

**JAWAHARLAL NEHRU INSTITUTE OF ADVANCED STUDIES
(JNIAS)**

(An Institution established by Dr.D.Swaminadhan Research Foundation [DSRF])



**SCHOOL OF ENVIRONMENTAL SCIENCES (SES)
CENTRE FOR ENVIRONMENT AND CLIMATE CHANGE (CECC)**

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Preamble

The issue of global climate change and its impact on socio economic and natural resources has become a major concern in all parts of the world. The impacts of Climate Change in different Parts of the world would also be different, Primarily a function of socio economic conditions and existing regional climatic regime. Economic and policy aspects of climate change have become central to foreign policy and International relations of several countries. A critical need remains for coordination and collaborations among various disciplines of science, engineering and technology directed to climate change adaption strategies. The combined global resources of science and engineering disciplines in research and training must be effective and rapidly mobilized to meet these rapid changes. We must discover, develop and broadly apply Physical and Institutional solutions for collective survival.

India's rapidly growing economy and development of industry and infrastructure Pose greater human and ecological health challenge leading the depletion of environmental resources. As a result environmental issues/problems have become increasingly complex and interdisciplinary requiring solutions which are based on Principles of engineering sciences, biology, chemicals sciences to address environmental issue. The impact of Climate Change on natural resources is posing a great threat to the existing society. To address the environmental issues and impact of climate change on environment JNIAS has set up a centre for environment and climate change (CECC). This centre will bring together experts from various disciplines to focus on providing solutions to specific environmental problems.

Dr. D. SWAMINADHAN RESEARCH FOUNDATION (DSRF):

Dr.D.Swaminadhan Research Foundation (DSRF) is a non-profit and non-governmental forum established in 1995 by three former Members of Planning Commission, Government of India – Prof. Dr. D. Swaminadhan, Dr. Jayant Patil and Dr. S.Z. Qasim – with the laudable objective of contributing towards development based on eco-friendly, pro-poor and gender equity parameters. It is registered as a Society and as a Trust under Indian Societies and Trusts acts. Social Action, sustainable development, social empowerment, application of advancements in science & technology for rural development and promotion of human values are the focus. The Foundation has been recognised by the Department of Scientific & Industrial Research, Ministry of Science and Technology, Govt. of India as a Scientific and Industrial Research Organisation (SIRO) and by the Ministry of Finance for the purpose of Income Tax Exemption. DSRF is also registered with Ministry of Home Affairs, Govt. of India under the Foreign Contributions (Regulations) Act of 1976.

JAWAHARLAL NEHRU INSTITUTE OF ADVANCED STUDIES (JNIAS):

Jawaharlal Nehru Institute of Advanced Studies (JNIAS), Hyderabad has been established by Dr. D. Swaminadhan Research Foundation (DSRF), Hyderabad as a Research and Educational Institution with a view to contribute to advanced technologies and build 'core competence' in specific areas. The activities of JNIAS involves: Education, Research and Training in certain fields of sciences, technologies, social sciences and management. It aims to blossom into an Advanced Institute of education and research with a reservoir of expertise and experience in the relevant fields and the necessary capability to promote multi-disciplinary education and research studies.

JNIAS has been recognised as an Advanced Research Institute by Jawaharlal Nehru Technological University Hyderabad (JNTUH), Hyderabad and Jawaharlal Nehru Technological University Anantapur (JNTUA), Anantapur for offering Ph.D., Post Graduate, M.Phil programmes and Post Graduate Diplomas and Training Programmes in certain areas in Sciences, Engineering & Technology and Humanities and Social Sciences, including Management.

JNIAS has two broad objectives: a) to provide scientific, educational and academic support to the programmes of Dr. D. Swaminadhan Research Foundation (DSRF) as a Voluntary Organisation and thus discharge its social obligation and b) to evolve itself into an Institute of Excellence in Sciences, Engineering and Technology, Management, Humanities and Social Sciences for contributing to the promotion of higher education and research in the framework of broad-based and inclusive development of India.

JNIAS would enter into collaboration with Universities, Institutes and Research Organisations in India and abroad for undertaking joint educational and research programmes, consultancy and other academic activities, with mutually agreed access to joint academic resources and facilities.

School of Environmental Sciences:

School of Environmental Sciences (SES), established by JNIAS is dedicated to make distinctive and eloquent contributions to the various areas in the field of Environment. The academic scope for various domains at SES will be widened through numerous specialized Research and Development programs. SES aims i) to achieve prominence as a School of Environmental Sciences educates men and women to be leaders in Environmental issues and that contributes to the well-being of our citizens through the creation and transfer of knowledge. ii) to be an

environment where the best and the brightest faculty, students and scholars can understand all the aspects of Environment through interdisciplinary scientific research and education.

"Environment" is an integrated concept of the surroundings that include all aspects of soil, water, air, energy and shelter with closely related interactions. Concepts of integrated and sustainable development have thus gained importance. In this context, environmental management becomes vital. Since environmental aspects have many angles of approach, it is truly an interdisciplinary subject.

Sustainable development relates to the use and management of our natural resources including water, land, and air to improve our comforts and living standards today without sacrificing the well-being of our future generations. In our daily lives, sustainable development means having pure water, clean air and safe food to-day as well as tomorrow. For the planet Earth, environmental issue is nothing less than survival.

Sustainability depends on the delicate balance between the use and the conservation of our environmental resources. The challenge to sustainable development, then, is to stimulate further expansion of living standards worldwide while minimizing and counteracting the negative impacts on the environment.

