



# News Letters

## INDIAN INSTITUTE OF PUBLIC ADMINISTRATION J&K REGIONAL BRANCH



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### EDITORIAL

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The theme subject for write ups in this issue of the Newsletter is "Preventing Environmental Degradation". Global rise in mean yearly temperature by 0.6 degrees Celsius since 1910 at an unprecedented rate has been attributed to human generated "enhanced green house effect". For reasons yet not clear during the last 10,000 years earth's temperature remained stable increasing by only 1 degree Celsius. Possibly the checks and balances of the natural ecosystem have not been able to withstand the rises in anthropogenically produced green house gases carbon dioxide, methane, nitrous oxide and halocarbons. Atmospheric carbon dioxide has increased by 36 percent since 1910 from 280 ppm to 380 ppm. Of greatest concern is carbon dioxide whose molecule remains in air for 100 years. The methane molecule breaks down in a decade though it is 100 times stronger than carbon dioxide in its greenhouse effect.

All countries including India and China, as per the Cancun agreement have to reduce emissions. India is pledged to reduce energy intensity by 20-25 percent by 2020 as part of this global deal. Environmentalists have been critical of Cancun deal as reduction promised by industrialized nations, according to them, is pathetic. It is alleged that Cancun protects the rich polluters. However, there is no dispute over responsibility of each nation in reducing emissions to become part of a solution. To keep the world below the already dangerous 2°C temperature increase, global emissions need to drop to 44 billion tonnes of carbon dioxide equivalent (the mix of greenhouse gases, as measured in CO<sub>2</sub>e) by as early as 2020 – as against the roughly 48 billion tonnes of CO<sub>2</sub>e which is emitted currently. In other words, the world has already run out of atmospheric space

and has to cut fast and drastically.

Dr M.S. Swaminathan, while addressing members of Parliament, cautioned that climatic change effects from 2010-2039 may reduce the agricultural production by 4.5 to 9.0 per cent. This he attributed to physiological changes in plants which will shorten the crop life and reduce yields. With 60 per cent of India's work force in agricultural sector which grows at only 4 per cent any reduction in productivity can be disastrous. Our state has a horticulture based economy. Are we ready to face the adverse affects of climatic change on fruit and agricultural production?

Most of the focus is on technological interventions to reduce emissions. This after a certain level becomes prohibitively expensive. With solar and wind energy projects not yielding desired results in our conditions, generating nuclear power and exploiting gas resources are options available as alternate to coal based power plants. The radioactivity generated in Fukushima (Japan) after Earthquake and Tsunami has raised a fresh debate on desirability of expansion in nuclear power generation.

Unfortunately, very little is heard about R&D on Biological measures to mitigate adverse effects of environmental degradation. Strict check on deforestation and nation wide efforts to promote afforestation can reduce carbon dioxide levels. Methane can be used to run bio gas plants. Research in the field of 'fertilizer trees' and organic agriculture can be directed to increase productivity without need for mineral fertilizers and chemical pesticides. Agricultural Universities can take up the challenge of developing genes for climatic resilience, varieties which will adapt to increased temperature and devise alternate cropping patterns for crops and horticultural produce. If we have to save our agriculture sector and large population dependent on it, these measures become very relevant. Our state with well established Agricultural Universities can take a lead role in this. This needs to be a part of our strategy to address environmental concerns and adverse effects on agricultural production.

The theme for papers for the next issue of newsletter is 'Corruption free Governance-A myth or reality'. The authors need to strictly adhere to a limit of 800 words and send a soft copy of the same along with a hard copy to the Editorial Board.

### DISCUSSION ON POWER SECTOR REFORMS



On October 20, 2010, a Seminar on “**Power Sector Reforms and Role of J&K State Electricity Regulatory Commission (JKSERC)**” was held. Mr. S. M. Desalphine, Chairman-J&KSERC gave an overview of the role and duties of the Regulator in general and initiation of Power Sector Reforms in particular. The Power Point Presentation was detailed, informative and laid down the Road Map which the Power Sector is likely to follow in the State. Mr. Desalphine elaborated on the implementation of the modern technologies for bringing down T & D Losses and greater transparency with the aim of providing quality power to consumers at lower cost. The meeting was attended by many prominent

persons including Mr. D. S. Pawar, Member-JKSERC, Chief Engineers, SEs, XENs & AEEs of Power Development Department in addition to prominent members of Industry, Trade and Commerce.

