
HIMALAYAN AND CENTRAL ASIAN STUDIES

(JOURNAL OF HIMALAYAN RESEARCH AND CULTURAL FOUNDATION)

NGO in Special Consultative Status with ECOSOC, United Nations

Vol. 11 No.1

January - March 2007

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From Resistance to Mainstream Participation?**

Neha Sachdev

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Preservation and Sustainable Development of Wetlands in India**

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SUBSCRIPTION

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Single Copy (Individual)	:	Rs.	200.00
Annual (Individual)	:	Rs.	500.00
Institutions	:	Rs.	700.00

& Libraries (Annual)

OVERSEAS (AIRMAIL)

Single Copy	:	US \$	7.00
		UK £	5.00
Annual (Individual)	:	US \$	30.00
		UK £	20.00
Institutions	:	US \$	50.00
& Libraries (Annual)		UK £	35.00

This journal has been published with the partial financial assistance of the Central Asian Studies Programme, School of International Studies, Jawaharlal Nehru University, New Delhi. However, the responsibility for the facts stated or opinions expressed is entirely of the authors.

***Himalayan and Central Asian Studies is indexed and abstracted in
Worldwide Political Science Abstracts and PAIS International, CSA, USA***

*Subscriptions should be sent by crossed cheque or bank draft in favour
of HIMALAYAN RESEARCH AND CULTURAL FOUNDATION,
B-6/86, Safdarjung Enclave, New Delhi - 110029 (India)*

Printed and published by Prof. K. Warikoo on behalf of the Himalayan Research and Cultural Foundation, B-6/86, Safdarjung Enclave, New Delhi-110029. Printed at Print India, A-38/2, Mayapuri-I, New Delhi-64 and published at New Delhi.

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CONTRIBUTORS

Ms. Neha Sachdev is pursuing her research at National Law School of India University, Bangalore.

Dr. S. Bhatt is former Professor of Space Law and Honorary Professor of International Law, Jawaharlal Nehru University, New Delhi.

Shamim M. Khan is Director, Directorate of Environment and Remote Sensing, Government of Jammu and Kashmir.

Syed Niyaz Ahmed is Chairman of Kashmir Environment Protection Coordination Organisation (KEPCO), a local NGO at Bandipora, Kashmir.

Basharat Saleem is Vice Chairman of Kashmir Environment Protection Coordination Organisation (KEPCO), a local NGO at Bandipora, Kashmir.

Dr. (Mrs.) Krishna Bhatt is former Reader in Chemistry, University of Delhi.

Dr. Satwanti Kapoor is Professor at Department of Anthropology, University of Delhi.

Dr. A.K. Kapoor is Professor at Department of Anthropology, University of Delhi.

Dr. Mahesh Ranjan Debata is Sub-Editor, *Himalayan and Central Asian Studies*.

Mrs. Neerja Mattoo is former Principal, Teachers Training College, Srinagar, Kashmir.

HIMALAYAN AND CENTRAL ASIAN STUDIES

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CONTENTS

Editor's Page		1-3
NGOs and International Environmental Governance: From Resistance to Mainstream Participation?	<i>Neha Sachdev</i>	4-30
Law, Policy and National Legislation on Preservation and Sustainable Development of Wetlands in India	<i>S. Bhatt</i>	31-37
Conservation of Wullar Lake	<i>Shamim M. Khan</i>	38-55
Environmental Protection and Sustainable Development of Bandipora and Wullar Lake	<i>Syed Niyaz Ahmad</i> and <i>Basharat Saleem</i>	56-63
Role of Women in Environment Protection	<i>Krishna Bhatt</i>	64-68
Natural Resource Management: A Case Study of Chambidhar Micro-Watershed in Himachal Pradesh	<i>Satwanti Kapoor</i> and <i>A.K. Kapoor</i>	69-80
Environmental Degradation in Xinjiang	<i>Mahesh R. Debata</i>	81-93
The Story of a College with a Momentous Past	<i>Neerja Mattoo</i>	94-101
BOOK REVIEWS		
Voice of Peace in Kashmir	<i>Nur Ahmad Shah</i>	102-104
Interlinking of Rivers in India: Overview of Ken-Betwa Link	<i>S. Bhatt</i>	105-110
International Environmental Law and Policy	<i>S. Bhatt</i>	111-113

Editor's Page

The Stockholm Declaration of 1972 on the human environment is the charter for the protection and preservation of global environment. It called for common outlook and common principles to inspire the world for environmental protection and enhancement of human environment. The Declaration warned that a point is reached in history when we must take prudent care for environmental consequences. It did remind of the economic principles of Mahatma Gandhi that the earth can provide for human needs, and not greeds.

The environment movement since 1972 has witnessed various dimensions, including a debate between the merits of development and environment protection. The Rio de Janeiro Declaration of 1992 on environment and development laid emphasis on economic development to remove global poverty. Nevertheless, with large scale changes in the environment by global warming, pollution of air, waters and land areas, there was acute need to respond to environmental issues. The compromise was achieved at Johannesburg World Summit on Sustainable Development (WSSD) in 2002. The Chairman of Johannesburg Conference referred to certain problems and slow progress of sustainable development, especially in the underdeveloped countries. He said, there was need to involve all citizens for decision-making and sharing of responsibilities in environmental matters. The US delegate recommended good governance and economic assistance.

The WSSD recommended certain measures for sustainable development. These included the precautionary principle in international law, common and differentiated responsibilities of states, trade related Intellectual Property Rights (IPR) and public health issues to fight global health problems. Globalization and sustainable development meant “increased trade and capital flows, increased sharing of ideas, and extension of democracy and rule of law...” Other areas of concern were biodiversity, climate change, development aid, lack of resources etc.

The pressure on global environment seems to be increasing rapidly. The ocean may rise due to global warming and put millions at risk in Asia. A global body of scientists has been formed to conserve biodiversity. In UK, each citizen is now asked to pay tax for gas emissions to reduce greenhouse effects. SAARC countries have decided to have a common disaster management centre. Migration of people from villages to cities is changing the global ecological balance. The number of people living near coastlines is estimated to be 35 per cent and about 2.75 billion people are expected to be exposed to coastal threats due to global warming.

India has been at the forefront of environmental concern ever since Mrs. Indira Gandhi as Prime Minister of India led the delegation to the first global conference in 1972 in Stockholm. To Mrs. Gandhi, removal of global poverty was of great essence for protecting the global environment. The removal of poverty remains major issue even in today's context of sustainable development. In his foreword to the UN report from India for WSSD Conference in Johannesburg, the former Prime Minister of India Atal Behari Vajpayee, said that India has implemented Agenda 21 into its national developmental plan. He said: "Our democratic governance, comprising cooperative federalism, commitment to decentralization, an independent judiciary, a vigilant media, and an engaged civil society, provide the enabling framework to attain the objectives of sustainable development." For WSSD the Government of India has produced some other creative national documents. These include *Sustainable Development: Learning and Perspectives from India* based on a nationwide consultative process; *Towards Sustainability; Learning from the Past, Innovating for the Future*; and *Approaches to Sustainability; India's Capacity 21 Programme*. These documents throw enough light on the present and future planning of India's environment management.

India has also held large intellectual conferences of experts from various fields and created NGOs and centres of excellence to do research on environmental issues. Neha Sachdev presents a broad perspective on the role of NGOs in environment preservations.

Syed Niaz Shah who is the Chairman of an NGO in Bandipora, Kashmir, has done pioneering work for the protection of environment and wild life and management of water resources in Bandipora region. He and his colleagues have ideas for the development of Wullar Lake into a sustainable authority to be managed by the local public. Wullar Lake receives a large number of migratory birds from other countries. This lake has shrunk a great deal and needs to be restored to its original status. International environmental law has become of profound interest to mankind in recent years. Prof. Ved P. Nanda's seminal work on the subject is reviewed in this issue. The environmental situation in Xinjiang region of China has been analysed by Mahesh Ranjan Debata.

Mankind needs to have the historical wisdom to live in peace on earth. I. Keda and M.S. Swaminathan stress the need for a new consciousness to avoid war and terrorism. I. Keda calls for a creative co-existence of all communities. Tagore called it creative unity of mankind. The Himalayas and adjoining Central Asian countries have their own individual and collective ecological considerations. India has a very successful programme for remote sensing of environmental resources by outer space exploration. It can provide expertise and assistance to the neighbouring Central Asian Republics for sustainable development.

S. Bhatt

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE: FROM RESISTANCE TO MAINSTREAM PARTICIPATION?*

Neha Sachdev

INTRODUCTION

The evolution of international governance to protect the environment and prevent its further degradation has seen a tremendous surge in international regimes,¹ institutions, treaties and standards in the last few decades. As a result, principles such as ‘sustainable development’, the ‘precautionary principle’ and ‘polluters pay’ have become common, and as many have argued, now constitute customary international law.² Parallel to this development of regimes and institutions by ‘states’, has been the development of non-governmental organisations (NGOs) dealing with environmental issues that operate at the ‘international’, ‘regional’, ‘national’ and ‘local’ levels.³ This article evaluates the origin, growth and role of NGOs in the formulation and implementation of international environmental law, as well as explores their relationship with the main subject of international law - the nation state. This article addresses whether NGOs today reflect a part of this formal international structure governing the environment, or do they still reflect and represent the ‘third world perspectives’⁴, the ‘alternative perspective’, the opposition to the state and mainstream structures of state interaction in the form of inter-governmental organisations.

* An earlier version of this paper was presented at the First South Asia Level Round Table Conference on Law, State and Social Movements, on the issue of “Law and the (Im) Possibilities of Democratic Transformation” organised by the Centre for Study of Culture and Society and Action Aid International-India, at the National Law School of India University, Bangalore from 29 April to 2 May 2006.

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

The term 'non-governmental organisation' has at times been used to include even multinational corporations in its ambit.⁵ However, in this, an NGO will be used to describe not-for-profit pressure groups consisting of groups of people (or coalitions of organisations), who come together outside the formal structures of government in an institutionalised and regularised manner with a view to achieving social, economic or political changes.⁶ The NGOs can also be defined as those groups that are involved, in a broad sense, with issues of 'sustainable development',⁷ and have expanded across national boundaries, and are, to some extent, involved in the functioning of international environmental governance, as formalised by the UN.⁸

A natural question that arises regarding the scope of this article is why it has been limited to only include 'environmental NGOs', since the central theme of this article is very much relevant for organisations dealing with issues of human rights. Indeed some authors would look upon such a distinction as facile, given the increasing importance to using the 'human rights approach' to environmental law.⁹ Given certain fundamental differences in the practical implications of environmental law and human rights, such a distinction is necessary to the analyses undertaken. Firstly, the nature of the problems and solutions of environmental degradation are far more global in nature than the issues of human rights protection. Violations of human rights generally occur within the boundaries of nation states, while the inherently globally intertwined nature of environmental degradation as well as the limitations of the traditional notions of state boundaries and sovereignty to deal with such issues have led to the rise of environmental governance on an international scale.¹⁰ This global nature of environmental issues is exemplified by the unique nature of 'common resources' like the oceans, which no one state can claim sovereignty over.¹¹ Secondly, the element of scientific uncertainty in the cause and solution of environmental problems in a general or particular case, influences not only the policy decisions taken by states, but the actual negotiation of international regimes.¹² Such uncertainty has implications for the manner in which NGOs function particularly in the context of the north-south

divide. Lastly, due to the differing (though at times overlapping) formal structures within the United Nations dealing with the environment and human rights respectively, the article is based on such a distinction between the issues of environment and human rights.

The article firstly discusses how the NGO community is not a homogenous body, and the general treatment of NGOs as performing a certain function is fallacious. The article analyses various classifications put forth by authors and discusses some of the implications. It traces the origin and development of the NGO movement beginning from Stockholm to Rio and beyond. In each of the distinct time periods, the aim is to highlight the role of NGOs in the international negotiations, concentrating specifically on the attitude of state parties towards NGOs, and the changes that such participation in formal negotiations had on the functioning of NGOs themselves. As a case study of the increasing importance of the role of NGOs, an analysis of the World Bank Inspection Panel has been undertaken.¹³ Further on, using the critical analyses by authors like Chimni¹⁴, Rajagopal¹⁵ and Richardson,¹⁶ the article examines the politics of the dialogue of 'sustainable development' to analyse who or what NGOs represent today and what is their relationship with state centric structures of international governance.

It can be argued that based on the role and development of NGOs in international environmental governance, it is best to be circumspect about making any sweeping generalisations regarding NGOs representing any 'third world perspective' or representing any alternate viewpoint within the context of international environmental governance. Furthermore, extending Chimni and Rajagopal's analysis, it can be argued that in their interaction with the formalized UN structure, as well as due to the discourse on 'sustainable development', the more radical grassroots NGO viewpoints have gradually been mainstreamed and that today they form an integral part of the international environmental governance.

**CLASSIFICATIONS OF NON-GOVERNMENTAL
ORGANISATION: BREAKING THE MYTH OF
HOMOGENEITY**

The idea of NGOs and the initial reason for their involvement in the process of international governance was to facilitate viewpoints which were different from those being advocated by state parties, as well as represent 'special interests' those of women, youth, environment and indigenous people.¹⁷ As a result, there is often a tendency to treat the NGOs as a homogenous community, whose presence at international negotiations signified a 'participatory revolution' in international governance.¹⁸ However, as has been shown and criticized by a number of writers today, treating the NGO community as one which is 'nothing short of taking a great leap of faith'. This section of the article, therefore, outlines some of the primary lines across which NGOs can today be divided and attempts to propose some of the primary divisions between the NGO community.

Based on the work done by Hunter, Salzman and Burke,¹⁹ McCormick,²⁰ the following are the major lines across which NGOs dealing with environmental issues can be divided.

A. *Basis of Size and Range of Issues Dealt with*²¹

This is the simplest classification of NGOs dealing with international issues as presented by Hunter and others, who divide NGOs into three varieties (i) Large membership organisations like the National Resources Defence Fund and Sierra Club in the United States, which have the resources and technical expertise to deal with full range of environmental issues and are, therefore, very active in international negotiations; (ii) Organisations that are dedicated primarily, if not exclusively to global and transnational environmental issues, and includes organisations like Centre for International Environmental Law (CIEL), though some of these organisations may be very narrowly focussed; and (iii) The third category of NGOs are those which operate as a part of a global network, and the most notable of such organisations is the International Union for Conservation of Nature

(IUCN) which is actually a network of NGOs and governmental agencies. However, such a classification is too broad to point out the heterogeneity within these categories and is a very northern dominated manner of analyses.

B. Philosophical Differences between NGOs

This classification has been greatly emphasized by McCormick, who uses the differences between the groups outlined as the basis of the other distinctions outlined by him. According to him, NGOs may be divided into the following groupings on the basis of their ideological leanings.

i) **The North-South Divide:** The divergent opinions and conflicts taken by countries of the North and South towards environmental governance has been well documented, and such a divide has been observed even in the manner in which NGOs operate. While the NGOs from the North tend to focus on the environmental consequences of industrial development and argue that there is need to be adjustments in the goals of free market and greater regulation of industry; the NGOs from South argue that many of the problems of environmental degradation result from poverty, shifting of polluting industries from the North to South and the demands of the consumerist culture of the North. A significant point missed out here is that even within the NGOs from the South, there exist many who oppose rapid industrialisation and modernisation of the economies, and therefore, ideologically would be closer to their counterparts in the North. Moreover, it has been pointed out that there has been significant progress in cooperation between NGOs from the North and South, who have been able to bridge the ideological divide between them through interaction and cooperation at international forums. Furthermore, obviously differences exist between the NGOs from the North and South in terms of finances, access to international organisations, ability to participate effectively in such negotiations. Such differences in their resources and abilities will be further highlighted later while tracing the development of the NGO movement in international governance.

ii) **Pragmatist, Deep Ecologists and Radicals:** Rosenbaum identifies three ‘enclaves’ of philosophical differences between NGOs.²² Firstly, the ‘pragmatists’ who consist of the largest, most conservative, most politically active and publicly visible groups and prefer to work within the established political processes to influence public policy.²³ Secondly, the ‘deep ecologists’ are those groups who emphasise the place of human beings as a part of nature and believe that all forms of life have equal right to exist and challenge institutional structures and social values upon which governments are based and economies function. In several countries, these views have been combined with political parties to produce green political parties that see themselves as vanguards of a new society in which human beings take a more holistic approach to themselves and the environment.²⁴ The third of Rosenbaum’s enclaves consists of groups, who have become disenchanted with the methods and goals of mainstream environmentalism and believe in the use of direct action as a means to urgently bring about urgently needed political and social change.²⁵

While these enclaves again take a very northern approach towards classification, such a classification is useful in terms of the differences in approach that it outlines by the various enclaves and how they would, in turn, approach international negotiations as well as lay down a structure of the divergent groups that NGOs today represent.

C. Functional Division between NGOs

While McCormick terms this classification a difference in methods and strategies followed by NGOs,²⁶ since the classification is similar to the functional classification followed by Bluemel, it would, therefore, be useful to examine them within the same context. Following is the basic classification of NGO functions in international regimes as presented by Bluemel.²⁷

i) **Policy Formulation**, which has been further classified into roles that NGOs play in a) Agenda Setting b) Norm or Rule Formulation c) Lobbying and Participation.

ii) Administrative Functions like certification, standard setting, providing information to state parties during international negotiations.

iii) Enforcement Functions, which involve a further categorization of providing services of arbitration and mediation and monitoring the enforcement of international obligations.

As has been demonstrated in the above, there is no real thing as an ‘NGO community’ that can be said to exist. These NGOs represent a wide variety of interests, constituencies, have different philosophies, methods of functioning, play different roles in international negotiations, which are very often dependent on their resources, membership and clout. A clear example of such wide varieties of interests being represented by the NGO community was clearly manifested in the recent meeting of the United Nations Framework Convention on Climate Change in Montreal in 2005. The NGOs at the Conference represented a broad spectrum of interests, and embraced representatives from business and industry, environmental groups, indigenous populations, local governments and municipal authorities, research and academic institutes, parliaments, labour unions, faith groups, women and youth.²⁸

While it is difficult to point out the exact categorisation or classification of NGOs which is appropriate for a general analysis, a combination of the ‘functional analysis’ as presented by Bluemel and the ‘north-south’ division between NGOs, which is a manifestation of the larger debate in international environmental law, are the primary distinctions that have to be kept in mind while analysing this article.

ROLE OF NGOs IN THE DEVELOPMENT OF INTERNATIONAL ENVIRONMENTAL LAW

In order to fully appreciate the role and influence of NGOs in international environmental governance today, this article examines the evolution of NGOs in three specific stages. The focus in each time period highlights what role did NGOs play in each time period to trace

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

the development of NGOs as a whole in terms of their role in international negotiations. Furthermore, the dimensions of the problem of the North-South divide within the NGO community and its manifestation in the form of agenda setting, resources and impact on actual norm setting are also highlighted here.

Pre-1972 (Before the Stockholm Declaration)

Perhaps the first sign of the beginning of present NGOs was in 1947, when the International Union for the Protection of Nature, first NGO with a global outlook on environmental problems was founded. Renamed as the IUCN in 1956, it became the precursor to the creation of other significant organisations like the World Wildlife Fund (WWF). However, it was in the 1960s, there was a rapid rise in public interest in environmental problems. New NGOs were created and this came to a peak in 1972 with the convening of the United Nations Conference on Environment in Stockholm, attended by more than 400 NGOs. Among the many consequences at Stockholm, a few stand out in the context of NGOs. Firstly, the presence of so many national and international NGOs at the Conference drew public and political attention to their work and encouraged them to be more persistent with their work and influence public policy. Secondly, Stockholm resulted in the eventual realisation of the divergence in the requirements of the developed north in contrast to the developing South. Lastly, and most significantly, the Conference resulted in the creation of the United Nations Environment Programme (UNEP), which redefined the interest of the UN in environmental issues and offered NGOs a new forum where they could influence public policy.²⁹

During the Conference itself, NGOs undertook several tasks such as providing information to government delegations, assisting in preparation of national reports, and publishing a separate newspaper for both NGOs and governments. However, during the actual conference period, NGOs were relegated to a separate 'environmental forum' which was physically distant from the main nerve centre, resulting in NGOs feeling alienated as well as NGOs having little influence on

‘real action’.³⁰ Further, even within this limited role of NGOs, very few ‘elite’ organisations like the IUCN actually played a substantive role like being responsible for the drafting of the Convention on Biodiversity in 1992.³¹ Thus, Stockholm Conference proved to be only a beginning in the role of NGOs in subsequent international negotiations. However, it firmly placed environmental issues in the map of international governance.

