Strengthening the Arannayk Foundation
(Bangladesh Tropical Forest Conservation Foundation)
Phase I

Curriculum for NGO Training in Conservation of Tropical Forest Biodiversity

Task Order under the
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Executive Summary

The Arannayk Foundation has been established for the purpose of facilitating tropical forest conservation in Bangladesh, involving the full spectrum of stakeholders, and focusing on the development of public-private sector partnerships for developing and implementing conservation activities. The Foundation's strategic plan includes improvement of NGO capacity to partner with local communities, and enhancement of NGO capability to collaborate with government agencies and the private sector, in a range of forest conservation activities.

The goal of the training program prepared for this purpose is to train NGO staff members to participate as effective collaborators/partners in Foundation-funded activities, with an emphasis on practical needs, on providing the background required for effective day-to-day decision making, and on working to the highest possible professional standards. A review of current NGO capacity, and a needs assessment of the types of skills and technical inputs and training that are required, is attached to the report as Annex G.

The training program comprises five separate, independent courses, each keyed to one of the main field interventions considered likely to be supported on a long-term basis by the Foundation:

Legal Issues in Forest Conservation (5day course): forest conservation issues; how forest biodiversity can be conserved through sustainable use and management; current subsistence use of forest resources in Bangladesh, and how this use can be managed on a participatory basis; and identification and analysis of legal issues, and how these can be resolved with the participation and support of local communities.

Buffer Zone Management (5day course): general overview of forest conservation issues and guidelines, particularly as these apply to protected areas; detailed consideration of the rationale and techniques for participatory management in protected area buffer zones and/or sustainable use zones; examination of the interface between areas managed primarily for conservation and areas managed for multiple use, and development of an understanding of common management goals.

Interpretive Programs in Protected Areas (5day course): general overview of protected area and forest biodiversity management issues, consideration of visitor use and types of appropriate facilities, and a focus on how to develop and deliver conservation-based information in the most meaningful and educational way within a protected area setting.

Environmental Education and Awareness (5day course): overview of the main forest conservation issues in Bangladesh, detailed examination of how these issues can be addressed through environmental education and promotion of public awareness, and a main focus on development and dissemination of effective messages using existing techniques and expertise.

Private Sector Conservation (15day course): a broadly-based course that touches on all of the main aspects of protected area management, with a dual emphasis on the conservation of biological resources and collaborative approaches to management that incorporate the interests of all stakeholders, and a particular focus on international experience and best practice, and how these can best be applied in Bangladesh.

All courses will be offered in Bangladesh, using local training institutions (listed in Annex H) and trainers (listed in Annex I). Training will be delivered in both classroom and field settings. All courses are aimed at skill-enhancement or special skills development rather than development of general knowledge, and participants will be expected to have adequate prior education and experience to enable them to master and subsequently apply the course material. Evaluation criteria will be largely at the discretion of the course trainers, but are expected to be based primarily on successful demonstration of acquired skills (as opposed to rote learning) by individual trainees.

Descriptions of each training course curriculum, including background, course objective, course description, duration, prerequisites and performance standards, are provided. Each course description includes a listing of subject areas to be covered, subdivided into introductory, core and supplementary subject area material.

Specific subject area descriptions, including a statement of learning objectives, content and key references also are provided in more detailed modular format. Each course curriculum comprises a unique combination of between 9 and 24 of the following subject area modules:

Introductory Concepts (3 modules): introduction to biodiversity conservation; guidelines for conserving biodiversity in managed forests and protected areas; introduction to public awareness.

Resource Management in Protected Areas (7 modules): modern concepts of protected areas; protected area management planning and implementation; guidelines for zoning; defining, measuring and monitoring biodiversity; wildlife habitat management; development and application of Habitat Suitability Index Models; recording and reporting data.

Land Use Management in Protected Areas (9 modules): sociology and economics of subsistence resource use; ecological basis for sustainable land use; impacts of land use in protected areas; inter-agency coordination of land use; participatory mapping and documentation of land use; participatory management of natural resources; participatory management and land use agreements in protected areas; group formation, management and monitoring; problem solving and conflict resolution.

Visitor Use in Protected Areas (4 modules): public relations and communication; ecotourism and environmental education; protected area facilities; development of interpretive programs.

Field/Practical Work (1 module): problem analysis and case studies.

It is intended that the contents of the 24 individual modules be further developed by subject area/training specialists. An annotated bibliography of potential training materials is included as an aid to module content development. As the individual modules are intended for multiple use (i.e., as components of the training for different types of Foundation-supported activities), contents will need to be structured such that delivery can be modified and adapted by individual course instructors according to the educational levels, existing skills and training needs of the target audience.

SECTION I

Background

The Arannayk Foundation (Bangladesh Tropical Forest Conservation Foundation) has been established for the express purpose of facilitating tropical forest conservation in Bangladesh. Initially funded by US debt relief, it aims to attract additional donor and private sector funding in support of a long-term, sustainable program of forest conservation interventions. It also aims to involve all stakeholders (government, NGOs, forest communities and the private sector) in the development and implementation of its program. The Foundation's strategic plan includes improvement of NGO capacity to partner with local communities, and to collaborate with government agencies and the private sector, in a range of forest conservation activities.

The training program presented herein was developed on the basis of a review of current NGO capacity for effective participation in Foundation-supported forest conservation interventions, and a needs assessment of the types of skills and technical inputs that are required. A comprehensive report on this review, including methods, results, conclusions and recommendations, is attached as Annex G.

Based on the capacity review/needs assessment, the training program addresses the in-country group training that will be required for effective participation by NGOs in the five main types of interventions that are considered likely to be supported on a long-term basis by the Foundation. These are:

- Legal issues in forest conservation
- Buffer zone management
- Interpretive programs in protected areas
- Environmental education and awareness, and
- Private sector conservation

The proposed training curricula have been designed to be consistent with the "training curricula for participatory protected areas management" prepared by the Forestry Sector Project for broad application to Forest Department staff and NGO training in Bangladesh's protected areas (Tecsult 2000d), but have been updated and modified as required to reflect the Foundation's own goals and objectives. It is considered important that the Foundation's programs contribute incrementally to, rather than compete with or displace, ongoing forest conservation initiatives in Bangladesh, and development of compatible (and where possible cooperative) training programs is an important means of attaining this objective.

It also should be noted that specific training programs have not been developed for other activities that have been identified as appropriate for Foundation support (i.e., satellite imagery-based forest area assessment; development of an uneven-aged harvest model for long-rotation plantation management; development and use of wildlife habitat suitability index models; biodiversity baseline surveys; development and integration of databases and networks related to

forest biodiversity; analysis of forest policy issues; forest restoration using framework tree species) as these either do not require in-country training per se, or it is anticipated that the necessary training will be carried out directly by the contracting organizations.

SECTION II

Training Program and Curricula

A. Training Program Description

A1. Training Program Goal

The program aims to train NGO staff members (including, as appropriate, core, field or specially hired project staff) to participate as effective collaborators/partners in Foundation-funded activities. Emphasis will be on practical needs, on providing the background required for effective day-to-day decision making, and on working to the highest possible professional standards. See also A4 (Prerequisites) below.

A2. Training Program Structure

The training program, as currently formulated comprises five separate, independent courses, each keyed to one of the main field interventions of the Foundation. A separate curriculum has been developed for each one of these courses (see also Section B).

Legal Issues in Forest Conservation: a five day course examining forest conservation issues; how forest biodiversity can be conserved through sustainable use and management; current subsistence use of forest resources in Bangladesh, and how this use can be managed on a participatory basis; and identification and analysis of legal issues, and how these can be resolved with the participation and support of local communities.

Buffer Zone Management: a five day course providing a general overview of forest conservation issues and guidelines, particularly as these apply to protected areas; a detailed consideration of the rationale and techniques for participatory management in protected area buffer zones and/or sustainable use zones; and an examination of the interface between areas managed primarily for conservation and areas managed for multiple use, and development of an understanding of common management goals.

Interpretive Programs in Protected Areas: a five day course providing a general overview of protected area and forest biodiversity management issues, consideration of visitor use and types of appropriate facilities, and a focus on how to develop and deliver conservation-based information in the most meaningful and educational way within a protected area setting.

Environmental Education and Awareness: a five day course providing an overview of the main forest conservation issues in Bangladesh, a detailed examination of how these issues can be addressed through environmental education and promotion of public awareness, and a main focus on development and dissemination of effective messages using existing techniques and expertise.

Private Sector Conservation: a broadly-based 15 day course that touches on all of the main aspects of protected area management. The course features a dual emphasis on the conservation of biological resources and collaborative approaches to management that incorporate the interests of all stakeholders, and a particular focus on international experience and best practice, and how these can best be applied in Bangladesh.

A3. Learning Environment

All courses will be offered in Bangladesh, using local training institutions (Annex H) and trainers (Annex I). It is anticipated that additional resource persons will be drawn from Bangladeshi institutions and programs, possibly including expatriates working in-country and having specific applicable expertise.

