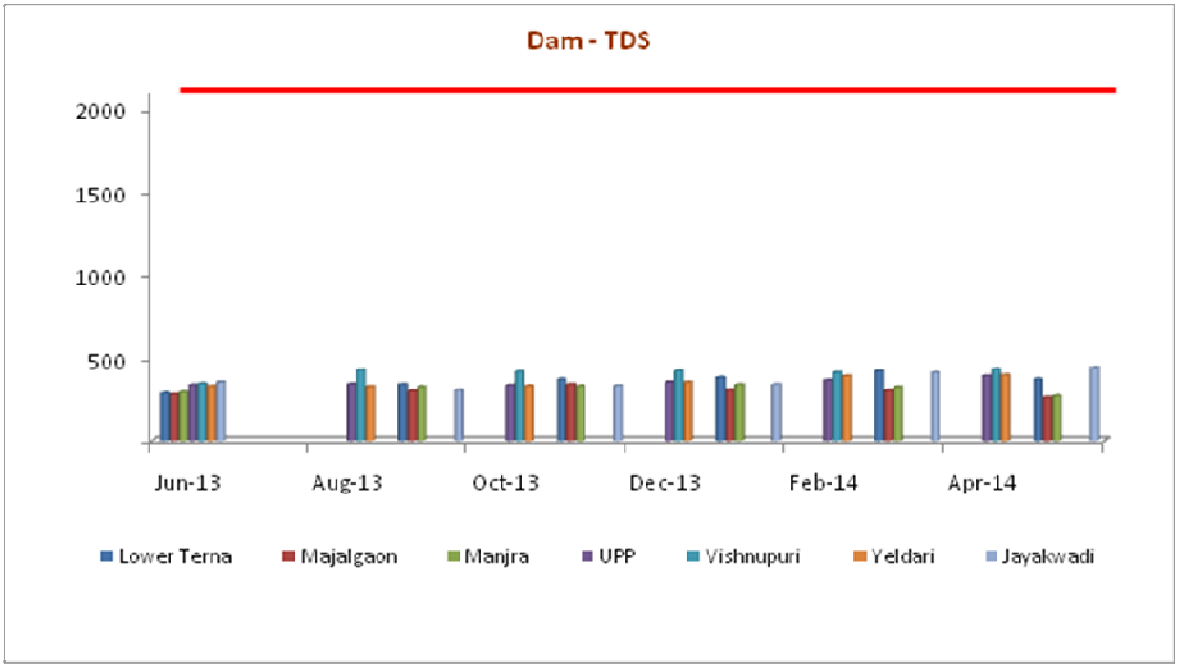
Graphical Representation of SAR of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



SAR fluctuate while EC is an assessment of all soluble salts in a sample, sodium hazard is defined separately because of sodium's specific detrimental effects on soil physical properties. The sodium hazard is typically expressed as the sodium adsorption ratio (SAR). This index quantifies the proportion of sodium (Na^{+}) to calcium (Ca^{++}) and magnesium (Mg^{++}) ions in a sample. Calcium will flocculate (hold together), while sodium disperses (pushes apart) soil particles. This dispersed soil will readily crust and have water infiltration and permeability problems.

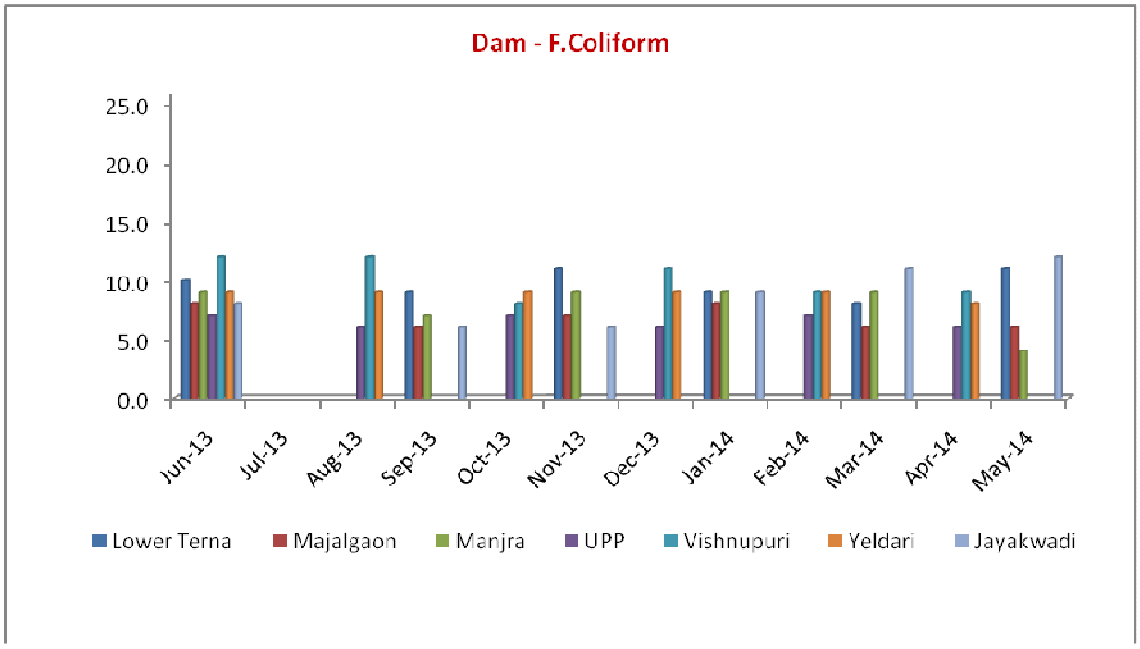
As per above graph SAR is within tolerance limit.

Graphical Representation of TDS of Dams for the Year 2013-2014 (As per ICAR Standards Parameter)



As per ICAR Standards of TDS limit (2100 mg/L), from above graph it is observed that in every month TDS of water is within tolerance limit. TDS is a general indicator of overall water quality. It is a measure of inorganic and organic materials dissolved in water. High levels of TDS in surface water may be due to several factors.

