

---

# International Multidisciplinary Research Journal

## *Golden Research Thoughts*

Chief Editor  
Dr.Tukaram Narayan Shinde

---

Publisher  
Mrs.Laxmi Ashok Yakkaldevi

Associate Editor  
Dr.Rajani Dalvi

Honorary  
Mr.Ashok Yakkaldevi

## Welcome to GRT

**RNI MAHMUL/2011/38595**

**ISSN No.2231-5063**

Golden Research Thoughts Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board. Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

### **International Advisory Board**

Flávio de São Pedro Filho Federal University of Rondonia, Brazil	Mohammad Hailat Dept. of Mathematical Sciences, University of South Carolina Aiken	Hasan Baktir English Language and Literature Department, Kayseri
Kamani Perera Regional Center For Strategic Studies, Sri Lanka	Abdullah Sabbagh Engineering Studies, Sydney	Ghayoor Abbas Chotana Dept of Chemistry, Lahore University of Management Sciences[PK]
Janaki Sinnasamy Librarian, University of Malaya	Catalina Neculai University of Coventry, UK	Anna Maria Constantinovici AL. I. Cuza University, Romania
Romona Mihaila Spiru Haret University, Romania	Ecaterina Patrascu Spiru Haret University, Bucharest	Horia Patrascu Spiru Haret University, Bucharest,Romania
Delia Serbescu Spiru Haret University, Bucharest, Romania	Loredana Bosca Spiru Haret University, Romania	Ilie Pinteau, Spiru Haret University, Romania
Anurag Misra DBS College, Kanpur	Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	Xiaohua Yang PhD, USA
Titus PopPhD, Partium Christian University, Oradea,Romania	George - Calin SERITAN Faculty of Philosophy and Socio-Political Sciences AL. I. Cuza University, Iasi	.....More

### **Editorial Board**

Pratap Vyamktrao Naikwade ASP College Devrukh,Ratnagiri,MS India	Iresh Swami Ex - VC. Solapur University, Solapur	Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur
R. R. Patil Head Geology Department Solapur University,Solapur	N.S. Dhaygude Ex. Prin. Dayanand College, Solapur	R. R. Yaliker Director Managment Institute, Solapur
Rama Bhosale Prin. and Jt. Director Higher Education, Panvel	Narendra Kadu Jt. Director Higher Education, Pune	Umesh Rajderkar Head Humanities & Social Science YCMOU,Nashik
Salve R. N. Department of Sociology, Shivaji University,Kolhapur	K. M. Bhandarkar Praful Patel College of Education, Gondia	S. R. Pandya Head Education Dept. Mumbai University, Mumbai
Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai	Sonal Singh Vikram University, Ujjain	Alka Darshan Shrivastava Shaskiya Snatkottar Mahavidyalaya, Dhar
Chakane Sanjay Dnyaneshwar Arts, Science & Commerce College, Indapur, Pune	G. P. Patankar S. D. M. Degree College, Honavar, Karnataka	Rahul Shriram Sudke Devi Ahilya Vishwavidyalaya, Indore
Awadhesh Kumar Shirotriya Secretary,Play India Play,Meerut(U.P.)	Maj. S. Bakhtiar Choudhary Director,Hyderabad AP India.	S.KANNAN Annamalai University,TN
	S.Parvathi Devi Ph.D.-University of Allahabad	Satish Kumar Kalhotra Maulana Azad National Urdu University
	Sonal Singh, Vikram University, Ujjain	

**Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India**  
**Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.aygrt.isrj.net**



## GROUND WATER QUALITY ASSESSMENT OF JALNA DISTRICT, MS, INDIA

**A. I. Khan , Mhaslekar I. D. and Bawane S. N.**

Prof.& Research Guide , Govt.College of Arts , Aurangabad .  
Research Student , SRTMU,Nanded.  
Research Student ,Dr.BAMU, A'bad

**Abstract:-**Jalna district is located in the central part of Maharashtra in the recent year the district facing drought condition which is affecting agricultural activities as well as decreasing ground water quality in jalna district. The study area is divided into Deccan trap, the Deccan trap consist of hard and massive basaltic rock. Jalna district in marathwada has a semi-arid climate with an average annual rainfall of 729.7mm (2010) and average monsoon from June to September with rainfall of 606.4mm. Marathwada is characterized as a 'frequently drought prone area'. Where drought can be expected every 6 to 10 years. During the years 1875-2004 it has experienced drought 18 times. (Ground water dept.jalna)