### 1ST SATI SAHNI MEMORIAL LECTURE

On November 27, 2010 1st Sati Sahni Memorial Lecture on “**Life and Times of Sh. Sati Sahni-Some Reminiscenes**” was delivered by Sh. Ved Bhasin, Chairman Kashmir Times Group of Publications. In his lecture Sh. Bhasin described Sh. Sati Sahni as a sincere journalist who was the most well informed as far as the activities of State administration and Army during 1948 were concerned. He also mentioned various events covered by Sh. Sati Sahni during his life time and elaborated the rare collection of photographs involving leading figures in the country of his times which are lying in a special S. P. Sahni section in the art gallery of General Zorawar Singh Auditorium of Jammu University. Dr. Ashok Bhan, Chairman, IIPA also highlighted the qualities of head and heart of the veteran journalist Sh. Sati Sahni. Mrs. Prem Sahni, wife of late Sh. Sati Sahni extended her gratitude to IIPA and stated no tribute can be better than an Annual Lecture which will be a permanent feature in years to come. Sh. Vikram Gour described Sati Sahni as journalist par excellence whose work is worth admiration. Sh. V. N. Sharma presented the vote of thanks.



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### 9TH VEERANNA AIVALLI MEMORIAL DEBATE

On December 15, 2010 the 9th Veeranna Aivalli Memorial Debate was organized by India Institute of Public Administration, J&K Regional Branch in collaboration with University of Jammu on the topic “**Excessive use of technology in day to day communication, is leading to loss of personal touch.**” Sh. Kuldeep Khoda IPS, Director General of Police, J&K, was the Chief Guest for the occasion and Sh. J. A. Khan, Economic Advisor, Government of J&K, presided. 25 teams from various under-graduate colleges of the Jammu region participated in this debate. Veeranna Aivalli Memorial trophy was won by Government College of Engineering and Technology, Jammu. Zain-ul-Abdin Bandey, Abhinandan Singh and Anshul

Gupta won first, second and third prizes respectively. Two consolation prizes were also given.

### ANNUAL GENERAL BODY MEETING

On January 8, 2011 the Annual General Body Meeting of IIPA J&K Regional Branch was held. The Chairman in his address highlighted that the focus of the Regional Branch has to be two fold. Firstly, to set tasks to ensure periodic professional outputs like Newsletter and Journal, debates in the two Universities, Sati Sahni annual lecture etc and secondly, to convert the Regional Branch into a Next Gen Institution of Training by conducting research and consultancy programmes, organising training courses, upgrading Library and enrolling younger members.

Sh. S. S. Bloeria, Patron of the Regional Branch, while addressing the house laid emphasis on setting targets for the year so that all efforts are made to achieve these.

He wanted that members and experts should be requested to write on specific subjects for the journal which should be a quality product. Sh. Jalil Ahmad Khan, Former Chairman IIPA Regional Branch, J&K, wanted that activities should be J&K focussed. He advised that a letter may go to the Chief Secretary requesting him to direct all departments of Government to send all publications, Audit Reports, Population Figures, etc. to the IIPA so that these serve as study material for academic pursuits.



## EVENTS @ IIPA (J&K)

### INTERACTION ON PUBLIC-PRIVATE PARTNERSHIP



An interaction session by Sh. Chander Gulati was held on January 8, 2011 on Public-Private Partnership. The focus of the session was to ensure vibrant economy by ensuring return on investment of fixed assets of public sector undertaking. While discussing the concept's applicability, Sh. Gulati referred to Gujrat State where responsive administration and private players have joined hands for PPP initiative. He also mentioned about various initiatives being taken in the state of J&K in his regard.

### WORKSHOP ON BIODIVERSITY CONSERVATION AND VISIT TO GHARANA WETLAND

Members of Indian Institute of Public Administration under the Ministry of Environment and Forests Government of India and WWF-India Biodiversity Conservation project visited Gharana Wetland on 28th February, 2011.

Gharana Wetland which is an important international birding site with a diversity of resident and migratory bird species has shrunk to a small, highly polluted pond because of land encroachment and other development projects. To save this unique wetland, the experts of the IIPA suggested a number of measures.

IIPA also conducted Biodiversity Conservation workshop in IIPA complex at Jammu on 1st March, 2011. Prof Shashi Kant was the key note speaker. Dr.