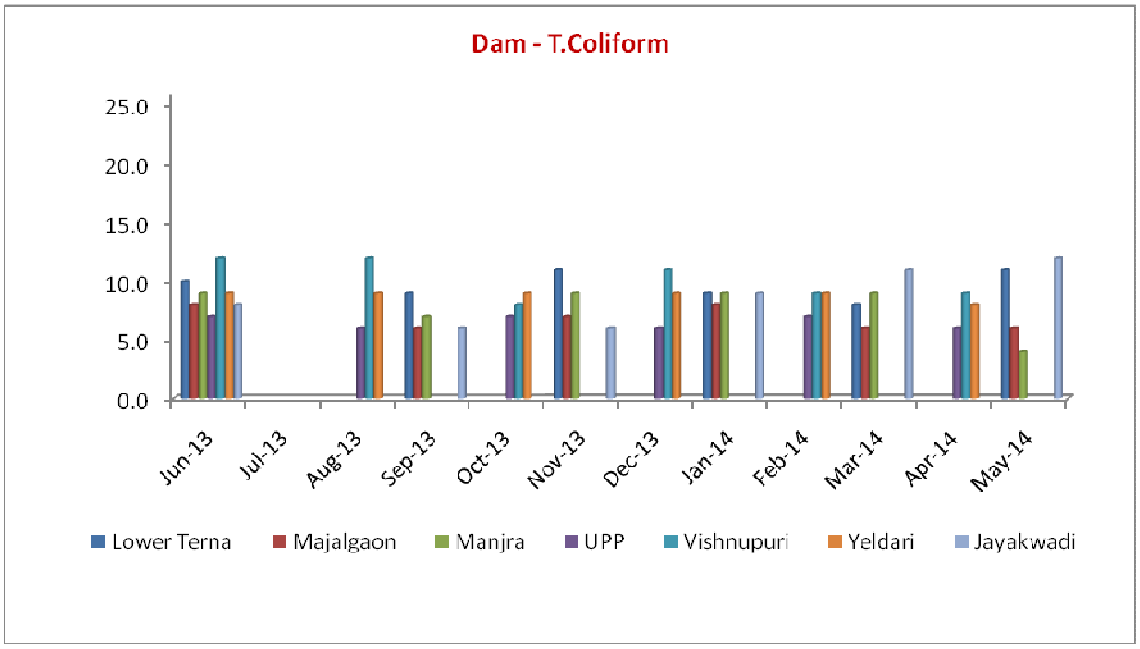
Graphical Representation of F. Col-MPN
(As per IS-10500 Standards)
For the Year 2013-2014
WR Division Aurangabad
Dam Locations



When a sample is positive for coliform, it means there is fecal contamination in the water. This could be human or animal, but its implications are more serious than total coli form.

From above graph it is found that at every station there is Fecal Contamination in the water in various seasons. It needs chlorination treatment before use.

Graphical Representation of T. Col-MPN
(As per IS-10500 Standards)
For the Year 2013-14
WR Division Aurangabad
Dam Locations



At the time of testing for bacteria two results are given as total Coliform. The first, total coliform is a test for coliform bacteria which are distributed widely in the environment. They are on animals, plants and in the solid, mainly in large numbers on the feces of warm-blooded animals. A positive reading for total coliform bacteria means the water has been affected by the environment and disease-causing organism may or may not be present.

From above graph it is observed that at every station there is Bacterial count in every month. Water should be treated before use.

CHAPTER – V

CONCLUSION

CHAPTER - V

CONCLUSION

5.0 Classes of Water:

Source: 2295, 1982 & (IS10500, 1983)

Class A:

Surface water for use as "Drinking water" Sources without Conventional Treatment

Class B:

Surface water for out door bathing

Class C:

Surface water used as "Drinking Water" Source within conventional treatment followed by disinfection.

Class D:

Surface water used for fish culture & wild life propagation.

Class E:

Surface water for irrigation, industrial cooling, waste disposal**.**

5.1 Surface water:

In order to understand drinking water contamination, it is necessary to first understand from where our drinking water comes. For most urban residents, relying upon municipal water systems, drinking water comes from two major sources, groundwater and surface water. These two sources of drinking water will be referenced throughout this guide to water contamination.

Surface water refers to water occurring in lakes, rivers, streams or other fresh water sources used for drinking water supplies. While most drinking water is withdrawn from groundwater sources, surface water remains a significant water resource.

5.2 Contaminants resulting from Biological Matter in Water - Human and Animal Feces:

Though there are multiple ways that pathogens and harmful microorganisms enter the water supply, the principal means of entry is through water contamination by human sewage and/or animal feces. These types of contamination largely affect surface water areas like rivers, lakes and streams from which drinking water is taken. Though most of the diseases caused by drinking water containing fecal material are gastrointestinal, such water can cause more serious and life threatening diseases like hepatitis (A, B and C) and Legionnaire's disease. Hepatitis is an inflammation of the liver, characterized by jaundice, fever and abdominal pain. Acute cases of hepatitis, especially hepatitis C can be fatal. Legionnaire's disease is an infectious, sometimes fatal disease that is characterized by high fever, incessant cough, lung congestion and subsequent pneumonia. The disease can permanently damage such vital, internal organs as the heart and lungs. Ingestion of drinking water contaminated by human or animal feces can also result in higher rates of spontaneous abortion in pregnant women. The effects of pathogen-contaminated drinking water are especially detrimental to cancer patients, as well.

Human and animal feces enter water systems primarily through breakdowns in sewage and improper treatment of surface water sources. Human and animal fecal matter affects surface water almost exclusively, but as surface water bleeds into groundwater through stream and riverbeds, the groundwater can become contaminated as well. Water treatment facilities can certainly lower the presence of human and animal feces in drinking water but they cannot remove it entirely. Current treatment methods are

aimed at protecting surface water sources from contamination before the water enters a treatment plant.

5.3 Significance of inorganic chemicals in drinking water:

Chloride: The secondary drinking water standard for chloride is 250 mg/L, because some people can detect a salty taste when chloride exceeds 250 mg/L. Chloride itself has no health effect. However, the amount of chloride can be directly tied to the amount of sodium in the water. To find the sodium level of this sample, multiply the chloride level by 1.6. Those individuals, who have high blood pressure and monitor their salt intake, may want to let their physician know if the level is over 250 mg/L.

Fluoride: The primary drinking water standard for fluoride is 4 mg/L, and the secondary standard is 2 mg/L. A fluoride concentration of approximately 1.0 mg/L helps to prevent dental cavities and osteoporosis. At concentrations above 2.0 mg/L, fluoride may cause mottling of enamel of permanent teeth (most common in children up to age 10 while teeth are forming). Bone changes can occur if drinking water contains more than 4 mg/L fluoride and if fluoride exceeds 20 mg/L, crippling fluorosis can occur after long term consumption.

Nitrates: The primary drinking water standard for nitrate (as N) is 10 mg/L. Excessive nitrate consumption by infants less than one year of age may result in “blue baby” syndrome, also known as methemoglobinemia. Nitrate replaces the oxygen in red blood cells causing an oxygen deficiency in the infants. At the extreme, it can be fatal. High nitrates also effect ruminants (sheep, cattle, etc.) Which are sensitive to nitrates. Elevated nitrates are thought to not pose a direct health threat to children over the age of one or adults

pH: The pH scale extends from 0 (which is very acidic) to 14 (which is very alkaline), with 7 being neutral. Drinking water should ideally range from 6.5 to 8.5. Lower pH tends to make metals and hardness minerals more soluble, possible allowing unwanted heavy metals into a water supply. pH levels below 6.5 or above 8.5 could also indicate the presence of a contamination source

Total Dissolved Solids (TDS): TDS is a measure of all dissolved inorganic material in water. TDS over 1,000 mg/L is objectionable because of the mineral taste. Harm to humans has not been proven however high TDS (over 400 mg/L) does shorten the lives of water heaters. Concentrations more than 1,000 mg/L can accelerate corrosion in general.

