# Dr. Tirthankar Banerjee

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## ACADEMIC QUALIFICATIONS

- **Ph.D. (Environmental Science)** (2006-2010)
  Air Pollution Dispersion Modeling; Dept. of Environmental Science; G.B. Pant University of Ag.& Technology, Pantnagar
- **Post Graduate Diploma in Environmental Law (PGDEL)** (2007-2008)
  One year distance course offered by Centre for Environmental Law Education Research and Advocacy (**CEERA**) & Distant Education Department, National Law School of India University (**NLSIU**), Nagarbhavi, Bangalore.
- **Master of Science (Environmental Science)**(2004-2006)
  Dept. of Environmental Science, G.B. Pant University of Agriculture & Technology, Pantnagar
- **Bachelor of Science (Agriculture)** (2000-2004)
  Visva-Bharati, Santiniketan

## HONORS/ REWARDS

- Winner of the Environmental Technology Competition "***Green Talents 2010*** - The International Forum for High Potentials in Sustainable Development" commissioned by the **German Federal Ministry of Education and Research (BMBF)** (www.greentalents.de).
- Recipient of Travel Grant from the **Royal Netherlands Academy of Arts and Sciences** (KNAW) in 2011.
- Active member of Commission of Ecosystem Management - **International Union for Conservation of Nature**.
- Member of World Association of Young Scientists (**WAYS**), an initiative from UNESCO and TWAS.
- Recipient of International Travel Support from Science and Engineering Research Board, **Department of Science and Technology**, Government of India.
- **Hiyoshi Young Leaf Award-2014** by Hiyoshi India Ecological Services Pvt. Ltd.

## RESEARCH INTERESTS

Air pollution dispersion modelling; Modelling meteorology-air pollutant interactions; Air pollutant source apportionment; Characterization of tropospheric aerosols; Aerosol and atmospheric chemistry; Regional air quality-climate change interactions; Climate change adaptation.

## ONGOING/ SUBMITTED RESEARCH PROJECTS

1. Principal Investigator for "Ambient air quality assessment for chemical characterization and source apportionment of suspended particulate matter"– University Grants Commission, New Delhi, India.
2. Principal Investigator for "Size Segregated Mass Concentration and Source Apportionment of Tropospheric Aerosol at Middle Indo-Gangetic Region" – approved by Department of Science and Technology, Govt. of India.
3. Co-Investigator of multi-institutional project on "Study on quantification of biomass burning tracers (SQBBT) over Bay of Bengal (BOB) during winter monsoon" organized by National Physical Laboratory, Delhi and National Institute of Oceanography, Goa.
4. Co-principal Investigator for "Impact of climate change on groundwater resource in Sai-Gomti interflue, central Ganga plain, Uttar Pradesh, India"–approved by Ministry of Water Resources, Indian National Committee on Groundwater, Govt. of India, New Delhi.

5. Co-principal Investigator for "Impacts of climate change on water resources of the Ganga Basin"(Consortium of IITs and NIT) – approved to Ministry of Water Resources, Govt. of India, New Delhi (approx Rs. 5.92 Crores. for 4 years, project involving IIT-Delhi, IIT-Kanpur, IIT-Kharagpur, BHU and NIT-Patna).

## ■ INTERNATIONAL RECOGNITION

I. Winner of the Environmental Technology Competition "Green Talents 2010 - The International Forum for High Potentials in Sustainable Development" commissioned by the German Federal Ministry of Education and Research (BMBF) for being one of the 20 young scientists worldwide having outstanding potential in the field of Sustainable Development (www.greentalents.de).

II. Member of research team in: **UNISDR/SDMC (2014)** Integration of Disaster Risk Reduction and Climate Change Adaptation in SAARC Region: Implementation of the Thimphu Statement of Climate Change- A Comprehensive study of Policy, Institutional Landscape and Disaster Risk Reduction and Climate Change Adaptation in South Asia. **United Nations Office for Disaster Risk Reduction**, Asia and Pacific, Thailand; **SAARC Disaster Management Centre**, New Delhi and Banaras Hindu University, Varanasi, India.