From Stockholm to Rio (1978-1992)

In the years between Stockholm and Rio, the NGO community through exchanging information across boundaries, thereby ensuring two important differences between the two conferences. Firstly, the final realisation that issues like climate change, biodiversity, deforestation etc. required urgent global realisation and secondly, the link between issues of development and environment was explicitly recognised, leading to the dialogue and concept of ‘sustainable development’ emerging at the United Nations Conference on Environment and Development (UNCED) in 1992.³²

The UNCED was groundbreaking for the NGO community in many ways, as there were several prominent NGO networks that coordinated and facilitated NGO access to the UNCED increasing participation not only in numbers but also more widespread.³³ However, many contentious issues like the extent to which NGOs could participate in the Conference, as well as the issue of accreditation of NGOs and which NGOs were to be allowed into the Conference created huge issues. While the issue was almost completely stalled, the first preparatory meeting before the Conference, during the third preparatory meeting, members of NGOs were escorted out of informal gatherings where most of the decisions were made when delegates refused to have them interfere with the process.³⁴ Furthermore, there was a huge discrepancy between the number of participants from the industrialised north and NGOs from the South, and while the former had a great deal of resources and lobbying tactics, the southern NGOs were able to finally participate to a certain extent only by the final

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

meetings due to information deficits.³⁵ While on the one hand, the UNCED signified the beginning of widespread participation base in international negotiations by NGOs, it also introduced NGOs to the vagaries of the UN system of regime negotiation. Combined with the compromise of 'sustainable development' that was worked out during the UNCED, it was perhaps the beginning of the 'deradicalisation' of the 'third world' dissent as advocated by Rajagopal.³⁶

The Post-1992 Period and the World Bank Inspection Panel

The period after the Rio Declaration has seen a massive proliferation of treaties and institutions dealing with different aspects of environmental governance, and in fact, the system has today become so complicated that it is difficult to ascertain the respective jurisdictions of various inter-governmental organisations dealing with environmental change. NGOs, on the other hand, have not only become an addition to international negotiations during this period, but in many cases, have been an integral part of the treaty formulation and enforcement. Furthermore, in almost all major environmental treaties, after Rio, whether the Montreal Treaty on Ozone Layer or the Climate Change treaties have contained provisions regarding formal consultations with NGOs. However, it remains significant that none of these contains any provisions regarding the 'right' of an NGO to participate in the proceedings once admitted. As has been proposed by Raustalia, the general pattern seems to expand NGO participation at the initial policy making stage, but at the time that the actual drafting and decision making is taken, NGOs unless very influential are shown the backdoor. However, as shown by the Montreal Protocol and the mechanisms developed under the UNFCCC, NGOs are today assuming increasing importance at the stage of monitoring and implementation.³⁷

A major development after the Rio Declaration was in 1993, when the World Bank put in place its inspection panel to monitor complaints from non-governmental organisations regarding failure of the Bank's own policies. While the mechanism requires the persons to show 'direct injury' and there are several other shortcomings to the panel, it is

significant because that at times the sovereign state may not be able to best represent the interests of its communities and at the same time, it also opened international financial institutions to the direct scrutiny of non-governmental organisations.³⁸ The first complaint received by the Bank was in 1994 regarding Arun Valley project in Nepal, where the Panel found that the Bank's guidelines were indeed violated and this led to withdrawal from the project by the World Bank.³⁹ Today such policy review is being followed by other international financial institutions as well. This development is significant as it enabled NGOs to access international institutions procedurally for the first time, a right which they are still denied as far as international judicial institutions are concerned.

Hence, the participation of NGOs has gradually greatly increased at all levels in the formulation of international environmental norms. While such participation has undoubtedly become more widespread today than it was in the 1970s, factors such as the resources of an organisation, its philosophy and its relationship with mainstream inter-governmental organisations and its background and experience at participating in international negotiations all have a bearing on who and what NGOs and consequently, which interests are represented at international regime building.

'SUSTAINABLE DEVELOPMENT' AND ROLE OF NGOs

NGOs are heterogeneous bodies in terms of their resources and philosophies and play diverse functions in international environmental governance. The initial perception of NGOs as representing a certain alternative viewpoint when compared to the state, therefore, has to be critically re-examined in light of the evolution and development of NGOs in the last decade. In this context, no where are the differences between NGOs perhaps more manifest than between those belonging to the North and those of the South. Hence, it would be crucial to examine as to whether southern NGOs represent the so called 'third world perspective', and whether they are in a position to do so.

As an initial point, some of the arguments of the North-South debate in international environmental law must be examined, before contrasting the same with the recent third world scholarship on international organisations dealing with sustainable development and environmental governance.

SOUTH-NORTH CONFRONTATION AND ITS IMPLICATIONS FOR NGOs

In the effort by the North to evolve international standards of environmental governance, the South, at best, has been a reluctant participant. While earlier its opposition was grounded in the doctrine of 'permanent sovereignty over its natural resources'⁴⁰ and infringement over its sovereignty; later on, it has viewed global environmental dialogues as an excuse to deprive it of its 'right to development', especially now 'that its time has arrived'. Developing nations such as India, China and Brazil have been at the forefront of such opposition, as they believe that it is the North that caused such massive environmental degradation, and now the developing nations are being asked to pay the price for what the developed world has done. Further, there are genuine concerns regarding the ability of the South to actually implement costly and highly technical environmental friendly means of production especially since it is confronted with the more urgent problems of economic development. Scholars and negotiators from the South have often complained that these global environmental concerns are actually problems with the North considers important, while the South has a different set of environmental problems resulting from poverty, or in some cases rapid and uncontrolled urbanisation; which are not the subject matter of such environmental debates as global forums.⁴¹ As is recognised today, poverty is the worst cause of environmental problems, and with the help of economic analysis like the Kuznets curve,⁴² the South has time and a gain demanded for a 'right to development'.⁴³ The South believes that it is the North which has both the 'moral' obligation, as well as the economic means to control environmental degradation. Thus the southern approach to international

environmental negotiations can be best described as 'defensive', i.e., trying to limit the reach, effectiveness and stringency of environmental standards.

The North in response to such opposition came up with the concept of 'sustainable development', which since the 1992 Rio Conference has formed the backbone of the very dialogue on environmental governance. The essential conflict between development and environmental protection is, however, far from resolved, as the very meaning of this term is far from clear.⁴⁴ There is a recognition on part of the North that the South does need economic and technological assistance to implement international environmental standards.⁴⁵ However, the same is either voluntary under treaties, or remains a pipe dream, and developmental aid has been on a decline since the end of the Cold War. The calls from the South that the North should reduce its 'excessive' consumption patterns and extravagant lifestyles, rather than deny the people of the South the very right to develop, as evidenced by the process of negotiating the climate change treaties, have fallen on deaf ears.⁴⁶

The interesting question, therefore, is whether this divide between the northern and southern 'states' and their concerns also affected philosophical differences between NGOs. As has been pointed earlier, that had indeed been the case initially as northern NGOs were arguing to correct the imbalances caused due to industrial growth, while southern NGOs were blaming poverty and the lack of industrialisation as the fundamental cause of environmental degradation. However, the situation today is mixed in the sense that it is not easy to make generalisations regarding what northern NGOs stand for (as a lot of them recognise the problem of resources faced by the South and have advocated for real implementation of measures like technology transfer), while southern NGOs are by themselves divided fundamentally into those who view the lack of economic growth and poverty as the cause for environmental degradation and, therefore, argue on the lines of 'sustainable development' as being the remedy to all ills, and those who are opposed to industrialisation, modernisation, globalisation and its indiscriminate affects on Third World masses.

**THIRD WORLD PERSPECTIVE
ON INTERNATIONAL LAW AND NGOs**

It is not to say that those scholars representing the Third World Perspective on International Law disagree with the points mentioned above. Rather they go a step further to view international law and regimes as Euro-centric, Western, statist, colonialist, masculine. Significantly, this particular viewpoint today encompasses within its ambit not only new independent states within the meaning of the term 'Third World', but also social movements of peasants, environmentalists and feminists.⁴⁷ They seek to explain the relationship between state and inter-governmental organisations on one hand and NGOs dealing with issues of sustainable development on the other.

Prof. B.S. Chimni, presents an interesting analysis in his writing on international institutions and the Third World.⁴⁸ He builds an argument that the network of economic, social and political international institutions has today been repositioned at the initiative of the 'First World', and together these institutions constitute a nascent global state, whose function is to realise the interests of transnational capital and powerful states in the international system to the disadvantage of the 'Third World' states and peoples.⁴⁹ While he admits that it would be absurd to disregard the usefulness of International Environment Organisations (IEOs) in promoting the interests of the global environment, he laments the effectiveness of the principle of 'common but differentiated responsibility', which he argues has led to the redistribution of property rights in favour of the developed world.

While his argument can be seriously challenged in the context of international environmental law, significant are his observations regarding the emergence of non-governmental organisations. Firstly, he argues that many powerful NGOs (ICC, WEF etc.) represent the interests of the transnational capital and not the concerns of marginal and oppressed groups in the world. Secondly, NGOs essentially represent neo-social movements (NSM) to the exclusion of old social movements (OSM) like trade unions, peasant and student movements. Therefore, only a particular kind of counter-hegemonic discourse finds

its way into international organisations. This discourse is mildly reformist and does not seriously threaten the critical interests of the transnational capital. Thus, the current enthusiasm for NGOs is perhaps to be explained more by the management of dissent than by the cause of democracy and human rights. Third, the North-South divide is reflected in the world of NGOs as well, with southern NGOs not possessing the resources to intervene effectively in international organisations. Fourthly, he points out that transnational or global NGOs themselves suffer from a democracy deficit as they are not accountable to anyone other than those who loosen their purse strings for them.⁵⁰

Balakrishna Rajagopal, on the other hand, attacks the very foundations of sustainable development and green politics as developed by international financial institutions like the World Bank. While his work does not address NGOs directly, his argument is that international institutions are more than just 'functional' mechanisms to implement vision of a world order, but rather are independent variables where Third World resistance is played out, compromised and channelled, is first of its kind.⁵¹ While examining the 'greening' of international financial institutions, he departs from the usual lament of the World Bank having too much of a say in the internal matters of the Third World nations, as he says that the policies and influence of the Bank have developed as a result of its complex interaction with the Third World resistance.⁵² He argues that the environmental discourse in the form of 'sustainable development' reflects one such rationale answer formulated by the Bank in response to public pressure of grassroots movements.⁵³

While the grassroots resistance has caused the Bank to make the environment as one of its important criterias for lending today,⁵⁴ the dialogue of sustainable development has today given the Bank yet another justification to increase its influence in the Third World, as 'good ecology has become autonomous with good economy'. Hence, he effectively develops a 'theory of deradicalisation' of Third World resistance when pitted against international organisations. For him, the environmental movement and the consequent dialogue on sustainable development reflects one such compromise.

Prof. Benjamin J. Richardson, on the other hand, advocates the need to build linkages between local, national and global legal codes and institutions for effective management of environmental resources.⁵⁵ Such a viewpoint draws on the cultural, historical and social differences at the local levels of Third World societies, and effectively argues that environmental governance, needs to begin at the lowest level, and inspite of the traditional respect given to nation states as a whole, the need of the hour is to empower the local governments and communities. Hence, he attempts to draw effective linkages between local NGOs and communities and those functioning at an international level, which could be able to solve the problem of environmental governance effectively.

**MAPPING THE RELATIONSHIP BETWEEN
INTERNATIONAL ORGANISATIONS, NGOs
AND THE THIRD WORLD**

The traditional North-South divide on issues of environmental issues seems to have permeated the functioning of NGOs as well. As has been demonstrated in the article earlier, the resource crunch as well as the sheer inexperience of some of the Southern based NGOs have been a major drawback in effective Third World representation in international negotiations. While such representation has increased over the three phases marked out in this article, at no level can it yet compare to organisations that exist in the North, and hence, very often it can be said that the 'real' Third World masses go unrepresentative at the negotiation of an international regime. The same can, however, be overcome using the idea of transnational networks between NGO communities as given by Richardson, and something which has greatly been on the rise since the Rio Summit.

It has more to do with practicality and resource issues than actual difference in ideology. The heterogeneity of the philosophies of NGOs both in the north and the south, wherein both have moved away from the traditional stances adopted by states and infact, have a greater understanding of the issues plaguing each other, as well as the realisation of the intertwined nature of global environmental problems has ensured

that documenting the different ideologies represented at global negotiations like those in Montreal of making generalisations about them would be an exercise in futility. Regarding the more fundamental question of sustainable development and what it represents, sustainable development reflects a compromise not just to appease southern states, but to be able to reconcile the needs to urgently protect the environment with the global nature of its problem.

CONCLUSION

As has been pointed out repeatedly in the article, NGOs do not represent any one ideology or philosophy, and hence, going back to the central question in this article regarding the relationship between NGOs and states, the only general conclusion that can be drawn is that while states do remain the central decision makers, the role and influence of NGOs cannot be denied. As to what NGOs represent and whether they are complementary to what states stand for is something which is of an issue determination and varies from case to case. It can also be concluded that while NGOs have often been at the forefront to oppose states and bring to their notice fundamental issues and environmental problems, they are today very much participants in international environmental governance, though with more limited roles.

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2. Phillipe Sands, "International Law in the Field of Sustainable Development", *British Yearbook of International Law*, vol. 65, 1994, p. 304.
3. For the important distinctions between NGOs functioning at these levels, as well as the importance of linkages between them, see Richardson, "Environmental Law in the Post-Colonial Societies: Straddling the Local-

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

Global Institutional Spectrum”, *Journal of International Environmental Law and Policy*, vol 1, no. 3, 2000; Hunter, Salzman, Zaelke (eds.), *International Environmental Law and Policy*, 2002, pp.255-56.

4. Throughout this article, the term ‘Third world perspective’ has been used in the specific context of a new body of scholarship known as ‘Third World Perspective on International Law’ (TWAIL). Prominent authors of this genre include Balakrishna Rajagopal, Helena Alviar, Anthony Anghie, Upendra Baxi, Lan Cao, B.S. Chimni, James Gathii, Yash Ghai, Ruth Gordon, Shadrack Gutto, Hope Lewis, Tayyab Mahmoud, Makau Wa Mutua, Vasuki Nesiah, Celestine Nyamu, Liliana Obregon, Joe Oloka-Onyango, Diane Otto, Neil Stammers, Kerry Rittich, Hani Sayed, Boaventura de Sousa Santos Amr Shalakany and Issa Shivji, amongst others. As has been observed by James Gathii, there are essential characteristics of TWAIL scholarship. Firstly TWAIL places colonialism as an important backdrop against which to appreciate the historic role of international law in relation to developing countries. Secondly TWAIL views the national/domestic context as an element of ambivalent value rather than as a barrier to the presumed or givenemancipatory potential of universalist projects of rights and markets. Thirdly, TWAIL utilizes the analytical apparatus of economics and examines the complex relationship of international apital and identity issues. For more details, see Gathii, “Alternative and Critical: The Contribution of Research and Scholarship on Developing Countries to International Legal Theory”, *Harvard International Law Journal*, vol. 41, 2000, pp.273-74; Gathii, “Rejoinder: Twailing International Legal Law”, *Michigan Law Review*, vol.98, 2000, p.2066; Karen Mickelson, “Rhetoric and Rage: Third World Voices in International Legal Discourse”, *Wisconsin International Law Journal*, vol.16, no.2, Summer 1998, p.353.
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6. *Ibid*, p.199; J. McCormick, “The Role of Environmental NGOs in International Regimes”, in Axelrod and Vig (eds.), *The Global Environment: Institutions, Law and Policy*, 1999 pp. 52, 55. Other significant definitions include: The Encyclopedia of Public International Law defines NGOs as private organisations “not established by a government or by inter-governmental agreement which are capable of playing a role in international affairs by virtue of their activities...” H. Rechenberg, “Non-Governmental Organisation”, *Encyclopedia of Public International Law*, 1986, p.276. The International Law Dictionary defines an NGO as a “private international organisation that serves as a mechanisms for cooperation among private national groups in international affairs...” Robert L. Bledsoe and Boleslaw L. Boczek (eds.), *The International Law Dictionary*, 1987, p.77.
7. The most famous definition of sustainable development is: “Sustainable Development is (the) development that meets the needs of the present without the compromising the ability of (the) future generations to meet their needs”. World Conference on sustainable development, and atleast seventy different meanings of the concept, see Axelrod and Vig, 1999, p.7.
8. Doharty, *op.cit.*
9. Alan E. Boyle and Michael R. Anderson (ed.), *Human Rights Approaches to Environmental Protection*, 1996. Also see, W. P. Gormley, *Human Rights and Environment: The Need for International Cooperation*, 1976. For an extensive analysis as to whether the human rights to environment exists in international law, see Luis E. Rodriguez-Rivera. “Is there a Human Rights to Environment Recognized under International Law? It Depends on the Source”, *Journal of International Environmental Law Policy*, no.12, 2001.
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NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

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14. B. S. Chimni, "International Institutions Today: An Imperial Global State in the Making", *European Journal of International Law*, vol. 15 , 2004, p. 1.
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and Diehl (eds.), *International Law: Classical and Contemporary Readings*, 2004, p.505. Others have analysis they have undertaken, see Kal Raustiala, "The 'Participatory Revolution' in International Environmental Law", *Harvard Environment Law Review*, vol.21, 1997, p.537. This misinterpretation and its fallacies have been clearly been pointed out Bluemel. Bluemel, "Overcoming NGO Accountability Concerns in International Governance", *Brooklyn Journal of International Law*, vol.31, 2005, p.139.

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20. McCormick, 1999, pp.60-68.
21. Hunter, Salzman, Zaelke, *op.cit.*, p.255.
22. Walter A. Rosenbaum, *Environmental Politics and Policy*, Washington DC: CQ Press, 1995, pp.24-27.
23. These in the United States would include the members of what is called as the 'Group of Ten'. The biggest and most mainstream NGOs such as the National Wildlife Federation, the Sierra Club. Their counterparts in Europe would be organisations like the Royal Society for the Protection of Birds in Britain, World Wide Fund for Nature. Mc Cormick, 1999, p.60.
24. *Ibid.*, p.64.
25. Notable among such groups were 'Friends of the Earth' and 'Greenpeace', which had a reputation for headline grabbing tactics like interfering with whaling activities and having their members tie themselves to bridges to protest the shipment of nuclear waste. However, the best known example would be 'Earth First', which argues that extreme methods are needed for extreme problems and has opted for militant

NGOs AND INTERNATIONAL ENVIRONMENTAL GOVERNANCE

- action termed as *ecotage*, like hammering spikes into trees to prevent their cutting down. *Ibid.*, p.62.
26. McCormick lays down the following different strategies that NGOs use to achieve their aims: a) Working with elected officials, bureaucrats and employees of corporations b) Raising and Spending Money c) Campaigning and spending money c) Promoting media coverage of environmental issues d) Litigation and Monitoring and implementation of environmental law e) Information exchange f) Undertaking research g) Acquiring and Managing Property h) generating local community interests in environmental protection. McCormick, 1999, pp.66-68.
 27. Bluemel, *op.cit.*, pp.160-178. Bluemel derives his basic classification from Brozel and Thomas Risse who classified 'public-private' partnership on the basis of their purpose or function into "either rule and standard setting, rule implementation, or ser vice provision". Brozel and Risse, "Public-Private Partnerships: Effective and Legitimate Tools of Transnational Governance?" in Grande & Pauly (eds.), *Complex Sovereignty: Reconstituting Political Authority in the Twenty-First Century*, 2004, pp.195, 203-06.
 28. See www.unfccc.com. For further information regarding the role of NGOs in the negotiation of climate change, see Giorgetti, "From Rio to Kyoto: A Study of the Involvement of NGOs in the Negotiations of Climate Change", 21 *New York University Law Journal*, 1999, p.20.
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 30. Doherty, *op.cit.*, pp.202-203.
 31. Gupta, "Non State Actors in International Law and Governance: A Challenge or a Blessing", *Journal of International and Comparative Law*, 2005, pp.497,504.
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 33. The most influential of these were the international Facilitating Committee (IFC), which was created specifically to assist NGO work with UNCED, and was acoordinatory of the NGO Global Forum in Rio; the Environmental Liaison Centre International, created after Stockholm Conference to facilitate communication between NGOs and the Forum of Brazilian NGOs for UNCED, the other coordinator of the Global forum. *Ibid.*
 34. *Ibid.*, pp.205-06.
 35. *Ibid.*, pp.211-12.
 36. Rajagopal, *op.cit.*

37. Raustilia, *op.cit.*, p.548.
38. Gualtieri, *op.cit.*, p.253.
39. Hunter, "Using the World Bank Inspection Panel to Defend the Interests of Project Affected People", *Chicago Journal of International Law*, vol. 4, 2003, p.201.
40. The principle of 'permanent sovereignty' over natural resources was introduced on the United Nations debates in order to underscore the claim of colonial peoples and developing countries to the right to enjoy the benefits of resource exploitation and to allow 'inequitable' legal arrangements, under which foreign investors had obtained title to exploit resources in the past, to be altered or even to be annulled from the beginning, because they confronted with the concept of 'permanent sovereignty'. Industrialised countries opposed this with the principle of *pacta sunt servanda* and respect for acquired rights. For a discussion of 'permanent sovereignty' and the arguments and opposition of former colonies in the drafting of the Principle 21 of the 1972 Stockholm Declaration, see Nico Schrijver, *Sovereignty Over Natural Resources: Balancing Rights and Duties*, Cambridge: Cambridge University Press, 1997, pp.120-140. For a discussion of the claims of 'permanent sovereignty' raised in the context of environmental damage caused by Australia in its occupation of Nauru, and the resultant claim before the International Court of Justice (ICJ), see Antony Anghie, "The Heart of My Home: Colonialism, Environmental Damage and the Nauru Case", *Harvard International Law Journal*, vol. 34, 1993, p.445.
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- D. Siniscalco and T. Trencce (eds.), *The Environment After Rio: International Law and Economics*, 1994, p.33; Daniel Barstow Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms", *Colorado Journal of International Environmental Law and Policy*, vol. 1, 1990, pp.69-73; K. Mickelson, "Rhetoric and Rage: Third World Voices in International Legal Discourse", *Wisconsin International Law Journal*, vol. 16, 1998, pp.353, 387; Dumble, "Poverty, Wealth and Obligation in International Environmental Law," *Tulane Law Review*, vol. 76, 2002, p.84.
42. In 1992, the World Bank attempted to trace through the experience of the OECD countries, an interrelationship between Gross Domestic Product (GDP) per head and the extent of economic pollution. The document suggested that the concentration levels of a number of atmospheric pollutants are increasing functions of GDP per head, and when GDP per head is low, and are decreasing functions when GDP per head is high. In short, the Kuznets curve is bell shaped, and if analysed, the conclusion is that the trade off between poverty and environment is existent only in the short run, but in the long run such a trade off disappears. For criticisms of such an economic analysis see Dasgupta, "Poverty and Environment: Is There a Trade-Off?" in Campiglio, Pineschi, Siniscalco and Trevas, *op. cit*, pp.249, 252.
43. The existence of any such "right" is disputed by the developed world, in particular the United States, and is the subject of political and academic controversy generally. The source of the right to development often is traced to the adoption by the United Nations General Assembly in 1974 of a Declaration and Programme of Action on the Establishment of a New International Economic Order (NIEO). Although the NIEO itself did not mention the 'right to development', the NIEO has been cited in subsequent materials as an example of a "blue-print" of the right to development in action. Since NIEO, the right to development has been articulated more proactively. For example, in the 1986 United Nations Declaration on the Right to Development. Isabella D. Bunn, "The Right to Development: Implications for International Economic Law", *American University International Law Review*, vol. 15, 2000, pp.1425, 1426; See Declaration on the Establishment of the Establishment of a New International Economic Order, G.A. Res. 3201 (S-VI), U.N. Gaor, 6th Special Sess., Agenda Item 6, 2229th plen. Mtg., at 1, U.N. Doc. A/RES/3201 (S-VI), 1974; Declaration on the Right to Development. G.A. Res. 41/128, UN Gaor, 41st Sess., Annex, Agenda Item 101, 97th plen. Mtg., UN Doc. A/RES/41/128 (1987). However, other authors, predominantly from the South look at the 'Right to Development' and

- the move towards a 'New Economic Order' as beyond a mere 'success' or 'failure', but rather to be measured in terms of the institutions like UN Conference on Trade and Development (UNCTAD) UN Development Programme (UNDP) etc., which were brought about the formulated within the United Nations system. Rajagopal, 2004, p.94. For a contradictory 'southern' view point regarding the importance of NIEO, see Hossain, *Legal Aspects of the New Economic Order* (1980); Milan Bulajic, *Principles of International Development Law: Progressive Development of the Principles of International Law Relating to the New International Economic Order*, Lancaster: Martinus Nijhoff Publishers, 1986.
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48. B.S.Chimni, *International Law and World Order: A Critique of Contemporary Approaches*, 1993; B.S.Chimni, "Alternative Visions of a Just World Order: Six Tales from India", *Harvard International Law Journal*, vol. 46, 2005, pp.389, 401.
49. Chimni, 2004, *op.cit.*, p.1. The argument presented runs on eight grounds: first, the fact that the widespread reach of international institutions in all arenas has limited sovereignty. Second, sovereign decision making has

relocated from states to international economic institutions, whose main task is to facilitate the operation of transnational capital by creating appropriate social and economic conditions. Third, the UN by itself is being geared towards an increasingly neo-liberal agenda, which is evidenced by the increasing role being played by transnational capital in the organisation. Fourth, the relationship between the state and the UN is being transformed through a reconfiguration of the 'principle of sovereignty' and its relationship with the 'principle of prohibition of use of force.' Fifth, several international institutions have been repositioned from their earlier critical discourse recently, including the UNCTAD and UNESCO. Sixth, the fact that NGO participation is not enough in a crucial role in the World Trade Organisation (WTO) and they do not reflect critical voices, as they should be doing so. Seventh, the emergence of a number of sub-national authorities as instruments of global governance. Lastly, the fact that there is a strong absence of a culture of democracy and transparency in international institutions and is being opposed by the developed world.

