

RESOURCE KIT FOR BIODIVERSITY PLANNERS

**P. BALAKRISHNA, K B N U. SURANGIKA,
N. WIJAYANANDANA (COMPILERS)**

2001

**IUCN REGIONAL BIODIVERSITY
PROGRAMME, ASIA**



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IUCN Regional Biodiversity Programme, Asia
53, Horton Place, Colombo 7
Sri Lanka.

List of Publications Summarised

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
1. Australia	The National Strategy for The Conservation of Australia's Biological Diversity	Commonwealth Department of The Environment, Sport, Territories	1996	B ¹
2. Bangladesh	Linking People With Nature: Biodiversity Conservation Strategy for The Himal Region	Nishat, A., Waliuzzaman, M., Ahmed, J. (eds.)/ IUCN	2000	B
3. Bangladesh	National Environment Management Action Plan - Volume 1a: Summary	Ministry of Environment and Forest, Govt. of Bangladesh	1995	B
4. Bangladesh	Final Report - Bangladesh: Environment and Natural Resource Assessment	WRI/ CIDE/ USAID	1990	PDF ²
5. Bangladesh	Bangladesh Environment and Natural Resources Assessment: Conservation of Biological Diversity in Bangladesh -- Status, Trends, and Recommended Responses	Alcorn, J. and Johnson, N. / WRI/ CIDE/ USAID	1989	PDF
6. Bhutan	Biodiversity Action Plan for Bhutan	Ministry of Agriculture, Govt. of Bhutan	1998	B
7. Cambodia	Cambodia: A National Biodiversity Prospectus	Ashwell, D. A./ Ministry of Environment/ IUCN Cambodia	1997	B
8. India	National Biodiversity Strategy and Action Plan: Guidelines and Concept Papers	Ministry of Environment and Forests, Govt. of India	2000	B
9. India	National Policy and Macrolevel Action Strategy on Biodiversity	Ministry of Environment and Forests	1999	B
10. India	Biodiversity Conservation Through Ecodevelopment -Planning and Implementation Lessons from India	Singh, Shekar/ UNESCO South-South Cooperation Program	1997	P ³
11. India	Protected Area Network in India : A Country Report	Mukherjee, S. K. & Mathur, V. B. / Wildlife Institute of India	1997	P
12. India	Conservation of Biological Diversity in India : An Approach	Raghunathan, M./ Ministry of Environment and Forests, India	1994	PDF
13. India	Conservation of Biological Diversity in India (Draft)	Indian Institute of Public Administration	1993	B
14. India	India: Conservation of Biological Diversity	WCMC/ IUCN/ WWF/ UNEP	1989	PDF
15. Indonesia	Biodiversity Action Plan For Indonesia	Ministry of National Development Planning, National	1993	B

¹ B = Book

² PDF = PDF File

³ P = Paper

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
		Development Planning Agency		
16. Indonesia	Indonesian Country Study on Biological Diversity	Ministry of State for Population and Environment	1993	B
17. Indonesia	Biodiversity Action Plan For Indonesia	Ministry of Population and Env., Indonesia/ World Bank, Washington/ Bogor Agricultural University	1991	PDF
18. Malaysia	An Environmental and Economic Assessment of Forest Management Options: A Case Study In Malaysia	Kumari, K./ Environment Department, The World Bank	1995	P
19. Malaysia	Sabah and Sarawak: Conservation of Biological Diversity	WCMC	1988	PDF
20. Malaysia	Peninsular Malaysia: Conservation of Biological Diversity	WCMC/ IUCN	1988	PDF
21. Mongolia	Biodiversity Conservation Action Plan for Mongolia	Ministry for Nature and the Environment, Mongolia	1997	B
22. Nepal	National Biodiversity Action Plan (Draft)	Ministry of Forests and Soil Conservation, Nepal	1999	B
23. Nepal	National Implementation of The Convention on Biological Diversity- Policy and Legislative Requirements	Belbase, N., Wells, K., <i>et al.</i> / IUCN Nepal	1999	B
24. Nepal	Biodiversity Assessment Method (Final Report)	IUCN Nepal	1998	B
25. Nepal	National Report on Implementation of The Convention on Biological Diversity in Nepal	Ministry of Forests and Soil Conservation, Nepal	1997	B
26. Pakistan	Biodiversity Action Plan for Pakistan	Govt. of Pakistan, IUCN/ WWF	2000	B
27. Pakistan	Pakistan National Report on The Implementation of The Convention on Biological Diversity (First Draft)	LEAD Pakistan	1999	B
28. Pakistan	Sarhad Provincial Conservation Strategy	Sarhad Programme Office/ IUCN Pakistan	1996	B
29. Pakistan	Biodiversity Guide to Pakistan	IUCN/ WCMC	1991	PDF
30. Philippines	The First Philippine National Report To The Convention on Biological Diversity	Protected Areas and Wildlife Bureau, Department of Env. and Natural Resources, Philippines	1998	B
31. Philippines	Philippine Biodiversity - An Assessment and Plan of Action	Department of Environment and Natural Resources, Philippines	1997	B

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
32. Philippines	Sustainable Natural Resources Assessment: Philippines	Clark, J. R., Fargher, J. D., <i>et al.</i> / Dames & Moore/ Louis Berger International, Inc. etc.	1989	PDF
33. Philippines	Philippines Conservation of Biological Diversity and Forest Ecosystems	WCMC/ IUCN	1988	PDF
34. Singapore	First National Report Under The Convention on Biological Diversity	The National Parks Board and the Report Drafting Committee, Singapore	1997	B
35. Singapore	First Look at Biodiversity in Singapore	National Council on the Environment, Singapore	1994	PDF
36. Singapore	The Singapore Green Plan – Work Group 5: Nature Conservation	Ministry of National Parks Board, Singapore	1993	B
37. Sri Lanka	Biodiversity Conservation In Sri Lanka-A Framework For Action	Ministry of Forestry and Environment, Sri Lanka	1999	B
38. Sri Lanka	Resource Material on Biodiversity for G. C. E. (A/L)	IUCN Sri Lanka	1999	B
39. Sri Lanka	First National Report on The Implementation of Article 6 Of The Convention on Biological Diversity- Sri Lanka	Ministry of Forestry and Environment	1998	B
40. Sri Lanka	Biological Conservation In Sri Lanka- A National Status Report	De S Wijesinghe, L. C. A. <i>et al.</i> / IUCN Sri Lanka	1993	B
41. Sri Lanka	Natural Resources of Sri Lanka: Conditions and Trends	Natural Resources, Energy and Science Authority/ USAID/ Bureau for Asia and Private Enterprise, Sri Lanka	1991	PDF
42. Sri Lanka	Sri Lanka, Biological Diversity and Tropical Forests: Status and Recommended Conservation Needs	Jansen, M. A. B. and Loken, E. R./ USAID/ Bureau for Asia and Near East. Sri Lanka	1988	PDF
43. Thailand	Biodiversity Conservation In Thailand: A National Report	Office of Environmental Policy and Planning	2000	B
44. Thailand	Divided Over Thailand's Biodiversity Policy	Singh, Gurmit K. S./ Centre for Env. Technology & Dev., Malaysia	1999	B
45. Thailand	Thailand's Biodiversity	Office of Environmental Policy and Planning	1996	B
46. Thailand	Thailand National Policy, Measures and Plan an The Conservation And Sustainable Utilization Of Biodiversity - 1998-2002	National Resources and Environmental Management Division.		B
47. Vietnam	Workshop on Information Exchanging on	Ministry of Science, Technology	2000	B

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
	Biodiversity for Tay Nguyen Plateau (Bavi 29 Feb – 1 March 2000)	and Environment, Vietnam		
48. Vietnam	Enhancing The Implementation of Vietnam's Biodiversity Action Plan: An Assessment of Priority Issues and Requirements	Ministry of Science, Technology and Environment, Vietnam	1999	B
49. Vietnam	The Vietnam Biodiversity Action Plan Three Year Review (1996-1998) – A Summary of the Workshop Proceedings (Draft)	IUCN - Vietnam	1999	B
50. Vietnam	Expanding The Protected Areas Network in Vietnam For The 21 st Century	Wege, D.C., Long, A. J., Vinh, M. K., Dung, U. V., and Eames, J. C./ BirdLife Vietnam	1999	B
51. Vietnam	Biodiversity Action Plan for Vietnam (Draft)	GEF/ WWF/ IUCN	1993	PDF
52. Regional	Where Communities Care – Community-based Wildlife and Ecosystem Management in South Asia	Kotahari, A., Pathak, N. and Vania. F./ Kalpavriksh/ IIED	2000	B
53. Regional	Source Book on Community-Based Conservation in South Asia	Kotahari, A., and Pathak, N./ Kalpavriksh/ IIED	2000	B
54. Regional	Mobilising Broader Support for Asia's Biodiversity: How Civil Society can Contribute to Protected Area Management	McNeely, J. A. / ADB Philippine	1999	B
55. Regional	Code of Practice for Forest Harvesting in Asia-Pacific	FAO - Thailand	1999	B
56. Regional	Guidelines For Integrated Planning And Management of Tropical Lowland Peatlands: With Special Reference To Southeast Asia	Safford L. and Maltby, E (eds.)/ IUCN	1998	B
57. Regional	Asia-Pacific Migratory Waterbird Conservation Strategy: 1996-2000	Wetlands International/ International Waterfowl & Wetlands Research Bureau – Japan Committee	1996	B
58. Regional	Regional Action Plan for Protected Areas in South Asia	IUCN	1998	B
59. Regional	The Economic Value of the Environment: Cases from South Asia	Hecht, J. E. (ed.)/ IUCN	1999	B
60. Regional	The Economic Value of Non-timber Forest Products in Southeast Asia	De Beer, J. H. and McDermott, M. J. / Netherlands Committee for IUCN	1996	B
61. Regional	Integrated Coastal M anagement : South Asia	Brown E., Burbridge, P., Naseer, A., Premaratne, A., and Soundararajan / Uni. of New	1997	B

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
		Castle		
62. Regional	Planning Environmental Communication and Education: Lessons from Asia	Saeed, S., Goldstein, W., and Shrestha, R. (eds.)/ IUCN (CEC)	1998	B
63. Global	A Guide for Countries Preparing National Biodiversity Strategies and Action Plans	Hagan, R. T./ UNDP		RTF/ Word ⁴
64. Global	National Biodiversity Strategy and Action Planning- BSAP Preparation Materials	Fauna and Flora International		B
65. Global	Guide to Developing a Biodiversity Strategy from a Sustainable Development Perspective	Prescott, J., Gauthier, B., and Sodi, J. N. M./ IEPF/ UNDP/ UNEP	2000	B
66. Global	National Biodiversity Planning- Guidelines Based on Early Experiences Around The World	Miller, K. R. and Steven, M. L./ WRI/ UNEP/ IUCN	1995	B
67. Global	2000 IUCN Red List of Threatened Species	Hilton-Taylor, C./ IUCN	2000	B
68. Global	Biodiversity Conservation in the Context of Tropical Forest Management	Putz, F. E., Redford, K.H., Robinson, J. G., Fimbel, R., and Blate, G. M./ The World Bank	2000	B
69. Global	Protecting Biodiversity: National Laws Regulating Access to Genetic Resources in the Americas	Bass, S. P. and Muller, M. R. (eds.)/ IDRC	2000	B
70. Global	Seeding Solutions – Policy Options for Genetic Resources: People, Plants and Patents Revisited	IPGRI/ IDRC/ The Dag	2000	B
71. Global	Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation	Bennett, A. E. / IUCN	1999	B
72. Global	A Guide to Designing Legal Frameworks to Determine Access to Genetic Resources	Glowka, L. / IUCN	1998	B
73. Global	A Guide to Undertaking Biodiversity Legal and Institutional Profiles	Glowka, L., Shine, C., Santos, O. R., Farooque, M., and Gündling, L./ IUCN	1998	B
74. Global	A Source Book for Conservation and Biological Diversity Information	Grose, K., Howard, E. S., and Thiery, C. (eds.)/ IUCN / UNEP	1995	B
75. Global	A Guide to The Convention on Biological Diversity	Glowka, L., Burhenne_Guilmin, F., Synge, H., McNeely, J. A., and Gündling, L./ IUCN	1994	B
76. Global	Conserving The World's Biological Diversity	McNeely, J. A., Miller, K. R., Reid, W. V., Mittermeier, R. A., and Werner, T. B./ World Bank/ WRI / IUCN / CI	1990	B
77. Global	Effective Communication for Biodiversity Conservation: Training Guide	IUCN (CEC)		B

⁴ RTF/Word = Rich Text Format/ Word Document

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
78. Global	A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species	Shine, C., Williams, N., and Gündling, L./ IUCN	2000	B
79. Global	Financing Protected Areas: Guidelines for Protected Area Managers	Phillips, A. (ed.)/ IUCN	2000	B
80. Global	Guidelines for Public Use Measurement and Reporting at Parks and Protected Areas	Hornback, K. and Eagles, P. F. J./ IUCN/ Parks Canada/ CRC Tourism, Australia	1999	B
81. Global	Parks for Biodiversity : Policy Guidance Based on Experience in ACP Countries	IUCN	1999	B
82. Global	Guidelines for Marine Protected Areas	Kelleher, G. (ed.)/ IUCN	1999	B
83. Global	Economic Values of Protected Areas- Guidelines for Protected Area Managers	Phillips, A. (ed.)/ IUCN	1998	B
84. Global	National System Planning for Protected Areas	Davey, A. G./ IUCN	1998	B
85. Global	Transborder Protected Area Cooperation	Hamilton, L. S., Mackay, J. C., Worboys, G. L., Jones, R. A., and Manson, G. B./ AALC/ IUCN	1996	B
86. Global	Conserving Biodiversity Outside Protected Areas: The Role of Traditional Agro-ecosystems	Halladay, P. and Gilmour, D. A. (eds.)/ IUCN	1995	B
87. Global	Guidelines for Protected Area Management Categories	IUCN	1994	B
88. Global	Parks on The Borderline: Experience in Transfrontier Conservation	Thorsell, J. (ed.)/ IUCN	1990	B
89. Global	Agroecology: Creating the Synergism for a Sustainable Agriculture	UNDP	1995	B
90. Global	Hunting of Wildlife in Tropical Forests: Implications for Biodiversity and Forest Peoples	Bennet, E. L. and Robinson, J. G./ The World Bank	2000	P
91. Global	Community-based Tree and Forest Product Enterprises: Market Analysis and Development	Lecup, I. And Nicholson, K./ FAO	2000	B
92. Global	Case Studies in Business and Biodiversity: A Companion Volume to 'Business and Biodiversity'	Earthwatch Institute, UK	2000	B
93. Global	Economic Measures for Biodiversity Planning: An Annotated Bibliography of Methods, Experiences and Cases (version 12/00)	Emerton, L./ IUCN- Eastern Africa	2000	B
94. Global	Incomes from the Forest: Methods for the	Wollenberg, E. and Ingles, A.	1999	B

Country / Regional / Global	Title	Author / Publisher	Published Year	Type
	Development and Conservation of Forest Products for Local Communities	(eds.)/ Center for International Forestry Research, Indonesia		
95. Global	Business and Biodiversity: A UK Business Guide for Understanding and Integrating Nature Conservation and Biodiversity into Environmental Management Systems	Earthwatch Institute, UK	1999	B
96. Global	Business and Biodiversity: A Guide for the Private Sector	Stone, D., Ringwood, K. and Vorhies, F./ IUCN/ WBCSD	1997	B
97. Global	Economic Valuation of Wetlands: A Guide for Policy Makers and Planners	Barbier, E. B., Acreman, M. and Knowler, D./ Ramsar	1997	B
98. Global	Biodiversity in The Seas : Implementing The CBD in Marine and Coastal Habitats	de Fontaubert, A. C., Downes, D. R. and Agardy, T.S./ IUCN/ WWF/ CIEL	1996	B
99. Global	Intellectual Property Rights, Trade and Biodiversity	Dutfield, G. / Earthscan	2000	B
100. Global	The IPG Handbook on Environmental Funds: A Resource Book for the Design and Operation of Environmental Funds	Norris, R. (ed.)/ IPG	-	B
101. Global	The Participatory Process for Supporting Collaborative Management of Natural Resources: An Overview.	Ingles, A. W. Musch, A., and Qwist-Hoffmann, H / FAO	1999	B
102. Global	Biodiversity Impact – Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes	Byron, H./ RSPB/ WWF-UK/ English Nature/ Wildlife Trusts- Sandy	2000	B
103. Global	Lightening The Lode: A Guide to Responsible Large-scale Mining	Sweeting, A. R. and Clark, A. P./ Conservation International	2000	B
104. Global	Biodiversity Impacts of Large Dams	McAllister, D.E, Craig, J., Davidson, N., and Seddon, M.	1999	B
105. Global	Reinventing The Well: Approaches to Minimizing The Environmental and Social Impact of Oil Development in The Tropics	Rosenfeld, A. B., Gordon, D. L., and Guerin-McManus, M./ Conservation International	1997	B

Country : Australia

Title : **The National Strategy for the Conservation of Australia's Biological Diversity**

Year of Publication : 1996

Publisher : Commonwealth Department of the Environment, Sport and Territories

Copyright : Commonwealth of Australia

ISBN : 0-642-24427-8

No. of Pages : 54

Format : Hard Copy

Available From : Community Information Unit
Commonwealth Department of the Environment, Sport and Territories
Tel: 1-800-803-772
and
Environmental Resources Information Network (ERIN) Website
URL: <http://www.erin.gov.au/net/biostrat.html>

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Abstract :

The strategy recognises that:

- Conservation of biological diversity provides significant cultural, economic, educational, environmental, scientific and social benefits for all Australians.
- There is a need for more knowledge and better understanding of Australia's biological diversity.
- There is a pressing need to strengthen current activities and improve policies, practices and attitudes to achieve conservation and sustainable use of biological diversity.
- We share the earth with many other life forms that have intrinsic value and warrant our respect, whether or not they are of benefit to us.

It acknowledges the core objectives of the National Strategy for Ecologically Sustainable Development:

- To enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations;
- To provide for equity within and between generations;
- To protect biological diversity and maintain essential ecological processes and life-support systems;

And it accepts the guiding principles of the National Strategy for Ecologically Sustainable Development:

- Decision making processes should effectively integrate both long-and short-term economic, environmental, social and equity considerations.
- Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- The global dimension of environmental impacts of actions and policies should be recognised and considered.
- The need to develop a strong, growing and diversified economy, which can enhance the capacity for environmental protection, should be recognised.
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.
- Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms.
- Decisions and actions should provide for broad community involvement on issues, which effect them.

The following principles have been adopted as a basis for the Strategy's objectives and actions and should be used as a guide for implementation:

1. Biological diversity is best conserved *in situ*

2. Although all levels of government have clear responsibility, the cooperation of conservation groups, resource users, indigenous people, and the community in general is critical to the conservation of biological diversity.
3. It is vital to anticipate, prevent and attack at source the course of significant reduction or loss of biodiversity.
4. Processes for and decisions about the allocation and use of Australia's resources should be efficient, equitable and transparent.
5. Lack of full knowledge should not be an excuse for postponing action to conserve biological diversity.
6. The conservation of Australia's biological diversity is affected by international activities and requires actions extending beyond Australia's national jurisdiction.
7. Australians operating beyond our national jurisdiction should respect the principles of conservation and ecologically sustainable use of biological diversity and act in accordance with any relevant national or international laws.
8. Central to the conservation of Australia's biological diversity is the establishment of a comprehensive and adequate system of ecologically viable protected areas integrated with the sympathetic management of all other areas, including agricultural and other resource production systems.
9. The close, traditional association of Australia's indigenous peoples with components of biological diversity should be recognised, as should the desirability of sharing equitably benefits arising from the innovative use of traditional knowledge of biological diversity.

Country	: Bangladesh
Title	: Linking People with Nature: Biodiversity Conservation Strategy for the Himal Region
Editors	: Nisht, A., Waliuzzaman, M., and Ahmed, J.
Year of Publication	: 2000
Publisher	: IUCN Bangladesh
Copyright	: IUCN - The World Conservation Union
ISBN	: 984-746-001-0
No. of Pages	: 91
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	Linking People and Nature: Conservation and Development in Mountain Protected Areas – <i>Are Knudsen</i>
	UNDP Himalayan Eco-regional Cooperation Programme – <i>Bhesh Raj Dhamala</i>
	UNDP/GEF's Work in the Himal Region – <i>Tim Boyle</i>
	UNEP: Potential Areas of Interest in the Himal Region – <i>Chandra Prasad Giri</i>
	Biodiversity Conservation Programme of G. B. Pant Institute for Himalayan Environment and development – <i>LMS Palni</i>
	Biodiversity issues in HKH Ecoregion – Toward Participatory Conservation – <i>Bjorn P Kalternborn</i>
	Guidelines for Sustainable Use of Plants in Mountain Protected Areas: Theory and Application – <i>Ole R Vetaas</i>
	Biodiversity Conservation Activities of South Asia Cooperative Environment Programme (SACEP) – <i>Ananda R Joshi</i>

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Concluding remarks – *M. Sakawat Hussain*

Closing remarks – *Aban Marker Kabraji*

Vote of thanks – *Ainun Nishat*

Abstract : not available

Country : Bangladesh

Title : **National Environment Management Action Plan (NEMAP)**
Volume 1a: Summary

Year of Publication : 1995

Publisher : NEMAP Secretariat
Ministry of Environment and Forest

Copyright : Government of People's Republic of Bangladesh

No. of Pages : 51

Format : Hard Copy

Available from : NEMAP Secretariat
Ministry of Environment and Forest
Room No.1303, Building No.6
Bangladesh Secretariat
Dhaka
Fax: 880-2-861210

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Abstract :

Bangladesh is one of the least developed countries with a rapidly increasing population (over 120 million). Its meagre resources are either over exploited or used sub-optimally. The pressure of the population on the country's resources makes planning an economic imperative. It is now recognised that for development to be sustainable environmental concerns have to be integrated into the planning process. However, in a country like Bangladesh this is a formidable task.

All planning has to be for the people. Their involvement therefore in the identification of issues and finding solutions to them is not only desirable but also essential. As democratic practices and institutions take root in Bangladesh, the participation of the people in the formulation of plans must be considered essential. It is stated in the Constitution that "All powers belong to the people". In conformity with the provisions of the Constitution, the Ministry of Environment and Forest (MOEF), Government of Bangladesh, decided to formulate the National Environment Management Action Plan (NEMAP) involving people at every stage of the planning process. In this process, government agencies, non-government organizations, professional groups and academic researchers worked together through a series of workshops including a national workshop, in which the Prime Minister took part. This helped a consensus to emerge to act as the basis of this Action Plan.

The participatory planning process though highly desirable has its problems. These include developing appropriate methodologies, making action plan implemented, dealing with issues that are multisectoral and persuading the people to improve and modify practices that are environmentally unsound. The MOEF is relatively a new ministry that is still not adequately equipped to co-ordinate activities of different sectors at national, regional, and local levels.

To enable people to participate in environmental planning on a continuous basis, the NEMAP process must adjust to changing environmental conditions. Thus the challenges are:

- (a) to ensure involvement of people on a continuous basis; and
- (b) to make the process incorporate changing environmental realities in a dynamic manner.

The present NEMAP document is an attempt to respond to these sort of challenges and develop an implementable action plan.

Relationship with Sustainable Development:

At the UN Conference on Environment and Development (the Earth Summit) in Rio 1992, agenda 21 was signed by Bangladesh. The Agenda 21 is a basis to attain sustainable development through policies initiated and coordinated at the national level. The second phase of the National Conservation strategy of Bangladesh (NCS) has begun. The NCS and the Forestry Master Plan are initiatives of the MOEF that reiterate Bangladesh's commitment to Agenda 21. NEMAP and these initiatives are complementary. Agenda 21 envisages the establishment of a sustainable development commission headed by the Prime Minister. The initiation of NEMAP along with the SAARC declaration on Poverty Alleviation can be seen as steps reaffirming Bangladesh's commitment to Agenda 21.