III. Recipient of Travel Grant from the **Royal Netherlands Academy of Arts and Sciences** (KNAW) to attend the Conference Open Science Meeting 2011: "Rise to the Water Challenge", organized by KNAW, Netherlands Organization for Scientific Research (NWO) and Indonesian Academy of Science in Jakarta, Indonesia.

IV. Active member of Commission of Ecosystem Management - **International Union for Conservation of Nature** (CEM - IUCN) to assess the state of the world's natural resources and provide the Union with sound know-how and policy advice on conservation issues.

 Member of **iLEAPS** (Integrated Land Ecosystem – Atmosphere Processes Study), a core project of International Geosphere-Biosphere Programme (**IGBP**) at University of Helsinki, Finland focusing on basic biogeochemical processes that link land-atmosphere exchange, climate, the water cycle and tropospheric chemistry.

V. Participated in Open Science Meeting 2011: "Rise to the Water Challenge" (Nov. 28 – Dec. 3, 2011), organized by **Royal Netherlands Academy of Arts and Sciences** and **Indonesian Academy of Science** in Jakarta, Indonesia.

**Reviewer of the Journals:**

1. Atmospheric Environment, Elsevier
2. Atmospheric Research, Elsevier
3. Water Science and Technology, IWA
4. Clean-Air, Soil and Water, Blackwell-Wiley
5. International Journal of Green Energy, Taylor & Francis
6. Environmental Planning & Management, Taylor& Francis
7. Atmospheric Pollution Research
8. Environmental Technology, Taylor & Francis
9. Aerosol and Air Quality Research
10. Environmental Progress & Sustainable Energy, Wiley

## ■ PUBLICATIONS

### National/International journals:

1. Kumar M, Tiwari S, Murari V, Singh AK and Banerjee T. 2015. Wintertime characteristics of aerosols at middle Indo-Gangetic Plain: Impacts of regional meteorology and long range transport. *Atmospheric Environment*, 104: 162-175. (IF-3).
2. Murari V, Kumar M, Barman SC and Banerjee T. 2015. Temporal variability of MODIS aerosol optical depth and chemical characterization of airborne particulates in Varanasi, India. *Environmental Science and Pollution Research,* 22(2): 1329-1343. (DOI: 10.1007/s11356-014-3418-2) (IF- 2.76).
3. Sen et al. 2014. Atmospheric fine and coarse mode aerosols at different environments of India and the Bay of Bengal during winter-2014: Implication of a coordinated campaign. Accepted in *MAPAN*, Springer. (DOI : 10.1007/s12647-014-0109-x ) (IF-0.48).
4. Mall RK, Bhatt D, Sonkar G and Banerjee T. 2014. Simulation modeling and climate change: issues and challenges. *Environmental Science and Pollution Research*. (DOI: 10.1007/s11356-014-3096-0) (IF- 2.76).
5. Banerjee T and Srivastava RK. 2012. Plastic waste management and resource recovery in India. *International Journal of Environment & Waste Management*, 10 (1): 90-111.
6. Banerjee T and Srivastava RK. 2011. Evaluation of environmental impacts of Integrated Industrial Estate-Pantnagar through application of air and water quality indices. *Environmental Monitoring and Assessment,* 172 (1-4): 547-560. (DOI : 10.1007/s10661-010-1353-3) (IF-1.59).
7. Banerjee T, Singh SB and Srivastava RK. 2011. Development and performance evaluation of statistical models correlating air pollutants and meteorological variables at Pantnagar, India. *Atmospheric Research,* 99 (3-4): 505-517. (DOI: 10.1016/j.atmosres.2010.12.003) (IF-2.42).

8. Banerjee T, Barman SC and Srivastava RK. 2011.Application of air pollution dispersion modeling for source-contribution assessment and model performance evaluation at Integrated Industrial Estate-Pantnagar. *Environmental Pollution*, 159 (4): 865-875. (DOI :10.1016/j.envpol.2010.12.026) (IF-3.90).