50. *Ibid.*, p.26.
51. Rajagopal, 2003, *op.cit.*, p.47. This book by the author is an attempt to write Third World resistance into International Law, and in doing so, he points out two great fallacies of mainstream schools of international law: firstly, they do take into account the development discourse for the formation of international law and institutions, second, they do not adopt a subaltern perspective that enables a real appreciation of the role of social movements in the evolution of international law. The author contends that international law in the 20th century has been crucially shaped by the nature and forms of Third World resistance to development. This happens at two levels, first, substantial parts of the development of international institutions have evolved in their ambivalent relationship to resistance, and second that the human rights discourse has been fundamentally shaped and limited by the forms of Third World resistance to development. Also see, B. Rajagopal, "International Law and the Development Encounter: Violence and Resistance at the Margins", *American Society of International Law Proceedings*, vol. 93, 1999, p.16.
52. Rajagopal, 2004, *op.cit.*, p.5.
53. He discusses two important grassroots movements: the Polonoeste project in Brazil and the Narmada Bachao Andolan in India. *Ibid.*, pp.15-18.
54. *Ibid.*, pp.12-18. What is interesting about his argument is how he traces the factors responsible for the development of the environment as a

publicity gimmick to the propounding of sustainable development as a discourse. He says that from the need of the Bank in the early 1970s to legitimize economic development as a dialogue due to critical opposition and social movements both in the north and south; to the ultimate 'refashioning' of the same practices of economic development into the phrase 'sustainable development', is a result of this constant reaction response between the Third World masses and the World Bank, *see* pp.13-14.

55. Richardson, *op.cit.*, p.3.

LAW, POLICY AND NATIONAL LEGISLATION ON PRESERVATION AND SUSTAINABLE DEVELOPMENT OF WETLANDS IN INDIA

S. Bhatt

Wetlands have drawn worldwide attention as a vital part of biosphere resources. Their ecological deterioration has been of concern therefore. The United Nations has drawn the Ramsar Convention on wetlands in 1971. India has no specific legislation on wetlands. However, India is keen to develop a comprehensive policy and legislation on wetlands that would ensure incorporation of Ramsar Convention. It would also include legal provisions relating to preservation and sustainable development of wetlands in the light of developments world over since 1971 and also in India taking stock of experiences, in both scientific and socio-economic in the field of wetlands management.

IMPORTANCE OF WETLANDS

Wetlands have been defined in the Ramsar Convention as, “areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water etc. depth of which at low tide does not exceed six meters.”

Preservation of wetlands is an important part of UNESCO’s Man and Biosphere Programme. The purpose of this ecological programme, according to UNESCO, is to “develop within the natural and social sciences a basis for the rational use and conservation of the resources of the biosphere and for the improvement of the relationship between man and the environment; to predict the consequences of today’s actions on tomorrow’s world and thereby to increase man’s ability to manage efficiently the natural resources of the biosphere.”

Wetlands form nearly six per cent of land area of the earth. They include various habitats like coastal lands, tide lands, fresh water marshes, bogs, fens, floods, plains and swamps.¹ Wetlands have become important in view of the global concern for water resources. They are a source of life-support system to many species of biological diversity. They provide food, fuel and water for small-scale irrigation. They have impact on hydrological cycle of earth and act as recharging of aquifers.²

Wetlands face degradation due to encroachment, discharge of sewage, weed growth, erosion etc. National Conservation Programme for Wetlands has been started in India in 1985-86 in collaboration with the states. State Steering Committees have been set up for wetland management. In 1993, a National Lake Conservation Plan was drawn to focus on lakes especially in urban areas.³ There are twenty-five wetlands listed by Ministry of Environment and Forests for conservation and management.

LEGAL PROVISIONS OF RAMSAR CONVENTION

The Ramsar Convention was signed at Tehran in 1971. It precedes the Stockholm Declaration on Human Environment of 1972, which made the beginning of the global environment movement. The preamble of the convention speaks of the ecological functions of wetlands for regulation of water regimes and habitats supporting flora and fauna especially the waterfowl. It refers to economic, cultural, scientific and recreational value of wetlands the loss of which would cause irreparable damage to biosphere. It calls for stop to encroachment and loss of wetlands now and for future. It recognizes the international interests involved in migratory birds like waterfowl for whom wetlands are a habitat. It calls upon coordination of national policies with international action. Article 1 provides the definition of wetlands. Article 2 says that the signatory state shall designate a list of wetlands with their area and features, and because of their importance for ecology, botany, zoology, limnology or hydrology. The states shall have sovereign rights to manage their wetlands. States shall have international responsibility for

conservation and management of their list of wetlands and wise use of migratory stocks of waterfowl. Article 3 provides for conservation of wetlands and their wise use. Any ecological changes in the wetlands are to be conveyed to the UN. Natural reserves shall be established on wetlands to promote conservation. States shall promote research and development under Article 4. Waterfowl population shall be increased. Article 5 provides for international consultation, especially when a wetland is situated on the borders of a country adjacent to another state. Under Article 6, states can convene conferences on conservation of waterfowl and wetlands. The participants shall include scientists, administrators and other concerned. The International Union for the Conservation of Nature and Natural Resources (IUCN) shall perform duties of a bureau to assist in organising conferences, maintaining a list of wetlands, etc.

In retrospect, Ramsar Convention does not include legal provisions like public participation, compliance and enforcement, penalties, welfare principles involved in socio-economic planning for management of wetlands. Nevertheless, this Convention in its preamble has brought forth the ecological significance of wetlands for Man and the Biosphere (MAB) programme and conservation of biosphere resources. It has created international responsibility for consultation process and exchange of ecological information for the wetlands listed. In view of growing emphasis on water resources, wetlands management has assumed added importance for water harvesting especially in watershed areas and lakes fed with rainwater. The smooth functioning of the hydrological cycle is promoted in nature, by wetlands therefore.

INDIA'S PERSPECTIVES AND IUCN ON SOME WETLANDS

Legislation in Other Countries

It is useful to refer to some legislations in other countries while we in India are making our policies and laws. Our legislation will be based on our national needs and cultural and economic principles of welfare of the people. Besides, the legislation will have a scientific and

ecological content based on our eco-systems. The mountain areas especially in the Himalayas need special treatment. India is also heavily populated with just 2.4 per cent of world's landmass and 16 per cent of global population, which was 1.03 billion in 2001 with growth rate of 1.95 per cent. The average density of population is 284 persons per sq. km. At the same time, India is endowed with democracy, multi-cultural heritage, unity in diversity and the rule of law. All these factors help evolve a legal system which meets with the expectations of the people of India.

Professor Myres McDugal of Yale Law School has said, "Law is community expectation". India has vast biodiversity of flora and fauna for conservation movement. Our cities are getting crowded. We need public and private interests to be synthesized for management of wetlands. The Ministry of Environment and Forests has done remarkable work for environment protection, and, is now engaged in conservation and sustainable development movement in India. It has created vast numbers of centres of excellence for environment. For the Johannesburg Summit in 2002, Ministry of Environment and Forests produced very useful documents for empowering people for sustainable development. It has produced a state of environment report in ZNI by Ministry of Environment and Forests, TERI, United Nations Environment Programme (UNEP) and South Asia Cooperative Environment Programme (SACEP).

Development activities have to be in harmony with nature conservation. The priority issues in India are listed as land degradation, biodiversity, air pollution, fresh water management and hazardous waste. All these issues have affected wetland conservation as well. The Report of the Ministry of Environment and Forests highlights that environment planning and development must go along side. In the human development index, India is ranked 128, far behind many countries. Hence, we see complexities involving population, development and economic and social welfare in environment management including wetlands. In spite of difficulties, the Government of India has been awarded for Chilika Lake (Orissa) conservation. At

the national level, the Government of India is replanning for new institutions, administrative methods and training for bureaucrats to be able to deliver welfare economies. Noble Laureate Amartya Sen has given new direction to economics by welfare principle. The Planning Commission is also engaged in providing help to welfare economies. The law relating to use of natural resources should be close to the above hypothesis. India is doing well by this new trend for globalisation of economics and efficient use of scientific knowledge. The eco-system approach to development of our natural resources will further generate welfare and national economy.

IUCN on Legislations on Wetlands

The IUCN has issued “Environment Policy and Law Paper No. 29”,⁴ which deals mostly with biodiversity and nature conservation, and has some references on the wetlands legislation. In Africa, a convention for conservation of nature and natural resources was signed in 1968. By 1991, 30 African states became the members of this convention. In America, six Central American states signed a convention for conservation in 1992. In Europe, the Berne Convention for Conservation of Wildlife and Natural Habitats was signed in 1979. In Asia, six countries of Southeast Asia signed convention in 1985 for conservation of nature and natural resources. It may be recalled that the conventions for biological diversity emphasise conservation than protection. A list of protected areas was not provided by the states during negotiations. The IUCN suggests that such a list of protected areas may be drawn in future during a conference of states without much obligations undertaken for their protection. The IUCN also prefers public ownership of land for conservation. Licences can be issued for activities in public wetlands with an Environmental Impact Assessment (EIA) carried for such activity. Indigenous people in the wetlands should be considered as part of the ecosystem. In case a protected area is earmarked, it should also aim at conservation of local culture, and the way of life. Wilderness areas can be declared protected where we find primitive conditions of flora and fauna, and no motorized transportation permitted. This situation may apply to

S. Bhatt

wetlands at high altitudes of the Himalayan areas and in Kashmir, where wetlands are normally not accessible. In Netherlands, the IUCN study refers to the proposal to make 250,000 hectares designated for nature conservation, where natural or semi-natural habitats will be created. The precautionary principle used in biological diversity convention can also be used for wetland convention – to anticipate, prevent and attack the causes of damage to environment of wetlands. Research and development can help generate funds. For the first time in international law, says the IUCN, biological diversity including wetlands management can yield assets. Sustainable exploitation is important for conservation. In coastal areas of India, land can be acquired for conservation keeping in view the Tsunami in December 2004.

Kashmir's Ecology and Wetlands

Kashmir's ecology is part of the ecosystem of the Himalayan mountains. Kashmir is endowed with unique natural resources of flora and fauna. It has vast forests and mountains. It has a population of over one crore people, 85 per cent live in villages and 23 per cent use land cultivation. Most of the environmental problems in Kashmir are due to air and water pollution, land degradation, forest depletion and increase in population. In recent years, there has been a widespread awareness for environment protection. Eco-clubs have been formed for public participation. The judiciary is active to respond to public interest litigations. The new project on Dal Lake was the result of a court order that followed for better management of the lake. The wetlands in Jammu and Kashmir include: Wullar, Tso Morari, Tisgul Tso, Hokersar, Mansar-Surinsar, and Pangong in Ladakh. Dal Lake is in urban area of Srinagar. Wullar Lake is listed as one of India's wetlands for Ramsar Convention. A recent history and development of environmental laws in Kashmir is provided by Dr. Mohd. Ayub Dar, a young scholar of Faculty of Law, Kashmir University, Srinagar.⁵ Some of the above laws have not been updated especially for forests, water management and solid waste. Enforcement and compliance of laws is not satisfactory. The State Pollution Control Board (SPCB) of Jammu and Kashmir has been working on eco-management and conservation of natural

resources, wild life and forests that have suffered damage in recent years. Public participation for wetlands conservation is a vital need. Apart from Manasbal Lake, Dal Lake, Wullar Lake, Anchar Lake, there are almost 18 lakes situated in higher altitudes of Kashmir. Not much is known regarding their ecological status.

A new vision is needed to tackle conservation of wetlands in India. Experiences of other countries are useful for reference to draw our policy initiatives and new legislation that would encompass Ramsar Convention provisions. Wetlands conservation is part of an overall conservation strategy, where public awareness and their participation is necessary. The objectives of wetland law and policy are to promote in natural and social sciences wise use and conservation of wetlands resources; to improve relationship of wetlands environment and human living around; and to safeguard the future uses of wetlands resources for posterity by research and development.

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CONSERVATION OF WULLAR LAKE

Shamim M. Khan

Wullar Lake is the largest and probably the most picturesque fresh water lake of Asia. The lake serves as an important life support system regulating hydrological regime of the region and as a repository for a variety of avifauna, fish and aquatic life. Wullar Lake, in view of its importance as a vibrant heritage aquatic ecosystem and one of the internationally recognised wetlands, has been recently brought on the “Ramsar” sites map. This lake is situated in Baramulla district of Jammu and Kashmir state to the north of the capital city Srinagar and acts as flood basin for river Jhelum, the lifeline of Kashmir.

The Lake has a historical, ecological, aesthetic and economic significance. The adverse change in the ecological scenario of the state for the last more than five decades has a deleterious impact on the normal functioning of the dynamic ecosystem of this Lake and consequently the Lake has witnessed tremendous deterioration in its size, shape, flora, fauna, water quality and the entire Lake dynamics. It presents a very dismal picture as also the fact that the water surface area of the Lake has been reduced by two third over the last few decades from around 273 sq. kms to just 100 sq. kms as at present.

The vegetation, particularly the forest area of Jammu and Kashmir state has experienced unbearable onslaughts an account of ruthless felling of trees, overgrazing, encroachments, diversion of forest areas for roads and other so called modern day developments, excessive pressure on high land pastures, forest fires etc. – a direct result of the sharp rise in the population of human beings and cattle. As a result of the pressure on forests beyond their carrying capacity, about 12,000 sq. kms of forests out of a total of around 20,000 sq. kms have become barren or under stocked.

The ecological balance has got disturbed and among other environment aspects, the Lakes and other water bodies of the state

CONSERVATION OF WULLAR LAKE

have been worst hit by these negative developments. The entire silt and soil from these degraded and barren catchments started flowing down and getting deposited in Wullar and other lake bodies of the state. The feeding line Jhelum receives the entire silt and sewerage during its course of flow from Verinag to Wullar and deposits lakhs of tonnes of load in traction and suspension in Wullar. Due to unbearable extent of silt deposition, the Lake has shrunk considerably in size and depth. Besides the sewerage, sewerage disposal from point source, i.e., the mushrooming of habitations (Urban Sprawl) along the banks has invited profuse obnoxious weed growth of epiphytes as a result of excessive addition of nitrogen and phosphorus. The resultant eutrophication is bound to disturb the entire food chain and leave the very delicate, live and dynamic ecosystem of the Lake in topsy.

It is indispensable to reverse all these adverse trends through intensive, comprehensive and multi-pronged management practices in the Lake catchments and the main body. The deterioration is not inside the lake body but in outer catchments, both point source and non-point source. The engineering and administrative methods are no doubt required, but these are only temporary, ad hoc and immediate. The real management skill lies in the treatment and conservation of the higher degraded catchment area. It needs to be conserved and developed so that there is no more transport of silt and sand into the lake. If the catchments are not stabilized, tonnes of silt being removed at the expense of millions of rupees will have no meaning as the same will be replaced by another instalment of tonnes of silt load in another one or two years. One serious implication of the enormous level of siltation of Wullar Lake and its satellite wetlands has been visible in inundation of most parts of south and central Kashmir including Srinagar city, due to mild rains as the floods basin itself has lost the storage capacity of water to a great extent.

The considerable deposits of silt in the Lake body from the huge degraded catchments in the immediate vicinity of the lake and the point source pollution by way of sewage and sewage disposal as also the influx of enormous quantities of chemicals from the agricultural/

horticultural fields all around (an outcome of excessive use of fungicide and insecticide) pose a severe threat to the survival of this Lake. A catchment area of more than 9.61 lakh hectares of river Jhelum drains directly or indirectly into Wullar lake. The six directly draining catchments of Wullar I, Wullar II, Ningli, Gundar, Erin and Madhumati comprising catchment area of about 1.14 sq. km discharge lakhs of tonnes of silt in the form of load in traction and suspension into the lake. The efforts of management/conservation in this important Lake are done by the Government of India. However, keeping in view the magnitude of the problem at hand, substantial achievements are yet elusive. A multi-dimensional and integrated approach has to be undertaken for comprehensive management of the Lake.

1. Situation:

The Wullar Lake is located in Baramulla district of Jammu and Kashmir state. It is situated at a distance of 40 kms. northwest of Srinagar. The surrounding of the lake are given below:

- North: Alusa-Bandipora forests, with small villages in its lower belt.
- South: Ningli plantations and Naidkhai area.
- East: Hajan-Rakh-Ajas, Argam, Mulkihama forests.
- West: Sopore-Wutlab belt flanked by Rampur forests and Ningli plantations.

2. Location:

Latitude 33°-26' to 33°-60' N

Longitude 74°-33' to 74°-46' E

3. Altitude:

1,580 metres above sea level.

4. Climatic Features:

i) The climate is of dry temperate type. In winter, the area receives precipitation in the form of snow and rains. The summers are hot and almost dry with scanty rains. The area experiences rains in spring while, as autumn is virtually dry. It does not experience any summer monsoons as Pin Panjal Range, near Banihal blocks these from entering the valley.

ii) Temperature:

Maximum: Above 30° C not exceeding 36° C.

Minimum: As low as – 12° C.

5. Geology:

The catchment middle order mountains around Wullar are mostly of limestone formation like Wutlab and Ajas-Sadarkote areas. Towards its northeast, the formation is mostly volcanic. The soil in the lower belts is mostly sandy and alluvial loam. The major portion of the area is a Panjal trap with little vegetation, sub-recent alluvium and karewas cover the remaining part with little Triassic Limestone of older formation.

The main exposed litho units consists of traps, slates, quartzites, shales, limestone, alluvium and karewa clays. The main litho sections of lower Cambrian rocks can be seen in the north of Bandipur. It is mostly dark laminated slates with Quartzose partings. The rocks protrude with Madhumati catchment from Ranjdhani area.

The upper Cambrians occur in northwest of Wullar Lake in contact with lower Cambrians. These are thick bedded massive clays of bright blue colour with slate and micaceous and ferruginous at times.

In the volcanic series, agglomeratic slates consisting of massive clays of bright blue colour with slate and micaceous and ferruginous at times.

In the volcanic series, agglomeratic slates consisting of massive laminated and cleaved tuffs, interbedded with sandstone, with grits and conglomerates, are exposed in north Bandipur, around Madhumati and northwest of Wullar in contact with upper Cambrians.

Panjal Traps generally over-lie agglomeratic slates and are series of volcanic deposits, 1,700-2,400 metres thick, widely distributed north of Wullar Lake. A larger part of Panjal traps is buried under the alluvium of Wullar.

The continuity of volcanic till upper Triassic age exhibits the trap in the form of Triassic limestone, very common in Erin Nallah, catchment area. The upper trias visible in a number of places in Bandipur is the next formation. The rock is dark grey colored folded limestone.

