

# Dr. ZAREENA BEGUM I

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## Personal

**Date of Birth**            March 27, 1981            **Place of Birth**            Pondicherry, India

**Address**                    Madras School of Economics,  
Behind Gandhi Mandapam Road, Chennai-600 025, India  
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## Education

**Indian Institute of Technology (IIT) Roorkee**, Roorkee, India

PhD, **July 2007**

*Dissertation Topic:* Studies on the Removal of Arsenic - An Environmental Toxicant

**Pondicherry Central University**, Pondicherry, India

M.Sc.5 Year Integrated Sciences, **1998 - 2003**

GPA 8.22/10.0

**St. Joseph of Cluny Convent**, Pondicherry, India

Higher Secondary, **April 1998**

81.3%

Matriculation, **April 1996**

80.2%

## Honors & Awards

- Awarded with research fellowship for the degree of Ph.D by the Ministry of Human Resource and Development (MHRD), New Delhi, India in 2003 for a duration of four years.
- Awarded by the Indian Academy of Sciences, Bangalore for the Summer Research Fellowship, 2003
- Graduate Aptitude Test for Engineering (GATE), Qualified, 2003
- Test for English as Foreign Language (TOEFL), Scored 240/300, Oct. 2002

## Experience

**Assistant Professor, Centre of Excellence in Environmental Economics, Madras School of Economics**, October 2007-Present

Teaching **Environmental Resource Economics** and **Urban Economics** for the post-graduate students of Madras School of Economics.

Taught **Coastal Resource Management** for the post-graduate students of degree M.Tech Coastal Management in Institute of Ocean Management, Anna University, Chennai (2008-09).

Member of **ENVIS Centre of Environmental Economics** in Madras School of Economics, Sponsored by the Ministry of Environment and Forests, Government of India.

Member of the editorial team of the newsletters **ENVISAGE and GREEN THOUGHTS**, published in the Centre of Excellence in Environmental Economics and ENVIS Centre of Environmental Economics in Madras School of Economics, Sponsored by the Ministry of Environment and Forests, Government of India.

In-charge of the Environmental Information System (ENVIS) website <http://envis.mse.ac.in>, Madras School of Economics.

### **Organizational Responsibilities**

Presently serving as Faculty Coordinator at **Madras School of Economics** for the M.Sc General Economics (2008-2010 batch)

**Indian Institute of Technology**, Roorkee (IIT Roorkee), India  
*Research Scholar & Teaching Assistant, 2003-2007*

Thought courses like **Basic Environmental Sciences, Elements of Environmental Systems, Environmental Management and Environmental Control Technology** for the under-graduate and post-graduate students of Environmental Engineering in the Indian Institute of Technology Roorkee, Roorkee, India

### **Research Accomplishments**

- Developed environmental friendly technique of separating, removing and recovering various toxic and precious elements from different environmental sites ranging from natural ores to industrial effluents to ground water and drinking water using a variety of remedial techniques like solvent extraction, adsorption, membrane filtration.
- Designed a scheme for the removal of the toxin arsenic along with the quantitative recovery of other precious elements like copper, lead, mercury, bismuth, antimony, nickel and selenium from different industrial effluents, especially from electrolytic solutions and complex matrices.
- Developed a water purifier which could be applied in real-time application for the decontamination of arsenic from groundwater, drinking water, industrial effluent and from seawater using extractant-impregnated fibrous supports, silica gel and supported liquid membranes.

### **Sponsored Projects**

**Economics of Municipal Solid Waste Management in Chennai**, Sponsored by Central Pollution Control Board, Government of India, *Completed* in 2009

**Wood Balance in Tamil Nadu**, Sponsored by Tamil Nadu Forest Department, *Completed* in 2009

**India's Exports of Textile and Textile Products and Environmental Requirements**, Sponsored by Ministry of Environment and Forests, Government of India, *Ongoing*.

### **Publications**

**Zareena Begum I and Bina Gupta** (2006), Stabilization of Solvent-Impregnated Resins (SIRs) by coating with Water-soluble Polymer and Chemical Cross-linking and its Application in Mercury Removal, *Journal of Composite Interfaces*, 13(4-6), 487-506

**Zareena Begum I, Bina Gupta, Niti Mudhar and Indu Singh** (2007), Extraction and Recovery of Ga(III) from Waste Material using Cyanex 923, *Hydrometallurgy* 87(1-2), 18-26.