Training will be delivered in both classroom and field settings. Although the mix of classroom and field training will vary depending on the course, all courses will have a specific field component and an overall emphasis on development and application of practical experience.

A4. Prerequisites

All courses are aimed at skill-enhancement or special skills development (rather than development of general knowledge), and participants will be expected to have adequate prior education and experience to enable them to master and subsequently apply the course material. Specific prerequisites are indicated under each curriculum description (Section B below).

A5. Performance Standards and Evaluation Criteria

Expected performance standards of course participants are indicated under each curriculum description (Section B below). Evaluation criteria will be largely at the discretion of the course trainers, but are expected to be based primarily on successful demonstration of acquired skills (as opposed to rote learning) by individual trainees.

B. Curriculum Descriptions

Descriptions of each training course curriculum, including background, course objective, course description, duration, prerequisites and performance standards, are provided in the following Sections B1-B5. Each course description includes a listing of subject areas to be covered, subdivided into introductory, core and supplementary subject area material. Subject area descriptions, including a statement of learning objectives, content and key references are provided in more detailed modular format in Section C.

B1. Training Curriculum for Legal Issues in Forest Conservation

Background: Foundation support to legal issues in forest conservation potentially includes provision of paralegal services and legal aid to forest communities, and test cases regarding community ownership and use of forest resources. A number of potential partner organizations already have the requisite skills in legal services, advocacy and dispute resolution, and it is anticipated that little or no additional training in these specific expertise areas will be required.

However, additional extensive involvement of NGOs/CBOs for community mobilization and sensitization related to this activity requires specific training with regard to issues and techniques. Training supported by the Foundation will focus on developing an appropriate approach, and delivery and subsequent support to potentially large numbers of communities that are dependent on forest resources.

Course Objective: to provide participants with the knowledge and practical techniques required for mobilizing and supporting community participation in legal actions related to forest resource ownership and use.

Course Description: the course will provide an overview of forest conservation issues, and how forest biodiversity can be conserved through sustainable use and management. It will examine current subsistence use of forest resources in Bangladesh, and how this use can be managed on a participatory basis. Problem analysis and case studies will focus on identification and analysis of legal issues, and how these can be resolved with the participation and support of local communities.

Introductory Subject Areas

- Introduction to biodiversity conservation
- Guidelines for conserving biodiversity in managed forests and protected areas

Core Subject Areas

- Sociology and economics of subsistence resource use
- Participatory management of natural resources
- Participatory management and land use agreements in protected areas
- Group formation, management and monitoring
- Problem solving and conflict resolution
- Problem analysis and case studies

Supplementary Subject Areas

- Modern concepts of protected areas
- Ecological basis for sustainable land use
- Impacts of land use in protected areas
- Inter-agency coordination of land use

Duration: 5 days

Prerequisites: participants are expected to have prior technical training in forestry, agriculture, rural sociology or a related field, and subsequent field experience working with forest-dependent or other rural communities.

Performance Standards/Learning Assessment: on successful completion of the course, participants will be able to: 1) describe the main features of subsistence use of forest resources in Bangladesh, and related legal problems and conflicts; and, 2) analyze an individualized case study, and identify and justify an appropriate course of community action.

B2. Training Curriculum for Buffer Zone Management

Background: Management of buffer zones or sustainable use zones adjacent to or within protected areas or forest patches will require NGO-based skills in group formation and social forestry, and CBO-based skills in group self-management, and management of forest land. Previous and existing initiatives in Bangladesh have trained very large numbers of people in these subject areas, although practical and positive experience adjacent to or within protected areas is lacking. Training supported by the Foundation will focus on translating the existing experience base to the protected area/forest conservation context. Management of sites in the Chittagong Hill Tracts will require development of additional expertise and programs in shifting cultivation management.

Course Objective: to provide participants with the knowledge and practical techniques required to develop and implement community-based management of protected area buffer zones.

Course Description: the course will provide a general overview of forest conservation issues and guidelines, particularly as these apply to protected areas, followed by a detailed consideration of the rationale and techniques for participatory management in protected area buffer zones and/or sustainable use zones. Problem analysis and case studies will focus on the interface between areas managed primarily for conservation and areas managed for multiple use, and on developing an understanding of common management goals.

Introductory Subject Areas

- Introduction to biodiversity conservation
- Guidelines for conserving biodiversity in managed forests and protected areas

Core Subject Areas

- Sociology and economics of subsistence resource use
- Participatory mapping and documentation of land use
- Participatory management of natural resources
- Participatory management and land use agreements in protected areas
- Group formation, management and monitoring
- Problem solving and conflict resolution
- Problem analysis and case studies

Supplementary Subject Areas

- Modern concepts of protected areas
- Ecological basis for sustainable land use
- Inter-agency coordination of land use

Duration: 5 days

Prerequisites: participants are expected to have prior technical training in forestry, agriculture, rural sociology or a related field, and subsequent field experience in the development and implementation of social forestry.

Performance Standards/Learning Assessment: on completion of the course, participants will be able to: 1) describe the main techniques that can be used in community-based, participatory management of forested buffer zones; and, 2) analyze an individualized case study, including conceptualization and description of a buffer zone management approach that is compatible with/complementary to management of an adjacent protected area.

B3. Training Curriculum for Interpretive Programs in Protected Areas

Background: Development of environmentally sensitive visitor use facilities (nature trails, visitor centers, other interpretive programs) is a key component of biodiversity management in protected areas receiving or potentially receiving high levels of visitor use. Training supported by the Foundation will promote the development of protected area visitor facilities that will serve both the broad aim of forest biodiversity conservation (through development of appropriate interpretive programs), and in situ development of public awareness.

The proposed model is based on development and operation of facilities/interpretive programs in one or more protected areas, through a long-term lease arrangement between Forest Department and an appropriate NGO. This will require training of participating NGOs and CBOs. Bhawal National Park, Madhupur National Park, Dulhazara Safari Park and Lawachara National Park currently receive high levels of visitation (primarily for picnicking) and all are suitable target areas for development of visitor centers, nature trails, and other interpretive programs for the promotion of public awareness using this mechanism.

Course Objective: to provide participants with the knowledge and practical techniques required to contribute to the development, delivery and/or management of a protected area interpretive program.

Course Description: the course will provide a general overview of protected area and forest biodiversity management issues, followed by a more detailed consideration of visitor use and types of appropriate facilities. Consideration will also be given to what types of facilities and activities are inappropriate, and why, with relevant examples. The main focus will be on how to develop and deliver conservation-based information in the most meaningful and educational way, within a protected area setting.

Introductory Subject Areas

- Introduction to biodiversity conservation
- Guidelines for conserving biodiversity in managed forests and protected areas

Core Subject Areas

- Modern concepts of protected areas
- Public relations and communication
- Ecotourism and environmental education
- Protected area facilities
- Development of interpretive programs
- Problem analysis and case studies

Supplementary Subject Areas

- Introduction to public awareness
- Defining, measuring and monitoring biodiversity
- Wildlife habitat management

- Impacts of land use in protected areas

Duration: 5 days

Prerequisites: participants are expected to have prior training and/or demonstrable work experience in environmental education, development of public awareness materials related to environmental issues, teaching of biological science at primary or secondary level, or a closely related field.

Performance Standards/Learning Assessment: on successful completion of the course, participants will be able to: 1) describe the main types of facilities developments and interpretive techniques that are suitable for use in protected areas; and, 2) conceptualize an interpretive program that could be applied in one of Bangladesh's national parks or wildlife sanctuaries, including identification of the types of expertise required for its development.

Note: in the current absence of appropriate, operational examples of interpretive programs in Bangladesh's protected areas, participants who will be directly responsible for the development or management of an interpretive program will require additional post-course training in the form of either: 1) a study tour to examine high quality existing programs in neighboring countries; or 2) an internship under a qualified specialist in Bangladesh (see Annex G, Section 6.4.3.3).

B4. Training Curriculum for Environmental Education and Awareness

Background: Although many materials related to environmental education and mass public awareness have already been produced and circulated in Bangladesh, a closer focus on tropical forest biodiversity conservation is required in order to attain the objectives of the Foundation. A great deal of in-country expertise already exists with regard to subject area development, and materials can be mass produced to a very high standard of quality. Training supported by the Foundation will focus on translating the existing experience base to the forest conservation context.

Course Objective: to provide participants with the knowledge and practical techniques required for the preparation of high quality, effective, environmental education and public awareness materials focusing on forest conservation.

Course Description: the course will review the main forest conservation issues in Bangladesh, followed by a detailed examination of how these issues can be addressed through environmental education and promotion of public awareness. The main focus will be on development and dissemination of effective messages using existing (or appropriately modified) techniques and expertise. Problem analysis and case studies will be conducted in a workshop format, in order to encourage participants to share their experience in subject area and materials development.

