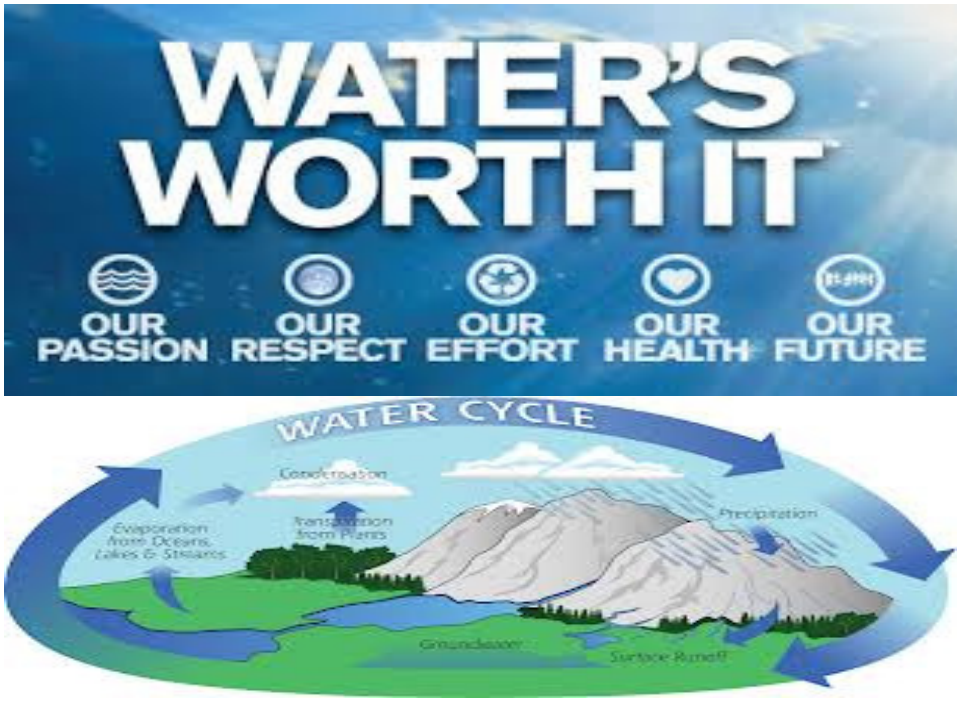
FOR OFFICE USE ONLY

GOVERNMENT OF MAHARASHTRA
WATER RESOURCES DEPARTMENT

HYDROLOGY PROJECT (SW)
HYDROLOGY PROJECT DIVISION, AURANGABAD

WATER QUALITY LAB LEVEL-II, AURANGABAD

ANNUAL REPORT



YEAR 2012

EXECUTIVE ENGINEER

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

Our Earth seems to be unique among the other known celestial bodies. It has water, which covers three-fourths of its surface and constitutes 60-70 wt % of the living world. Water regenerates and is redistributed through evaporation, making it seem endlessly renewable.

Actually, only 1% of the world's water is usable to us. About 97% is salty sea water, and 2% is frozen in glaciers and polar ice caps. Thus that 1% of the world's water supply is a precious commodity necessary for our survival. Dehydration (lack of water) will kill us faster than starvation (lack of food). Since the plants and animals we eat also depend on water, lack of it could cause both dehydration and starvation. The scenario gets worse. Water that looks drinkable can contain harmful elements, which could cause illness and death if ingested.

This report includes water quality data for the period of **June 2011 to May 2012 (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. Ashwamedh Engineers & Consultants Co-Op. Soc. Ltd. Aurangabad** 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.

Therefore 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.

It is expected that this booklet will provide a brief idea about Water Quality at the locations which comes under the Water Quality Lab Level -II at Aurangabad. Our efforts can always be updated through valuable suggestions.

(J. V. Sirdeshpande)
Executive Engineer
Hydrology Project Division
Aurangabad.

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II Aurangabad for the Year 2011-12

I N D E X

Chapter – I
Executive Summary

CHAPTER-I

EXECUTIVE SUMMERY

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II, Aurangabad for the Year 2011-2012

1.1 Preamble:

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 – 2011 to May – 2012 (which is consider 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 2011-12.

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 an idea of 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 2011-12, 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, mainly in stations like Aurangabad.

1.6 Conclusion:

In the Year 2011-12 it can be concluded that all the parameter of stations are in tolerance limit except Aurangabad, which is observed polluted. 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 2011 to May 2012 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:

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:

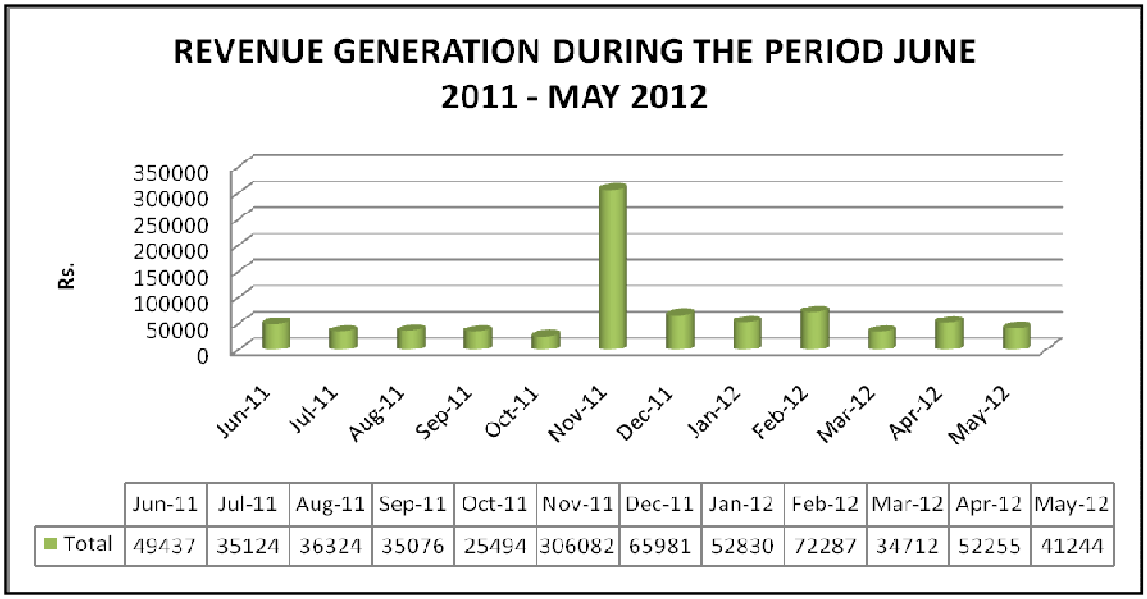
The Annual Report is prepared for the year 2011-2012. The Table below shows the number of sample analyzed during the reported period. In order to study water quality status station wise, all locations covered under this lab during the year 2011-2012 are considered.

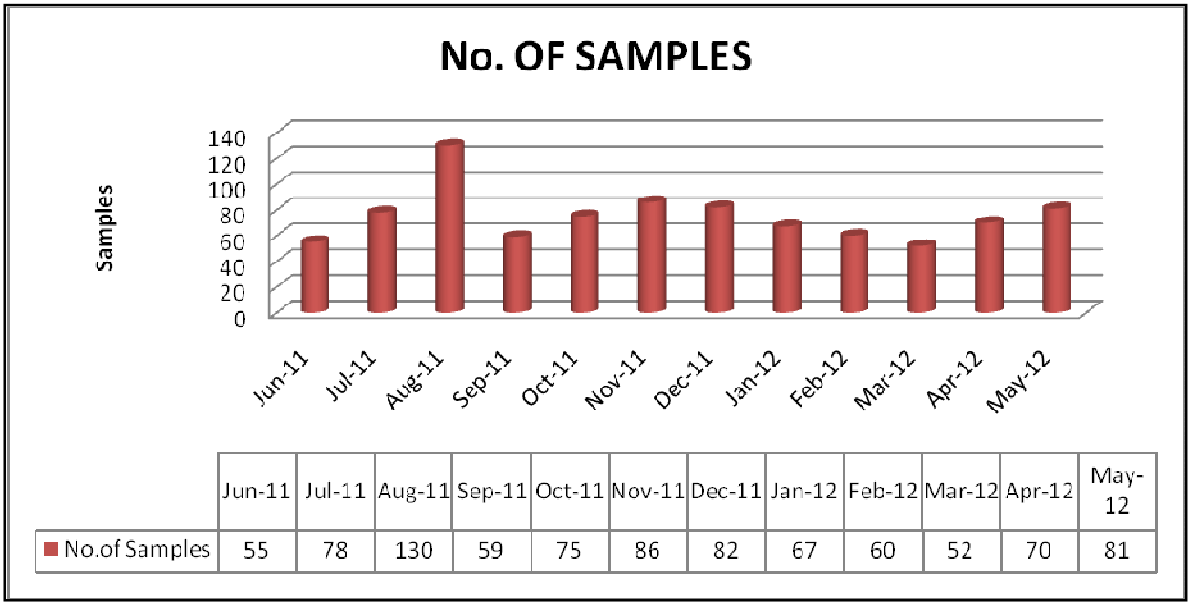
REVENUE GENERATED DURING THE REPORTING PERIOD (June 2011 –May 2012)

Sr. No.	Water Year	No. of Samples Analyzed	Amount Received
1.	2011-2012	895	8,06,846

Month wise details are as under

Month & Year	Total Amount	No of Sample
Jun-11	49,437	55
Jul-11	35,124	78
Aug-11	36,324	130
Sep-11	35,076	59
Oct-11	25,494	75
Nov-11	3,06,082	86
Dec-11	65,981	82
Jan-12	52,830	67
Feb-12	72,287	60
Mar-12	34,712	52
Apr. 12	52,255	70
May-12	41,244	81
Total:	**8,06,846**	**895**





	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12
No.of Samples	55	78	130	59	75	86	82	67	60	52	70	81

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 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 Feb. 2012 CPCB conducted the AQC Exercise, in which this lab score 77.3 %.

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. University, Aurangabad, JNEC College Aurangabad, students of B.Ed. College & 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^{o} 51"30"
2.	Longitude	: 75^{o} 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	: 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. V. L. Joshi (Ex. Engineer) 2) Mr. V. P. Kulkarni (S.D.O) 3) Mr. A. D. Mahajan (A.E. II) 4) Mrs. S. S. Quadri (Silt Analysist)
13.	Lab. Operating Agency & Staff on contract basis	: Ashwamedh Engg. & Cons. C. S. L. Aurangabad Branch.
14.	Staff Position	: 1) Mrs. V. P. Pawar (Chief Chemist) 2) Ms. S. P. Deshpande (Microbiologist) 3) Mr. Sumit 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 31/29 parameters for Dam Samples and 29/27 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 2011 to May-2012

The Water Quality Laboratory Level-II at Aurangabad data for the period of June 2011 to May 2012 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	Monthly	
22	Dam	Manjara	Manjara	Monthly	
23	Dam	Majalgaon	Sindaphana	Monthly	
24	Dam	Yeldari	Purna	Monthly	

25	Dam	Vishnupuri	Godavari	Monthly	
26	Dam	U.P.P.	Penganga	Monthly	
27	Dam	Pategaon	Godavari	Monthly	Sample is collected from Jayakwadi project
28	Creator	Lonar	Natural Creator	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	
29	Total Hardness	

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	
31	Total Hardness	

HYDROLOGY PROJECT DIVISION, AURANGABAD

WATER QUALITY LAB, LEVEL – II AURANGABAD

ORGANISATION CHART

EXECUTIVE ENGINEER,
HYDROLOGY PROJECT DIVISION, AURANGABAD
Mr. V. D. Joshi

↓

SUB DIVISIONAL OFFICER/ HOD TRAINING/MR
Mr. V. P. Kulkarni

↓

LAB INCHARGE / STORE AND PURCHASE INCHARGE/Asst. MR
Mr. A. D. Mahajan

↓

OPERATING AGENCY
M/s Ashwamedh Engineers & Consultants Co-Op. Soc. Ltd.

↓

CHIEF CHEMIST
Mrs. V. P. Pawar

↓

ASSISTANT CHEMIST
Ms. S. P. Deshpande (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 of 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 2011-12

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

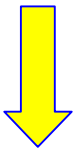
Sr. No	Parameters	Methodology
1.	Colour	APHA, 21st Ed., 2005, 2120-B, 2-2
2.	Odour	IS 3025 (Part 5): 1983, Reaffirmed 2006
3.	Temperature	APHA, 21st Ed., 2005, 2550-B, 2-61
4.	pH	APHA, 21st Ed., 2005, 4500-H^+- B, 4-90
5.	Electric Conductivity	APHA, 21st Ed., 2005, 2510- B, 2-47
6.	Dissolved Oxygen	APHA, 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.	Iron (as Fe)	APHA, 21st Ed., 2005, 3111-B, 3-17
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



Sample Collection from Sampling Source with the help of Depth Sampler

Treatment: D.O. Fixing, Preservation of MPN Sample, Colour, Odour Temp, pH, EC is tested on field, and fill up in ID form.

At Laboratory: Inward the Sample, Giving the Sr. No. to the sample noted into sample entry register

ID form entry taken into SWEDS Software

Tests are carried out in lab as per Protocols. These tests are: Microbiological test, Chlorophyll-a, Temp, pH, D.O., B.O.D, Ammonia, Nitrate, Nitrite, TDS, TSS, C.O.D., Turbidity, Alkalinity, Carbonate & Bicarbonate, Chloride, Fluoride, Boron, Sodium, Potassium, Total Hardness, Phosphorous, and Calcium etc.