**Zareena Begum I and Bina Gupta** (2008), Separation and Removal of Arsenic from Metallurgical Solutions Using Bis(2,4,4-trimethylpentyl)dithiophosphinic acid as Extractant, *Separation & Purification Technology*, 63(1), 77-85.

**Zareena Begum I, Bina Gupta and Garima Rajput** (2008), Equilibrium and Kinetic Studies for the Adsorption of Mn(II) and Co(II) from aqueous media using Agar-Agar as Sorbent, *Chemical Engineering Communications*, 195 (10), 1200-1212

**Zareena Begum I** (2009), Sustainable Building Rating System, in *ENVISAGE – Newsletter*, Vol 6, No. 2, December 2009

**Zareena Begum I** (2009), Plastic Fantastic, in *ENVISAGE – Newsletter*, Vol 6, No. 1, June 2009

**Zareena Begum I**, Environmental Health, *Dissemination Paper for the Ministry of Environment and Forest, Government of India*, February, 2009

**Zareena Begum I** (2007), Namakkal: Dustbin Free City, in *ENVISAGE – Newsletter*, Vol.4, No. 3, October 2007

**Zareena Begum I** (2008), Proper sanitation offers health and wealth, in *ENVISAGE Newsletter*, Vol.5, No. 3, February 2008

**Zareena Begum I** (2008), Water Supply and Sanitation in Tamil Nadu, in *ENVISAGE Newsletter*, Vol.5, No. 3, February 2008

**Zareena Begum I** (2009), Decontamination of Arsenic from natural water using supported liquid membrane containing Cyanex 301 as carrier, *Environmental Science & Technology* (Communicated)

**Zareena Begum I** (2009), Recovery of Uranium, Thorium and Zirconium from allanite by extraction chromatography using Cyanex 923-impregnated Chromosorb, *Journal of Composite Interfaces*, (Communicated)

**Zareena Begum I** (2009), Removal of Arsenic from natural water sources using Cyanex 301-Impregnated Adsorbents, *Water Research* (Under Review)

**Zareena Begum I and Bina Gupta** (2009), Removal of Cobalt, Nickel and Cadmium from Spent Ni-Cd Battery”, *Waste Management*, In Press

**Zareena Begum I and Bina Gupta** (2009), Removal of Arsenic from natural water sources using Cyanex 301-Impregnated Adsorbents, *Environmental Science & Technology*, In Press

**Zareena Begum I** (2010), ‘A report on the arsenic pollution caused at the industrial sites of Tamil Nadu, India’ *Asian Journal for Water, Environment and Pollution* (Under Review)

## Papers presented in National / International Conferences

- **'A Report on the arsenic pollution caused at the industrial sites of Tamil Nadu, India'** 7<sup>th</sup> *International Science Conference on the Human Dimensions of Global Environmental Change, "Social Challenges of Global Change"* (IHDP Open Meeting 2009), 26-30 April, 2009, Bonn, Germany
- **'Removal of As(III) from Aqueous Water Stream using Cyanex 301-Impregnated Natural and Synthetic fibers'**, *International Groundwater Conference, IGC-2007*, Feb 2007, Coimbatore, Tamil Nadu, India
- **'Removal of As(III) from the Aqueous Stream using Cyanex 301 Impregnated Silica Gel by Batch and Column Operation Mode'**, *National Conference on Eco-, Sono-, and Nanochemistry*, Dec 2006, Chennai, Tamil Nadu, India
- **'Removal of As(III) from the natural water media using flat-sheet supported liquid membrane containing Cyanex 301 as carrier'**, *National Conference on Eco-, Sono-, and Nanochemistry*, Dec 2006, Chennai, Tamil Nadu, India
- **'Removal & Recovery of As(III) from the Aqueous Stream using Extractant Impregnated Natural and Man-Made Fibers'**, *First International Collaborative Conference with AATCC & INDA (AFINT 2006)*, Aug 2006, Coimbatore, Tamil Nadu, India
- **'Removal and Recovery of As(III) from Natural Water using Impregnated Supports'**, *International Conference on Environmental Geosciences (ICEG 2006)*, Feb 2006, Anna University, Chennai, Tamil Nadu, India
- **'Removal and Recovery of Co(II) and Mn(II) from Industrial Effluent using Agar-Agar as Sorbent'**, *International Interdisciplinary Conference on Sustainable Technologies and Environmental Protection (ICSTEP 2006)*, Jan 2006, Coimbatore, Tamil Nadu, India
- **'Extraction Chromatographic Separation of Lanthanides, Uranium, Thorium and Zirconium using Cyanex 923 impregnated on Chromosorb 102-Their Recovery from Allanite'**, *PREP-2005: 18th International Symposium, Exhibit & Workshops on Preparative/Process Chromatography, Ion Exchange, Adsorption/Desorption Processes & Related Separation Techniques*, May 2005, Philadelphia, Pennsylvania, USA
- **'Liquid-Liquid Extraction Studies on Arsenic using Organophosphorus Extractant'**, *National Seminar on Modern Trends in Nanotechnology and Supramolecular Assemblies*, Apr 2005, Ahmedabad, Gujarat, India
- **'Stabilization of Solvent Impregnated Resins (SIRs) by coating with Water-soluble Polymer and Chemical Cross-linking and its Application in Mercury Removal'**, *International Conference on Advances in Polymer Blends, Composites, IPNS and Gels: Macro to Nano scales (ICBC 2005)*, Mar 2005, Kottayam, Kerala, India
- **'Extraction and Recovery of Zirconium using Cyanex 923'**, *DAE-BRNS Theme Meeting on Emerging Trends in Separation Science and Technology (SESTEC 2004)*, July 2004, Bhabha Atomic Research Centre (BARC), Bombay, Maharashtra, India