Introductory Subject Areas

- Introduction to biodiversity conservation
- Guidelines for conserving biodiversity in managed forests and protected areas

Core Subject Areas

- Introduction to public awareness
- Public relations and communication
- Ecotourism and environmental education
- Problem analysis and case studies

Supplementary Subject Areas

- Defining, measuring and monitoring biodiversity
- Protected area facilities
- Development of interpretive programs

Duration: 5 days

Prerequisites: participants are expected to have prior training and/or demonstrable work experience in environmental education, development of public awareness materials related to environmental issues, teaching of biological science at primary or secondary level, or a closely related field.

Performance Standards/Learning Assessment: on successful completion of the course, participants will be able to: 1) describe the main forest conservation issues in Bangladesh and how these can be addressed through environmental education and mass awareness building; and, 2) given a specific conservation issue, conceptualize the development of appropriate educational or awareness building materials.

B5. Training Curriculum for Private Sector Conservation

Background: Management of protected forest areas in Bangladesh is currently the mandate of the Forest Department, although the involvement of other organizations has been proposed. One potential model is the management or co-management of individual protected areas or other forest sites important for biodiversity conservation, under a trial, demonstration or license arrangement, by NGOs/CBOs. The NGO/CBO model requires comprehensive training of participants in order to enable them to carry out all aspects of land management, including conservation. The basic assumption is that this model will include all of the elements of a viable protected area (i.e., programs for land use management, visitor use and visitor management, and facilities development), but cooperatively rather than government-operated.

Course Objective: to provide participants with the knowledge and practical techniques required for effective participation in a protected area management team.

Course Description: this is a broadly-based course that touches on all of the main aspects of protected area management. The course will have a dual emphasis on the conservation of biological resources, and on collaborative approaches to management that incorporate the concerns/interests of all stakeholders, from subsistence resource users to visitors to government regulatory agencies. Problem analysis and case studies will focus on an examination of international experience and best practice, and how these can best be applied in Bangladesh.

Introductory Subject Areas

- Introduction to biodiversity conservation
- Guidelines for conserving biodiversity in managed forests and protected areas
- Introduction to public awareness

Core Subject Areas

- Modern concepts of protected areas
- Defining, measuring and monitoring biodiversity
- Wildlife habitat management
- Sociology and economics of subsistence resource use
- Ecological basis for sustainable land use
- Impacts of land use in protected areas
- Problem solving and conflict resolution
- Public relations and communication
- Development of interpretive programs
- Problem analysis and case studies

Supplementary Subject Areas

- Protected area management planning and implementation
- Guidelines for zoning
- Development and application of Habitat Suitability Index Models

- Recording and reporting data
- Inter-agency coordination of land use
- Participatory mapping and documentation of land use
- Participatory management of natural resources
- Participatory management and land use agreements in protected areas
- Group formation, management and monitoring
- Ecotourism and environmental education
- Protected area facilities

Duration: 15 days

Prerequisites: participants are expected to have prior technical training in ecology, natural resource management, biological science (zoology, botany), forestry, rural sociology or a related field, and subsequent field experience working in natural forest management, wildlife management, or with community-based forest resource use.

Performance Standards/Learning Assessment: on successful completion of the course, participants will be able to: 1) define the salient features of a protected area and describe potential approaches to management in the Bangladesh context; 2) describe the main elements of a protected area management plan; 3) develop a rational zoning scheme for a hypothetical forest/rural land use area; 4) apply an international best practice solution to an individualized case study of land use conflict; and, 5) describe the main types of facilities developments and interpretive techniques that are suitable for use in protected areas.

Note: in the current absence of appropriate, operational examples of management programs in Bangladesh's protected areas, participants who will be directly responsible for the implementation of protected area management will require additional post-course training in the form of a study tour to examine high quality existing programs in neighboring countries.

C. Training Module Contents

A synopsis of the subject area (modular) content of each training course curriculum required for implementation of Foundation-supported activities is provided in Table 1. In addition to the training curricula listed, it is anticipated that some modules may be used in abbreviated refresher courses (e.g., for ongoing management programs in protected areas, problem analysis etc.), depending on the training history of the participants. The modules can also form the basis for future development of additional comprehensive training courses.

The following module descriptions provide an outline of learning objectives, subject matter content and key references for each of the proposed training modules. It is intended that the contents of the individual modules be further developed by subject area/training specialists (see Annex G, Section 7). As the individual modules are intended for multiple use (i.e., as components of the training for different types of Foundation-supported activities), contents will need to be structured such that delivery can be modified and adapted by individual course instructors according to the educational levels, existing skills and training needs of the target audience.

The training modules are based on the "training requirements for participatory protected areas management" prepared by the ADB-funded Forestry Sector Project for broad application to Forest Department staff and NGO training in Bangladesh's protected areas (Tecsult 2000d), updated and modified as required to reflect the Foundation's own goals and objectives. The primary modifications have been as follows:

- The definition of protected areas has been expanded to implicitly include any forest managed primarily for biodiversity conservation, in addition to the legally defined categories of national park, wildlife sanctuary and game reserve.

- A new introductory module on public awareness has been added to reflect the importance of awareness activities in the work of the Foundation.

- A new module on development of interpretive programs in protected areas has been added.

- The subject area content of all modules has been reviewed and updated.

- The list of reference materials has been updated. The emphasis in identifying suitable materials was on: 1) materials already assembled for training purposes by the Forestry Sector Project, and hence available in the FSP office in the Forest Department; 2) reports and publications produced in Bangladesh, and hence available from the source; and 3) reports produced by international organizations (e.g., IUCN, FAO, ADB) and known to be available in the Bangladesh offices of these organizations. A complete annotated list of the reference materials identified for use in module content development is provided in Section III. A brief description of the contents of each reference has been included as an aid to course developers in quickly identifying the most appropriate background materials for a specific trainee group or subject focus.

Table 1. Modular Contents of In-country Training Curricula for Foundation-supported Activities

Module/Subject Area	Modules to be included in training curricula for:[1]				
	Legal Issues in Forest Conservation	Buffer Zone Management	Interpretive Programs in PAs	Environmental Education and Awareness	Private Sector Conservation
1. Introductory Concepts					
1.1 Introduction to biodiversity conservation	I	I	I	I	I
1.2 Guidelines for conserving biodiversity in managed forests and protected areas	I	I	I	I	I
1.3 introduction to public awareness			S	C	I
2. Resource Management in Protected Areas					
2.1 modern concepts of protected areas	S	S	C		C
2.2 protected area management planning and implementation					S
2.3 guidelines for zoning					S
2.4 defining, measuring and monitoring biodiversity			S	S	C
2.5 wildlife habitat management			S		C
2.6 development and application of Habitat Suitability Index Models					S
2.7 recording and reporting data					S
3. Land Use Management in Protected Areas					
3.1 sociology and economics of subsistence resource use	C	C			C
3.2 ecological basis for sustainable land use	S	S			C
3.3 impacts of land use in protected areas	S		S		C
3.4 inter-agency coordination of land use	S	S			S
3.5 participatory mapping and documentation of land use		C			S
3.6 participatory management of natural resources	C	C			S
3.7 participatory management and land use agreements in protected areas	C	C			S
3.8 group formation, management and monitoring	C	C			S
3.9 problem solving and conflict resolution	C	C			S
4. Visitor Use in Protected Areas					
4.1 public relations and communication			C	C	C
4.2 ecotourism and environmental education			C	C	S
4.3 protected area facilities			C	S	S
4.4 development of interpretive programs			C	S	C
5. Field/Practical Work					
5.1 problem analysis and case studies	C	C	C	C	C
Total modules	**12**	**12**	**12**	**9**	**24**
Training duration (days)	5	5	5	5	15

[1] **I**= introductory material, **C**=core material, **S**=supplementary material

Module 1.1 Introduction to Biodiversity Conservation

Learning Objective: to understand the rationale for biodiversity conservation, and how it is currently being implemented in Bangladesh.

Content and Coverage

Definition of Conservation
Definition of Biodiversity
- Ecosystem, species and genetic levels
- Forest biodiversity

Definition of Protected Areas
- International categories
- Bangladesh categories

Overview of Current Use of and Management of Forest Biodiversity in Bangladesh
- Protected areas (location, description, current management, lessons learned)
- Subsistence use
- Forestry
- Pharmaceuticals
- Other uses

Policy and Legislative Background in Bangladesh
- National Forest Legislation and Policy
- National Conservation Strategy
- National Environment Management Action Plan (NEMAP)
- International conventions acceded to by Bangladesh

Who's Who in Forest Biodiversity Management in Bangladesh
- Role and activities of Ministry of Environment and Forests and Forest Department
- Role and activities of donors/development assistance agencies
- Role and activities of NGOs
- Role and activities of the private sector

Key References

Ali 1997; Given 1994; Glowka et al. 1994; GoB 1984, 1992, 1994, 1995; Henning 1991; Haywood 1995; Hossain 2001; Huq 1995; IUCN 1996; M.A. Khan 1998; Ledec and Goodland 1992; MacKinnon et al. 1986; MacKinnon and MacKinnon 1986; McNeely et al. 1990; Miller and Lanou 1995; Miyata 1991; MoEF and IUCN 1991; Primack 1993; Rabinowitz 1993; Tecsult 1999e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e

Module 1.2 Guidelines for Conserving Biodiversity in Managed Forests and Protected Areas

Learning Objective: to examine a spectrum of guidelines for biodiversity conservation in the protected area/sustainable use context.