Observations & Calculations of all Analyzed Parameters are entered in the Data Sheet

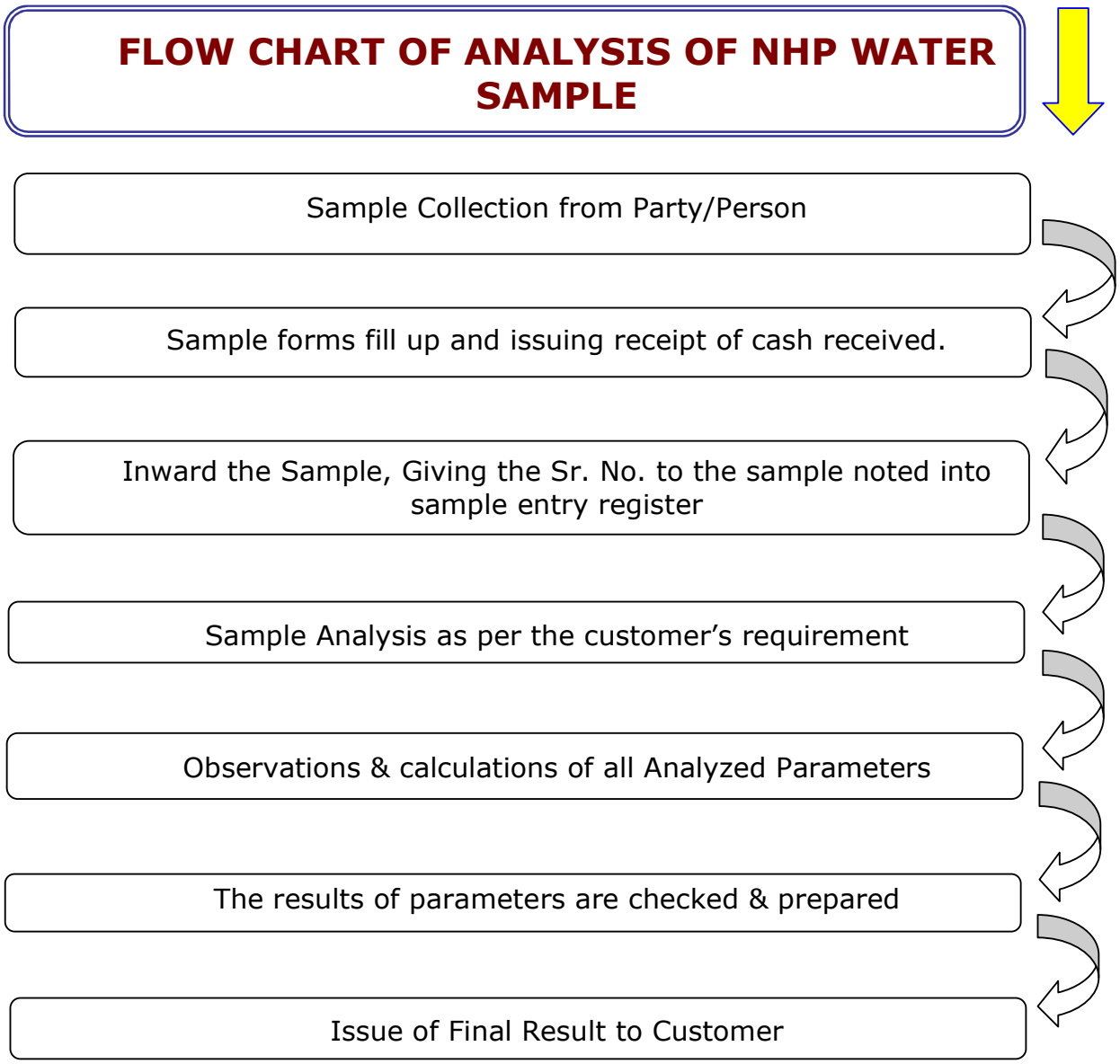
The results of parameters are checked & validated

After Validation Check, all the data is entered in to Data Record and Validation Register

This data is finally entered in to SWEDS Software

This data is submitted to Hydro Metrological Division Nashik for further action

FLOW CHART OF ANALYSIS OF NHP WATER SAMPLE



Annual Report
On Water Quality Monitoring through
Water Quality Lab level II.
Aurangabad for the year 2011-2012

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
2011-12	20	32	8	87	147

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 2011-12.

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 (Ca^{2+}) and magnesium (Mg^{2+}) ions

- pH
- Alkalinity - carbonate and bicarbonate

Specific ions: chloride (Cl), sulfate (SO_4^{2-}), boron (B), and nitrate-nitrogen (NO_3^{-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.

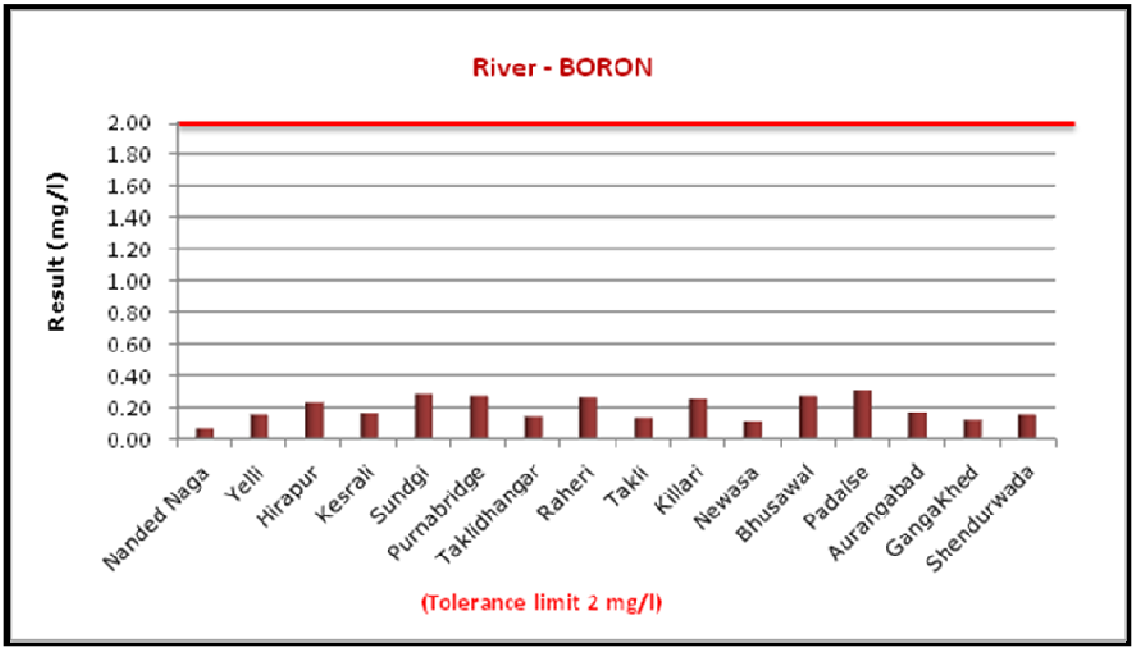
4.6 Classification of locations on the basis of results for the year 2011-2012

OBSERVATION ON THE BASIS OF CLASSIFICATION OF LOCATION			
Sr. No.	**River**	**Year**	**Observations**
1	Aurangabad Division – Trend (River) Station (18)	2011-12	Water is good for irrigation without any further treatment. Except Aurangabad
2	Amaravati Division - Trend (River) Station (2)	2011-12	Water is good for irrigation without any further treatment.
3	Dams Stations (7 +1)	2011-12	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

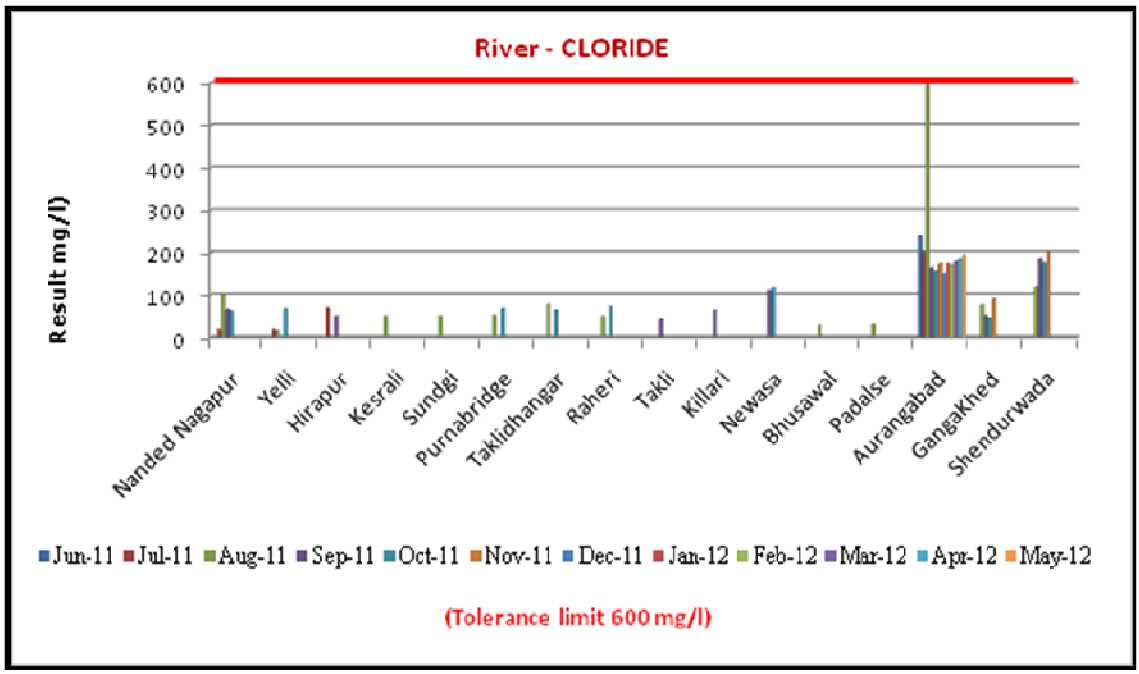
Graphical Representation of Boron of Rivers for the Year 2011-2012
(As per ICAR Standards Parameter)



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 at all river stations.

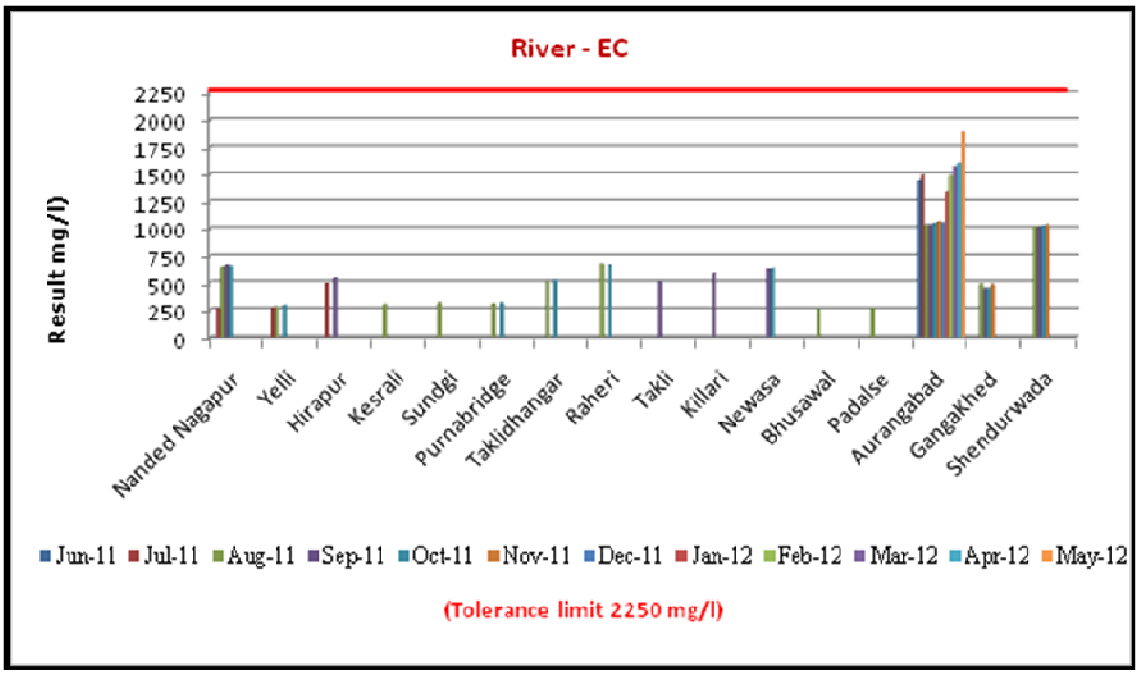
Graphical Representation of Chloride of Rivers for the Year 2011-2012 (As per ICAR Standards Parameter)



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 graph it is observed that at these stations maximum chloride is found at Aurangabad, at other river stations as per ICAR Stds., it is within limit.

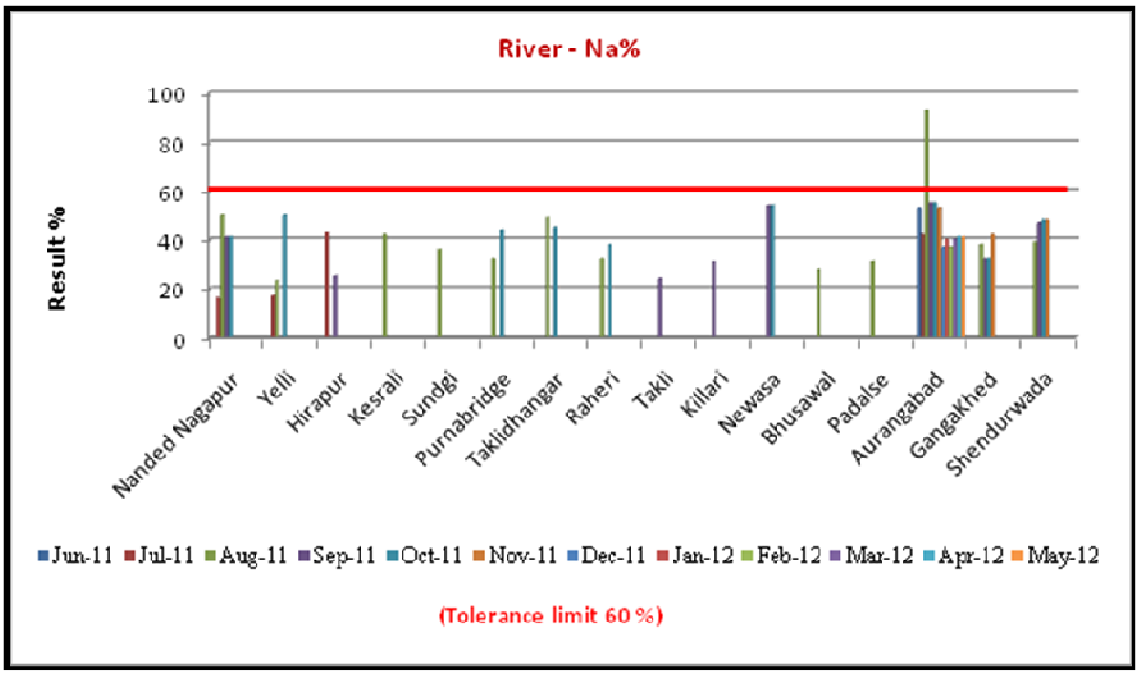
Graphical Representation of Electrical Conductivity of Rivers for the Year 2011-2012 (As per ICAR Standards Parameter)



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.