## Lectures Delivered

A lecture on “**Environmental Resource Economics – Theory, Practice and Policy**” was delivered at the UGC Refresher Course on organized in the Univeristy of Madras, Chennai, November 21, 2009

A lecture on “ **Accounting for Water Quality – Case Study of Arsenic Pollution**” on October 3, 2008 in the Training Programme on Environmental Statistics with special reference to water accounting for Indian Statistical Service Officers, September 29- October 3, 2008, sponsored by Central Statistical Organization, Government of India

A lecture on “**Pre- and Post Tsunami Coastal Planning and Land-Use Policy Issues in India**” was delivered at the UGC Refresher Course on “Contemporary Economic Policy Issues in India” at Madras School of Economics, December 4, 2007

A lecture on “**Partnership of Media and Community Based Disaster Management in Asia**” was delivered at the Workshop on Media and Disaster Management organized by The Media Information and Communication Centre of India (MICCI) in collaboration with the Friedrich Ebert Stiftung, (FES) and the local partner Indian Online Media Forum (IOMF) on December 14 and 15, 2007

## Extra Curriculars

ACTIVITY	ACHIEVEMENT	PERIOD
International Workshop on the USEPA's AEROMOD modelling system for Environmental Professionals	Participated in the International Workshop	2006
Evaluation workshop of the ENVIS centers of Southern Region at Hyderabad	Participated in the Workshop to represent ENVIS, Centre from Madras School of Economics	2008
International Workshop on the Environmental Management - an Executive Overview	Participated in the International Workshop	2006
National Conference on Advanced Characterization Techniques on Nanomaterials	Participated in the National Conference	2005
Quiz Competition held in the Sarojini Bhawan, IIT Roorkee	Secured First Position	2005
22nd Conference of Indian Council of Chemists	Participated in the National Conference	2003
One day Symposium sponsored by UGC on the Thrust Areas in Chemistry	Participated in the Symposium	2003
Short Term Course on the Use of E-Resources	Participated in the Short Term Course	2003
Tamil Essay Competition organized by the Directorate of Civil Supplies, Government of Pondicherry	Secured Third Position	1997
National Science Day	Participated as a School Representative in the	1997

Celebration held in the Centre of Biotechnology, Pondicherry University	Seminar, Essay Competition and Displayed the Exhibits	
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### **Skill in Analytical Techniques**

- Physical Techniques & Inference Interpretation: Solvent Extraction, Extraction Chromatography, Adsorption, Paper, Thin-Layer, Column Chromatographic Techniques, Supported Liquid Membrane and other Impregnated Adsorption Supports
- Computer Simulation: Langmuir and Freundlich Adsorption Isotherms, Lagregren Order Reaction Rate Kinetics
- Microscopy: Scanning Electron Microscopy
- Optical: UV-Vis Spectroscopy, Infra-Red Spectroscopy, Atomic Absorption Spectrometer, Inductively Coupled Plasma-Mass Spectrometer, Flame Photometer, Different Spectrophotometers, Inductively Coupled Plasma-Atomic Emission Spectrometer, Electron Paramagnetic Resonance
- Electrochemical Techniques: Polarography