

NATIONAL INSTITUTE OF ECOLOGY

Biodata of the Person Proposed to be Elected as a Fellow

Name: **KUSUM ARUNACHALAM**

Title: Dr.

Date and Place of Birth: 29-09-1969; Sendul (Tehri Garhwal; Uttarakhand)

Present Position: Professor, head & Acting Vice Chancellor

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Professional Qualifications

Course	Year	College/University	Percentage	Class
B.Sc. (Botany)	1989	Guwahati University	65.6	I
M.Sc. (Botany; Spl. Microbial Ecology)	1992	NEHU, Shillong	74.5	I
GATE -93 (Life Science)	1993	IIT Kharagpur Zone	76.1	-
Ph.D. (Botany, Spl. Microbial Ecology)	1997	NEHU, Shillong	-	-

Professional Experience

Name of the post	Institution	Period
Junior Research Fellow in Forest Ecology	NEHU, Shillong	May 1993 to August 1996
CSIR Research Associate <i>In Horticulture/Forestry</i>	NERIST, Nirjuli	Sep'96 – Jan'98
Lecturer in <i>Forestry</i>	NERIST, Nirjuli	6 Apr'98 – Sept'09
Assistant Professor	Doon University, Dehra Dun	2009 -2016

Fields of Specializations relevant to Ecology/Environmental Science: Microbial Ecology**Publications**

Research/Review Papers	: 74	:
Books/Monographs	: 3	
Chapter in Books/Conference Papers	: 35	
General Articles	: 4	
Abstracts in Conferences/Seminars/Symposium:	35	

Current activities

Dr. Kusum Arunachalam is currently working as Assistant Professor in the School of Environment & Natural Resources of Doon University. Dr. Arunachalam is involving in course development, teaching, research, extension and managerial aspects of the University through competitive research and development programmes. At present, she is working on carbon sequestration potentials of hill agro-ecosystems to help identify potential climate resilient systems in Uttarakhand. At the same time, she has been working on the crop residue management in agro-ecosystems in the hills, training the farmers, etc. Further she has been involved in technical committees of the State Action Plan for Climate Change, etc.

Membership/Positions held in other Scientific Societies

- Member, Indian Society of Soil Science, IARI, New Delhi
- Member, Sikkim Science Society, Gangtok.
- Life member, Indian Society of Soil and Water Conservation, Dehra Dun
- Life member, Bamboo Society of India, Bangalore
- Life member, Indian Society of Soil Biology and Ecology, Bangalore.
- Life member, Social Science Research Institute of Arunachal, Itanagar
- Life member, Indian Society of Tropical Forestry, Jabalpur.
- Life member, Indian Science Congress Association, Kolkata
- Life member, National Institute of Ecology, New Delhi
- Member, International Society of Tropical Ecology, Varanasi.
- Life Member, International Society of Environmental Botanists, Lucknow
- Life Member, National Environmental Science Academy, New Delhi
- Life Member, The Society for Science of Climate Change & Sustainable Development, New Delhi.

Major Scientific Contributions

Dr. Kusum Arunachalam, a tropical soil ecologist graduated from the School of Ecology at North-Eastern Hill University, India. Her academic mentor was Professor R.S.Tripathi. Dr. Arunachalam started her research carrier in the year 1992 and since then she has been actively involved in various aspects of ecology and environmental research. Soon as she completed her Ph.D. she got CSIR-Independent

Research Associateship in Horticulture/Forestry during 1997, followed by DST-Young Scientist Scheme in 1998. She joined North-Eastern Regional Institute of Science and Technology (NERIST) as a Lecturer in Forestry during 1998, where in addition to teaching, she has been carrying out several sponsored research Forest Soil Productivity and Wetland Ecosystems. She has also been involved in various other research programmes on shifting agriculture and agroforestry systems.

Within a relatively shorter span of professional experience, Dr. Arunachalam has made notable contributions to soil ecology, ecosystem ecology, shifting agriculture and land use dynamics in the northeastern India. Her doctoral research on the role of microbial biomass in soil nutrient restoration in regrowing forests has led to significant conclusions about the least studied belowground components including fine roots. These components have a greater nutrient immobilization potential and rapid biomass turnover and thus contribute significantly to the organic matter and nutrient dynamics in the degraded and/or regenerating forest ecosystems. Her further research demonstrated that such processes vary with different scales of disturbance, and ecosystems across seasons and soil depth. This work is of both basic and applied importance in restoration ecology.