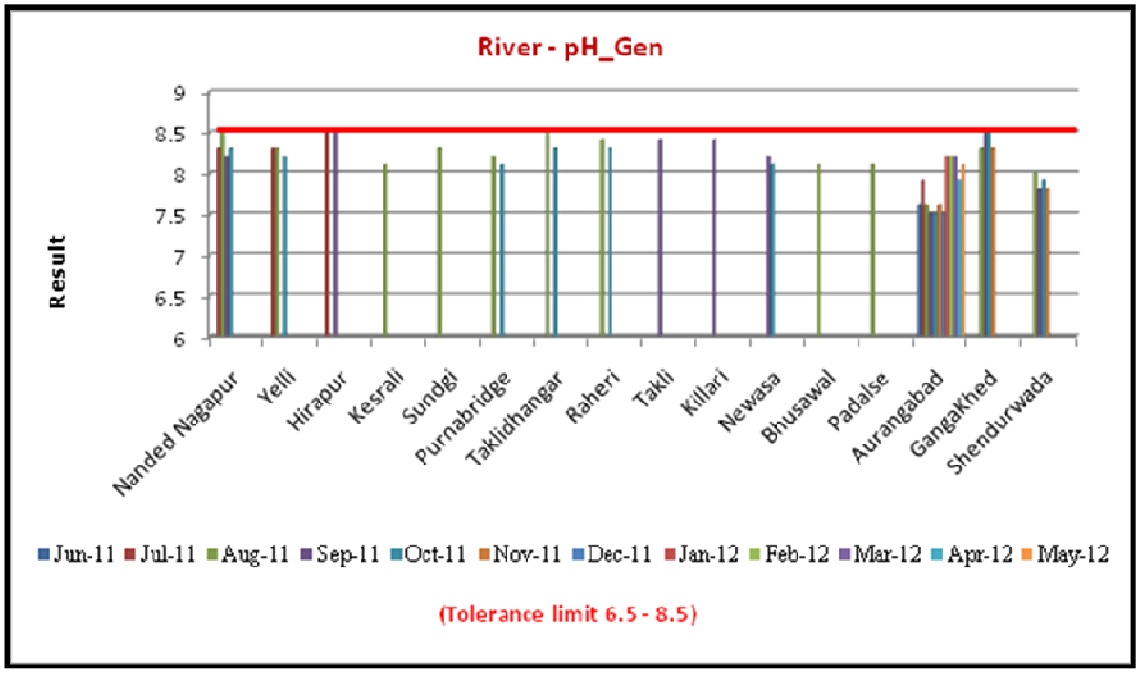
From above graph it is observed that maximum Electrical conductivity found at Aurangabad station. As per ICAR Stds water at all stations is within tolerance limit.

Graphical Representation of Na% of Rivers for the Year 2011-2012 (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, except Aurangabad.

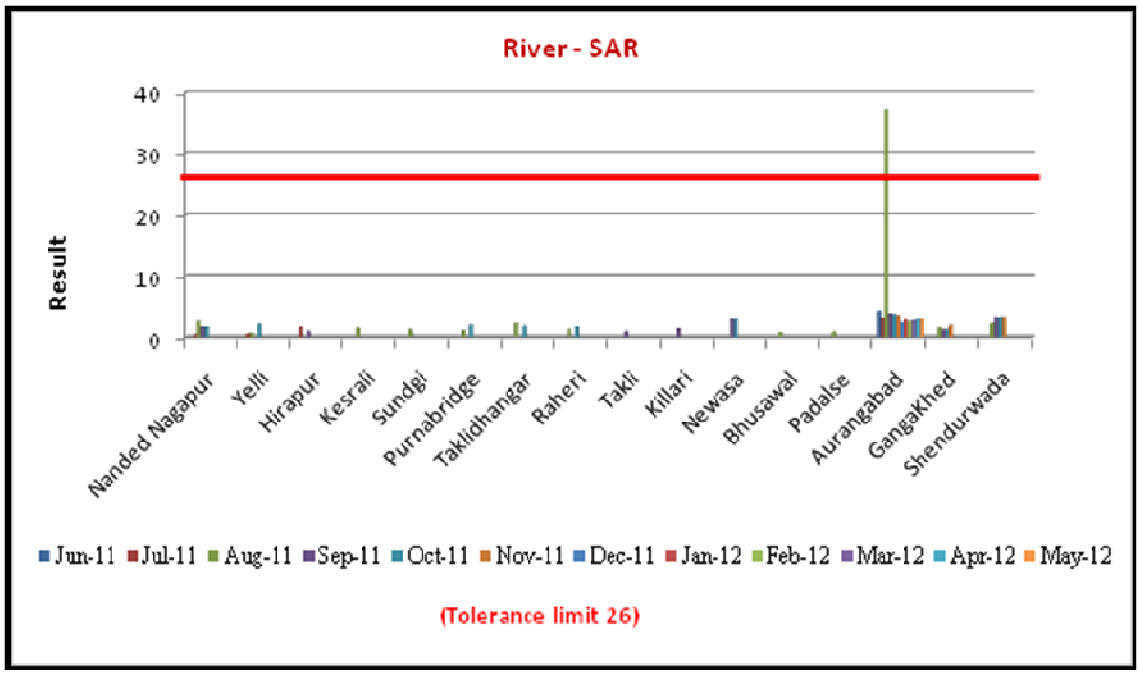
Graphical Representation of pH of Rivers for the Year 2011-2012
(As per ICAR Standards Parameter)



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 stations is within tolerance limit, except Aurangabad, Takalidhangar, Hirapur.

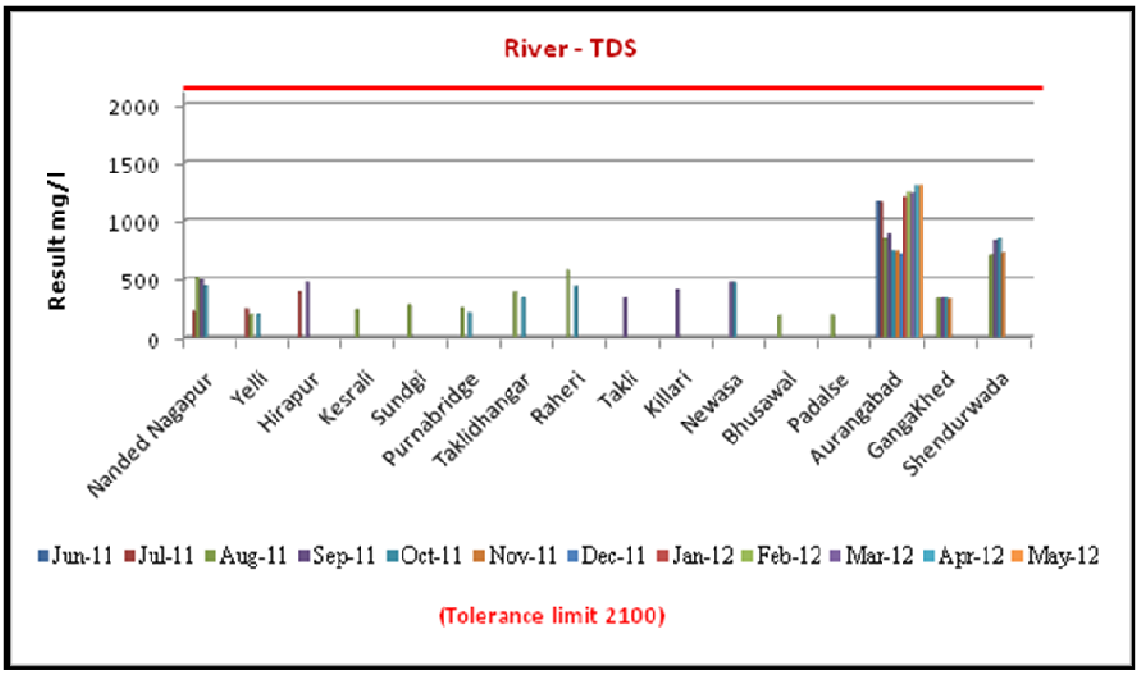
Graphical Representation of SAR of Rivers for the Year 2011-2012
(As per ICAR Standards Parameter)



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 except Aurangabad.

Graphical Representation of TDS of Rivers for the Year 2011-2012
(As per ICAR Standards Parameter)

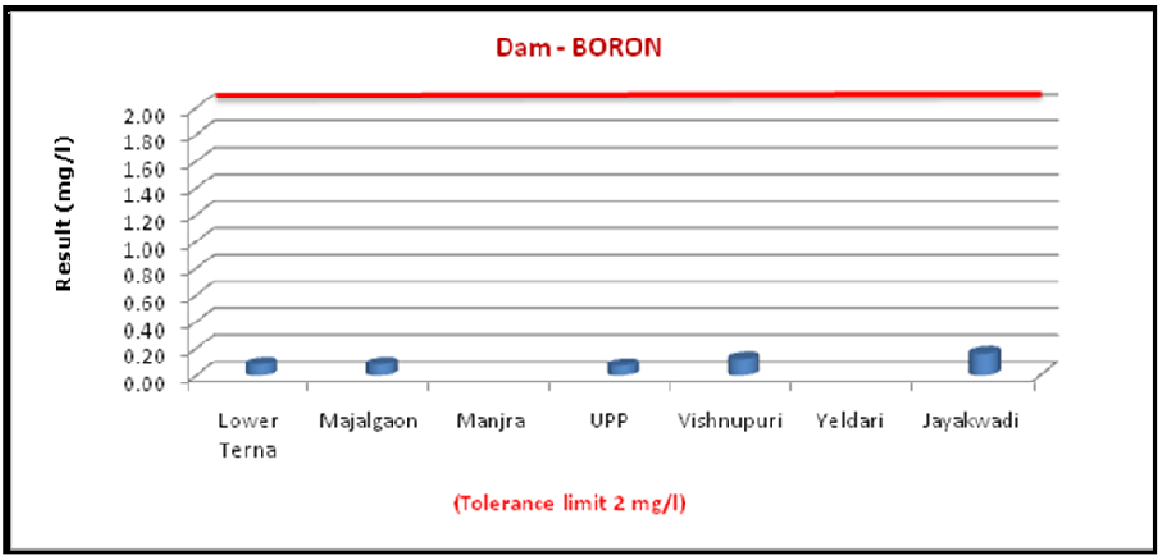


TDS is a general indicator of overall water quality. It is a measure of inorganic and organic materials dissolved in water. High levels of TDS in surface water may be due to several factors, including sedimentation, mining or storm water runoff. Increased TDS may impart a bad odor or taste to drinking water.

From above graph it is observed that the TDS value at all stations is within tolerance limit.

DAM STATIONS

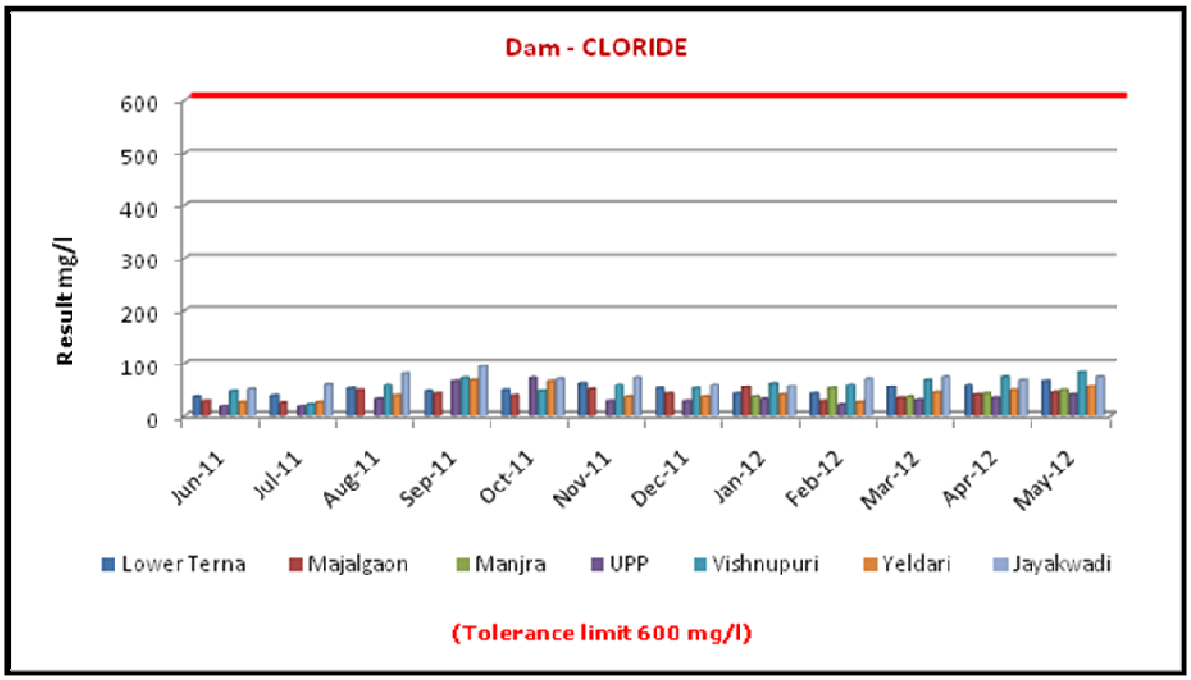
Graphical Representation of Boron of Dams for the Year 2011-2012 (As per ICAR Standards Parameter)



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.