The national Environment Management Action Plan or NEMAP is a plan of the Government of Bangladesh prepared by the MOEF in consultation with people from all walks of life. It consists of five volumes, which include Volume I – Summaries in English and Bangla, Volume II – The main report, Volume III – Project concepts, Volume IV – Methodological report, and Volume V – Technical appendices. Volume II identifies actions to be implemented, Volume III expands each action into an outline identifying actors, Volume IV speaks about the methodology and Volume V is a collection of technical reports with detailed tables. The last two volumes will be of value to specialists.

As environmental concerns encompass all sectors of the economy multidisciplinary approaches are therefore needed for the formulation of policies and implementation of programmes related to environmental issues. NEMAP was prepared by the Government of Bangladesh to be the basis for programmes and interventions aimed at promoting better resource management, making people aware of environmental problems and reversing the present trend towards environmental degradation. NEMAP is expected to identify key environmental problems. Since these may change over a period of time, NEMAP will have to evolve in response to the changes.

NEMAP is expected to identify key environmental issues, conserve the nature, reduce environmental degradation, promote sustainable development and generally raise the quality of human life. It has to evolve in response to environmental changes. The present document is relevant for the period 1995 – 2005.

The Action Plan is meant to be implemented not only by the government but also by the non-government organisations and individual citizens and communities as well. The management interventions are all essential but the more urgent ones have been given importance.

NEMAP is an environmental planning exercise of the Government of Bangladesh carried out by the MOEF with assistance from UNDP. The first phase was carried out in 1992 by national consultants who identified certain areas of concern. The second was carried out in 1993 by national and international consultants who prepared a list of projects. The order of priorities was arrived at after discussion with government officials.

The third phase was carried out in 1994 through a series of discussions and workshops in which people from all walks of life participated.

The three major inputs are people's concerns, government policies, and professional group inputs. These, through an analysis and subsequent synthesis process were developed into an Action Plan.

To make the NEMAP document represent all shades of public opinion, the following actions were taken: To obtain public opinion from all parts of the country 23 grassroots workshops were organised; steps were taken to ensure participation of people from every segment of society; efforts were made to assess the views of all the workshop participants; the workshop participants were asked to identify their own priorities and suggest solutions. They were asked to recommend actions that were to be taken by themselves, by the local communities, and by the national government.

Regional issues where grassroots representatives discussed in six workshops, elected local government functionaries and appointed government officials participated. In these workshops professional groups were encouraged to present their respective inputs. The views of people not participating in the workshops were collected by circulating a questionnaire and eliciting the response of the public in general on the subjects discussed in the workshops. These views were consolidated and analysed in a computer programme. The people were informed of the NEMAP process with help of the media, both electronic and print. The discussions at the various workshops were carefully recorded by trained facilitators and experienced

rapporteurs. The draft proposals were discussed at a national workshop in which the Prime Minister of Bangladesh took part – the draft was finalised after prolonged consultations – the concerns of the people being carefully incorporated.

Since it was found to be difficult to record the views of all the participants of the workshops separately, major concerns in which the different views were emphasised were identified. The need to give recognition to poverty alleviation got special emphasis during the workshops and consultations.

It is evident that sanitation, health, deforestation, pollution, natural disasters, water and flood control drainage and irrigation projects and agrochemicals emerged as the major groups of concerns, while the leading seven groups of concerns covered 83%, the residual 17% encompassed all the “other” for convenience of developing an implementable action plan.

The types of activities in NEMAP can be classed into three groups:

- (a) Policies
- (b) Projects
- (c) Advocacy (of the views of people)

The policies and projects are drawn from the views advocated by the people in workshops through consultations. For each broad group of concerns, people offered a series of solutions. Six to eight of the major solutions in each group managed to capture the wide variety of solutions proposed by the people. The main solutions given by the people to the problems they had identified were the key driving force behind developing implementable actions.

The Action Plan draws its inputs from the following:

- (a) The people through consultative process and inputs stimulated by a nationwide media coverage.
- (b) Government policies and existing documents, sectoral concerns as given through consultations with relevant government agencies
- (c) Professional groups contributions through workshops and written submissions. These inputs have been systematically and subsequently synthesized by a NEMAP synthesis sub-committee consisting of government and non-government representatives.

For the purpose of management, implementation, acquiring necessary funds and enabling all different agencies to initiate or implement their own programmes singly or in combination with agencies, all the action has been grouped under the following heads.

1. **Institutional:** aspects which reflect the need to have intersectoral cooperation to tackle environmental problems which may need new and appropriate institutional mechanisms a national as well as local levels (Chapter 3).
2. **Sectoral:** which reflects the way the government ministries and agencies are organised and hence makes it easier to identify the agency to carry out the recommended action (Chapter 4)
3. **Location Specific:** which focuses on particularly acute local level environmental problems which, will need to be addressed on surety basis even if these are multisectoral concerns and may need new institutional mechanisms (Chapter 5).
4. **Long Term Issues:** which may become much more serious and threatening than they need be if we do not start taking cognizance of them from now (Chapter 6).

The Action Plan identifies a series of specific actions and respectively designated actions including people, government agencies, NGOs, media, academics, private sector, elected representatives, and professional groups. The roles of each of these groups of actors have also been specified. The types of actions again are divided into three categories:

1. Advocacy
2. Policy and
3. Specific Projects.

Some of the actions combine two or more of the above types. The concluding chapter contains practical actions for immediate implementation by designated actors.

An Action Plan must have implementation activities, which contribute towards meeting the objectives of NEMAP. Taking such an approach meant that certain concerns such as pollution had to be segmented into different sectoral issues. The issues were then divided into further subsegments and recommendations for

action made. An agency of the government or non-government was identified to carry out the action. The relevant issues are water, urbanization, health and industries for different types of pollution.

Country : Bangladesh

Title : **Final report - Bangladesh: Environment and Natural Resource Assessment**

Year of Publication : 1990

Institutions : World Resources Institute (WRI);
Center for International Development and Environment;
U.S. Agency for International Development. (USAID);
Bureau for Science and Technology;
Office of Forestry, Environment and Natural Resources

No. of Pages : 65

Format : PDF File

Available From : U.S. Agency for International Development
Development Information Services Clearinghouse
Order No.: PN-ABH-384

Abstract :

Bangladesh, already the world's most densely populated country, is expected to hold 140-145 million people by the year 2000. High population density is a major factor contributing to extensive overuse of the country's forests, fisheries, and even soil and water resources. These problems are especially serious, given that most Bangladeshis are still directly economically dependent on natural resources. Already a majority of households are without sufficient land to produce their food needs, and fuelwood stocks have been depleted to the point where most domestic energy requirements must be met by crop residues and dung, with only a small fraction met by fuelwood. This report provides an overview of economic development and environmental factors in Bangladesh, including specific problems in the areas of land use, agriculture and water resources management, forestry, fisheries, biodiversity conservation, rural energy use, urbanization, and toxic substances. Institutional capacities and the policy framework related to environment and natural resource management are then discussed, together with activities to promote sustainable development. The concluding section outlines a strategy for improved environmental management, and summarizes short- and medium-term priority actions. Includes a bibliography and case study of the Sundarban mangrove ecosystem.

Country : Bangladesh

Title : **Bangladesh Environment and Natural Resources Assessment:
Conservation of Biological Diversity in Bangladesh -- Status, Trends,
and Recommended Responses**

Authors : Alcorn, J. and Johnson, N.

**Year of
Publication** : 1989

Institutions : World Resources Institute;
Center for International Development and Environment;
U.S. Agency for International Development;
Bureau for Asia and Near East, Bangladesh

No. of Pages : 47

Format : PDF File

Available From : U.S. Agency for International Development
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Order No.: PN-ABL-059

Abstract :

At least 94 percent of Bangladesh's original natural habitat areas have been lost. What remains is found in the relatively sparsely populated Chittagong Hills, the Sundarbans mangrove forest zone, and a few small areas in Sylhet. This report presents an overview of conditions and trends affecting the conservation of the country's biological diversity. Due to the overlap of geographic ranges for Indian, Himalayan, and Southeast Asian biotas, Bangladesh has a large number of species -- about 1,500 flowering plants, and 1,500 vertebrates -- although dozens of them are threatened (and possibly newly extinct). Highlights include the world's only genetically viable tiger population, located in the Sundarbans, and unique varieties of wild and cultivated rice. Fish diversity remains high, but proposed flood control activities and mangrove conversion may significantly reduce the diversity of open-catch fisheries. The report concludes that biodiversity conservation in Bangladesh faces severe constraints. The subsistence needs of millions of people for fuelwood, fish, and cash income, coupled with a traditional attitude that biological resources are free for exploitation, creates a political climate inimical to sustainable development. Protected areas have been designated, but they do not cover all habitat types, and no management plans have been implemented. The report identifies the major institutions involved in conservation, and provides recommendations to USAID and the donor community. Includes 3-page bibliography.

Country	: Bhutan
Title	: Biodiversity Action Plan for Bhutan
Year of Publication	: 1998
Publisher	: Ministry of Agriculture, Royal Government of Bhutan
No. of Pages	: 176
Format	: Hard Copy
Available From	: Ministry of Agriculture, Royal Government of Bhutan
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Abstract :

The Action Plan Process In Bhutan

Preparation of the BAP

In 1996, the Royal Government of Bhutan initiated a project funded by the UNDP/GEF to enable the RGOB to develop a National Biodiversity Conservation Strategy with prioritised Action Plans.

The nature Conservation Section of the Forestry Services Division within the Ministry of Agriculture was given the responsibility for co-ordinating the development of the National Biodiversity Conservation Strategy and Action Plan (BAP).

A core team was formed for developing the BAP. Individuals from Ministries, NGOs and the UNDP were also nominated as members of a Task Force, which served as a steering committee and acted as a forum for consultation, discussion, review, analysis, and co-ordination for the development of the Strategy and Action Plan.

A one-day National workshop was convened in Thimpu, in January 1997 to discuss the approach to be adopted in the preparation of the National Biodiversity Conservation Strategy and Action Plan. An outline of the National Biodiversity Conservation Strategy and Action Plan was prepared.

In an effort to ensure broad participation of all stakeholders as well as encourage constructive contributions to the BAP a series of regional workshops were held throughout the country as per the following:

- 12 – 14 March 1997: Conducted Regional workshop in Paro;
- 19 – 21 March 1997: Conducted Regional workshop in Bumthang; and
- 12 – 14 March 1997: Conducted Regional workshop in Trashigang

The workshops provided a mechanism for consensus building and information gathering. Their purpose was:

- To provide a forum for participation for local people who use, affect, study and conserve biodiversity, in order to assure a wide participation in the BAP process;
- To assure the differing needs and perception of people from different regions is incorporated in the BAP process;
- Through local participation, to seek to build understanding and support for the BAP; and
- To complete information from the different regions to assure that the BAP reflects differing conditions in the differing parts of the country.

To achieve the objectives the workshop organisers tried to seek the widest participation from groups using and affecting biodiversity. These included representatives of the local people such as Gups, Chimis and Mangi Aps from each Dzongkhag. Government officials included Divisional Forest Officers, District Agricultural Officers, District Animal Husbandry Officers, Dzongkhag Forest Extension Officers, selected District Education Officers, Research Officers from the RNR-RCs, selected Dungtsos, Lecturers from institutes like the Bhutan Forestry Institute, Natural Resource Training Institute, and Sherubtse College. Local users included sawmill owners and paper industry owners.

Since the objective was to both gather information as well as seek to build consensus, the workshops were structured so as to encourage local representatives. The workshops were informal with no papers 'read'. Each workshop began with an explanation of the terms 'Biodiversity, Sustainable Development, the importance of conservation, the Convention on Biological Diversity and the country's obligations to the CBD. Participants were divided into groups dealing with (a) Forestry; (b) Livestock/Pastoral; (c) Arable-Agriculture/Horticulture; (d) Wetlands/Freshwater; (e) Pasture & Grazing; and (f) Wildlife.

The group discussions were held for two days and mainly dwelt on the following topics:

- The status of biodiversity (varieties known to participants), their special significance;
- Existing threats to or from the use of biodiversity;
- Distribution of species
- Status of wild biodiversity
- Uses of biodiversity, sustainability of these uses;
- Existing conservation measures currently in use in any region;
- Conservation actions that may be required for the future;
- Conflicting issues; and
- Recommendations to the government.

Based on the findings of the regional workshops, the Forestry Services Division nominated a small working group to discuss the issues raised and come up with solutions or actions for recommendations that came from the workshops. In late May and June, 1997, a series of meetings of the Focal Persons and Consultant were held to review progress and compile the draft BAP on the basis of the materials collected, prepared and drafted by the Focal Persons. The draft was assembled from sections drafted by each member of the Core Group. The draft was subsequently reviewed at a meeting of the Task Force and submitted to a final National Workshop.

A final National Workshop was held on 17 June to present and discuss the draft National Biodiversity Conservation Strategy and Action Plan. The draft was then revised in accordance with the workshop recommendations and submitted to Government for approval.

Follow up – The BAP as a Living Document

The BAP is a living document. It is an ongoing process, not a one-time document to be noted and set aside. The BAP provides a framework for action that will enhance Bhutan's ability to ensure the productivity, diversity and integrity of its biodiversity and natural systems, and as a result, its ability as a nation to develop sustainability.

As a result, the BAP is an ongoing process of:

- Defining goals and action to attain them;
- Monitoring the actions to see that they are carried out;
- Assessing the success of the actions, both administrative and in the field;
- Determining what changes are required in the Action Plan itself;
- Making those changes; and
- Repeating the cycle.

Experience with BAPs in other countries has shown that it is important to monitor, evaluate and revise the BAP within a year of its approval by government.

Key Points of the Action Plan

The Biodiversity Strategy and Action Plan is organised into five chapters. The first two represent an inventory of what Bhutan has at present in terms of biodiversity and efforts to conserve and use it wisely. The last three chapters represent the Action Plan proper. On the basis of the information in the first two chapters, chapters 3 and 4 present the actions that need to be done to conserve and sustainably use the biodiversity. The Last chapter presents options for actions that Bhutan can take to realise additional benefits from its rich biodiversity. Following is the summary of the key points in the Action plan proper, chapter 3 and 4.

Chapter 3 - Direct Actions for Conservation

Chapter 3.1. Wild Biodiversity Resources

In situ Conservation Efforts

Protected Area System

- Complete the establishment and management of the protected area system that adequately protects the full range of the nation's ecosystems and species
- Prepare guidelines for the preparation of management plans for protected areas.
- Accelerated the phased approach for preparing and implementing management plans
- Complete the review of the biodiversity, biophysical and socio-economic situations of the current protected areas.
- Review and evaluate progress under the management plans every year.

Buffer Zones and Enclave Zones

- Give priority attention to developing management strategies for buffer and enclave zones, around and in protected areas.
- Promote participation and involvement of local communities in conservation and development efforts and seek to bring them benefits from conservation and sustainable use of biodiversity
- Promote in situ conservation of wild crop relatives and wild plants for food production.
- Include the conservation of plant genetic resources in protected areas;
- Recognise the rights of indigenous communities to PGRFA in protected areas.
- Support local communities to manage wild crop relatives for food production.
- Monitor the holdings, distribution and diversity of wild crop relatives for food production.

Conservation Outside of Protected Areas

- Continue and expand the integrated conservation and development projects, intended to bring development benefits to people who are inhabitants or who live in the vicinity of the protected areas; and monitor the results.
- Establish and implement sound forest management plans to assure the forests with their biodiversity are managed on a sustainable basis.

Chapter 3.2. Domestic Biodiversity Resources

Promote In situ Conservation

- Develop a policy on introduction of exotic high yielding varieties, which assures that the benefits of indigenous genetics resources are not lost in Bhutan.
- Survey and inventory Crop genetic resources
- Support On Farm Management and Improvement of Plant Genetic Resources
- Assist farmers in Disaster Situations to Restore Agricultural systems

Promote Ex situ Conservation

- Support planned and targeted collecting of plant genetic resources in arable agricultural systems.
- Expand ex situ conservation activities, including botanical gardens, field genebanks and the use of new technologies.

Chapter 4 – Essential supporting measures

Chapter 4.1. – Wild biodiversity resources

Scientific Research

- Initiate a major programme to build the scientific knowledge base of Bhutan's wild biodiversity.
- Undertake research on sustainable use of wild biodiversity, including identification of threats, collection of traditional knowledge, needed scientific research, and development of comprehensive management programmes.
- Undertake research in forestry.

Surveys and Monitoring

- Undertake wildlife surveys to obtain adequate ecological information for management within protected areas.
- Conduct National Aquatic Resources Survey, and on the basis of the results, formulate conservation measures, management plans and legislation
- Design and carry out monitoring of biodiversity status and trends, biological conditions, impacts of human activities, and effect of management efforts.

Database

- Develop and establish a system of biodiversity databases.
- Establish standard procedures for data analysis.

Economic Valuation of Biodiversity Resources

- Develop methodologies for economic valuation of biodiversity resources; develop local capacity in such evaluation; prepare economic valuation of Bhutan's biodiversity.

Incorporated Biodiversity in related sector's strategy and planning

- Assure that biodiversity considerations are effectively incorporated in planning and development of forest management units (FMUs).
- Assure that forest management plans are strictly implemented according to the principles of maintenance and sustainable use of biodiversity.
- Assure that production forests are managed on strict sustainable use principles.
- Develop ecologically sound and economically viable forest based industries.
- Accelerate development and implementation of the programme on integrated resources management and land use planning, and assure that biodiversity conservation concerns are central to the process
- Assure that the development of ecotourism is based on the principles of sustainability, ecological soundness and cultural acceptability.
- Assure that comprehensive land use planning incorporates biodiversity and as necessary, develop enabling legislation.

Strengthen the institutional framework relating to biodiversity

- MOA to give serious consideration to develop an integrated national biodiversity programme; an operational level programme and mechanisms to improve the co-ordination, efficiency and effectiveness of Bhutan's efforts in biodiversity conservation.

Improve the staff capacity in biodiversity conservation and sustainable use: Expanding and improving training

- Develop realistic long term vision of the staff which will be required to effectively develop and manage Bhutan's programmes for conservation and sustainable use of its biodiversity resources.
- Accelerate the acquisition and training of staff within the present plans.

- Identify the priority needs and seek additional funding for the acquisition, training and recurrent costs of the staff.

Assure that biodiversity conservation brings benefits to local people

- Promote social and community forestry through extension programmes
- Promote proper agro-forestry and agro-silvo-pastoral techniques, and build on traditional knowledge to improve the sustainable benefits local people obtain from biodiversity.

Strengthen biodiversity in education and Awareness

- Review the present status of biodiversity at the various levels of formal and non-formal education and the religious sector, and develop new programmes and materials as necessary.

Encourage and augment international co-operation in biodiversity conservation and sustainable use

- Plan, obtain funding and, and carry out a policy and technical exchange on biodiversity with Costa Rica.
- Actively explore possibilities for debt for nature swaps.
- Pursue active follow up of the biodiversity action plan with the donor community.

Recognising the critical importance population in biodiversity conservation and sustainable use

- Incorporate consideration of population growth and movement in biodiversity planning
- Provide all possible support to the RGOB programmes on family planning.

Chapter 4.2. Domestic Biodiversity

(I) Plant Resources

Research and Information

- Develop comprehensive information systems for crop genetic resources.
- Expand characterisation, evaluation and number of core collections of plant genetic resources.
- Increase genetic enhancement and genetic-based broadening effects.
- Promote sustainable agriculture through diversification of crop production and broader diversity in crops.
- Promote development and commercialisation of under utilised crops and species.
- Support seed production and distribution.
- Develop comprehensive policy and, as needed, legislation, on domestic as well as wild biodiversity, giving consideration to sovereignty over biodiversity and importing exotic biodiversity.

Chapter 4.2. Domestic Biodiversity

(II) Livestock Resources

- Develop and conduct an expanded programme on livestock biodiversity resources.
- Develop a comprehensive research programme in Yaks
- Develop extension programmes on biodiversity in livestock; develop policy guidelines to promote livestock genetic conservation; develop public awareness programmes.
- Improve strategy and planning for livestock genetic conservation.
- Improve health services at field and laboratory levels.
- Provide support for feed and fodder development.

Country : Cambodia

Title : **Cambodia: A National Biodiversity Prospectus**

Author : David A. Ashwell in Collaboration with
The Department of Nature Conservation and Protection, Ministry of Environment

Year of Publication : 1997

Publisher : IUCN Cambodia

No. of Pages : 143

Format : Hard Copy

Available From : IUCN Cambodia
Street 306, House # 2, Phnom Penh, Cambodia
Tel/Fax: ++ 855-23-211944
Email: iucn@forum.org.kh

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Executive Summary :

This report seeks to define the prospects of connecting opportunities for the promotion of the conservation and sustainable use of Cambodia's biological diversity to the financial, institutional and technical support available from international conventions concerning natural resources. Most notable amongst these is the *Convention on Biological Diversity*, to which Cambodia is a party, and through which it also has taken on an international responsibility to care for and use biodiversity wisely.

The *Prospectus* regards biodiversity as an integral and essential consideration in the development of resources for Cambodia's progress and is presented in three parts concerning the needs and processes of biodiversity planning (Chapters 1 and 2), the description of Cambodia's biodiversity (Chapters 3 to 5), and the identification of elements in the path towards progress (Chapters 6 to 8).

The *Prospectus* sets out to bring together scattered information on biodiversity, identify the threats to it, explain the contribution which biodiversity planning can make to national development, and outline appropriate steps towards the establishment of biodiversity planning as an integral part of national development of the country. The *Prospectus* has a distinct terrestrial orientation because this represents the most substantial gap in recent efforts to address natural resource management, which have largely focussed upon freshwater and marine resources.

The three levels of biodiversity – genetic, species, and ecosystems – and their relationship to “sustainable development” are described in Chapter 1. Careful use of biodiversity, in ways, which make it possible to renew and continue the uses of natural resources makes “sustainable development” possible. Support for efforts to conserve biodiversity through an appropriate balance between protection and wise use, is provided by the *Convention on Biological Diversity*. The *Convention* is introduced and explained with reference to the nature and process of biodiversity planning, for which this *Prospectus* provides a foundation.

The need and focus of the *Prospectus* is considered in Chapter 2. The idea of the *Prospectus* emerged from a consideration of Cambodia's particular circumstances, as a country with very little information on Cambodia's ecological settings – the elements of landscape from which Cambodia's biodiversity has developed and is now sustained – is presented in Chapter 3. Descriptions of major environmental variables

including physiography, climate geology, soils and hydrology are complemented by a brief introduction of the people of Cambodia, and identifies demographic and social considerations relevant to biodiversity planning for Cambodia. These include:

- Ethnic and linguistic diversity within a dominantly Khmer nation;
- Major recent shifts in population distribution and high level of internal migration;
- Though many lives were lost through civil war the population growth is rapid (about 2.8%) and a simple projection suggests a population of 18 million might be reached within 25 years, from current level of about 9 million; and
- Rural communities lack security of land tenure and are generally very poor.

Cambodia's richness in plant and animal species is described in Chapter 4, though the information available is limited and it is clear that there are more species yet to be discovered. There are well over 2000 species of plants, possibly more than 600 different birds, several hundred freshwater fish, and 130 mammals, including large animals such as tiger, leopard, elephant, rhinoceros, bear, deer, crocodiles, freshwater and marine dolphins, whales, dugong and freshwater and marine turtles.