9. Banerjee T and Srivastava RK. 2011. Assessment of the ambient air quality at the Integrated Industrial Estate-Pantnagar through the air quality index (AQI) and exceedence factor (EF). *Asia-Pacific Journal of Chemical Engineering*, 6: 64-70. (DOI : 10.1002/apj.450) (IF-0.79).

10. Banerjee T and Srivastava RK. 2010. Estimation of the current status of floral biodiversity at surroundings of Integrated Industrial Estate-Pantnagar, India. *International Journal of Environmental Research*, 4 (1): 41-48. (Permalink :http://ijer.ut.ac.ir/images/Issues/Vol.4,%20No.1,%202010.html) (IF-1.81).

11. Banerjee T, Bhattacharya TK and Gupta RK. 2009. Process optimization of catalyst removal and characterization of waste water after alkali-catalyzed transesterification of Jatropha oil. *International Journal of Green Energy*, 6 (4):392-400. (DOI : 10.1080/15435070903107072) (IF-2.069).

12. Banerjee T and Srivastava RK. 2009. Application of water quality index for assessment of surface water quality surrounding Integrated Industrial Estate-Pantnagar. *Water Science and Technology*, 60 (8): 2041-2053.(DOI : 10.2166/wst.2009.537) (IF-1.10).

13. Banerjee T, Pandey A and Srivastava RK. 2009. Study on variable nature of some ground water pollutants at surrounding of Integrated Industrial Estate-Pantnagar. *Journal of Ecophysiology & Occupational Health*, 9: 31-36.

### Articles published in journals:

1. Kumar, M. and Banerjee, T. 2013. सिंधु-गंगा मैदानी क्षेत्र में वायुमंडलीय एरोसोल की प्रवृति और उनके संभावित प्रभाव. Vigyan Ganga, 6(6): 67-70.

### National/ International conference presentations/ proceedings:

1. Banerjee, T. and Srivastava, R.K. 2013. Air Pollution Dispersion Modeling for Source-Contribution Assessment at Integrated Industrial Estate-Pantnagar. 8th Asian Aerosol Conference, The University of Sydneyon behalf of the Asian Aerosol Research Assembly, Sydney, Australia.

2. Kumar, M. and Banerjee, T. 2013. Modified hydrological cycle due to aerosols: a major challenge for sustainable Water resource management. National Seminar on sustainable water resource management in era of changing climate. Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi, India.

3. Murari, V. and Banerjee, T. 2013. Impact of Acidic Airborne Particulate Matter on Surface Water. National Seminar on sustainable water resource management in era of changing climate. Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi, India.

4. Banerjee, T. 2012. Regional Air Pollution and Global Climate Change.9thBMBF Forum for Sustainability (FONA Conference), German Federal Ministry of Education and Research (BMBF), Berlin, Germany.

5. Tewari, H. and Banerjee, T. 2012. Green chemistry: a step towards environmental sustainability. National seminar on Environmental Concerns and Sustainable Development: Issues and Challenges for India. Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi, India.

6. Banerjee, T. 2012. Regional air pollution to global climate change: a threat to environment. National seminar on Environmental Hazards. Dept. of Geography and Dept. of Chemistry, Dumkal College, Basantapur, Varanasi, India.

7. Banerjee, T. 2012. Climate change: new health risks in the air. National seminar on Environmental Concerns and Sustainable Development: Issues and Challenges for India. Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi, India.

8. Banerjee, T. and Bandyopadhyay, D. 2012. Development, environment and the role of economic analysis.National seminar on Environmental Concerns and Sustainable Development: Issues and Challenges for India. Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi, India.

## BOOK CHAPTERS

1. Banerjee, T., Srivastava, R.K. and Hung, Y.-T. 2014. Plastics Waste Management in India: An Integrated Solid Waste Management Approach. *In*: Y.-T. Hung, L.K. Wang, and N. Shammas (Ed.) Handbook of Environmental and Waste Management (Volume-2). World Scientific Publishing Co., Singapore (ISBN 978-981-4449-16-8).

2. Banerjee, T., Pathak, J. and Srivastava, R.K. 2009. Climate change and Kyoto protocol: Global and Indian concerns. *In*: P.L. Gautam, V. Singh, and U. Melkania (Ed.) Ecosystem Diversity and Carbon Sequestration-Challenges and a way out for Ushering in a Sustainable Future. Daya Publishing House, New Delhi, pp. 309-319. (ISBN10 81-7035-594-X).