Content and Coverage

Introduction
- Global biodiversity conservation issues in forest management
- Forest types and extent in Bangladesh
- Use of forest resources in Bangladesh
- Threats to forest resources in Bangladesh

Guidelines for Conserving Biodiversity in Production Forests
- IUCN/ITTO guidelines
- FSP biodiversity conservation guidelines for forest management models
- FSP guidelines for sustainable forest resources development and management

Guidelines for Conserving Biodiversity in Buffer Zones
- IUCN guidelines
- FAO guidelines
- Bangladesh Forestry Master Plan guidelines
- FSP guidelines

Guidelines for Conserving Biodiversity in Protected Areas
- IUCN guidelines
- FSP guidelines

Examples and Case Studies
- Forest restoration using framework species
- Uneven-aged harvest of long-rotation plantations
- Reduced impact logging
- Case studies from tropical forests elsewhere in the region
- Case studies from forests and protected areas in Bangladesh

Key References

Apte and Kothari 2000; Blockhus et al. 1992; Borrini-Feyerabend 1997a; DNPWC 1998c; DNPWC 1999a; Elliot et al. 1998; FAO 1999; Gain 1998a,b; Glowka et al. 1995; GoB 1992, 1993b; Islam and Islam 2001; MacKinnon et al. 1986; McNeely et al. 1997; McQuistan 1998; Miller and Lanou 1995; Nurse et al. 1995; Peters 1994; Poore and Sayer 1991; Sayer 1991a,b; Siddiqi 1986; Stone et al. 1997; Tecsult 1999e,f,g,h; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e; Wild and Mutebi 1996

Module 1.3 Introduction to Public Awareness

Learning Objective: to examine the rationale and methodologies for promoting public awareness of biodiversity conservation.

Content and Coverage

Definitions
- Communication
- Public awareness
- Environmental education

Development Considerations
- Developing institutions and building capacity
- Developing and using formal environmental education
- Developing and using non-formal education

Design Considerations
- Using mass media
- Building environmental awareness in urban areas
- Building environmental awareness at grassroots level
- Building environmental awareness in protected areas

Strategic Considerations
- What are the issues?
- What is the message?
- Who will develop it?
- Who will deliver it?
- How will it be delivered?
- How much will it cost?
- How will effectiveness be evaluated?

Methodologies
- Setting goals through stakeholder meetings
- Identifying the target audience
- Setting the institutional framework
- Identifying intermediary groups
- Conducting baseline research on knowledge levels, attitudes and practices
- Assessing cultural, social and economic factors
- Conducting action research to identify key messages
- Selecting messages and channels of communication
- Determining timing and frequency
- Assessing the impacts of awareness campaigns

Case Studies and Examples

Key References

Berkmuller 1981; Haque 2000; Henning 1993; MacKinnon et al. 1996; Roy and Hossain 1997; Saeed et al. 1998; Tecsult 2001f; Zeitlyn 1992

Module 2.1 Modern Concepts of Protected Areas

Learning Objective: to develop an advanced understanding of why protected areas are important, how individual areas are selected, and how protected areas systems are developed.

Content and Coverage

Definition of Protected Areas
- International categories
- Current global coverage

Bangladesh's Protected Areas System
- Categories
- Location, description and coverage by biogeographic zone

Criteria for Systems Planning and Site Selection
- Size
- Condition
- Representativeness
- Degree of threat
- Contribution to regional coverage
- Setting priorities

Policy, Legal and Administrative Requirements

Management Planning and Implementation
- Protected area management plans
- Annual work plans

Integration with Regional Land Use
- Benefits of protected areas
- Coordination requirements

Local People and Protected Areas
- Management of pre-existing land use
- Implications of donor policies on indigenous peoples

Management of Ecosystem and Biodiversity Resources
- Maintenance of ecosystem, species and genetic diversity
- Management of land use

Management of Visitor Use
- Ecotourism
- Environmental education
- Facilities development and management

Key References

ADB 1996b; Ali and Habib 1998; Berkmuller 1989; Claridge 1999; Given 1994
GoB 1984, 1992; Henning 1991; Heywood 1995; IUCN 1996; Hamilton et al. 1996; Johnson 1995; KMTNC 1996, 1998; M.A. Khan 1998; MacKinnon and MacKinnon 1986; MacKinnon et

al. 1986; Miyata 1991; Parr 2000, 2001; Primack 1993; Rabinowitz 1993; Tecsult 2000f; USDI 1993

Module 2.2 Protected Area Management Planning and Implementation

Learning Objective: to develop an understanding of protected area management plan development, including a detailed review of management plan structure, as background to protected area management implementation.

Content and Coverage

Purpose of a Management Plan
The Management Planning Process
- Planning team formation
- Collation of background information
- Field inventory
- Assessment of limitations and assets
- Review of regional inter-relationships
- Determination of area objectives
- Review of area boundaries
- Management zoning
- Design of management programs
- Determination of staffing requirements
- Planning of physical facilities
- Scheduling of activities
- Financial planning
- Preparation and review of draft plan
- Analysis and evaluation of feedback
- Plan finalization
- Monitoring and revision

Management Plan Contents
- Introduction and background
- Description and inventory of the area
- Management objectives and approach
- Management programs (administration, resource management and protection, visitor use and management, development program)
- Appendices (summary of land uses and associated management actions, roles and responsibilities, schedule, budget)

Annual Work Plans

Key References

Canadian Parks Service 1988; Claridge 1999; FAO 1978; Given 1994; Heywood 1995 MacKinnon et al. 1986; Rabinowitz 1993; Tecsult 1999e,f,g; Tecsult 2000a,b,c,d; Tecsult 2001a,b,c,d,e,f

Module 2.3 Guidelines for Zoning

Learning Objective: to review zoning concepts and guidelines for land use within a proposed zoning system, as background to protected area management implementation.

Content and Coverage

Concepts and Definitions
- Core zones
- Buffer zones

Proposed Zoning System
- Intensive use zones
- Village use zones
- Transportation corridors
- Sustainable use zones
- Cultural/historic sites
- Special visitor use zones
- Habitat management zones
- Ecosystem management zones
- Complete protection zones
- External buffer zones
- Elephant movement corridors

Land Use Activity/Zoning Matrix

Examples and Case Studies
- Lawachara National Park
- Teknaf Game Reserve

Key References

Berkmuller 1989; Canadian Parks Service 1988; Given 1994; MacKinnon et al. 1986; Parr 2001; Tecsult 1999b,e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e

Module 2.4 Defining, Measuring, and Monitoring Biodiversity Conservation

Learning Objective: to develop practical tools for managing forest biodiversity.

Content and Coverage

Definitions
- Biological diversity at the ecosystem, species and genetic levels

Overview of the Biodiversity of Bangladesh
- Ecosystems (emphasizing forests)
- Major species groups (birds, mammals, herptiles, fishes, insects, others)
- Biodiversity in protected areas

Measuring Biodiversity
- Types of measurements relevant to protected areas (ecosystem area, species distribution and abundance)
- Overview of methodology (remote sensing, transect surveys, plot surveys etc.)
- Design considerations
- Data analysis and reporting

Monitoring Biodiversity
- Purpose of monitoring
- Overview of methodology (replicated remote sensing and surveys, Habitat Suitability Index Models etc.)
- Design and timing considerations
- Data analysis and reporting

Use of Biodiversity Information in Protected Area Management
- Zoning
- Resource protection
- Management of land use and visitor use

Examples and Case Studies
- From protected areas elsewhere in the region
- From protected areas in Bangladesh

Key References

Brown et al. 1993; Burley and Gauld 1995; Glowka et al. 1995; GoB 1992; Heywood 1995; Hossain 2001; Johnson 1995; M.A. Khan 1998; M.S. Khan 1998; Ledec and Goodland 1992; Leech and Ali 1997; McNeely et al. 1990, 1997a; Miller and Lanou 1995; Sah et al. 1999

Module 2.5 Wildlife Habitat Management

Learning Objective: to develop a basic understanding of the theory and practice of habitat management in the protected areas context.

