



**Second  
INTERNATIONAL CONFERENCE  
GROUNDWATER FOR SUSTAINABLE DEVELOPMENT  
*Problems, Perspectives and Challenges*  
(IGC-2006)**

**Jawaharlal Nehru University (JNU)  
New Delhi, India**

1-4 FEBRUARY, 2006

[http://www.lwr.kth.se/personal/personer/bhattacharya\\_prosun/igc-2006.htm](http://www.lwr.kth.se/personal/personer/bhattacharya_prosun/igc-2006.htm)

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**Conference Overview**

**Aims of Conference IGC-2006**

Groundwater is the most important source of the domestic, industrial, and agricultural water supply in the world. There is an overwhelming need for information related to exploration, protection, and qualitative and quantitative evaluation of groundwater resources. In many parts of the world, especially in the developing countries, the population growth has created an unprecedented demand for water for industrial, agricultural and drinking water purposes, competing for the same a finite resource. The presence of geogenic contaminants in groundwater for example arsenic and fluoride in toxic levels has posed major environmental health risks of the present century. Several million people depend on arsenic- and fluoride contaminated groundwater for drinking purposes that endangers public health. Urgent solutions are required that are based on quality research and sound scientific principles. Over 99% of the world's fresh, available water is groundwater; yet, the vast majority of financial resources are directed to surface water found in rivers and lakes. This serious imbalance requires urgent redress. Significant financial support is required for basic groundwater research if sustainable development is to be a realistic goal. As a fresh water resource, groundwater has major advantages over surface water.

These advantages will never be realized without the commitment of world governments to exploration programs that can delimit and characterize aquifers, perform water balances, map water quality, and provide for long-term monitoring. Many aquifers extend across political boundaries. There is a critical need to promote intergovernmental coordination for developing joint management strategies. Ultimately, groundwater can deliver major socio-economic and ecological benefits but the aquifer systems that sustain the resource need to be adequately understood and responsibly managed. We require new technologies, and management policies that include effective strategies for water quality protection. Meeting these challenges requires a serious commitment of funds by governments and aid agencies.

The goal of the international conference "IGC-2006" is to provide a platform bring together earth scientists, professionals from chemical and engineering science disciplines, public health professionals and social scientists involved with the sustainable development of groundwater resources.

## **Technical Sessions (TS)**

### ***TS-1 Sustainable water resources assessment***

- The role of remote sensing techniques and Geographic Information System (GIS) in groundwater resource assessment.
- Recent advances in geological/geophysical/ geochemical/geotechnical methods in terms of methodology and interpretation techniques for exploration, exploitation of groundwater resources and assessment of groundwater contamination.
- New techniques on monitoring levels of groundwater and contamination, watershed development, parameterization, assessment and management of groundwater resources in hard rock aquifer system.
- Geo-statistical techniques in estimation of hydrological variables in space and time.
- Application of Information and Communication Tools (ICT) for assessment and development of groundwater resources.

### ***TS-2 Recharge process and artificial recharge***

- Recharge process in arid and semi-arid regions.
- Application of isotope techniques in hydrogeological studies.
- Groundwater dating.
- Artificial recharge methods, including Aquifer Storage and Recovery (ASR) for augmentation of groundwater resources to improve its quantity and quality and impact assessment of artificial recharge on environmental system and management of aquifer recharge.
- Impact of wasteland development on the hydrological cycle due to dwindling of surface water in the lower reach as well on the sustainability of the already existing groundwater structures.

### ***TS-3 Water and environment***

- Environmental problems in coastal watersheds (surface and groundwater and contamination interaction) due to human activities.
- The impact of human activities, climate changes and urbanizations on groundwater system.

- Soil water chemistry and its role in understanding groundwater contamination.
- Assessment of groundwater contamination and mapping of aquifer vulnerability in porous and hard rock aquifer system and remedial measures in controlling contaminant migration in soils and groundwater system.
- Natural disasters (tsunami etc.) and their impact on groundwater quality.

#### ***TS-4 Modeling and its application in soft and hard rock aquifer systems***

- Characterization of fracture geometry and its properties for understanding the flow mechanism in hard rocks with special reference to multi-scale level parameters (local scale to extended scale through up-scaling procedure) approach.
- Lake and aquifer interaction studies and conjunctive use of surface and groundwater for sustainable development of aquifer systems.
- Groundwater Flow and Mass Transport modeling for the assessment and management of groundwater resources and contamination in porous and fractured medium.
- u Issues related to model calibration and validation when models are used as decision-making tools.
- The role of models, modelers and managers in decisions making processes.