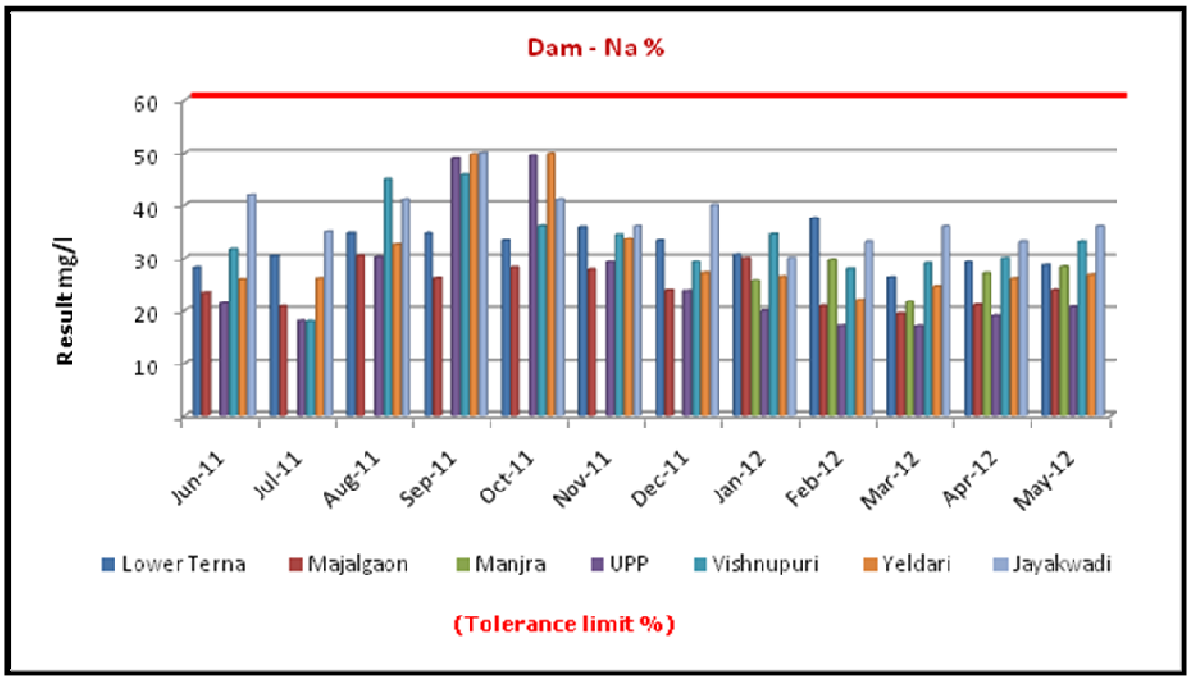
Graphical Representation of Chloride of Dams for the Year 2011-2012
(As per ICAR Standards Parameter)
Chloride



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.

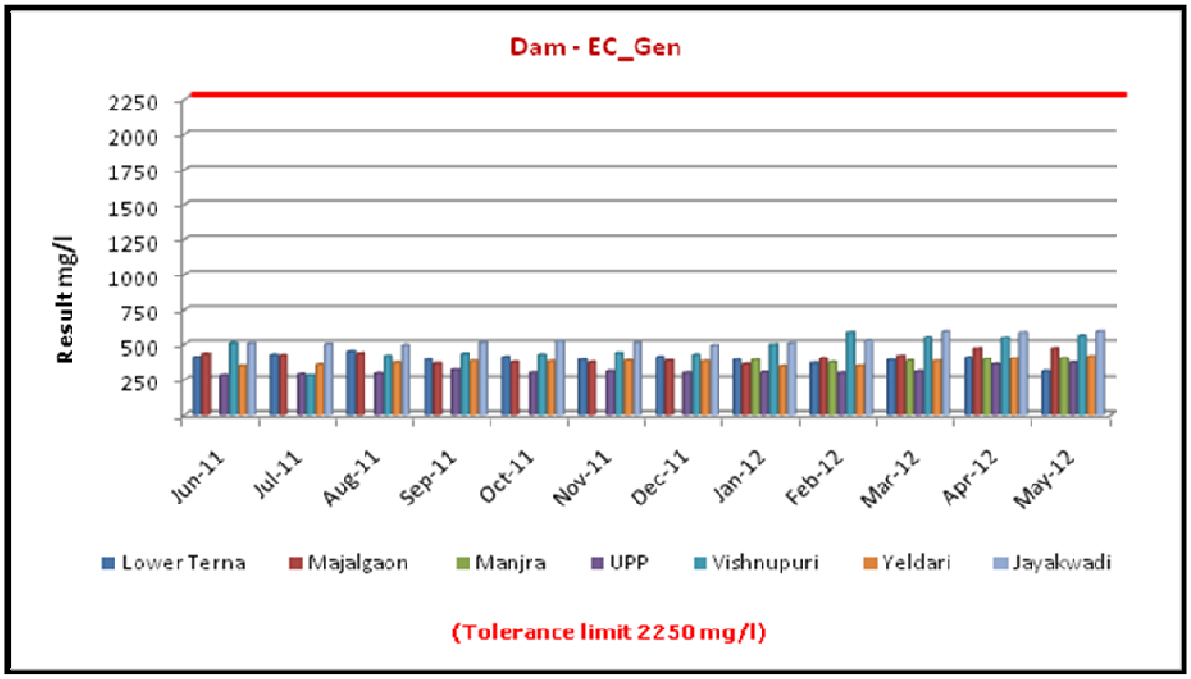
From above station's graph it is observed that Chloride is within tolerance limit.

Graphical Representation of Na% of Dams for the Year 2011-2012
(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.

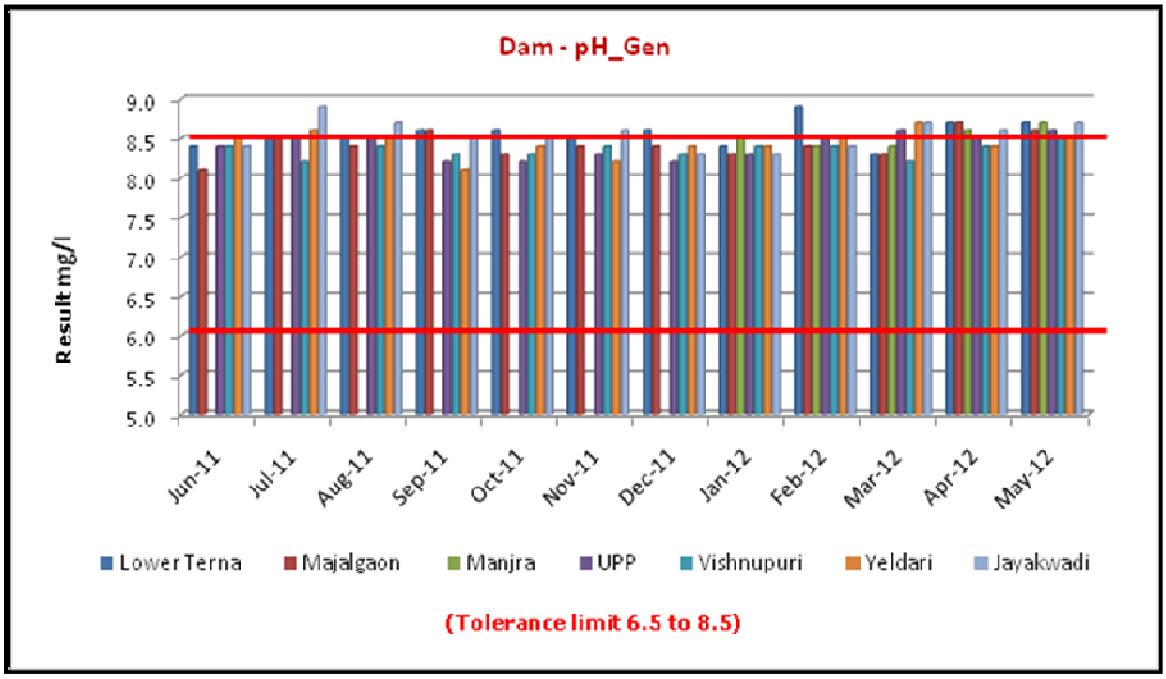
Graphical Representation of EC of Dams for the Year 2011-2012
(As per ICAR Standards Parameter)



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.

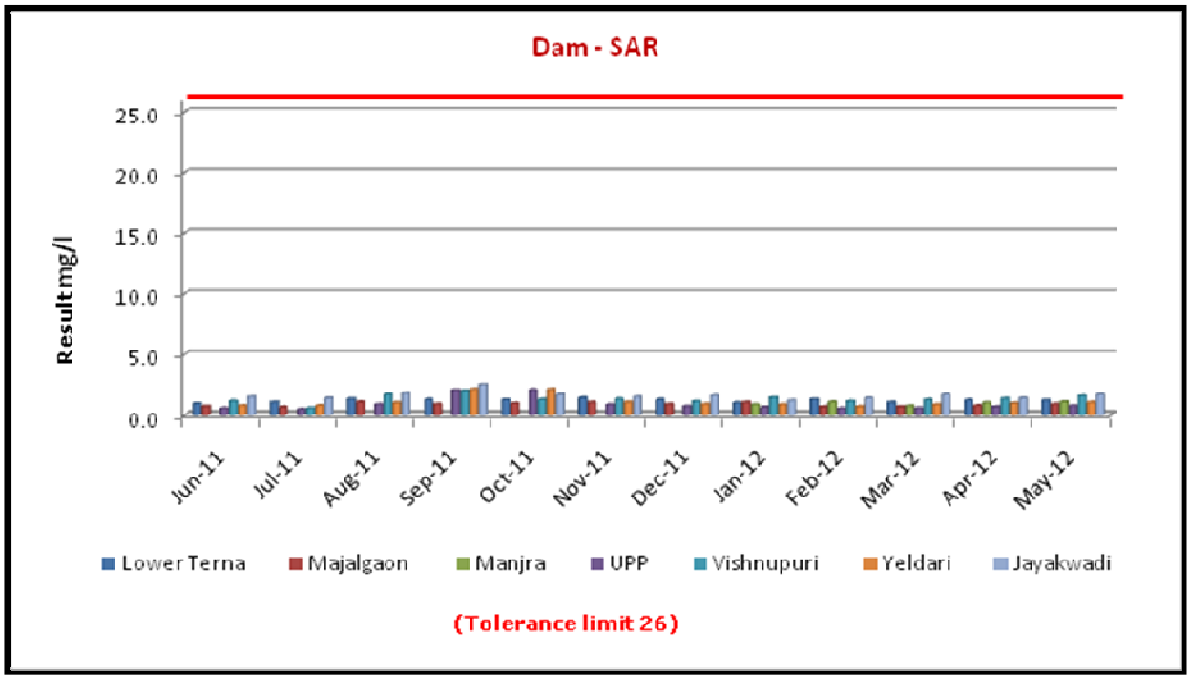
Graphical Representation of pH of Dams for the Year 2011-2012
(As per ICAR Standards Parameter)



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.

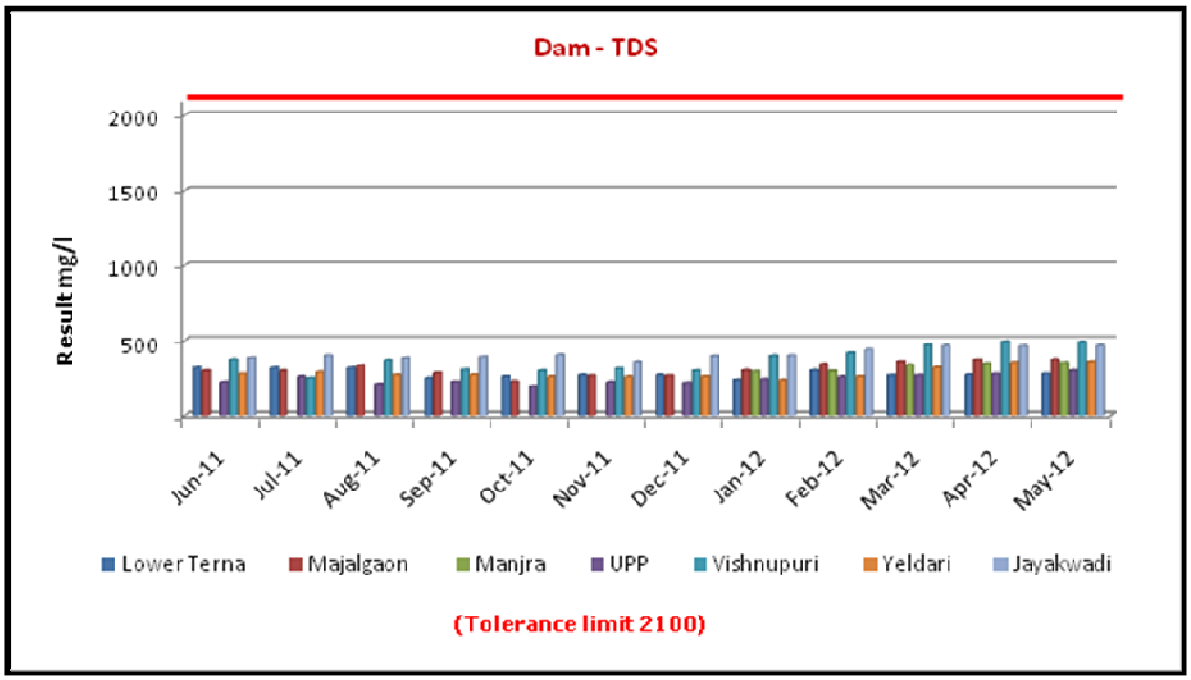
Graphical Representation of SAR of Dams for the Year 2011-2012
(As per ICAR Standards Parameter)



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.