The country's wide ecological diversity is outlined in Chapter 5 in terms of forest, freshwater wetland, and coastal and marine ecosystems. Comment is made on their value for sustainable use, and on their local and international conservation significance. Cambodia's terrestrial (and freshwater) ecosystems are grouped into seven *Biodiversity Management Regions* on the basis of physiography, vegetation formations, soils and land use patterns. These regions are identified as a basis for biodiversity planning and management and help to shift the focus from national sectoral perspectives to one concerned with field realities. A key component of the chapter is an extensive annotated tabulation of critical and fragile habitats, areas and sites. These are arranged within a regional framework and describe major management concerns along with an indication of the extent to which current efforts focus upon the conservation and sustainable use of biological diversity.

A rationale for a national protected areas system is developed in Chapter 6, and its role as a focus for developing sustainable resource use planning and management is explained. The history of actions leading to the declaration of the first Cambodian protected areas is given, and an evaluation of these with respect to internationally recognised characteristics of protected areas systems undertaken.

The role of the Convention on Biological Diversity in supporting Cambodian initiatives in biodiversity conservation is explained and the nature of support and guidance available through international conventions (*Ramsar Convention, Law of the Sea Convention, world heritage Convention, the Convention on International Trade in endangered Species*) is briefly outlined in Chapter 7. The emphasis is on protected areas as a unifying theme for biodiversity conservation.

The *Prospectus* sets the scene and provides a basis for a process of biodiversity planning intended to facilitate sustainable development in Cambodia. In chapter 8, points emerging from experience in the implementation of biodiversity management activities to date are identified, as are impediments to success, and specific concerns that need to be addressed.

A rationale for planning on the basis of *Biodiversity Management Region* is presented. The identification of these Regions leads to the development of *Region Environmental Action Plans* and will also be useful for other forms of planning, including development planning. It is recommended that *Region Environmental Action Plans* provide a framework for managing critical and fragile habitats, areas, sites and species. Protected areas act as a focus from which sustainable management concepts and principles can be extended to adjacent areas in order to maintain and enhance the productivity of the general landscape.

A grouping of protected areas, together with associated land and/or water areas forms a protected area Cluster, a planning tool that promotes field actions. Reference is made to work currently underway to develop, test and demonstrate this concept in a "Southern cluster" within the South-west *Biodiversity Management Region*. It is analogous to initiatives taken in some other countries to achieve biodiversity protection through linkages with prevailing land and resource uses – an approach referred to as *Integrated Conservation and Development* (ICAD).

A wide range of matters which should be taken into consideration when developing a Biodiversity strategy and Action Plan is presented with explanation on the basis of biodiversity conservation through protected area clusters; sustainable use of biodiversity in the wider landscape; institutional support; information and

understanding; and awareness, education and training. Finally, steps towards the preparation of *Cambodia's Biodiversity Strategy and Action Plan*, including the management of the process by the Ministry of Environment are outlined.

Country : India

Title : National Biodiversity Strategy and Action Plan India: Guidelines and Concept Papers

Year of Publication : 2000

Publisher : Ministry of Environment and Forest, Government of India

No. of Pages : 103

Format : Hard Copy

Available From : Ministry of Environment and Forest, Government of India
Paryavaran Bhawan, CGO Complex,
Lodi Road, New Delhi – 110 003
Tel: 91-11-4362551
Fax: 91-11-4360678, 4361704
Email: rhk@menf.delhi.nic.in

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2. Guidelines for executive agencies
3. Suggested format of Biodiversity Strategy and Action Plans
4. Suggested format of Thematic Strategy and Action Plans
5. Guidelines for process documentation
6. Guidelines for ensuring widespread participation in the NBSAP process
7. Media campaign strategy
8. Biodiversity festival proposal

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10. Integrating biodiversity into sectoral planning
11. Integrating gender sensitivity in biodiversity conservation and in the NBSAP process
12. Assessing data quality and reliability
13. Assessing existing national documents relevant to NBSAP
14. Integrating monitoring and evaluation into Biodiversity Strategy and Action Plan
15. Integrating issues of empowerment and equity in the NBSAP Process
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Abstract :

This compilation of papers is intended to guide the process of preparing India's National Biodiversity Strategy and Action Plan (NBSAP). A large number of these papers have already been distributed amongst the various executive agencies of the NBSAP, in particular as part of a Compendium distributed to all participants of the Inaugural National Workshop of the NBSAP, held in June 2000. Several additional papers have been prepared since then, and some of the original papers have also been amended. It was therefore felt necessary to put all of these together into this printed volume. This would also enable the documents to be made more widely accessible to interested persons and organisations.

The NBSAP process is one of the largest environmental planning exercises being carried out in the world, and certainly the largest ever in India. Apart from its sheer scale, the process is fairly complex, for the following reasons:

1. Is being carried out at 5 different levels: local (substate), state/union territory, ecoregion (inter-state), thematic, and national. Of these, the last (national) will only take place after draft action plans for the first four are well underway, thereby building an overview national action plan from below. Significantly, all action plans at all levels will also remain stand-alone documents, capable of being implemented on their own steam. A few sub thematic reviews are also to be prepared under the NBSAP.
2. It involves the entire spectrum of biological diversity, including both wild and domesticated plants and animals, micro-organisms, genetic levels within these, and agro-ecosystems and natural habitats.
3. It involves a range of aspects, including biological, scientific, social, cultural, gender relations, economic, technological, political, and ethical.
4. Central to the envisaged process is the gender sensitive participation of a wide range of actors: women and men farmers, fisherfolk, forest-dwellers, independent scientists, NGOs, government officials of various line agencies, the armed forces, academics and professionals, students, journalists, artists, and so on. At the various levels described above, these stakeholders are being involved in different capacities and contexts.

Given the above, it is imperative that deep and careful thought is given to planning the process at every level. This volume of papers represents such an attempt by the coordinating agencies: the Ministry of Environment and Forests (MoEF), Government of India, the Technical and Policy Core Group (TPCG) coordinated by the NGO Kalpavriksh, and the administrative coordinating agency Biotech Consortium India Ltd (BCIL).

The compendium is organised in the following sections:

- A series of *methodological papers and guidelines* relevant to executing agencies, including, a detailed description of the NBSAP process as a whole
- *Cross cutting themes* that relate to the substantive aspects of the process of action plan preparation.
- *Thematic concept notes* for the 14 National Thematic Areas
- *Listings* of the executing agencies and a profile of the central coordinating agencies and individuals, to enable participants to establish direct contact with each other.

In particular, given the attempt to make the NBSAP a participatory process, we would like to emphasise the following cross-cutting thematic notes:

- Why Conserve Biodiversity
- Integrating Gender Sensitivity
- Integrating Empowerment and Equity Issues

- Integrating Biodiversity into Sectoral Planning
- Ensuring Widespread Participation in the NBSAP Process
- Involving the Armed Forces in Biodiversity Planning and Conservation
- Involving the Corporate Sector

A detailed paper on another cross-cutting theme, International Issues and Biodiversity, has been commissioned, and will be sent out to executing agencies subsequently. Some sub thematic reviews will also be commissioned as part of the NBSAP, and a suggested format for these as well as some indicative proposals for such reviews can be obtained from the NBSAP Kalpavriksh offices.

In order to enhance communication between the executing agencies and coordinating agencies, a bi-monthly newsletter, titled *NBSAP News*, is being started from October 2000. Much of the information relating to the NBSAP is also being made available on the NBSAP website at <http://sdnp.delhi.nic.in/nbsap>.

Like any dynamic processes, these documents are not set in stone. The ideas and information contained in them are bound to undergo changes as the collective experience of the NBSAP executing agencies evolves. Participants in the process are encouraged to look at these documents critically, and let the NBSAP coordinators know of faults, weaknesses, additions to be made, or any other comments that would help to improve the NBSAP process.

Country : India

Title : National Policy and Macrolevel Action Strategy on Biodiversity

Year of Publication : 1999

Publisher : Ministry of Environment and Forests

Copyright : Government of India

No. of Pages : 84

Format : Hard Copy

Available From : Ministry of Environment and Forests, Government of India
New Delhi 110003

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- 1.2. Need for Biodiversity Conservation
- 1.3. Convention on Biological diversity
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5. Implementation, Monitoring and Funding

Abstract : not available

Country : India

Title : **Biodiversity Conservation Through Ecodevelopment - Planning and Implementation Lessons from India**

Author : Singh, S.

Year of Publication : 1997

Publisher : UNESCO - Division of Ecological Sciences
South-south Cooperation Programme

No.of Pages : 64

Format : Hard Copy

Available From : UNESCO - Division of Ecological Sciences
South-south Cooperation Programme
7, Place de Fontenoy
75 700 Paris, France
Tel: 33-(0) 1-45684146; Telefax: 33-(0)-1-45685804
Email: m.clusener-godt@unesco.org

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- 1.3. Current Management Status
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Abstract :

India covers 2% of the world's area and supports 16% of the world's population. This country harbours 6.5% of the world animal and 33% of the world plant species. The network of protected areas comprised over 65 national parks and 425 sanctuaries covering 10 million ha.

The notion of protected area is very old in India (c. 2500 BP) and is known as *Abhayaranya*. Current modern protected areas are ruled under the Wildlife protection Act (1972) amended in 1991. The protected areas are not distributed uniformly across the biogeographic provinces of the country. 40% of National Parks and 8% of sanctuaries had completed their legal procedures. Human pressures are exerted on protected areas such as grazing by livestock, extraction of fodder, timber and non-timber forest products, illegal occupation and use by people and/or government agencies. Management plans are reported for 50% of the national parks and 31% of the sanctuaries. The major constraints (pressures and root causes) exerted on protected areas are described.

Ecodevelopment is the strategy used for biodiversity conservation. The main objectives and strategies of the concept are enumerated. An indicative planning for eco-development is also detailed at village level. Some issues of eco-development are considered such as relocation of human populations, prevention of the magnetic syndrome, establishment of tradeoffs over additionalities, and political polarisation.

The implementation of the eco-development concept is described step by step including planning, institutional structures, transitional phase planning, financial arrangement and criteria for site selection.

An indicative plan is developed as case study for the Great Himalayan National Park and the Kalakad Mundanthurai Tiger Reserve.

Project description is summarised for eight protected areas representative of the varied ecological zones of India. Six of them are Tiger Reserves (Buxa, Periyar, Similipal, Ranthambhore, Pench, and Palamau); Nagarhole is a valuable habitat for both tigers and elephants. Gir harbours the last surviving population of Asiatic lion.

Country : India

Title : **Protected Area Network in India: A Country Report**

Author : Mukherjee, S. K. and Mathur, V. B.

Year of Publication : 1997

Publisher : Wildlife Institute of India

No. of Pages : 22

Format : Hard Copy

Available From : Wildlife Institute of India
Dehradun

Contents :

1. Historical Perspective
2. Current Protected Area Coverage
3. Legal Categories of Protected Areas
4. Additional Protected Areas Recommended
5. Protected Area Institutions
6. Current Levels of Financial Investment in Protected Areas
7. Human Capacity in Protected Area Management
8. Priority for Future Investment in Protected Areas
9. Threat to Effective Management of Protected Areas
10. Priorities for Action

Abstract : not available

Country : India

Title : **Conservation of Biological Diversity in India: An Approach**

Year of Publication : 1994

Author : **Raghunathan, M.**

Institution : Ministry of Environment and Forests, New Delhi, India

No. of Pages : 48

Format : PDF File

Available From : Director (IC)
Ministry of Environment and Forests
National Environmental Council
Paryavaran Bhawan CGO Complex
Lodhi Road New Delhi 110003, India
Tel.: +91 11 436 0769; Fax: +91 11 436 0678
Telex: W-66185 DOE IN
and
U.S. Agency for International Development
Development Information Services Clearinghouse
Order No.: WRI-529

Abstract :

With over 45,000 plant species and 81,000 animal species, India is one of the world's 12 mega-biodiversity centers. However, although the ethos of conservation is ingrained in India's cultural heritage, development activity is increasingly threatening this rich biodiversity. Approximately 20 wildlife species are categorized as "possibly extinct," 1,500 plant species are considered vulnerable and endangered, and some domesticated breeds have suffered genetic erosion. This report on India's environment: (1) describes India's physical features, along with its biological diversity and the threats posed to it by rapid industrialization and agriculture, urbanization, large development projects such as dams, highways, and mining, poaching, and the introduction of high-yielding crop and livestock varieties; (2) examines India's efforts to formulate a National Biodiversity Action Plan to maintain ecosystem, species, and genetic diversity through a series of in-situ and ex-situ measures; (3) discusses the legal and policy reforms needed to implement and enforce the Plan, as well as the need to improve India's technical and institutional capacity for conservation, and to promote participatory management of natural resources; and (4) discusses plans to comply with the Convention on Biological Diversity, which India ratified in February 1994.

Country : **India**

Title : **Conservation of Biological Diversity in India (Draft)**

Year of Publication : 1993

Publisher : Indian Institute of Public Administration

Contents :

Chapter 1. Biological Diversity: An Introduction

Chapter 2. India's Biological Diversity in a global context

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Chapter 7. Issues of Access, and Biotechnology (Not included in the draft)

Chapter 8. Conservation in Global Context

Abstract : not available

Country : India

Title : India: Conservation of Biological Diversity

Year of Publication : 1989

Institutions : World Conservation Monitoring Centre, Cambridge, UK;
IUCN Tropical Forest Program, Gland, CH;
U.N. Environment Programme (UNEP), Nairobi, KE;
World Wildlife Fund (WWF), Washington, DC, US

No. of Pages : 58

Format : PDF File

Available From : World Conservation Monitoring Centre
219(c) Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel: +44 223 27 7314
Fax: +44 223 277 13 6
Telex: 817036SCMUG

Abstract :

Major threats to biodiversity in India are related to the country's large human population, which will probably exceed one billion persons by A.D. 2000. This report first provides background information on India's physical geography, human population, and biogeography, followed by an assessment of the country's biodiversity. Floristics, natural vegetation, forest areas and classification, centers of plant diversity and endemism, wetlands, marine ecosystems, and endemic and threatened mammal, bird, and reptile species are described. The impact of population pressures on biodiversity is especially evident in the trends towards agricultural expansion, shortened cultivation cycles, and increased collection of fuelwood and minor forest products (e.g., medicinal plants). Additional threats to the terrestrial and freshwater ecosystems are posed by expanded cattle grazing, destructive logging practices, deforestation as a result of dam construction, and conversion of mangroves for commercial purposes (i.e., agriculture, fish farming, and residential and industrial uses). The biodiversity of marine ecosystems is threatened by destruction of coral reefs, siltation, and chemical and oil pollution. The report then evaluates India's capacity to control further environmental degradation, with reference to related government and nongovernmental institutions, legislation, and the protected areas system. Recommendations focus on improving natural resource protection through strengthened legislation and protected areas management.

Country : Indonesia

Title : **Biodiversity Action Plan for Indonesia**

Year of Publication : 1993

Publisher : Ministry of National Development Planning/ National Development Planning Agency

No. of pages : 148

Format : Hard Copy

Available From : Ministry of National Development Planning Indonesia
National Development Planning Agency
Jakarta
Indonesia

Contents :

I. Introduction

- A. Biological diversity in Indonesia
- B. Need for a Biodiversity Action Plan

II. Current Status of Biological Resources

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Executive Summary :

Indonesia covers only 1.3 percent of the Earth's surface yet it harbours 10 percent of all flowering plants, 12 percent of the world's mammals, 16 percent of the world's reptiles and amphibians, 17 percent of all birds and more than a quarter of all marine and freshwater fish. It is one of the richest countries for biodiversity in the world.

This richness can be attributed to the fact that Indonesia spans two major biogeographical realms, Indomalaya and Australasia and can be divided into seven distinct biogeographic regions. The 17,000 islands of the archipelago support a wide range and variety of habitats from lowland rain forests and mangrove to savanna grasslands, swamp forests and limestone hills to montane forests, alpine meadows and snow-topped mountains. These varied habitats support a rich flora and fauna.

These habitats and species are now threatened by developments in logging, mining, shifting agriculture and other changing land uses as Indonesia's economy expands to meet the needs of its increasing population. Lowland habitats and wetlands are particularly threatened since these are the areas most accessible for agricultural developments.

Recognizing the need to conserve its rich biological resources, the Government of Indonesia has made a commitment to protect 10 percent of the land area and eventually 20 million hectares of coastal and marine habitats as conservation areas. Although in situ conservation must be the first priority, the protected area network alone will not be sufficient to secure all of Indonesia's biodiversity for future generations.

This Biodiversity Action Plan sets out a strategy for action under four main headings: *in situ* conservation in terrestrial parks and protected areas, *in situ* conservation outside the protected area network (production forests, wetlands, agricultural lands, coastal and marine conservation) and *ex situ* conservation. Much loss of biodiversity in Indonesia, as elsewhere, is due to economic policy distortions that encourage rapid exploitation of biological resources rather than sustainable use. Slowing the rate of biodiversity loss will require policy and institutional reform as well as institutional strengthening for effective action in all four areas. The active participation and support of local communities will also be essential for in situ conservation for they are the *de facto* managers of forest, wetland and marine resources. The Plan calls for greater collaboration between government agencies and local communities and NGOs to work together as partners in biodiversity conservation.

The Plan provides a framework for biodiversity conservation during Repelita V and VI and for the 25-Year Development Plan. It outlines immediate and attainable priorities for conservation action and suggestions for further studies on policy and funding mechanisms to strengthen Indonesia's biodiversity strategy.

Country : Indonesia

Title : Indonesian Country Study on Biological Diversity

Year of Publication : 1993

Publisher : Ministry of State for Population and Environment

No. of Pages : 233

Format : Hard Copy

Available From : Ministry of State for Population and Environment
Jakarta, Indonesia

Contents :

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Executive Summary :

Indonesia's extreme biodiversity is one of its most important national resources, and the management of this biodiversity should contribute strongly to the country's sustainable development. This principle is central to the *National strategy for the Management of Biodiversity, the Biodiversity Action Plan for Indonesia* and the *Indonesian Tropical Forestry Action Programme*, which have been endorsed at the highest levels of government. Thus there is a strong mandate for biodiversity conservation in Indonesia at a policy level.

The economic contribution of biodiversity is hard to quantify since subsistence use of many materials from the wild is not recorded in national accounts. Over 100 species are used by a timber industry valued at US\$ 4.5 billion/year, while rattan exports earn Indonesia more than US\$ 200 million/year. Wild meat in Malaysian Borneo contributes at least US\$ 50 per person/year, and similar figures may apply in much of Indonesia. An increasingly 'environmental' tourism industry contributes about US\$ 1.8 billion/year to the economy.

Biodiversity has an important role in forest and wildlife management, in watershed management, in agriculture and agrosafety, in coastal and wetland systems, in tourism and in the development of marketable chemicals. Maintaining biodiversity is fundamental to the integrity of Indonesia's environment, and hence to continued national economic output and the future prosperity of the Indonesian people. Precise figures can not be given, but ecosystem diversity, species richness and genetic diversity taken together must be worth many billions of dollars to the Indonesian economy every year.

Valuation of whole ecosystems, including their biodiversity, concluded that: net deforestation costs are over US\$ 3 billion per year; lost non-timber forest product earnings are about US\$ 200 million per year; watershed protection values are about US\$ 30 per hectare per year in parts of Java; the global carbon sequestration value of Indonesia's 46 million ha of terrestrial conservation areas and protection forests is US\$ 0.4-0.9 billion per year; and the net present value of the mangroves in Bintuni Bay (Irian Jaya) is some US\$ 1.5 billion.

Indonesia will create at least 19 million ha of terrestrial reserves and 20 million ha of marine ones by the year 2000. As of August 1990, the system comprised 326 gazetted conservation areas, including 303 terrestrial ones totaling 16 million hectares. Another 30 million hectares are designated as protection forest, covering watersheds and steep slopes. Many of the areas concerned are under threat from competing land pressures such as mining, agricultural encroachment, logging concessions and transmigration schemes

Some 85-90 conservation areas are described as the essential minimum needed for long-term conservation of Indonesia's biodiversity, and their management should be thoroughly reviewed to give thoroughly reviewed to give an area-by-area determination of spending needs, based on the application of up-to-date conservation and reserve management principles. These needs should not delay interim efforts to protect the biodiversity assets, which are obviously of key importance however, and the likely cost implications of this have been explored.

Current levels of investment in the conservation area system are about three orders of magnitude lower than the economic benefits of biodiversity (i.e. several US\$ millions rather than several US\$ billions per year). The total budget of the Directorate General of Forest Protection and Nature Conservation (PHPA) is about

US\$ 5.6 million, or US\$ 0.35/ha/yr on average for the 16 million hectares of gazetted terrestrial conservation areas.

Allowing for internal budget allocations and assistance by donor agencies, Indonesia's conservation area system is currently receiving management expenditure of about US\$ 12 million/year, or US\$ 0.75/ha/year on average from all sources.

Upgrading the average rate of investment in routine reserve management will not fully reflect the fact that a number of major conservation areas are under, mounting pressure, and are only likely to be secured through large, long-term projects aimed at stabilising land use in and around them. These are called 'integrated conservation and development projects' (ICPs), and ICPs for a number of sites are currently being designed by the government of Indonesia with the World Bank and the Asian Development Bank.

Using national experience and international comparisons, financial needs were estimated over a 10-year period for the protected area system (about US\$ 1.9 billion), and for ex situ conservation measures (about US\$ 1.0 billion). Current GoI and donor allocations cover 10-15% of this total requirement of about US\$ 290 million per year.

This will increase to 18-22% of the total need by 1995, if all relevant projects recommended by the *Indonesian Tropical Forestry Action Programme* and the *Biodiversity Action Plan for Indonesia* are implemented in full. Under these circumstances, there will be an unmet need in the mid 1990s for all aspects of biodiversity management of about US\$ 150 million/year for in situ measures and US\$ 80 million/year for ex situ ones, a total additional requirement of about US\$ 230 million/year.

Investment at this level is considered necessary to secure an adequate system of terrestrial, coastal and marine conservation areas, and to store and document adequate samples of Indonesia's wild species and crop germplasm. This should be seen as precondition for any other investment, since these biodiversity assets represent the foundation and the 'raw material' of many other kinds of development. Expenditures on this scale would justify close advance analysis of the institutional arrangements for achieving biodiversity management in Indonesia.

This study concludes that conserving and managing biological diversity is an extremely complex and urgent task. To make progress in this field will demand the evolution of new and finely balanced mechanisms, and these must address a series of inter-related issues. Future work recommended by the study will therefore include studies designed to achieve rapid and significant change in the following areas:

- a) *Institutional improvement in the government sector*, to facilitate coordination and perhaps ultimately to consolidate administrative responsibility for biodiversity management within one competent agency;
- b) *Application of incentives to rural communities and to the private sector*, to clarify and strengthen ownership and usage rights so as to encourage long-term investment in sustainable management of biodiversity;
- c) *Commercialization of biodiversity assets*, to encourage the sustainable capture of wealth from genetic resources (e.g. through biotechnology and ecotourism) so as to rationalize their long-term protection;
- d) *Research, training, and monitoring programmes*, to provide a comprehensive technical ability to understand complex biological systems and to intervene where needed to preserve, protect, manage and develop them in the interest of the Indonesian people and of the world.

Country : Indonesia

Title : **Biodiversity Action Plan for Indonesia**

Year of Publication : 1991

Institutions : Ministry of Population and Environment, Jakarta, Indonesia;
World Bank, Washington, DC, US;
Bogor Agricultural University. Faculty of Forestry, Bogor, Indonesia.