Content and Coverage

Definitions
- Habitat
- Hbitat management

Function of Wildlife Habitat
- Food
- Shelter
- Travel

Structure of Wildlife Habitat
- Vegetation structure (species composition, height, layering, density etc.)
- Interspersion of critical resources (food trees; resting, escape and travel areas)
- Block or habitat unit size
- Block or habitat unit interspersion and contiguity
- Total habitat availability

Reasons for Habitat Management
- Maintaining habitat integrity and interspersion in and around protected areas
- Improvement of habitat for selected key species

Habitat Management Techniques
- Habitat evaluation and monitoring
- Control of land use
- Habitat protection
- Facilitating forest succession
- Habitat restoration
- Maintaining secondary vegetation
- Maintaining riparian vegetation
- Wetland management

Examples and Case Studies
- Management of habitat in Lawachara National Park
- Management of habitat in Teknaf Game Reserve

Key References

Berkmuller 1989; Elliot et al. 1998; Heywood 1995; Higgs 1997; Primack 1993; Tecsult 1999f, 2000a

Module 2.6 Development and Application of Habitat Suitability Index Models

Learning Objective: to develop a theoretical and practical understanding of the development and application of HSI models, one of the major tools for long-term habitat management in protected areas.

Content and Coverage

Concepts and Definitions
- Key species
- Habitat suitability
- Habitat suitability index
- Habitat suitability model

Use of Habitat Suitability Models
- Habitat suitability assessment
- Habitat suitability modeling
- Assessment and/or prediction of location and scale of habitat change due to land uses
- Land use decision-making
- Habitat manipulation and management

Development of Habitat Suitability Models
- Selection of key species
- Review of habitat requirements
- Identification of measurable habitat variables and variable categories
- Model construction

Application of Habitat Suitability Models
- Delineation of boundaries of application area
- Measurement of habitat variables
- Calculation and mapping of habitat suitability values
- Prediction of changes in habitat variables due to proposed land use or habitat manipulation (predictive mode)
- Calculation of changes in habitat suitability values due to proposed land use or habitat manipulation (predictive mode)

Examples and Case Studies
- Example from the literature
- Development and application of a capped langur HSI model for Bangladesh

Key References

Berry 1986; Brand et al. 1986; Davis and DeLain 1986; Kirkman et al. 1986; Kushwaha et al. 2000; Lancia et al. 1986; Laymon and Barrett 1986; Salwasser 1986; Schamberger and O'Neil 1986; Short and Williamson 1986; Tecsult in prep.(a, b, c); Tecsult 2000a,b; Toth et al. 1986

Module 2.7 Recording and Reporting Data

Learning Objective: to develop the awareness and skills required to record and report observations on land use and wildlife, and to participate effectively in surveys and data collection exercises.

Content and Coverage

Making Observations
- Purpose and use of observations
- Observation techniques
- Types and use of equipment

Recording Observations
- Field notes
- Data sheets
- Sketches
- Photographic records

Recording Locations
- Use of satellite imagery, aerial photographs and topographic maps
- Use of compass and GPS
- Map coordinates
- Sketch maps

Analyzing and Storing Records
Preparing Reports
Examples

Key References

Bakar 1990; Berkmuller 1989; Rabinowitz 1993

Module 3.1 Sociology and Economics of Subsistence Resource Use

Learning Objective: to develop an overview of the socio-economic setting of subsistence resource use in protected areas, and how this use can be evaluated and managed.

Content and Coverage

Overview of Types of Subsistence Resource Use in and Around Protected Areas
- Fuelwood harvesting, grazing and fodder collection, harvesting of building materials, harvesting of craft and medicinal NTFPs, hunting and fishing, agriculture

Socio-economy of Subsistence Resource Use
- Local social structures
- Local attitudes toward resource harvesting, depletion and conservation
- Participation by sex and age groups in resource harvesting activities
- Degree of dependence on protected area resources
- Impacts of population dynamics on resource use and conservation
- Costs and benefits

Methods for Assessing Types of Subsistence Resource Use and Degree of Dependence in Protected Areas
- Review of existing information, interviews, participatory mapping, field observations, in-depth studies, secondary information

Identification of Management Options
- Regulation and enforcement
- Participatory management
- Development of replacement resources
- Development of employment opportunities

Socio-economic Development Strategies
- Environmentally friendly agriculture within and adjacent to protected areas
- Sustainable harvest of wood resources and NTFPs
- Alternative energy sources

Examples and Case Studies
- Example from the region
- Case study from Bangladesh

Key References

ADB 1996a,b; Ahmed 1998; Ahmed 2001; Alam 1998; Alam et al. 1996; Alam and Mohiuddin 1995; Alcorn 1997; Ali 2001; Banik 1998; BCAS 1996; Borrini-Feyerabend et al. 1997; BSP 1998; DNPWC 1998d; Fountain and Desh Upodesh 1996; GoB 1992, 1993b, 1997; Hossain 1998; M.S. Khan 1998; N.A. Khan 1998a,b; Khisa 1998; Kothari 1997; Moral 1998; Nawaz and Kabir 2001; Poffenberger 1997; Rana et al. 2001; Rastogi 1998a; Shengi and Godbole 1998; Siddiqi 1998; Tecsult 1999c,d,e,f,g; Tecsult 2000a,b; Wickramasinghe 1997

Module 3.2 Ecological Basis for Sustainable Land Use

Learning Objective: to develop an understanding of the concept of sustainable use within the protected areas context.

Content and Coverage

Key Concepts
- Annual increment
- Carrying capacity and sustainable harvest levels

Problems in Managing "Open Access" Resources
- Competition for resources
- Short-term vs. long-term benefits

Benefits of Sustainable Use
- Ecological/environmental benefits
- Economic benefits

Ecological Effects of Unsustainable Use
- Resource degradation
- Socio-economic impacts

Examples and Case Studies
- From Bangladesh (general)
- From FSP-supported protected areas

Key References

Ali 2001; Callicott and Mumford 1997; Gain 1998a; Hagen 1997; Heywood 1995; Hussain et al. 1999; Islam and Islam 1998; Jodha and Russell 1997; Kohler and Aalbers 1997; Ledec and Goodland 1992; Martin 1997; McNeely et al. 1997a,b; Mia et al. 2001; Murphee 1997; Peters 1994; Primack 1993; Sayer 1991a,b; Tecsult 1999c,d,e,f,g; Tecsult 2000a,b; Wollenberg and Colfer 1997

Module 3.3 Impacts of Land Use in Protected Areas

Learning Objective: to review types of existing land use in protected areas, their impacts, and methods of assessment and control.

Content and Coverage

Types of Land Use in Bangladesh's Protected Areas
- Subsistence land use
- Existing infrastructure and developments
- Potected area management and visitor use

Ecological Impacts
- Rduction in area of natural ecotypes (forests, wetlands)
- Rduction in quality of natural ecotypes
- Loss of plant and animal biodiversity

Visual Impacts
- Habitat damage and degradation
- Inappropriate/poorly maintained facilities
- Litter

Auditory Impacts
- Noise pollution/reduction of visitor enjoyment
- Noise effects on wildlife distribution and habitat use

Methods for Assessing and Controlling Impacts
- Environmental impact assessments
- Management planning and implementation

Examples and Case Studies
- From protected areas elsewhere in the region
- Lawachara National Park and Rema-Kalenga Wildlife Sanctuary Management Plans (focusing on table listing management actions required in relation to existing/potential land uses)

Key References

Berkmuller 1989; GoB 1992; KMTNC 1996; Ledec and Goodland 1992; MacKinnon et al. 1986; Mia et al. 2001; Tecsult 1999e,f,g,h; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e

Module 3.4 Inter-Agency Coortdinator and for Sustainable Land Use

Learning Objective: to develop an understanding of how activities of land management and other agencies impinge on protected areas management.

Content and Coverage

Land Uses Impinging on Protected Areas
- Internal uses (roads, power lines, railroads, oil and gas exploration, military use etc.)
- Adjacent external uses (as above, plus agriculture and other rural developments, tea estates, settlement etc.)
- Responsible authorities

Why Land Use Coordination is Required
- Benefits (long-term sustainability of land use; avoidance of negative impacts on environment and conservation values in protected areas; maintenance of conservation values in adjacent and linking areas etc.)
- Impacts of poor or no coordination

Coordination Mechanisms
- Coordination of central planning (inter-ministerial level)
- Coordination of external (development assistance) inputs
- District and Thana administrations
- Personal contacts between protected areas staff and field manager of other agencies

Examples and Case Studies
- From protected areas elsewhere
- From protected areas in Bangladesh

Key References

ADB 1996a; Ali 1997; Gain 1998a; GoB 1992, 1997; MacKinnon et al. 1986; Tecsult 1999e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e

Module 3.5 Participatory Mapping and Documentation of Land Use

Learning Objective: to develop an overview of the use of participatory mapping in developing participatory/cooperative management of natural resources.