Total Hardness: Also called "hardness as Calcium Carbonate." Calcium and magnesium are the principle minerals contributing to Total hardness; coming from soil and rocks where water readily dissolves them. Iron and manganese can also contribute to the Total Hardness. Water with less than 50 mg/L is considered soft. Although hard water requires more soap and detergent for laundering and deposits scale on fixtures, soft water may be corrosive. Hard water may also possibly aid in the prevention of heart and arterial diseases. Even so, a Total Hardness greater than 400 mg/L is considered excessive hardness as calcium: Hardness as Calcium is usually compared to Total Hardness. When the amount of Hardness as Calcium is subtracted from the Total Hardness reading, the difference is the amount of magnesium in the water. Calcium is usually more prevalent than magnesium. Excessive calcium has been implicated in formation of kidney or bladder stones, while high levels of magnesium may have a laxative effect on these not used to high levels.

Explanation of bacterial analysis:

Bacteria: At the time of testing for bacteria two results are given – total coliform E.coli. The first, total coliform is a test for coliform bacteria which are distributed widely in the environment. They are on animals, plants and in the solid, but are in large numbers in the feces of warm-blooded animals. A positive reading for total coliform bacteria means that the water supply has been affected by the environment, and disease-causing organism may or may not be present. However, it is cause for concern and corrective action, such as well chlorination, should be taken. E.coli is a species of bacteria found in the intestinal tract of warm-blooded animals. When a sample is positive for E.coli, it means there is fecal contamination in the well water. This could be human or animal, but its implications are more serious than total coliform. The well's construction should be reviewed and the well chlorinated, with a follow-up test done 10 days after chlorination. A negative reading means none of the above bacteria were found in the sample.

CONCLUSIONS

5.4 PART I: Conclusion for River Samples:

In the Year 2013-14 it can be concluded that for Rivers Stations water is good for irrigation purpose without any treatment except Aurangabad, Where contamination is very high. This is mainly due to Contamination of Industrial waste & Sewage waste. Hence, it can be concluded that water from all these sources is suitable for Irrigation purpose except Aurangabad station; it requires treatment before its usage.

5.5 Part II: Conclusion for Dam Samples:

The threat of harmful contaminants in drinking water can no longer be reasonably ignored. The correlation between contaminated drinking water and many significant diseases and health problems is far too strong to discount.

Of course, municipal water treatment facilities have lowered the presence of many of the more harmful contaminants and it has set maximum contaminant levels below which it is assumed that contaminants may be safely ingested into the body. Municipal treatments facilities are not infallible and its levels do not represent a safety level for every person. Children, the elderly and those individuals who already have weakened immune systems, are particularly at risk to drinking water contaminants. Two of the most volatile drinking water contaminants chlorine and fluoride are actually treatment additives. Also lead is other more harmful contaminants, enters drinking water after treatment and cannot be regulated by municipal water systems. Therefore, municipal water systems cannot and should not be trusted to provide healthy, clean drinking water.

There are many home treatment alternatives that can purify drinking water to a greater extent than city treatment plants. Reverse osmosis and distillation two of these alternatives are moderately successful at removing some contaminants, but they are expensive and wasteful.

5.6 REMEDIAL MESAURES:

- Use of such water for salt tolerance crop is recommended based on special study.
- Before letting out to the down stream reservoir such source of water to be taken into consideration for the specific use.
- Classification of source may be as per use of water for irrigation based on Sodium Absorption Ratio, Percent Sodium, and Residual Sodium Carbonate.
- Effluent from non point sources to be treated before discharging into the river, Use of direct source of water to be avoided

CHAPTER – VI
OTHER ACTIVITIES

CHAPTER-VI

OTHER ACTIVITIES

6.1 REVENUE GENERATION TO GOVERNMENT OF MAHARASHTRA

Apart from monitoring of water quality network for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

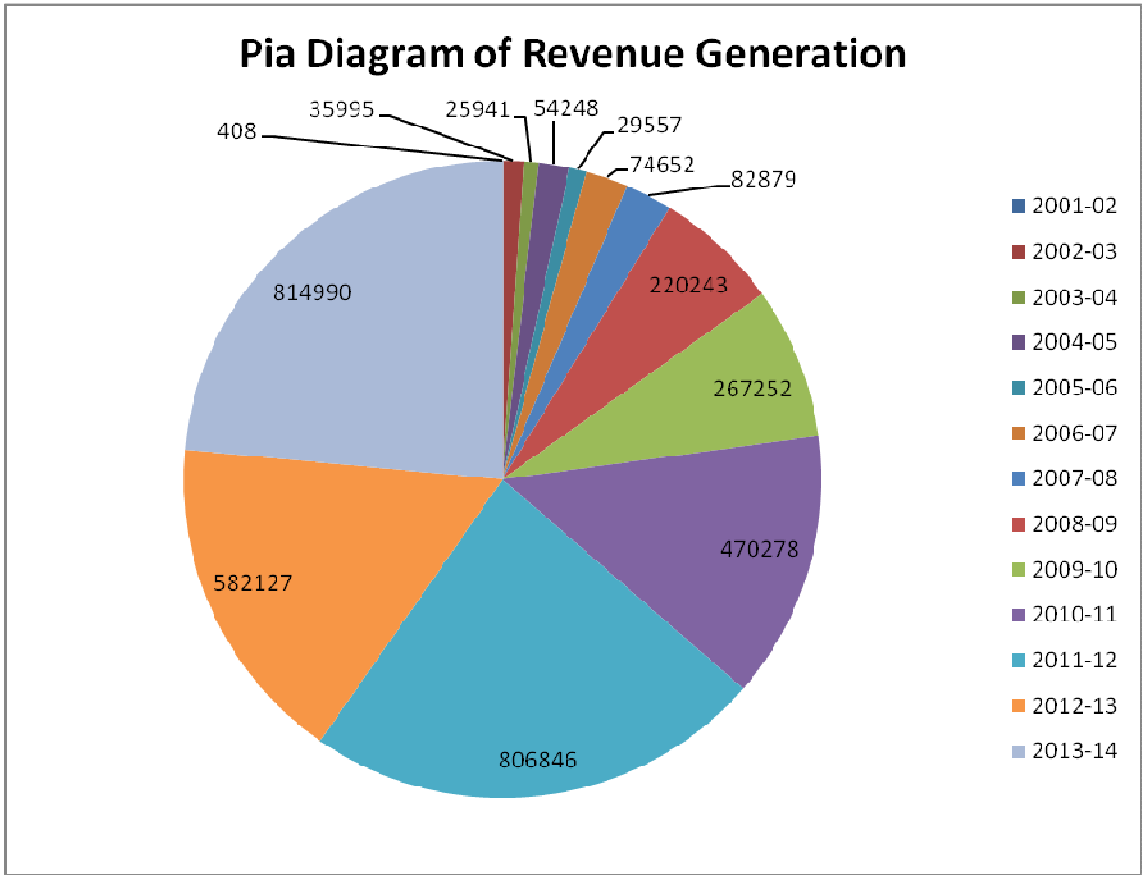
The facility is availed by many users with testing of sample towards drinking purpose, ice factory, construction purpose, swimming tanks, irrigation purpose & study purpose.