#### ***TS-5 Arsenic and fluoride in groundwater***

- Occurrences of arsenic and fluoride in sedimentary and hard-rock aquifers.
- Biogeochemistry of Arsenic and fluoride in soil and groundwater.
- Arsenic and fluoride in the food chain.
- Environmental health effects and risk assessment.
- Assessment of social and economic impacts.
- Remediation and management of Arsenic- and Fluoride-rich groundwaters.

#### ***TS-6 Management aspects of groundwater***

- The impact of inter-basin water transfer and interlinking rivers on groundwater regime with special reference to ecology and environment.
- Management of groundwater resources through scientific and community participation approach with special reference to over exploited regions in developing countries.
- Gender issues in management and use of groundwater resources.
- The role of non-governmental organizations (NGOs) and social scientists in creating awareness among user community on the sustainable development and management of groundwater resources.

### **Venue of IGC-2006**

New Delhi is the capital of India since 1942 but old Delhi has got a very long history dates back to the first millennium BC, when it was known as Indraprastha. Domes and Forts at Delhi reveals the glorious period of Mughal Empire during 1500 to 1700 BC. New Delhi is the epicenter of the nation's politics, economy and culture. History is alive and throbbing in Delhi, the capital of India. It is often said that the history of India is the history of Delhi. New Delhi, the capital of India, has always occupied a strategic position in the country's history, as

Hindu and Islamic dynasties have ruled from here, leaving their imprint in the form of relics, which recapture those by gone times. Delhi is one of the fastest growing cities of India. Delhi, besides being the seat of the Central Government, has an economy supported by agriculture, tourism, commerce and a growing industry. With the fast development of infrastructural facilities in India, the chosen venue at the Indian International Center, located in the heart of Delhi offers us an ideal location to host the International Groundwater Conference (IGC-2006). New Delhi is well connected through air with all capitals of the countries. The JNU campus is a microcosm of the Indian nation with international outlook, drawing students from every nook and corner of the country and from every group and stratum of society and from more than twenty countries all over the world. Overseas students form some 10 percent of the annual intake. Students' hostels and blocks of faculty residences are interspersed with one another, underlining the vision of a large Indian family.

The School of Environmental Sciences was established in the year 1974. The academic program of the School has been periodically reviewed, revised and updated, keeping in mind the need for sharper focusing, the available expertise at any given time, and the changes desired in curriculum of individual courses or specific program. The school runs M.Sc program and M.Phil/Ph.D program and it was the first in the entire country which starts Environmental sciences as curriculum in the country. JNU is the right place to organize an international event covering groundwater and environment as the main theme of the conference. During the past two years, there has been a substantial strengthening of the ties between various academic institutions in India and Sweden and this conference is an effort to strengthen and to expand the scope for future cooperation in the sector of water resources and in particular the groundwater resources.

## Conference Chairs

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## Conference Registration and Call for Abstracts

Please register using the registration form and send it by fax (+91 11 26106501 or +46 8 411 0775) or e-mail to the congress organisers (see below).

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## Abstract Submission

All abstracts (not exceeding 500 words must be submitted electronically (by e-mail) to Conference Chairs : Dr. AL Ramanathan ([alr\\_jnu@yahoo.co.in](mailto:alr_jnu@yahoo.co.in) or [alr0400@mail.jnu.ac.in](mailto:alr0400@mail.jnu.ac.in)), Conference Secretariat (IGC-2006), School of Environmental Sciences, JNU, New Delhi-110067 and Dr. Prosun Bhattacharya ([prosun@kth.se](mailto:prosun@kth.se)), KTH-Department of Land and Water Resources Engineering, Kungliga Tekniska Högskolan, Teknikringen 76, SE-100 44, Stockholm, Sweden) on or before 17th June, 2005. Acceptance will be communicated by September 15, 2005.

## Conference Registration

Registration Fees	IN INR (after 30 <sup>th</sup> Dec.2005 Rs 500 extra for all Categ.)	IN USD(after 30 <sup>th</sup> Dec 2005 USD 50 extra for all Categ.)
Delegate *	3500	400
Research Scholar *	1000	300
Student #	600	100
Accompanying Person (@ for each person)	1000	100
Total		

\* - Includes Registration materials (including conference proceeding), working lunch, conference dinner, tea, field visit, use of data projector & PC.