O.P. Sharma, Sh. J.B.S. Johar, Dr. Ashok Bhan, Dr. C.M. Seth and Dr. Vikram Gour also spoke on the occasion. The workshop was attended by 100 participants from all walks of society.



### PANEL DISCUSSION ON J&K STATE BUDGET

A panel discussion on the "Reflection on the State Budget 2011-12" was held on March 15, 2011. Sh. J. A. Khan, IAS (Retd.), Economic Advisor to Government of J&K, was the Chief Guest. Sh. Y. V. Sharma, President Chamber of Commerce and Industries and Prof. R. L. Bhat, a renowned economist, were the panelists.

Sh. Sharma stressed upon the need to develop Hydro/Mineral Resources sectors to control the power losses and Prof. R. L. Bhat stressed upon surgical intervention to initiate high rate of growth and rationalisation of excessive employment in Government sector. Sh. J. A. Khan explained details of revenue and non-revenue expenditure. He also stated that the yearly budgets are indicative of intentions of Government. The discussion was attended by

Dr. Ashok Bhan, Dr. C. M. Seth, members of IIPA J&K Regional Branch, eminent citizens and businessmen of Jammu.

### SENSITIZATION PROGRAMME ON INTELLECTUAL PROPERTY RIGHTS

One day awareness/sensitization programme on Intellectual Property Rights was jointly organised by Ministry of Micro, Small & Medium Enterprise, (Govt. of India), Indian Institute of Public Administration J&K Regional branch and PHD Chamber of Commerce and Industries (J&K Chapter) on March 26, 2011 in the IIPA Complex.

The objective of the programme was to disseminate the information to the Micro, Small & Medium Industries and Enterprises in the State on very important aspects of exerting and protection of the rights on one's Intellectual Property like exceptional research/development/invention etc. The programme highlighted the procedures and implementation part of various tools of IPR. Dr. R. K. Raina, Senior Scientist, Indian Institute of Integrative Medicine, CSIR, Jammu and Dr. Vikas Asawat, legal authority and consultant, IPR Chandigarh gave their detailed presentations. The function was attended by officers of Chambers of Commerce and Industries Jammu, besides members of the IIPA and officers from the MSME/Industries Department and SIDCO.



**BIO-DIVERSITY CONSERVATION****Dr. Shashi Kant**

Biodiversity can be defined as number of different biological items and their relative frequency, variety and variability of living organisms and the ecological complexes in which they occur.

No one knows how many species live on earth. Estimates are that there are more than 100 million species but so far the taxonomists have described about 1.8 million species, of which 56% are insects, 14% are plants and 3% are birds, mammals and fishes. Vertebrates and higher plants are much widely studied and better known than non-vertebrates. Only one or two new species of birds, algae, fungi and bacteria are described each year whereas hundred new invertebrates are found. Another problem is that most biologists have concentrated their researches in North America and Europe, but greater number of species live in tropics. Similarly, most biologists study life on land than the oceans (containing many unknown species) which cover 70% of the earth. Hence, the described species likely under estimate the invertebrates and species living in oceans & tropics. India is one of the 12 mega Biodiversity countries of the world. Biogeographically, India is situated at the trijunction of 3 realms viz. Afro-Tropical, Indo-Malayan and Paleo-Artic. With only 2.4% of the land area, India accounts for 7-8% of the recorded species of the world.

Extinction is the ultimate fate of all the species. Fossil record show, since life began 3.5 billion years ago, over 95% of all species that existed are now extinct. Some of these past extinctions occurred during Mass Extinctions (catastrophic events that killed 60% of all species on earth). Most of the 5 mass extinctions were caused by climatic disruptions of habitats especially global cooling. The last mass extinction which included disappearance of Dinosaurs occurred about 65 million years ago and may have been caused by meteorite impact. The 6<sup>th</sup> extinction which is round the corner will lead to extinction of bio-diversity and may be even the extinction of human race. The European Age of expansion in the 15<sup>th</sup> and 16<sup>th</sup> centuries initiated a wave of extinction that has continued to accelerate. The extinction rate of birds and mammals has been increasing rapidly. Between 1600 and 1700 it was 1 species / 10 years which became 1 species/ year and after 1950 the extinction is much faster. Some species of birds and mammals became extinct before description. Birds and mammals are among the best described groups, so the extinction rates for the others are likely to be underestimated even more significantly. Among the causes of loss of biodiversity, land use viz. Agriculture, Urbanization and Development, Habitat loss viz. deforestation, diversion and disturbance, overexploitation, collection and hunting are the main causes coupled with Forest Fires, Floods, Soil Erosion, Epiphytotics, Pollution, invasive species and climate change. Secondary extinctions occur when the extinction of one group causes the extinction of another. Often it involves loss of food species. Familiar Panda bear of China subsists largely on Bamboo. As the bamboo is destroyed, panda may become extinct from that cause alone.