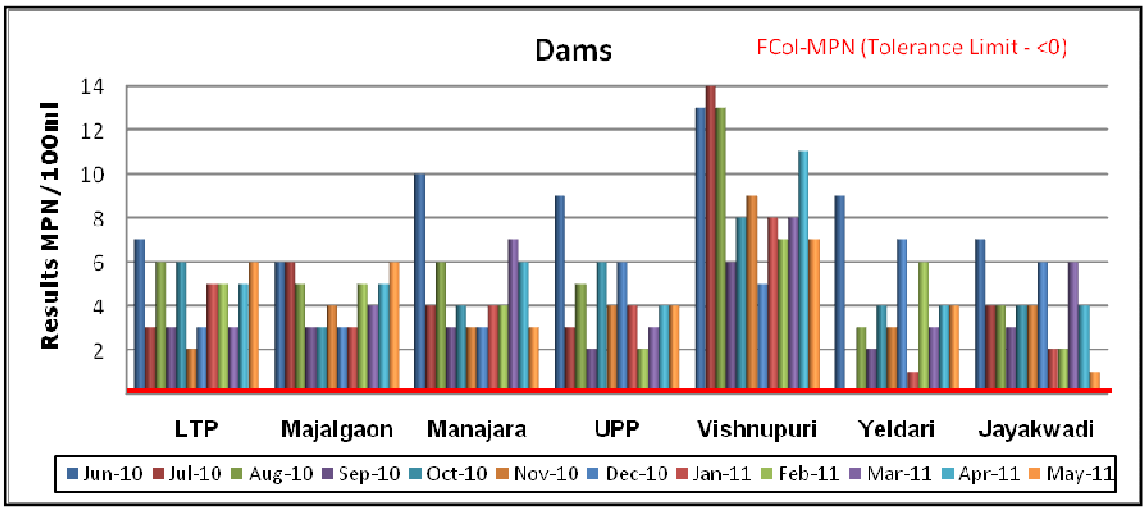
As per above graph SAR is within tolerance limit.

Graphical Representation of TDS of Dams for the Year 2011-2012
(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.

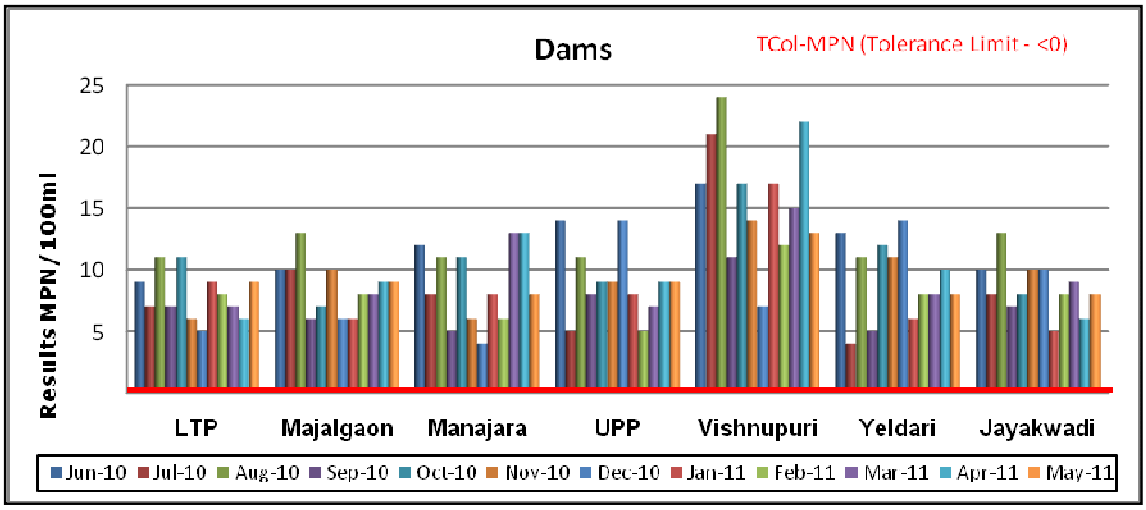
Graphical Representation of FCol-MPN
(As per IS-10500 Standards)
for the Year 2011-2012
WR Division Aurangabad
Dam Locations



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 TCol-MPN
(As per IS-10500 Standards)
for the Year 2011-2012
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 6.6 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 6.0 or above 10.0 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 2011-12 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

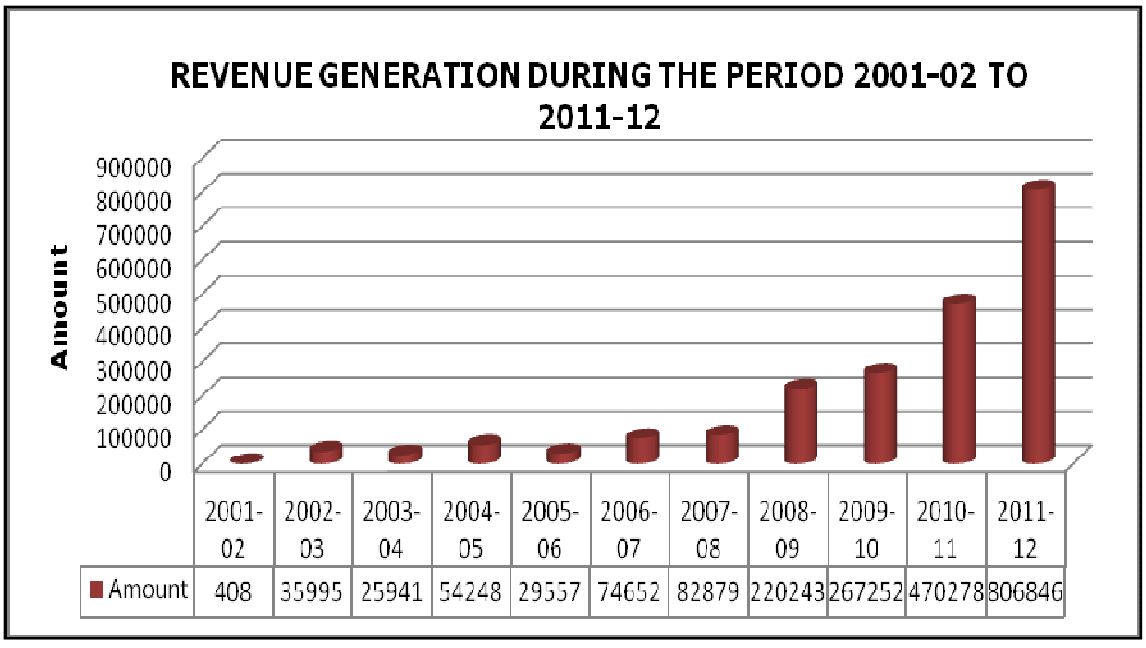
Apart from monitoring of water quality network for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

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

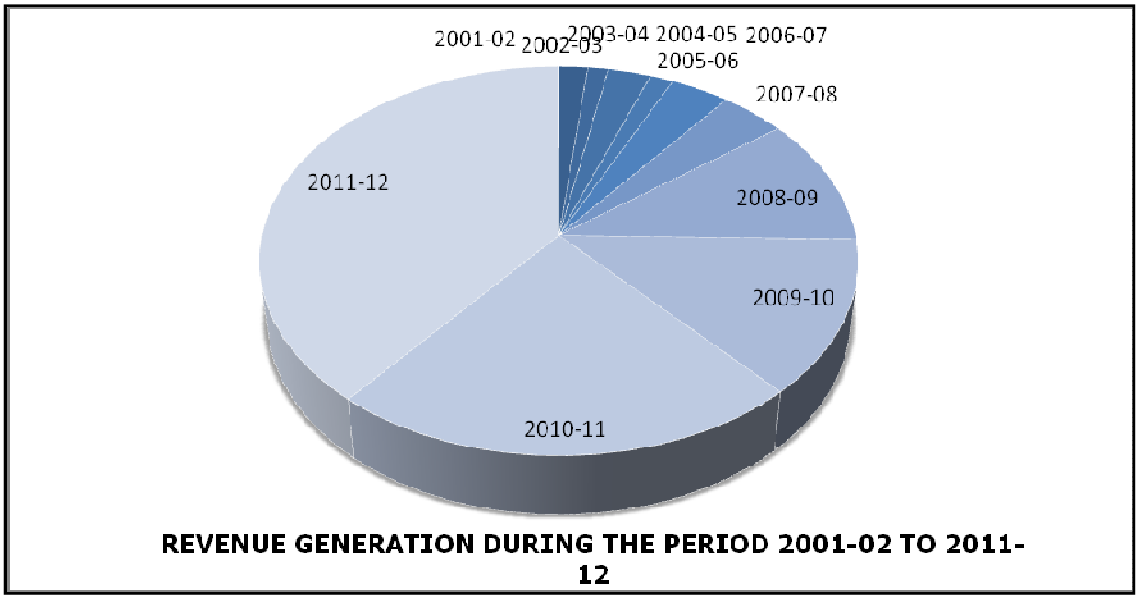
During the year 2011-12 many clients approached to the laboratory. The valuable clients availed the facility of the laboratory are as below;

Revenue Received from year 2001-02 to 2011-12

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



Pie Diagram Of
Revenue Received from month year 2001-02 to 2011-12
Water Quality Lab Level II Aurangabad



REVENUE GENERATION DURING THE PERIOD 2001-02 TO 2011-12

Annual Report

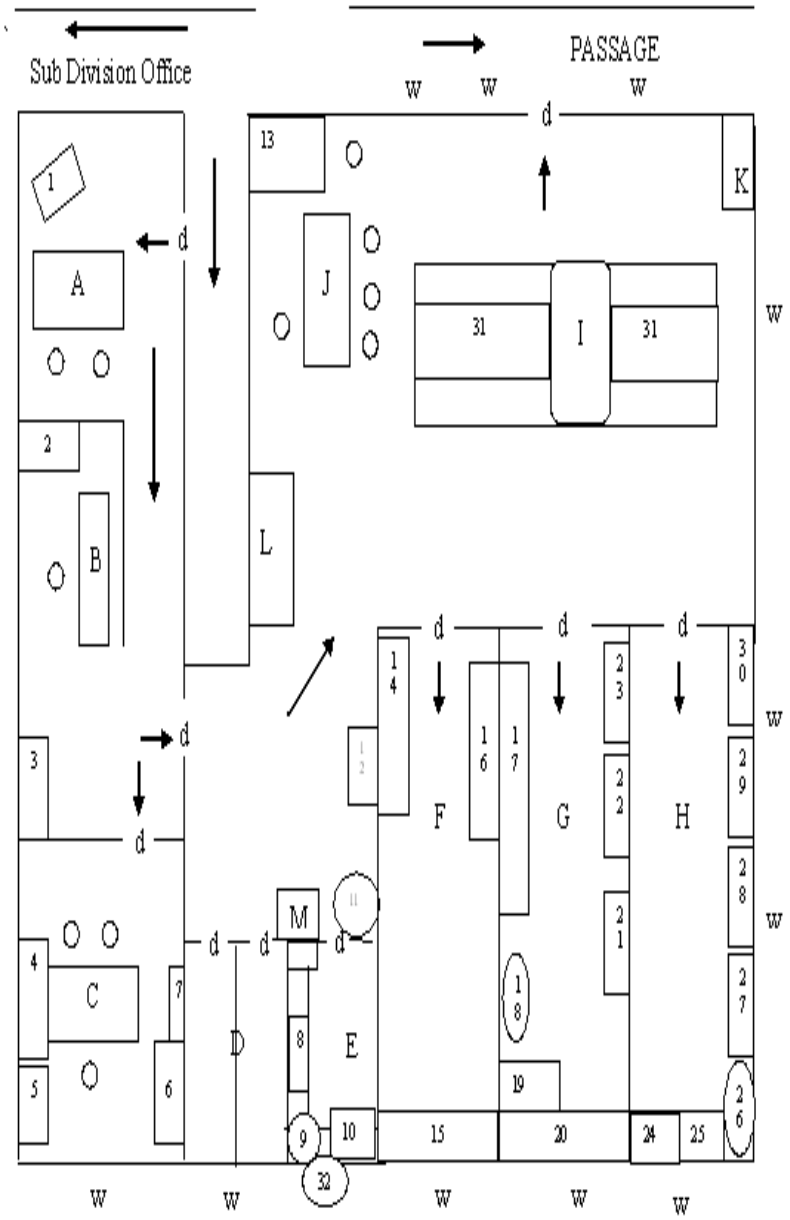
Water Quality Monitoring Through Water Quality Lab Level-II Aurangabad for the Year 2010-11

A N N E X U R E - II

List of Selected Clients Of 2011-12
Analyzed Water Sample

Sr.No.	Name of Clients	Purpose
	Government Bodies	
1	D. E. MIDC A'bad	Drinking
2	Power Grid corporation of India Ltd.	Drinking
3	D. E. MIDC Jalgaon	Drinking
4	D. E. Dagdi Dharan Subdivision Paiyhan	Drinking
5	Marathwaa Gramin Vikas Samitee A'bad	Drinking
6	Muncipal Corporation A'bad	Drinking
7	SDO MI Subdivision Ahmedpur, Latur	Construction
8	Chief Officer Nagarparishad Buldhana	Drinking
9	Airport Autority of India A'bad	Drinking
10	Gram Arogya Water Supply & Sanitation Committee Vaijapur	Drinking
11	Irrigation Subdivision Majalgaon	Irrigation
12	SDO Palashi Nepur Cannal Chincoli	Drinking
13	P. J. Rangari, CE MIDC Nanded	Research
14	EE Jaykwadi Irrigation Beed	Irrigation
15	D. E. MIDC Latur	Drinking
16	Grampanchayat Ganeshwadi Gangapur A'bad	Drinking
17	NBCC Latur	Drinking
	Industries	
19	Kashvi Chemicals	Industrial
20	Devegan Seeds	Drinking
21	RADICO NV Distillaries, Shendra, A'bad	Industrial
22	Aditya Birla Retail Ltd. More Mega Store A'bad	Drinking
23	Neel Operations A'bad	Industrial
24	Dhoot Transmission Pvt. Ltd. Aurangabad	Drinking
25	OMR Bagla Automotive System Ltd.	Drinking
26	Jailaxmi Casting & Alloys Pvt. Ld.	Industrial
27	Deven Reatiles Balkrishna Bhakre Group A'bad	Drinking
28	Maharashtra Metal Industre Pvt. Ltd. A'bad	Drinking
29	Nirlep Aplliances Ltd. A'bad	Drinking
30	Trend Electronics	Industrial
31	East West Seed India Pvt. Ltd.	Drinking
32	Devgirir Forgins Pvt. Ltd.	Industrial
33	Progressive Sterlite Ltd. Waluj	Drinking
34	Good Year South Asia Tyers Waluj	Industrial
35	Laxmi Industries Vaijapur	Drinking
36	Bhumi Associates A'bad	Industrial
37	Aurangabad Electricals Ltd., A'bad	Industrial
38	Kaygaon Paper mill Gangapur	Industrial
39	Morya Gramin Distlilleris Pvt. Ltd. A'bad	Drinking
40	Shikhas Aqua Cool Jalna	Drinking
41	Neel Water Services A'bad	Industrial
42	D. P. Auto Parts Pvt. Ltd. A'bad	Drinking
43	Mukteshwar Sugar Mill Gangapur	Industrial
44	Kumar Elastomech Pvt. Ltd. A'bad	Industrial
45	Iskon Food Relief Foundation A'bad	Drinking
46	Severa Auto Camps Pvt. Ltd. A'bad	Industrial
47	Neepaz V.forge India Ltd.	Industrial
48	Bhagirath Industries A'bad	Drinking
49	NRB Ltd. A'bad	Drinking
50	Bajaj Finserv Lending A'bad	Drinking
51	Sai Gangajal Ind. Ltd.	Drinking