During the year 2013-14 many clients approached to the laboratory. The valuable clients availed the facility of the laboratory are as below;

Revenue Received from year 2001-02 to 2013-14

Year	Amount
2001-02	408
2002-03	35,995
2003-04	25,941
2004-05	54,248
2005-06	29,557
2006-07	74,652
2007-08	82,879
2008-09	2,20,243
2009-10	2,67,252
2010-11	4,70,278
2011-12	8,06,846
2012-13	5,82,127
2013-14	8,14,990

Pie Diagram Of
Revenue Received from month year 2001-02 to 2013-14
Water Quality Lab Level II Aurangabad



List of Selected Clients of 2013-14

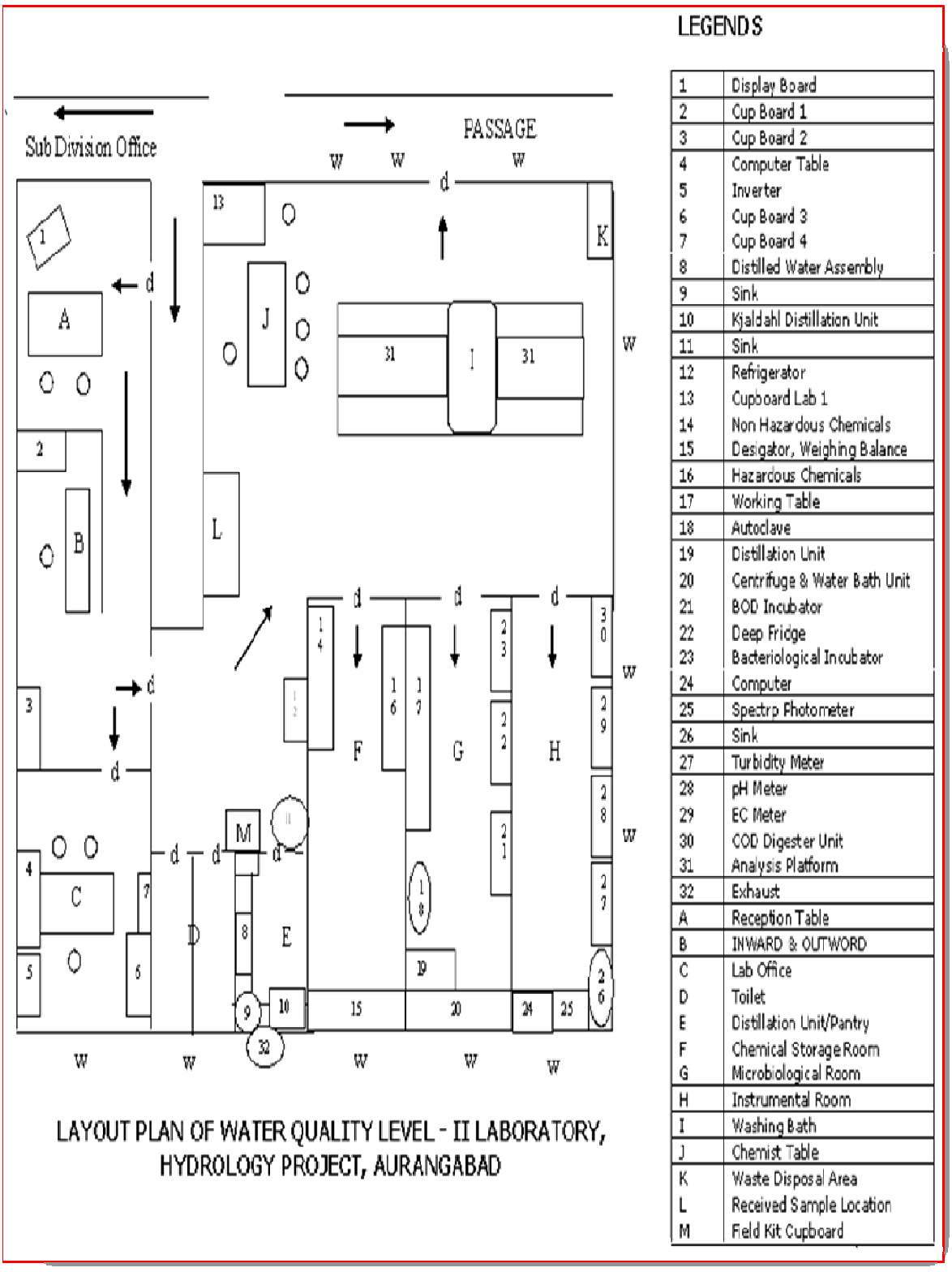
Analyzed Water Sample

Sr NO.	Name of Clients	Purpose
	Hospitals/ Hotels	
1	Dr. Hedgewar Rugnalya A'bad	Drinking
2	Balaji Bikaner Mithaiwala, A'bad	Drinking
3	Ciigma Institute of Medical Science, A'bad	Drinking
4	Hotel Ice Spicy A'bad	Drinking
5	Hotel Rajdarbar Kannad	Drinking
6	Hotel Ramaji A'bad	Drinking
7	Hotel Sai Shradha Phulambri	Drinking
8	Hotel Sunrise,	Drinking
9	Hotel Sagar, A'bad	Drinking
10	Hotel Deva, Kumbhephal	Drinking
11	Indian Multiservices Goli Vada Pav A'bad	Drinking
12	Kamalnayan Bajaj Hospital A'bad	Drinking
13	Kodlikari Hospital, A'bad	Drinking
14	Lemon Tree Hotel	Drinking
15	Labaik Hot Spot (Fast Food), A'bad	Drinking
16	Madni Resturant, A'bad	Drinking
17	MGM Hospital CIDCO A'bad	Drinking
18	Milan Foods, A'bad	Drinking
19	New Rajesh Hotel, A'bad	Drinking
20	Rajdarabar Maratha Hotel, A'bad	Drinking
21	Sai Rajmata Hotel	Drinking
22	Sairaj & Suruchi Food Services, A'bad	Drinking
23	Soham Pure Veg Unit of Natraj Pvt. Ltd. A,bad	Drinking
24	United Ciigma Hopslital	Drinking
25	Welcome Hotel Rama International A'bad	Drinking
	Industries	
26	Ajanta Pharama Ltd. A'bad	Industrial
27	Ajeet Seeds Ltd.	Industrial
28	Arunoday Enterprises, Jalgaon	Drinking
29	Aqualine Corporation Ltd.	Drinking
30	Aurangabad Electricals Ltd., A'bad	Industrial
31	Akar Tools Ltd., A'bad	Drinking
32	Baramati Agro Ltd. Unit-2, A'bad	Drinking
33	B. G. Shirke Construction Technology Pvt. Ltd.	Construction
34	Bhagirath Industries A'bad	Drinking
35	Cosmo Films Ltd., Shendra	Drinking
36	CTR Manufacturing Industries Ltd.	Drinking
37	D. P. Auto Parts Pvt. Ltd. A'bad	Drinking
38	Devgirir Forgins Pvt. Ltd.	Industrial
39	Dhoot Transmission Pvt. Ltd. Aurangabad	Drinking
40	East West Seed India Pvt. Ltd.	Drinking