Five international conventions focus on bio-diversity issues; Convention on Biological Diversity; Convention on Conservation of Migratory Species; Convention on International Trade in Endangered Species of Wild Fauna and Flora; Ramsar Convention on Wetlands and World Heritage Convention. The Convention on Biological Diversity is the most recent of these

multilateral environmental agreements, arising out of the Rio Earth Summit of 1992, some twenty years after Ramsar (1971), WHC (1972) and CITES (1975) entered into force, and ten years after CMS did (1983). Other convention that cooperate with the CBD include the Convention on the Conservation of European Wildlife and National Habitat (Bern Convention); Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena, 1983) and its Protocols, including the Protocol Concerning Specially Protected Areas and Wildlife (SPA); The Mediterranean Action Plan (Barcelona Convention) and Regional Seas Convention. The Convention on Biological Diversity and six leading scientific institutions formed a Consortium of Scientific Partners on Biodiversity. These include Royal Botanic Gardens, Kew, Smithsonian National Museum of National History; le Museum National de l'Historie Naturelle de France; Royal Belgian Institute of Natural Sciences; National Commission for Wildlife Conservation and Development of the Kingdom of Saudi Arabia and the German Federal Agency.

Biodiversity can be preserved in two ways viz, 1. *In-situ* and 2. *Ex-situ*. Under *in-situ* Conservation, the Government of India has taken lot of initiatives in this direction. About 42% of the total geographical area of the country is earmarked for extensive *in-situ* conservation. A PAN (Protected Area Network) of 85 National Parks and 448 Wildlife Sanctuaries has been created. Ten biodiversity rich areas have been declared as "Ramsar Sites" under Ramsar Convention. Additionally, 11 wetlands of National importance have been identified for Intensive Conservation and Management. Under World Heritage Convention, 5 Natural sites have been declared as "World Heritage Sites". Under *ex-situ* Conservation, about 33 Botanical Gardens are being run and managed by Central/State Governments. Gene pool by germ plasm banks is also being preserved by various institutes. Universities have their own Botanical Gardens. There are 275 zoos, deer parks, safari parks aquaria etc. A central Zoo Authority has been set up by Central Government for species conservation and breeding programme in captivity of rare and threatened wildlife species. A scheme entitled "assistance to botanical gardens" has also been initiated to promote *ex-situ* conservation.

Large number of laws have been enacted in the country to conserve Biodiversity. The significant among them are; Fisheries Act-1897; Destructive Insects and Pests Act-1914; Forest Act-1927; The Indian Act, 1972; The Wildlife (Protection) Act 1972, amended in 1991; The Forest (Conservation) Act 1980, amended in 1988; The Water (Prevention and Control of Pollution) Act. 1981 amended in 1988; Biological Diversity Act - 2002; National Biodiversity Authority of India - 2004; State Biodiversity Boards - 2004.

Globally the rate of extinction is very fast. As per reports, 2.9% of the Global list of flora and fauna are threatened species and 33% groups are endemic species: Reptiles: 33%, Amphibians: 62% and Angiosperms : 42%. These species occur in North East, Western Ghat, Eastern Himalaya and North West Himalaya, which are critically endangered and need protection and conservation initiatives at a war footing. The best way to conserve biodiversity is to plant a wide variety of trees which would allow a wide variety of shrubs and herbs to grow under them and would attract a wider fauna of insects, moths, butterflies, birds and other forms of animal life. We will have to understand that biodiversity is sustaining life on this planet and any loss to it would lead to food scarcity and water famine which can eliminate many of the species. SAVE BIODIVERSITY TO SAVE THE PLANET EARTH.

### ENVIRONMENT PROTECTION AND JAMMU AND KASHMIR STATE FOREST POLICY

Dr. C. M. Seth, IFS (Retd.)