Content and Coverage

Purpose of Participatory Mapping
- Documentation of local resource use and management systems
- Documentation of local knowledge on resource distribution and status
- Documentation of local perceptions of resource use rights

Materials and Methods
- Types of maps
- Information sources (who should contribute?)
- Recording and verifying map-based information
- Formal and informal interviews

Examples and Case Studies
- From elsewhere in the region
- From Bangladesh

Key References

Ahmed 1998; Alam 1998; Alcorn 1997; Bakar 1990; Berkmuller 1989; Borrini-Feyerabend 1997a; Fox 1990; Poffenberger 1997; Rabinowitz 1993; Rastogi 1998a,b; Tecsult 1999c; van den Hoek et al. 1995; Worah et al. 1999

Module 3.6 Participatory Management of Natural Resources

Learning Objective: to develop an overview of the concepts and application of participatory management of forest resources, drawing on current worldwide best practice, and on applications in Bangladesh and elsewhere in the region.

Content and Coverage

Part One:
Definitions and Key Concepts
- Participatory, collaborative, cooperative and community-based management
- Indigenous resource management systems
- Land tenure and property rights
- Sustainable use and social sustainability
- Social fencing
- Compensation and substitution
- Incentives and disincentives
- Benefits-sharing
- Participatory monitoring and evaluation

Major *Problems* in the Implementation of Participatory Management Models
Major *Successes* in the Implementation of Participatory Management Models

Part Two:
Subsistence Use of Forest Resources in Bangladesh
- Types and location of use
- Socio-economic importance

Legal Status of Subsistence Use of Forest Department Lands
- Reserved forests
- Protected areas

Current Management of Subsistence Use of Forest Department Lands
- Reserved forests
- Protected areas

Participatory Management Models Currently in Use in Bangladesh (block plantations; agroforestry; institutional tree plantations; linear strip plantations; participatory management of sal coppice forests, natural forests, jhumia rehabilitation)
- Implemented by FD
- Implemented by NGOs
- Biodiversity conservation measures associated with each model
- Lessons learned

Additional Forest Management Models with Potential for Application in Bangladesh
- Uneven-aged harvest of long-rotation plantations
- Continuous incremental harvest of woodlots
- Woodlots and natural forests on tea estate lands

Examples and Case Studies

From elsewhere in the world and the region
From Bangladesh

Key References

ADB 1996a,b; Ahmed 2001; Alcorn 1997; Ali 2001; Ali and Habib 1998; Apte and Kothari 2000; Banik 1998; Borrini-Feyerabend 1997a,b,c; Borrini-Feyerabend and Brown 1997; BSP 1998; Choudhury 2001; DNPWC 1998a,b,c,d; DNPWC 1999a,b,c; Fountain Renewable Resources and Desh Upodesh 1996; Gain 1995, 1998b; GoB 1984, 1992, 1993a, 1993b, 1997; Heywood 1995; Huq 1987; Hussain 1995; Hussain et al. 1999; Jodha and Russell 1997; Kabraji 1997; Karlsson 1999; Khattak 1995; Khisa 1998; Kohler and Aalbers 1997; M.S. Khan 1998; Leisher 2001; MacKinnon et al. 1986; McNeely et al. 1997b; McQuistan 1998; Moral 1998; Murphee 1997; N.A. Khan 1998a,b; Ostrom 1997; Parr and Parr 1998; Poffenberger 1997; Pokharel et al. 1999; Price 1995; Primack 1993; Rana et al. 2001; Rastogi 1998; Renard 1997; Rimal 2000; Sayer 1991b; Siddiqi 1998; Spergel 1997; Tecsult 1999c,d,e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e; Van den Hoek et al. 1995; Wild and Mutebi 1996; Wollenberg and Colfer 1997; Worah *et al*. 1999

Module 3.7 Participatory Management and Land Use Agreements in Protected Areas

Learning Objective: to develop an expanded understanding of the material covered in the "Participatory Management of Natural Resources" module and an overview of the development of land use agreements.

Content and Coverage

Purpose of Land Use Agreements
- Involvement of all relevant and legitimate stakeholders in the management and conservation of a defined set of resources
- Specification of respective roles, responsibilities and rights in management
- Rationalization and stabilization of resource use

Information Needs for the Development of Land Use Agreements
- Current land uses (types, location)
- Current land users

Land Use Agreement Content and Structure
- Territorial boundaries
- Agreed use types and levels
- Recognized users
- Benefits sharing
- Duration of agreement
- Procedures for dealing with conflicts
- Accountability and sanctions
- Procedures for monitoring and evaluation

Roles and Responsibilities in the Development and Implementation of Land Use Agreements
- Forest Department
- NGOs
- Resource users

Monitoring and Success Indicators
- Resource condition
- Resource user participation
- Extension/continuation of agreement

Examples and Case Studies
- From elsewhere in the region
- From Bangladesh

Key References

ADB 1996b; Ahmed 2001; BSP 1998; DNPWC 1998a,b,c,d; DNPWC 1999a,b,c; GoB 1997; N.A. Khan 1998a,b; Rimal 2000; Tecsult 1999c,d,e,f,g; Tecsult 2000a,b,c; Tecsult 2001a-e

Module 3.8 Group Formation, Management and Monitoring

Learning Objective: to develop practical guidelines for the formation and management of user groups for participatory management of protected areas and buffer zone resources, and to examine the application of guidelines through the use of case studies.

Content and Coverage

Community Mobilization
- For joint protected area management
- For buffer zone management

Purpose of Group Formation in and Around Protected Areas
- Resource management
- Community development
- Income generation
- Savings and credit
- Skill enhancement
- Conservation awareness
- Green enterprises

Levels of Organization
- Community-based organizations (CBOs)
- User groups

Group Formation and Management
- Group size and composition
- Group leadership
- Group training
- Group activities and decision-making

Benefits Sharing
Long-term Planning
Monitoring
Case Studies
- From Bangladesh
- From Nepal and India

Key References

ADB 1996a; BSP 1998; DNPWC 1998b, 1999a; Fountain Renewable Resources 1996; GoB 1997; Rana et al. 2001; Rimal 2000; Tecsult 1999c,d,e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e; Worah et al. 1999

Module 3.9 Problem Solving and Conflict Resolution

Learning Objective: to understand the issues involved in problems and conflicts among stakeholders/users in protected areas, and how these can be resolved.

Content and Coverage

Current Resource Use in and Around Protected Areas
Socio-economic Basis of Resource Use
Legal Status of Resource Use
Current Resource Use Control Mechanisms
Types of Problems and Conflicts
- Problems and conflicts with other resource management agencies
- Problems and conflicts with resource users
- Problems and conflicts with visitors

Conflict Resolution Mechanisms
- Understanding conflict origins
- Analysis of options
- Discussion, negotiation and arbitration
- Formal and informal agreements
- Legal measures

Examples and Case Studies
- From Bangladesh (general)
- From FSP-supported protected areas

Key References

Berkmuller 1989; Borrini-Feyerabend 1997a; Gorkhali 1986; Lewis 1996, 1997; Mia et al. 2001; Rabinowitz 1993; Reti 1986; Rimal 2000; Worah et al. 1999

Module 4.1 Public Relations and Communication

Learning Objective: to develop an understanding of the key concepts of public relations and communication, why they are important, and how they need to be applied in the protected areas context.

Content and Coverage

Definitions
- Public relations
- Communication

Why Public Relations and Communication are Important
- Benefits of good public relations/communication
- Problems resulting from poor public relations/communication

Application of Public Relations and Communication
- Visitor information services
- Visitor control
- Outreach and extension (schools, villagers, resource users)
- Publicity
- Inter-agency coordination

Roles and Responsibilities
- Protected areas staff
- Local residents
- Visitors

Examples and Case Studies

Key References

Berkmuller 1981; 1989; Borrini-Feyerabend 1997a,b; Haque 2000; Lewis 1996; MacKinnon et al. 1986; Saeed et al. 1998; Tecsult 2000f; Zeitlyn 1992

Module 4.2 Ecotourism and Environmental Education

Learning Objective: to develop an overview of ecotourism in protected areas.

Content and Coverage

Definitions
- Ecotourism
- Environmental education
- Visitor carrying capacity

Impacts of Ecotourism
- Positive
- Negative

Current Government Policy towards Ecotourism
- General
- In protected areas

Policy Development Requirements
- Role of government
- Role of the private sector
- Role of local people
- Environmental ethics

Marketing and Training Requirements

Facilities Requirements
- Transportation
- Accommodation
- Information
- Special facilities (environmental education/information centers, nature trails)

Roles and Responsibilities
- Protected area management authorities
- Local communities
- Tourism operators

Development Guidelines

Examples and Case Studies
- From protected areas elsewhere in the region
- From Bangladesh

Key References

Andersen 1993; Berkmuller 1981, 1989; Boo 1993; Brandon 1993; Ceballos-Lascurain 1993, 1996; Consulting and Audit Canada 1995; Ecotourism Society 1993; Given 1994; GoB 1992; Gurung 1998; Haque 2000; Henning 1991, 1993; Heywood 1995; International Working Group on Indicators of Sustainable Tourism 1993; KMNTC 1996; Lash 1997; Lwin 1998; McNeely et al. 1992; Roy and Hossain 1997; Saeed et al. 1998; Sayer 1991b; Schulze 1998; Tecsult 2000a,b; Tecsult 2001f; USDI 1993; Valentine and Budowski 1997; Western 1993; Zeitlyn 1992

Module 4.3 Protected Areas Facilities

Learning Objective: to develop an understanding of what types of facilities and equipment are necessary for protected areas management (and what facilities and equipment are inappropriate), and how, when and where facilities should be developed.