41	Endurance Technology Pvt. Ltd. Waluj	Industrial
42	Fiat India Automobile Ltd.	Drinking
43	Fine Packaging Pvt. Ltd., A'bad	Drinking
44	Frank Faber (I) Ltd., A'bad	Drinking
45	Glenmark Pharmace Ltd. Shendra	Industrial
46	Good Year South Asia Tyers Waluj	Industrial
47	Hitech Seeed Company Pvt. Ltd.	irregation
48	Ion Exchange India Pvt. Ltd.	Drinking
49	Iskon Food Relief Foundation A'bad	Drinking
50	Jagdish Oil Mill Chikalthana	Industrial
51	Jailaxmi Casting & Alloys Pvt. Ld.	Drinking
52	Jeevan Mineral Water Suppliers, A'bad	Drinking
53	Jolly Board Ltd.	Drinking
54	Kankariya Estate Agency, A'bad	Drinking
55	Kaygaon Paper mill Gangapur	Industrial
56	Kumar Elastomech Pvt. Ltd. A'bad	Industrial
57	Laxmi Industries Vaijapur	Drinking
58	L. G. Balkrishanan & Bros Ltd. Jalna	Drinking
59	Laxmi Agni Components Forgings Pvt. Ltd., A'bad	Drinking
60	Lokmat Media Ltd. Shendra	Drinking
61	Lozaniya Indusrties, Shendra	Drinking
62	Max Engineering Works. A'bad	Industrial
63	Matrix Fine Sciences Pvt. Ltd. , A'bad	Industrial
64	Morya Gramin Distlilleris Pvt. Ltd. A'bad	Drinking
65	Monsanto Holdings Pvt. Ltd., A'bad	Drinking
66	Morganite Crusible (I) Ltd., Waluj	Drinking
67	Mukteshwar Sugar Mill Gangapur	Industrial
68	Nath Biogene (I) Ltd.,	Industrial
69	Neel Operations A'bad	Industrial
70	Neel Water ServicesA'bad	Industrial
71	Neepaz V.forge India Ltd.	Industrial
72	Nirlep Aplliances Ltd. A'bad	Drinking
73	NRB Ltd. A'bad	Drinking
74	Om Sai Agro Industries A'bad	Drinking
75	OMR Bagla Automotive System Ltd.	Drinking
76	Premium Transmission Ltd., A'bad	Industrial
77	Progressive Sterlite Ltd. Waluj	Drinking
78	RADICO NV Distillaries, Shendra, A'bad	Industrial
79	Radient Industries Pvt. Ltd. A'bad	Drinking
80	Sai Gangajal Ind. Ltd.	Drinking
81	Saptshrungi Alloy Pvt. Ltd. Jalna	Industrial
82	Severa Auto Camps Pvt. Ltd. A'bad	Industrial
83	Sanjeev Auto Parts Manufacturing Pvt. Ltd.	Drinking
84	Sahil Plastic Pvt. Ltd. A'bad	Drinking
85	Shradha Energy & Infraprojects Pvt. Ltd.	Drinking
86	Shapoorjii Pallonji & Co. Ltd.	Drinking
87	Shri Swami Samarth Industries, A'bad	Drinking
88	SMS Waluj CETP Pvt. Ltd.	Industrial
89	Sudarshan Saur Pvt. Ltd.	Drinking
90	Suvikas Enterprises Pvt. Ltd. A'bad	Drinking

91	Supreme Industries Ltd. Khane, Dist. Pune	Industrial
92	Trend Electronics	Industrial
93	United Ciigma Institute of Medical Science Pvt. Ltd.	Drinking
94	Unique Developers, A'bad	Drinking
95	Varroc Engg. Pvt Ltd. Plant-VIII, Waluj	Industrial
96	Varroc Polymers Pvt. Ltd. Waluj	Drinking
97	Videcon Industries Ltd. A'bad	Drinking
98	Wockhardt Infrastructer Dev. Ltd.	Drinking
99	Wockhardt Ltd. Shendra	Drinking
100	Wockhardt R & D, Chikalthana	Drinking
	Government	
101	Airport Autority of India, A'bad	Drinking
102	AE, CPWD, A,bad	Construction
103	Chief Officer Nagarparishad Buldhana	Drinking
104	Deputy Commissioner, Zillha Parishad, A'bad	Waste Management
105	D. E. MIDC A'bad	Drinking
106	D. E. MIDC Jalgaon	Drinking
107	D. E. MIDC Latur	Drinking
108	D. E. Sub-Division, Jalna	Drinking
109	Deputy Commissioner, Muncipal Corporation, Parbhani	Drinking
110	EE Jaykwadi Irrigation Beed	Irrigation
111	Irrigation Subdivision Majalgaon	Irrigation
112	Muncipal Corporation, Georai, Dist. Beed	Drinking
113	Muncipal Corporation A'bad	Drinking
114	Nagar Parishad, Ausa	Research
115	Nagar Parishad, Ambad	Research
116	NBCC Latur	Drinking
117	Nanded Waghala City Muncipal Corporation, Nanded	Drinking
118	P. J. Rangari, CE MIDC Nanded	Research
119	Power Grid corporation of India Ltd.	Drinking
120	SDE Irrigation Division Sub-Division Kannad	Drinking
121	SDO Land Devlopment (Civil) SD No. 3, Gangakhed	Irrigation
122	SDO Jaykawadi Land Drainage SD-2, Ambajogai	Irrigation
123	SDO MI Subdivision Ahmedpur, Latur	Construction
124	Sectional Officer, Jaykwadi Backwater Section, Newasa	Drinking
	Others	
125	Ajanta International Vipassana Samiti, Rampuri	Drinking
126	Aurangabad Zillha Krushi Utpanna Bazar Samitee, A'bad	Drinking
127	Bajaja Finance A'bad	Drinking
128	Bharati Wall Mart Pvt. Ltd., A'bad	Drinking
129	Bharati Retail Ltd., Easy Day Market, A'bad	Drinking
130	Dainik Divya Marathi, A'bad	Drinking
131	Inox Leisure Ltd.	Drinking
132	Isckon Food Relief Foundation	Drinking
133	Kedia Rain Water Harvesting Pvt. Ltd., A'bad	Drinking
134	Lokpatra Papers Pvt. Ltd., A'bad	Drinking

135	Pantaloons Retail India Ltd. Prozon Mall A'bad	Drinking
136	Sakal Paper Pvt. Ltd. A'bad	Drinking
137	Saniya Motors Pvt. Ltd.	Drinking
138	Sami Taha Ahmed Alademi, Iran	Research
139	Sanjeev Auto Parts Pvt. Ltd.	Drinking
140	Shri Gruhudyog	Drinking
141	Star Bazar Trend Hyper Market Ltd. A'bad	Drinking
142	Tapdia & Kasliwal Associates A'bad	Drinking
143	YZ Motors Ltd. A'bad	Drinking
School/Colleges		
144	Anand Vidyadham, A'bad	Drinking
145	Aliya Urdu School, A'bad	Drinking
146	Arohan Acadamy English School, Vaijapur	Drinking
147	Ambarwadikar Instituet of Technology A'bad	Drinking
148	Aryachanakya Vidyala Jatwada	Drinking
149	Dnyanda English School	Drinking
150	Govt. Polytechnic Jalna	Research
151	Jain International School A'bad	Drinking
152	Jawaharlal Neharu Engineering Collage, A'bad	Drinking
153	Kamala Nehru Siskhan Sanstha A'bad	Drinking
154	MGM Medical College A'bad	Drinking
155	M. S. Public School, Deolai	Drinking
156	Parth Vidya Mandir, A'bad	Drinking
157	Pratham Mimbai Education Inititative, Kultabad	Drinking
158	Raizing Star Balak Mandir Primary School, A'bad	Drinking
159	Rashtriy Madhyamic Vidyalaya, A'bad	Drinking
160	Sant Kabir Madhyamik Vidhyalaya, Varthan	Drinking
161	Sarosh Marathi Primary School, A'bad	Drinking
162	Sarosh Marathi Urdu School, A'bad	Drinking
163	Jai Laxmi Primary School, A'bad	Drinking
164	Shree Sant Janardhan Swami Vidyalaya (Gurukul), Mahalgaon	Drinking
165	Shree Sai Caterers, A'bad	Drinking
166	Shree Vanktesh Vidya Mandir, Ambajogai	Drinking
167	Shivtej Vidya Mandir, A'bad	Drinking
168	Venkyatesh Balsadan, A,bad	Drinking
169	Yogeshwari Madhyamic Vidyala, A'bad	Drinking