In the above context the School of Environmental Sciences (SES) is actively developing the following centre:

Centre for Environment and Climate Change (CECC)

The Centre has an aim to contribute towards 'sustainable management of environment' through stakeholder involvement in planning, developing and utilization. The centre envisages to impart knowledge and know-how on the efficient management of environmental resources within the given framework of political, economic, social, environmental, institutional and technological factors.

The Centre strives to develop professionals in the field of environment and allied areas through its academic, research, training, consultancy and development activities to enhance the quality of life. The broad focus of the Centre includes conservation, development, distribution, utilization and management of natural resources leading to its sustainability for the present and future needs. It has an objective to tie up with different line departments, research and academic institutions, development organisations, funding agencies for collaborative work in similar fields.

Climate change is a serious global problem with severe adverse implications on food and water security, health, livelihoods, energy, equity, land-use, habitat protection and environmental conservation.

CECC established by JNIAS aims at contributing to long term research on the causes and consequences of Climate Change in order to foster the creation of knowledge in this multidisciplinary Science. The Centre will promote a highly-qualified team of researchers with the primary objective of achieving excellence in research, training and dissemination in areas covering health and climate change, climate modeling, agricultural sector responses to climate, water issues related to climate and climate policy in developing countries. The Centre's main approach is to raise awareness and advocate for climate adaptation and disaster risk reduction.

To contribute towards the environmental management, education, research and training the Jawaharlal Nehru Institute of Advanced Studies (JNIAS), Hyderabad has established the Centre for Environment and Climate Change (CECC).

Vision

The Centre for Environment and Climate Change (CECC) is dedicated to training and research in Environment and Climate Change and its impact with emphasis on adaptation and mitigation methodologies. Our vision is to develop a “Centre of Excellence” which establishes a leadership and collaborative role in addressing Environmental concerns and climate change monitoring, modeling and impact assessment, mitigation strategies, vulnerability assessment using remote sensing and geographic information systems etc. and to provide pertinent scientific information for informed decision making and policy formulation.

In the face of vulnerability of Environment and changing climate, CECC will be a national leader of innovative research to promote Environmental issues, Climate science and to strengthen the understanding of climate change and to disseminate knowledge of regional climate among the scientists, young researchers, rural public and government.

Mission

CECC in the School of Environmental Sciences (SES) at JNIAS strives to produce a new generation of experts in Environment and Climate change who would contribute to India’s green climate and less-carbon-intensive growth and development of Environment. The main purpose of the Centre is to impart an integrated knowledge which is sensitive to multi-stakeholder concerns.

The Centre's mission would be to conduct basic, applied and operational research on Environment and Climate matters, provide climate monitoring services within the country, collaborate with/assist vulnerable communities and industries at risk to apply research findings to reduce the impact of climate change and to establish linkages and collaboration with other national and international experts, educational and research institutions in order to carry out this mission. The Centre's Mission statement is to advance in the forefront of climate change research to provide the nation with the scientific knowledge for the betterment of environment and society and to ensure sustainable development through achieving climate change adaptive goals.

Objectives:

1. To develop high Performance filters and membranes for effective remediation of contaminants.
2. To develop new catalysts and new adsorbents for removal of contaminants in air, soil and water environments
3. To develop environment-friendly technologies for abatement of pollutants
4. To utilize nanotechnology for development of sensors, membranes, catalysts and adsorbents
5. To conduct studies on Phytoremediation of soil and water
6. To under take education, research and training in environment
7. To undertake research on low cost water and waste water treatment technologies
8. To offer seminars/workshop and environment consultancy services
9. To undertake Consultancy in various environmental pollution management related projects and to collaborate with national and international organizations for effective technological transfer.
10. Climate Change
 - To Measure, Monitor and Model (3 Ms) greenhouse gas emissions and Climate Change implications as envisaged by the National Institute of Climate and Environment (NICE) and the Indian Network of Climate Change Assessment (INCCA).
 - To be at the forefront of research in areas pertinent to Mitigation and Adaptation of climate change, as envisaged in the National Action Plan on Climate Change (NAPCC) and its eight National Missions
 - To impart technical and professional knowledge in areas pertinent to climate change, including Remote Sensing and GIS.

Academic Programmes:

Technicians Training Programme

This is a one-week training programme to the technicians working on various environmental pollution monitoring systems, use of handling pollution control equipment's and maintaining of waste treatment plants.

Modules

Climate change studies involve an integrated and multidisciplinary approach encompassing an array of subject areas including basic Climate-Science, Management Studies and Policy Research. The modular programs are aimed at both recent graduates wishing to specialize in climate change studies and professionals wishing to extend their knowledge and expertise or seeking a career change. The following modular programs are offered, comprising both taught and research components:

- Climate Science
- Waste - Utility and Solid Waste Management to Mitigate GHG Emissions
- Hybrid Fuels and Sustainable Transportation to Combat Climate Change
- Green Building and Sustainable Architecture for the Abatement of Climate Change
- Public, Private Partnership
- Policy Implications of Climate Change: National & International Scenario.

NATIONAL ADVISORY COMMITTEE
CHAIRMAN

Prof. Dr. D. Swaminadhan

Former Vice-chancellor, JNT University, Hyderabad
Former Member, Planning Commission, Govt. of India,
Chairman, Dr.D.Swaminadhan Research Foundation [DSRF], Hyderabad.

MEMBERS

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Dr. Kaiser Jamil Dean, School of Life Sciences (SLS), JNIAS	Dr. D. Sirisha Head, Centre for Environment & Climate Change (CECC), JNIAS.