Concern over the state of environment has grown over the years since the time population explosion on earth has taken place. Because of increasing demand on natural resources and its services to the humankind the decline in environmental quality has been evidenced due to loss of vegetal cover and biological diversity, excessive concentrations of harmful chemicals in the ambient atmosphere and in food chains, growing risks of environment accidents and threat to life support systems. The world community's resolve to protect and enhance the environmental quality found expression in the decisions taken at the United Nations Conference on the Human Environment held in Stockholm in June 1972.

Government of India showing serious concern to the fast depleting environmental resources became an important player for the global environment protection and took several measures to protect the environment of India. These measures included several policy and legislative actions like enactment of Environment Protection Act 1986, Prevention of Air Pollution Act 1981 and prevention of Water Pollution Act 1974, Biological Diversity Act 2002 besides Forest and Wildlife Acts amended from time to time to meet the requirement of changed environment scenario. J& K state has its own Forest and Wildlife Acts but all other environment Acts of the country are extended to the territories of the state. Biological Diversity Act 2002 is still to be implemented in the J&K state. India adopted first National Forest Policy in the year 1894 with the main objective to generate the revenue for the state but in the year 1988 it came up with new policy shifting from revenue generation to conservation including preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment. These objectives were also supported in the National Forestry Commission Report 2006. For any country and the state the environment and forest policy is an important guideline to maintain environment and its resources. But over the years there has been a paradigm shift from timber production to forest and environment conservation in order to meet the challenges of new environmental issues like Climate Change and Global Warming. GOI therefore adopted a comprehensive National Environmental Policy in 2006 in a clear response to our national commitment to a clean environment mandated in the constitution in Articles 48A and 51A (g) strengthened by judicial interpretation of Article 21. Although, in the State of Jammu and Kashmir the scientific management of its forests started in the year 1891 but the Forest Act was passed in the year 1930 taking care of Forest conservation, management of Wildlife and Medicinal plants (Kuth Act) and management of nomadism and productivity of pastureland (Kahcharai Act).

Total human population of J&K state in the year 1901 was about 22 lakhs, which has increased to more than 1.00 crore in the year 2001. The recorded Forest Area of the state is 20320 km<sup>2</sup>, of which 414362 ha is under Alpine and other pastures excluding Ladakh. These figures of total forested area are deceptive as these figures do not give clear picture of the state of Forests to the common citizen and are at variance with the National Survey Report of Indian Forests. About 50 % of the forestland is either encroached or under the continuous occupation of nomads and villagers. Of the total Forest Area, open forest area is 50% and very dense are only 10%. Regeneration is 90% deficient. Keeping in view the poor management of State's Forests Honble Supreme Court banned felling of Green trees in the state in the year 1995 in a landmark judgement in a Civil Writ Petition titled Godavarman Thirumulpad Vs Union Of India and others. In spite of such judgement, no improvement has been made in last 16 years. Forests of J&K state continue to be in the highly degraded and non-productive state. Main natural resources of the state were timber, resin, Katha, medicinal plants, pasturelands, etc. Production of Resin has reduced from 30000 MT to just 6000 MT, timber production has been reduced from 2.00 crore cft to just 20 lakh cft, felling of Khair trees is banned and there is no Katha production, extraction of medicinal plants is also stopped because of sharp decline in production from forest areas and production of pasture lands is reduced to hardly 2 HSU. At the present production level pasture lands can hardly support half of the nomadic livestock population. Therefore, forests have to be conserved and managed in a sustainable manner with the active participation of local communities so as to ensure a continuous flow of benefits to all stakeholders, present as well as future. Realizing the need for maintaining a productive forest resource, the valid concern for its continued depletion and degradation, and also being aware of the close association between people and forests, the Government of Jammu and Kashmir sanctioned adoption of State Forest Policy vide GO order No: 34 FST of 2011 dated 2-1-2011.

Basic objectives of the State Forest Policy of Jammu and Kashmir include Conservation of Biodiversity and natural habitat through preservation of natural forests, rehabilitation of degraded forests, poverty alleviation by meeting livelihood needs of forest dependent communities and creating a sustained people's movement for achieving the aforementioned objectives, so that environmental security is ensured.