LEGENDS

1	Display Board
2	Cup Board 1
3	Cup Board 2
4	Computer Table
5	Inverter
6	Cup Board 3
7	Cup Board 4
8	Distilled Water Assembly
9	Sink
10	Kjaldahl Distillation Unit
11	Sink
12	Refrigerator
13	Cupboard Lab 1
14	Non Hazardous Chemicals
15	Desigator, Weighing Balance
16	Hazardous Chemicals
17	Working Table
18	Autoclave
19	Distillation Unit
20	Centrifuge & Water Bath Unit
21	BOD Incubator
22	Deep Fridge
23	Bacteriological Incubator
24	Computer
25	Spectrp Photometer
26	Sink
27	Turbidity Meter
28	pH Meter
29	EC Meter
30	COD Digester Unit
31	Analysis Platform
32	Exhaust
A	Reception Table
B	INWARD & OUTWORD
C	Lab Office
D	Toilet
E	Distillation Unit/Pantry
F	Chemical Storage Room
G	Microbiological Room
H	Instrumental Room
I	Washing Bath
J	Chemist Table
K	Waste Disposal Area
L	Received Sample Location
M	Field Kit Cupboard

Paper Cuttings

६५ तपासण्या गरजेच्या : शहरात होतात फक्त २० तपासण्या

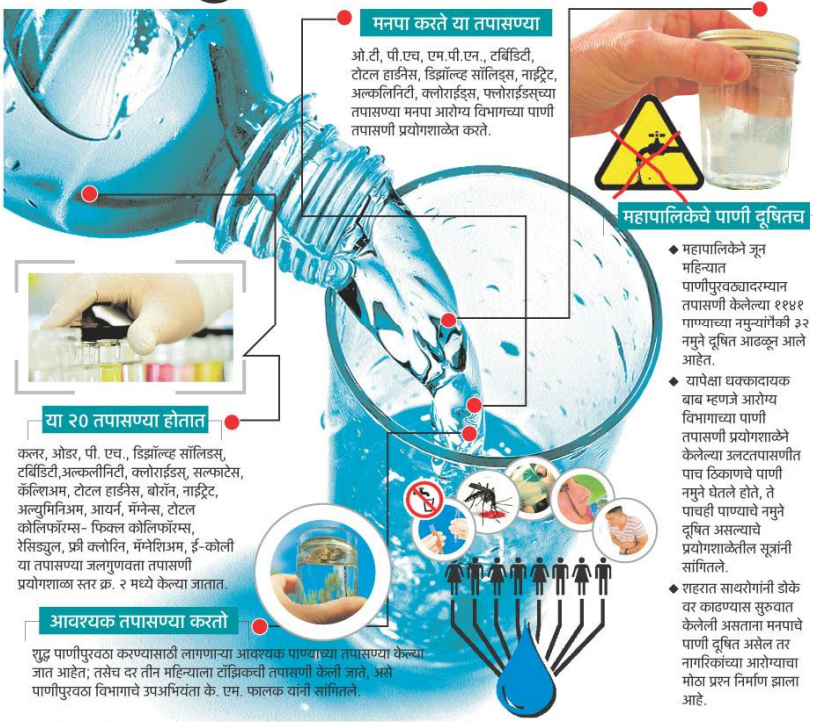
पाण्याच्या शुद्धतेची कसोटी

अशोक कारके • औरंगाबाद

शहरातील १३ लाख लोकसंख्येला पुरवठा केल्या जाणाऱ्या पिण्याच्या पाण्याची शुद्धता कोणत्याही कसोटीवर खरी उतरण्याची शक्यता नाही. कारण मनपा, पाटबंधारे व आरोग्य विभागाच्या प्रयोगशाळेत पाण्याच्या ६५ चाचण्या करून अहवाल देण्याची व्यवस्थाच नाही. काही मोजक्या चाचण्या शहरातील प्रयोगशाळांमध्ये केल्या जातात.

नाल्याचे पाणी टँकरद्वारे नागरिकांना विकण्याचे प्रकरण लोकमतने चव्हाट्यावर आणले. खाजगी टँकरचे पाणी कुणी तपासून द्यावे, याबाबत अजून तरी कोणतीही यंत्रणा पुढे आलेली नाही. त्यामुळे खाजगी टँकरने पुरवठा केल्या जाणाऱ्या पाण्याच्या शुद्धतेबाबत अनेक प्रश्न निर्माण झाले आहेत. मनपाकडून शहरात येणाऱ्या पिण्याच्या पाण्याचे टीडीएस वाढते. त्यामुळे त्याच्या शुद्धतेवरही प्रश्न निर्माण होत आहे. असे असले तरी पालिका मात्र, शुद्ध पाणीपुरवठा करीत असल्याचा दावा करते.

नागरिक पिण्यासाठी खाजगी टँकरचे पाणी विकत घेतात. ते टँकरचालक कुठून पाणी आणतात, ते शुद्ध आहे का, हे तपासण्याची जबाबदारी मनपा, एफडीए, प्रयोगशाळा, जलगुणवत्ता प्रयोगशाळा यांच्यापैकी कुणीही घेण्यास तयार नाही. शहरात पाण्याची गुणवत्ता दोन प्रयोगशाळेत तपासली जाते. त्यात पाटबंधारे विभागाची जलगुणवत्ता तपासणी प्रयोगशाळा स्तर क्र. २, तर दुसरी छावणी निजाम बंगला येथे आरोग्य विभागाची पाणी तपासणी प्रयोगशाळा आहे.



मनपा करते या तपासण्या

ओ.टी, पी.एच, एम.पी.एन., टर्बिडिटी, टोटल हार्डनेस, डिझॉल्व्ह सॉलिड्स, नाईट्रेट, अल्कलिनिटी, क्लोराईड्स, फ्लोराईडस्च्या तपासण्या मनपा आरोग्य विभागच्या पाणी तपासणी प्रयोगशाळेत करते.