Recently, she has evaluated the role of bamboos in the recovery of shifting agricultural fallow lands and found that the bamboo rhizosphere hold greater soil biomass and therefore more soil nutrients. However, this varies from species to species among bamboos. Her continuing work on the evaluation of quality of various tree and crop residues in agricultural and forest ecosystems revealed the variations among the plant residues and their potential contribution to soil organic matter buildup during the aggradation phase of degraded ecosystems. She is also involved in the evaluation of indigenous land use practices on the soil nutrient flux and biomass productivity in the region. Based on her research, she is continuing with her efforts to reclaim shifting agricultural fallow lands.

To date she has published more than 60 research papers in reputed national and international journals and more than 10 in edited volumes.

Dr. Arunachalam is a life member of Indian Science Congress Association, Indian Society of Tree Scientists, Indian Association of Soil and Water Conservationists, Indian Society of Soil Biology and Ecology, Bamboo Society of India and Arunachal Pradesh Society of Land & Water Management.

In 1998, she was awarded the Young Scientist Scheme by the Department of Science and Technology (DST), Government of India. Recently, she was awarded the prestigious BOYSCAST fellowship in Plant-Microbe Interaction (DST: 2002-2003) to work at University of Freiberg, Germany. She was also exposed to the applications of Remote Sensing and Geographic Information Systems to the study of land use dynamics at Indian Institute of Remote Sensing for a period of 8 weeks. She is also trained (3 weeks) in methane emission quantification from wetlands and paddy fields at Central Rice Research Institute, Cuttack.

All her research is oriented towards soil nutrient conservation and agricultural development in the northeastern region, which has a direct bearing on the human development, particularly women as they participate significantly in the cultivation and post-harvest processes. Dr. Arunachalam is closely working with the farmers of this region, particularly with the shifting cultivators for rehabilitation of the abandoned and fallow jhum lands that can improve production in other forms such as Horticultural and Agroforestry interventions on a sustainable basis.

Dr. Arunachalam is an expert monitor-cum-facilitator of CAPART in the region who have helped many voluntary organizations (mostly women societies) to take up projects and implement in remote villages of the region. Thus, her contribution to society is awesome. She was instrumental in the creation of over 50 women self-help groups in the Balipara block of Assam and helping the women do better agriculture and management for better yield. In the Papum Pare district of Arunachal Pradesh, she along with her colleague Dr. Uma Melkania conducted an awareness campaign during 1998-2000 on Sanitation in villages with local womens' participation. Recently she is guiding a vermicomposting

project for sustainable agriculture development in the Balipara block of Assam; here again, a large number of women folk are involved in composting and processing.

For her achievements, Dr. Kusum Arunachalam was awarded the National Young Woman Bioscientist Award 2005 by the Department of Biotechnology, Govt. of India.

Awards and Honours

- Recipient of National Merit Scholarship in M.Sc.
- Recipient of CSIR - Junior Research Fellowship since May 1993.
- Recipient of NEHU-UGC Fellowship since May 1995.
- Recipient of CSIR-Individual Research Associateship since September 1996.
- Awarded with DST-Young Scientist Scheme in 1998.
- Ranked third in B.Sc., for academic excellence.
- Ranked second in M.Sc., for the academic excellence.
- Ranked second in Pre-Ph.D. Course work in the School of Life Sciences, NEHU (1993).
- Honorary Appointment to the Professional Women's Advisory Board, ABI, USA.
- Consulting Editor of The Contemporary Who's Who, American Biographical Institute, USA
- Awardee – BOYSCAST Fellowship 2003 to University of Freiburg, Germany
- National Young Woman Bioscientist – 2005 Award by DBT, New Delhi
- Biography included in Who's Who in Science & Engineering, Marquis Who's Who, USA
- Included in Database of Environmental Experts in India: 2007
- Founder Member, International Women's Review Board of American Biographical Institute, USA since 2008

Detailed curriculum vitae enclosed.