Content and Coverage

Planning for Facilities Development
- Identification of requirements during management planning
- Importance of avoiding ad hoc or opportunistic developments

Types of Facilities
- Protected areas office facilities
- Staff accommodation
- Environmental education/nature interpretation centers
- Picnic areas
- Signs and boundary markers
- Trails

Facilities Development
- Site location and planning
- Design and materials standards
- Construction standards

Facilities Maintenance
- Incorporating maintenance in planning
- Consequences of no or poor maintenance (visual impacts, building deterioration etc.)

Roles and Responsibilities in Facilities Development and Maintenance
- Protected areas authorities
- Contractors
- Visitors/users

Equipment Requirements
- Identification of requirements during management planning
- Typical types of requirements (vehicles, office equipment, communications, field equipment)

Examples and Case Studies
- Facilities development in protected areas elsewhere in the region
- Facilities development in FSP-supported protected areas
- Equipment requirements in FSP-supported protected areas

Key References

Alberta Community Development 1989a, 1989b; Alberta Tourism, Parks and Recreation 1988; Berkmuller 1989; Ceballos-Lascurain 1996; MacKinnon et al. 1986; Tecsult 1999e,f,g; Tecsult 2000a,b,c; Tecsult 2001a,b,c,d,e,f; USDI 1993

Module 4.4 Development of Interpretive Programs

Learning Objective: to learn how to design, deliver and maintain nature interpretation programs in protected areas.

Content and Coverage

Target Groups
- Special interest groups (school groups, birdwatchers, hikers, ecotourists)
- Causal visitors (picnickers, drive-throughs)
- Local residents

Messages
- Purpose of the protected area
- What is there to see and do, and where
- Expected visitor behavior/how visitors can help

Techniques and Design Considerations
- Brochures and leaflets
- Maps, guides, keys and checklists
- Entrance and trail signs
- Self-guided trails
- Guided tours
- Visitor information/education centers
  - Staffing
  - Displays and exhibits
  - Audio-visual presentations
- Observation towers and platforms
- Botanic gardens

Maintenance and Upkeep

Gathering feedback
- Direct discussion
- Visitor books and suggestion boxes
- Questionnaires and surveys

Examples and Case Studies
- Positive and negative features of existing facilities in Bangladesh (Bhawal, Dulhazara, Madhupur)
- Review and critique of proposed facilities at Lawachara

Key References

Alberta Community Development 1989a, 1989b; Alberta Tourism, Parks and Recreation 1988; Andersen 1993; Berkmuller 1979, 1981, 1989; Ceballos-Lascurain 1996; Ecotourism Society 1993; Henning 1993; MacKinnon et al. 1986; Tecsult 2000, 2001f

Module 5.1 Field Work (Problem Analysis and Case Studies)

Learning Objective: to obtain exposure to working examples of subjects covered in selected classroom-based modules, and hands-on training in selected field techniques.

Content and Coverage

Conserving biodiversity in managed forests and protected areas
Habitat assessment and management
Participatory mapping and community consultations
Problem solving and conflict resolution
Public relations and communication
Cooperative management and land use agreements in protected areas
Participatory mapping and documentation of land use
Group formation
Legal aid

Key References

GoB 1993b; Tecsult 1999e, f, g; Tecsult 2000a, b; Tecsult 2001f

SECTION III

Annotated Bibliography of Training Materials 1

ADB. 1996a. Project Administration Memorandum, Forestry Sector Project, Bangladesh (Loan No. 1486-BAN). Agriculture and Social Sectors Department (West), Forestry and Natural Resources Division, Asian Development Bank.

Provides details on project description, cost estimates and financing, implementation arrangements, monitoring and evaluation, and reporting requirements.

ADB. 1996b. The Bank's policy on indigenous peoples. Office of Environment and Social Development, Asian Development Bank, Manila.

Defines indigenous peoples, reviews laws and conventions affecting them, and details ADB's policy objectives, processes and approaches regarding indigenous peoples and development.

Ahmed, F.U. 1998. Rural appraisal technique for hilly areas of Bangladesh. Pages 71-75, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses the use of Rapid Rural Appraisal and other techniques in assessing use of forest products.

Ahmed, F.R. 2001. Community forestry project design and implementation through Rapid Rural Appraisal (RRA). Journal of Forestry & Environment, Institute of Forestry and Environmental Sciences, University of Chittagong, Bangladesh: 85-96.

Analyzes socio-cultural, institutional and technological problems encountered during the design and implementation of community forestry projects in Bangladesh, and proposes changes in policy and approach to design, implementation, monitoring and evaluation.

Alam, K. 1998. Documentation of ethnobiological information. Pages 28-29, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses methodology for documenting ethnobotanical knowledge for use in designing sustainable development and alternative economic options.

Alam, K., M. Mohiuddin and S.R. Basak. 1996. Village trees of Bangladesh: diversity and economic aspects. Bangladesh Journal of Forest Science 25(1 & 2):21-36.

Describes the importance of village tree production systems in Bangladesh, and their role in species and genetic conservation of trees.

Alam, K. and M. Mohiuddin. 1995. Conservation of tree diversity through betel-leaf (Piper betle) based agroforestry in Sylhet. Bangladesh Journal of Forest Science 24(2):49-53.

Provides a case study of an agroforestry system that may be effective in managing and conserving tree diversity in mixed tropical evergreen hill forest.

Alberta Community Development. 1989a. Signs for park and recreation areas. Recreation Division, Alberta Community Development, Edmonton, Canada.

Provides guidelines for design, construction and maintenance of signage in protected areas.

Alberta Community Development. 1989b. Recreation trails. Recreation Division, Alberta Community Development, Edmonton, Canada.

Provides guidelines for design, construction and maintenance of trails in protected areas.

Alberta Tourism, Parks and Recreation. 1988. Making a park brochure. Community Recreation and Sport Branch, Alberta Tourism, Parks and Recreation, Edmonton, Canada.

Provides guidelines for design and preparation of information brochures for protected areas.

Alcorn, J.B. 1997. Indigenous resource management systems. Pages 8-13, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Discusses agro-ecosystems, institutions and tenure, management rules, and conservation as culture, with an example from India.

Ali, M. 2001. User satisfaction: exploring applicability as sustainability indicator for forestland use. Journal of Forestry & Environment, Institute of Forestry and Environmental Sciences, University of Chittagong, Bangladesh: 16-28.

Discusses the use of social vs. resource-based (physical) indicators of sustainability of forest land use.

Ali, S.S. 1997. Report on policy and legislation. Draft final report. GOB/WB Forest Resources Management Project, Technical Assistance Component. Mandala Agricultural Development Corporation, Dhaka, Bangladesh.

Reviews the main points of the 1994 National Forestry Policy, the National Conservation Strategy, the National Environment Management Action Plan, and international conventions to which Bangladesh is a party.

Ali, S.S. and M.G. Habib. 1998. Country paper – Bangladesh. Pages 77-104, in: K.P. Oli (ed.). Collaborative management of protected areas in the Asian region. Proc. of the Workshop on Collaborative Management of Protected Areas in the Asian Region, Royal Chitwan National Park, Sauraha, Nepal, 25-28 May, 1998.

Reviews the current status of collaborative management of protected areas in Bangladesh using Rema-Kalenga Wildlife Sanctuary, Lawachara National Park, Tanguar Haor and St. Martin's Island as case studies.

Andersen, D.L. 1993. A window to the natural world: the design of ecotourism facilities. Pages 116-133, in: K. Lindberg and D.E. Hawkins (eds.). Ecotourism. A guide for planners and managers. The Ecotourism Society, North Bennington, Vermont.

Focuses on the design, development and operation of facilities that embody the general principles of environmentally sensitive design and sustainable development.

Apte, B. and A. Kothari. 2000. Joint protected area management. A simple guide. How it will benefit wildlife and people. Kalpavriksh, Pune, India.

Describes a collaborative system of protected area management that is considered to be mutually beneficial to local communities, wildlife and wildlife habitats.

Bakar, M. A. 1990. Topographic maps. Pages 9-11, in: Handbook on land use, mapping resources and sketch mapping techniques for Bangladesh. Based on a Workshop Organized by Winrock - ADAB - HESDM, 5-7 November 1990, Dhaka, Bangladesh.

Provides definitions and descriptions of basic mapping concepts (contours, height, cartography, coordinates and scale).

Banik, R.L. 1998. Conservation and propagation challenges of bamboo and rattan resources in Chittagong Hill Tracts. Pages 103-111, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses propagation and management of bamboo and rattan in relation to indigenous use.