महापालिकेचे पाणी दूषितच

- महापालिकेने जून महिन्यात पाणीपुरवठ्यादरम्यान तपासणी केलेल्या ११४१ पाण्याच्या नमुन्यांपैकी ३२ नमुने दूषित आढळून आले आहेत.
- यापेक्षा धक्कादायक बाब म्हणजे आरोग्य विभागाच्या पाणी तपासणी प्रयोगशाळेने केलेल्या उलटतपासणीत पाच ठिकाणचे पाणी नमुने घेतले होते, ते पाचही पाण्याचे नमुने दूषित असल्याचे प्रयोगशाळेतील सूत्रांनी सांगितले.
- शहरात साथरोगांनी डोके वर काढण्यास सुरुवात केलेली असताना मनपाचे पाणी दूषित असेल तर नागरिकांच्या आरोग्याचा मोठा प्रश्न निर्माण झाला आहे.

या २० तपासण्या होतात

कलर, ओडर, पी. एच., डिझॉल्व्ह सॉलिडस्, टर्बिडिटी,अल्कलीनिटी, क्लोराईडस्, सल्फाटेस, कॅल्शिअम, टोटल हार्डनेस, बोरॉन, नाईट्रेट, अल्युमिनिअम, आयर्न, मॅग्नेस, टोटल कोलिफॉर्म्स- फिक्ल कोलिफॉर्म्स, रेसिड्युल, फ्री क्लोरिन, मॅग्नेशिअम, ई- कोली या तपासण्या जलगुणवत्ता तपासणी प्रयोगशाळा स्तर क्र. २ मध्ये केल्या जातात.

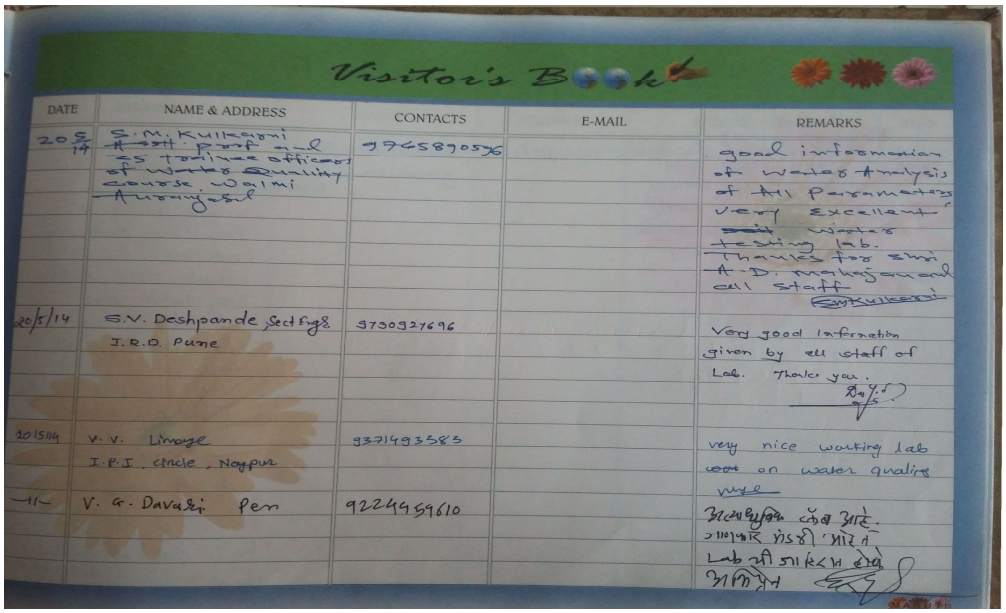
आवश्यक तपासण्या करतो

शुद्ध पाणीपुरवठा करण्यासाठी लागणाऱ्या आवश्यक पाण्याच्या तपासण्या केल्या जात आहेत; तसेच दर तीन महिन्याला टॉझिकची तपासणी केली जाते, असे पाणीपुरवठा विभागाचे उपअभियंता के. एम. फालक यांनी सांगितले.

या दोन्ही प्रयोगशाळेत शुद्ध पिण्याच्या पाण्यासाठी (क्र:10500) प्रमानकानुसार ६५ तपासण्या करण्याची व्यवस्था नाही. वरील मानकाप्रमाणे फिजिकल- ६, जनरल- २४, टॉझिक- १२, रेडिओॲक्टिव्ह- २, पेस्टिसाड १८, बॅक्टरीओलॉजिक्ल- ३, अशा ६५ तपासण्या करणे गरजेचे आहे. यापैकी फक्त २० तपासण्या जलगुणवत्ता तपासणी प्रयोगशाळा स्तर क्र. २ मध्ये, तर आरोग्य विभागाच्या प्रयोगशाळेत १० तपासण्या केल्या जातात. यामुळे शहरात होणारा पाणीपुरवठा शुद्ध होतो का असा प्रश्न समोर उभा आहे.

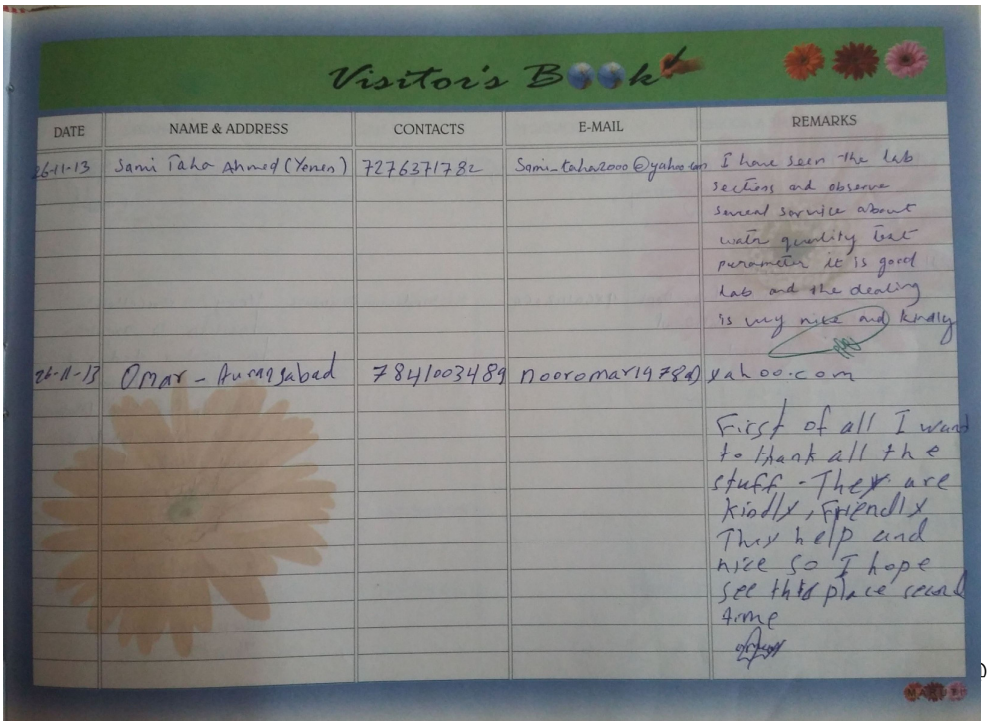
Visitors visit to the Laboratory and their remarks
List of some Prominent Visitors

Sr. No.	Date	Name of the Visitor	Designation
1	26-11-2013	Sami Taha Ahmed(Yeman)	Foreigner Student
2	20-05-2014	S.M. Kulkarni	Asst. Prof.(WALMI)
3	20-05-2014	S.V. Deshpande	S.E.(IRD, Pune)
4	22-05-2014	R.M. Pandav	HOD Civil(MIT College,A'bad)