No. of Pages : 92

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1818 H Street NW
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Abstract :

Spanning two unique biogeographic realms (Indomalaya and Australasia) and seven biogeographic regions, Indonesia possesses a wide range of natural habitats and rich plant and animal resources, including hundreds of species which are endemic to individual islands of the country. These habitats and species are now threatened by developments in logging, mining, shifting agriculture, and other land use changes. In fact, much loss of biodiversity is due to economic policies that encourage rapid exploitation, rather than sustainable use, of biological resources. This biodiversity action plan sets out a strategy under four main headings: in situ conservation in terrestrial parks and protected areas; in situ conservation outside the protected area network (production forests, wetlands, agricultural lands); coastal and marine conservation; and ex situ conservation. The plan provides a framework for biodiversity conservation within Indonesia's 25-year development plan, outlining immediate and attainable priorities for conservation action and providing suggestions for further studies on policy and funding mechanisms. The document includes chapters on: the status of Indonesia's biological resources; efforts to protect biodiversity; the plan's objectives and priorities; institutional reform and strengthening; implementation of the plan; and further studies and actions. Extensive annexes contain data on Indonesia's biodiversity, protected areas, and ecological zones, and lists of current and proposed conservation and sustainable development projects.

Country : Malaysia

Title : **An Environmental and Economic Assessment of Forest Management Options: A Case Study in Malaysia**

Author : Kumari, K.

Year of Publication : 1995

Publisher : Environment Department, The World Bank.

No. of Pages : 54

Format : Hard Copy

Available From : Environment Department, The World Bank,
1818 H. Street, N. W. ,
Washington D. C. 20433
Tel: 202-473-3641
Fax: 202-477-0565

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2. The Total Economic Value' Concept and The Valuation of Forests

3. The Study Site

4. Total Economic Valuation at the Study Site under Alternative Management Options

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 - 5.2.1. The National Strategy : implications for Malaysian forest policy and management
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Abstract :

The capacity of natural forests to supply, if properly managed, a perpetual stream of timber and non-timber goods and services has been overlooked virtually everywhere; and Malaysia is no exception. It has been established that one of the most urgent enabling measures for sustainable forest development is the

valuation of the resource, in order to highlight the full extent of benefits that can be provided. The framework for valuation adopted in this study was the total economic valuation (TEV) approach which represents both a pragmatic and consistent approach.

A TEV of the flow of benefits from the forests, under a range of management options was derived for the peat swamp forests of north Selangor. The analysis sought to illustrate what such TEV would mean in the context of the management of a particular forested site. A variety of methods, such as use of market prices (where available), damage cost avoided approach, surrogate/replacement cost approach and production function effect, were adopted to value some key goods and services of that could be appropriated from the forests of the Study site. The results of this case study show that even when local benefits alone are considered it is financially profitable to shift from unsustainable to sustainable options. For the shift to more sustainable options to be actually adopted, however, there is further requirement for new international financial mechanisms. These mechanisms would facilitate the local appropriation of globally provided forest conservation benefits.

The results are significant at both the national and international level. At the national level, a dual strategy must be adopted, one that targets concurrently both the forest and non-forest timber policies. In particular, Peninsular Malaysia must take advantage of its exemplary forest policy and legislation, and take the step towards its practical enforcement. At the international level, the global public good nature of conservation benefits requires that new resource transfer mechanisms are agreed and implemented.

Country : Malaysia

Title : Sabah and Sarawak: Conservation of Biological Diversity

Year of Publication : 1988

Institution : World Conservation Monitoring Centre, Cambridge, UK;

No. of Pages : 21

Format : PDF File

Available From : World Conservation Monitoring Centre
219(c) Huntingdon Road, Cambridge CB3 0DL
United Kingdom
Tel: +44 223 27 7314
Fax: +44 223 277 136
Telex: 817036SCMUG

Abstract :

Sabah and Sarawak, the two Malaysian states which occupy the northern part of Borneo, depend upon their closed forests for a large proportion of both their biological heritage and their income. Sarawak, for example, obtained 31% (\$274 million) of its total revenue from timber export. About 44% (33,280 sq km) of land area in Sabah and 25% (31,716 sq km) in Sarawak is used for timber production. The variety of forest species, particularly in lowland areas, is extensive, as some 40 mango and 135 fig species are found on Borneo, as well as 155 endemic species of dipterocarp trees. In Sabah, plots of 1 hectares have been found to hold as many as 170 tree species. This diversity is being increasingly threatened, however, by human encroachment. Traditional practices of managing forest ecosystems have collapsed as human settlement has expanded. Hunting for sport, for food, to control agricultural pests (e.g., monkeys, orangutans), and to supply medicinal ingredients is pervasive. Timber extraction in 1980 reached approximately 1,000 sq km in Sabah and 1,200 sq km per year in Sarawak. In Sabah, future supplies are being threatened by hasty recutting. Stronger measures to conserve lowland, mangrove, and peat swamp forests are mentioned as key needs. A list of recommended actions, descriptions of all protected areas in the two states, and a 26-item bibliography are included.

Country : Malaysia

Title : Peninsular Malaysia: Conservation of Biological Diversity

Year of Publication : 1988

Institutions : World Conservation Monitoring Centre, Cambridge, UK;
IUCN. Tropical Forest Program, Gland, CH

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Cambridge CB3 0DL
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Fax: +44 223 277 136
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Abstract :

Peninsular Malaysia is a land of impressive natural wealth and beauty. There are some 8,000 flowering plant, 2,600 tree, and 150,000 insect species on the Peninsula. This report focuses on threats to Peninsular Malaysia's natural diversity and its forest ecosystems, particularly those posed by hunting, poaching, logging, and the expansion of agricultural land. Many Malaysians possess firearms, and frequent incursions are made into forest reserves for poaching and log-stealing. Poaching has driven the Sumatran rhinoceros to near extinction (some 10% of pharmacies/clinics in Kuala Lumpur are still selling rhinoceros horn, down from 58% in 1981). The tiger population has dwindled from 3,500 in the early 1950's to about 250 in the mid 1980's, and the seladang (gaur or wild cattle) is also endangered. At present, forested land represents 47% of area in Peninsular Malaysia, 36.1% of which is classified as permanent forest estate, including protective forest (14.4%) and productive forest (21.7%). Land conversion is probably a greater threat than logging, as large tracts of forests are being converted for agricultural use to provide jobs and property to the landless and disadvantaged. Some 8,661 sq km of forests were cleared in this way between 1971 and 1980, with more planned. Deforestation in lowland areas is of particular concern since the greatest concentrations of species occur there. Other subjects discussed include: protected areas, environmental management, and conservation organizations. The document concludes with a list of recommended actions and a 46-item bibliography.

Country	: Mongolia
Title	: Biodiversity Conservation Action Plan for Mongolia
Year of Publication	: 1997
Publisher	: The Ministry for Nature and Environment, Ulaanbaatar, Mongolia
Copyright	: The Ministry for Nature and Environment, Ulaanbaatar, Mongolia
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Available From	: The Ministry for Nature and Environment, Ulaanbaatar, Mongolia
Contents	:

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- 3.2.2. Establish effective population control measures to limit human impact on the nation's biodiversity
- 3.2.3. Implement an effective environmental impact assessment programme to understand the effects of proposed actions on biodiversity
- 3.2.4. Establish a research programme that improves knowledge of biodiversity and relevant threats
- 3.2.5. Establish a nationwide information and monitoring system for biodiversity conservation
- 3.2.6. Establish national education and training programmes for biodiversity conservation
- 3.2.7. Establish a public information programme to improve people's knowledge of biodiversity and the importance of conserving it
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- 4.1. Adopt legislation and policies to ensure the conservation of biological diversity that require the integration of conservation and environmental protection into sustainable development
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- 4.4. Properly value biodiversity in the national accounting system
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Executive Summary :

Biodiversity conservation is one of Mongolia's priority issues. Biodiversity conservation requires more than just the traditional classic way of nature protection, which is important but responds to only part of the need. Conservation must be integrated into development which must be sustainable and compatible with the survival of living nature.

Most of Mongolia's area is still pristine and its biodiversity is relatively little influenced by human activities due to low population density and less developed industry. But, Mongolia has an extreme continental climate, and its ecosystems are rather fragile and sensitive to unnatural pressure from human activities.

To conserve biodiversity the government has been following a policy of protecting ecosystems, threatened species and species of economic importance. To date, this has been done through appropriate management, habitat protection of species such as Snow Leopard and Saiga and some species of plants, and preserving the gene pool of threatened species such as Gobi bear and wild camel by restoring breeding populations. Another important effort is the reintroduction of the Przewalskii Horse, which is extinct in the wild. The government has achieved some positive results. Many remaining issues will be solved through improved enforcement of environmental laws, economic incentives to protect the environment, combining of traditional and modern conservational methods, and increased public concern for biodiversity.

In order to conserve Mongolia's biodiversity, ecological training is required for scientists and decision-makers and certain advanced technologies are needed. This requires much more funding than the Mongolian government or even the entire nation can provide. Therefore, the government, in co-ordination with UNDP, and with the financial support of GEF, developed the Biodiversity Project with the aim of protecting biodiversity. The implementation of its first phase is nearing completion with good success.

This Biodiversity Conservation Action Plan was developed within the framework of Biodiversity Project with assistance from experienced foreign specialists and Mongolian specialists. The Plan's concept was discussed with many representatives from governmental and non-governmental organisations.

Mongolia is a large country with rich and unique biodiversity, but its economic base is small compared to many countries. For example, although Mongolia's territory is three times greater than France's, her per capita GDP, is fifteen times smaller. For this reason and because the Biodiversity Conservation Action Plan is intended to solve both national and Global biodiversity problems, its implementation requires incremental cost support from the GEF. Consequently, the Implementation Phase II, has been developed. But it cannot cover the cost completely. Therefore the establishment of a Trust Fund is needed in order to provide sufficient sustainable support for critically needed actions identified in this document. If the latter projects and planned actions can be implemented, it will not only rescue the regional and global biodiversity from loss by saving the very rare species that are left in Mongolia's territory, but it will affect the restoration of species in neighbouring countries as well. It will provide a possibility to save habitat and species, which will be a great charity for the entire human race. Mongolia's government and the people are willing to make such a contribution. However, appropriate support is needed from the international community.

Country	: Nepal
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- iii. The Convention on Biological Diversity
- iv. The Global Environmental Facility (GEF)
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 - 3.9.4. Natural resource accounting and evaluation of biodiversity

Executive Summary :

The National Biodiversity Action Plan (NBAP) funded by the Global Environmental Facility (GEF), is under national execution by the Ministry of Ministry of Forests and Soil Conservation of His majesty's government, with the support of the Department of National Park and Wildlife Conservation. Recognising His majesty's government has completed an impressive amount of conservation work in the last 25 years whereby Nepal has allocated some 17 percent of its land under a network of protected area system, the preparation of the NBAP included following steps:

- 1) a review of documents to determine Nepal's biodiversity status and policy issues
- 2) five regional workshops representing 75 districts to document district-level stakeholders and their biodiversity issues
- 3) eight national-level technical workshops and
- 4) establishment of Biodiversity information centre with a complete GIS databases on all PAs of Nepal and three comprehensive scientific surveys including ecological monitoring.

All these strategic processes led to the identification of three key groups:

- 1) legal instruments to conserve biodiversity
- 2) components of biodiversity
- 3) gaps in the conservation of biodiversity

The components of biodiversity include: forest, wetland, rangeland, agriculture biodiversity and livestock genetics. In addition, forest biodiversity constitutes protected areas, community forest and non-timber forest products.

To develop a framework with a vision to sustain Nepal's biodiversity, 254 government officials, representatives from 04 NGOs and 25 INGOs, representatives from 75 district-level governing bodies and 9 international experts, were consulted. Certain deficiencies in conserving biodiversity exist, many of which require inter-sectoral cooperation and development of appropriate legal instruments. Establishment of a national coordinating body such as EPC will be fundamental to coordinate and facilitate effective communication amongst the actor and serve wider interest groups from different government agencies, INGOs, NGOs, private sector and grass-roots institutions. The body will function to incorporate international treaty obligations into national biodiversity policy. Thus, NBAP is result of extensive cross-sectoral consultations with all stakeholders.

If the heart of Nepal's biodiversity is forest, then its core is protected areas. To maintain these key locations where surrounding land use patterns tend to change rapidly, not only people participation is needed but also investment as well to safeguard ecosystem integrity. For PAs management, capacity building through collaborative institutional strengthening and human resource development need to be robust. Ecological research will not solve problems connected with conservation, but may show a way toward potential solutions that are not evident now. Therefore, to develop evaluation and monitoring, species assemblage, conservation of endangered and protected species, and conservation priorities with long-term benefits in protected areas, are planned. To sustain biodiversity in community forests, forest user groups who are custodians, need capacity enhancement, which will come through better biodiversity policy, technical support, training and development of sustainable harvest scheme of biodiversity. Similarly, sustainable use of biodiversity through NTFPs has provided livelihood to many rural households and more initiatives are needed on developing national register for plant species, safeguarding harvest benefits to collectors and users, and marketing NTFPs on a sustained-yield basis. Although wetlands in PAs are protected, there is a countrywide need to conserve these vast but fragile resources. To maintain existing wetland biodiversity, development of national wetland policy, comprehensive knowledge on Nepal's wetlands and their human usage and ecosystem contributions, conservation of critical wetland sites, and integrated management planning are the key strategies.

Although Nepal has exemplary conservation initiatives to safeguarded many threatened ecosystems and endangered species, very little has gone into the conservation of rangeland biodiversity, agriculture biodiversity and livestock genetics. In this regard, the NBAP has adequately addressed human contribution to biodiversity in diverse settings. Among others, cross-sectoral programmes on the development of national rangeland policy, conservation of rangeland biodiversity, pastoral development through integrated management planning are much needed.

To conserve agriculture biodiversity, future initiatives should include development of national genetic resources programme, in situ conservation of agriculture biodiversity, and plant genetic resources conservation and utilisation centre. Livestock genetics need to be conserved through programmes on the development of national livestock conservation and breeding policy, conducting survey of livestock genetic resources, implementing indigenous livestock improvement and facilitating ex-situ conservation activities of indigenous livestock breeds.

Gaps in the conservation of biodiversity in Nepal, is not only spatial or temporal but knowing knowledge-related missing links as well. These gaps include conservation of forests with high biodiversity outside the PAs, mountain watershed management, intellectual property rights, and natural resource accounting and evaluation of biodiversity.

The NBAP has 32 prioritised action programs with 89 projects, which may require US\$ 96 million. Although all 32 programmes will be implemented over 15-year time, their developments are prescribed on a 5-year 'building blocks'. Therefore, programmes are categorised into first (year1-5), second (year5-10), and third (year10-15). Many 'first' programmes focus on policy, planning and information gathering. These programmes are of immediate need and the 'second' category programmes should be implemented after the completion of 'first' category programmes. Similarly, for a long-term action programmes, the third category is recommended.

Unlike many other development-related documents, the NBAP does not offer the opportunity to put Nepal onto a fast growth track. The highlights of the NBAP calls for a reassessment of biodiversity management in Nepal and brings out both traditional and new partners including rural communities who have been the custodians of agriculture biodiversity, rangeland and livestock genetics for many hundreds of years. Never in any document about Nepal to-date, have biodiversity conservation been explored comprehensively before. All these corroborate a demand for new collaborative partnership to conserve Nepal's biodiversity.

Country : Nepal

Title : **National Implementation of the Convention on Biological Diversity – Policy and Legislative Requirements**

Authors : Belbase, N., Wells, K., Adhikari, P. and Pandit, S.

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Executive Summary :

Chapter One - Introduction

Relative to its size, Nepal is home to a large proportion of flora and fauna species; however, Nepal's biodiversity is now under threat. Chapter one examines the development of international environmental conventions designed to protect biodiversity to which Nepal is a party, and conventions relating to the protection of natural habitats and national heritage are also surveyed. Chapter one makes clear that the evolution of an international environmental legal and policy conditions and that the challenge for Nepal remains the effective implementation of international environmental law and policy development at the domestic level.

Chapter Two - Legal process for the Ratification and incorporation of treaties in Nepal

Chapter two investigates how international conventions are transformed into Nepali law and discusses the procedure by which a treaty is ratified. The second topic relates to how a treaty, which has been ratified is incorporated into domestic law, where the implementation of treaty obligations may be in the form of legislation or policy measures. Nepal has no uniform approach to the adoption of treaties into municipal law; methods for transforming international treaty norms into internal law are poorly developed in Nepal. But as Chapter Two notes, the Nepal Treaty Act 1991 explicitly provides for the primacy of international treaties over domestic legislation.

Chapter Three - The Convention on Biological Diversity

Here the most important of the environmental conventions which Nepal has ratified, the Convention on Biological Diversity, is scrutinized. The convention's purpose is to preserve flora and fauna for the benefit of humanity and for the sake of the flora and fauna itself. Parties to the convention assert that biodiversity must be conserved and used sustainably for the benefit of present and future generations. In this chapter, the most important clauses of the Convention on Biological Diversity are discussed.

Chapter Four - National Policies and legislation relevant to the Implementation of Convention on Biological Diversity

Chapter Four begins with a look at the general measures being taken in Nepal for the conservation and sustainable use of Nepal's biodiversity. General measures surveyed in this chapter are, the National conservation strategy (VCS); the Government's Eighth Five-year Plan (1992-1997) and Ninth Five-year Plan (1997-2000); and the Nepal environmental Policy and action Plan (NEPAP).

Chapter four points out that all of the above are general policy measures and that no Nepal legislation requires the government to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity. More specific policy and legislative measures relevant to the topics discussed in Chapter Three are also listed. Such measures include identification and monitoring; *ex situ*

conservation; indigenous people's knowledge and practices; environmental impact assessment; minimising adverse effects; access to genetic resources; and financial assistance.

Chapter Five - The Institutional Framework for Implementing the Convention on Biological Diversity

The need for a high-level, multi sectoral body to formulate and implement biodiversity policy in Nepal is discussed in Chapter five. The council for the Conservation of Natural Resources (CCNR), established in 1990 under the auspices of the National Planning Commission is surveyed, as well as the Environmental Protection Council (EPC) which was established in 1992. Chapter five inspects the shortcomings of the EPC as well as its potential to act as an apex body to oversee the implementation of international environmental instruments. The National Biodiversity Unit (NBU) formed by the Ministry of Forest and soil conservation in 1997 is examined, given that its purpose is to facilitate and implement the Biodiversity Convention under the guidance of the national Biodiversity Steering Committee.

Chapter five discusses the role of District Development Committees (DDCs) in decision-making with respect to biodiversity, and suggests that Biodiversity Committees be established in selected districts where the loss of biodiversity is rampant and environmental degradation is severe.

Chapter Six - Conclusions and Recommendations

It is clear that Nepal must undertake various tasks if it is to conserve its rich biodiversity and fulfil its obligations under the Biodiversity Convention. Nepal already does so under articles 8(a) and (b) of the convention, with 17 protected areas and conservation areas which cover over 18% of Nepal's land area.

However, there is still a significant gap between much of the remainder of the convention and its domestic implementation. Nepal's current legislation has not been effectively enforced and further legislation is required. The issue of biodiversity must receive priority consideration at the national level, and the National Biodiversity Action Plan should be finalised as soon as possible. The National Biodiversity Unit (NBU) should serve as the apex body to oversee the implementation of international environmental instruments across all sectoral ministries.

The participation of women at all levels must be promoted. There should be separate sui generis legislation protecting indigenous and local communities' knowledge, practices and innovations; and there must be the appropriate mechanisms in place to ensure the fair and equitable sharing of benefits arising out of the use of Nepalese biological resources.

In conclusion, chapter six contests that priority should be given to the completion of the National Biodiversity Action Plan, and that as a transitional arrangement, legislation to protect endangered flora and fauna should be enacted. Once the National Biodiversity Conservation Action Plan is prepared, separate and comprehensive biodiversity conservation legislation needs to be developed.

Country : Nepal

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Kathmandu, Nepal.
Tel: ++ 977-1-528761, 528781, 526391
Fax: ++ 977-1-536786
Email : iucn@wlink.com.np

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Abstract :

Nepal's geographic and biological diversity including the world's highest mountain system and parts of two of the world's eight biogeographical realms account for the high level of species diversity. It shares 0.1% of the total land area of the world although harbours over 2% of the world's flowering plants including 5% endemic flora. Further, Nepal contributes about 9% birds; over 4% mammals; over 4% butterflies; over 1% amphibians; and about 2% reptiles of the total world's fauna diversities. Biologists believe that these figures would inevitably increase if Nepal explores appropriate methods and technology to comprehend biodiversity.

Need of Biodiversity Assessment Methodology in Nepal evolved with the development of IUCN's Regional Programme in Asia. In late 1993, IUCN led an initiative to enhance capacities in the twelve Tropical Asian countries including Nepal with specific references to the biodiversity status including the progress with the CBD. In 1995, BMZ agreed to support IUCN's such initiative. Following this agreement in 1996, IUCN undertook a study in the region for analysing gaps and opportunities to implement CBD. The policy issues; legal issues; institutional and capacity issues; and financial issues were the major concerns of IUCN's study.

The study identified four major gaps, and absence of biodiversity assessment methodology in Nepal being one of them to help planners, policy makers, researchers and other endeavour to evaluate and monitor biodiversity status, and to prioritise intervention programmes. With this gap identified, IUCN Nepal submitted a proposal on Biodiversity Assessment in 1997 to the Regional Biodiversity Office, Sri Lanka later approved as BMZ project.

The objectives of Biodiversity Assessment Project were to develop assessment criteria to evaluate the status of biodiversity, and to develop guidelines for the assessment of biodiversity.

Country : Nepal

Title : **National Report on Implementation of the Convention on Biological Diversity in Nepal**

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Singhadurbar, Kathmandu

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Singhadurbar, Kathmandu

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Executive Summary :

Nepal signed the Convention on Biological Diversity (CBD) during the earth Summit in June 1992; ratified it in the fall of 1993; and it has entered into force since 21 February 1994. As a party to the Convention, and as per its Article 26, this report has been prepared following the format as suggested in decision II/17.

Nepal, situated in the Central Himalaya, has diverse physiographic zones, climatic contrasts, and altitudinal variations. This provides habitats for biological species of both Indo-Malayan and Palaearctic realms, including endemic Himalayan flora and fauna. Wild species inhabit in about 54 percent of the surface area under some sort of vegetation cover. A total of 18 ecosystems with 75 vegetation types and 35 forest types have been identified in these realms. Phytogeographically, Nepal is also known to contain plant and animal species as found in various floristic sub-regions including Sino-Japanese, Irano-Turanian, central Asiatic and Indo-Malayan floristic regions. In general, central Nepal is considered as a meeting point of several eastern and western species.

Nepal has only about 0.1 percent of the total land mass of the world while it harbours over 2 percent of flowering plants, 3 percent of pteridophytes, and 6 percent of bryophytes of the world's flora. In addition, about 5 percent (246 species) of the total flora reported are endemic which accounts to about 30 percent for whole of the Himalayan regions. Similarly, Nepal possesses over 4.2 and 8.5 percent of the total world's mammals and birds reported so far. Over 400 species of agro-horticultural crops are estimated available in Nepal. Of them, about 50 species have been domesticated for commercial and household consumption. At present, about 8,400 accession of cereals, grain legumes, oil seeds, vegetables, industrial crops and spices crops are stored.

Species conservation has been a part of livelihood of the Nepalese society due to its cultural and socio-economic importance as many of the species have religious value and are the source of food and proteins. Hence, importance of all life forms are clearly understood for environmental management and for their possible use for socio-economic development of the country in line with the intent and spirit of the Convention.

Because of intrinsic values of species, Nepal has given utmost important for *in situ* and *ex situ* conservation of biological species, from the last two and half decades, through the establishment and/or strengthening of protected areas in representative ecological zones. The protected areas network totals about 15 percent of the total area of the country. Eight national parks, four wildlife reserves, one hunting reserve, and three conservation areas are legally protected. Species conservation has been ensured through policy and legal measures and programme implementation with focus on benefit sharing, and empowerment to the local people. The National Conservation Strategy of 1988, Forestry Sector Master Plan 1989, Environmental Policy Action Plan 1993, and Agriculture Perspective Plan 1996 including recent periodical plans are the major guiding policy instruments for preserving wildlife and forests, and agriculture species.

The Constitution of the Kingdom of Nepal 1990 also states the need for conserving rare animal species, the forests and the vegetation of the country. Under this broad framework, the Forest Act, 1993, and the Forest rules 1995, and the National Parks and Wildlife Conservation Act 1973 (with amendments) contain provisions to empower the local people and revenue sharing mechanism which has significantly contributed to biodiversity conservation with people's participation. These instruments are implemented by prioritizing human resources, establishing and/or strengthening institutions, ensuring inter-sectoral coordination, and encouraging and promoting the communities for implementing activities jointly or individually. Various programmes are on going for biodiversity conservation, preventing its further depletion, demonstrating effective approaches through community participation, and encouraging the replication of these approaches, and socio-economic upliftment of the people. To make them effective, reasonable amount of financial resources have been devoted to natural resource management.

Biodiversity is a resource for sustainable use. The goal is to integrate biodiversity conservation with socio-economic development. While the purpose is to institutionalize an effective system for biodiversity conservation through the establishment and/or strengthening of habitats both wild and man-made, sustainable use of biological species for poverty alleviation, and involvement of the private sector and the NGOs for maintaining biological diversity. Within this framework, Nepal is preparing a National Biodiversity Action Plan as a component of the five year GEF-funded Biodiversity Conservation Project in order to streamline its efforts for species conservation. To date major focus areas have been identified: existing initiatives and responsibilities have been analysed; regional and technical workshops have been organised with the participation of different stakeholders; and case studies have been prepared. This plan will be completed by the end of April 1998. The National Biodiversity Action Plan considers sectors that influence the biodiversity, and the biological species that contributes to the development of different sectors will be adequately identified through sectoral analysis and establishment of the inter-linkages amongst the sectors. The Action Plan will reflect the cross-sectoral needs,, refine priorities and develop investment

proposal for implementing effective conservation programmes. The Action Plan will recommend series of actions with emphasis on 5W (why, when, where, who, and how).

In spite of these various policy, legal and programme interventions, some species are either threatened or vulnerable due to habitat loss or change in and outside the protected areas. Some of the current threats to biodiversity are related to loss of habitat or its alteration, over-exploitation of some commercial species, illegal hunting and poaching, over-grazing and fire, and increased commercial trade. In order to address these emerging concerns, community and leasehold forestry has been promoted; benefit sharing mechanism has been institutionalized legally; and an environment trust fund has been operated. Institutions are strengthened, and time-bound projects and annual programmes are implemented considering communities, international and national NGOs as conservation partners. HMG has allocated development budget for the forestry and agriculture sector totaling about US\$ 43 million for all types of activities during the fiscal year 1997/98. It is estimated that about 20 percent of this budget may be used for administering biodiversity conservation.

Realizing the need for more fund to species conservation, a concept proposal for a 25 million US\$ Biodiversity Trust Fund has been developed and submitted to the GEF / World Bank for consideration. Once the Action Plan is in place, details on programmes, budget, schedules, monitoring and evaluation process and indicators will also be in place.

Nepal has successfully launched community forestry programmes all over country, and buffer zone management activities adjacent to the protected areas. Our experience on species conservation and sustainable use has enabled us to re-think that conservation is for the people and the local people are to be involved right from the planning to implementation and monitoring stages. This led Nepal to change its conservation policy from government-managed and protection-oriented regime to community-managed sustainable approach. People's enthusiasm is clearly reflected in this endeavor and this spirit is maintained through policy changes and amendment in the existing legislation in order to empower the local people in resource management, and revenue sharing. This efforts has significantly contributed to increase the number of protected wild animals, germplasm conservation, and resolve the park-people conflicts.

Current initiatives indicate hope for biodiversity conservation, sustainable use and sharing of benefits are stipulated in the objectives of the Convention. Unless species conservation provides a direct benefit to the rural people, it would be very difficult to attain goals of sustainable development. The goal can not be attained in isolation. What is needed is how to encourage and motivate the larger sector of the society in this endeavor.

Country	: Pakistan
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Executive Summary :

With its dramatic geological history, broad latitudinal spread and immense altitudinal range, Pakistan spans a remarkable number of the world's ecological regions. These range from the mangrove forests fringing the Arabian Sea to the spectacular mountain tops where the western Himalayas, Hindu Kush and Karakoram ranges meet. These habitats support a rich variety of species, which contributes to the overall biological diversity, or biodiversity of the country.

Pakistan has a number of the world's rarest animals and plants but these are now in danger from habitat loss and overuse. While people are without doubt a valuable resource a high population growth rate has put ever-increasing pressures on the country's natural resource base. Misguided economic policies have widened income disparities and forced people to exploit biodiversity at rates that are no longer sustainable. As a result, processes such as deforestation, overgrazing, soil erosion, salinity and waterlogging have become major threats to the remaining biodiversity in Pakistan. One stark reminder of the downside in Pakistan's ranking as the country with the second highest rate of deforestation in the world. The continuing loss of this forest habitat with its associated fauna and floras will have serious implications for the nation's other natural ecosystems.

Just as people may be part of the problem, also part of the solutions. The key to protecting the biological heritage of Pakistan lies in the involvement of local people and in the support provided by competent institutions in the conservation and sustainable use of biodiversity. The Government of Pakistan has recognised the importance of these measures in the preparation of the National Conservation Strategy and in becoming signatories to, and ratifying, the Convention on Biological Diversity (CBD) in 1994.

The current Biodiversity Action Plan for Pakistan (BAP) the first attempt to meet the planning requirements of the Convention. It tries to roll into one, the three sequential processes called for under the Convention - the country study, the national strategy, and action plan. As such it provides a brief assessment of the status and trend of the nation's biodiversity (Chapter 2), outlines strategic goals and objectives (Chapter 3), and identifies a plan of action that includes coordination arrangements and implementation measures (Chapters 4, 5, and 6). Preparation of the BAP has been carried out under an agreement between the Government of Pakistan and the World Bank under the Global Environmental Facility, IUCN-The World Conservation Union. Pakistan was selected as the lead agency in collaboration with the World Wide Fund for Nature Pakistan.

The process leading up to preparation of the BAP has involved broad participation from governments, academic and civil society through national and regional-level consultative workshops designed to develop and review the draft document. Additionally, a number of background papers were prepared on sectoral and cross-cutting issues. Periodic supervision of the process was provided by a National Biodiversity Working Group constituted by the Ministry of Environment, Local Government and Rural Development (MELGRD), it consisted largely of government representatives.

The Biodiversity Action Plan for Pakistan is made up of 13 components, which correspond to specific Articles of the CBD: planning and policies; legislation; identification and monitoring; *in-situ* conservation; *ex-situ* conservation; sustainable use; incentive measures; research and training; public education and awareness; environmental impact assessment; access issues; exchange of information; and financial resources. For each component, the issues relevant to Pakistan have been identified and a list of objectives and corresponding actions recommended. Slowing the rate of biodiversity loss in Pakistan will require policy and institutional reform as well as institutional strengthening to better understand the elements of biodiversity and the most effective means for ensuring the conservation and sustainable use of these elements. The Plan calls for greater collaboration between government agencies, local communities and NGOs, and for them to work together as partners in biodiversity conservation.

Overall responsibility for implementation of the BAP will fall on MELGRD, which is also the national focal point for implementing the Convention. The Plan proposes establishing a small Biodiversity Secretariat within MELGRD, using existing resources to coordinate BAP implementation and foster linkages between, and within, different sectors affecting biodiversity. The location and structure of Secretariat should be finalised by the Ministry itself. The Secretariat will report to a Federal Biodiversity Steering Committee and receive technical support from a broad-based, re-notified Biodiversity Working Group. Since most implementation measures will be taken at the provincial level, the Plan also proposes

Provincial Steering Committees be constituted (or merged with those created under provincial conservation strategies).

Finally, the Plan provides an implementation schedule that prioritize actions that could be implemented immediately and at low cost, following government endorsement of the first Biodiversity Action Plan for Pakistan.

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Executive Summary :

This report is Pakistan's first submission to the Conference of the Parties, and describes Pakistan's implementation of the Convention on Biological Diversity.

This report first provides a general description of biological diversity in Pakistan, including descriptions of different habitat types, their present condition, important plant and animal species and their status, and major threats to these habitats and species. The report then goes on to describe Pakistan's Biodiversity Action Plan, and to present an overview of the various strategies, policies, legislation, programmes, and projects initiated before, and as a result of the signing of the Convention.

Although Pakistan is largely arid and semi-arid, the wide geographic, altitudinal, and physiographic variation results in the existence of a large number of distinct terrestrial and aquatic habitats.

Terrestrial habitat types in Pakistan range from permanent snowfields in the mountain ranges, to mangrove forests along the coastline. A number of distinct marine and freshwater habitat types also exist. All these habitat types support diverse plant and animal communities, many of which are now threatened due to human activities.

Pakistan can be divided into 10 agro-ecological zones, each having a different crop production pattern, and varying crop and livestock biological diversity. Many varieties of crops and domestic animals have now been replaced by exotic varieties with higher yields and productivity. A number of institutions are also working on the development of new, modified varieties. There is a need to conserve Pakistan's original agriculture resources to prevent many varieties from disappearing altogether.

The Biodiversity Action Plan (BAP) is Pakistan's first attempt to meet the planning requirements of the CBD. The BAP provides a brief assessment of the status and trends of Pakistan's biodiversity, outlines strategic goals and objectives, and identifies a plan of action that includes coordination arrangements and implementation measures.

The overall goal of the Biodiversity Action Plan is stated as, "to promote the conservation and sustainable use of Pakistan's biodiversity, and the equitable sharing of benefits arising therefrom, for the well being and security of the nation".

The BAP recommendations on measures that need to be taken in planning and policy, legislation, identification and monitoring, *in-situ* conservation, *ex-situ* conservation, sustainable use, incentive measures, research and training, public education and awareness, environmental impact assessment, access issues, exchange of information, and financial resources.

Pakistan's compliance with the Convention of Biological Diversity (CBD) is in two forms:

Strategies, policies, and legislation touching on biodiversity, or dealing with specific components of biodiversity;

Projects through which one or more of the CBD's articles are being implemented.

Most strategies, policies and legislation do not focus on biodiversity conservation, but merely touch on it, or focus on one of its components such as wildlife, forestry, fisheries or agriculture.

A number of biodiversity conservation projects are already in place, although most of these focus on the conservation of terrestrial biodiversity. Very few projects for the conservation of marine, freshwater, agricultural, or genetic biodiversity are being carried out.

Country : **Pakistan**

Title : **Sarhad Provincial Conservation Strategy**

Year of Publication : 1996

Publisher : Sarhad Programme Office, IUCN – Pakistan

Copyright : IUCN - The World Conservation Union

ISBN : 969-8141-18-9

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Format : Hard Copy

Available From : Sarhad Programme Office, IUCN – Pakistan
2, Islamia Road, Cantonment, Peshawar

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Executive Summary :

In the face of worsening environmental problems, several of the principal environment organisations – the United Nations Environment Programme, the World Wide Fund for Nature, and IUCN - The World Conservation Union – proposed and then funded the development of a global strategy for the rational development and conservation of natural resources. Called the world Conservation strategy: Living Resource Conservation for Sustainable Development (WCS), it was launched in 1980. As the logical follow-up to this strategy, and with the help of IUCN, in due course many countries began preparation of national conservation strategies.

In Pakistan, the first Government organisation to receive the WCS was the National council for the Conservation of Wildlife in what was then the Ministry of Food, Agriculture, and Cooperatives in 1983. The council's head, the Inspector General of Forests, asked IUCN to help in the preparation of and National conservation strategy (NCS). Actual work started in 1987, but it took till 1992 for the final document to be approved by the Cabinet. The NCS also formed the basis for the Pakistan National Report to UNCED, the UN Conference on environment and development in Rio de Janeiro.

When the NCS document was completed, IUCN Pakistan – at the request of the Government of Pakistan – held nine workshops throughout the country to explore the potential and opportunities for implementation. Right away, it was clear that NCS implementation at the provincial level would be possible only if the provincial government at the highest level perceived the need for pursuing such a strategy and accepted responsibility for doing so. The North West Frontier Province (NWFP) decided to take the lead and hosted the workshop on the role of provincial institutions in implementation in Peshawar on August 13, 1991. This was followed by a series of meetings with senior officials of the Government of NWFP, culminating in a briefing to the Chief Minister, NWFP, and his colleagues on November 17, 1991. Several ideas emerged during these meetings and these formed the basis for a proposal, which was approved by the Chief Minister in December 1991. The Sarhad Provincial Conservation Strategy (SPCS) could now go ahead.

Initially it was thought that the SPCS would be developed by reviewing available information and filling in gaps using studies by consultants. But it soon became clear that the real virtue of strategic planning for sustainable development was in initiating a public dialogue and creating public ownership of the strategy through awareness and participation. From this emerged the resolve to undertake province-wide public consultation and to develop who had a stake in the issue. These component strategies would then be included under an overarching SPCS.

To this end a Sarhad Provincial Conservation Strategy Inception Report was compiled and released in October 1993. This formed the basis of the extensive consultation process carried out with the general public in cities and villages and with government departments, businessmen, private entrepreneurs, teachers and the NGOs.

The SPCS used two-track approach: while the consultations on the Inception Report proceeded during the two years of the Strategy's finalisation, activities such as preparation of an environmental profile, institution-strengthening, and awareness raising were implemented in parallel.

Out of this emerged the Sarhad Provincial Conservation Strategy, 1995-98, a statement of commitment by the government and people of the NWFP to move forward with an effective programme of sustainable development.

The SPCS is the principal plan for implementing the National Conservation Strategy in the NWFP. It is both a comprehensive statement of provincial aspirations for sustainable development and a commitment package containing major policy statements, law reform initiatives, structural improvements and bold new programmes. With its strong emphasis on changing the administration's operating style, the SPCS will open up government priority-setting to the people in an unprecedented manner.

The SPCS 1995-98 is the first generation of the strategy, which, by design, is innovative, exploratory and time-specific. It will be reviewed in 1998 to coincide with the launch of the Ninth Five-year Plan for Pakistan. By then there will be a far better understanding of the actual efficacy of many of the SPCS processes, systems and policies. It is also likely that certain priorities will have changed, and portions of it may well have become outdated – some would have been implemented while others may be judged unviable.

In a sense then, while the SPCS 1995-98 reflects today's priorities and is as complete as currently possible, it remains a flexible, evolving plan to achieve sustainable development in the NWFP. In this regard the, the SPCS is subject to a legal requirement, set out by the proposed NWFP Environment Act, that the strategy will be done by the Planning, Environment and Development Department of the Government of NWFP, in conjunction with other departments involved in the implementation of the Strategy.

The neglect and abuse of the environment over past decades has come to pose a formidable challenge, and the large number of complex problems cannot be addressed in a short period of time. This is partly because the NWFP is a resource-deficient province, and donors are unlikely to fund all that must be done. The SPCS has, therefore, adopted a prioritised agenda for implementation, in which it concentrates initially on activities, which can bring about the greatest improvements for the smallest investments.

Country : Pakistan

Title : Biodiversity Guide to Pakistan

Year of Publication : 1991

Institutions : IUCN – The World Conservation Union
World Conservation Monitoring Centre, Cambridge, UK;

No. of Pages : 32

Format : PDF File

Available From : U.S. Agency for International Development
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and
World Conservation Monitoring Centre
219(c) Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel: +44 223 27 7314
Fax: +44 223 277 136
Telex: 817036SCMUG
Order No.: WRI-175

Abstract :

Pakistan is largely arid and semi-arid, but the country's wide geographical and altitudinal range has contributed to a diversity of flora and fauna. Highlights include three ecosystems -- juniper forest, the Chagai desert, and the Indus riverine zone -- which contain unique biotic communities and endemic elements. Following background information on geography, climate, and population, this report provides a description of Pakistan's biodiversity in terms of ecological zones, critical ecosystems, flora, mammals, birds, reptiles, amphibians, fish, invertebrates, and agricultural biodiversity. The next section analyzes the country's protected area system, which, while extensive, should be enlarged to ensure that adequate examples of all ecosystems are represented. The report then identifies the major threats to biodiversity, which include deforestation, grazing, soil erosion and desertification, dams and irrigation, salinization and water logging, water pollution, hunting, fishing, and agricultural practices. A final section summarizes efforts to conserve Pakistan's biodiversity through legislation and policy, government departments, research and training, nongovernmental organizations, current projects, and international and regional cooperation. Includes references.

Country : Philippines

Title : The First Philippine National Report to the Convention on Biological Diversity

Year of Publication : 1998

Publisher : Protected Areas and Wildlife Bureau

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Department of Environment and Natural Resources
Quezon Avenue, Diliman, Quezon City
Philippines

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Executive Summary :

The Philippine is a tropical archipelago of 7,100 islands located off the southeastern coast of mainland Asia. The land area is approximately 299,404 square km while the territorial waters cover around 2,200 square km.

The Philippine coastal zone covers 11,000 square km of land and 267,000 square km of coastal waters. The country's marine territorial waters cover approximately 2.2. million square km (the extent of the Philippine Exclusive Economic Zone), about 90 percent of which are oceanic waters.

The population of the Philippine was 69 million in 1995. Growth rate estimated at 2.4. percent per year, is one of the fastest in Asia. If this trend continues, the Philippine population is likely to reach 78 million at the turn of century and tripling may occur in a span of four decades.

The Philippine landscape and waterscape is characterised by a complex mix of ecosystem and habitat types. The combination of factors that have been responsible for this include:

- a) the varying exposures to the shifting winds and typhoons;
- b) great heights of numerous;
- c) the peculiar distribution of rainfall, which is conditioned by the aforementioned two factors; and

- d) the Kuro-Siwo or Japanese current, which are warm equatorial, waters flowing northward along the eastern coast of the country.

Many of the islands comprising the Philippine archipelago are believed to have a very high degree of endemism; about 67% of the species among the major groups of animals and plants occur nowhere else in the world.

Threats to Biodiversity

Biodiversity loss in the Philippines stem from causes classified into four broad categories namely: habitat destruction and loss, overexploitation, chemical or environmental pollution, and biological pollution.

The National Strategy for Biodiversity Conservation

Executive Order 1992 mandated the Department of Environment and Natural resource (DENR) to formulate a conservation strategy for the Philippine. Pursuant to this, the DENR formulated the Philippine strategy for sustainable Development (PSSD). The PSSD aims to achieve economic growth without depleting the stock of natural resources and degrading the quality of the environment. In 1989, the PSSD was endorsed by then president Corazon Aquino and subsequently approved by the cabinet as the country's basic response to environment and development issues.

The conservation of biodiversity is among the ten major strategies in the PSSD. This was a major consideration when the Philippines signed the Convention on Biological Diversity at the Earth Summit in Rio de Janeiro in 1992. That same year, newly elected president Fidel V. Ramos created the Philippine Council for Sustainable Development (PCSD) with a Subcommittee on Biodiversity chaired by the protected Areas and Wildlife Bureau.

In 1994 the Subcommittee embarked on formulating the Philippine strategy for Biological Diversity Conservation (PSBDC). The PSBDC became the basis for the preparation of the Biodiversity Country Study, which was started in 1995 with funding support from UNEP. This country study provided the primary basis for the formulation of the national Biodiversity strategy and Action Plan (NBSAP) that was submitted to the President through the PCSD, and was approved in June 1997.

The Philippine NBSAP was formulated through a participatory process. The overall coordinating unit in the NBSAP preparation was lodged in the Protected Areas and Wildlife Bureau (PAWB) of the DENR. A multi-disciplinary team of national experts provided technical inputs that went through a series of multi-sectoral consultative forums. UNEP's Ten Guiding Principles for Biodiversity Planning guided the process prescribing an adaptive, cyclical and participatory undertaking. The final iteration came up with defined goals and objectives that are enumerated below.

The goals;

1. Conservation of biodiversity through improved knowledge and management systems, research and development, better information available, and institutional support mechanisms;
2. Sustainable use of biodiversity; and
3. Equitable sharing of the benefits of biodiversity

The Objectives of the NBSAP are:

1. Collaborative application of conservation strategies and management approaches;
2. Formulation of policies for the conservation, sustainable use, and equitable sharing of biodiversity;
3. Integration of biodiversity conservation strategies in development planning;
4. Practice of conservation ethics for biodiversity;
5. Multi-sectoral participation in biodiversity conservation; and
6. Fulfillment of the country's obligations to the various international agreements on the conservation of biodiversity

The framework of the NBSAP is anchored on the symbiotic relationship between man and the components of biodiversity and the need to keep this in equilibrium in order to achieve sustainability. The formulated strategies, programmes and projects that make up the action plan are focused on achieving balance sought by the established framework and the human interaction with biodiversity.

Country : Philippines

Title : **Philippine Biodiversity: An Assessment and Plan of Action**

Year of Publication : 1997

Publisher : Department of Environment and Natural Resources (DENR),

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Executive Summary :

Background

In fulfillment of its obligations as one of the contracting parties to the Convention on Biological Diversity signed by 154 nations at the UN Conference on Environment and Development in Rio de Janeiro in June 1992, the Philippines undertook an assessment of its biodiversity through a grant from the United Nations Environment Programme (UNEP) to the implementing agency, the Department of Environment and Natural Resources (DENR). Based on this comprehensive assessment of the current status of the country's biodiversity, the problems, threats, issues, and gaps were identified. These formed the basis for a national strategy and action plan, whose goals are the conservation, sustainable utilisation, and equitable sharing of the benefits of biodiversity by all Filipinos, present and future.

Biodiversity Inventory

To facilitate the assessment of country's biodiversity, five biodiversity sectors were recognised: four ecosystems, namely forest, wetlands, marine and agricultural, and a special area of concern, the protected areas.

Floral Diversity in Philippine Forests

The flora of the Philippines is composed of at least 13,500 species, which represent five percent of the world's flora. The ferns and fern allies, gymnosperms and angiosperms constitute 22.5% of the Malaysian and 3.88% of the world's vascular flora.

Twenty-five genera of plants are endemic to the Philippines. Among these are the Rubiaceae family (four genera), the Asclepiadaceae and Orchidaceae (three each), the Melastomataceae, Loranthaceae, Zingiberaceae, and Sapindaceae (two each) and Compositae, Euphorbiaceae, Leguminosae, Rutaceae and Urticaceae (one each), and two endemic fern genera. Nineteen of these are monotypic.

Among the flowering plant families, the Orchidaceae, Rubiaceae, Euphorbiaceae, Myrtaceae and Moraceae have the greatest number of indigenous and endemic species, while Graminae, Liliaceae, Ulmaceae, Leguminosae, and Rutaceae have lower endemism.

The gymnosperms are poorly represented with only 33 species and 18% endemism, while there are 1,011 species of ferns and fern allies with 30% endemism. Recorded are about 506 species of mosses with 23% endemism. Liverworts and hornworts number to 518 species, while more than 700 species of fungi and 790 species of lichens are on record. A further 5–8% of the country's flora are believed to be still unidentified.

Faunal Diversity in Philippine Forests

An estimated 1,084 species of terrestrial vertebrates are found in Philippine Forests, of which 45% are endemic. Of these, 179 species are mammals with 61% endemism, 15 of which are still in the process of being named. There are 558 species of birds recorded in the country with 31% endemism, 38% of which are confined to single islands. About 71% are known to breed in a diversity of habitats from beach to montane forest but there is no breeding information on 40% of these breeding species. There are 522 species of

reptiles with 63% endemism. There are four major subgroups of reptiles: the lizards (126 species, 75% endemism), snakes (112 species, 54% endemism), turtles (10 species, 10% endemism), and crocodiles (two species, 50% endemism). A total of 96 amphibian species are recognised taxonomically in the country with 53% endemism. Most are also single-island endemics. Of these, four were introduced species in the country, namely: the Marine Toad (*Bufo marinus*), the American Bullfrog (*Rana catesbeiana*), the Leopard Frog (*R. tigrina*), and the Taiwanese Frog (*R. rugolosa*). The Marine Toad was introduced in the 1930s to control sugarcane beetle infestation while the last three were introduced for breeding and export as food. These species have escaped from captivity and are now widespread throughout the country. Their impact on indigenous species and the ecosystem, in general, are unknown.

The number of species of millipedes and centipedes is 54 and 44, respectively, while more than 20,000 species of insects have been identified. However, only the lacewings, fleas, caddisflies, two-winged flies, and butterfly species have been fully inventoried.

There are 341 species of spiders found in rice and non-rice habitats, which is less than two percent of the world's total. However many more species remain to be discovered and identified, since more than 75% of these are new to science and live on habitats that have not been fully explored.

So far, 2,782 species of mollusks have been identified in all of the country's ecosystems. However the level of endemism is undetermined but estimated to range from high to very high.

The level of endemism of invertebrates is generally poorly known but is suspected to be high. Endemism ranged from 44% to 87% with a mean of 64% for the six insect orders inventoried.

Eighty six species of birds found in the country are under various forms of threats, from being vulnerable to being extinct in the wild. Of these, 45 species are either extinct in the wild, critical, or endangered. Forty of the 45 aforementioned species are endemic, which makes the Philippines the number one country in the world in terms of number of threatened endemic species of birds.

In contrast, 30 species of terrestrial mammals are classified under various threat categories, from being rare to being endangered, while only two species of amphibians and three species of reptiles in Philippine forests are classified under various threat categories. This number is definitely a conservative estimate as little information about these three groups, as a whole, is known.

The most threatened endemic mammal is the Tamaraw *Bubalus mindorensis*, while the most threatened endemic bird is the Philippine Eagle *Pithecophaga jefferyi*. Both species are estimated to have a wild population of less than 200 each. Both are also the subjects of captive breeding studies with very limited success.

Diversity in Wetlands

Philippines wetlands are endowed with a rich diversity of flora (1,616 species) and fauna (3,308 species). These consist of algae (1,177 species), aquatic macrophytes (439 species), mollusks (728 species), insects (1,764 species), other arthropods (498 species), fishes (208 species), and waterfowls (110 species). These species represent the dominant components of the complex food webs that have evolved in the different wetland types. Sponges, cnidarians, free-living flatworms, annelids, and nudibranchs were not included in these inventories.

Diversity in Marine Ecosystems

At least 4,951 species of marine plants and animals are found in Philippine coastal and marine habitats. Fishes, non-coral invertebrates and seaweeds constitute the greatest numbers. One thousand three hundred ninety six species (1,396) or 28% are economically important, 403 or 10% are flagship species, while 145 species or 2.4% are under threat. Fifteen species are listed as endangered. Sixteen species or 0.3% of the fishes are endemic, while 123 or 2.2% are known indicators of environmental conditions.

Coral reefs are by far the most diverse or species rich with 3,967 species. Seagrass beds follow with 481 species and then mangroves with 370 species. Soft bottom communities have the lowest recorded species richness with 70 species. The 381 coral species and 1,030 species of fish recorded in Philippine coral reefs ranks the country second to the Great Barrier Reef in coral and coral reef fish diversity. The 16 taxa of seagrasses recorded in the Philippines gives the country the second highest seagrass species richness in the world.

Diversity in Agriculture

A total of 1,210 species of plants are relevant to agriculture with a variety of uses and values. Some have food values (477 species), feed values (363 species), medicinal/herbal values (627 species), and ornamental values (201 species). In addition, 35 species are considered as fibre crops while an undetermined number have industrial importance.

The National Plant Germplasm Resources Laboratory (NPGRL) in UP Los Baños, as of December 1994, maintains a total of 32,446 accessions of 396 species, while the Philippine Rice Research Institute (PHILRICE), as of 1992, maintains 12 species of wild rice from the International Rice Research Institute (IRRI) germplasm centre and from its collections in the different parts of the country. The germplasm collection of the National Tobacco Authority (NTA) has increased to 448 accessions in 1995.

The Bureau of Plant Industry (BPI) reported that between 1980 and 1991, there was a substantial decrease in the population of 61 economically important crops such as coconut, coffee, fibre crops particularly abaca, kenaf, piña and ramie, and mulberry while banana, cacao, rubber, and ipil-ipil dramatically increased in population. On the other hand, the domestic animal population in 1991 totaled 2,766,000 carabaos, 1,991,000 cattle, 286,000 horses, 7,479,000 hogs, 2,403, goats, and 56,000 other domesticated species. Aggregate poultry population, which includes chicken, ducks, quails, geese, turkeys, and pigeons, totals 101,235,000 heads. Only carabaos showed a substantial decrease in numbers.

Species and Ecosystem Diversity in Protected Areas

There are 290 sites all over the country that are classified under various categories of protected areas status such as National Parks, National Marine Parks and National Marine Reserves (67), Game Refuge and Bird sanctuaries (8), Wilderness Areas (16), Watershed Areas (85), Mangrove Swamp Forest Reserves (27), Tourist Zones and Marine Reserves (56) and others (35). Ten of these sites have been identified as the priority sites for the implementation of Republic Act 7586 or the National Integrated Protected Areas System (NIPAS) Law. These include: the Batanes Protected Landscapes and Seascapes (BPLS), Northern Sierra Madre Natural Park (NSMNP), Subic-Bataan Natural Park (SBNP), Apo reef Marine Natural Park (ARMNP), Mt. Canlaon Natural Park (MCNP), Turtle Island Marine Natural Park (TIMNP), Mt. Kitanglad Natural Park (MKNP), Mt. Apo Natural Park (MANP), Siargao Island Wildlife Sanctuary (SIWS), and the Agusan Marsh Wildlife Sanctuary (AMWS). These ten sites were chosen because of the high level of species and ecosystem diversity and endemism in some (e.g. MANP, MKNP, NSMNP), unique ecosystems in others (e.g. NSMNP, TIMNP, BPLS), and ecological roles and importance (e.g. AMWS, SIWS, NSMNP) or a combination of these values (e.g. NSMNP, SIWS, MKNP).

Rates of Change

The comprehensive assessment of the country's biodiversity shows an impressive record in terms of species diversity and endemism. But this does not reflect the extent of biodiversity loss that has occurred in the last decade or so in the different ecosystems of the country. Depending on when the inventory was conducted, the current species diversity may reflect either the current level or the remnant of a much richer diversity in the past. A third scenario could assume that more species remain unexplored /undiscovered and could constitute even twice the currently known number. If the last scenario reflects the real situation, then it is a race against time to understand the actual extent of existing biodiversity as part of our natural heritage before it disappears due to the rapidly expanding population and its concomitant overexploitation of resources that brings about a negative chain of reactions, e.g. tenurial problems, denudation of ecosystem and watershed areas, soil erosion, siltation, organic and chemical pollution, eutrophication, mangrove conversion, breakdown in food chain checks and balances. In many instances, the extent of habitat loss will provide a good measure of biodiversity loss.

To illustrate, the forest cover in the country has been reduced from more than 50 percent to less than 24 percent over a 40 year period (1948-1987); only about 5% of the country's coral reefs remains in excellent condition, 30-50 % of its seagrass beds in the last 50 years, and about 80% of its mangrove areas in the last 75 years, have been lost. It has been estimated that about 50% of national parks are no longer biologically important.

Problems and Threats

Biodiversity loss in the Philippines stems from four broad categories:

- (1) Habitat destruction
- (2) Overexploitation

- (3) Chemical or environmental pollution and
- (4) Biological pollution

Habitat destruction

Habitat destruction and loss can be traced to anthropogenic and nature-wrought causes. Anthropogenic activities include destructive and sustainable practices such as (1) logging, (2) fires, (3) land conversion, (4) siltation, (5) destructive fishing methods, and (6) encroachment and occupancy in protected areas.

Nature-wrought destructions are due to natural calamities like volcanic eruptions, earthquakes, typhoons, and pests and diseases. The Mt. Pinatubo volcanic eruption has resulted in the loss of undetermined vital components of the tropical forest and marine waters of the Subic-Bataan National Park. It also resulted in the destruction of vast farmlands by its volcanic lava and subsequent lahar flows. Furthermore, agroecosystems that lie along typhoon paths suffer significant destruction annually.

Overexploitation

Population pressure, poverty and paucity of livelihood opportunities, dearth of values, and the “open access” nature of many bioresources all contribute to the overexploitation and non-sustainable use of the country’s biodiversity.

In forests, commercial timber species (e.g. dipterocarps, kamagong, narra) as well as non-timber species (e.g. orchids, ferns, rattan, insects, birds, mammals) and animal products (e.g. birds’ nests, guano), are overharvested. Mangrove timber are overharvested for fuelwood, animals for trade (waterfowls, reptiles) and fish and shellfish for food. In the marine ecosystem, commercially important species, notably tuna, shellfish and other edible species are overharvested. Agricultural ecosystems are hard pressed to yield greater harvest to feed the teeming population. Protected areas are not spread the onslaught of overexploitation from the greedy hands of man because of economic realities.

Chemical (environmental) pollution

Pollutants overwhelm our ecosystems and overtax the dispersal and self-cleaning capacity of our atmosphere, water bodies and land.

Forest ecosystems, in general, are less subjected to chemical pollution compared to other ecosystems with exception of chemical defoliant usage. It is the wetland ecosystems that take much toll from chemical wastes from mine tailings, hazardous wastes from industrial plants, factory discharges, agricultural fertilizer and pesticide run-offs, and even household wastes. Marine ecosystems are subject to the same chemical pollutants as wetlands but they are less vulnerable because of their great expanse. Oil slicks, however, inflict serious harm to marine habitats and their biota. Agricultural ecosystems are poisoned by intensive fertilizer and pesticide applications. Even useful non-pests and humans, as well, are threatened by this inappropriate farming method.

Biological pollution (Species level)

By and large, the successful introduction of exotic species occurred in wetland ecosystems, particularly in lakes and rivers, and has been at the expense of the endemic and indigenous species either directly through predation, competition, and hybridization or indirectly through parasites and habitat alteration. For instance, the original fish population of Caliraya Lake has disappeared with the introduction of the Black Bass *Micropterus salmoides*.

Weak Institutional and Legal Capacities

Major drawbacks in biodiversity conservation and sustainable use include (i) inappropriate, overlapping, conflicting and obsolete policies and institutions, (ii) shortage of technical experts, (ii) shortage of funds, (iv) weak information, education, and communication capacities, (v) inadequate policy mechanisms, and (vi) poor integration of research and development activities.

Strategy and Action Plan

In view of the problems and concerns, which constantly threaten the future of the country’s biodiversity and in consonance with the Convention on Biological Diversity’s objectives of conservation, sustainable use, and equitable sharing of the benefits of the country’s biodiversity, a National Biodiversity Strategy and Action Plan with modular programmes and projects and corresponding resource requirements was formulated.

Six strategies and action plans were developed, anchored on the framework of man being the centre of ecosystems and resource interaction and the need to balance the utilization driven policy which entails modification of biodiversity for human needs with the conservation driven policy for maintaining natural biodiversity. These strategies and their respective thrusts are as follows:

- (I) Expanding and improving knowledge on the characteristics, uses, and values of biological diversity
- (II) Enhancing and integrating existing and planned biodiversity conservation efforts with emphasis on *in-situ* activities
- (III) Formulating an integrated policy and legislative framework for the conservation, sustainable use and equitable sharing of the benefits of biological diversity
- (IV) Strengthening capacities for integrating institutionalising biodiversity conservation and management
- (V) Mobilising an integrated information, education and communication (IEC) system for biodiversity conservation, and
- (VI) Advocating stronger international cooperation on biodiversity conservation and management

Strategy I has three thrusts:

- (1) Augmenting knowledge of species and ecosystem diversity
- (2) Estimating current uses and values of biological diversity, and
- (3) Underscoring the need to hedge for the future

The generation, expansion and updating of information on the extent of biological wealth is a basic requirement for biodiversity conservation and management planning. The need to characterise species in terms of conservation status, e.g. extinct, threatened, vulnerable, etc., is urgent for prioritising conservation efforts. To maximise use, knowledge generated should be made accessible. Furthermore, the conventional valuation of the production of biological resources fails to account for depletion and loss of species, degradation of ecosystems, and loss of biological diversity. In most cases, highly valued biological resources are limited to the economically important or those that sustain human life. But from an ecological perspective, every species has an ecological niche that is necessary in sustaining other lifeforms. The lack of information on the ecological linkages among species or ecosystems, and hence, their monetary equivalents result in undervaluation and their subsequent degradation.

To some indigenous communities, some biological resources or sites are sacred and a source of cultural identity. This type of value attached to a resource contributes to its preservation or sustainable use. More fundamentally, local communities and especially indigenous people have a rich repository of knowledge and practices about the natural environment that contributes to biodiversity conservation. Many of these communities occupy territories, particularly forest areas, that harbour a variety of species. The cultural and spiritual values attached to biological resources by indigenous peoples constitute a part of the worth of these resources.

Wildlife forms have been the sources of genes, chemicals, and elements to produce desirable attributes in plants and animals, to concoct drugs and medicines, and to develop products of commercial importance. The value of any living species may be accurately reflected not only in its current use but in its potential use as well.

The strategy contains three major programmes, namely Biodiversity Inventory, Ecosystems Mapping and Data Validation, and Socio-Economic Studies.

The Biodiversity Inventory aims to fill the data gap concerning lack of baseline information, some of which are outdated (e.g. flora and fauna) while in the others data available are insufficient (e.g. microbial diversity). Sixteen projects are proposed that run across the five biodiversity sectors.

Five projects are identified under the Ecosystems Mapping and Data Validation Programme which aims to address a major data gap in biodiversity conservation work, i.e. the lack of accurate, updated, and ground-truthed maps of where the country's biodiversity are located.

The Socio-Economic Studies Programme has five major projects. One aims to document and incorporate indigenous knowledge systems and practices on biodiversity conservation and sustainable development, while another project aims to do a valuation and accounting of direct and indirect goods and services from

biodiversity and bioresources. The three remaining projects focus on demography and marine resources valuation.

Strategy II has three thrusts, namely: (1) Evaluating on-going and identifying *in-situ* biodiversity conservation and management approaches, (2) consolidating research and development programmes for *ex-situ* and *in-situ* conservation of biodiversity, and (3) Institutionalising a nationwide network of conservation centres.

Various *in-situ* and *ex-situ* and conservation programmes are being undertaken, even while new ones are being proposed and planned. The effectiveness of these programmes in conserving biodiversity needs to be evaluated in terms of the preservation, restoration and expansion of habitats, enhancement of the survival of target species, reduction or elimination of the threats to habitat destruction and species loss, among others. Other potential management approaches (e.g. indigenous management practices, ecotourism, and other community-based approaches) in *in-situ* and *ex-situ* conservation need to be investigated and incorporated into biodiversity planning. Other areas of research and development badly needed are those on interhabitat connectivity. By consolidating these activities, more focused and rigorous research development programmes can be pursued.

There are two major programmes under this strategy: The *In-situ* Conservation Programme and the *Ex-situ* Conservation Programme. Under the *In-situ* Conservation Programme, the protection of habitats is deemed as the most effective way of conserving biodiversity, while rehabilitation and enhancement of damaged and critical habitats are equally important.

The *Ex-situ* Conservation Programme is premised on the following principle: *ex-situ* conservation will be undertaken only as a last resort and only to complement *in-situ* conservation efforts. Four projects are proposed.

There are two thrusts under Strategy III, namely: (1) Aligning policies governing the utilisation of biological diversity by pursuing a systematic policy evaluation, and (2) Devising policies that promote proper, sustainable, and equitable utilisation of biological diversity.

Policy makers and law makers should influence/force resource users to act in consonance with the limits of biological resource generation, and indirect users to properly account for the consequences of their activities on the resources and the environment. Environmental and ecological considerations should not take back seat in favour of development initiatives. Preferential access by indigenous peoples and marginalised users should be explicit and incorporated as a component of resource utilisation policies.

Projects proposed under strategy III are: (1) the Codification of Laws Related to Biodiversity; (2) the Development of a Realistic System of Access Fees, Incentives and Penalties for the Utilisation of Biological Resources and Biodiversity; (3) the Identification, Delineation, and Management of Ancestral Domain.

Three proposed activities are also proposed under Strategy III. One activity is on Policy Advocacy, while another is on the Formulation of Guidelines on Land Use Planning and Biodiversity Conservation and Integration thereof in the Plans of Concerned Agencies. A third activity is in the Assessment of Protected Areas under the Initial Components of NIPAS.

Strategy IV has two thrusts, namely: (1) Integrating the planning, implementation, evaluation and monitoring of biodiversity conservation and management in government and non-governmental sectors, and (2) strengthening human resource capability in biodiversity conservation management.

Two programmes are proposed. These are the Institutional Capacity Building programme and the Human Resources Development Programme.

The Institutional Capacity Building Programme aims to identify the required functions of government and non-government institutions in biodiversity conservation and management. An assessment of current capacities of these institutions in carrying out such functions shall be done. Areas of weakness will be addressed by projects and activities specified in this programme. Three projects and two activities are identified, the most important of which is the creation of a Philippine Biodiversity Centre. Two corollary activities are included in this project. One is the establishment of the Philippine Marine Biodiversity

Conservation Committee (PMBCC) while another activity is the expansion of the membership of the subcommittee on biodiversity of the Philippine Council for Sustainable Development.

The Human Resource Development Programme has two projects: one aims to develop the technical capacity in Biodiversity Conservation Planning in the private sector and the other in the government sector.

One principal root cause of environmental degradation is incomplete appreciation of the environment and its biodiversity resources because of the highly “instrumentalised” educational system that deprives students of the opportunity to directly interact with the environment and biodiversity resources. Thus, there is a need to establish a curriculum drafting committee tasked to formulate curricula and develop courses that incorporate biodiversity conservation concerns in secondary and tertiary levels, validate the incorporation of these into existing education programmes and pilot test the curriculum in selected schools.

There are four thrusts under Strategy V, namely: (1) Increasing access to update biodiversity information and database systems, (2) Institutionalising community-based biodiversity conservation education and research, (3) Harnessing traditional and alternative media to increase public awareness and support for biodiversity conservation, and (4) Encouraging and sustaining advocacy for biodiversity conservation.

Three programmes are proposed under this strategy. These are the Biodiversity Conservation Awareness and Information for Local Communities Programme, Community-based Biodiversity Conservation Education and Research Programme, and the Value Added Products and Alternative Sustainable Livelihood Development for Bioresources Dependent Communities Programme.

Three projects are identified under the Biodiversity Conservation Awareness and Information for Local Communities Programme, which aims to build up people’s appreciation of the values, attributes, and conservation approaches to biodiversity resources at the community level to ensure people’s participation.

Three projects are identified in the Community-based Biodiversity Conservation Education and Research Programme, which aims to ensure consistency and sustainability in the dissemination, promotion and implementation of relevant national policies and programmes with truly grassroots participation.

Only one project is included under the Value Added Products and Alternative Sustainable Livelihood Development for Bioresources Dependent Communities Programme, which aims to help local communities inhabiting biodiversity rich areas find and learn alternative sustainable livelihood and teach them skills to develop value-added products such as commercial processing of wild fruits to produce various types of jams so they have incentives to maintain and protect the natural vegetation. A “menu” of options of proven successful livelihood activities will be offered with due consideration of traditional indigenous knowledge systems.

Three thrusts have been identified for Strategy VI. These are: (1) Operationalising specific country commitments made under the Convention on Biological Diversity and other similar agreements, (2) Creating institutions to oversee the international coordinated implementation of the Convention on Biological Diversity, and (3) strengthening linkages of local non-government organisations with international counterparts for biodiversity conservation.

To fulfill our international commitments, programmes and projects have to be developed and implemented, which the Subcommittee on Biodiversity under the Philippine Council for Sustainable Development is mandated to coordinate and oversee. However, the effectiveness of the subcommittee to fulfill its mandate is hampered by limited membership and insufficient and transient staff. There is a need to expand the membership of the subcommittee to include other stakeholders and the addition of permanent support staff. There is a need for an institutional framework to oversee the implementation of international agreements that will conserve biodiversity in a coordinated manner. An example is the proposal to establish an ASEAN Regional Center for Biodiversity Conservation to be hosted by the Philippines. At the 1992 Earth Summit in Rio de Janeiro, the International NGO Forum (INGOF) was organised by Philippine NGOs by the holding of parallel talks among NGOs from all over the world. These linkages should be enhanced to promote inter-country people-to-people contact and cooperation for biodiversity conservation. The centre will serve as the central coordinating body of ASEAN member countries on studies related to the conservation of biodiversity, formulation and implementation of action plans for such, generation of ecological database and information, and the conduct of research and development, training and extension, and consultancy and advisory services.

Country : Philippines

Title : Sustainable Natural Resources Assessment: Philippines

Authors : Clark, J. R., Fargher, J.D., *et al.*

Year of Publication : 1989

Publisher(s) : Dames and Moore;
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Abstract :

The Philippines' natural resource base has become so depleted and degraded that the country will undoubtedly suffer serious economic decline if corrective actions are not taken soon. Population size and growth rate and the lack of demonstrated capacity to protect terrestrial and aquatic ecosystems are the key constraints on natural resources management, particularly with respect to biodiversity. The sequence of rampant timber overcutting followed by slash-and-burn shifting and settled agriculture is transforming much of the uplands into degraded landscapes. Abusive consumption of the mangroves and coral reefs is further diminishing species diversity and ecological stability in the coastal zones. Compounding these negative impacts is an almost total transfiguration of the lowlands into monocrop agriculture, pasture, industry, and urban uses. This comprehensive study assesses the status of the Philippines' resources, focusing on four major subsectors -- forestry, agriculture, coastal resources (fisheries, mangroves), and general biodiversity. Attention is also given to institutional issues, the roles of nongovernmental organizations and the private sector, macroeconomic and sectoral policies, and research and information needs. Recommendations address the following key areas: preserving/rehabilitating old growth forest, a coastal zone master plan; land tenure; upland agriculture support services; training; community organizing; policy analysis; and establishment of a center for biodiversity. Includes references.

Country : Philippines

Title : Philippines Conservation of Biological Diversity and Forest Ecosystems

Year of Publication : 1988

Institutions : World Conservation Monitoring Centre, Cambridge, UK;
IUCN - The World Conservation Union - Tropical Forest Program, Gland, CH

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219(c) Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel: +44 223 27 7314
Fax: +44 223 277 136
Telex: 817036SCMUG

Abstract :

Equatorial temperatures, high annual rainfall, and mountainous topography make the Philippines a suitable home to a variety of plant and animal species. Some 8,000 flowering plant varieties are found in the Philippines, as well as a sizable number of bird and lizard species. This report profiles the natural resources of the Philippine archipelago and highlights the continued destruction of forested areas. The report identifies six major types of forest: (1) mixed dipterocarp; (2) tropical montane; (3) mossy (subalpine); (4) pine; (5) molave; (6) and mangrove. None of the 60 national protected areas (covering 1.3% of the country's land area) in the Philippines would meet international standards set by the International Union for Conservation of Nature and Natural Resources. In 1975, it was reported that 72,000 people were permanently settled on park lands, while 54,000 hectares of this land were under cultivation and 4,000 sq hectares were being logged illegally by timber companies. According to the report, poor resource management and an emphasis on short-term economic gain have hindered environmental protection. Hydroelectric and mining development have resulted in substantial destruction of rain catchment areas. In the Agno River Basin alone, mine prop logging has caused severe erosion in 30% of the watershed. Forest protection ordinances have been weakened by poor enforcement, and illegal timber smuggling continues to be a problem. In 1981, it was estimated that over 1 million cu m of timber was smuggled to Japan. Other topics discussed in the report include, inter alia: (1) threatened plant sites; (2) shifting agriculture and ornamental plant harvesting; (3) logging operations in tribal areas; and (4) government conservation activities. A list of recommended actions ends the document. A 20-item bibliography is included.

Country : Singapore

Title : **First National Report under the Convention on Biological Diversity**

Year of Publication : 1997

Publisher : The National Parks Board and
The Report Drafting Committee
Singapore

No. of Pages : 59

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Available From : The National Parks Board and
The Report Drafting Committee
Singapore

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Executive Summary :

Singapore is a small island republic with a physical land area of 647.5 square km. With a total population of 3,612,000 Singapore's population density stands at 5578 persons per km², and inevitably, Singapore is highly urbanised.

Singapore signed and ratified the Convention on Biological Diversity (CBD) on 10 March 1993 and 21 December 1995, respectively. To honour the letter and spirit of the CBD, Singapore uses the Singapore Green Plan, a blueprint that describes the broad policy direction that the Government will take towards attaining a model green city, as the vehicle for its implementation. Designated as Singapore's scientific authority on nature conservation, the National Parks Board is thus delegated as the national focal point responsible for the coordination of activities related to the CBD.

Presented in Chapter 2 are details on the legal framework, policy guidelines and institutional capacity for conservation of biological diversity that currently exist in Singapore. Following logically are the broad goals and objectives for biological diversity conservation listed in Chapter 3 and the strategic approaches to biodiversity conservation in Chapter 4. The achievement of these goals necessitates a multi-sectoral approach from a diverse range of participants. These are identified in Chapter 5.

The action programmes that are currently implemented or are on the drawing board are discussed in Chapter 6 sequentially highlighting the articles most pertinent in the Singapore context. Chapter 7 notes the methods for monitoring and evaluating action programmes. The report ends with a write-up on the budget and institutional support committed to the implementation of the CBD.

Country : Singapore

Title : **First Look at Biodiversity in Singapore**

Year of Publication : 1994

Institution : Singapore. National Council on the Environment, Singapore.

No. of Pages : 163

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Environment Building, 11th Floor
40 Scotts Road
Singapore 0922
Singapore
Tel: +65 731 9862
Fax: +65 235 6601

Abstract :

Although virtually all of its primary natural forest was cleared by the mid-1800s, and large mammals hunted to extinction, and the years since have seen rapid and intense urbanization, Singapore is committed to reestablishing natural areas by adding mangrove areas and coral flats to its already protected forests, increasing the percentage of land set aside as reserves from 3% to 5%. This inventory of biodiversity in Singapore, compiled mainly from previously published lists of specific plant and animal groups, serves as an approximation of what species exist or existed in Singapore. The inventory first discusses Singapore's remaining natural habitats, which are few; once covered with a thick blanket of forests --lowland rainforests, mangrove forests, and freshwater swamp forest -- Singapore now possesses barely 200 ha of primary rainforest, and practically no undisturbed mangrove or freshwater swamp forests. Nevertheless, multitudes of small plant, animal, and insect species survive in what is left, as well as in areas where forest have been allowed to regenerate. These are catalogued in the primary annex, which lists all plants and animals found in Singapore, grouped by kingdom -- prokaryotae (blue-green algae), protocista (algae, molds, etc.), fungi, animalia, and plantae. Nearly 8,000 species are listed, though the document estimates that the true total is above 20,000. The second annex is an extensive bibliography of the publications from which the inventory is derived.

Country : Singapore

Title : **The Singapore Green Plan – Workgroup 5: Nature Conservation**

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Chapter 7 : Conclusion

Executive Summary :

In the Singapore Green Plan, Singapore has committed itself to set aside 5% of the total land for nature conservation to promote appreciation of nature and interest in the country's natural resources. It will also continue to balance land allocated for development with land set aside for green areas and open spaces. As far as possible, green areas and open spaces will be linked together by green connectors.

The Workgroup on Nature Conservation's task is to work out action plans to implement the above policy directions on nature conservation.

The Workgroup has identified 18 nature areas for conservation. They cover natural habitats ranging from primary rain forests, secondary forests, mangrove swamps and marshlands. URA will ensure that the total land area set aside is not less than 3,130 ha which is 5% of the total Singapore land area of 62, 600 ha.

These nature areas will be incorporated in the Concept Plan under the Green and Blue Plan. The Planning Authority will ensure that the designated nature areas are protected from incompatible developments. The national parks Board, as the Scientific Authority on Nature conservation, will monitor and coordinate measures required to maintain the health of these nature areas.

For nature conservation purpose, it is desirable to establish a flora/fauna corridor linking Bukit Timah Nature Reserve to the Central Catchment Nature Reserve. Another desirable biological linkage between two important mangrove areas has also been identified. For most of the remaining designated nature areas on the main island, the Park Connectors Network will serve to link them together for the purpose of improving the accessibility to these nature areas as well as to serve both as recreational and bird corridors.

In addition, 4 marine areas, which are rich in coral life, have also been identified. The Workgroup recommends that Land Office should continue its present policy of only granting permissions for collection of corals for scientific, research and conservation purposes.

Promotion of nature appreciation is also of equal importance besides setting aside areas for conservation. It will enable Singaporeans to better appreciate and understand the importance of nature and the delicate balance between nature and mankind. The workgroup has proposed programmes and activities targeted at young Singaporeans and the general public to promote nature conservation and appreciation.

Basic infrastructure and facilities, like footpaths and signages will be upgraded to improve accessibility within nature areas. In view of the limited extent of our nature areas and high population density, ecotourism should not be indiscriminately promoted as over use or visitation will destroy the nature areas.

A summary of key recommendations is attached. The successful implementation of the action plans proposed by the workgroup on nature Conservation will enable us to achieve a balanced and integrated land use management between nature conservation and development.

Country : Sri Lanka

Title : **Biodiversity Conservation in Sri Lanka – A Framework for Action**

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Abstract :

The preparation of this Biodiversity Conservation Action Plan (BCAP) was undertaken in response to Article 6 of the Convention. Agriculture, the plantation industry, and fisheries are vital sectors of Sri Lanka's development programme. The use of biological resources is therefore of critical importance to the sustenance of the country's economy. What the plan process is a course of action to ensure that the biological diversity within the country is conserved and used sustainably and that development programmes pursued by the different sectors do not cause serious or irreversible damage to the indigenous biodiversity.

The value of the nation's biodiversity has not gone unrecognized by the government and people of Sri Lanka. There are many legislative enactments that deal with the protection of biological resources. In 1980, the National Environment Act constituted the Central Environmental Authority. Soon after, in response to the world Conservation Strategy, Sri Lanka began preparing a National Conservation Strategy (NCS), one of the first countries in Asia to do so. In 1988, after a lengthy process of survey and consultation, the NCS was adopted as the centre-piece of the government's policies to deal with environmental degradation in the country. Then, in 1991, based on the recommendations of the NCS, a National Environmental Action Plan (NEAP) was adopted for a four-year period. The implementation experienced led, in 1994, to a revised NEAP, for the period 1995-98. Over the years these environmental policy frameworks have influenced and helped shape several generations of sectoral and national development strategies.

The National Conservation Strategy, the National Environmental Action Plan, the Forestry Sector Master Plan, the National Coastal Zone Management Plan, and Coastal 2000, are some of the policy instruments that have addressed biodiversity conservation. There are many government institutions whose responsibility is to translate these policy initiatives into action. These include the forest department, Coast conservation Department, Department of Wildlife Conservation, central Environmental Authority, department of Agriculture, Botanical Gardens and Zoological Gardens. However, despite the legal, policy and institutional support for its conservation, the country's biodiversity is continuing to get depleted. There are many causes for this; the growth and movement of populations, the opening of economic markets, and new trends in industrial development will have a growing adverse impact on biodiversity unless more systematic and stringent corrective measures are taken.

The BCAP recognizes the many projects and programmes currently in progress for the conservation of biodiversity. However, some of these activities are stalled or not proceeding at the expected rate, and the main reason for this is resource limitations. In the course of BCAP preparation, the problems of depletion of biodiversity in the different ecosystems were subject to casual chain analyses to determine the issues, proximate causes, underlying causes, and action needed.

The BCAP sets out the range of activities needed for addressing biodiversity as a co-ordinated, holistic exercise. Many of the activities are at present in progress, and their inclusion in the Plan will add strength and a sense of urgency to the current efforts. The proposals address gaps in the current programmes, which the relevant institutions should take up for implementation. Yet others are new activities which the concerned institutions should undertake so as to ensure the success of the national effort for biodiversity conservation. The BCAP urges that biodiversity conservation is of critical importance for the ecological and economic sustenance of the nation, and brings together within a single framework all the activity areas that

need to be addressed. The Plan should therefore, serve as a policy instrument for securing financial support both nationally and from foreign donors.

The BCAP presents a framework for action. It has not attempted to spell out in detail each activity and to set out the financial budget and other resources needed. Such a step, it is argued, would not only be impractical but would have been counter-productive had it been attempted. As stated earlier, many of the activities are ongoing, and many others, with very little additional resources, could be accommodated in the ongoing programmes. Setting out resources needs and financial budgets for each activity would discourage the institutions concerned from undertaking the tasks unless substantial additional resources are made available. For activities where new resources are in fact needed, the institution concerned should have the expertise and would be in the best position to prepare project proposals.

In preparing the BCAP, the ecosystem diversity of Sri Lanka was categorised into four broad areas: forest, wetlands, coastal and marine systems, and agricultural systems. The classification, besides signifying an ecological differentiation, is useful in terms of the division of responsibilities between different organisations of government.

Chapter 2 gives a broad overview of the country and its biodiversity. Chapter 3 describes the four major ecosystems, the species diversity within them, the relevant policies relating to them, and their jurisdictional institutions.

Chapter 4 presents the results of a study carried out in the course of BCAP preparation to divide the island and its offshore territory into bio-regions, and using various criteria, to determine the bio-regions that should be given high priority in addressing biodiversity conservation issues. Chapter 5 sets out the guiding principles, the goal and the overall objectives of the Plan. Chapter 6 sets out the proposals for action. In respect of each activity area, the section dealing with it has four parts: identifying the issues; the objectives; the recommended actions; and the main implementing institutions. Chapter 7 deals with the intersectoral and inter-institutional integration needed for the implementation of the BCAP. Chapter 8 is on implementation. It sets out the proposed institutional arrangements for implementing the Plan and sets time frames for achieving various outputs. A two-year inception phase is proposed, followed by a ten-year implementation phase, the latter broken down into two phases of five years each. In practical terms, it is recommended that the Plan be subjected to a review and revision at the end of the first five-year period. It is also recommended that a comprehensive review of progress be made three years after the commencement of the first phase.

The BCAP has been prepared by IUCN Sri Lanka in collaboration with the Ministry of Transport, Environment and Women's Affairs. The National Environmental Policy project of the Ministry carried out two preparatory studies – on valuation of biodiversity and biodiversity information. In preparing the BCAP, IUCN's core staff was supported by a team of national consultants, many of whom worked for brief periods on the tasks assigned to them. Two international experts were brought by IUCN at different times during plan preparation to advise the consultancy team.

The preparatory process was intensely participatory. The members of the consultancy team met with several heads of institutions to discuss their mandates and programmes as they relate to the conservation and use of biodiversity and the programmatic gaps that exist. In addition, they had discussions with many well-informed individuals. Several workshops and seminars were held, commencing from the early stages of plan preparation, to seek the views of NGOs, government organisations and the public. The collaborating Ministry wrote to over 100 NGOs scattered across the country explaining the task and seeking their views on the national efforts needed for conserving the country's biodiversity. A round-table was held to discuss in depth the Conservation and the implications of its implementation in Sri Lanka. The BCAP is the product of these many consultative processes.

The Global environmental Facility (GEF) and the World Bank provided assistance for the preparation of this plan.

- **A Hard Copy of this publication is available with the Resource Kit**

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2. **Classification and Nomenclature**
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Country : Sri Lanka

Title : **First National Report on the Implementation of Article 6 of the Convention on Biological Diversity – Sri Lanka**

Year of Publication : 1998

Publisher : Ministry of Forestry and Environment

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Executive Summary :

In terms of species, genes and ecosystems, Sri Lanka has a very high biodiversity, and is one of the 18 hotspots in the world. The wet zone rain forests have nearly all of the country's woody endemic plants and about 75 per cent of the endemic animals. Sri Lanka derives nearly 20 per cent of its gross domestic product from agriculture and fisheries. Since over 75 per cent of the population are rural and agrarian, biodiversity assumes significant economic and consumptive importance in Sri Lanka. The genetic diversity of agriculture crops is quite remarkable, with over 3,000 accessions of rice being recorded. The biodiversity of coastal and marine ecosystems provide over 65 per cent of animal protein requirement of the country.

Sri Lanka ratified the Convention on Biological Diversity in March 1994. The commitment of the government of Sri Lanka to the conservation of biodiversity is demonstrated by a number of conservation-related activities undertaken by the government, including the imposition of a complete moratorium on timber felling in all wet zone forests, placing 13 forests in the wet zone under total protection and in undertaking a national conservation review.

Sri Lankan culture is ingrained with tradition on protection and conservation of animals and plants. The earliest recorded sanctuary has been established around 3rd century B. C. Protection of nature is enshrined in the Constitution of Sri Lanka, and national policies have a clear focus on nature protection and sustainable use of natural resources.

The preparation of the National Biodiversity conservation Action Plan (BCAP) demonstrates the government's commitment towards conservation of biodiversity. The BCAP preparatory process was intensely participatory, involving consultations and meetings with a large body of stakeholders of biodiversity, including state agencies, over 100 NGOs and others. The draft BCAP was then reviewed at several workshops with heads of state departments, particularly those with a mandate for implementation of BCAP, NGOs and CBOs, researchers and university personnel.

Sri Lanka is an island with a land area of 6,570, 134 ha and a coastline of 1,600 km. The island consists of a broad coastal plain and a central mountainous area rising to elevations of 2,500 m. This altitudinal change has caused thermal zones, and the variation in rainfall and altitude has resulted in a wide variety of terrestrial ecosystems. Additionally, there is yet another multitude of ecosystems in the coastal and marine areas.

The population of Sri Lanka is 18.9 million, with a density of 292 persons per km². The population growth rate is 1.1. per cent/year; adult literacy rate is 89 per cent and average life expectancy at birth is 72 years (males) and 76 years (females). The country enjoys a relatively high Human Development Index.

Sri Lanka has the highest biodiversity per unit area of land among Asian countries in terms of flowering plants and all vertebrate groups except birds. The vegetation of Sri Lanka supports over 3,350 species of flowering plants and 314 species of ferns and fern allies. There is also considerable invertebrate faunal diversity. The vertebrate fauna include 51 species of teleost fishes, 39 species of amphibians, over 125 species of reptilia, over 390 species of birds, 96 species of mammals including 38 species of marine mammals. The provincial list of 'threatened' faunal species of Sri Lanka includes over 550 species, of which over 59 per cent are endemic.

The crop genetic diversity in the country is also high, especially for *Oryza sativa*. Many of the indigenous varieties of rice are tolerant to pests, adverse climate and soil conditions. In addition to the diversity seen in coarse grains, legumes, vegetables, roots and tubers and spice crops, there are over 170 species of ornamental plants. Among domesticated animals of economic value are some indigenous species of buffalo, cattle, fowl and fish.

The major threat to biodiversity in Sri Lanka is the ever increasing demand for land for human habitation and related developmental activities. Poor land use planning, indiscriminate exploitation of biological resources, weak enforcement of legislation and the absence of an integrated conservation management approach are other threats to biodiversity.

The implementation of the BCAP will be the responsibility of the Ministry in charge of the subject of environment (which is the focal point for convention on Biological diversity). It will have a special secretariat to deal with matters relating to the implementation of the BCAP. This secretariat will be assisted by a National steering Committee and Task Force, which will provide technical back-stopping and policy advice to the Ministry.

The BCAP has given due consideration to the principles that should govern biodiversity conservation management. It has enunciated the overall national goal of BCAP as the conservation of biological diversity of Sri Lanka while fostering its sustainable use of the present and future generations. The BCAP's broad objectives include building capacity for gaining a better understanding of indigenous biodiversity, identification of adverse impacts on biodiversity and encourage public participation in biodiversity conservation programmes.

The BCAP reviews the sectoral and cross-sectoral areas in relation to biodiversity. In regard to forest habitats, it highlights the current initiatives towards conservation of biodiversity, and in particular the strategies outlined in the Forestry Sector Master Plan. Of particular importance are the biosphere reserves established under the International Biosphere programme, declaring the Sinharaja Forest as a world Heritage, and the preparation of management plans for wet zone forest. In the area of coastal and marine habitats, the BCAP highlights findings of the Report on Resource Management strategy for Sri Lanka's Coastal Region, and the problems associated with coral mining. In respect of agricultural sector, the BCAP notes the initiatives in the Agricultural Sector Development Plan for according highest priority for conservation and enrichment of natural resources.

In its review of cross-sectoral areas, the BCAP examines Research and Development, and Education Training. In regard to the former, lack of clear evidence on a focus on research and development by various research institutions on issues relevant to CBD has been emphasized. In regard to Education and Training, it reviews the current initiatives and programmes of both the state and the NGO sectors.

The BCAP also examines the respective roles of the government, NGOs, communities and the private sector in the implementation of BCAP.

Since ratifying the Convention in 1994, the steps taken by the government to fulfil its obligations to CBD are discussed in the national report. Notable amongst the accomplishments are the establishment of the National experts Group on Biodiversity to advise the Ministry on matters relating to the implementation on the BCAP and the technical reviews it has initiated.

The BCAP identifies sector-wise areas for action, together with the institutions for undertaking such activities. The recommendations include sets of activities for the forest sector, wetlands, coastal and marine systems, agriculture systems, bioregions, ex-situ conservation, research, education and awareness, information management, legal measures, institutional support and on valuation of biodiversity. The BCAP sets put priority activities to be undertaken and completed during the two year inception phased for the implementation of the BCAP and also during the five year and 10 year periods after the inception period. It denotes sufficiently clear sign posts for scheduling activities.

In order to implement the BCAP, the institutional organisational requirements are also set out in broad terms. It highlights the need for capacity building in the relevant agencies, international cooperation in biodiversity-related research, improving the research capabilities of universities and other research agencies and in improving the knowledge of law enforcement and preventive officers to control unauthorized transactions in biodiversity.

The BCAP emphasizes the need for providing a special budget line for the Ministry to enable it to undertake biodiversity-related activities, and the need for adequate safeguards to ensure equitable sharing of benefits in internationally collaborated research in biodiversity.

The national report sets out the levels of monitoring of evaluation it envisages, and provides details of the institutional network that has been already established. It also notes the important role expected from the provincial administration relating to monitoring and evaluation of biodiversity-related activities, particularly in the bioregion.

The national report also provides insights into the special programmes and studies that have been undertaken by the Ministry since ratification of the CBD in order to share experiences with others. The studies include review of policy and legislation relating to access to genetic resources, intellectual property rights and research collaboration; issues relating to biosafety and the broad parameters of formulating national guidelines on biosafety; export of endemic fresh water fish; status of ex-situ conservation in Sri Lanka; movement of genetic material to and from Sri Lanka. A brief review of the biodiversity skill enhancement of stakeholders is also included.

Country : Sri Lanka

Title : **Biological Conservation in Sri Lanka – A National Status Report**

Authors : Wijesinghe, L.C.A. de S., Gunatilleke, I. A. U. N., Jayawardana, S. D. G., Kotagama, S. W., and Gunatilleke C. V. S.

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- Appendix III. Convention on Biological Diversity

Abstract :

The conservation and rational management and utilisation of the earth's resources is one of the issues being addressed by the Commonwealth Science Council in its expanded programme of science cooperation. Recognising the importance of this programme, the Natural Resources, Energy and Science Authority of Sri Lanka (NARESA) established a Technical committee on the Conservation of Genetic Resources and initiated several activities on the subject, one of which is the preparation of this Status report.

This report seeks to give a general picture of the biological and habitat diversity in the country, the situation as regards the conservation of the biota and their natural ecosystems, and the measures that are

recommended to be taken to develop a rational scheme of biological conservation. The broad survey of biological resources includes also the non-indigenous species that contribute to the economy of the country

Country : Sri Lanka

Title : Natural Resources of Sri Lanka: Conditions and Trends

Year of Publication : 1991

Institutions : Natural Resources, Energy and Science Authority;
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Bureau for Asia and Private Enterprise. Sri Lanka

No. of Pages : 291

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Abstract :

Sri Lanka's rich and diverse environment is showing unmistakable and serious signs of stress -- loss of natural forest cover, contamination of waters, degradation of rural lands, and rising levels of air, water, and solid waste pollution. A projected population of 25 million by 2040 promises to aggravate these negative trends. This report profiles Sri Lanka's natural resources and the implications of their use for sustainable development. The introduction covers Sri Lanka's broad physical, geographic, and economic characteristics, while Chapter II describes its ancient heritage -- a history of irrigated agriculture and forest use that strongly affects Sri Lankans' present political, social, and environmental perspectives. Three subsequent chapters describe the dynamic factors of population, economics, and energy use that most strongly affect natural resources. Subsequent chapters focus on conditions and trends affecting Sri Lanka's natural resources (energy, land, water, mineral, forest, biodiversity, coastal and marine, and inland aquatic resources) and the environmental pollutants that threaten productive and sustainable resource use. Each chapter addresses institutional responses and experiences. The concluding chapter describes the environmental stresses likely to affect Sri Lanka in the future and the opportunities for achieving sustainable development. (Author abstract, modified)

Country : Sri Lanka

Title : Sri Lanka, Biological Diversity and Tropical Forests: Status and Recommended Conservation Needs

Year of Publication : 1988

Authors : Jansen, M. A.B. and Loken, E. R.

Institutions : U.S. Agency for International Development.
Bureau for Asia and Near East. Sri Lanka

No. of Pages : 92

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Abstract :

The status and management of Sri Lanka's wide array of forest and other biological resources are assessed. After an initial review of the pertinent historical, physical, legislative, and institutional issues, the study presents a summary description of Sri Lanka's biological (forest, crop/livestock, wildlife, coastal and marine, and wetland) resources. Subsequent sections describe: (1) the status and management of protected areas and endangered species; (2) the extent of conservation outside of protected areas, covering the management of natural ecosystems, the impacts of development projects, and ex situ conservation (e.g., botanic and zoological gardens); and (3) the conservation of species and germplasm of economically important agricultural, horticultural, and plantation crops. Key conservation-related issues are identified, as are the major actions needed to promote future conservation and sustainable management of the country's biological resources. Priority recommendations are to: (1) modernize and systematize existing legislation; (2) coordinate resource planning and management institutions; (3) upgrade resource management and conservation staff capabilities; (4) improve the information base on the country's biological resources; and (5) promote environmental awareness. Priority interventions for conserving forest, wildlife, coastal/marine, wetland, and crop/livestock resources are also identified.

Country : Thailand

Title : **Biodiversity Conservation in Thailand: National Report
(Implementation of Article 6 of the Convention on Biological Diversity)**

Author : Pookpakdi, T.

Year of Publication : 2000

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- Annex III: Guideline on Biodiversity Data Management (BDM)
- Annex IV: Biodiversity Data Management Action Plan

Abstract :

Regular review of state of biodiversity and its conservation has been recognised by the Convention on Biological diversity (CBD) as crucial element in combating loss of biodiversity. Under Article 6, the Convention's Contracting Parties are obligated to report on implementation of provisions of the Convention including measures formulated and enforced. These reports serve as valuable basic information for operation of the Convention as well as for enhancing cooperation and assistance of the Contracting Parties in achieving conservation and sustainable use of biodiversity.