3. Banerjee, T., Srivastava, R.K.and Melkania, U.2008. Floral distribution pattern in surroundings of SIDCUL IIE-Pantnagar. *In*:J.Singh(Ed.) Biodiversity, Environment and Sustainability. MD Publications Pvt. Ltd., New Delhi., pp. 181-189. (ISBN978-81-7533-148-8).

## ■ PROFESSIONAL EXPERIENCES

1. National Natural Resources Management System - Indian Space Research Organization (**NNRMS-ISRO**) sponsored course on RS & GIS in Coastal and Ocean Sciences conducted by Indian Institute of Remote Sensing, Dehradun from May 05 – June, 27, 2014.

2. NASA Applied Remote Sensing Training (ARSET) programmeon "**Introduction to Remote Sensing for Air Quality Applications for the Indian Sub-Continent and Surrounding Regions**" from March 19 – April, 23, 2014 by Applied Sciences Program, NASA.

3. International Summer School on '**Building Learning in Sustainability Science**' (BLISS) organized by The Energy and Resources Institute (TERI, New Delhi) from July 15 – 19, 2013.

4. Online course on '**Climate Change and Disaster Risk**' organized by Global Facility for Disaster Reduction and Recovery (GFDRR, The World Bank Institute) and National Institute of Disaster Management, Delhi from September 17 to October 12. 2012.

5. UGC sponsored Refresher Course in '**Environmental Studies**' (Interdisciplinary) in UGC Academic Staff College, Banaras Hindu University, Varanasi from August 14 to September 3, 2012.

## ■ RESEARCH SCHOLAR SUPERVISED

1. *Tropospheric Aerosol and Climate Change: A Sustainability Challenge* – Submitted by Mr. Manish Kumar on September, 2013 for Master of Philosophy in Environmental Science and Sustainable Development at IESD-BHU.

2. *Temporal Variability of Airborne Particulates and associated Heavy Metals in Ambient Air of Varanasi* - Submitted by Ms. Sristi Jain on April, 2014 for Master of Science in Environmental Science, BHU.

3. *Airborne particulate mass loading and its chemical characterization through chromatographic and spectroscopic techniques* - Submitted by Ms. Poonam on October, 2014 for Master of Philosophy in Environmental Science and Sustainable Development at IESD-BHU.

## ■ PROFESSIONALAFFILIATIONS

- Life member of Indian Meteorological Society, India Meteorological Department, Delhi.
- Life member of Indian Aerosol Science & Technology Association (IASTA-LM-554), BARC, Mumbai.
- Member of South Asian Network for Development and Environmental Economics (SANDEE), Kathmandu, Nepal.
- Member-Commission on Ecosystem Management (CEM), IUCN, Switzerland.
- Member, World Association for Young Scientist (WAYS), an initiative to empower young scientists by UNESCO.
- Annual member of The Aerosol Society, Portishead, U.K. to promote all scientific branches of aerosol research.

## ■ ORGANIZATION OF CONFERENCE/ SEMINAR WORKSHOP

1. Co-organizing secretary in Department of Science and Technology, Govt. of India sponsored national workshop on "Simulation Modelling and Climate Change: Issues and Challenges" organized by Institute of Environment & Sustainable Development (IESD), Banaras Hindu University, Varanasi, April 21, 2014.
2. Co-organizing secretary in SAARC Consultation workshop on "Implementation of Thimphu Statement on Climate Change: Integration of Climate Change Adaptation and Disaster Risk Reduction" organized by Institute of Environment & Sustainable Development (IESD), Banaras Hindu University, Varanasi, August 29-31, 2013.
3. As a member of organizing committee in Orientation Workshop on "National Aquatic Animal-Ganges River Dolphin" organized by Institute of Environment & Sustainable Development (IESD), Banaras Hindu University, Varanasi & CEE, Lucknow, July 28-30, 2011.

Varanasi, India
Date: February, 2015 (**Tirthankar Banerjee)**