# - Includes only souvenir volume if any, working lunch, tea.

@-Includes only working lunch, conference dinner, tea and sight seeing trip.

Full registration fee (400 USD) includes one free copy of the hard bound book “*Groundwater for Sustainable Development: Problems, Perspectives and Challenges*” published by AA Balkema (Taylor & Francis Group), Additional copies of the book may be available at a reduced rate.

## Publication of Conference Proceedings

The full papers from the Conference will be published as a Book “Groundwater for Sustainable Development: Problems, Perspectives and Challenges” published by AA Balkema (Taylor and Francis Group). All the contributors are encouraged to submit full papers in a

special format prescribed by AA Balkema Publishers (Taylor & Francis Group), which will be communicated after the review of the abstracts. The contributions will be peer-reviewed to maintain high scientific quality of the publication.

The book is expected to reflect the state of art of current understanding of the problems, perspectives and challenges related to groundwater resources and its sustainable use.



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**List of Abstracts (Status until 2006-01-27)**

**National Participants**

**1. Geochemical Characterization and Quality Evaluation of Surface and Subsurface Waters of Damodar River Basin : A Case Study**

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**2. Isotope Geochemical Investigation in Coastal Parts of Nagapattinam District, Tamil Nadu, India.**

T.B. Joseph<sup>1</sup>, K. Shivanna<sup>1\*</sup>, K. Tirumalesh<sup>1</sup>, A.S. Deodhar<sup>1</sup> and P. Kadirvelu<sup>2</sup>

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### 3. Environmental Isotope Hydrogeochemical Investigation for Characterisation of Groundwater in Tiruvanmiyur Coastal Aquifer, Tamil Nadu, India.

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### 4. Groundwater Resources Development in the Western Ghats, India

Pradeep K. Naik<sup>1\*</sup> and Arun K. Awasthi<sup>2</sup>

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### 5. Estimation of Aquifer Parameters from Large-Diameter Wells in Basalts

Pradeep K. Naik<sup>1\*</sup> and Arun K. Awasthi<sup>2</sup>

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### 6. Groundwater Resource Quantity and Quality Assessment in Khudiya nadi watershed, a part of Damodar River Basin, Jharkhand, India

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### 7. Hydrogeological Investigations For Community Rural Drinking Water Supply Schemes – A Case Study

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Scientist E2 and Scientist B, Centre for Water Resources Development and Management, Kunnamangalam, Kozhikode-673 571, Kerala, India

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### 8. A Study on the Trend of Recharge and Discharge in an Alluvial Aquifer using GIS: A Case Study from Pondicherry, India

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9. A Study On Groundwater Chemistry in and around Ariyalur Region, Tamilnadu, India

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10. A Study on Coastal Ground Water from Parangipettai to Pumpuhar-Tamilnadu, India

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11. Study on the Nature of Silt Load in the Water Sheds of the Niligiri District, Tamilnadu, India

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12. Equilibrium and Thermodynamic Approach of Groundwater Chemistry from a Hard Rock Terrain, Mettur, - A Case Study from Salem District, Tamilnadu, India

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13. Arsenite Removal by Electrocoagulation from Water

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14. Regression Analysis of Groundwater Quality Data of Haldia Industrial Region, West Bengal

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15. Numerical Analysis Of Tide-Aquifer Interaction Data For Estimating Aquifer Parameters

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## 16. Role of Soil in Ground Water Protection

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## 17. Biosorptive Removal of Cadmium from Contaminated Groundwater and Industrial Effluents

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## 18. Numerical Simulation of a Weathered Hard Rock Aquifer System in Kodaganar River Basin, Tamilnadu, India

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## 19. Models and Their Role in the Assessment and Management of Groundwater Resources and Pollution (Key Note Paper-TS-4)

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## 20. Mathematical Modeling to Evolve Pre-Development Management Schemes in a Sedimentary Aquifer System of Okavango Delta, Botswana, Southern Africa

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## 21. Regional Groundwater Chemical Modelling: A Case Study in Kodaganar River Basin, Tamilnadu, India

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22. Quantification of Pollutant Migration due to Tannery Effluents in the Upper Kodaganar River Basin in Tamilnadu, India

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23. An Assessment of Distillery Spent Wash for its Possible Pollution Potential in Dry Land Areas

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24. Environmental Isotope Investigation on the Recharge Processes to the Coastal Sedimentary (Cretaceous) Aquifers of Tiruvadana in the State of Tamilnadu