6. Area of the Lake

Source	Flood Time	Normal Time
Kalhan's <i>Rajatarangini</i> (one of the oldest Chronicles of Kashmir)	273 sq. kms	(72 sq. miles or 189 sq. kms)
Other historic Chronicles	Not given	12 miles x 8 = 96 sq. miles or 252 sq. kms
<i>Vale of Kashmir</i> , Walter Lawrence (1894)	Not given	72 sq. miles (189 sq. kms)
<i>Directorate of Environment, J&K State with the help of Satellite images</i>	100-130 sq. kms	79 sq. kms (water surface area only)

The satellite imagery of 1996 has shown 11.10 sq. kms wetland area and 10 sq. kms of water-chestnut area in addition to the clear water surface of the lake of 65 kms² with maximum depth of over 58 meters. Evidently, the area of the Lake has shrunk by more than half its size.

7. Land-Use Pattern in the Catchment:

Landuse/Vegetation

Due to availability of water for irrigation, the low lying plain areas all around Wullar, are invariably under agriculture cultivation, with two types of crops, rice in Kharif season and mustard, wheat etc, in Rabi

CONSERVATION OF WULLAR LAKE

season. The arable areas with gentle slope have also been brought under rice cultivation. The land is being made cultivable by terracing and contour bunding, to a large extent.

However, the non-arable gentle to moderate slope areas are under dry land farming, predominantly under horticulture, for production of cash fruit crops like apples, pears, peaches, plums, grapes, pomegranates and almonds. These trees are grown on slopes, in more or less definite spacing. There is a tendency now to convert plain/gentle slopes of arable agriculture crop areas into horticulture orchards, for better financial benefits.

The non-arable land with moderate and sometimes steep slope, (with large chunks of encroached forest land), is again under dry land farming for production of maize, oil crops and grasses/fodder etc.

These areas of gentle slope and moderate to steep slope, under dry land farming are strategic areas for soil corrosion, as the most unscientific agricultural practices like tilling across the contour are resorted to in such areas by and large.

In the villages in and around the plain areas and moderate slope areas, people have become tree conscious and raise scattered plantations of Poplar, Willow, Walnut, Ulmus, Aesculus, Robinia, Moras, Alba, Ailanthus, Prunus Americana etc. in whatever space available silviculturally. Walnut trees are found in abundance in scattered form, in and around the village. There are also numerous trees of *Platanus Orientalis* visible in the low lying plain areas, although neither the people nor any government agency is doing much to increase the number of Chinars by fresh planting obviously because of the big space that a fully grown Chinar occupies and the long time it takes to grow in spite of its great majesty and heritage.

The forests occupy the upper areas with moderate to steep and very steep slope. Due to ruthless cutting of trees to satisfy human need and greed, during the last century, the frontline forest areas that form the direct catchment of Wullar lake, have been rendered blank and treeless. The forests are limited mostly to some eastern and northern

aspects with poor tree density. The comparatively dense Deodar, Kail forests are now relegated to the interior areas.

The forests are predominantly of Kail, with sparing distribution of Deodar, in the lower Deodar Kail zone. The upper forest areas are predominantly of Fir mixed with spruce. The interior nallahs, and moist depressions have abundance of deciduous broad leaved spp. *Acer pictum*, *Juglans*, *P.alba*, *P.ciliata*, Bird cherry, *Celtis* etc.

Beyond and within the Fir zone, we have big Chunks of pasture land locally called *Bahaks* where nomadic tribes like Gujjars, Bakerwals as also local Kashmiris stock their big herds of cattle during entire summer for rearing and feeding them with just green grasses, although beyond its carrying capacity. On the upper most storey, we have the alpine blanks and scrub forests, harbouring a diversity of plants, especially of medicinal value.

Human Settlements

Due to the increase in population, clusters of densely populated villages and towns have cropped up in the immediate catchment of Wullar Lake. These include.

- i. Big villages/towns of Sadarkot, Bazipura, Ajas, Sudarkot payeen, Gurura, Aragam, Nadihal, Papachan etc., on its eastern side.
- ii. Bandipora town, Kuloosa, Watpora, Wangam, Putshai, Mangnipora, Kehmaghat, Aloosa, Astingu, Kanibatti, Kunisa, Watlab etc., on the northern side.
- iii. Sopore town, Botingoo, Mangnipora, Hatlangh, etc., on its western side.
- iv. Hajan town, Naidkhai etc., at its south and southeastern side. The population of these towns and villages, with their direct inter-action with Wullar has crossed several lakhs.

Encroachments

The Lake body within has been brought for almost more than half of its area, under Ningali plantations by government departments, which

CONSERVATION OF WULLAR LAKE

if carried along unabated, can pose a serious threat to the Lake body. It looks as if the entire area west of Jhelum river including Hajan has been a part of the Lake, where big towns/villages have sprung up. Paddy cultivation is being made in this area and in the area on the eastern fringes of the Lake.

The Ningli plantations in the middle of the Lake on its eastern, southeastern and western part have compartmentalised the majestic Lake into small fragments especially in its eastern areas. The main Lake body is now limited to western and northern part, free from such big human disturbances.

Innumerable pretty long chains of embankments and roads have been built in the interior of this magnificent wetland, disturbing its very configuration, on account of human settlements. The population of these villages/towns in the direct catchment of this Lake, have risen to several lakhs, whose entire pressure is being borne by this Lake directly or indirectly. It needs political will and co-ordinated legal, administrative and scientific measures coupled with earnest management and conservation strategies on a comprehensive scale, to restore the Lake to its pristine glory.

Major and Minor Industries

There are no major industries in the catchment of Wullar Lake. However, among the minor industries, there has been a sizeable growth in the brick kilns due to increased demand and urbanisation phenomenon. The stone quarrying is being done at random, especially the Sadarkot-Ajas area, the portion forming the immediate catchment part of Wullar. Excavation of clay is also ruthlessly done in the direct catchment areas, at a number of places. Among the cottage industries, the common cottage industries in the area include shawl weaving, chain stitching (embroidery works), spinning on wheel, hand manufacture of copper utensils, carpet weaving, wood carving, hand manufacture of *Kreel* baskets, furniture, wooden furniture, weaving *Kangris* etc. In addition, people make hand-woven grass mats (common man's furnishing carpet) from the dried stalks of Typha grass called *Wagoo*

etc. However, these cottage industries are now on the verge of dusk, in view of the dwindling demand and non-availability of a growth-cum-improvement plans and little market exploration.

Population/Families directly dependent on Wetlands

A sizeable population of more than 40,000 people, living within the water body area and along the banks of the Lake, in a cluster of villages like Kanibatti Kunusa are directly linked with the wetland. These include fishermen community, whose only source of livelihood is the fishing and selling fish in traditional fish markets and far off towns and cities.

Besides this, main source of income to these and other people, are waterchestnut, *nadru* (the precious vegetable, the rhizome of *Nelumbo nucifera*), fodder, mat weaving and Kreri basket weaving and water tourism (*shikara* drive).

Sources of Inflow and Outflow of Water

Jhelum or *Veth* flowing of Manasbal via Khamina, Hajan, Chak chanderger, Banyar, Bakshibal, drains into Wullar Lake, in the Ningli plantation in its northern most area and partly near Makhdumyari, in its south eastern area.

The water of the Wullar Lake then flows out into the Jhelum river at its southwestern tip, again in Ningli plantations, across, slightly north of Ninali village.

Hydrology

Catchment Forests	Streams and Nallahs draining into Wullar
Kandi, Rampura forests	Kuinusa, Kanibatti nalas
Nalamarg, Dabran, Alusa forests	Alusa, Ashtingoo nala
Bunzu, Hampatri forest	Muqam, Malangam and Hampatri nalas

CONSERVATION OF WULLAR LAKE

Rishipora, Dardpora, Ringpatheri, Panner, Buth, Rainar, Brannar, Gurdon, Rangdur, Saibal forest, Nengdon forests.	Through various tributaries with Madhumati and Vijnala which confluence at Athwato and form main Madhumati nalla, that travels about 18 kms. to drain into Wullar
Mulkhiham, Shokbaba, Citternar, Patwan, Simthan forests	Erin nalla, that is a union and reunion of a large number of big nallas that drains into Wullar near Papachan area, after travelling a long distance of 25 to 35 kms. Then there are scores of big nallas from Rakh Ajas Forest that drains into the Wullar

8. Wild life in the Catchment Forests:

The following species of wildlife occur in the catchment forests around Wullar.

Hangul	R
Common Leopard	R
Black Bear	C
Brown Bear	R
Rhesus Monkey	C
Common Langur	C
Ibex	R
Otter	R
Marmots	R

R = Rare occurrence, C = Common

Jhelum river and the various nallahs in the catchment forming the lotic system directly join the lentic system of Wullar lake. On the basis of its origin, altitudinal situation and nature of biota in the lake which has been classified as a valley lake, it has nutrient rich condition called eutrophy as compared to some other poor and moderate oligotrophic and mesotrophic lakes of the valley. It is heavily infested with profuse macrophytic growth with resultant high photosynthetic and other dynamic activities. Various kinds of macrophytic associations allow very little nutrients for the growth of phytoplanktons. The lake exhibits three

distinct vegetation zones in (a) emergents, (b) rooted free floating leaf types, and (c) submerged sps.

9. Flora and Fauna in the Lake Body

Macrophytic Distribution

The lake, for the most part, is infested with macrophytes which include submerged, rooted emergents and free floating types. The dominant ones are:

Ceratophyllum dimersum
Myriophyllum spicatum
Nymphaeoides peltata
Salvinia natans
Potamogeton Species
Trapa natans
Trapa bispinosa

All macrophytic growth appear with the onset of spring season and continue to grow through autumn. No new growth form appears during winter months. The macrophytes grow in a particular associations with the forms like Nymphaeoides-Ceratophyllum-Myriophyllum while off shore forms are Trapa-Ceratophyllum.

In Laharwalpora area, Nymphaeoides is the dominant form while at Kanibatti and Sadarkot side it is trapa natans and Salvinia natans, which form the bulk. While Potamogeton crispus forms monophylic patches at different places.

Micro Floral Occurrence and Distribution

Among micro flora, the lake has been reported to contain.

82 Phytoplankton species whose further distribution is as under

Diatoms = 53 spps.
Green algae = 21 spps.
Blue green algae = 5 spps.
Euglenophytes = 2 spps.
Chrysophytes = 1 spps.

CONSERVATION OF WULLAR LAKE

The phytoplankton population in Wullar is contributed by 65 per cent Bacillariophyceae, 25 per cent by Chlorophyceae, seven per cent by Cyanophyceae, two per cent by Euglenophyceae, and one per cent by Chrysophyceae on the average.

Zooplanktons

The Zooplankton population is contributed by Rotifera, Cladocera and Copepods. A total of 37 genera have been recorded out of which 24 belong to Rotifera, eight to Cladocera, and five to Copepoda. The population is abundant in deeper zones. The temperature plays a major role in their seasonal distribution. *Anuraposis fissa*, *Ascomopphella*, *Volvocola*, *Asplanchna priodonta*, *Alona acostata*, *Bosmina longirostris*, *Ceriodaphnia vetulus*, *Macrothrix rosea*, *Cyclops vienus*, *Faicyclps* sps., and some of the sps.

Avifaunal Distribution

The ecosystem provides an ideal habitat for a number of resident and migratory birds. The common ones include the following:

1. Common Teal (*Anas creca*)
2. Common Pin Tail (*Anas clypeata*)
3. Blue winged teal (*Anas querquedula*)
4. Shoveller (*Anas Clypeata*)
5. Common Pochard (*Aythyaferina*)
6. Red Crested Pochard (*Netta rufina*)
7. Wiegon (*Anas Penelope*)
8. Mallard (*Anas platy-thynchos*)
9. Gadwall (*Anas stepera*)
10. Brahmini Duck (*Tadorna ferrugineap*)
11. Tufled Duck (*Aythya furliqua*)
12. Grey legged Goose (*Anser answer*)
13. Dab Chick (*Podiceps ruficellis*)
14. Indian Moothen (*Gallinula chlorpus*)
15. White water breasted water Hen (*Amavornis phoenicurves*)
16. Lapwing (*Venullus venullus*) and
17. Kingfisher

Fisheries

According to a report, 80 per cent of the fish for consumption in the state of Jammu and Kashmir comes from the water bodies and out of which Wullar Lake contributes 60 per cent of the total fish catch/production. Such is the economic importance of the Lake for lakhs of fishermen, the associated classes and the people. Fishing is done by conventional methods by using the net, fishing rods and hooks.

The Lake is an important captive fishery in the state. Fishing is carried on in Wullar Lake to a great extent by the inhabitants of the surroundings villages, who preserve a great deal of their catch by drying them.

A number of other Schizothrax fish pass through the water body while going up and down the Jhelum river to spawn in hill streams. The fish retire to the lake in depth in winter, when the rivers are at their lowest. The complexion of the Wullar Lake including its biotic composition has greatly changed in the recent past. The endemic Schizothoracids that once thrived so well in the lake have almost been driven out by exotic carp (*C. capio* and *C. carrassins*), until the first half of the present century. *Maheseer* (*Tor putitora*), also contributed significantly to the fishery resources of the Jhelum and the Wullar, but after the construction of the Mangla dam, these fish used to migrate upstream and have thus been completely exterminated from the valley.

10. Problems:

Problems in the Catchment Area

Out of a total catchment area of 12,75,696 hectares of river Jhelum, 9,61,362 hectares drain into the Wullar. More than 55 per cent of the catchment area is demarcated highland forests, predominantly, coniferous. The cold months extend to around six months, with a minimum temperature as low as – 12°C. In the event of insufficient alternatives of energy sources, viz, kerosene, Liquified Petroleum Gas (LPG), etc., the forests have been subject to heavy pressure for fuel and charcoal manufacture from the human settlements all around. The

CONSERVATION OF WULLAR LAKE

root cause of the degradation in the catchments is tremendous increase in population, both human and livestock. Impact of population growth is reflected in the form of excessive pressure on forests, encroachment, over grazing, faulty land use, unscientific agricultural and horticultural farming practices, besides over-tapping of lake resources like fish, as also the encroachment of the lake bodies. Unmindful of the ecological and environmental consequences, these forests, forming the principal catchments of the lake, have been over exploited on account of the following:

i. Increased demand for timber, to satisfy the greed and need of the people, as the forests were considered only as a revenue generating source.

ii. Encroachment of forest land.

iii. Over grazing, as the direct pressure on the forests and grasslands increased proportionate to the increased uneconomic cattle population. Besides, the tilling of the slopes across the contours, and other faulty agricultural practices, changing the land use status, excessive use of fertilizers/pesticides, in the agricultural/horticultural fields, most of which ultimately washes down into the lake, changing the chemical composition of the lake water. The ruthless deforestation coupled with all aforesaid adverse factors put together exposed the slopes and enhanced soil erosion to alarming levels. The entire surface runoff with all the silt and sediments accompanying it, finds its direct entry into the lake. Resultantly, the lake water quality has deteriorated considerably thereby speeding up entrophication of the lake and the lake has become shallower by 4-5 meters in a matter of just 50 years of time. The blank and degraded slopes are to be stocked with artificial plantations, and alternatives are to be provided for all human demands on these forests.

Problems within the Lake Body

Shrinking Area

The area of the lake according to recent surveys is just 79 sq. kms, as compared to 198 sq. kms (272 kms in flood time). This is

highly alarming and if things are allowed to proceed as such and no timely remedial measures are taken, the lake will get converted into a piece of agricultural land within another 50 to 60 years time as per the visible rate of shrinkage of lake in the past. The average depth of water has considerably diminished.

Encroachments

As the periphery of the lake got silted up, the villagers reclaimed the same either by plating or by paddy cultivation. In this process, big villages and human settlements have mushroomed up around the lake on the erstwhile lake body, over a period of time in the past.

Willow Plantation

Willow plantations have been raised around and within the lake, which deteriorate water circulation and enhance siltation besides adding a lot of biomass from its foliage. It is high time not only to stop further plantations, but to remove them gradually, in a scientific manner.

Sedimentation

Once compact forests in the hills have been reduced to highly degraded areas by wanton deforestation, overgrazing, encroachments, faulty agricultural practices so much so that tonnes of silt and soil get into the lake body, thereby posing serious threat to this vast lake ecosystem, in the absence of compressive restoration and remedial programme.

Water Quality

All the human settlements around the lake body, have conventional raw sewage and sewerage disposal systems. Unless scientific alternatives for the sewage and sewerage disposal are provided to these settlements, the eutrophication of the lake on account of nutrient inflow especially of Nitrogen and Phosphorus, will continue at alarming level.

The thermal structure of the lake follows more or less the atmospheric temperature. The seasonal changes in the water

CONSERVATION OF WULLAR LAKE

temperature indicate homothermy setting in late autumn and continuing until spring.

The *Secchi disc transparency* was generally very low in the peripheral zone than in the deeper ones where it was sometime seen to be as high as 2.50 m.

The water was alkaline throughout the study period. The pH of the lake ranged between 7.2 units L⁻¹ (Sept) and 9.1 units L⁻¹ (July). The alkaline nature of the waters is due to the calcium rich rocks in the catchment area.

The dissolved oxygen showed a close relation with the temperature. The highest values of 14 mg l⁻¹ were recorded in winter and low of 2.9 mg l⁻¹ in summer. The decline in the concentration with the growth of macrophytes.

On the basis of the average, alkaline values of the lake water falls under the hard water category as per Moyles (1945) classification. The values fluctuated between 250 mg l⁻¹ and 78 mg l⁻¹.

The overall chloride content in the lake varied from 75.1 mg l⁻¹ to 11.00 mg l⁻¹. Munawar (1970) relates the elevated chloride concentration in water to high nitrates which is an index of pollution.

Total hardness showed a close relationship with total alkalinity. The calcium content in the lake is high (68.1 mg l⁻¹) and according to Ohle's (1934) classification, it falls within the category of calcium rich waters. The predominance of calcium in the lake is attributed to the presence of calcareous matter in the catchment and due to the wide use of fertilizers in its catchment for the agricultural practices.

Although magnesium content is quite low in comparison to calcium but it is not though to be the limiting factor for the growth of the plankton.

Large quantities of phosphate and nitrates are found in the lake. The NO₃-N ranged between 1030 mg l⁻¹ and 57 ug⁻¹. While NH₄-N ranged between 82 ug l⁻¹ and 82 ug l⁻¹. The total Phosphorus showed a

Shamim M. Khan

peak in July (1909 $\mu\text{g l}^{-1}$) and it was below detectable level in November.

Economic Loss

Any change in the area and status of the lake will not only deprive the fisherman of their livelihood but also cut off the special gifts of Wullar, like *Nadroo* and Waterchestnuts. Similarly, the hydroelectric generation downstream and water supply and irrigation programmes will be in peril.

Loss of Biodiversity

Wullar is home to innumerable phytoplanktons, zooplanktons, hydrophytes, fish and other aquatic animals. Besides, it acts as a feeding and breeding ground for numerous avifauna both domestic and migratory. It is a heaven for visitors, ornithologists, naturalists, researches, academicians and scientists. Any ecological degradation of the lake is bound to endanger the biodiversity of this freshwater ecosystem.

11. Management of the Lake:

The concentrated work of afforestation in the degraded catchment in Rampora (Wutlab belt) soil conservation/pasture development in parts of Aluso micro-watershed was undertaken, on an annual funding basis. The closure, afforestation and soil conservation and pasture works have produced excellent results, and the degraded areas have invited a profuse natural grass cover, besides rich natural regeneration of Kail. Thousands of quintals of grass, cut from these afforestation units have been taken by villagers around for their cattle free of cost. The entry into Wullar Lake of considerable quintals of silt/sediment in the form of runoff from these treated areas, and the silt load from treated nullas and gullies has been reduced considerably.

As regards the works executed in the catchment area of the Wullar in Kunusa, Watlab, Aloosa, Kanibathi, Malangam and Chaki Arasala Khan areas, some good afforestation work is discernible. The protection received by the areas tackled has paved the way for natural

CONSERVATION OF WULLAR LAKE

regeneration leading to site improvement. Pasture development activities have yielded good dividends in conserving moisture and recharging water in sub soil by reducing runoff, besides meeting the grazing needs of the local populace. The plantations with their rich biomass have created conditions conducive for avifauna. The nulla training works and gully stabilization has checked the flow of silt in the lake body from the treated areas to a great extent.

A vigorous campaign of environmental education has been launched to awaken people to the need of conservation and preservation of nature and natural resources. The people have started realising the need of contour bunding, terrace farming and water harvesting structures for improving their cropping pattern and output.

Although de-weeding and de-silting activities have been conducted in the Lake, these are cosmetrical as compared to the magnitude of the problems involved. However, good crop of *Nadru* (Nilambo rhizomes) and *Singharas* (Water chestnut) are visible on account of de-weeding in the treated parts of Kanibathi and Garoora.

CONTRIBUTION OF KEPCO IN ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT OF BANDIPORA AND WULLAR LAKE

Syed Niyaz Ahmad
and
Basharat Saleem

INTRODUCTION

Geographically, the valley of Kashmir is situated in the ecologically delicate and sensitive ecological zone of northwestern Himalayas, also known as the Greater Himalayas. It forms a part of the main Himalaya with limited land resources, forest wealth, biodiversity and water resources. Many of the world's famous glaciers are located in this part of the Himalayas and have been acting as perennial sources of water for large number of villages, states and other countries falling in its range. However, many of the world famous glaciers located in Himalayas are fast receding due to global climate changes. The rich biodiversity of Himalayan region is threatened. The UN and the countries situated in the Himalayan range have already warned about the dangerous ecological problem emerging in this region. This in turn poses a great threat to the whole of northern and northeastern India as these regions are mostly fed by the perennial water of Himalayan glaciers.

The valley of Kashmir that is wholly fed by a large number of small and big Himalayan rivers, rivulets and streams is likely to bear the brunt of this ecological disaster. Already we have been witnessing a decrease in precipitation levels during the past decade. The flow of water in the water bodies of this countryside has decreased to considerable level, which in turn has paved the way for the encroachment of water bodies. The problem of irrigation have been rampant in many parts of the valley, particularly in northern Kashmir, where decrease in precipitation and

BANDIPORA AND WULLAR LAKE

uneven distribution has compelled people to convert their agricultural fields into orchards or willow or poplar nurseries.