52	Glenmark Pharmace Ltd. Shendra	Industrial
53	Jagdish Oil Mill Chikalthana	Industrial
54	Videcon Industries Ltd. A'bad	Drinking
55	Ajanta Pharama Ltd. A'bad	Industrial
56	Om Sai Agro Industries A'bad	Drinking
57	Hitech Seeed Company Pvt. Ltd.	Irregation
58	Radient Industries Pvt. Ltd. A'bad	Drinking
59	Saptshrungi Alloy Pvt. Ltd. Jalna	Industrial
60	Suvikas Enterprises Pvt. Ltd. A'bad	Drinking
61	Wipro Ltd. Waluj	Drinking
62	Lokmat Media Ltd. Shendra	Drinking
	Hospitals & Hotels	
63	Dr. Hedgewar Rugnalya A'bad	Drinking
64	MGM Hospital CIDCO A'bad	Drinking
65	Lemon Tree Hotel	Drinking
66	Hotel Sai Shradha Phulambri	Drinking
67	Hotel Rajdarbar Kannad	Drinking
68	Welcome Hotel Hollywood A'bad	Drinking
69	Kamalnayan Bajaj Hospital A'bad	Drinking
70	Hotel Ramaji A'bad	Drinking
71	Varhadi Maratha Hotel	Drinking
72	Welcome Hotel Rama International A'bad	Drinking
73	Indian Multiservices Goli Vada Pav A'bad	Drinking
74	Hotel Ice Spicy A'bad	Drinking
	Educational Institute	
75	Aryachanakya Vidyala Jatwada	Drinking
76	Savitri Bai Phule Mahila Ekta Samitee Mandal A'bad	Research
77	Ambarwadikar Instituet of Technology A'bad	Drinking
78	Kamala Nehru Siskhan Sanstha A'bad	Drinking
79	Dnyanda English School	Drinking
80	New Arts College Shevgaon	Research
81	Jain International School A'bad	Drinking
82	Govt. Polytechnic Jalna	Research
83	Vikram Aditya Primary Vidayalay A'bad	Drinking
84	Akbar Khan Patel Urdu Marathi School A'bad	Drinking
85	Dnayan Prasar Primary School A'bad	Drinking
86	MGM Medical College A'bad	Drinking
87	Late R. B. Wankede School Phulambri	Drinking
88	Padmashri Shankar Bapu Apegaonkar School A'bad	Drinking
89	Shri Yash Engg. College Satara A'bad	Drinking
90	Shri Sant Janardhan Primary School Verul	Drinking
91	Ujwalatai Pawar Vidyamandir A'bad	Drinking
92	Sudhakar Rao Primary School A'bad	Drinking
93	Sanskar Primary Vidyalaya A'bad	Drinking
	Other Prominent Clients	
94	Bajaja Finance A'bad	Drinking
95	Fame India Ltd. A'bad	Drinking
96	Samarth Seva Bhavi Sanstha A'bad	Drinking
97	YZ Motors Ltd. A'bad	Drinking
98	Saniya Motors Pvt. Ltd.	Drinking
99	Pantaloons Retail India Ltd. Prozon Mall A'bad	Drinking
100	Star Bazar Trend Hyper Market Ltd. A'bad	Drinking
102	Sakal Paper Pvt. Ltd. A'bad	Drinking
103	Tapdia & Kasliwal Associates A'bad	Drinking
104	Sanjeev Auto Parts Pvt. Ltd.	Drinking



LAYOUT PLAN OF WATER QUALITY LEVEL - II LABORATORY, HYDROLOGY PROJECT, AURANGABAD

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

SPECIAL ACHIVEMENT

We have successfully completely the gigantic work assignment given to us by CADA office in the month of July – August 2011 of green color water sample analysis. During this period there was appearance of green color in the water of Jayakwadi, which was raising many eyebrows suspecting the purity of water and consequences may happen due to impure water. Media was continuously spreading news about the inefficient work of CADA office & Aurangabad Municipal Corporation, who were in no position to explain why this has happen? & is there any threat to peoples who are drinking this water?

CADA office then gave us five samples in every morning & evening every day for the period of more than one month. We take this as challenge & guide both the authorities on this. We analyzed maximum parameter of each sample to know the purity of water. We analyzed the samples in time bound frame putting lots of effort to do the quality work & provide the correct information to the authorities. We did not found any suspicious matter in these samples & as per our analysis; water was in good condition for drinking after regular treatment process of Municipal Corporation.

After the successful completion of work, officials of CADA office, Municipal Corporation & Maharashtra Pollution Control Board visited our lab, saw our working & appreciate our work.

It was totally a proud moment for us, which gave us strength to move forward & take challenges by doing quality work sincerely.

जायकवाडी धरणातील पाण्यावरही हिरवा तवंग

DB स्टार

दोघांत तिसरा, आता सगळं विसरा

दिव्य मराठी

दैनिक दिव्य मराठीच्या वाचकांसाठी निःशुल्क

पान ४ वर

१२ पैकी होतात केवळ ३ चाचण्या, प्रयोगशाळा नसल्याने आरोग्य खात्यावर मदार...

मनपाचे पाणी धोक्याचेच!

घरातील नळापर्यंत येणारे पाणी शुद्ध, स्वच्छ आणि निर्जंतुक असावे यासाठी पाण्यावर किमान १२ प्रकारच्या तपासण्या होणे आवश्यक आहे. मात्र, महानगरपालिका यापैकी केवळ ३ ते ४ चाचण्या करत असल्याने शहरवासीयांचे आरोग्य धोक्यात आले आहे. याबाबत केंद्र शासनाचे कडक निर्देश असतानाही औरंगाबाद मनपाकडून पाण्यावर आवश्यक त्या चाचण्या केल्या जात नाहीत. काही ठरावीक चाचण्या होतात त्याही अद्ययावत नसलेल्या आरोग्य खात्याच्या प्रयोगशाळेत. अन्य महत्त्वाच्या चाचण्यांसाठी नाशिकला धाव घेतली जात आहे.

कोणत्या आहेत आवश्यक चाचण्या?

- पीएच टेस्ट
- टेम्परेचर टेस्ट
- डिझॉल्व्ह ऑक्सिजन टेस्ट
- रेसिड्युअल क्लोरिन टेस्ट
- टर्बिडिटी टेस्ट
- क्लोराइड टेस्ट
- नायट्रेट टेस्ट
- फ्लोराइड टेस्ट
- फॉस्फरस टेस्ट
- आयर्न टेस्ट
- हार्डनेस टेस्ट
- अमोनिया टेस्ट

यासोबत कॉलिफॉर्म बॅक्टेरिया तसेच बेंथास टेस्टचा समावेश आहे.

फारोळ्याला काय होते?

अद्ययावत प्रयोगशाळा प्रस्तावित आहेत

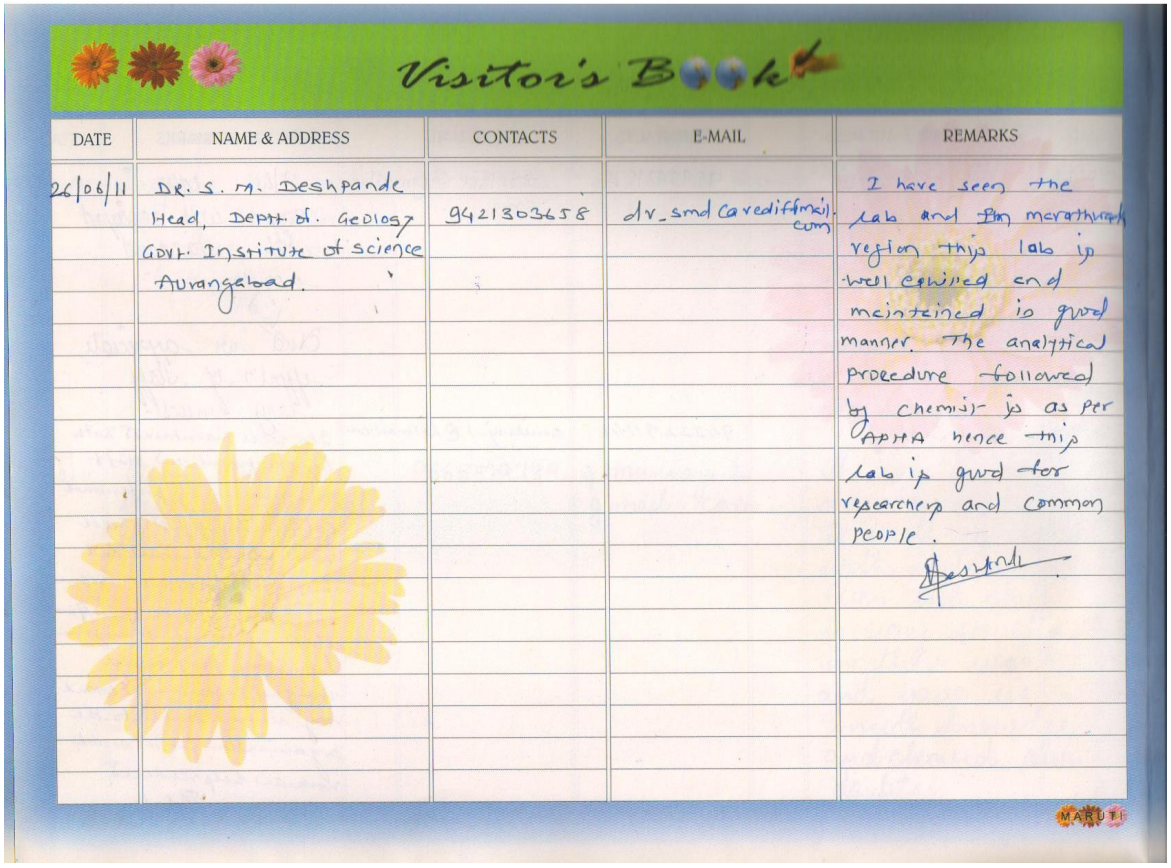
दूषित पाणीपुरवठा आरोग्यासाठी धोकादायक

जायकवाडी धरणाचे पाणी हिरवे झाले

Visitors visit to the Laboratory and their remarks

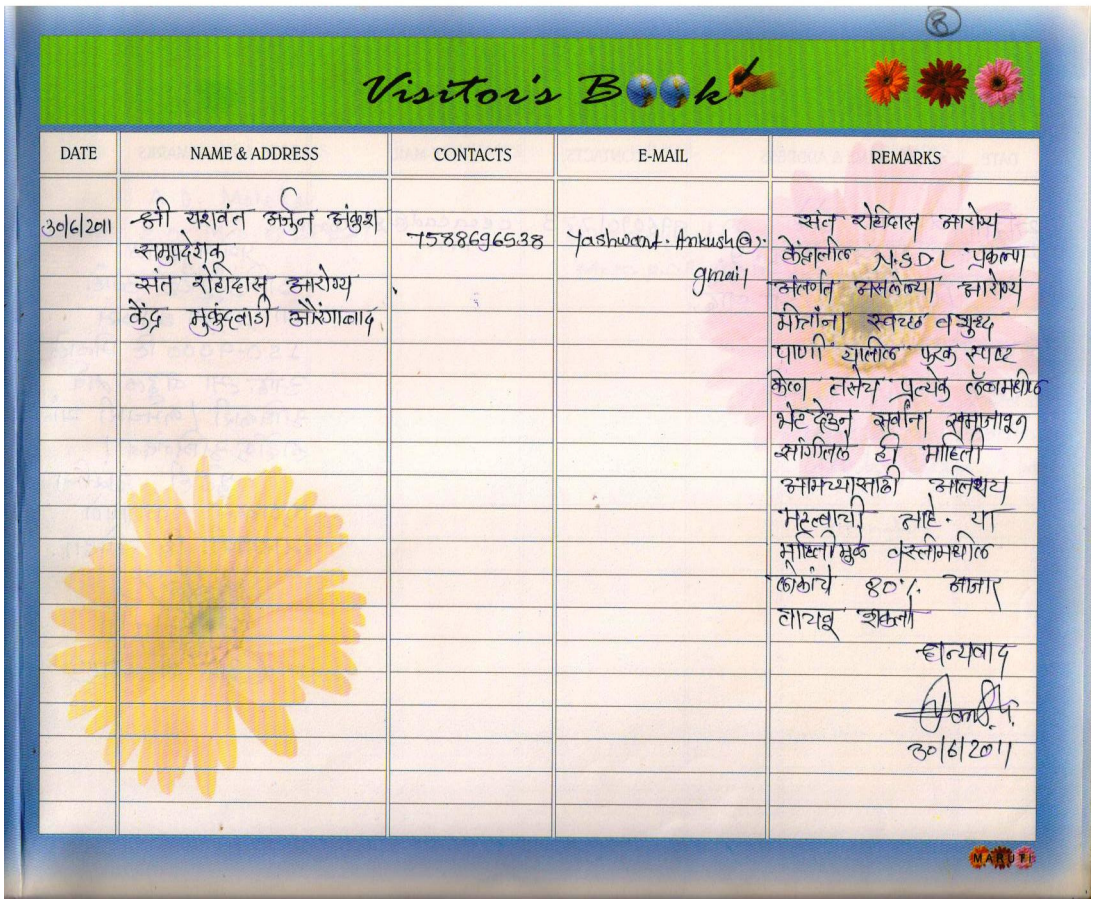
List of some Prominent Visitors

Sr. No.	Date	Name of the Visitor	Designation
1.	26/06/2011	Mr. Dr. S. M. Deshpande	HOD, Geology, Govt. Institute of Science, Aurangabad
2.	28/07/2011	Mr. A. D. Mohekar	R. O. MPCB, Aurangabad
3.	24/08/2011	Mr. A. S. Suryavanshi	S. E. D.C.C. Nashik