Although, all the National Forest and Environmental Policies/ Acts are extended to all the states of India but J&K state because of its special status under Article 370 of Indian Constitution adopted its own State Forest Policy in the year 2011. This policy statement appears to be more of theoretical statement and less of action based programme to achieve the laid out strategy and objectives. Several areas of nature

conservation have not been addressed in this policy for which the state policy is totally silent like setting up of Natural Heritage sites, Biosphere reserves, safe corridors for wild animals, protection of Biodiversity hotspots, total ban on Nomadic grazing inside the protected areas of National Parks and sanctuaries and other vital environmental issues. There is no road map and time table to achieve the targets in a time bound manner. The implementation schedule for achieving the objectives is still a mirage and not achievable within next few hundred years keeping in view the colossal problems of degradation, encroachments, diversion of land, local requirements of ever increasing population and free grazing by millions of nomadic graziers in all forest and protected areas of the state. If J&K government really is serious about

protecting the forests and increasing the productivity, it has to take certain harsh policy decisions which may not be palatable to many sections of the society. Choice is with the government to either protect state's environment and fragile ecosystems or please certain vested sections of the society. Forests and environment are national asset to be protected and enhanced for the well being of its people and the Nation. The J&K government infact at this point of time should have come up with the comprehensive **State Environment Policy** on the pattern of National Environment Policy 2006, instead of Forest Policy only, including all aspects of environment protection and management.

J&K Regional Branch has been co-opted as Member of the Executive Council of IHPA for a term of 2 years. All Members deserve kudos for this recognition.

## ENVIRONMENTAL DEGRADATION - A PERSPECTIVE

### PREVENTING ENVIRONMENTAL DEGRADATION

#### In construction of Roads and Highways

Er. V. N. Sharma

Roads and Highways are life line of any country. Roads are very important for building the nation and are a mirror of country's development. The aim of the Government is naturally to expand, widen and modernize the road net work. The roads authorities do face challenges because on one hand they have to construct new roads or widen existing ones and at the same time maintain inclusive and sustainable development. The authorities are conscious that there is significant adverse impact on environment with the construction of these projects - may this be Mughal Road, Bani-Bhaderwah-Chatroo- Synthan or even widening of existing Pathankot Jammu Srinagar roads, just to name a few. The intention is to remain committed to implementation of the project as also to avoid or mitigate adverse effects on the environment including pollution, depletion of forests, threat to bio-diversity and so on.

Before execution of any major construction project, it is most advisable to go in for Environmental Impact Assessment (EIA). Experience has shown that the potential savings on the life of a project can more than repay the investment many times over. The savings can be economic as well as environmental. During construction of roads and highway projects, significant environmental and social impact has been seen in various phases like pre-construction, constructional and operation phases. The nature of these impacts could either be positive or negative to favorably or adversely affect the environment. The main objective of EIA should be to prevent, reduce and offset significant negative impact on the environment. EIA gives advance information to the authorities on what would happen to the environment on the completion of the road project and remedial measures that can be taken to offset the adverse consequences. In general, the benefits of EIA include:-

1. With better environmental planning, adverse effects on environment and people are minimum. As a result there is saving in remedial treatment or compensation for

damage.

2. It ensures that environmental standards are complied with.
3. If environmental problems are not considered before starting any project, huge costs may later be involved to tackle and rectify connected adverse problems.
4. If environment concerns are taken into consideration before the start of any project, it will enable the authorities to make quick decisions resulting in saving in cost and time overrun.

Impact of environment is a global concern. Environmental Impact Assessment (EIA) is a very effective tool for planners and decision makers. It is a study to predict the environmental impact on any development project. It ensures that problems are foreseen and rectified at an early stage in planning and design. The Ministry of Environment and Forests, Government of India, are making great efforts for Environmental Impact Assessment in India. The main laws are Indian Wild Life Protection Act (1972), Water Act (1974), Forest Conservation Act (1980), Forest Conservation Rules (1981), Air (Prevention and Control of Pollution) Act 1981, Environment Protection Act (1986), National Environment Tribunal Act (1995), Municipal Solid Waste (Management and Handling) Rules 2000, Disposal of Fly Ash Notification 2008, etc. The responsible authorities for enforcement are Ministry of Environment and Forests, Central Pollution Control Board, State Pollution Control Boards, National Board for Wild Life and Archeological Survey of India.

Indian Roads Congress (IRC) has taken the initiative and published codes and Guidelines on environmental impact assessment. IRC 104 "Guidelines for Assessment of Highway Projects" was published by IRC in 1998. IRC is also in the process of publishing a special code on "Guidelines on requirements for Environmental Clearances for Road Projects". This will be a one time guide for all types of environment clearances necessary for road projects. Lastly one single factor that can improve EIA process is good education and training. This is necessary because at present there are very few educational and training courses in the country to consider various EIA methodologies. Fundamental factors behind all EIA predictions are still the best professional judgment or experience with similar projects completed elsewhere.