Another problem confronted in the Himalayan region on this side is the continuous felling of trees and construction of roads within forest areas for one reason or the other.

Many new problems such as soil erosion, loss of vegetation, emergence of weeds, loss of valuable plants, medicinal herbs etc. have emerged in this region. Landslides and blizzards have become a regular feature of this region due to denudation of forests.

Though institutes like G. B. Pant Institute of Environment and Development in Uttrakhand has been conducting studies on environmental problems in the Himalayan region in India, but due to over sixteen years of long military and turbulent conditions in the valley of Kashmir, the research institutions have not been able to conduct their activities in Kashmir.

BANDIPORA HIMALAYAS

Northern twin districts of Baramulla and Kupwara constitute a long stretch of northwestern Himalayas containing lush green forests, towering mountain peaks such as Razdani (11,500 ft.), Tragbal (11,000 ft.), Harmukh (16,900 ft.), picturesque valleys such as Lolab valley (Kupwara) and Gurez valley (Baramulla), famous tourist spots such as Athwattoo, Ahmsahrief, Mancherene, Chiternar (the only Forest Training College in Jammu and Kashmir is situated there) and a good number of *Sars* and *Nars*, fountains and vast grounds (*maidans*), besides the world famous Wullar Lake (Ramsar Site) (1,580 metres asl). District Baramulla comprises eight Tehsils, 16 CD Blocks and six Towns. Geographically, Baramulla is the largest district of the valley with an area of 4,588 sq kms. and a population of 11,66,000 (2001 Census). The whole Himalayan range is just opposite to the Pir Panjal range.

Bandipora is one of the major towns of district Baramulla having an area of 1,038 sq. kms. and a population of 1,35,000 (2001 Census). The town is located at an average altitude of 1,590 metres

and is bound on its northeast side by a long chain of Himalayan mountains and just on its south lies the famous Wullar Lake. Bandipora is also known as *the Port of Wullar*. The town is at a distance of 58 kms. from the capital city of Srinagar. River Jhelum passes through the Wullar in the southwest direction (of Bandipora). While a long stretch of some 50 kms. of Himalayas fences the town on one side, other bifurcated stretches of mountains near Tragbal pass (11,000 ft.), Chandaji lead to Gurez valley which is at a distance of 86 kms. from the main town of Bandipora. The road to Gurez valley passes through the towering peak of Razdani and some enchanting and green forests. On the other extreme of the tehsil is Shirasar just in the lap of another towering peak Harmukh (16,900 ft.) containing some important glaciers. Thus Razdani-Tragbal mountains which stretch upto Harmukh on the other side and the Wullar Lake give Bandipora a semi-circular shape, the diameter representing the Wullar Lake.

1. The floral distribution altitudinal temperate forest occurs in between 1,525-2,286 mts. Containing mixed vegetation of broad-leaved varieties such as poplar, walnut and conifers, mainly blue pine.
2. Above 2,135 mts., conifers outnumber broad-leaved varieties. The chief coniferous varieties which occur between 2,100-3,200 mts. blue pine (*Pinus exelcia*), fir (*Abis pindrow*) and a low level silver fir (*Abis webiana*), Birch (*Betulla sp.*) *Cedrus sp.*
3. The next zone consists of alpine forests usually above 3,200 mts. In the initial altitudes of 3,200-3,660 mts. occurs the white birch (*Betulla utilis*) as most common species. Further above in between 3,660-4,110 mts. the tree species are the Junipers, Rhododendrons, Salix and Conifera species that are known to occur in this zone. Alpine zone is the limit of tree growth, which has its maximum limit, the tree or timberline, where plant height is considerably reduced. At about 15,000 ft. and above snow line, growth is nil.

Annual crops, orchards, wet willow forest and poplars occupy the plains. A good percentage of tribal population actually lives inside forests and make a living out of minor forest produce (MFP).

The two main streams - Madhumati and Arin that originate from the glaciers adjoining Harmukh are the main sources of water to the Wullar and adjoining areas. The average flow of water in these streams is 300 cusecs during first seven months of the year and thereafter, the flow of water decreases gradually.

PROBLEMS IN THE HIMALAYAN REGION

- 1) The major problems in the Himalayan region are mostly economic in nature. There are also problems of unplanned developmental works, increase of population, lack of conservation policies and exploitation of natural resources. The ongoing militancy and violence paved a free way for the plunderers to loot the green gold of this area even in broad daylight. The wood is being carried even by using horses through main routes and the climax of the whole activity takes place in the wee hours of the morning. The worst suffered areas of such a ruthless plunder are Arin, Sumlar, Bhuthoo, Malangam, Onagam, Aloosa, Cchandaji, Bonakoot, Ahamsharief, etc. A large forest area presents a deserted look now with only the bare stocks left there.

The rampant plundering of this green gold is also due to the government's inability to provide adequate timber to the people for construction and red tapism associated with the process. There is a nexus between looters and the forest officials. The gravity of this nexus can be gauged from the fact that on 21 December 2005, a sincere and dedicated forest guard of Arin namely Farooq Ahmand Wani was brutally slaughtered. The massive and violent demonstrations forced the local police to act swiftly leading to the arrest of culprits that included three forest officials and three smugglers.

- 2) Another problem found is that thousands of cubic feet of wood is left to decay in forest depots on one or the other pretext.
- 3) The unabated felling of trees has created major ecological problems in the area. As already stated, the tree felling in the upper reaches of Arin, Bhuthoo and Authwattoo etc. have resulted in heavy soil erosion in this area. Hundreds of tonnes

of silt are deposited in the streams of Arin and Madhumati, which ultimately flow into the Wullar. In addition to this, more than a dozen small channels and *Kols* (nallas) flow into the Lake. These *kols*, which are silted and choked, also silt up the Wullar Lake situated at a lower altitude.

- 4) The tree felling in these areas has also disturbed the wildlife in the area such as Black Bear, Snow Leopard etc. There have been large scale man-animal encounters in the area. Many people lost their lives during such encounters in the past decade or so. In addition, half a dozen snow leopards and many bears were killed.
- 5) *Extinction of Local Medicinal Plants and Herbs*: Local herbs have been pivotal in healing the sickness of the people in past. Medicinal herbs like *Susserea* (Kuth), *Artemisia* (tethwan), *Viola odorata* (Bnufsha), *Althex officinate* (Sazposh), *Funeria indica*, *Taxacum officinale* (Hand), *Pastuclaea oleraceae* (nunar) etc. and other minor forest produce have been ruthlessly exploited by the people for their economic benefits. Many of these herbs can not be found now in the forest or in the vicinity of this area.
- 6) *Encroachment of Forest Land*: In many villages, people were found actually living within the forest area. The main problem is the absence of a clear-cut demarcation statistics and indifferent attitude of the concerned people.
- 7) *Pollution of Wullar Lake*: KEPCO conducted a sample survey of four villages namely Zurimanz, Laharwal Ghat, Kulhama and Sadarkot situated on the northern bank of the Wullar Lake. Thirteen villages of Bandipora are located on the banks of this Lake. The survey found that the hygienic conditions of these villages are poor and very insanitary. Even toilets have been constructed inside the catchments of Wullar Lake and people are using the contaminated water. The people of the villages make their livelihood out of aquatic products such as fish, pelicans, trapa, nelumbo, etc.
- 8) The geographical location of the town is inclined in such a way that all the drainage finally flows into the Wullar Lake. The

whole urban or municipal waste of Bandipora Tehsil flows into the lake. Only five per cent of the toilets are pitted while the faecal waste of households (urban area having a household capacity of more than 400 households) flows into the Lake via smaller drains and channels (*kols*). This has polluted the water. Mushrooming growth of weeds and siltation has converted a vast area of Wullar Lake into solid and semi-solid damp locally called *Nambal*. Rest of the land has been converted into either agricultural land and local people, government departments especially forest and rural development departments, have raised huge nurseries of willow and poplar inside the lake body. The whole situation has disturbed the ecological significance of the Lake. In the past, there were many small bird sanctuaries in the area which are now not existing in the area.

Contribution of KEPCO in Environmental Protection of Bandipora

1. Since the establishment of the Korea Electric Power Corporation (KEPCO), the focus of its activities has been to reinvigorate and ignite the consciousness of the people about the value of conservation of the environment of the region.
2. KEPCO raised a large nursery of different varieties of pinus species on private land under Research and Development (R&D) programme to meet the financial requirements of the organisation and also to be used in many voluntary plantations on the barren forest area of the tehsil. Some nine thousand saplings of pinus, cedrus and cupressus have been planted in the adjoining forest areas with the active involvement of school children and local people. Every year the Arbor Day on 21 March is celebrated with fervour and zeal and thousands of saplings are planted. Different Ecological Programmes, Forest Development and Preservation Camps are also organised to highlight the importance of forest development and preservation, and economic development.
3. Environmental rallies, Environment Awareness Camps, Cleanliness Drives and Surveys form a regular routine of the KEPCO.
4. The organisation made efforts and book interest in the

development of medicinal and aromatic plant sector in Jammu and Kashmir. For the first time in Bandipora area, a new concept of raising medicinal and aromatic plants on commercial basis has been introduced. Some 1,200 saplings of lavender have been planted at Bhuthoo on experimental basis (R&D). Before this, proper surveys and soil sampling and testing were carried out by the KEPCO.

5. An effective campaign against the use of polythene banners by political parties was launched during the election campaign in 2004. An appeal was made to the Election Commission of India for directing all political parties not to use polythene posters and banners.
6. As part of the World Environment Week celebrations each year, masses are educated about certain important issues regarding management, recycling and proper disposal of waste.
7. KEPCO is highly concerned about the protection of endangered species of wildlife of the state. The organisation rescued and brought up a three year old wild black bear that had fallen in a concrete well at Aragam, Bandipora with thrilling efforts. The organisation took keen interest in conducting the necropsy of a dead bear for knowing the causes of death of wild animals. The organisation conducted a general survey of the man-animal encounters in the adjacent forest areas of Baramulla and Kupwara districts.
8. Several census and sample surveys have been conducted throughout the area to identify the problems and their solutions.

WULLAR LAKE CONSERVATION

With the view to protect and preserve world famous Wullar Lake, KEPCO has taken the following initiatives:

1. First *Save Wullar Rally* was organised in December 2004 on International Day for Mountains, which is observed across the globe. It was taken from Bandipora to Wullar View Point (Garoor), where various dignitaries of Bandipora highlighted the need for protection and preservation of one of the largest lakes of Asia.

BANDIPORA AND WULLAR LAKE

2. KEPCO conducted many surveys on Hygiene and Sanitation and awareness camps on Rural Sanitation and Waterborne Diseases in different villages failing on the banks of Wullar Lake.
3. KEPCO conducted several studies based on the reports from the Block Medical Officers of Bandipora, Hajin, Sopore blocks and adjacent areas of the Wullar Lake. These reports categorically stated that the residents of the area suffer from gastro-intestinal infections and kidney problems due to contaminated water of the lake, utilisation of food items from the Wullar Lake and insanitation and unhygienic conditions in and around the Wullar Lake and insanitation and unhygienic conditions in and around the Wullar Lake.
4. KEPCO prepared a questionnaire regarding the past area of the Lake, cause of decline in its area, causes of pollution in the Lake, deterioration of water quality, decrease in fish production and other fodders, encroachment in and around the Lake, unhygienic conditions of the Lake, causes of slitation to the Lake and other wastes entering the Lake etc. This questionnaire was circulated in the general public including the *Namberdars* of various villages, teachers, medical and hospital professionals etc. to know the causes in the deterioration of the Wullar Lake environment.
5. The baseline surveys of the Lake, along with the photographs of the conditions of the Lake, garbage dumping including polythene and plastics in Asia's largest fresh water Lake and other problems of the Lake were discussed with the Legal Adviser of the KEPCO. A Public Interest Litigation (PIL) (Vide No: OWP No. 706 of 2005, IA No. 123 of 2006, IA No. 124 of 2006, C/W No. 345 of 2006 KEPCO vs State) has been filed in the Hon'ble High Court of Jammu and Kashmir at Srinagar along with the suggestions from the KEPCO to improve, conserve and protect the Wullar Lake environment.

ROLE OF WOMEN IN ENVIRONMENT PROTECTION

Krishna Bhatt

INTRODUCTION

World over, mankind is concerned for the protection of nature. Women also have organized in many walks of life to safeguard environment from deterioration. Better human environment promotes harmony in society. As an example, a distinguished woman from Africa, Madam Wangrai Matai from Nairobi has been awarded Nobel Peace Prize for her outstanding work for environmental protection in Africa. Her organization has planted three million trees during a campaign for protecting forest wealth. There are many such distinguished women who are involved in the noble task to save Mother Earth, and protect its resources from degradation. Many of these women are scientists, biotechnologists, educationists, population experts etc. Some have made their major focus to educate younger generation with modern environment education, and develop them as responsible world citizens. This article deals briefly with the role of women for promoting better social and scientific environment in Kashmir and in other parts of India, and thereby promote harmony and peace for society. From the history of Kashmir, some very noble women like Lal Ded, Habba Khatum and Arnimal, who have been great seers, spoke of nature and the need for human partnership with nature. In fact, the UNESCO has brought out a book titled *In Partnership With Nature*. We recall and pay our homage to these noble women of Kashmir for their great contribution towards the harmony of humankind. This article has laid emphasis on the role of Kashmiri women and also elsewhere in India, for their contribution to environment protection and sustainable development.

The concern for environment in Kashmir today is on various issues. These include the help needed for the poorer sections of society, the role of women for Panchayati Raj in villages, wetlands management, regional development in various parts of Kashmir, better tourism and

WOMEN AND ENVIRONMENT PROTECTION

social and economic development. Sustainable development in Kashmir has become important for all. Many regions in Kashmir like Bandipora, Safapora and Sopore have been neglected and need new ideas for development.

EMPOWERING WOMEN FOR ENVIRONMENT PROTECTION

The Government of India provides substantial funds for promoting Panchayati Raj in villages, to ensure better participation of people in self-governance. People will have opportunity to contribute to sustainable development of forest, water resources and cottage industries. India is a growing economic power. A long-term strategy of India is to promote Panchayati Raj and decentralize the administrative system for excellence in governance. Panchayati Raj also promotes privatization of resources. In order to promote equal opportunity in Panchayati Raj, the Government has made the following points in its declaration for empowering women. This policy declaration enunciates its objectives as: to promote economic and social development of women, and equal human rights for women, to provide equal access to women for participation and decision-making in social, economic and political life of the country, equal health care, equal legal help, changing social attitude against women, elimination of all violence against women, and strengthening women organizations.

ENVIRONMENT EDUCATION AND WOMEN

It may be recalled that the Supreme Court of India decided that the Government should introduce environment education as a compulsory subject in schools and colleges. Accordingly, Jammu and Kashmir Government has introduced environment education in schools and colleges on a large scale. In fact, Kashmir has developed environment studies very well for quite sometime. Kashmir University has many research projects going on for many years in the Department of Environment. This Department has produced many creative scientists like late Dr. T. N. Khoshoo, who later became the President of the

Indian Science Congress, and Secretary, Ministry of Environment and Forests. Others include Prof. P. Kachroo, Prof. D. P. Zutshi and Prof. A.R. Rahman.

The Stockholm Conference of 1972 made certain recommendations for the environment education. The Conference said that “Man is both creator and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth.” It also says that “Education in Environment matters, for the younger generation as well as adults, giving due consideration to the under privileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension.” It further elaborates that scientific research and development in the context of environmental problems, both national and multinational, must be promoted in all countries, especially in developing countries.” For this purpose, scientific information and transfer of experience must be supported.

The objectives for environment education stated in a conference by Dr. (Mrs.) Manisha Wadhwa are given below:

- To make environment education a life long process.
- Make it an inter-disciplinary approach.
- Emphasise participation in preventing and solving environment problems.
- Examining environment problems with resolving the regional differences.
- And lastly, promote international cooperation between local, regional and global interests

The people of Kashmir have suffered many hardships in recent years. Many have migrated outside the state in distress. Some are in camps in Jammu and elsewhere. They need our help for resettlement and return to their homes in Kashmir. This is one of the major human problems where women can also play a major role.

WOMEN AND ENVIRONMENT PROTECTION

Last year in 2005, I met many women educationists in Kashmir who are working to rehabilitate the poorer sections of society, including the lepers. In Home Science College, Kashmir University, I met Ms. Lubna Bhatt, a Lecturer in the Department of Child Development, who is the President of an NGO called EFFORT. This is a humanitarian aid organization dedicated to securing and caring for the poor and needy irrespective of caste, creed or gender. I was very happy to see the dedicated and hard work done for the lepers and their families by Mrs. Lubna Bhatt and her associates. Women can also render help in slums as well where the children are deprived of proper education. There is also a growing need to provide help in hospitals, old age homes, handicapped centres and orphanages. Involvement of women in these works can provide a major humanitarian effort. It will result in upliftment and happiness of such deprived people of our society. It will improve social environment and remove suffering and poverty.

WETLANDS AND WATER RESOURCES

Water resources and Wetland management are areas of great environmental interest in Kashmir. Women in Kashmir have their due share in this field. For example, the Chairperson of the Dal Lake Authority currently is Mrs. Tanveer Jehan from the Administrative Services. Now attention is being paid to the management of wetlands like Dal Lake, Wulur lake, Manasbal Lake etc. The Government is soon going to establish Wulur Lake Development Authority.

This region needs a new tourism policy so that tourists can also visit Bandipora, Wullar Lake, Tragbal, Gurez Valley, and many other beautiful areas. It will certainly promote jobs and a better life for people. Water resources of Kashmir and Wullar Lake will be better used.

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**NATURAL RESOURCE MANAGEMENT:
A Case Study of Chambidhar Micro-watershed
in Himachal Pradesh**

Satwanti Kapoor
and
A.K. Kapoor

INTRODUCTION

‘Prakriti’ (nature) and ‘Purush’ are known since the Vedic times. Man form an inseparable part of the life support system. Man depends on nature for his existence. But indiscriminate and unscientific overexploitation of the natural resources had led to the degradation of and imbalance in the varied ecosystem in all parts of the world. Because of its young age, complex geology and physiography and the relative instability and fragility of the environmental complex produced by these factors, the Himalayas are highly vulnerable to anthropogenic influence. Eco-development and environmental conservation of the Himalayan ecological system is crucial not only to the life support systems of the region but also to the entire downstream of Sutlej, Ganga-Yamuna and Brahmputra-Teesta basin because the impact of environmental degradation in the Himalayas cascade down to the plains.

Conservation of natural resources is important in the Himalayan ecosystem for its aesthetic value and the important role it plays in forming the cultural and religious life of the Indian sub-continent. Most of the people in hill regions depend directly on natural resources for their livelihoods. So, degradation of natural resources increases their drudgery and affects the quality of life of these people. Therefore, conservation and judicious management of natural resources is important for sustainability. The stress should be on improving the productivity of resource bases in a manner which ensures regeneration, conservation and stability.

Sustainability of mountain production system faces a serious threat, which is worsening in want of sound remedial measures and policies. This is reflected in the degradation of natural resources in terms of increase in the intensity and frequency of landslides, gully formation, soil erosion, reduced per capita availability and fragmentation of land and so on. This has contributed to a varying degree of negative trends in the yield of crops and livestock, and increase in drudgery of woman in water, fuel and fodder collection and decrease in availability of capital for reinvestment in agriculture.

Regeneration involves the conservation of resources. The process of conservation begins with preservation and better management of the primary resources, like soil and water. Soil and water conservation is inseparable and their interaction influences the quality of life. The most suitable way to conserve these is to concentrate all our efforts in a limited area. The only option to manage the interaction of these resources is to work within a hydrological unit defined as watershed.

WATERSHED MANAGEMENT

Watershed is defined as topographically delineated area that is drained by a stream system i.e., the total land area that drains to some point on a stream or river. It is small catchment from which all precipitation, rainfall as well as snowfall flows into a single stream. It forms naturally to dispose the runoff of rainfall as efficiently as possible. A comprehensive development of a watershed so as to make productive use of all the natural resources and also to protect it is termed as watershed management. Watershed management arrests soil erosion, reclaims vast tracts of eroded lands, improves soil moisture, harvests rain water, reduces floods, recharges ground water and revives vegetation. In due courses, it restores rainfall, revives healthy climate, regenerates soil, rejuvenates green foliage and revivifies the environment. Further, it renders the rural population self-sustaining in food, firewood, fodder, fruit, health and hygiene. In consequence, the dependence of the rural poor on the external agencies reduces their farm produce increases, per capita income gains and economy improves.

CHAMBIDHAR MICRO-WATERSHED IN HIMACHAL PRADESH

Watershed management is one of the most important tools of ecosystem approach.¹ Ecosystem approach of development calls for the integration of all sorts of natural resources as well as the human beings to create the effect of synergy. The three vital natural resources such as soil, water and vegetation along with people are the main focus of this approach.

Watershed management involves judicious management of three basic resources: soil, water and vegetation so as to improve its condition. In the watershed approach, development is not confined just to agricultural land alone, but covers the area, starting from the highest point of the area (ridgeline) to the outlet of the natural stream. This involves implementation of corrective measure on barren hill slopes, marginal lands, privately owned agricultural lands, and badly cut alleys, gullies and river courses.

Watershed management is an age-old concept in India. Water was stored in ponds and tanks and recycled for crop growth. Provisions of desalting operations were there at times with social or religious considerations. In drylands, soil moisture conservation for crop growth is evident in traditional practices of field bunding and cultural operations to conserve soil and moisture.

CURRENT PROGRAMMES

The soil and water conservation measures started immediately in the First Five Year Plan (1951 to 1956). The emphasis was on soil and water conservation of agricultural lands, but later this emphasis was changed from agricultural land to watershed basis in 1974, with the starting of drought area development programme. The forestry programmes were also initiated in the first Five Year Plan.