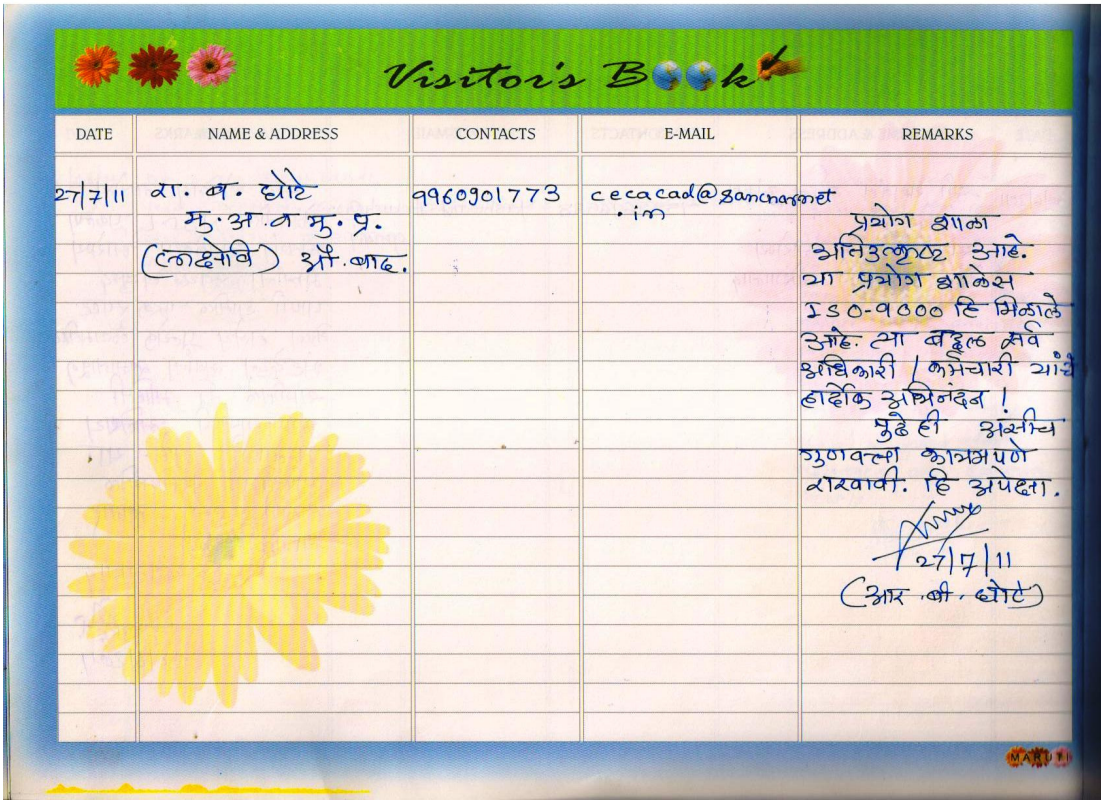
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
26/06/11	Dr. S. M. Deshpande Head, Deptt. of. Geology Govt. Institute of science Aurangabad.	9421303658	dr_smd@rediffmail.com	I have seen the Lab and for marathwada region this lab is well equipped and maintained in good manner. The analytical procedure followed by chemist is as per APHA hence this lab is good for researchers and common people.



Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
30/6/2011	श्री यशवंत अनुज अंकुश समुपदेशक संत रोहिदास आरोग्य केंद्र मुकुंदवाडी औरंगाबाद	7588696538	Yashwant.Ankush@gmail	संत रोहिदास आरोग्य केंद्रातील N.S.D.L. प्रकल्पा अंतर्गत बसलेल्या आरोग्य मोहीमा स्वच्छ व सुरक्षित पाणी यातील फरक स्पष्ट केला. तसेच प्रत्येक लॅबमधील भेटी देऊन सर्वांना समजावून सांगितले ही माहिती समन्वयासाठी अतिशय महत्वाची आहे. या मोहीमा मुळे वस्तीमधील लोकांचे 80% आजार तरी कमी होतील धन्यवाद 30/6/2011

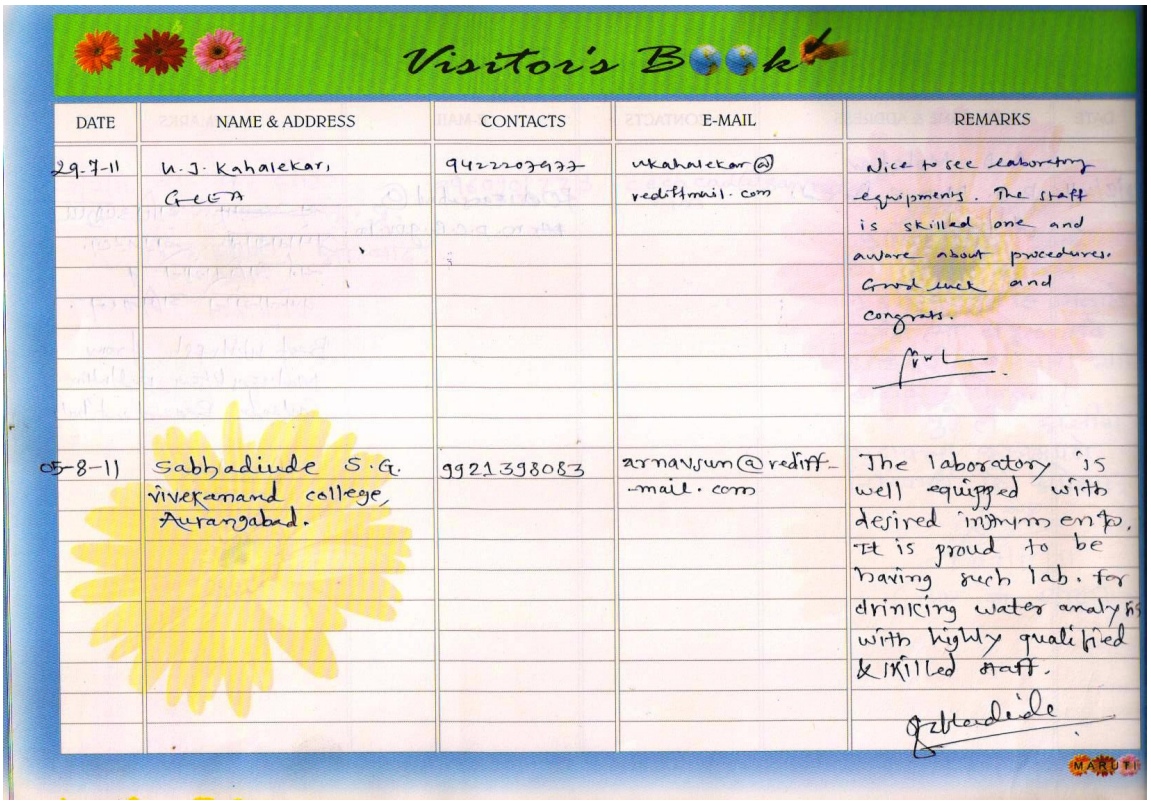


Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
27/7/11	रा. ब. घोटे मु.अ.व मु.प्र. (लघुसेवा) औ.बाद.	9960901773	cecacad@sancharnet.in	प्रयोग शाळा अतिउत्कृष्ट आहे. या प्रयोग शाळेस ISO-9000 हि मिळाले आहे. या बद्दल सर्व अधिकारी / कर्मचारी यांचे हार्दिक अभिनंदन ! पुढे ही असेच गुणवत्ता कायम ठेवावी. हि अपेक्षा. 27/7/11 (आर.बी. घोटे)

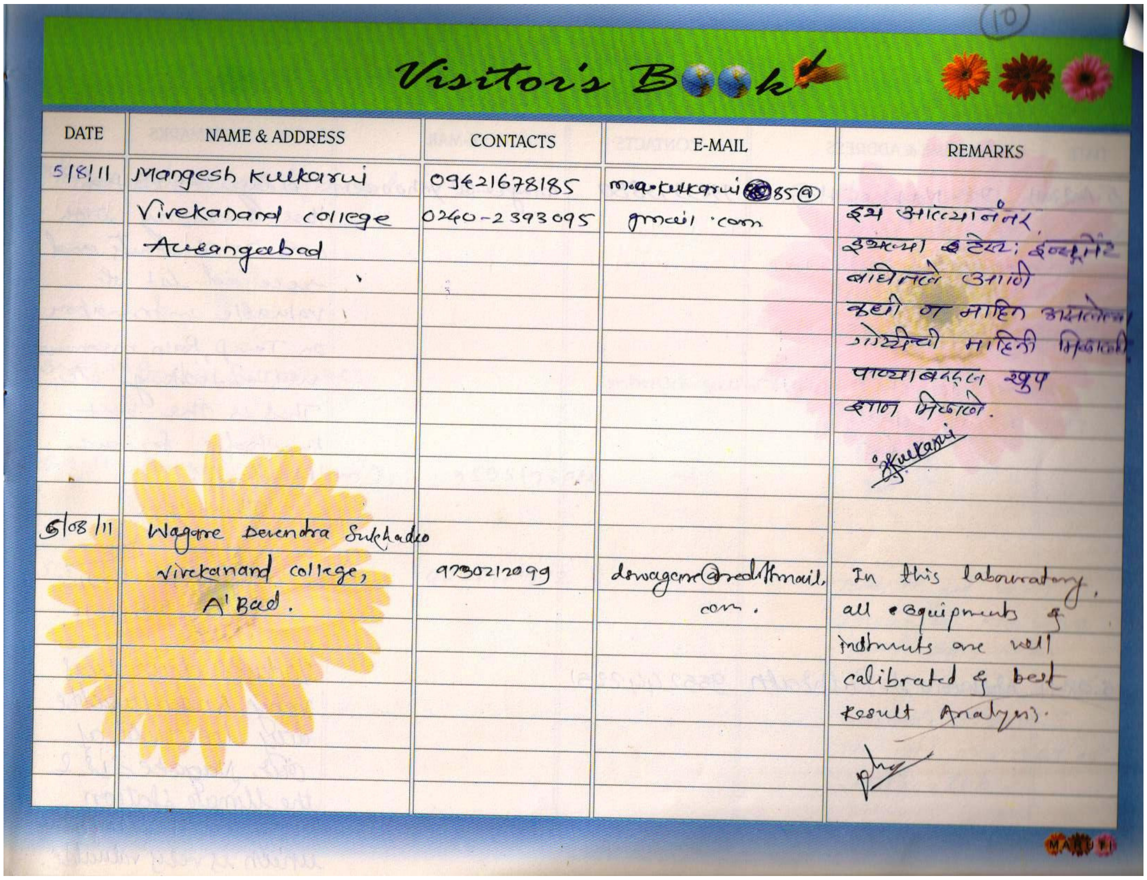
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
29/7/2011	A.D. Mohekar R.O. M.P.C.B. Aurangabad.		RO@mpcb.gov.in	~~[illegible]~~. अति उत्तम प्रयोगशाला. व्यवस्थित. सर्व अधिकाऱ्यांचे व कर्मचाऱ्यांचे अभिनंदन. Best Wishes from Maharashtra Pollution Control Board, Aurangabad Amohekar 29-07-2011



Visitor's Book

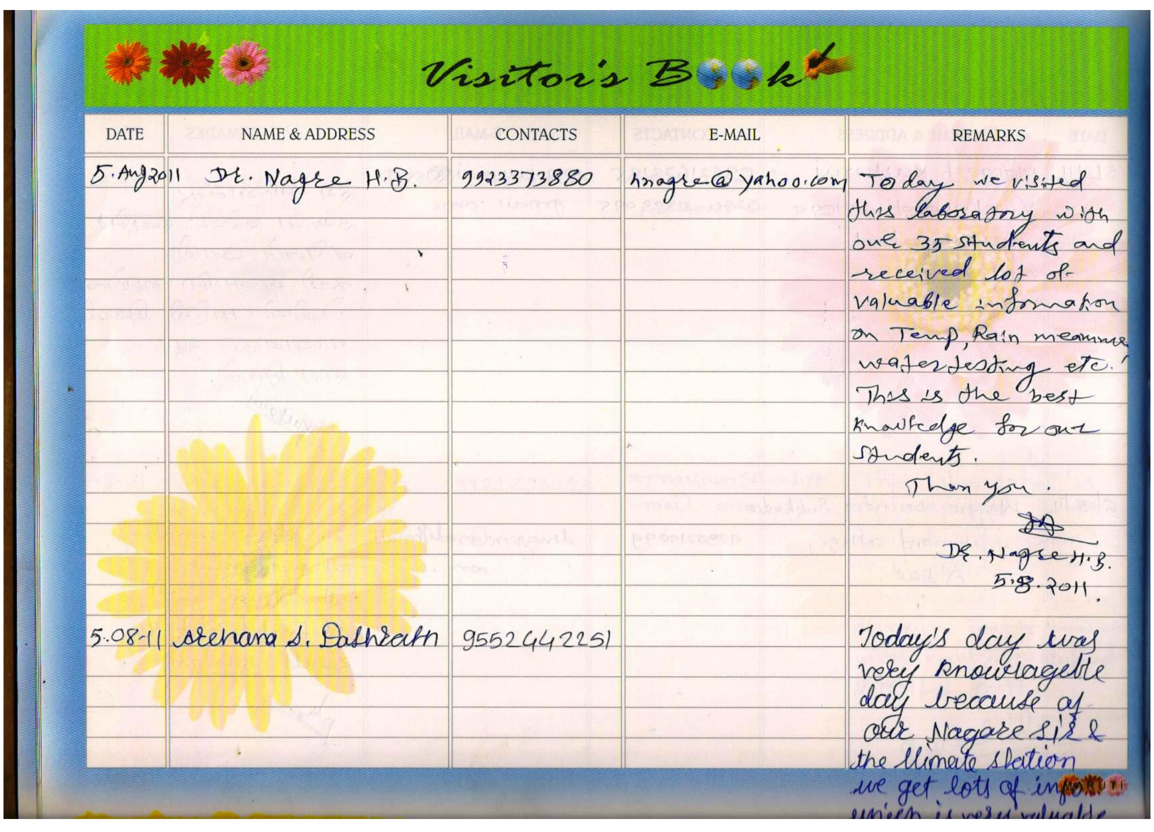
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
29-7-11	U.J. Kahalekar, GEETA	9422203933	ukahalekar@rediffmail.com	Nice to see laboratory equipments. The staff is skilled one and aware about procedures. Good luck and congrats.
05-8-11	Sabhadiude S.G. vivekanand college, Aurangabad.	9921398083	arnavsun@rediffmail.com	The laboratory is well equipped with desired instruments. It is proud to be having such lab. for drinking water analysis with highly qualified & skilled staff.



(10)

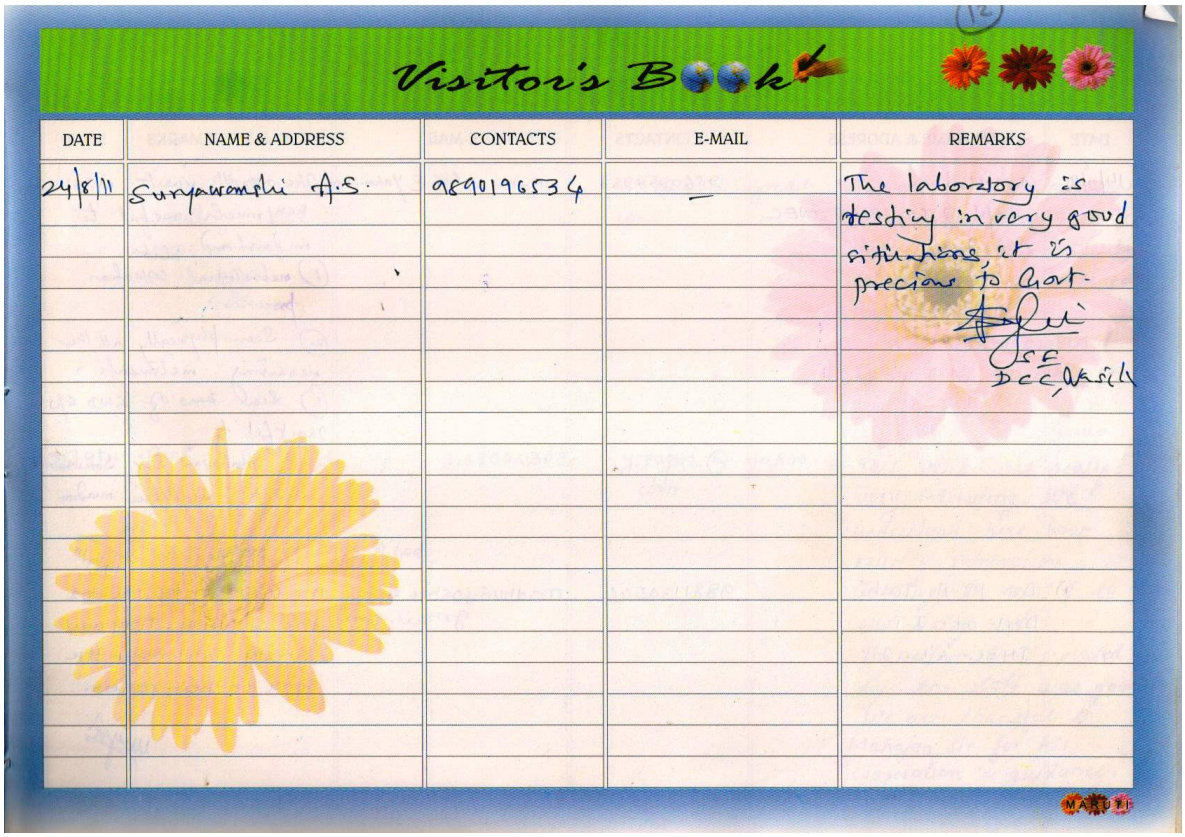
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
5/8/11	Mangesh Kulkarni Vivekanand college Aurangabad	09421678185 0240-2393095	mg.kulkarni85@gmail.com	इथ आल्यानंतर, इथल्या वेदर; इन्स्ट्रुमेंट बघितले आणि कधी न माहित असलेल्या गोष्टींची माहिती मिळाली पाण्याबद्दल खूप ज्ञान मिळाले. Kulkarni
5/08/11	Wagare Devendra Sukhadeo Vivekanand college, A'Bad.	9730212099	dewagare@rediffmail.com.	In this labouratory, all equipments & instruments are well calibrated & best Result Analysis.



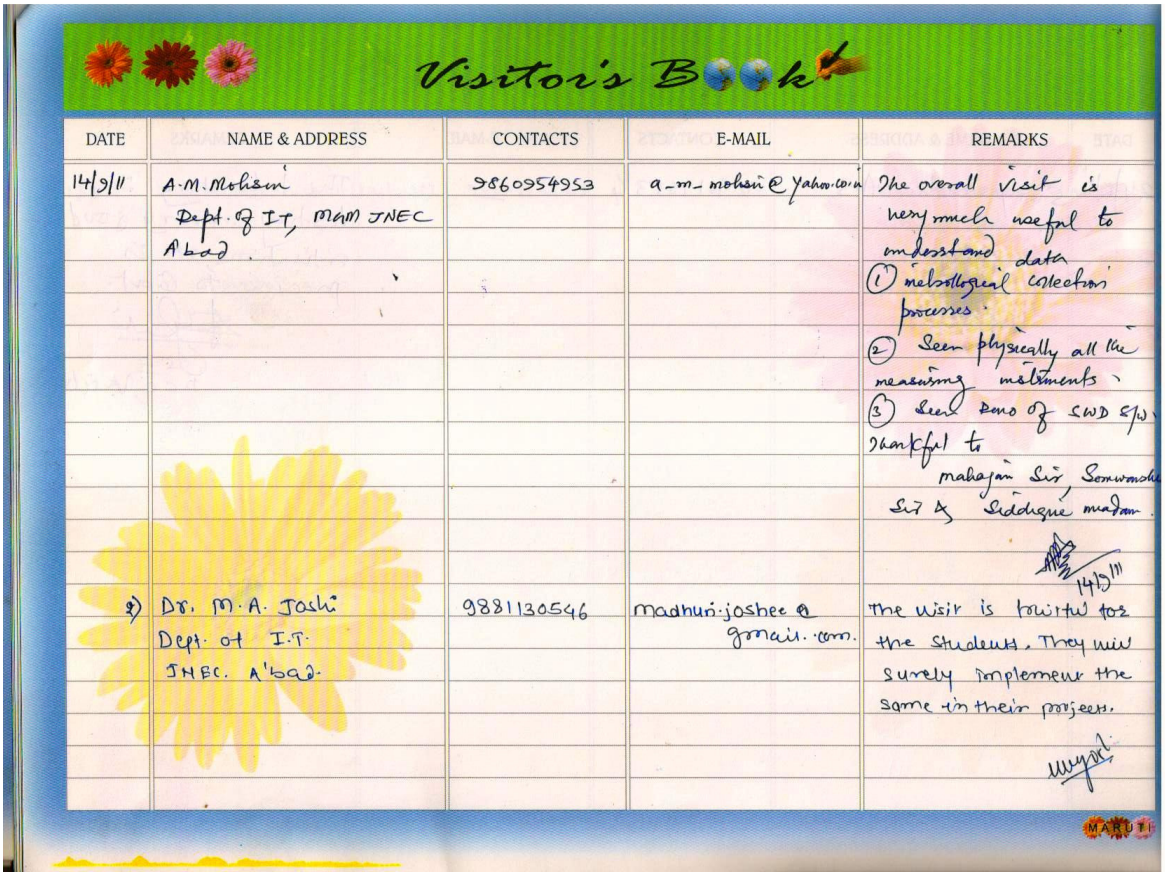
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
5.Aug 2011	Dr. Nagre H.B.	9923373880	hnagre@yahoo.com	Today we visited this laborartory with our 35 students and received lot of valuable information on Temp, Rain measurment water testing etc. This is the best knowledge for our students. Thank you. Dr. Nagre H.B. 5.8.2011.
5.08.11	Archana S. Dashrath	9552442251		Today's day was very knowlageble day because of our Nagare sir & the climate station we get lots of info...



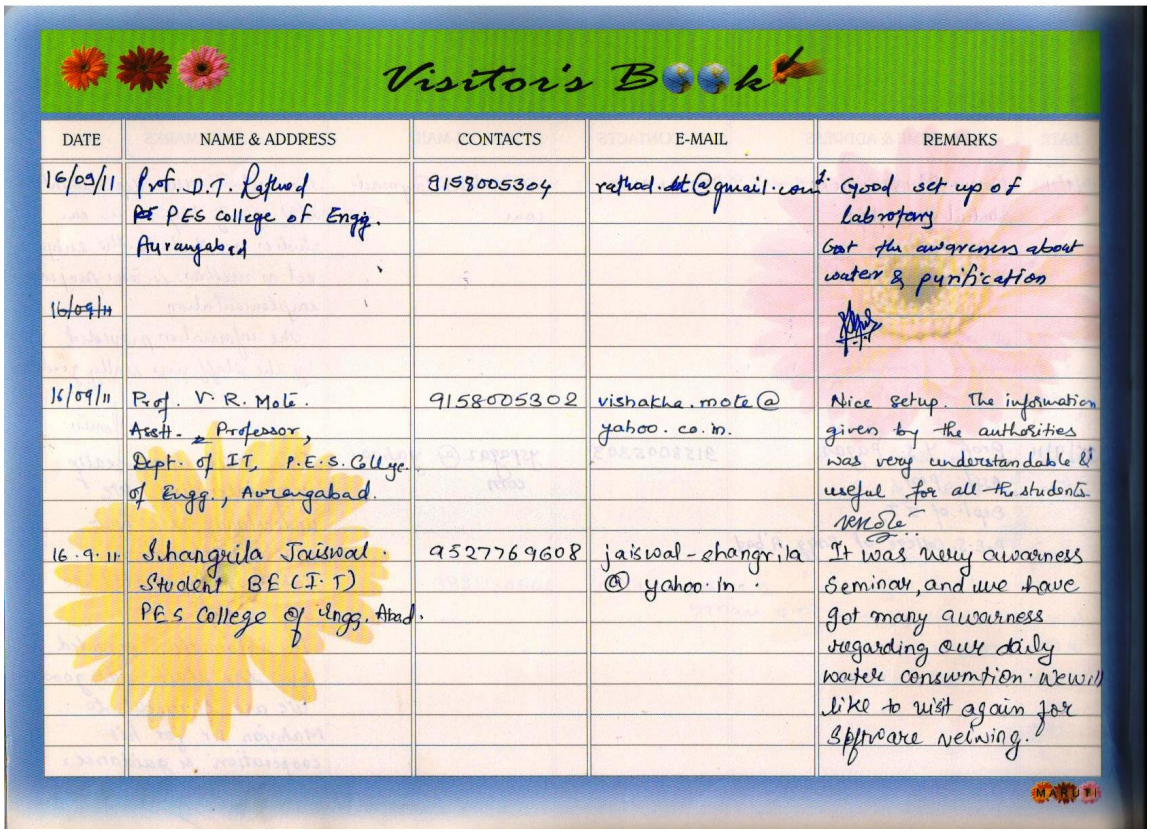
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
24/8/11	Suryawanshi A.S.	9890196534	—	The laboratory is testing in very good situations, it is precious to Govt. DCC, Nasik



Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
14/9/11	A.M. Mohsin Dept. of IT, MAM JNEC Abad.	9860954953	a_m_mohsin@yahoo.co.in	The overall visit is very much useful to understand data (1) meteorological collection processes. (2) Seen physically all the measuring instruments. (3) Seen demo of SWD s/w Thankful to Mahajan Sir, Sonawane Sir & Siddique madam.
2)	Dr. M.A. Joshi Dept. of I.T. JNEC. A'bad.	9881130546	madhuri.joshee@gmail.com.	14/9/11 The visit is fruitful for the students. They will surely implement the same in their projects.



Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
16/09/11	Prof. D.T. Rathod ~~BE~~ PES college of Engg. Aurangabad	9158005304	rathod.dt@gmail.com	Good set up of Laboratory Got the awareness about water & purification
~~16/09/11~~				
16/09/11	Prof. V R. Mote. Asstt. Professor, Dept. of IT, P.E.S. College of Engg., Aurangabad.	9158005302	vishakha.mote@yahoo.co.in.	Nice setup. The information given by the authorities was very understandable & useful for all the students.
16.9.11	Shangrila Jaiswal. Student BE (I.T) PES College of Engg. Aurd.	9527769608	jaiswal-shangrila@yahoo.in	It was very awareness Seminar, and we have got many awarness regarding our daily water consumption. We will like to visit again for Software relwing.

Photographs

Visit of MPCB R. O. Aurangabad, Dt. 28.07.2011

ISO Surveillance Audit Dt. 31/07/2011