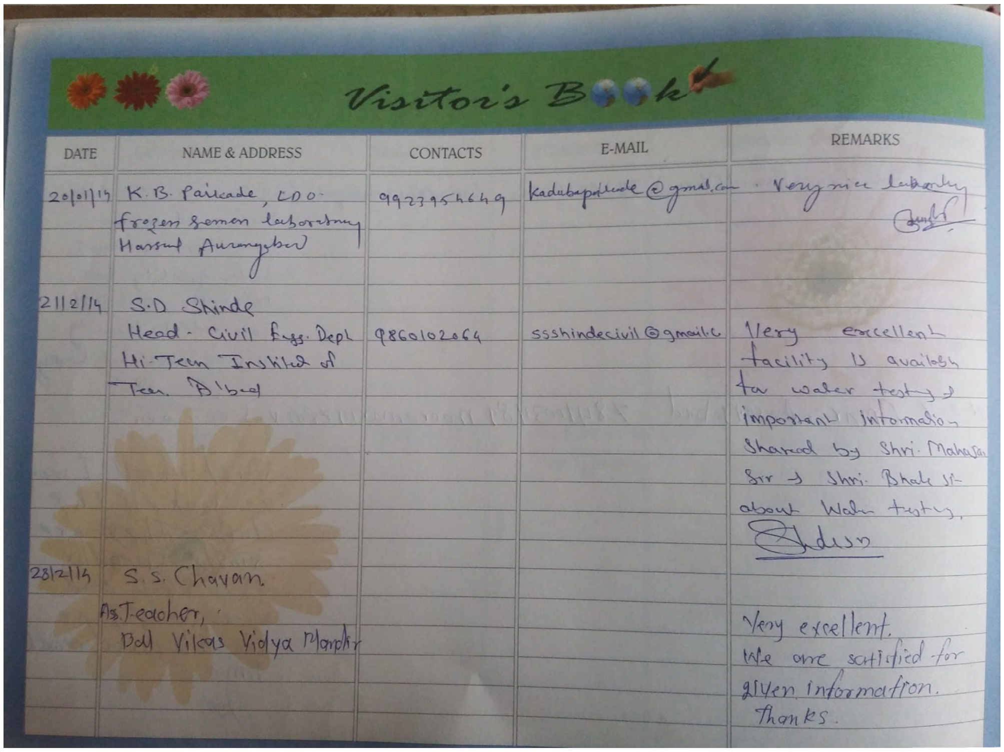
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
20/5/14	S.M. Kulkarni Asst. Prof. & 25 Trainee officers of Water Quality course. Walmi Aurangabad	9765890596		good information of water Analysis of all Parameters very Excellant water testing lab. Thanks for smi A.D. maghaj and all staff
20/5/14	S.V. Deshpande Sect Engg. I.R.D. Pune	9730927696		Very good information given by all staff of Lab. Thank you.
20/5/14	V. V. Limaye I.P.I. circle, Nagpur	9371493585		very nice working lab work on water quality
—11—	V. G. Davari Pen	9224459610		



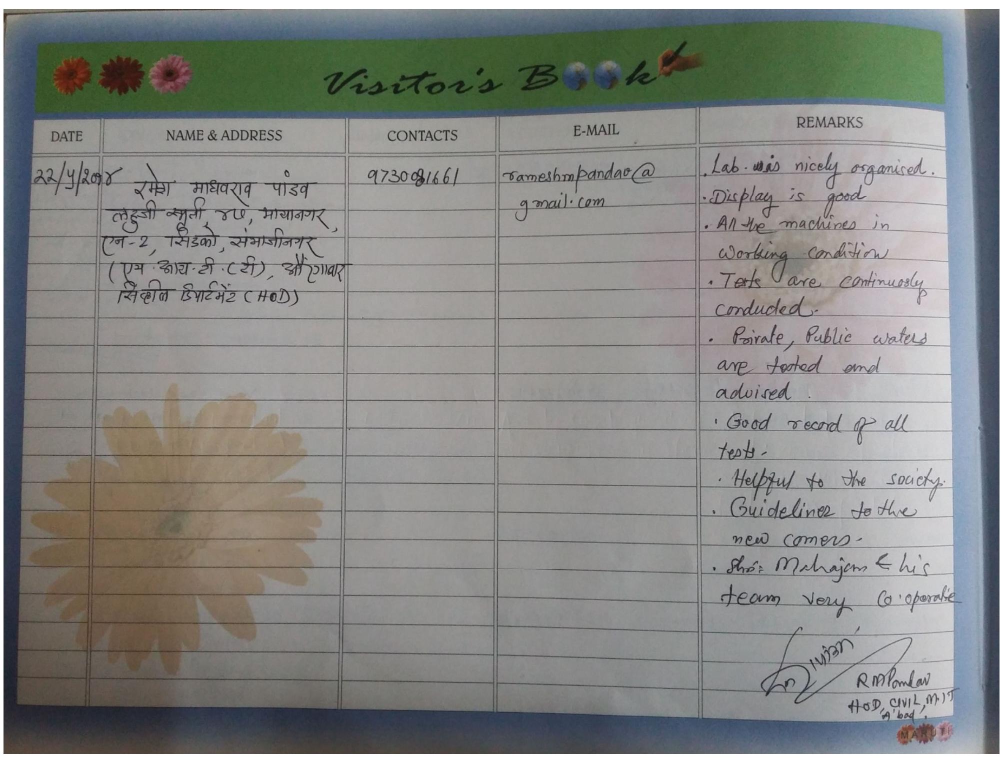
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
26-11-13	Sami Taha Ahmed (Yemen)	727637182	Sami_taha2000@yahoo.com	I have seen the lab sections and observe several service about water quality test parameter it is good lab and the dealing is very nice and kindly
21-11-13	Omar - Aurangabad	7841003489	nooromar1978@yahoo.com	First of all I want to thank all the stuff - They are kindly, friendly They help and nice so I hope see this place second time



Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
20/01/14	K. B. Paikade, LDO. Frozen semen laboratory Harsul Aurangabad	9927954649	kadubapaikade@gmail.com	Very nice laboratory
21/2/14	S.D. Shinde Head - Civil Engg. Dept. Hi-Tech Institute of Tech. A'bad	9860102064	ssshindecivil@gmail.com	Very excellent facility is available for water testing & important information shared by Shri. Mahajan Sir & Shri. Bhale Sir about water testing.
28/2/14	S. S. Chavan. Asst. Teacher, Bal Vikas Vidya Mandir			Very excellent. We are satisfied for given information. Thanks.



Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
22/4/2014	रमेश माधवराव पांडव लहुजी स्मृती ४८, मायानगर, एन-2, सिडको, संभाजीनगर (एच.आय.टी.(टी), औरंगाबाद सिव्हील डिपार्टमेंट (HOD)	9730081661	rameshmpandav@gmail.com	. Lab. was nicely organised. . Display is good . All the machines in working condition . Tests are continuously conducted. . Private, Public waters are tested and advised. . Good record of all tests. . Helpful to the society. . Guidelines to the new comers. . Shri Mahajan & his team very co-operative. R M Pandav HOD, CIVIL, HITS A'bad.

Photographs

Photo1:

Photo2: