

International Multidisciplinary
Research Journal

*Indian Streams
Research Journal*

Executive Editor
Ashok Yakkaldevi

Editor-in-Chief
H.N.Jagtap

Indian Streams Research 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.

Regional Editor

Manichander Thammishetty

Ph.d Research Scholar, Faculty of Education IASE, Osmania University, Hyderabad.

Mr. Dikonda Govardhan Krushanahari

Professor and Researcher ,

Rayat shikshan sanstha's, Rajarshi Chhatrapati Shahu College, Kolhapur.

International Advisory Board

Kamani Perera

Regional Center For Strategic Studies, Sri Lanka

Mohammad Hailat

Dept. of Mathematical Sciences, University of South Carolina Aiken

Hasan Baktir

English Language and Literature Department, Kayseri

Janaki Sinnasamy

Librarian, University of Malaya

Abdullah Sabbagh

Engineering Studies, Sydney

Ghayoor Abbas Chotana

Dept of Chemistry, Lahore University of Management Sciences[PK]

Romona Mihaila

Spiru Haret University, Romania

Ecaterina Patrascu

Spiru Haret University, Bucharest

Anna Maria Constantinovici

AL. I. Cuza University, 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. Yalikal

Director Management 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

G. P. Patankar

S. D. M. Degree College, Honavar, Karnataka

Alka Darshan Shrivastava

Shaskiya Snatkottar Mahavidyalaya, Dhar

Chakane Sanjay Dnyaneshwar

Arts, Science & Commerce College, Indapur, Pune

Maj. S. Bakhtiar Choudhary

Director, Hyderabad AP India.

Rahul Shriram Sudke

Devi Ahilya Vishwavidyalaya, Indore

Awadhesh Kumar Shirotriya

Secretary, Play India Play, Meerut (U.P.)

S. Parvathi Devi

Ph.D.-University of Allahabad

S. KANNAN

Annamalai University, TN

Sonal Singh,

Vikram University, Ujjain

Satish Kumar Kalhotra

Maulana Azad National Urdu University

Indian Streams Research Journal



POLLUTION OF WATER BODIES AND GROUND WATER BY INDUSTRIAL UNITS ESPECIALLY LEATHER TANNERY INDUSTRY IN UNNAO DISTRICT OF UTTAR PRADESH.



Saurabh Pratap Singh

Research Scholar, Raksha Shakti University, Ahemdabad, Gujraat India.



ABSTRACT

Unnao is the one of major industrial towns adjacent to Kanpur having most of cotton, leather, pharmaceutical, steel and other industries. The Unnao industrial area is bounded in the north by Safipur block, in the east by the Bichhia block, in the south Sikandarpur Karon block, whereas the Ganga river in the west separates it from the district of Kanpur. The total area is about 220 square kilometers.

KEYWORDS :Water Bodies , major industrial , pharmaceutical, steel and other industries.

INTRODUCTION

Unnao industrial area is situated near Kanpur in northern side of Ganga River having more than 50 industrial units mainly tannery, catering the need of nation. The effluents discharged by the industries, after passing through a common effluent treatment plant having approx 70% treating capacity, is finally discharged in the Ganga River. The quality of ground water in the industrial areas is under constant threat of contamination directly or indirectly. Remarkable high concentration of chromium in some parts of ground water of Unnao and Kanpur districts is a common feature in the region.

ENVIRONMENTAL ISSUES :

The tanning industry is known to be very polluting especially through effluents which are very toxic in nature. It contains potentially toxic metal salt residues, chemicals used in leather processing is not actually absorbed in the process but is discharged into the environment.

Liquid effluents from leather processing contains organic matter, chromium, sulphide and solid waste includes fleshing, wet blue splits, trimmings and shavings, buffing dust etc that's why tannery effluents are ranked as the highest pollutants.

SAMPLE COLLECTION AND ANALYSIS :

To investigate the present extent to which Unnao water bodies/ ground water has been affected by the industrial pollution and analyze the pollution level in water by discharging untreated industrial effluents directly into the surface water/ ground water bodies, the water sample was collected from 27 different sites and their examination has done by CSIR-IITR (Indian Institute of Toxicology Research) Lucknow, Uttar Pradesh, India.

After the examination of CSIR-IITR the reports shows -

- 1- Out of 27 drinking water samples, 16 samples were found to exceed the recommended TDS limit, 15 samples were found to exceed the limits in terms of total hardness, 15 samples were found to exceed the limit for fluoride, 9 samples were found to exceed the limit for sulphate, 5 samples were found to exceed the limit for chloride, 7 samples were found to exceed the limit for alkalinity, 3 samples were found to exceed the limit for Iron and 2 samples were found to exceed the limit for mercury.
- 2- Each water sample exceed the limit for Chromium.
- 3- BOD and COD values exceed the prescribed limit in all the samples.
- 4- Total hardness in 33% ground water samples exceeds the permissible limit.
- 5- Iron concentration in 40% ground water samples exceeds the permissible limit.
- 6- Manganese concentration in 50% ground water samples exceeds the permissible limit.
- 7- Concentration of copper, cadmium, zinc and nickel found within the permissible limit in water samples.
- 8- Significant contamination of arsenic in the ground water structure of the Dakari, Bazar kheda, akarmpur and Banthar areas in exceeds than the permissible limit.
- 9- High values of arsenic in water has been recorded from Galglaha village, Neardua , Bacchu kheda, and Dakari village.
- 10- The concentration of Chromium, electrical conductivity and fluoride content in some samples of water are higher than the permissible limit prescribed by BIS.
- 11- Samples near Dahichauki has recorded total chromium as 1.448 mg/l.
- 12- High value of hexavalent chromium has been recorded near Bazar kheda village (1.339mg/l), Dakari village (1.482mg/l) areas in Unnao.
- 13- High salinity in water samples has also been observed in Durjan kheda, Maswari, Jamka, Kazi kheda areas in Unnao district.

RESULT AND DISCUSSION :

Unnao is one of the major industrial towns adjacent to Kanpur having most of the lather, slaughter house, textile, steel and other industries. Unnao industrial area is situated near Kanpur in northern side of River Ganga having more than 50 industrial units mainly tannery. The effluents discharged by the industries, after passing through a Common Effluent Treatment Plant, is finally discharged in the River Ganga. Some industries also have their own Effluent Treatment Plants.

The Quality of ground water in the industrial area is under constant threat of contamination directly or indirectly. Remarkable high concentration of chromium in some parts of ground water of Unnao and Kanpur Districts is a common feature in the region.

All the areas monitored have insufficient provision for collection and disposal of sewage as well as industrial effluents. the existing situation has high potential of ground water contamination.

Chrome bearing solid waste was found illegally dumped along National Highway. Ground water sample collected from this site was yellow in color indicating high Cr+6 contamination. Indiscriminate

and illegal bio-fertilizer industries are also mushrooming throughout the industrial area specially Dakari village. Shaving waste (contaminating chromium) from tanneries are being used as raw materials by these industries. These units have potential hazards for air, soil and water environment.

All the areas monitored have insufficient provision for proper collection and disposal of sewage as well as industrial effluents and have high potential of ground water contamination. The injudicious disposal of solid waste has further compounded the problem and need priority attention in a time bound manner.

The untreated sewage and industrial effluents flowing in open drains are one of the major cause of ground water quality deterioration.

Due to contaminated water peoples of Unnao and near by areas suffers from skin disease, abdomen pain, less growth, TB, kidney disease, shortness of breath, eye etching etc.

Fever, coughing, skin disease, stomach problem and weakness are also common problems in children of Unnao. Child death ratio is increased in few years in the area and may persons suffering from incurable disease like cancer.

REFERENCES :

- 1- Environmental Regulation in the new global economy: the impact on industry and competitiveness: Edward Elgar publishing, 2004
- 2- J. Kanagaraj, K.C. Velappan, N.K.C. babu and S. Sadulla: Solid wastes generation in the lather industry and its utilization for cleaner environment- a review. J.Sci.Indust. Res. 65 (2006).
- 3- Ansari, A.A. singh, I.B. and Tobschall, H.J. (1999), Status of anthropogenically induced metal pollution in the Kanpur-Unnao industrial region of The Ganga plain, India, Environ Earth Sci, 38(1).
- 4- A report of Ministry of Water resources, Govt. of India.
- 5- APHA (1992), Standard Methods for the Examination of Water and Waste Waters, American Public Health Association, 13th Edition, Washington, DC.
- 6- CGWB (2010) Ground Water Contamination in Industrial Area, Unnao District, Uttar Pradesh, Central Ground Water Board, Northern Region, Lucknow, April 2010.
- 7- CGWB (2012) Arsenic Contamination in ground Water in some Parts of Unnao District, Uttar Pradesh, Central Ground Water Board, Northern Region, Lucknow, January 2012.
- 8- CGWB (2012) Ground Water pollution by Chromium and Fluoride in some Parts of Unnao District, Uttar Pradesh, Central Ground Water Board, Northern Region, Lucknow, March 2012.
- 9- IITR (2010) Analysis of Water Samples from Selected Sites in Unnao, Indian Institute of Toxicology Research, Lucknow, April 2010.

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

- Google Scholar
- EBSCO
- DOAJ
- 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

Indian Streams Research Journal
258/34 Raviwar Peth Solapur-413005, Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
Website : www.isrj.org