Catchment treatment programmes started from third Five Year Plan onwards (1961) as the need for the reduction of the sedimentation rates of reservoirs was felt at the end of the second Five Year Plan. Up to 1984-85, 29.4 million hectares of land were treated with soil and conservation measures. Since the start of the sixth Five Year Plan

(1980), not only the entire soil and water conservation programmes but also the agricultural development programmes had been firmly based on the concept of watershed management.

Since watershed management is concerned with all the lands used within the watershed to that extent it is a part of integrated rural development in the mountain ecosystems.

CONSERVATION OF WATER RESOURCES

According to Kapoor, the Himalayas are the source of numerous snowfields, glaciers, springs, streams and rivers.² But ordinarily, one thinks of water only where there is too much of it on the streets or too little of it from the tap. It has truly been called the 'step-child of conservation'. Hazards to agriculture result from floods and variation in water-supply from streams and underground water. The solution to these problems lies in the conservation of water in the Himalayan watersheds. Planning for the best use of water is regional responsibility, the region being coincident with the drainage basin of a river. The menace of floods and irregular regimes can be mitigated by conservation measures in the basins of the rivers in the Himalayas. In northeast Himalayas, the Himalayan rivers that dominated this region are unstable because of their steep slopes and excessive sedimentation load.

Soil conservation and water measures have to be given very high priority in the Himalayas to enable to combat the problem of floods. Soil conservation is largely water conservation. The control of erosion lies in the handling of water. Every catchment area from top to bottom forms a geographical unit and whether the resultant stream be permanent or seasonal, one's aim must be to make the stream serve mankind in the best possible way by adopting conservation measures. In the hilly and mountainous country, the forests are consumers of steam flow. Even on the steepest slopes, they create conditions with regard to surface run off such as obtained in a level country. Irrespective of species, they save a greater amount of precipitation from stream flow and increase underground water to a larger extent than any other

CHAMBIDHAR MICRO-WATERSHED IN HIMACHAL PRADESH

vegetable cover or base surface similarly situated. The steeper the slope the less permeable the soil, and the heavier the precipitation the greater is the effect. In the mountains, the forests by breaking the violence of rain, retarding the melting of snow and by increasing the absorptive capacity of soil cover, increase underground seepage and so tend to maintain a steady flow of water in streams. Therefore, widespread destruction of forests in the Himalayas, particularly in the heavy monsoon altitudinal belt of 4000-9000 ft., inevitably causes major calamities by way of floods which follow upon the destruction of nature's own safeguards.

Conservation of water resources in the Himalayan region becomes all the more necessary when it is realized that within the next 20 years, the demand for water for domestic use, irrigation and industrial purpose will double in India. The natural supply will be the same as now or it may even be worse if conservation measures are not adopted. Therefore, it is necessary to make a survey of water resources in the Himalayan region and to know the water balance in various basins.

PEOPLE'S PERCEPTION OF NATURAL RESOURCES

Any effort to conserve, restore and manage the natural resources of an area must take into consideration people's understanding of the status of their natural resources base and its importance in their livelihood. An understanding of their worldview is also important because it reflects their own experience and accumulated learning of thousands of years of living in this environment. These local communities are the principal users and custodian of these natural resources. They are also the main culprits and the first victims of degradation in the natural resource environment. Any policy or strategy for natural resources has to be finally implemented and executed by the people only. So, it is important to understand their problems, constraints and potential in the conservation and management of these resources.

As the farmers' planning is concerned mainly with meeting their short term subsistence requirements, the larger environmental issues are not considered to be important by them. The farmers' sense of place is

confined mainly to his/her homeland. Hardly any farmer understands the concept of watershed or bothers about it.

In Himachal Pradesh, it has been observed that almost 90 per cent households reside in the villages and practice agriculture for their livelihood. Thus the people in this state live with the nature. They closely interact with the nature and directly depend upon it for their survival and prosperity. Among the local environmental issues, regular rainfall is considered to be the most relevant by the people. As most of the areas are rain fed, it decides their crop yield and return on farming investment. So, provision for water harvesting structure is most essential to give boost to the village economy. Even in the villages, where drinking water is a problem, people believe that rain water harvesting structures can only help. Most of the people are prepared to contribute to projects addressing such important needs. People are generally looking for collective solutions in the form of community owned structures. In the traditional rural settings of this area, land, labour, water etc. have always been managed partly by individual households and partly by the community. Group action and decision making is a very old tradition and an ancient survival mechanism in this area. By adopting a community-based approach, farmers reduce their individual costs of production by pooling indigenous management skills and labour inputs, thereby achieving economies of scale.

STRATEGIES FOR NATURAL RESOURCE CONSERVATION AND MANAGEMENT IN HILLS

(a) *Community based Approach*

The local communities inhabiting an area are the most important stakeholders in the natural resource base of that area. They have the first entitlement over these resources. So, any effort to conserve and manage these resources has to be addressed towards the community. Due to the demands of the mountain landscape, local communities have always had interest in mobilizing the resources and energies of individual households for creation of a social capital to protect the land and water

resources. Community approach is inevitable in the mountain areas because the multi-zonal vertical arrangements of these landscapes don't allow individual decision-making and action without consideration of broader community. The community is the most appropriate level to address these issues because it has the vision and the power to plan for a much longer horizon than the individual farmer.

Women play the most important role in the economy of that area as it is they who not only raise the children and look after the household but they are also responsible for food production, care of livestock and for ensuring that there is adequate drinking water, food and fuel. The degradation of the environment and natural resources, therefore, calls for increased participation of women in environment management.

(b) *Appropriate Time and Space Horizon*

Most households of the rural areas are concerned with their immediate goals and needs as well as protection of their immediate environment. If a technology or a new system is both sustainable and allows timely response to those goals and needs, then the farmer's interests and societal environmental goals can be easily reconciled. However, the time and investment required of the individual household to implement most sustainable practices proposed by the external projects are too costly or not in sync with the local time frames. Many of the benefits promoted in watershed projects actually occur beyond the farmer's fields (e.g. reduction in siltation, flood control, improved biodiversity etc.) at the level of the wider watershed region or they have a limited immediate benefit to the farmer, but substantial ecological and economical benefits are possible over the long term to both the farmer and the community. In such cases, the costs are real to the farmer in the short-run while benefits, either to the household or the community occur over a much longer period of time. So, even if they are aware of the benefit, they may not be able to afford adoption. This disparity between the planning horizon of the farmer's decision making and the project is the main stumbling block in evincing desired level of response and participation from the farmers. The local people will accept no

solution unless they perceive it to be relevant and beneficial economically, socially and culturally to their lives. The solution has to have its temporal and spatial dimensions relevant to the local perception and behaviour. The sustainable options, which have the highest likelihood of adoption, are those with increased yields and decreased risks to compensate for the costs of implementation.

CHAMBIDHAR: A CASE STUDY

Chambidhar watershed is the direct catchment of the Giri river. It lies in Rajgarh Development Block of Sirmour district in Himachal Pradesh. The total area covers two panchayats spread over an area of 1,871 hectares. The area has a total population of 2,449 spread over nine revenue villages.

The most important economic activity in the area is agriculture as on an average around 75 per cent of the total incomes is from agriculture. Before the interventions of RUCHI, an NGO, only 267 hectares of land out of a total of 1,871 hectares was cultivable of which only 113 hectares was covered under irrigation. 4.5 per cent of the areas was under forest cover and rest of the land was either wasteland or fallow land. Terrace cultivation is the only system of farming that is practiced in the area. The concept of contour terracing was not popular and most of the terraces have got gradient, thereby increasing the erosion of land. Major part of the cultivated land was rainfed because irrigation facilities were not very good.

The average livestock was very high. On an average, each family keeps 10-15 cattle the main cattle being cow, buffalow, goat, sheep and mules. Hence, the demand for the fodder is quite high. Except for few months, there is scarcity of fodder.

Fuel is another major matter of concern in the area. Due to cold weather, the demand for fuel is high as the major source of fuel is wood. Wood is mainly procured from the nearby forest which is depleting fast.

Keeping in mind the identified problem, we designed a micro-watershed project with the involvement of local people as well as a

CHAMBIDHAR MICRO-WATERSHED IN HIMACHAL PRADESH

local NGO called RUCHI, to address some of these problems. The various measures for soil and water conservation were adopted including farm ponds, check dams, gully plugging, contour trenching, bench terracing, plantation, organic composting etc. A total of 26,92,820 litres of water was made available through various harvesting techniques (18 ponds and 10 check dams) over a period of three years (1997-2000). This brought an additional area of 114 hectares under irrigation and an additional 62 hectares under cultivation.

For the first time in the area, the people started growing fruit trees. Though Rajgarh area is known for producing famous peaches in Asia the people in the area were not very sure of the benefits due to prevalent situations. Now they have not taken to peaches only but have started growing Kiwis also. Cash crops are grown and the farmers have started taking 3-4 crops a year. All this was possible with the organisation and education of people who formed their own group known as *Kisan Sangh Dhimman* (Sangh).

This Sangh was created in April 1997 for the efficient management of their natural resources but now it also acts as a Self Help Group for economic empowerment. The Sangh has 22 members (two from each village). As community assets were being created through the watershed project they required maintenance in future. Therefore, lot of emphasis was placed on the education of people right from the beginning and in motivating them on those lines. In order to generate funds for such maintenances and taking up development activities without outside interventions in future, the people worked out a system wherein they decided to save Rs. 2000/- per assets created in their village over and above their mandatory 10 per cent contribution (it could be in the form of cash or manual labour). Besides, rather than giving fruit or fuel-cum-fodder plants to individual farmers for plantation, they were given to the Sangh. The Sangh then distributed the plants to individuals at an extra of one rupee and ensured their plantation. Similarly 10 per cent additional charges were charged from the farmers on the purchase of seeds, which were then made available at their door steps. All this earning was put in a community fund.

However, as this invited only a bare 4.5 per cent interest in saving account, the people decided to keep the money in circulation.

This gave rise to the concept of savings and credit. Each member contributed Rs. 50/- per month to this account. The total saving was given to needy member applicant at an interest rate of 24 per cent. 12 per cent of this earning went to the account holders. The rest of 12 per cent was earmarked for maintenance and other development activities in the villages as per their share.

As on date, the Sangh has a total fund of over Rs.1,80,000/- of their own of which a minimal amount is kept in the savings account and the rest of money is given out as loans to members. Normally, the loan is given for agricultural purposes and for a maximum period of six months. The maximum amount fixed for loan is Rs.10,000/-. No repeat loan will be extended even if the loan is returned within six months. Interest on loan is collected every month. If the loan is not returned within the fixed time, 10 per cent fine is imposed per month. Surprising, till now, there was only one defaulter and he paid up penalty without any protests.

The first loan amounting to Rs. 5000/- was given to Mr. Ram Swarup of Katogara village in August 1997. He purchased tomato seeds and fertilisers with the amount. He was very lucky as the tomato prices were sky high in that season and he made a total income of about Rs. 90,000/- within three months season. Second loan of the same value was given to Dilip Singh of village Bararh to buy a mule along with Ram Swarup. He was also able to return the entire amount within six months out of his earnings.

This reinforced the self-confidence of the farmer so much that they started taking up innovative experiments. For example, organic compost was made from biomass using hardly 10 per cent dung. Rajiv Verma of Katogara village made an experiment of this fertilizer on his cauliflower seed farm in 1998. He got 94.3 per cent germination in his farm. Subsequently, other farmers followed him. Collectively, they established marketing linkages and earned good profits. Similarly, as

CHAMBIDHAR MICRO-WATERSHED IN HIMACHAL PRADESH

against two crops a year of beans, the people take four crops with ensured irrigational facilities.

This increased the morale of the villagers so much so that they got into other activities. For example, in Chakhal village, there was huge water reservoir (2,50,000 litres) constructed under the project but there was no provision of pipelines to bring water to the fields. The users collected Rs.975,000/- and contributed free manual labour worth Rs.25,000/-. They deposited this collection with the District Rural Development Agency (DRDA) to avail of *Vikas Mein Jan Sahyog* scheme under which the government gives 75 per cent funds for every 25 per cent local contribution. With the laying of pipes, now the people grow more crops and get a better yield.

In yet another example, in village Katogra which is predominantly a scheduled caste village, the people realized the importance of education for their children who had to trudge miles to go to a school. The local authorities were ready to give teachers provided they give a building for the school. The villagers collected about Rs. 135,000/- as their 15 per cent share to avail of the 85 per cent share of the government under the same scheme. However, the Block Development office was keen to give this money to a contractor for construction purposes but the people protested and with the intervention of the Deputy Commissioner, Sirmour got the permission to keep away the contractor and construct the school building through their own committee with the total allocated funds of Rs. 837,000/-.

This is just one area where the people have been organised and encouraged to take their own decisions in managing their natural resources without outside intervention. The outside intervention was so designed that when withdrawn the development process could continue which ultimately is going to bring about the so called sustainable development. Initially, it takes time to inculcate confidence among the people but once they have realised that they are going to reap the benefits of the project, they make development and conservation of natural resources an essential part of their life.

According to Kapoor, a large portion of the people of the Himalayan region is underdeveloped and under-privileged.³ Studies on the Himalayas reveal that land for agriculture is adequate; irrigational and electrical facilities are restricted, yields are low, income from land is not sufficient to meet the expenses and has to be supplemented from other sources and that there is a general absence of good roads, pure drinking water, educational and medical facilities. Such a state of people in the Himalayan region constitutes a weak link in national development, and conditions for development and conservation should be provided so that the people of this region may be able to play their proper part in national development and defence.

The problems of erosion, floods, forests, flora and fauna, land use, irrigation, hydroelectric power, water supply and recreational resources are interconnected. Therefore, there is need for unified authority to study these problems of management and conservation. Detailed surveys of the conditions of each resources are necessary and it must be observed more closely by fieldwork. Such centralised knowledge can help for formulation of schemes for land use, irrigation, water power etc.

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ENVIRONMENTAL DEGRADATION IN XINJIANG

Mahesh Ranjan Debata

With a highly vulnerable ecological environment, Xinjiang Uyghur Autonomous Region (XUAR) is one of the most arid areas in the People's Republic of China. Xinjiang's environment is fragile because over 90 per cent of the land is mountainous, hilly, desert, or semi-desert. Hydrocarbon resources (oil and natural gas), mineral products (coal, and other precious metals) and water resources, which contribute a lot to the development of economy and society in this northwestern region of China, have been over exploited leading to serious ecological crises like drought, salinization and desertification. The overexploitation of water, soil and biological resources have caused irreparable damage to the development of sustainable agriculture. According to a recent assessment, serious environmental degradation is expected to occur in China's northwest region, including Xinjiang, which could result in ecological crisis if the issues like rising population and increasing demands for water are not addressed.¹ The level of environmental degradation in Xinjiang stems from the fact that the capital city of Urumqi is one of the world's ten most polluted cities.²

Xinjiang occupies one-sixth of China's national territory having a surface area of 1.66 million sq kms. The region possesses 57.26 million hectares of grassland, second only to Inner Mongolia and Tibet, besides 3,000 types of plants, making up to 10 per cent of the total plants in China. There are significant energy reserves in Xinjiang, the major ones being coal and oil. More than 112 kinds of minerals out of which 67 have proven deposits in which eight types of minerals rank first in China.³ The forest cover in this landlocked region is less than one per cent and is distributed mainly in the Tianshan and Altai mountain regions, near the borders of Kazakhstan and Russia. The forests, which are home to many rare species, such as Tamarisk, Siberian Fir, and Zizyphus, have degenerated significantly in the last five decades due to rapid population growth, large-scale reclamation and deforestation.

The environment along the 1,321 kms. long Tarim river has also worsened. Known as the mother river of Xinjiang, Tarim covers two-third of Xinjiang's total area and supports half of the region's total population. The Tarim began to degenerate worsen rapidly as in the 1950s, due to runaway land reclamation and improper agricultural water diversion. According to a report by the Tarim River Valley Administration in 1996, the mainstream of the Tarim river shortened by one fourth between the 1960s and 1990s, the "green corridor" along the river shrank from 54,000 hectares to 13,000 hectares, and the poplar forests declined by 67,000 hectares.⁴ It is in this context that this article examines the causes and consequences of environmental degradation in Xinjiang and the steps taken by the local authorities, the Central Government and the local non-governmental organizations to protect the environment.

CAUSES OF ENVIRONMENTAL DEGRADATION

According to a survey conducted by Xinjiang Geology Environment Monitor Station, 90 per cent of environment problems in Xinjiang are the result of human activities.⁵ The survey indicates that Xinjiang has been frequently hit by geological disasters, with the Altai and Tianshan mountain areas bearing the brunt. Mindless exploitation of mines has resulted in landslides and mudflows.⁶ Urumqi, capital of Xinjiang which is located at the foothills of the Tianshan mountain, has a long history of coal mining and most of the coal mines are located in the outskirts of the city. In recent years, the city has expanded to such an extent that it has now included some mining areas into the city's residential districts. According to some geologists, the hollowed area in the city's ground surface, which has reached 13.4 sq kms, has not only damaged the environment, but also threatened buildings and facilities on the ground. As the hollowed areas continue encroaching, the sunken area in the city's ground is also growing at an alarming rate. Local administration has been trying to use rubbish to fill the underground holes, in order to protect the collapsing surface ground.⁷ Besides, there are a number of other factors that contribute to the environmental disorder

ENVIRONMENTAL DEGRADATION IN XINJIANG

in this region, the most important being population pressure, desertification, water crisis and nuclear tests in Lop Nor.

Nearly 95 per cent of Xinjiang's populace lives along the oases, watered by melting of snow in the mountains, which comprise five per cent of Xinjiang's land area. The population pressure on the oasis regions in Xinjiang is very high because only five per cent area supports human life. Some oases have a population density of over 197 people per sq km.⁸ Besides, rapid growth of population in the past half-century, particularly in the oasis areas, has put tremendous pressure on water resources resulting in the loss of vegetation, desertification and deterioration of grasslands. Desertification, salinization of soil and pollution that threaten Xinjiang's agriculture, have further aggravated the crisis.⁹ In the past 50 years, Xinjiang's wetlands, mostly located at the middle and lower reaches of the Tarim river and the southwestern edge of the Zhungar Basin, have shrunk by half, due to population growth.¹⁰

In the past two decades, China has witnessed an extraordinary migration from rural to urban areas, overstressing resources. More than 200 million people have moved to the cities and urban centres in search of livelihood. In the next two decades, another 300 million are expected to join them,¹¹ which will deteriorate the situation further. The environmental problems were also caused by the mass migrations of Han Chinese from eastern China to the western regions, particularly northwestern part of the country. Over the last 50 years, the percentage of Han Chinese in this region has increased almost tenfold. The proportion of Hans in Xinjiang rose from a mere 6.7 per cent in 1949¹² to 39.2 per cent in 2000. (See Table)

As the population of Xinjiang suddenly increased, the region began to face serious water shortage. The efforts of the Chinese government to divert the main river system for irrigation of the upstream areas of new settlers resulted in desertification of farms and agricultural lands. Xinjiang, which depends on oasis irrigation agriculture, is one of China's top producers of cotton and foodgrain and has also appropriate land and climate for producing fruits, especially grapes. However, land

development has threatened the availability and richness of the land, somewhat paralyzing the region economically as they are unable to adequately compensate for the growing scarcity of resources.¹⁴

Han Population in Xinjiang (1949-2000)

Year	Total Population	Han	Percentage of total population
1949	4,330,000	291,000	6.7
1964	7,440,000	2,440,000	32.8
1982	13,082,000	5,287,000	40.4
1990	15,291,000	5,746,000	37.5
2000	18,494,000	7,250,000	39.2

Source: Remi Castets, "The Uyghurs in Xinjiang: The Malaise Grows", *China Perspectives*, no. 49, September-October 2003, p. 438

Deserts cover an area of 1.74 million sq kms in China. Every year just 1,200 sq kms desert can be turned back into arable land. Out of 2,070 counties in the People's Republic of China, 880 Counties have been affected by desertification and in more than 300 Counties, the situation is very grave. It affects about 400 million people every year.¹⁵ Xinjiang's land area lost to desertification has increased from 370,000 sq. kms to over 420,000 sq kms. Since 1994, net annual expansion of desertified land has averaged 10,400 sq kms, causing an estimated loss of 7.7 billion US dollars to the economy each year.¹⁶ The advance of the desert has forced people to move upstream along the rivers. The location of the ruins of ancient cities conquered by the desert and the location of human habitation today is an indication of desertification. Increasing population overloads the environment as plants and grasses which stabilize desert sands are uprooted. Excessive grazing on grasslands, uprooting of medicinal, herbal and green plants facilitate desertification.

According to Nicholas Becquelin, "scientific studies show that the edge of the desert is extremely sensitive and must be treated with great caution. Just flooding it with water and growing cotton might work well for the first five or ten years, but it ends in disaster for many reasons.