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25. A Decision Support Tool to Explore Conjunctive Use Options in Canal Command

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26. A Comparison of Ground Water Quality in Two Agricultural Dominated Districts of Punjab, India

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27. Groundwater quality around the Pirana Landfill site of Ahmedabad, India

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28. Hydrogeochemistry of Ground Water in Vicinity of Bhalswa Landfill, Delhi, India

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29. Simulation of Solute Transport in South Delhi, Using Okhla Phase II as Point Source, Delhi, India

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30. Analysis of Water Table Rise in a Finite Aquifer

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31. GIS Based Water Balance Model of Rift Valley Lakes, Ethiopia

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32. Water Infiltration Model for Safe Fly Ash Disposal in the Compound of IB Thermal Power Plant, Orissa, India

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33. Modelling Long Term Effect of an Aquifer Storage Recovery Well on Ground Water Situation under Cotton Wheat

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#### 34. Submarine Groundwater Discharge segments of SW Indian coastal zone between Muttom (Tamil Nadu) and Kovalam (Kerala)

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#### 35. Agricultural Approaches to Reduce Agrichemical Contamination of Groundwater

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#### 36. Hydrogeochemistry of Ground Water around Phalgu and Morhar River Plain Gaya, Bihar, India

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#### 37. Nutrient Chemistry of Groundwater of National Capital Territory (NCT) - Delhi, India

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#### 38. Groundwater Arsenic in the Central Gangetic Plain in Ballia District of Uttar Pradesh, India: A future concern

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#### 39. Isotope Hydrological Study of Groundwater of Southern West Bengal: Implication to Erratic Spatial Distribution of Arsenic

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#### 40. Arsenic and Fluoride in Groundwater: An Emerging Problem in North Eastern India

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#### 41. Stochastic Algorithm for Simulation of NAPL Dissolution and Degradation Reactions in Porous Media

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#### 42. Assessment of Geochemical Processes Regulating Groundwater Chemistry in a River Basin in Southern India

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#### 43. Groundwater Balance Studies: Need to Investigate Scope for Increased Recharge – A Case Study

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#### 44. Ground Water Management in Hard Rock Areas for Sustainable Agriculture

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#### 45. Impact of Watershed Development in Ground Water Augmentation in India

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#### 46. Variation in Concentration of Fluoride in The Ground Water of South West District, NCT Delhi – A Case Study

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47. Artificial Recharge in Hard Rock Areas of Coimbatore District- A Case Study

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48. Influence of Artificial Recharge on Water Quality Parameters in Hard Rock Areas

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49. Delineation of A Ground Water Zone Using Airborne and Ground Magnetic Data in a Part of Basement Complex West of Cuddapah Basin-A Case Study

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50. Arsenic in Plant Cell and Environment – Contamination to Phytomanagement.

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51. Assessment of Groundwater Reserves: A Case Study

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52. Estimation of Natural Recharge to Phreatic Aquifers in a Granitic Basin

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53. Application of Self-Potential Methods for Groundwater Exploration – A Case Study

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54. Assessment of Groundwater Potential Zones Using Bore Well Characters in Asundi Watershed, Haveri District, Karnataka

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55. Assessment of Heavy Metals and Organochlorine Pesticides Concentration in Sediment of River Yamuna Agra, India

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56. Backwashing of Open Wells Using Rainwater - An Emerging Option to Cease Salinity Issues in Coastal Areas

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57. Coupling of Coastal Belt to Sea by Groundwater-Borne Nutrient Transport: Greening of Near Shore Waters of Arabian Sea

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58. Demarcation of Water Filled Voids and Identification of Old Workings in Coal Seams – Geophysical Approach

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59. Determination of trace elements in groundwater samples by inductively coupled plasma –mass spectrometry (ICP-MS)

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60. Removal of Arsenate Anions from Groundwater Using an Anion- exchanger Derived from Tamarind Fruit Shell

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61. Groundwater Over-Exploitation in Hard Rock Regions: Analysis of Farm Efficiency, Cost of Uncertainty and User Costs

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## 62. Adsorptive Removal of Arsenate and Arsenite Anions from Groundwater Using Iron(III) Adsorption Sites Immobilized by Cation-exchange Resin

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## 63. Optimum Utilization of Subsurface and Ground Water in the Command Areas by using Remote Sensing/Geographical Information System Modules

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## 64. High fluoride groundwater of Karbi-Anglong district, Assam: Source characterization.