### CLIMATE SENSITIVE DEVELOPMENT STRATEGIES FOR JAMMU AND KASHMIR

Dr. Mohit Gera, IFS

The Fourth Assessment Report of Intergovernmental Panel on Climate Change released in 2007 clearly states that the warming of earth's climate is unequivocal and it is no longer relevant to discuss whether the climate is changing but rather how much change we are committed to and how fast this will occur. As per the said report the global atmospheric concentration of CO<sub>2</sub>, the most abundant green house gas responsible for climate change, has increased from a pre-industrial period value of 280 ppm to 379 ppm in 2005. Climate modeling averages on prediction of future climate show that the global temperature changes during 2090-2099 relative to 1980-1999 may range from 1.1 to 6.4°C and sea level rise from 0.18 to 0.59 meter. The report has also shown that most of the warming observed over the last 50 years, is attributable to human activities.

Jammu and Kashmir, the northernmost Himalayan state of the country, constitutes part of the western Himalayan ranges, which extend from the Shivalik foothills to the Great Himalayas. As the largest state in the Indian Himalayan Region (IHR), it covers 42.65% of the total geographical area and represents 25.41% of the total population of the IHR. The geological formations are fragile, which makes large areas prone to earthquakes, landslides and other natural disasters. The unique location of the state has resulted in immense diversity in topography, flora, fauna and occupational patterns. Important rivers of the state include Indus, Chenab, Ravi and Jhelum, while Pir Panjal and Karakoram are the important mountain ranges.

A recent study by the Indian Network on Climate Change Assessment using regional Climate Change model 'PRECIS' has shown that the mean annual temperature in the Himalayan region, including Jammu and Kashmir, is projected to increase between 0.9 to 2.6°C by 2030s, while a rise in temperature is predicted for all seasons. The extreme minimum and maximum temperatures are also projected to rise between 1°C to 4.5°C and 0.5°C to 2.5°C respectively while the annual rainfall is likely to increase by 5% to 13%.

The study further showed a likelihood of a profound impact of climate change on climate sensitive sectors such as agriculture, natural ecosystems & bio-diversity, human health and water. With increasing temperatures, it is anticipated that there may be an all-round decrease in apple production and the line of production may shift to higher altitudes making the existing areas less productive. The study further predicts that more than half of the forest vegetation and bio-diversity is vulnerable to the impacts of climate change. Owing to likely increase in temperature and relative humidity, the study also suggests introduction of new foci for malarial transmission window, which is predicted to remain open for 0-2 months in the 2030'. The water yield in the Himalayan region, mainly covered by the Indus river system, is likely to increase by 5% to 20% in most of

the areas, due to increased rate of melting glaciers.

The Government of India has already launched the National action Plan on Climate Change in 2008 wherein eight national missions have been envisaged. Of these, the '**National Mission for Sustaining the Himalayan Ecosystem**' is most relevant to the State for mitigation & adaptation to climate change and is aimed to evolve management measures for sustaining and safeguarding the Himalayan glaciers and mountain ecosystem. Under the mission, community based management of these ecosystems is envisaged with an aim to maintain two-third of the area under forest and tree cover and ensure stability of the fragile ecosystems by adopting appropriate land-use planning and watershed management practices; incorporating 'best practice' norms for infrastructure development; encouraging traditional cropping methods and organic farming; promoting sustainable tourism and multi stakeholder partnerships for better livelihoods. Consequently, Govt has already setup the National Institute of Himalayan Glaciology to undertake cutting edge research on Himalayan glaciers and has initiated a coordinated research programme for measuring, modelling and monitoring the health of these glaciers. Other national missions important for the state include the National Solar Mission, the National Mission for sustainable Habitat, the National water mission and the National mission for Green India. Every state government is also expected to prepare a state action plan on climate change in line with the national plan.