ENVIRONMENTAL DEGRADATION IN XINJIANG

First, cotton needs a huge amount of water, which combined with the intensive use of fertilizers quickly erode the soil. Because it is very hot, all the water put on the ground takes the minerals from the soil and brings them to the surface, so after a while all the minerals form a crust on the surface. The result is increased desertification. It may work very well to entice new settlers to move to Xinjiang, but cotton is placing an enormous burden on the region's ecological sustainability."¹⁷

China's Western Development strategy has been seeking to shift the heavy environmental pressures from Eastern China to the interior areas like Xinjiang. Beijing's *White Paper* on Xinjiang, released in May 2003, calls for a continuation of the ambitious programme to 'Develop the West.' This policy implies the continued expansion of cotton cultivation and energy exploitation.¹⁸ Both are vital industries for Xinjiang's development. Yet both create a demand for water which is unsustainable in a region that already shows signs of environmental strain. Due to excessive demand, the ground water level has gone down 60 meters in the past 30 years. The environmental impacts include an intense and ever growing usage of water resources, decrease of forest coverage, excessive land use, pollution and rapid population growth. In the past two years, China National Petroleum Corporation (CNPC) has invested 2.1 billion yuan (250 million US dollars) in energy development projects in the oil fields in Tarim and Turpan, which will further intensify the demand for water due to the increase in population and urbanization. In addition, cotton, which currently covers nearly 40 per cent of Xinjiang's arable land, plays a vital role in China's textile industry and has been crucial to the country's economy. But such agricultural goals put severe strain on the region's scarce water resources as it is an extremely water-intensive crop.¹⁹ However, Remi Castets, in his observations with regard to the Western Development Programme, has expressed optimism that Chinese authorities will make efforts for ecological balance in Xinjiang by controlling the means of environmental degradation like soil erosion and desertification.²⁰

Though there are over 570 big and small rivers in Xinjiang and the amount of water per capita in the region is higher than the national

average, the new infrastructure and factories in Xinjiang consume a lot of water and even the drinking water consumption is also increasing day by day. For this purpose, large irrigation projects that capture the water coming down from the mountain ranges to irrigate areas along the desert are being built. However, these large projects will affect the region's ecological balance. Meeting these water demands will in part derive from diverting the Irtysh and Ili Rivers, both of which originate in China and eventually flow into Kazakhstan and Russia. The Chinese authorities hope the River Diversion Project will lead to economic development and raise standards of living of the local people. However, a recent assessment indicates that irrigation schemes to supply water for industrial and agricultural purpose over the long term could result in environmental disasters.²¹

Xinjiang's insatiable thirst for water is causing concerns for the neighbouring Central Asian Republic of Kazakhstan. Mels Eleusizov, who heads a Kazakh NGO known as *Tabigat* (Nature), said the Irtysh and Ili rivers, are being increasingly drained in order to cater to China's needs. Eleusizov said, "If China continues to increase water consumption in the area, it will certainly affect the water resources on our (Kazakh) side." The Ili flows through Xinjiang into southeastern Kazakhstan and terminates in Lake Balkhash, Kazakhstan's largest lake. The Irtysh rises in China's Altai mountains and crosses into northeastern Kazakhstan, before flowing through Lake Zaysan to the Russian city of Omsk and then into the Ob river. The increasing usage of river water in Xinjiang is inherent in Beijing's aim of attracting ethnic Han Chinese to the region and developing the local economy.²² The United Nations Development Programme (UNDP) has warned that Lake Balkhash faces the danger of drying out if Kazakh government does not adopt better water management practices or get Chinese cooperation over the usage of the Ili river, the lake's main contributor.²³ The current construction of a canal by China, which is 300 kms long and 22 meters wide, to reroute water from the Irtysh is also of great concern. Abai Tursunov, a Professor at the Kazakh Institute of Geology and Geography in Almaty expressed concern over

ENVIRONMENTAL DEGRADATION IN XINJIANG

the environmental impact when the canal becomes fully operational by 2020. He said, “The completion of the canal will affect us drastically, our power stations will be very much affected. Gradually, all of this can lead to major environmental problems.”²⁴ This western region, which borders Central Asia, is home to China’s main nuclear testing site. The nuclear testing site at Lop Nor in Xinjiang has for the past three decades produced an ecological problem endangering human life, flora and fauna, polluting drinking water and food supplies and affecting millions of animals.²⁵

ENVIRONMENTAL PROBLEMS SINCE 1950

According to a survey of Xinjiang’s environment conducted from 2000 to 2003, environmental problem is the most serious one in the Tarim River Watershed.²⁶ Until a few decades ago, the lower reaches of the Tarim river had shifted freely within a width of 50 to 100 kms, which created a huge Green Corridor with luxuriant growth of natural poplar trees. This effectively controlled the sand drift coming from the northern margin of the desert. In addition to these forested watershed regions, there are unique oases of trees that dot the Xinjiang desert. The peculiar geographic location and strong physical and biological functions of these forests play an important role for plants and animals as well as for the socio-economic development of the region. For this reason, Xinjiang’s forests are often called “wet islands” in the desert. These forested areas, however, have been seriously degraded by the rapid development occurring in Xinjiang. The most serious problem over the last 50 years has been agricultural land reclamation,²⁷ which has turned about 100 sq kms of desert into fertile farmland. This has come at the expense of the forests and grasslands along the banks of the Aksu river.²⁸ The second most serious problem is the construction of large-scale water storage projects. Three large reservoirs were built since 1995 with short-term economic gain in mind, and without thinking its impact on the ecological balance of the Tarim River Watershed. This has caused diversion and reclamation of water from the Tarim watershed, and decrease in groundwater level, which ultimately led to

degeneration of the ecology and deterioration of the Green Corridor. In addition, there are proposals to construct trunk canals, sluice gates, and reservoirs in the lower reaches of the Tarim river replacing the natural river channel and if this happens, the Green Corridor will soon disappear.²⁹

The huge Protection Project of Natural Forests has further resulted in deforestation, especially along the Ili, Irtysh and Ulungur river and affected watersheds in the Tianshan and Altai mountains. The dense forests in Altai mountains have disappeared due to intensive mining activities and logging for over the last 50 years. The natural landforms, grasslands, and river channels have been destroyed by this activity, while soil erosion, secondary salinization of soil, and other natural disasters have aggravated the situation. These factors threaten the ecological, social and economic safety of the entire region.³⁰

Development along the Tarim river valley in Xinjiang made water runoff in the lower reaches of the river decrease by over 80 per cent. The Tarim river valley once boasted the world's largest distribution of poplar forests. However, due to water shortages, the forests have withered in stretches. According to statistics, the forest cover along the middle-lower reaches of the river has decreased from 5.8 million hectares in the 1950s to 1.52 million hectares now, and sand-encroached areas account for 80 per cent of the total valley area, as against 60 per cent before.³¹

INITIATIVES

In order to save the region from further environmental degradation, the Chinese authorities, regional leadership and the non-governmental organisations have made concerted efforts. The Law on Environmental Impact Assessment, which came into force on 1 September 2003, is a significant development of China's environmental protection legislation. According to the law, government planning on land utilization, urban engineering, communication and natural resources exploration will have to go through the process of an environmental impact assessment, like other construction projects do. An official from

ENVIRONMENTAL DEGRADATION IN XINJIANG

the State Environmental Protection Administration (SEPA)³² said implementation of the law and other government policies are expected to reduce environmental disasters.³³ The State Council Information Office published a White Paper entitled *Environmental Protection in China (1996-2005)*, which provides an account of the efforts made by China in environmental protection over the past ten years.³⁴

In 1994, scientists, technicians and environmentalists started afforestation project on an experimental basis in the desert oil-gas fields, and found high mineral content underground water there for planting forests. They selected a batch of tree plants suitable for growing in the desert. In 1999, a Pilot Project of sand protection afforestation belt along a 6.3 kms section of the highway was completed and in 2001, a demonstration project of protective afforestation belt along 30.8 km section was built. In 2003, the Highway Tree Belt Project was in operation with an investment of 220 million yuan (25 million US dollars). Along the 436 kms long highway, a 72 to 78 meter wide tree belt has been built, which covers a total area of 3,128 hectares.³⁵

In an attempt to raise public awareness and increase environmental efforts in Xinjiang, the Xinjiang Conservation Fund (XCF) was established in late 2001 with initial funding from Green Grants Fund (GGF). XCF is a non-governmental organization committed to developing local environmental organizations and sorting out the environmental problems. XCF has launched numerous activities such as publication of newsletters and booklets regarding issues pertaining to the ecology and endangered species of the area in order to encourage environmental awareness. It helps fund research and conservation efforts for several important habitat areas, such as the Kanas Nature Reserve and the Tarim Basin, and endangered species such as the snow leopard, the wild swan, and the Xinjiang salamander.³⁶ It has also contributed to the environmental efforts in Xinjiang by encouraging and funding smaller organizations and university student groups. Many of these student organizations use their micro-grants from XCF to purchase environmental literature. The XCF has organized numerous lectures and forums in Xinjiang. It has created a website

(www.greenxinjiang.org) to facilitate the exchange of information and organization of activities between people throughout Xinjiang and China.³⁷

For the first time since the independence of China in 1949, the State Administration of Forestry has signed a Treaty on desertification prevention and treatment in 2005 with 12 provinces and Xinjiang's Production and Construction Corps.³⁸ According to the Water Resources Bureau of Xinjiang, 1.247 billion yuan will be spent in 2007 for water treatment project in the Tarim river, which was started on 27 June 2001. The government agreed to invest a total of 10.739 billion yuan (1.3 billion US dollars) into the project and tried to apply comprehensive measures such as water conservation, water transportation and water storage to protect the river and to improve the surrounding vegetation.³⁹ As part of this project, there have been six water transfusions in the Tarim river, involving 1.76 billion cubic meters of water. The effort has ended 30 years of drying-up at the lower reaches of the river.⁴⁰ In 2007, The government will begin building river dredging infrastructure in the lower reaches of the Khotan and Yarkand rivers, a sluice gate in the middle reaches of the Khotan river and Daxihaizi, a remote control system for water regulation, and an environmental protection project in the mainstream of the Tarim river.⁴¹ Besides, a quota system is being used currently to restrict water use for economic purposes along the Tarim river valley. On 1 May 2005, the first set of local rules over river water control in the Tarim River valley took effect.⁴²

Besides, Xinjiang government has received a loan of 34 million US dollars from the Kuwait to protect Bosten lake, the largest freshwater lake in Xinjiang. Located at the heart of the Tianshan mountains, Bosten lake covers 972 sq kms. The wetland surrounding the lake is one of the four major reed growing areas in China. Every year, it supplies 250,000 to 400,000 tons of reeds, most of which are used to make paper.⁴³ The project, which aims at preserving the lake's ecosystem, is made up of a series of engineering projects to preserve wetland around the lake by planting more trees and monitoring water pollution thoroughly.⁴⁴

Despite these constant endeavours to protect the environment in this region, the degradation of the ecological system still continues. Focussed attention needs to be paid to the restoration and regeneration of the environment in this ecologically vulnerable region of China, which is ushering in massive economic development. There must be harmony between development and the issue of environment. More environmental friendly measures need to be devised and implemented by the authorities as early as possible. Besides, afforestation drive must be stepped up, which could be a panacea for all environmental problems. Above all, the Central government, the provincial administration of Xinjiang, non-governmental organisations, community development groups, environmentalists and the civil society should contribute largely to ensure a better environment in this region.

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ENVIRONMENTAL DEGRADATION IN XINJIANG

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THE STORY OF A COLLEGE WITH A MOMENTOUS PAST

Neerja Mattoo

Through my long association with the Government College for Women, Srinagar, as a student as well as a teacher from 1952 to 1995, I have been witness to its phenomenal role as an instrument of change. An institution that had a small beginning, housed in what was a 'Widows' Palace' in the time of the erstwhile 'Maharajadhiraj' of Jammu and Kashmir, it grew to alter a whole society's perspectives on women. The graph of its success in empowering women, which had steadily gone upwards, suddenly took a plunge in the last decade of the 20th century. This was the time when in the valley of Kashmir everything fell apart and no one was sure of the meaning or value of anything but the gun. But let us go back to the beginning.

It was a heady time. Not only because we were just into our teens, but because the world around us felt young, confident and exuberant – sure that things could only get better. Kashmir along with the rest of the sub-continent had been pronounced free only a few years back. *Awami Raj* they said it was, 'People's Rule', and the sheen on that idea had not yet worn thin. Faith in the leadership had not yet taken a beating. And certainly things had changed for the better within an unbelievably short span. Lands had been distributed among the tenant farmers with no compensation to the absentee landlords. With one stroke of a purposeful pen, the wretched of the earth had become owners of the land they had cultivated for generations for someone else. Bonded labour was abolished, usurers warned off and a college for women set up, where admissions came abegging to every woman in pursuit of an education or vocation. The sky seemed to be the limit for women's aspirations.

The year was 1952 and the college was only two years old when I entered it. Had it been born earlier, our eldest sister, the brightest in the family, could also have gone to the college after passing matriculation as a

THE STORY OF A COLLEGE WITH A MOMENTOUS PAST

private student. She could not go beyond this step in her formal education because in 1941, there was only one college in Srinagar where her brothers went for higher education. The half a dozen girls on its rolls came from non-Kashmiri families, the 'advanced', 'modern' Punjabi girls, competing with whom was unthinkable for a 'respectable' Kashmiri Pandit girl. This, even though her own father and future father-in-law (she was married the next year) were both Professors in that college. If this was the unquestioned reality in an educated, comparatively 'emancipated' Kashmiri Pandit family, who not only had a far stronger tradition of learning - conventional as well as modern brought in by their English education - what the situation must have been for Muslim women can well be imagined. 'Steeped in ignorance' might be a cliché, but it was the truth.

The poorer classes were, of course, completely unaware of the need for education, but the upper classes as well as the middle classes would not encourage it for fear of throwing open the doors to subversion. The scales were heavily weighed against women. Only a few could break free from the mould in which they had been cast from birth. One such woman who did it with aplomb and made a difference, was Mahmuda Ahmad Ali Shah, the first Kashmiri woman to head a college in Srinagar. This tall, sternly beautiful woman had a commanding personality. Her single minded commitment to the ideal of Kashmiri women's emancipation was largely responsible for making this college an institution of academic and cultural excellence. One of her most repeated exhortations at the morning assembly was to ask the students to always walk with their heads held high as there was nothing that should cow them down as long as they were in the right.

The years from 1950 to the 70s in Kashmir were the kind of years when everything seemed within reach, anything possible with hard work and determination. The achievements of women during these decades were so significant that they altered the gender landscape of schools, colleges, offices, courts, police stations, hospitals, hotels and business establishments. Women were everywhere, making their mark in every field. This revolution had been brought about surprisingly, without there being an organized women's movement in the state. Women began to take the possibilities for their careers for granted. It had not occurred to them as yet that with their

unrestrained expansion, the roads would get narrower and there would not be room for everyone – in the professional colleges, in other employment opportunities. Or that a time would come when the gift of freedom would be taken away with the same suddenness that it had been bestowed upon them and they would regress to the swaddling they had broken free from. But I am talking about a time when optimism was still in the air and expectations from ‘progress’ were raised to limitless heights. Of course, it was an unreal situation, at hindsight. The events from the mid 1980s onwards, leading to the total collapse of the educational edifice in the 1990s could be attributed, to some extent, to the frustrations generated from this unnaturally high expectation of the rewards from free education.

The things I remember about the college today may sound incredible in today’s devastated educational scene in Kashmir, but they are true nevertheless. My first vivid memory of the college is symbolically most significant too. It is that of the rehearsal for a play we freshers saw when we ventured towards the little wooden hut-like structure that served as an auditorium in 1952 (The fully equipped large auditorium which we got from the government in the 1960s after so many drama festivals-an annual feature-had been staged in that very hut, was burnt down in the 1990s. Another instance of the cyclic nature of history perhaps.) The play was about Habba Khatoon, who we learnt to our amazement, had been a poet and consort of a king of Kashmir. This was our first introduction to the history of Kashmir, which till then was not taught at any stage of our school or college education. The dialogue was in English as the play had been written by a Professor of the college who did not know the Kashmiri language, while the lyrics were Habba Khatoon’s own, set to music by the music department. That it was possible for our poor disdained, till then looked-down-upon Kashmiri language to rub shoulders with the awesome English language on equal terms was an overwhelming experience. This experiment, so new at that time, opened a door to the whole world of mutually enriching linguistic and cultural cross currents. Kashmir no longer felt small, nor was being called a Kashmiri an epithet of contempt anymore. In fact, suddenly one felt proud to be a Kashmiri yet secure enough to accept valuable lessons from other cultures. We did not realize then that

THE STORY OF A COLLEGE WITH A MOMENTOUS PAST

this was an instance of what is now called *Kashmiriyat*, a word appropriated by those who know nothing about it.

Soon we too became a part of this cultural revolution, eclectic in our choice of plays to act in, be they the poetic plays of Tagore, translated into English and Kashmiri, the comedies of Moliere in Urdu, the socially relevant satires of Ramesh Mehta in Hindustani, Bernard Shaw's witty exposes of social and political hypocrisies, the sparkling, epigrammatic restoration comedies or the powerful human dramas of Shakespeare. And then we did something really extraordinary, performed a folk opera celebrating a Kashmiri myth. It was the creation of two geniuses of modern Kashmir, the poet Dinanath Nadim and music composer Mohanlal Aima. The attempt was so successful that it marked our entry into the first All India Youth Festival held at Talkatora Garden in New Delhi in 1954. The cast included girls from orthodox families who had never ventured outside the valley of Kashmir, but such were the persuasive powers of the teachers and the Principal that they were allowed to go. The faith reposed by parents in their daughters and giving them the freedom to travel without a male relative as escort, was indicative of how the times had changed within a short time! The experience of living for a whole week in tented accommodation with hundreds of students (both boys and girls) of the premier universities of India, interacting with them on an equal footing was unforgettable. We never felt inferior to anyone in any way, even though the likes of Bhupen Hazarika, Sharan Rani Mathur and Vijay Anand happened to be part of the Assam, Delhi and Bombay University contingents respectively. In our unsophisticated innocence, we were not even conscious in this prestigious platform that we were representing an 'educationally backward' state!

The ease with which Kashmiri Muslim girls-most of them first generation literates-fitted into the routine of a modern college with its emphasis on sports, debating, National Cadet Corps (NCC), educational tours and cultural activities is unimaginable in today's benighted state. No parent protested when their daughters were asked to participate in a march past with students from the two boys colleges in Srinagar every month, when the then Prime Minister Sheikh Mohammad Abdullah took the salute.

Neerja Mattoo

Among them were married women (some of them mothers), who were primary school teachers deputed to attend college and get a degree to improve their prospects. No voices were raised against the girls wearing the army-like NCC uniform, or performing on the stage, reviving old Kashmiri folk song and dance forms, or travelling to places all over India in trains, the teachers roughing it out with them in II class compartments, learning about the history of India's past, without sermons being stuffed down their throats. We were engaged in a 'dialogue' all the times, without knowing it was a fashionable word!

Dramatics formed a very important part of our life in college. The whole gamut of stagecraft, without any formal training was appropriated by us, unselfconsciously. With what supreme self-confidence the girls played the part of great men characters from world drama, the only serious problem being their long hair! I remember the enthusiasm with which Muslim girls from extremely orthodox families were ready to wear *basanti* saris and flowers in their hair for a Tagore play or Western costumes for an English period play. This great equalizer was aided by the fact that the college rules demanded that all the students wear a uniform-beige kurta, white salwar and white dupatta. Thus there was nothing to distinguish one girl from another. In the college, we were all equal, no matter from which economic class or caste, or urban or rural background we came from.

Religion, till 1990, was something that had no role to play as far as life in the college was concerned. Academic merit or achievements in other fields was what counted. The Student's Council with two representatives from all the sections of every class had a President elected directly by the students. Academic performance, participation in activities like debating, dramatics or editing the college magazine *Pamposh* were taken into account in this election. Of course, it was not wholly democratic-the personal preference of the principal conveyed through subtle hints and prodding played a part in ensuring the success of a 'deserving' candidate who might not have been a 'popular' choice, but religion and communal leaning had nothing to do with it. In fact, in the early 1980s, one of the presidents was a girl from Assam, whose father was an Army Officer posted in Srinagar. Kashmiri girls were secure enough to have an 'outsider'

THE STORY OF A COLLEGE WITH A MOMENTOUS PAST

occupy the highest position that a student could aspire to in the college. Generally a girl who had the confidence of the staff and was popular for her social graces too, would get to occupy the prestigious position because her duties included welcoming distinguished personalities from the country and abroad. Every eminent person from the world of politics, art, literature, music, economics or science, who came to Kashmir would invariably be invited to the college to address the students or be introduced to the culture of Kashmir. If it was Jawaharlal Nehru one year, it could be Aneurin Bevan or Rajendra Prasad the next. The students who saw and heard Amartya Sen, Sardar Jafri, Begum Akhtar, or Stephen Spender in their college itself, did not need any more cosmopolitan exposure. No wonder they could hold their own when competing with the best products of the leading universities of India and the world. Even though it was only a government college where education was free, its reputation was no less than that of any elite college in Delhi.

No one could have predicted the suddenness with which the liberal, humanist atmosphere, which had survived through several upheavals threatening to tear the social fabric of Kashmir apart, like the dismissal and imprisonment of Sheikh Abdullah in 1953, the infiltration of the *Mujahideen* in 1965, the Pandit agitation of 1967, the tensions of the 1971 Indo-Pak war, the politically and communally charged elections of 1983 and 1987, could be blown away. Something was certainly brewing in Kashmir, stealthily striking at the roots of the trust and bonhomie that existed between the communities, destroying the sense of a common future of all Kashmiris that had been their dream and pride.

The sickness that had affected the world outside suddenly entered the college in a dramatic manner one day in the year 1989. Leaflets were dropped over, till then impregnable, walls of the college demanding that the Muslim girls wear *burqa* (veil) and the Hindus wear a bindi to save them from 'unnecessary harassment'! It was the first time that a wedge was introduced to divide the students along communal lines. But at that stage, the response of the students was heartening – they refused to follow the diktat. We did not realize that it was the thin end of the wedge. Then there were rumours that a man with a stick was lying in wait outside college to

hit any girl who did not cover her head. But even this threat was not powerful enough to beat them into submission. The gun had not yet been used to enforce it and when that happened, the scene in 1990 at the college reopening after the winter break was completely changed. There were hardly any Pandit students and the view was an unrelieved black, not only figuratively but literally. Almost all the girls were now covered in a *burqa* of that colour, only some out of religious conviction, most out of palpable and rampant fear.