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## 65. Hydrogeologic Analysis of Kathajodi River Basin, Orissa, India

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## 66. Role of Social Factors as Determinants and in Distribution of Chronic Arsenicosis in India

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## 67. New Role of Subsurface Colloids in Groundwater Contamination

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68. Investigation of Aquifer Remediation Strategies by Using a Coupled Finite Element Model for Ground Water Flow and Contaminant Transport

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69. Modeling of Riverbed Aquifer with Radial Collector Well and Stream Recharge Using Modflow and Analytic Element Method : A Case Study

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70. Modeling of Ground Water Flow Induced by Time Varying Recharge and/or Withdrawal from Multiple Sites

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71. Enhancing the Recharge Capabilities of Aravalli Ridge in NCT and Parts of NCR Region of Delhi

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72. Advances in Ground Water Resources Estimation Methodology-Case Studies from India

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73. Physico-Chemical Characteristics and Determination of Cu (II), Mn (II), Fe (II), Zn (II) Ni (II) and Pb in the Water from Electroplating Sites of Agra City, India

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#### 74. Scenario of Nitrate in Groundwater Regime, Krishna delta, India

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#### 75. Assessment of Impact on Groundwater due to Mine Discharge in Talcher Coalfield Area, Orissa, India

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#### 76. Electrical Resistivity Surveys for Identifying the Linear Features in Granitic Terrain for Groundwater Prospecting

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#### 77. Hydrogeochemistry of Fluoride Contamination in Groundwater of Dungarpur District, Rajasthan

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#### 78. Recent Developments in Analytical Techniques for Monitoring Inorganic Pollutants in Ground Water Samples

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#### 79. Removal of Arsenic from Drinking Water by Adsorption Technology - A Critical Review

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#### 80. Geophysical and Tracer Studies to Identify Favourable Locations for Artificial Recharge in Hard Rock Terrain

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81. Groundwater Quality Problems of Coastal Aquifers of Alappuzha, India with Reference to Excess Fluoride and Defluoridation Using Domestic Filters

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82. Urban Impacts on Groundwater Systems - A Case Study

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83. Removal of arsenic from drinking water in pilot plant scale

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84. Assessment of Arsenic Contamination in the Ground Water Sources of Ganga Floodplain of Bhojpur District, Bihar

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85. Studies on the Aluminum Alloy Anodes For Electrochemical Defluoridator: Part I

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86. Electrochemical Defluoridation of Drinking Water: Part II

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87. Inverse Modeling in Flow through Porous Media Involving Simulated Annealing Method

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88. Acid Mine Drainage: Effects of Sulphide Ore Mineralisation and Mine tailing on Groundwater – A Case Study

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89. Permeability, Porosity and Leaching of Soil and Fractured Rocks with Special Reference to a Proposed Uranium Tailing Pond

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90. Hydrogeological Conditions Around a Dyke – A Case Study

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91. Driving Forces in Depletion of Groundwater Quantity and Quality in Punjab and Haryana States, India.

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92. An Assessment of Potential Nitrate Contamination Hazard in Surface and Ground Water Systems in Hooghly District of West Bengal, India

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93. Trace Element Geochemistry in the Groundwater of Patancheru Industrial Area, Andhra Pradesh, India

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94. Remedy for arsenic poisoning?: A Quest in an Unconventional Area of Research

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95. Surfacing of Poverty through Sub-surface Irrigation- Fragmentation of access and consolidation of poverty in a drought prone area.

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#### 96. Seepage Flow in a Stochastic Hydraulic Conductivity Field

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#### 97. Determination of Aquifer Characteristics Using Tidal Propagation Data- A Case Study from Lakshadweep Island, India

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#### 98. Effect of Organic Matter on the Retention of Arsenic in Soils and its Distribution in Rice Plant

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#### 99. Recharge Studies Using Isotopic and Chemical Tracers in an Overexploited Sedimentary Watershed – A Case Study

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#### 100. Geochemical Characterisation of Groundwater, Jidimetla Industrial Area, Ranga Reddy District, Andhra Pradesh, India

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#### 101. In-situ Technique for Arsenic Removal from Drinking Water Supply Well

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#### 102. Delineation of Aquifer Geometry and Sub-Surface Faults using Well-log and Remote Sensing Data in Western Ganga Plains, Uttar Pradesh, India.