Jammu and Kashmir state with around three-fourth of population dependent on climate sensitive sectors like agriculture, horticulture, livestock rearing, forestry, tourism and fisheries with low adaptive capacity has to develop and implement climate sensitive development strategies. It is imperative that the state follows a path of sustainable development by adopting appropriate technologies for mitigation of green house gases responsible for climate change. These technological applications could be to gradually shift to solar energy for lighting and thermal power generation; promoting energy efficiency in residential and commercial sectors; low carbon (use of CNG) and efficient public transport system and use of biotechnology. Another area of eco-friendly technological application is wind energy for which high potential exists in the state. Moreover this form of energy can be harnessed cost effectively. This demands that the policy and regulatory framework as well as the delivery mechanism are well placed for large scale adoption of these cleaner technologies. Other strategies for climate sensitive development could be rain water harvesting; conservation of natural forests, grasslands and wetlands; massive afforestation and reforestation; integrated watershed approach for development; sustainable and responsible tourism; and promotion of dry land agriculture. The most important component while operationalizing these strategies would be the involvement of the people at every level, i.e., planning, decision making, implementation and maintenance.

## MOTHER NATURE'S EXQUISITE WILD FLOWERS

O. P. Sharma

### "WILD FLOWERS BLOOMING IN THE WILDERNESS ARE MOTHER NATURE'S HEART STEALING GIFTS."

What a lovely architecture of petals all elegantly smiling in colours, sometimes swaying in the gentle breeze, sometimes drenched in rain droplets and sometimes veiled in wandering mists. Petals so delicate, so charming, so colourful, so elegant that butterflies, honeybees, birds, beetles all assemble to find eternal solace in their company. Wild flowers decorate forests, woodlands, grasslands, farmlands, wetlands, streamsides, mountain cliffs, alpine meadows with uniform splendour and zeal.

Each season has its special blooms, special habitats, mind boggling floral arrangements and god assigned role in the intricate web of life.

Flowers, the most attractive manifestations in nature, symbolize an eternal poetry of reproduction, nicely dressed, mathematically patterned, artistically coloured, engaged to pollinators and performing assigned jobs to keep the energy of life going through ages. Without flowers, species cannot perpetuate, life cannot be sustained, all creatures get sustenance through flowers, human beings are no exception. Lucky are naturalists who find time to explore the hidden secrets of nature. What a thrill they derive when they see flowers unseen before, watch pollinators enjoying nectar, tread meadows adorned with million and million of flowers, adore flowery landscapes and appreciate Gods creativity.

Winter bids farewell, spring arrives with bouquets of fragrances oozing out of several blooms, may be musk roses, daffodils, viburnums, buddlejas, jasmines. Rhododendrons get lovely hues, tulips decorate grasslands and woodlands, golden colour is shared by mustard and yellow flax all around. Trees, leafless or leafy, turn gaudy, silk cotton tree in red, coral tree in orange, bauhinia in little purple, holarrhena in pure white all in celebration mood to welcome season of flowers. Summer season has its special offers, Indian laburnums in golden yellow, flame of the forest in orange red, woodfordia in pink, drum stick trees in honey scented blooms.

Monsoon has its magic wherever it reaches, awakening dormant tubers, corms, rhizomes bulbs to get up and display exquisite patterns of blooms in rain drenched landscapes of mountains and meadows. Clouds, mists, drizzles, rainbows, breezes all join hands to take care of buds and blooms, bees and butterflies, streams and rivers, plains and mountains. If irises, daffodils, tulips are gone with the spring monsoon has bewitching arrays of balsams, dandelions, lotuses, anemones, buttercups, louseworts, bellflowers, hypericums, catmints, saussureas, larkspurs, geraniums, gentianas, aconites, mallows, fumitories, glory lilies, stonecrops etc all in abundance and everywhere if habitats are least disturbed. Morning glory, virgins bower, fragrant jasmine all over the bushes in different moods and styles to register their presence.

Mother nature's flowers nurtured through ages, perpetuated by pollinators, cared by clouds, drizzles, soils, sunshines, water, snow are indispensable for humankind but are we taking care of nature and its bounties for our better tomorrow, let us do introspection before we turn Mother Earth bereft of these gifts.



Himalayan Blue Poppy  
*Meconopsis betonicifolia*

**MOTHER NATURE'S EXQUISITE WILD FLOWERS**

**O. P. Sharma**

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**Indian Institute of Public Administration  
J&K Regional Branch**

Across 2nd Tawi Bridge, Opp. DDE Complex, University of Jammu, Jammu - 180006  
Ph. 0191-2434006, e-mail :- [iipajkbranch@gmail.com](mailto:iipajkbranch@gmail.com)