There was no freedom anymore for any one, particularly not for women. For them, it was a complete U-turn. Humiliation and helplessness took the place of the earlier hard-won confidence. There was no question of holding one's head high, safety lay in abject submission, whether to the orders of the militants or the state. The mere act of attending college or any other educational institution required the courage of a mad woman and soon all institutions, whether government offices, schools or other institutions collapsed. No longer was there a commitment to anything. Terror was the only driving force. When bare survival is at stake, who can afford the luxury of a meaningful education? In fact, education was the first casualty. As schools and colleges were targeted, carefully built up libraries and laboratories went up in flames, along with our auditorium which had been witness to so much of the history of our achievements in academic and co-curricular fields. A dark night had descended upon us, our little world which prided itself on a syncretic way of life, reveling in its diversity, was awash in a uniform black. More than this outward transformation was the transformation in attitudes and expectations. From a vibrant, forward-looking, multi-cultural community of women, we had turned into the worst manifestation of mono culture.

It took a couple of years, unrelieved in their bleakness and terror, for women's natural resilience to reassert itself. Their synthetic polyester *burqa* gave way to a cotton *chadar*, but the decline in educational standards was hard to remedy. Large numbers of competent, experienced teachers had migrated from the Kashmir valley. Those who stayed back, like me, had become irrelevant to the scene. Gradually, our students did manage to sit for the examinations and even pass them, but hope of a better academic

THE STORY OF A COLLEGE WITH A MOMENTOUS PAST

future was nowhere in sight as long as they were in Srinagar. Parents who could afford it-and provided the results were out in time-sent their children out for studies. The bright ones who stayed on were sucked into militancy in one way or another, some died and some were as good as dead. Violence continues unabated and hope finds it more and more difficult to sustain itself.

At present, there seems to be a conspiracy of silence regarding the history of women's emancipation in post-partition Kashmir. Of course, girls are still attending schools and colleges but the air of freedom which we had the good fortune to breathe is gone. Instead of the brightness of hope illuminating their faces, a veil of fear clouds them. Not only do they need moral courage to defy diktats from various quarters, their life is in danger even when making a short trip, from maybe a randomly flung grenade exploding in their faces or a humiliating search in the bus or being caught in crossfire, there are terrors at every step. But more than these is the colossal loss of a culture which reveled in diversity, the loss of a time when religious or linguistic identities did not have an aggressive face, when concerns were shared despite academic competitiveness. The present generation of students have no idea of what it was like before the madness of 'homogenisation', unleashed by forces over which they have no control, overtook them. This article is an attempt to address this very generation, in the hope that by understanding the past, they may get insight into the future and pull themselves out of the morass of despondency they are sunk in at present. Hence, this story of the multi-dimensional life college education offered them not too long ago.

**(Courtesy: *Speaking Peace–Voices from Kashmir*,
Edited by Urvashi Butalia, Kali)**

VOICE OF PEACE IN KASHMIR

Nur Ahmad Shah

LAL DED: THE GREAT KASHMIRI SAINT-POETESS

Edited by S.S. Toshkhani,

APH Publishing Corporation, New Delhi, 151 pp., Rs.395/-

Scholars and researchers have written reams about the male poet-saints of the India-Pakistan subcontinent. Very little information is available on the life and work of its women poet-saints. The prominent among them are Mahadevi, Karnataka (12th century), Lalleshwari, Srinagar (1320-1388); and Mirabai, Ajmer (1498-1546). They broke with social taboos, renounced their marital bonds – two of them Mahadevi and Mirabai were married to the rulers – lived unconventional lives, became God-intoxicated, and mingled freely with the male mendicants.

Lalleshwari or Lal Ded or simply Lalla was remembered a couple of years back in a day long National Seminar *Remembering Lal Ded in Modern Times*, held under the auspices of the Kashmir Education Culture and Science Society in Delhi in November 2000. The participants included eminent scholars who exchanged an array of information about different aspects of her genius, poetry and personality. The proceedings of the Seminar have now been compiled in the form of a book entitled *Lal Ded: The Great Kashmiri Saint-Poetess*.

The papers read in the seminar depicted Lal Ded as a woman, poet and saint with few peers. She was born and married into a high-caste Brahmin family near Srinagar. The marriage did not last because of her in-laws' ill-treatment and her own rebellious temperament. She was a gutsy woman for her times. The shackles of a patriarchal society in which she lived did not keep her from thinking independently. She would not shy away from finding faults even in her Guru.

BOOK REVIEW

Like Mahadevi, Lalla was a devotee of Shiva. She found Him dwelling in herself, "I, Lalla", says she, "went out far in search of Shiva, the omnipresent Lord; after wandering, I, Lalla, found Him at last within my own self, abiding in His own house." To her eclectic turn of mind, all organised religions were loathsome.

She abhorred ritualistic religious ceremonies. She dismissed pilgrimages to holy places as "useless". "Pilgrim Sannyasi", she lamented, "goes from shrine to shrine expecting to meet Him who abides within oneself". Fasting, to her "serves no purpose; beads and rosaries are mere plaything." She castigated the practice of animal sacrifice offered to stone idols.

"This animal, the sheep", she says, "gives you wool to protect you from cold and cover your privacy, and for itself it subsists just on God-given grass and water. Who then has ordained you, Oh ignoramus Pandit, that you slaughter it to offer to a stone".

She preached harmony and tolerance between different religions and thus epitomized the woman saint Rabia's saying, "Love of God hath so absorbed me that neither love nor hate of any other thing remain in heart." Her poetry too was catholic in its sweep and it conveyed a message of peace and harmony. She bemoaned people consumed with greed and avarice. In a beautiful verse she says:

I will weep and weep for you, my Soul,
The world has caught you in its spell,
Though you cling to them with the anchor of steel,
Not even the shadow of the things you love,
Will go with you when you are dead.

Some quarters claim that Lal Ded had embraced Islam and that she was named Bibi Lalla Arifa. Such impression might have been inspired by the fact she lived at the time when the Muslim influence in Kashmir was on the rise, and her ideas and ideals bore a close resemblance to Sufi beliefs. In more than one paper read in the seminar, the speakers repudiated her conversion.

BOOK REVIEW

Similar controversy existed about Kabir (1440-1518). After his death, a dispute arose between his Muslim and Hindu followers whether his body be buried or cremated. In fact, for historic reasons and common cultural mores, the saints and sages in the subcontinent are revered equally by Hindus and Muslims. The reason is simple: it is the universality of their message. They served the people regardless of caste or creed and rose above the narrow confines of religion which a Sindhi sufi poet Sachal said famously “confuses people”.

Lal Ded is regarded as “the maker of modern Kashmiri language as well as literature”. The beauty of her verses of *Vaakhs* lies in her usage of colloquial language and vocabulary of every day use, because of her close association with people from low sections like carpenters, weavers, potters, shepherds etc., rather than an elitist or scholarly phrase, word or metaphor. This made her a household name. Even today she is, “an integral part of the life and the lore of every Kashmiri”.

The speakers in the seminar stressed the importance of an authoritative compilation of Lal Deds’ *Vaakhs*. The difficulty being encountered in this regard is the absence of authentic manuscript(s) of her verses which, before their publication, used to be transmitted from generation to generation by word of mouth at the risk of interpolations and linguistic changes. Some of the verses are rejected as spurious.

The organizers of the Seminar have, by bringing out its proceedings, enabled the readers even outside India, to get acquainted with Lalleshwari as a poet and as a spiritual figure. Her teachings deserve careful study and wide publicity as a voice of sanity when violence, terrorism and bellicosity stalk the land.

Courtesy: Dawn, Karachi, 25 May 2003

**INTERLINKING OF RIVERS IN INDIA: OVERVIEW OF
KEN-BETWA LINK**

Edited by **Yoginder K. Alag, Ganesh Pangare, Biksham Gujja**
Academic Foundation, New Delhi, 2006, 194pp.

This book under review is perhaps a first report of its kind on the subject of interlinking of rivers (ILR) in India. It has been issued under the auspices of National Civil Society Committee on Interlinking Rivers (NCSILR), a body of 13 experts established on 20 October 2003. The Committee held its first meeting at India International Centre in February 2003. Professor Y.K. Alag, former Vice-Chancellor of Jawaharlal Nehru University and Minister for Science and Technology, is the Chairman of the Committee. The Committee decided not to take any particular river on this vast national project, but elicit expert opinion from the public in order to help the government arrive at a consciousness on various issues affecting ILR. In view of increasing demands for water resources in the country, the Supreme Court had in 2002 on public interest demand directed the Government of India to prepare and complete a project to interlink some of major rivers of India by the year 2012.

Pursuant to Supreme Court decision, a Task Force of National Water Development Agency (established in 1982 to study the development of Himalayan and peninsular rivers) has been working for a proposal for inter-basin transfer of water through interlinking of rivers. The programme may involve linking all major rivers through about 260 links at a cost of Rs. 560,000 crores (17). The editors write that the overall aim of ILR project is to control floods, provide water for irrigation and other purposes to dry lands areas through transfer of water from river basins with excess water to deficient basins. The major issues relate to economic costs, environmental impact, social costs, conflict resolutions, sharing of benefits and responsibilities between states or a group of states (18). The book gives an overview of interlinking of rivers and the Ken-Betwa link, a link canal to provide irrigation to areas of upper Betwa basin in Madhya Pradesh with

Himalayan and Central Asian Studies Vol.11 No.1, Jan.- Mar. 2007 105

BOOK REVIEW

shortage of water, and also ex route areas of Madhya Pradesh and Uttar Pradesh. The canal will provide irrigation to Chhatarpur and Tikamgarh districts in Madhya Pradesh, and Hamirpur and Jhansi districts of Uttar Pradesh. A dam is to be built on river Ken which will provide downstream water to both Uttar Pradesh and Madhya Pradesh as per mutual agreement of the two States. The link canal is proposed to be 231.45 kms. long, including a 2 kms. long tunnel. The link canal will also provide drinking water to Chhatarpur and Tikamgarh districts of Madhya Pradesh and Hamirpur and Jhansi districts of Uttar Pradesh.

The book cautions about the environmental impact of the Ken-Betwa link project in view of construction of one or more dams and reservoirs of water. There will be changes in habitat and land use due to irrigation of land for agriculture. Thus there may be both positive social gains and social changes due to displacement of population and land use. The editors summarise the overall perspective needed to undertake the Ken-Betwa project as follows:

New benefits from the link project often will increase when it becomes regional development project that integrates irrigation, power generation and municipal water supply with catchment area management, conservation, tourism, fisheries and rural development. (pp.181-82)

Interdisciplinary Studies Needed

The present book by the National Civil Society Committee comprises of various authors and chapters with different disciplines. The interlinking of rivers in India is likely to change the economy and the geography to a large extent. There can be large growth of forests, agricultural products, fruits, wild life etc. In Chapter 1, Jayanty Bandopadhyay and Shama Perveen provide an overview of ILR project. They cite examples of human uses of fresh water runoff being increasingly used of which more than half of runoff water is withdrawn for human uses. (p.23) The result is less water is left for aquatic ecosystems in the world. Some river courses in world have been diverted or obstructed with much water going to seas. Examples cited are Nile in Egypt,

BOOK REVIEW

Ganges in South Asia, Amu Darya and Syr Darya in Central Asia, the Yellow river in China and Colorado river in North America.(p.23) Ramaswami R. Iyer informs that former Soviet Union diverted two rivers going to Aral Sea, with the result that Aral Sea has become dead. It says that this has become a major environmental disaster today.(p.60) Nevertheless, it has been said that in times past, “transfer of water from one river basin to another has been practiced as an exemplary engineering response for meeting the growing water requirements”. (p.24) The reviewer feels that since there are 260 links envisaged for the giant ILR project in India, we may follow each ecological system involved in each river link, and apply all the parameters involved and take an integrated view keeping in view the overall conservation of the nature. In the case of Ganges and Brahmaputra rivers as also the flood water rivers in Deccan Peninsula during the monsoons, water can be harvested instead of all joining into the seas. The waters that cause floods can be diverted for economic uses. Indeed Bandopadhyay and Perveen cite Nigam et. al. (1997 study) that water available in watersheds and basins is harvested and conserved in many parts of India and used for drinking purposes.(p.35) Even coastal areas in India, they say, can get drinking water from coastal seas by desalination as it is now getting cheaper to desalinate water for domestic supply. Food self-sufficiency is the most important season in India for the ILR project.(p.38) With more arable land and water potential there is a good case for ILR in India, say Bandopadhyay and Perveen.(p.42) However, they refer to the thinking in China where the policy is not for greater use of water but greater efficiency in the use of water resources. They cite Water Minister of China to say that “Irrigation is no longer watering the land but supplying water for growth of crops”.(p.42) The present reviewer would like to cite example of Israel where I saw water being given to crops through underlying pipes that supply water mostly to the standing plants only. The authors have referred to the World Bank report on Irrigation on India, which takes similar view on India that emphasis should not be on physical expansion as in the past, but on productivity enhancement. The authors recommend sustainable agricultural development.

BOOK REVIEW

Knowledge Base for Himalayas

The ILR has two major components of study. One concerns the Himalayan river system of Ganges and Brahmaputra. The other is the Peninsular region with deficient water. The authors have raised an important issue of need to discuss at national level the hydrological data of Himalayan rivers and the feasibility of transfer of their additional waters to the Peninsular region in India. The National Commission of Integrated Water Resource Development Plan has observed as stated in this book (p.45) that there is secrecy maintained about water resources data for some of the basins, which is detrimental to public interest. Indeed Professor Alag et. al. state in this book on ILR that the purpose of their report is to promote a national debate on ILR. It is the time to discuss the ILR project at various academic and expert fora under an interdisciplinary umbrella. The Jawaharlal Nehru University, New Delhi can institute a seminar or two on the ILR and the Himalayan ecology. Professor K. Warikoo, the editor of this journal has had a vast vision to start a Journal of Himalayan Research and Cultural Foundation. Indeed he is now keen on the environmental issues affecting the Himalayan Region. The ILR has national potential for economics, a better food production, flood waters control, greater uses for harvesting rain water during monsoons, and interlinking of rivers for better ecology for India on the whole.

ILR and Global Warming

The ILR has strong links with the global warming. The latter has caused floods and may affect cities like Bombay and Calcutta when sea levels rise due to greenhouse gases blocking radiation heat from earth. The ILR can provide more hydroelectric power in many places. It will help stop deserts expanding by afforestation. Deserts can be looked upon with new vision for development. Wild life areas can be expanded in deserts with new selected supply of water through ILR.

ILR, Outer Space Monitoring and Ecological Jurisprudence

Until recently, outer space exploration was considered to be an activity in the cosmic frontier.¹ However, there is a great role now seen for space exploration and space law for monitoring of resources of the earth. The UN Conference in 1999 in Vienna UNISPACE III was held on the major theme of space exploration for the benefits of mankind, especially the developing countries. Professor U.R. Rao of India was the Chairman of this very important global conference of the UN. One sees great hope that ISRO will help a great deal in ILR planning and implementation. Because ISRO gives you satellite pictures of all natural resources. You simply have to plan ecologically. I have submitted in my forthcoming book on International Environmental Law, there is need for an interaction of Law and Science, when law is defined as community expectations, and science as Einstein says, is regularities of nature. Let us seek harmony and partnership with nature. The Supreme Court in India also has, by and large, followed harmony of manmade laws and laws of nature. It has an advisory committee of experts and scientists to help it evolve appropriate creative decisions. The Narmada Dam is an example. The Supreme Court agreed to increase the height of dam provided the human expectations of the displaced persons are met and these persons are rehabilitated adequately. The contextual jurisprudence by eminent Professors Myres McDougal, Harold Lasswell from Yale Law School has been found to be useful in decisions on ecology and environments, and generally in international law, including space law. The decision in any situation is based on the context of situation, persons involved, past practice, future perspectives and appraisal and recommendation. Ecological jurisprudence has become part of contextual jurisprudence. The ILR project can very well depend on conflict resolution based on ecological jurisprudence, keeping into consideration the human welfare needs and the ecology of the region, and for that matter the ecology of the planet as a whole.

The present reviewer offers his respects to writers who are among the best scholars in India and world for this book on ILR. They have largely succeeded in opening non-sociology frontiers of knowledge on

BOOK REVIEW

a subject of much national and global interest. The subject of ILR needs to be discussed in academic and research institutions in India more often than at present. There is hope. A new vision is needed as in the cases involving space exploration and sustainable environment development. The reviewer has briefly interacted with two of the eminent members involved in the production of this book, namely, Dr. Ashok Khosla with whom I worked in 1975 in the then National Committee on Environmental Planning and Coordination in DST while Dr. B.D. Nag Choudhuri was its Chairman. Dr. Yoginder Alag was the Vice-Chancellor in JNU who gave us his article for the book we produced in JNU in 1999 – *India in 21st Century: Shape of Things to Come*.

S. Bhatt

INTERNATIONAL ENVIRONMENTAL LAW AND POLICY

By **Prof. V.P. Nanda**

Transnational Publishers, Inc., Irvington-on-Hudson, New York, 1995,
458pp.

During past few decades, many scholars of international law have helped the development of international environmental law through their writings. This has been in response to the demands of the global community. International law today is no more a law between nations. With the introduction of the environmental law, international law has become the common law of mankind. This body of law is responsible to maintain the ecology of earth and provides for sustainable development and harmony with nature.

Professor Ved P. Nanda belongs to the distinct category of global scholars who have conscientiously made notable contribution for the growth of the environmental law. I have been myself largely associated with this discipline with my first article on weather modification published in the *Journal of Indian Law Institute* in 1973. Professor Nanda made his first contribution to environmental law in the form of a book entitled *Water needs for the Future* in 1977 followed by another book *World Climate Change: The Role of International Law and Institutions* in 1983. He has other substantial research contributions on sustainable development, global warming, ozone depletion and trends in environmental law.

The book under review is a scholarly attempt by Prof. Nanda to present a treatise on the subject. The book has thirteen chapters and a useful bibliography. Chapter II discusses the concept of “global commons”, which denotes the broader theme of managing the common global resources. As the author says, “the concept of the global commons has evolved from this idea of resources held in common for common use” (p.11). However, he cautions that this concept also becomes a prohibition for exploitation of global resources. Global commons also implies that the use of areas beyond the jurisdiction and sovereignty of any state is meant for common benefit of all mankind.

BOOK REVIEW

Commons include Antarctica, atmosphere, the oceans, and outer space. The basis for the law of commons is the principle of sovereignty of states, which obligates a state to use its resources without harm to another state. The precautionary principle when a state is the safeguard global environments while making a policy decision on its own environments. The other considerations are the need to assure an individual a place in the global commons, and the protection of rights of future generations in environmental law making. Lastly, Prof. Nanda feels we should develop international environmental liability while dealing with the management of global commons.

Chapter III refers to international trade and the environment. As the author says, traditionally there has been no link between trade and environment. The UN Conference on Environment and Development (UNCED) in 1992 marked the first attempt in this direction. The purpose of the UNCED, says the author, was to revive environmental issues raised in Stockholm Conference on Human Environment in 1972. Chapter IV refers to environment and human rights. It assumes rights of individuals to environment protection. Chapter V discusses at length the 1972 Stockholm Declaration on human environment, as much as the Chapter VI has a detailed analysis of UNCED of 1992.

Chapter VIII has reference to work of ILC on state responsibility, international liability, crimes against peace and security. The recent decision of the United Nations to constitute an International Court for crimes against mankind is a milestone in this effort to regulate crimes. Chapter IX analyses environmental law in the European Union (EU) with features of community legislative process and industry and environmental protection in EU.

Chapter X relates to stratosphere ozone depletion and global warming. This subject has assumed importance in contemporary period in view of global rise of temperature and consequent change in global climatology with floods and droughts in many parts of the globe. Chapter XI surveys environmental law component in the law of ocean. Chapter XII discusses environment aspects of non-navigable uses of

BOOK REVIEW

international water courses. In Chapter XIII, the author writes about the unfinished agenda. Here he makes a plea to strengthen the work of Commission on Sustainable Development (CSD) and the Global Environment Facility (GEF) as both these organs are expected to carry out the decisions of the UNCED, especially pertaining to Agenda 21. Besides, the author would like the United Nations Environment Programme (UNEP) to take greater responsibility for global environmental affairs. He refers to the remarks of the World Bank President, Lewis Preston, who wrote his report on the future of the organisation called "Learning from the Past-Embracing the Future". Preston says: "I think the mistake that the Bank has paid the highest price for was not recognising the importance of the environment" (p.303). Prof. Nanda concludes the scholarly work by calling for international cooperation, enhanced public interest, and pursuing common interest of protecting the environment. He calls upon international lawyers to clarify common interest and individual interests of states. There is need, he says, for interaction of scholars in sciences, social sciences, and humanities who can draw possible scenario and alternative for action.

The book is an outstanding piece of scholarship in international environmental law which will be read with considerable interest by scholars the world over.

S. Bhatt

HIMALAYAN AND CENTRAL ASIAN STUDIES is a quarterly Journal published by the Himalayan Research and Cultural Foundation, which is a non-governmental, non-profit research, cultural and development facilitative organisation. The Journal is devoted to the study of various issues pertaining to the Himalayan and trans-Himalayan region in South and Central Asia or parts thereof, connected with its environment, resources, history, art and culture, language and literature, demography, social structures, communication, tourism, regional development, governance, human rights, geopolitics etc.

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**CONTRIBUTIONS FOR PUBLICATION AND ANY ENQUIRIES
SHOULD BE ADDRESSED TO :**

Prof. K. WARIKOO

Editor and Secretary General

Himalayan Research and Cultural Foundation

B-6/86, Safdarjung Enclave

New Delhi - 110029 (India)

Tel. : 0091-11-26162763, 0091-11-41651969

Fax : 0091-11-26106643

E-mail: kwarikoo@gmail.com

Books for review should be sent to the same address.

Registered with the Registrar of Newspapers R.No. 67256/97

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HIMALAYAN RESEARCH AND CULTURAL FOUNDATION

Post Box-10541, Jawaharlal Nehru University Post Office, New Delhi-110067 (India)

Central Office : B-6/86, Safdarjung Enclave, New Delhi-110029 (India)

Tele : 0091-11-26162763, 0091-11-41651969, Fax : 0091-11-26106643

E-mail: kwarikoo@gmail.com Website: www.himalayanresearch.org