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### 103. IGCP Project No. 523 and its Relevance to Sustainable Ground Water Development

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### 104. Application of Resistivity Imaging for Delineation of Aquifer Configuration in Pathri-Rao Watershed, Himalayan Foothill Region, India

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### 105. Relevance of Community Mobilisation for the Success of Arsenic Mitigation Programme in West Bengal, India

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### 106. Hydrogeological Investigations in Pathri-Rao Watershed, Uttaranchal, India, Using an Integrated Isotopic Technique

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### 107. Accumulation of Arsenic in Common Food Stuffs in Contaminated Environment

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### 108. Arsenic Pollution in Chhattisgarh

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109. Hydrogeochemistry of fluoride in groundwater of Wajrakarur mandal of Anantapur District, Andhra Pradesh.

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110. Sustainable Water Management and Reuse by Natural Treatment Method.

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111. Law And Groundwater: Issues And Problems

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112. Towards Ground Water Management and Policy Analysis Using Hybrid Multi Agent Modeling

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113. Artificial Recharge Methods of Groundwater

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114. Investigation of Drip Irrigation Under Low Pressure

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115. Assessment of Groundwater Quality Status in Kiltan Island of Lakshadweep

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### 116. Evaluation of Groundwater Development Prospects in a Typical Watershed of Humid Tropics

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### 117. Optimisation of Groundwater Monitoring Stations : A Case Study in Balasore District of Orissa, India

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### 118. Study on Age Old Non-Conventional Adit/Tunnel Wells in the Lateritic Terrain of Kasargod District, Kerala.

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### 119. Ground Water Scenario of Kalahandi District, Orissa, India

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### 120. Occurrence of High Fluoride in Ground Water of Orissa and Fluorosis Problem

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### 121. Impact of Clay Mining on the Hydrogeoenvironment of Mangalapuram, Thiruvananthapuram District, Kerala, India

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122. Conjunctive Use of Surface and Ground Water Resources-A Necessity for Water Resources Management in the Command Areas with Special Reference to Orissa State in India

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123. Treatment of Wastewater from the Gujarat Industrial Development Cooperation Estate, Ankleshwar, Gujarat Using Two Step Biological Processes

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124. Bioaccumulation and Aquatic Food Chain - Emerging Issues in Studies on Heavy Metal Toxicity

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125. Assessment of fresh groundwater resources by using hydrogeochemical method in coastal aquifers of Krishna delta, India

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126. Groundwater Arsenic Contamination in the Ganga-Padma-Meghna-Brahmaputra Plain of India and Bangladesh (Plenary Lecture)

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127. Ground Water Quality Near Chromite Mines: Role of Anion Exchange by Overburden Material

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128. Limitation of Remote Sensing and Geophysical Techniques to Explore Groundwater Resources in Indian Himalayas

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129. Effects of Sulphide Ore Mineralisation and Mine Tailing on Groundwater– A Case Study of the Influence of Acid Mine Drainage

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130. Ground Water Management Study In Shillong Urban Agglomeration, Meghalaya

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131. Effect of media on the environmental awareness and behaviour of the children in the age group 10-17

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132. Management of Groundwater Resources Through Community Participation Approach in the Coastal Saline Region of Gujarat.

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133. Ground Water Quality Assessment in Tsunami Affected Tamil Nadu Coast: A case study along Karaikal to Coleron Delta

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#### 134. Hydrogeochemical Evaluation of Groundwater from Thiruvallur District, Tamil Nadu

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#### 135. Aquifer Vulnerability Mapping in Aizawl City of Mizoram, India

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#### 136. Initiatives by Community Participation on Ground Water Management – An NGO Experience

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#### 137. Problem of Selenium Toxicity in Nawanshahr & Hoshiarpur Districts of Punjab State, India

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#### 138. High-Resolution Electrical Resistivity Tomography (HERT) for Sub-Surface Scanning: A Methodology

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#### 139. Mitigation of arsenic contamination in groundwater-West Bengal

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#### 140. Trace Element Profiles in the Drinking Water of Mysore District.

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141 Ground water Assessment in Indian Tradition With Special Reference to  
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142. Ground Water and Water Scarcity: Legislation and Litigation- An  
Experience from Tamil Nadu, India

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## International Participants (Including SAARC)

INT-1. Effects of Arsenic Exposure on Skin Manifestations and Nutritional Status in Lowland Nepal: A Community-based Study

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INT-2. Arsenic contamination in Groundwater of Kathmandu and Lalitpur Municipality Areas

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INT-3. Sustainable Lei-Drainage Groundwater of Rawalpindi-Islamabad (North Pakistan), and the Potentials of Recharge

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INT-4. Exploiting natural iron precipitation against arsenicosis

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INT-5. Spatial Distribution of Arsenic in Groundwater, a GIS and Geostatistics Approach – Gomoti Valley, Lower Okavango Delta, Botswana

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INT-6. Arsenic in Groundwater of the Lower Okavango Delta, Botswana

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#### INT-7. Causes and Challenges of Surface Water Pollution in India

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#### INT-8. Global Arsenic and Antimony Flow through Coal and their Cycling in Groundwater Environment

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#### INT-9. Development of Geographic Information System (GIS) for Water Resources of the Republic Tajikistan

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#### INT-10. Measures Taken for Preparing Ground Water Sources to be Used in Case of Emergency

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#### INT-11. Problems and Perspectives of Projecting the Artificial Drainage in Arid Zone of Central Asia

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#### INT-12. Development of Numerical Model for Contaminant Transport in the Ground Water System of The Lake Kiyanja Watershed of Uganda.

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INT-13. Groundwater Contribution to Total Runoff Using Base Flow Separation: A Case Study of Dez Basin in Iran

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INT-14. Groundwater Resources Sustainability in Qatar: Problems and Suggested Solutions

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INT-15. Groundwater Quality Monitoring Network in Qatar: Description, Outcome and Potential Development

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INT-16. Management of Groundwater and Arsenic Issue in Bangladesh

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INT-17. Arsenic Linkage in the Irrigation Water-Soil-Rice Plant Systems

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INT-18. Arsenic in the Oxidized Shallow Groundwater System in Santiago del Estero Province, Argentina

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INT-19. Groundwater Flow Model in the Mangrove Forest

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INT-20. Infiltration Characteristics at Different Depths from Kale Plots Irrigated by Domestic Wastewater, Primary Effluent and Groundwater

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INT-21. Removal of Arsenic Species from Groundwater Using Adsorption Process

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INT-22. Rehabilitation Strategies of the Tsunami Affected Agricultural Areas in Nangroe Aceh Darussalam, Indonesia

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INT-23. Stochastic Modeling of Groundwater Discharge for Hydrological Drought Forecasting

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INT-24. Simulating Affects of a “Tsunami event” on Density Dependent Flow and Transport Ground Water Model for Pine Rivers Shire, Australia

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INT-25. Bangladesh Government Policy in Context of Arsenic Hazards and The Effectiveness of Activated Alumina in Arsenic Mitigation

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#### INT-26. Impact of Salinity Intrusion in the Inland Coast of Bangladesh

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#### INT-27. Local Groundwater Supply and Sanitation in Suburban Dhaka, Bangladesh

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#### INT-28. Groundwater recharge at Tombouctou, Republic of Mali

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#### INT-29. Arsenic and Fluoride in Groundwater: A Comparison of Conceptual Models

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#### INT-30. Are community driven initiatives sustainable to mitigate the arsenic crisis in Bangladesh?

Md. Jakariya<sup>1,2\*</sup>, M. von Brömssen<sup>2</sup>, A.M.R. Chowdhury<sup>1</sup>, Imran Matin<sup>1</sup>, G. Jacks<sup>2</sup> and P. Bhattacharya<sup>2</sup>

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#### INT-31. Wetland and Water Pollution in Bangladesh

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INT-32. Modeling of Density-Dependent Flow Systems: Sensitivity to Spatial and Temporal Discretizations and Numerical Schemes Using SEAWAT 2000

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INT-33. Status of Groundwater Development and Management in Bangladesh: A Critical Analysis

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INT-34. Interrelation between Saline and Fresh Water in Coastal Region of North Western Region - Sri Lanka

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INT-35. Mineralogy and Geochemistry of shallow aquifer sediments of Meghna Flood Plain (MFP), Bangladesh in Relation to Arsenic in Groundwater

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INT-36. Arsenic Contaminated Drinking Water and Nutrition Status in Rural Community in Nepal

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INT-37. Arsenic and Fluoride Contents of the Aquifers Located within the Crystalline Basement Complex Rocks of Southwestern Nigeria

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INT-38. Use of GIS as a planning tool for arsenic testing and mitigation in Uttar Pradesh, India

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#### INT-39. Initial Learnings about Arsenic in Groundwater in Uttar Pradesh, India and Development of a State Action Plan

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#### INT-40. Arsenic in the groundwater of the Bengal Delta Plain: Hydrogeochemical studies from the districts of Nadia and South 24 Parganas, West Bengal, India

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#### INT-41. Arsenic Accumulation in Edible Plants Irrigated with Arsenic-Rich Groundwater

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#### INT-42. Factors affecting groundwater arsenic mobilization occurring in Chakdaha block in West Bengal

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#### INT-43. Sustainable Arsenic Mitigation Strategy: An Assessment of the Rural Piped Water System in Arsenic Affected Areas of Bangladesh

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INT-44. Newly Developed Adsorbent for Arsenic Removal from Groundwater  
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INT-45. Low Energy RO Membranes for Arsenic Removal from Groundwater  
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INT-46. Isotopic Analysis of Ammonium ( $\delta^{15}\text{N}$ ), Nitrate ( $\delta^{18}\text{O}$  and  $\delta^{15}\text{N}$ ) and DOC ( $\delta^{13}\text{C}$ ) at Trail Road Landfill Plume, Ottawa, Canada

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INT-47. Purification and immobilization of natural coagulant for water treatment

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INT-48. Pesticides as Water Pollutants

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INT-49. River-Groundwater Interactions in the Upper Klang River Basin: The Case of Gombak River, Malaysia

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INT-50. The Autonomy of Local Drinking Water Institutions in Rural Bangladesh

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INT-51. Enforcement of Ground Water Rights in India: The Coca-Cola Case

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INT-52. Population Growth, Consumption Patterns and Ground water Quality Management in Nigeria

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INT-53. Ground Water Quality Management in Nigeria: Environmental Regulatory Enforcement and Compliance.

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INT-54. Nitrate Contamination Estimation from Domestic Septic Tanks to Groundwater Table: Combination of Vulnerability Assessment and Lump Parameter Method

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INT-55. Modeling of Salt Water Intrusion in Mazandaran Coastal Aquifer Using SHARP Model

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INT-56. Evaluation of Depositional Environment and Aquifer Condition in Barind area, Bangladesh Using Gamma Ray Well Log Data

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INT-57. Arsenic-safe water for local communities in West Bengal, India:  
A technological issue or a management challenge?

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INT-58. Managing arsenic-safe water supply options: Problems and prospects  
from gender perspective

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INT-59. Guidelines for Groundwater Protection from Landfill Practices in  
Kuwait

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INT-60. Redox characteristics of the shallow groundwaters of Inner Mongolia,  
Peoples Republic of China and their implications on the mobilisation of arsenic  
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INT-61. Influence of Hysteresis in Modeling of LNAPL Migration through  
Non-Homogeneous Binary Porous Media

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INT-62. Predictive Model for Aquiferous Units and Quality of Ground Water in  
Onitsha Metropolis, Anambra Basin, Nigeria

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INT-63. Management of the Salalah plain aquifer, Oman

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INT-64. Salinity Impacts of the Tsunami on Shallow Groundwater and Water Supply Wells on the East Coast of Sri Lanka

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INT-65. Macro and Micro Chemical Constituents in Ground Water in Sri Lanka - An Overview

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INT-66. Status of a Tsunami Affected Coastal Aquifer in the East Coast of Sri Lanka: A Case Study From Batticaloa District, Sri Lanka

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INT-67. Computer modelling of point and non – point source pollutants and nutrients discharge from coastal watersheds to coast

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INT-68. An Ecologically Sustainable Watershed Management Approach to Inter-Basin Water Transfer in India

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INT-69. Evaluation of the coastal groundwater resources using limited hydrogeological data

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INT-70. Rural Latin America —A forgotten part of the global groundwater Arsenic problem??

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INT-71. Geochemistry and High Arsenic Concentrations in Ground Waters of Fairbanks, Alaska

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INT-72. Sustainable Arsenic Mitigation: A case of Community Initiative in Bangladesh

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INT-73. Redesign of the Groundwater Level Monitoring Network in the Nyamandhlovu Aquifer, Zimbabwe

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INT-74. Groundwater Protection through Watershed Mangement Strategies in Kenya

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INT-75. Floodwater Infiltration - Results from a Multi-Tracer Experiment

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### INT-76. The World Health Organization Normative Roles in Mitigating Health Impacts of Arsenic in South East Asia Region

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### INT-77. Use of Poor Quality Water for Sustainable Rice Production

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### INT-78. Bioremoval of Arsenic by Green Algae (*Oncorhynchus mykiss*)

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### INT-79. The Hidden Language of Rural Water Supply Programmes

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