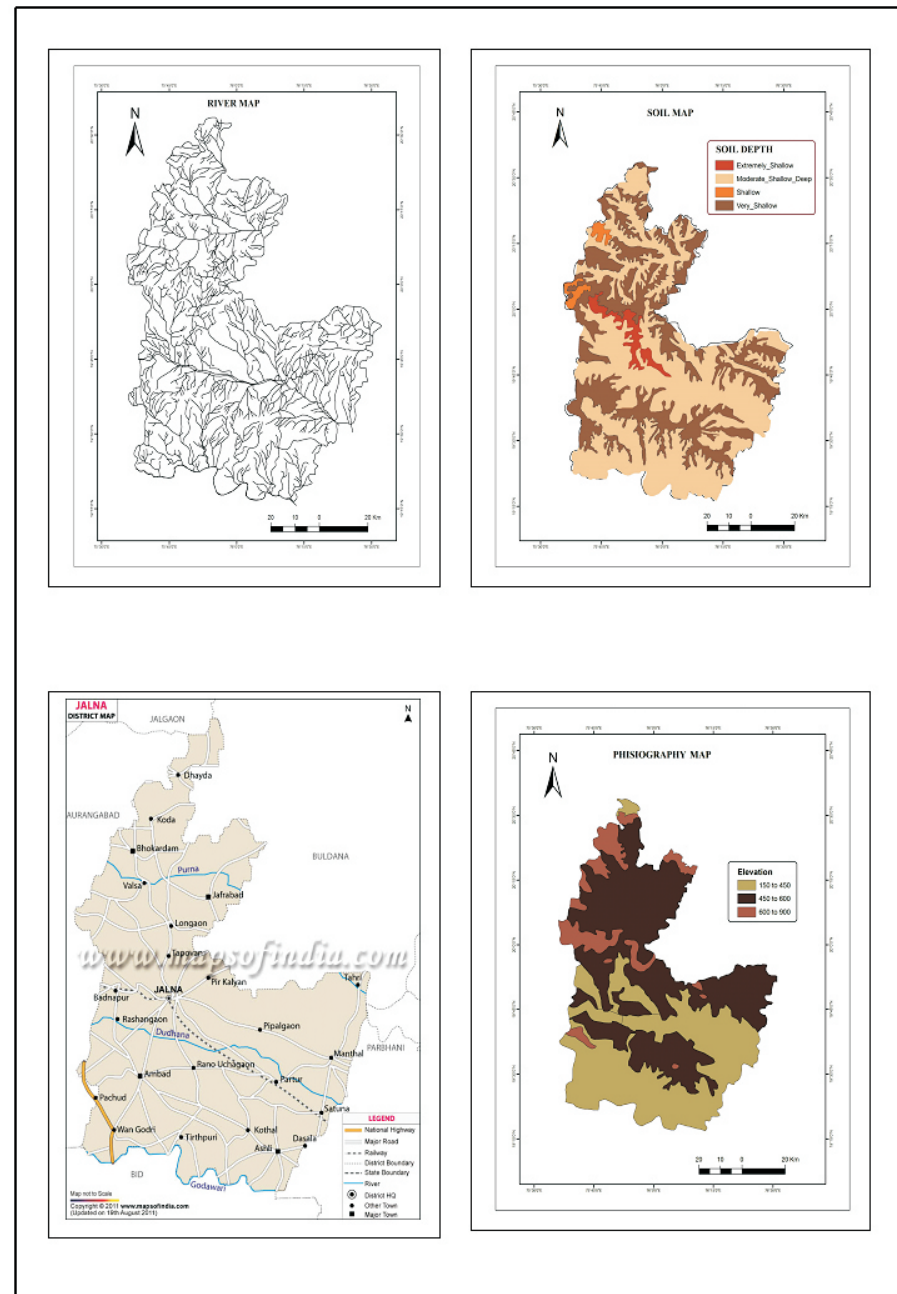
**Keywords:** Rock System, River Systems, Basaltic Rock, And Ground Water Quality.

### INTRODUCTION

#### STUDY AREA:-

Jalna district became 27<sup>th</sup> district of Maharashtra from 1st may 1981. Jalna town is situated at the confluence of the kundalika and the sina river and was known as 'Hirwali' till 1300 AD. The last ruler in the area was 'jalrai' and the present name of the district is after him. The district head quarter is located at jalna and its comprises of eight Tahsil viz –Jalna, Bhokardan, Jafrabad, Badnapur, Ambad, Ghansawngi, Partur, Mantha. The district forms eastern part of Marathwada region of Maharashtra and is bordered by Aurangabad district in the west, Jalgaon district in the north, Buldhana and Parbhani district in the east and Beed district in the south it is Bounded by north latitude 19° 16' and 20°32' and east longitude 75°42' and 76°30' it falls in parts of survey of India Topo sheet no.46p, 47m, 55d and 56a. The district has a Geographical area of 7718sq.km out of which forest area is 66.60sq km, where as cultivated area was 5744.74 sq km and net area sown was 5152.30sq km as per 2000-01 data.

**STUDY REGION MAP PROFILE:-**



**OBJECTIVE:-**

1. To study the rock structure of study region.
2. To assess the ground water quality of district.
3. To understand chemical composition of ground water in jalna district.

**METHODOLOGY:-**

The ground water sample has been collected from ground water board and more information collected from Collectorate office. Chemical analysis done by CGWB is used for study, internet sources also used for present study.

**Rainfall Scenario: - Annual Rainfall Data(1998-2006 mm)**

Taluka	1998	1999	2000	2001	2002	2003	2004	2005	2006	Ave.
Ambad	1506	695	559	683	800	477	729	813	777	758
Badnapur	867	719	575	680	725	600	668	631	878	706
Bhokrdan	889	673	436	658	646	657	541	630	988	664
Ghan.	1402	706	361	674	1088	603	885	744	768	771
Jafrabad	1004	759	373	826	746	799	638	750	903	747
Jalna	1190	747	651	582	831	563	699	797	1135	779
Mantha	1168	906	645	905	1235	838	474	802	789	836
Partur	1144	887	591	877	851	670	733	788	827	796

Source - CGWB Dept.Jalna

Above table shows that how much variation of rainfall has been seen in the District and it is directly affect groundwater quality of study region.

**GROUND WATER QUALITY:-**

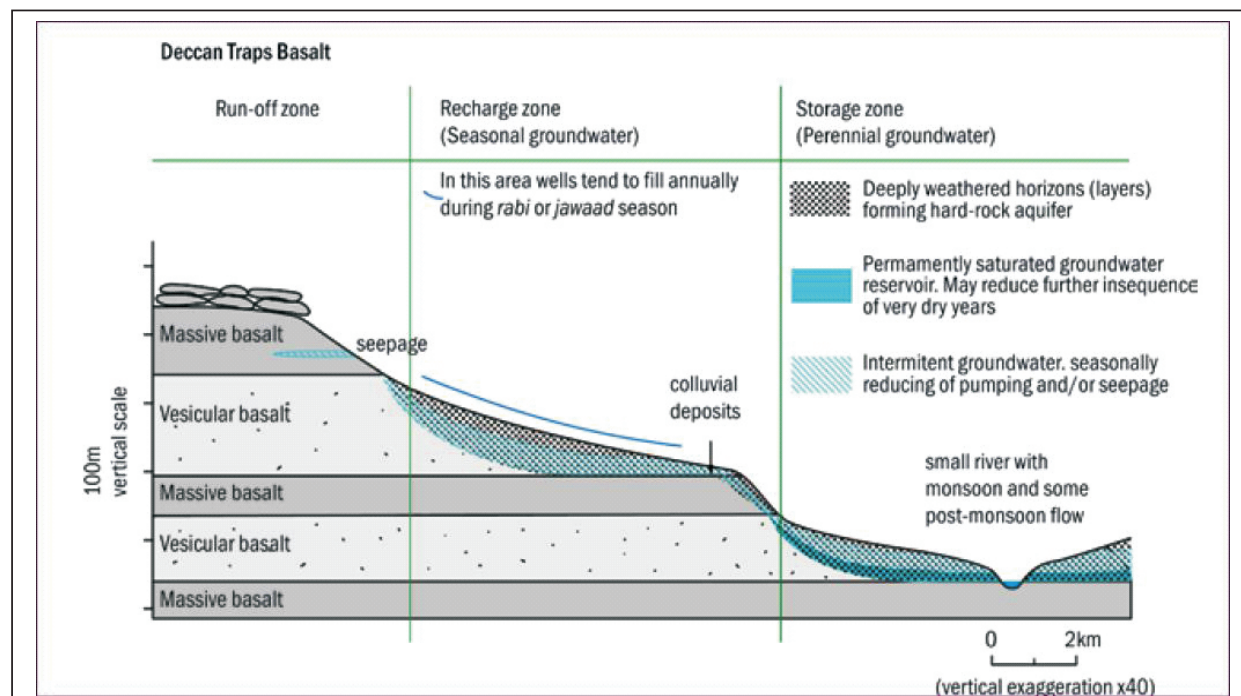
The objective of this research is to develop and overall scenario of the ground water quality in Jalna district the chemical analysis result shows that the ground water in the district is alkaline in nature, while EC and TDS values show that the ground water in the area is mineralized to medium extent. The concentration of the measure ions indicate that among the caution, the concentration of magnesium ion is highest followed by sodium and calcium while among ions, the concentration of chloride ions is highest followed by bicarbonate and sulphate ions. The result also shows that the concentration of nitrate ions in the ground is significant and appearing as major ions.

**Geochemical classification of Groundwater:-**

Sr.No.	Classification	Type	No of sample	% of sample
1.	Alkaline earth (ca+mg >50 %) exceeds alkali metals & acids (co3+Hco3>50%)	ca-Hco3	4	25
2.	Alkaline earth (ca+mg>50%)exceeds weak acids	ca-cl	3	56
3.	Alkaline metal (Na+k>50%)exceeds alkaline earth and strong acids	Na-cl	3	19
Total			16	100

Source - CGWB Dept.Jalna

**GROUND WATER POTENTIAL:-**



**SUITABILITY OF GROUND WATER FOR IRRIGATION:-**

The water used for irrigation is an important factor in productivity of crops its yield and quality of irrigated crops. In the water sodium absorption ratio (SAR) and residual sodium carbonate (RSC) are the most important quality criteria which influence the water quality and its suitability for irrigation the ground water is pre-dominantly used for irrigation, as it is the major ground water utilizing sector. The minor irrigation census data (2001-02) indicates that area irrigated by ground water is 418.57sq.km, where as surface water accounts for about 69% of irrigation sector there are about 45730 dug wells in the district. Which creates an irrigation potential of 1522.12sq.km, out of which 104960sq. Km of irrigation potential was utilized through 281 bore wells during 2001-02.

**RECOMMENDATION:-**

1. Major part of the district is under laid by Deccan trap basalt, where only dug wells are the most feasible structure for ground water development.
2. Major part of the district is showing falling ground water level trends mainly in northern southern and eastern parts of the district.
3. The present stage of ground water development in the district is about 43% thus there is scope for ground water development in the district.
4. The sites for bore wells need to be selected only after scientific investigation. Bore wells generally tap deeper fractures, which may not be sustainable beside, the bore wells should only be used for drinking water supply and not for irrigation.

**CONCLUSION:-**

The quality of ground water in jalna district shows that dissolve solids fluoride, nitrate, calcium, magnesium were found to be prime factor that determine the quality of ground water in the study region .

**REFERENCES:-**

1. Central ground water board.
2. R.K.Trivedi and P.K.Goyal-chemical and biological methods of water pollution studies-karad, India35 (1986).
3. CGWB Report (2007), ministry of water resources.
4. Jollif-I (1986) Principle components analysis spinger verlage, newyork.
5. Socio-Economic report of jalna district.
6. Abbassi S.A.-Water quality sampling and analysis publish by discovery publishing house new Delhi.
7. Census report of jalna district.

8. Google earth and various internet website.



**A. I. Khan**

Prof.& Research Guide , Govt.College of Arts , Aurangabad .



**Bawane S. N.**

Research Student ,Dr.BAMU, A'bad



**Mhaslekar I. D.**

Research Student , SRTMU,Nanded.



# Publish Research Article International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper, Summary of Research Project, Theses, Books and Book Review for publication, you will be pleased to know that our journals are

## Associated and Indexed, India

- \* International Scientific Journal Consortium
- \* OPEN J-GATE

## Associated and Indexed, USA

- EBSCO
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Database
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database
- Directory Of Research Journal Indexing

Golden Research Thoughts  
258/34 Raviwar Peth Solapur-413005, Maharashtra  
Contact-9595359435  
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com  
Website : www.aygrt.isrj.net