Although Thailand has not yet ratified the convention, the country has effectively used its provisions as guiding principles for biodiversity conservation and management since the signing of the Convention in 1992. Thailand has accumulated considerable amount of information and experience on its implementation, which can be of significant contribution to international efforts under the Convention. Compilation of this national report was thus a clear evidence of how far the country undertook toward realization of the Convention as well as an instrumental endeavor to ensure that the country's experience is beneficial to biodiversity conservation at the global level.

The OEPP sincerely believes that the national report is not merely a presentation of Thailand's implementation of the Convention, but also an instrument in reflecting effectiveness of activities undertaken to preserve the nation's biological wealth. The publication is entrusted to provide those involved in biodiversity management with indications on best possible approaches and means to overcome problems associated with the conservation. OEPP is convinced that the report's most valuable asset can be realised when lessons documented are applied in actual conservation works, either in the field or in planning process.

Country : Thailand

Title : **Divided Over Thailand's Biodiversity Policy**

Author : Gurmit Singh, K. S.

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- **Open Discussion – Future Needs for Biodiversity Conservation in Thailand**

Executive Summary :

It was a much greater challenge than in the Malaysian case to fully understand the Thai situation on its Biodiversity policy. Enlisting the help of the Southeast Asia Biological Diversity Network Secretariat (Thailand) hosted by Thailand Environmental Institute (TEI) to give a comprehensive Situationer and to organise the two-day workshop helped somewhat.

The topics of the workshop and the discussions were a good reflection of the ambiguous and ambivalent state of Biodiversity conservation in Thailand. A good indication of this is the ongoing debate of the ratification of the Biodiversity Convention, which Thailand had signed in 1992 at UNCED but has not ratified to date.

The first impression of the arguments for and against ratification and legal obligation is that there are a lot of misunderstandings and confusion on the implications and legal obligations of ratification. One concern appears to be that Thailand will lose control of its biodiversity resources as the other signatories would have the right to exploit Thailand's biodiversity without much benefits to Thailand, especially its farmers and indigenous people's knowledge of the uses of biodiversity. Therefore Thailand would need to have the appropriate legal protection in place before ratification. Since the Biodiversity Convention specially recognises a country's sovereignty over its biological resources, the concern appears to be misplaced. The main proponents of this view are most of the NGOs and some academics, especially the in the legal profession.

The government agencies charged with the responsibilities of the conservation of Biodiversity, especially the Office of Environmental Policy and Planning (OEPP), are in favour of ratification. It argues that there are sufficient legislation for biodiversity protection and that other additional legal measures can come in after ratification. The non-ratification by Thailand means that Thailand is being marginalised in the international deliberations on biodiversity in the Conference of Parties (COF) that sets the global biodiversity agenda since Thailand only has observer status. Besides, the financial benefit of ratification, that is funding of biodiversity programmes under the GEF, is not available to Thailand. Since biodiversity programmes are always under funded within the Thai government budget, additional international funds would be very useful.

The case against ratification is not without merit and it may be the NGOs and academics' strategy of exerting pressure on the government in taking biodiversity conservation and related issues more seriously. A strong national biodiversity policy and programme, with the appropriate budget and manpower put in place before ratification would mean better protection of biodiversity and farmers' rights.

At the end of the two-day workshop, the viewpoints of the different proponents of the ratification and non-ratification appeared to be little changed. This is a reflection of cleavage of Thai society.

Unfortunately, the situationer turned out to be less than comprehensive use of Thai in written and verbal presentations (done originally to facilitate smoother discussion among the participants). Another drawback was the non-involvement of many strong critics of the official Thai positions on Biodiversity.

A major difference to note from the Malaysian case is that Thailand is very much a unitary state without any provincial governments that have direct control over natural resources. But its similar problems at the ground level demonstrate that Bangkok's Will cannot be exercised at the most remote corner unless there is a thoroughly clean and efficient administrative service, led by exemplary local officials. The strengthening of its democratic institutions and greater press freedom over the past years promise hope, including for biodiversity conservation.

Country : Thailand

Title : **Thailand's Biodiversity**

Year of Publication : 1996 (2nd edition)

Publisher : Integrated Promotion Technology Co., Ltd.

Copyright : Office of Environmental Policy and Planning

ISBN : 974-7575-88-4

No. of Pages : 39

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Available From : Biological Resources Section,
Natural Resources and Environmental Mgmt. Division,
OEPP, Ministry of Science, Technology and Environment,
60/1, Soi Phibul Wattana 7, Rama VI Rd.,
Bangkok 10400, Thailand
Tel: (622)-2795202, 2798088
Fax: (622)- 2798088, 2713251

Contents :

- **Introduction**
- **Biogeography**
- **Plant Diversity**
- **Animal Diversity**
- **The Loss of Biodiversity**
- **Causes of the Biodiversity Loss**
- **Future Prospects**

Abstract : not available

Country	: Thailand
Title	: Thailand National Policy, Measures and Plan on the Conservation and Sustainable Utilisation of Biodiversity 1998-2002
Year of Publication	: not given
Publisher	: Natural Resources and Environmental Management Division Office of Environmental Policy and Planning
No. of Pages	: 23
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Available From	: Natural Resources and Environmental Management Division Office of Environmental Policy and Planning 60/1 Soi Phibun Wattana 7 Rama VI Road, Bangkok 10400 Thailand Tel: 271-3251, 279-5202; Fax: 279-8088
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Implementation

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Implementation

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Implementation

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Implementation

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Implementation

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Implementation

- Country** : Vietnam
- Title** : **Workshop on Information Exchange on Biodiversity for Tay Nguyen Plateau (Bavi 29 Feb – 1 March 2000)**
- Year of Publication** : 2000
- Publisher** : Ministry of Science, Technology and Environment
- No. of Pages** : 102
- Format** : Hard Copy
- Available From** : Ministry of Science, Technology and Environment
Hanoi, Vietnam
- Contents** :
1. **Assessment of Biological Resource Change to Propose Technological Solutions for Socio-Economic Development Planning and Sustainable Environment Protection in Tay Nguyen:**
by Huynh, D. H. *et al.*
 - I. Background
 - II. Overview on biological resources and its role in economic development for the community
 - III. Role of the biological resources in socio-economic development planning for Tay Nguyen community at present and in the future
 - IV. Status quo of bio-resource change in Tay Nguyen provinces
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 2. **Socio-economic development Programmes and the Relation of the Preservation of Bio-diversity in The Central Highland in 2000 – 2010:**
by Tran An Phong, Nguyen Van Chinh; and Dao Trong Tu
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 3. **Soil erosion and Degradation in Tay Nguyen:**
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 4. **Water Balance in Tay Nguyen:**
by Ngo Dinh Tuan
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by Ngo Dinh Tuan
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6. **Geo-environmental hazards in Central Highland Region:**
by Nguyen Trong Yem, Dao Thi Mien, Le Thi Nghinh Natural
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by Tran Ang Phong
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Country	: Vietnam
Title	: Enhancing the Implementation of Vietnam's Biodiversity Action Plan: An Assessment of Priority Issues and Requirements
Year of Publication	: 1999
Publisher	: National Environment Agency Ministry of Science, Technology and Environment
No. of Pages	: 19+
Contents	:

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- 2.6. Coordination
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Abstract :

By virtually any measure, Vietnam's Biodiversity Action Plan has served the country well. Following its approval by the Prime Minister in 1995, the BAP has catalysed and guided a wide variety of conservation initiatives. A brief review of the priority list of projects contained in the BAP will reveal that an impressive number have already been completed or are currently under implementation. Perhaps more importantly, the BAP has succeeded in bringing biodiversity onto the national agenda, and has led to heightened awareness among many different stakeholders of the significance and values of biodiversity.

Vietnam is changing rapidly, however, and by 1998, it had become apparent that a re-appraisal of the BAP was needed. In October 1998, NEA, with technical assistance from IUCN, organised a BAP review workshop, aimed at assessing the status of BAP implementation, identifying major gaps, and highlighting new emerging issues in need of attention. Subsequently, in April 1999, a four-person team was constituted to follow-up the workshop recommendations and to prepare a more detailed report on the priority

requirements to enhance the effectiveness of BAP implementation. The team was composed of one international consultant recruited by IUCN, and three national consultants appointed by NEA.

In the course of their work, the team met individually with many different national institutions, NGOs and donors. The discussions formed the basis for the development of a needs assessment and draft versions were reviewed and further discussed in two meetings called by NEA on April 8 and 15, 1999, involving a wide range of national and international organisations and other stakeholders. Despite the diversity of institutions and organisations consulted, a remarkable degree of consensus emerged regarding the priority issue and needs that should be addressed in the implementation of Vietnam's BAP.

This report is based on the findings and recommendations of the NEA/IUCN team and also includes comments and suggestions from a number of other relevant stakeholders. The report includes a short background description of the history of BAP development, a brief summary of the results of the BAP review workshop, and an overview of priority issues and requirements identified by the NEA/IUCN study. A more detailed analysis of needs, response and lead implementation agencies is provided in Annexes.

Country : Vietnam

Title : **The Vietnam Biodiversity Action Plan – A Three Year Review 1996 – 1998: A summary of the Workshop Proceedings (Draft)**

Editors : Anderson, B. and Wame, S.

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13, Tran Hung Dao Street
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Fax: (844)-825 8794

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Dr. Pham Khoi Nguyen

Gordon Johnson

Rolf Samuelsson

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Abstract :

The Ministry of Forestry and the State Committee of Science initiated the concept of a BAP for Vietnam, in collaboration with WWF and UNDP. With financial assistance from UNDP under the GEF, the BAP was then developed with technical assistance from IUCN and WWF. The development of the plan began on the February 22, 1993 and the BAP for Vietnam was published in November 1994 and approved by the Government in December 1995.

Several years on, in October 1998, the NEA organised a workshop to review the BAP. The activity was facilitated by the “Strengthening of the Environmental Management Authority” project, funded by Sida with technical assistance from IUCN.

The workshop review was a critical assessment of the BAP's three years of implementation. The purpose of this booklet is to provide a concise summary of that assessment and provide simplified access of the workshop's proceeding to a broad spectrum of interested parties.

Chapter one presents the opening speeches at the workshop; Chapter two provides comprehensive information on conclusions, outcome and recommendations from the working sessions; and Chapter three highlights the core issues from the presentations made at the workshop. The focus is primarily based on the

main presentations made by MoSTE, MoF, MPI, NCST and MARD, although summaries of other presentations are also included.

It should be noted that all writings in this booklet are the editor's summation of the workshop presentation proceedings and not the expressed opinion of either IUCN or any other organisation.

Country : Vietnam

Title : **Expanding the Protected Areas Network in Vietnam for the 21st Century**

Authors : Wege, D. C., Long, A. J., Vinh, M. K., Dung, U. V., and Eames, J. C.

Year of Publication : 1999

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11 Lane 167, Tay Son, Dong Da
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Email: birdlife@netnam.org.vn

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 - 1.1. Objectives
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- 9.1. Identifying new protected areas
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Appendix 1: Current Special-use forests

Appendix 2: Area and protection of Natural Forest types, with Requirements for Future protection

Executive Summary :

Recognising that the current protected areas network is inadequate to effectively preserve the full complement of Vietnam biodiversity, MARD (the ministry of Agriculture and rural development) has proposed to increase the area of Special-use Forests from 1.3 million to 2 million hectares.

This existing development creates a rare opportunity to choose, in an objective way, which areas should be added to the network. It also offers the chance to redress some of the imbalance in coverage of the present network.

This report is an analysis of information collated by BirdLife International and the Forest Inventory and Planning Institute, and highlights:

- Natural forest types, Ecoregions, provinces, elevation zones etc. that are poorly protected within the current protected areas network.
- Globally threatened species (of very large mammals, primates and birds) that are currently under-represented within the existing network.
- Areas, currently protected by decree, that now have little if any biological or conservation value.

This report concludes by recommending:

- Areas for protection that would improve the equitable representation of the network and help prevent species extinction.

The current protected areas network has a number of problems that need addressing; the proposed expansion of the network presents the ideal opportunity to do this. This points that need addressing are:

- The unequal representation of biodiversity within the current protected areas network
- The vast area of degraded, non-forest land within the current network.
- Trans-province reserves being managed as two (or more) separate areas.
- The accuracy of information concerning protected areas, especially area, precise reserve boundaries, name and legal status.

Vietnam is 27% covered in natural forest but this coverage is declining at a rate that will see the country devoid of forest within 90 years. Evergreen forest, although the commonest forest type, is being lost the fastest.

Although 1.3 million ha of land is designated as Special-use Forest, only 770,000 ha comprise forested land. The distribution of Special-use Forests is uneven: evergreen forest is poorly represented within the current network and certain ecological distinct regions are under-represented. Protected areas tend to have been sited in higher elevation regions, and at the species level, certain globally threatened species currently enjoy no protection at all. At least three provinces supporting areas of natural forest have no protected areas under their jurisdiction.

The solution to this disparity is to use the opportunity now presenting itself to target the additional protection in those areas, habitats etc. that are currently poorly represented.

The analysis presented in this report shows how much and where the expansion of the protected areas network must be if all forest types, Ecoregions and elevation zones are to be equally represented. It also

shows which provinces should be targeted for the establishment of a protected area, and ensures that all globally threatened species are to be at least partially safeguarded within the network.

Taking into account all of these factors, and considering existing proposals, the potential for extending current protected areas, joining sites together and looking for the largest available forest area, this report has identified 25 areas that should be added to the current network. In combination, these areas would increase the protected area coverage to 2.1 million ha, and ensure a more equitable coverage of Vietnamese biodiversity.

Also identified are a number of protected areas that support little in terms of biodiversity value and should, therefore, have their management categories revised in order to increase the efficiency of the network as a whole.

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Contents	:

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1. The Status of Biodiversity Conservation in Vietnam

- 1.1. Physical geography of Vietnam
- 1.2. Terrestrial vegetation types
- 1.3. Biogeographical units
- 1.4. Coastal and marine environment
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- 1.7. Economic utilisation of species
- 1.8. Economic values
- 1.9. Human distribution and demography
- 1.10. Current land-use patterns and trends
- 1.11. Threats to biodiversity
- 1.12. Capacity for ecosystem recovery
- 1.13. Evaluation of *in-situ* conservation
- 1.14. Evaluation of *ex-situ* conservation
- 1.15. Government policy for environmental protection and biodiversity conservation
- 1.16. Measures to control the use of biological resources
- 1.17. Institutional responsibilities
- 1.18. International cooperation

2. Recommendations for Biodiversity Conservation Policies and Programmes

- 2.1. Institutional responsibilities
- 2.2. Revision of laws and regulations and strengthening law enforcement
- 2.3. Review of forestry policy and practice
- 2.4. Transfrontier issues
- 2.5. Policy research

3. Recommended Changes in the Management of Protected Areas

- 3.1. Setting priorities for protected areas
- 3.2. Revision of protected area system
- 3.3. Strengthening the management of Nature Reserves and National parks
- 3.4. Marine conservation programme
- 3.5. Wetlands conservation programme

4. Complementary Actions for Biodiversity Conservation

- 4.1. Establishment of a National Genebank
- 4.2. Conservation of agricultural biodiversity
- 4.3. Control of trade in endangered species
- 4.4. Control of forest fire

- 4.5. Restoring natural habitats
- 4.6. Biodiversity monitoring programme
- 4.7. Research programme
- 4.8. Need for *ex-situ* conservation
- 4.9. Education and awareness programme
- 4.10. Socio-economic aspects of biodiversity programme
- 4.11. Increased international cooperation

5. Priority Project Profiles

Executive Summary :

Vietnam is a country rich in tropical rainforests and monsoon Savannah, marine life and mountainous sub-alpine scrubland. Its long and narrow shape, from 23°N in the north to 8°30'N in the south, represents a considerable longitudinal range for a country of its size. The lowland coastal zone is bisected by rugged limestone mountains which separate the generally wetter forest types of the east from the drier forests of the Mekong Basin in the west, creating a habitat diversity favourable for a broad range of species compositions. One in 10 of the world's mammals, birds and fish species is found in Vietnam, and 40% of the country's plants grow nowhere else. The country grows important cash crops such as tubers, tea and rice (Vietnam is the world's second largest rice exporter), and domesticated animals such as chickens, pigs and ducks. The balanced diversity of natural and agricultural resources represents the wealth of a unique physical environment and thousands of years of adaptation and selective cultivation and breeding.

These biological riches exist side by side with one of the densest human populations in the world. Vietnam has 220 people per km² (with much higher levels in the fertile river deltas), and the resulting population pressure is endangering an enormous number of species. The tropical rainforests are being cut at an alarming rate, and animals on the endangered list include the tiger, kouprey, Javan rhinoceros, tapir and Asian elephants. In Vietnam 28% of mammals, 10% of birds and 21% of reptiles and land amphibians face extinction.

The protection of Vietnam's natural ecosystems is vital for the country and for the world. This Biodiversity Action Plan (BAP) provides the tools for action.

Biodiversity is a term that covers the sum of all parts, which create and sustain a healthy and diverse ecosystem. Life on earth depends on biodiversity to maintain the ecological functions that regulate water supply and quality, climate, soil fertility, and cultivable resources. We depend on natural species to find new chemical compounds that can serve as medicines and pest controls and to develop new crops and improved domestic animals. In tropical Asia, many people are almost totally dependent on biodiversity, and it must therefore be protected for the present and future prosperity of the region.

In recognising the economic and cultural importance of its biodiversity, Vietnam has over the past decade already taken steps to preserve its resources. It has developed several strategic planning documents for conservation, namely the National Conservation Strategy (1985), the National Plan for Environment and Sustainable Development (1991) and the Tropical Forestry Action Plan (1991).

The BAP builds on these foundation documents, adding important new information and broader, integrated scope for action;

- it deals with areas of conservation such as marine and coastal issues, wetlands and agriculture; these important ecosystems have not been included in previous conservation planning documents.
- it recognises the long-term economic values of conservation and avoids focusing only on rare animals and threatened landscapes.
- it advocates the role of local government in decision making.
- it takes account of the role of people, communities and non-government organisations (NGOs) in managing the country's natural resources.
- it emphasises the international responsibilities Vietnam has regarding managing and conserving its natural heritage.

Vietnam signed the Convention on Biological Diversity in 1993 and ratified it one year later. Preparation of this Biodiversity Action Plan is timely and represents an important step for Vietnam at meeting the commitments of the Convention.

Outline of the Biodiversity Action Plan

The BAP is designed to help national and international agencies see more clearly what is happening in biodiversity conservation in Vietnam and where their inputs would be most effective. The plan recommends explicit and achievable actions:

- a review to determine the most effective authorities to deal with conservation management, in wetlands and coastal zones.
- promulgating enabling laws and regulations.
- international collaboration, particularly in Southeast Asia.
- developing policies concerning property rights and access, household and community benefits.
- expanding and strengthening protected areas.

The plan also recommends actions for trade in endangered species, restoring degraded habitats, monitoring and research, and education and public awareness with recommended projects to be developed according to the urgency of need.

The Plan is divided into four major sections. The first section provides the most up-to-date and comprehensive survey of biodiversity conservation in Vietnam. Sections 2-4 then determine the action necessary to strengthen conservation measures, concentrating on policies and programmes, management of natural habitats and other complementary actions.

The Status of Biodiversity Conservation in Vietnam

At a time when one may believe that all of the world's mammals have been described by science, the recent identification in Vietnam of two large mammal species, the Saola (*Pseudoryx nghetinhensis*), a primitive bovid, and the Giant Muntjac (*Megamuntiacus vuquangensis*), nearly twice the size of the common barking deer, demonstrates that in spite of extensive human use of Vietnam's natural habitats, effective protection could help preserve valuable and endemic species. Along with the identification earlier this century of the Kouprey, a wild cattle species, Vietnam is a country of internationally recognised biodiversity conservation value.

However, the number of threatened or endangered mammals, birds and reptiles listed in the Vietnam Red Book (MOSTE, 1992) is a matter for great concern. The total of threatened species is high for a single country and reflects the seriousness of the threats to wild habitats in Vietnam. Species such as the wild buffalo, Eld's deer, Sumatran rhinoceros and Edward's pheasant have already gone extinct in Vietnam this century, and without urgent conservation action, the Asian Elephant, Javan rhinoceros and the newly discovered Saola could soon follow.

Between 1943 and present, Vietnam's forest cover shrank from 44% of the total land area to under 25%. As forests are fragmented and remaining blocks become smaller and more isolated, they are unable to support their original levels of species-richness. In addition to harbouring important plant and animal species, a valuable ecological function of forests and natural vegetation is protection of water catchments. This ensures that rains are held back and the incidence of floods and soil erosion is reduced. Forests continue to release a steady flow of clean water long after the rain and reduce the frequency of droughts.

Regulation of waterflow is essential to a rice-growing society. In addition to their important watershed function, forests are also a direct economic resource for the country. Up to 1.4 million cubic meters of timber are extracted annually by state enterprises. However a much greater amount is taken by local enterprises for which there are no accurate figures, with estimates in the range of three million cubic meters per year. Collection of an estimated 30 million bundles of fuelwood annually is within the theoretical productivity of 22-23 million tonnes which could be harvested from natural forests, but firewood is not collected evenly over the forest area and is often locally over-harvested, leading to forest shrinkage and degradation.

Vietnam's extensive coastal waters and estuaries harbour abundant fish resources. This wealth is demonstrated by the fact that fisheries supply half of the animal protein for the nation. Although the 1.07 million tonnes of fisheries products harvested in 1992 are within the estimated maximum sustainable yield

of 1.2 – 1.3 million tonnes, the fact that total engine capacity of Vietnam's fishing fleet has doubled since 1983 is an indication that these resources face possible depletion without proper management.

Despite worthy government efforts for biodiversity conservation, existing programmes for the protection of forest areas and watersheds do not meet the need for an integrated and sustainable approach to forest and community development. There are major gaps in present protected area system, most notably in the marine, coastal, wetland and lowlands forest environments.

The unfortunate combination of habitat fragmentation and the pressures of human demands on natural resources in Vietnam demand innovative conservation and management strategies. Insufficient institutional arrangements, diffused management responsibilities, inadequate budget support, limited community participation, and insufficient expertise in social and economic development are principal constraints to the conservation of biodiversity in Vietnam.

Recommendations for Biodiversity Conservation Policies and Programmes

The management of protected areas must be strengthened through new management approaches, staff training, and the increased involvement of local communities. The use of integrated approaches to protected area management, including buffer zones and modified landscape ecology, is also recommended.

The immediate challenge for Vietnam is to manage scarce resources effectively and prioritise species for conservation to enable maximum biodiversity. Rarity of species alone is not a sufficient measure for setting conservation priorities. The BAP proposes a prioritisation of those areas in the country which contain the greatest number of endemic species, such as those with limited distributions, which occur nowhere else on Earth.

The BAP also points out that to date, protected areas in Vietnam have been established almost exclusively for the preservation of forest ecosystems. A protected area system, which is to conserve the totality of biodiversity in Vietnam, must also include wetlands, coastal water systems, and marine habitats.

Complementary Actions for Biodiversity

A final approach for biodiversity conservation is the utilisation of scientific technologies and ex-situ methods to preserve the genetic information of biodiversity. These approaches include the establishment of genebanks, particularly for preservation of agricultural biodiversity, maintenance of zoological and botanic gardens, controls on wildlife trade, forest fire prevention, pollution controls, and policies which encourage natural regeneration of habitats.

Proposed Actions

Actions recommended in the BAP are presented as specific projects profiles following the approaches for policy, forest management, and complementary activities as outlined in the three BAP sections on biodiversity policies and programmes, recommended changes in the management of natural habitats, and complementary actions for biodiversity conservation.

The proposed priority activities are by no means exhaustive and can only represent part of what is needed for the ultimate conservation of biodiversity. The project concepts were developed on the basis of consultations, and they take into account other initiatives, which are being currently carried out by Government and international agencies.