BCAS. 1996. Special issue: renewable energy in Bangladesh. Bangladesh Environmental Newsletter 7(4).

Contains information on solar electricity, biogas technology, biomass energy and wind energy, and current and potential applications in Bangladesh.

Berkmuller, K. 1979. Visitor information center at Nepal's Royal Chitwan National Park. Parks 4(2):17-19.

Discusses the design of a park visitor center, including layout drawings.

Berkmuller, K. 1981. Guidelines and techniques for environmental interpretation. University of Michigan, Ann Arbor.

Provides details on environmental education techniques for protected area field staff.

Berkmuller, K. 1989. Short course for field staff in protected area management. IUCN Forest Resources Conservation Project, Lao/Swedish Forestry Cooperation Program.

General skills (map reading; compass use; scale drawing of simple maps)

Habitat management (erosion control; vegetation; describing major plant communities; vegetation (habitat) mapping)

Local people management (dealing with the local people; mapping human pressure areas; settlement impact; collecting information about forest product utilization; village surveys)

Natural history (habitat types; habitat/wildlife relationships; species conservation status)

Natural resources (values of wild plants and animals)

Protected areas (objectives and categories; management, zonation and regulations)

Protection (boundary demarcation, trail survey, patrolling, building a simple guard station, anti-poaching operations)

Recreation management (overview; recreation resource inventory; coping with the impacts of recreational use; park interpretation; guide duty; trail interpretation; nature camps; facilities for recreation and education; setting up signs; trail planning and construction; setting up hides; picnic sites; objects for display; simple display techniques)

Berry, K.H. 1986. Introduction: development, testing, and application of wildlife-habitat models. Pages 3-4, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Provides history and background of wildlife-habitat modeling.

Biodiversity Support Program. 1998. Keeping watch: experiences from the field in community-based monitoring. Lessons from the Field No. 1.

Documents the experience of 12 conservation practitioners with community-based monitoring.

Blockhus, J. M., M.R. Dillenbeck, J.A. Sayer and P. Wegge. 1992. Conserving biological diversity in managed tropical forests. IUCN, Gland, Switzerland and Cambridge, U.K.

Provides guidelines for conserving biological diversity in forests managed for timber.

Boo, E. 1993. Ecotourism planning for protected areas. Pages 15-31, in: K. Lindberg and D.E. Hawkins (eds.). Ecotourism. A guide for planners and managers. The Ecotourism Society, North Bennington, Vermont.

Provides “ecotourism diagnostic and planning guidelines” for protected area managers.

Borrini-Feyerabend, G. (ed.). 1997a. Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Community and public meetings (pp. 122-123). Discusses steps in using meetings as a tool for information dissemination, for discussion of issues, and for planning.

Natural group interviews (p. 131). Discusses casual group interviews as a technique for getting a broad sense of local views on common interests.

Focus group interviews (p. 132). Outlines the use of semi-structured focus group discussions as a tool to identify and describe group perceptions, attitudes and needs.

Semi-structured interviews with key informants (p. 131). Discusses the use of general questions addressed to knowledgeable individuals as a tool for obtaining qualitative and quantitative information.

Land-use mapping and historical mapping (pp. 138-139). Discusses purpose, steps, and strengths and weaknesses.

Gender analysis (pp. 141-142). Discusses why and how an analysis of gender is important in understanding how resource users and managers relate to each other and to various resources.

A process for negotiation/mediation (pp. 153-156). Outlines general principles of negotiation/mediation and steps in the process.

Stakeholder accounts (pp. 158-159). Discusses the use of informal verbal presentations for communicating concerns and ideas about conservation initiatives.

Community involvement to plan the evaluation (pp. 160-161). Discusses how to involve insiders (local communities) in the evaluation of conservation initiatives.

Community-based environmental assessment (p. 162). Discusses how to obtain a community perspective on the state of the environment, as part of a monitoring/evaluation process.

SWOL Analysis (pp. 163-164). Discusses the use of SWOL (Strengths, Weaknesses, Opportunities and Limitations) Analysis in obtaining group perceptions.

Helping stakeholders organize (pp. 182-185). Provides a number of examples of successful stakeholder organization, including one from Bangladesh (Grameen Bank).

Strengthening local institutions for resource management (pp. 188-189). Case studies from Senegal, Nepal, Zimbabwe, Uganda and Australia.

Participatory appraisal and planning (pp. 198-203). Examples of land use appraisal and community planning from Madagascar, Uganda, Pakistan, the Philippines, Kenya and Tanzania.

Collaborative management agreement (pp. 203-205). Case studies from Madagascar, Pakistan, South Africa, Columbia and India.

Assessment of local uses of natural resources (pp. 219-222). Case studies from India, Tanzania, Thailand, Papua New Guinea and Uganda.

Zoning to separate incompatible land uses (pp. 236-237). Case studies from Brazil and Venezuela, Uganda and Australia.

Jobs for local people (pp. 242-243). Provides examples of employment creation in relation to conservation initiatives in India, Uganda, Senegal and Mali.

Borrini-Feyerabend, G. 1997b. Participation in conservation: why, what, when, how? Pages 26-31, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Discusses benefits, problems and effectiveness of participation.

Borrini-Feyerabend, G. 1997c. Primary environmental care. Pages 74-78, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Describes the Primary Environmental Care approach to community-based sustainable development, and its role in meeting local needs, protecting the local environment and empowering local communities.

Borrini-Feyerabend, G. and M. Brown. 1997. Social actors and stakeholders. Pages 3-7, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Discusses the need for equitable representation of different stakeholders in the management of resources of common interest, with examples.

Borrini-Feyerabend, G., A. de Sherbinin and G. Ness. 1997. Population dynamics and conservation. Pages 17-21, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Discusses how population dynamics affects the degree and rate of use of natural resources, and how population dynamics can be taken into account in conservation initiatives.

Brand, G.J., S.R. Shipley and L.F. Ohmann. 1986. Linking wildlife and vegetation models to forecast the effects of management. Pages 383-387, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Discusses the combined use of vegetation dynamics models and wildlife habitat suitability models for evaluating forest management alternatives.

Brandon, K. 1993. Basic steps toward encouraging local participation in nature tourism projects. Pages 134-151, in: K. Lindberg and D.E. Hawkins (eds.). Ecotourism. A guide for planners and managers. The Ecotourism Society, North Bennington, Vermont.

Discusses basic issues in working with local communities to ensure that ecotourism development is consistent with local social, ecological and economic objectives.

Brown, K., D. Pearce, C. Perrings and T. Swanson. 1993. Economics and the conservation of global biological diversity. Working Paper Number 2. Global Environment Facility, UNDP, UNEP, The World Bank, Washington, DC.

Concepts and measures of biological diversity (meaning, measurement, extinction, assessing and monitoring biodiversity for conservation) (pp. 3-9)

Burley, J. and I. Gauld. 1995. Measuring and monitoring forest biodiversity. A commentary. Pages 19-37, in: T.J.B. Boyle and B. Boontawee. (eds.). Measuring and monitoring

biodiversity in tropical and temperate forests. Proc. of an IUFRO Symposium held at Chiang Mai, Thailand, August 27th-September 2nd, 1994.

Describes biodiversity indicators (species-area relationships, keystone species, ecological indicator species, taxic groups, functional groups) and assessment methods (traditional forest inventory and vegetation analysis, molecular methods; remote sensing; databases and geographic information systems).

Callicott, J. B. and K. Mumford. 1997. Ecological sustainability as a conservation concept. Conservation Biology 11(1): 32-40.

Develops an ecological model of sustainability based on meeting human needs without compromising the health of ecosystems.

Canadian Parks Service. 1988. Jasper National Park. Management plan summary. Canadian Parks Service, Environment Canada, Ottawa.

Summarizes zoning concepts, management programs, environmental and socio-economic assessments, and implementation strategy for a large, well-established national park.

Ceballos-Lascurain, H. 1993. Ecotourism as a worldwide phenomenon. Pages 12-14, in: K. Lindberg and D.E. Hawkins (eds.). Ecotourism. A guide for planners and managers. The Ecotourism Society, North Bennington, Vermont.

Discusses the development of ecotourism and the need for training and appropriate facilities.

Ceballos-Lascurain, H. 1996. Tourism, ecotourism and protected areas: the state of nature-based tourism around the world and guidelines for its development. IUCN, Gland, Switzerland, and Cambridge, U.K.

Includes chapters on tourism and the environment; negative tourism impacts; government policy in relation to tourism and protected areas; creating and managing tourism in protected areas; assessment, monitoring and management techniques; and preparing protected areas for tourism.

Tourism and the environment (pp. 19-54). Discusses nature-based tourism and ecotourism, the evolution of ecotourism, the promotion of tourism to protected areas, issues facing protected areas, mutual benefits for tourism and protected areas, the economic value of ecotourism, and potential conflicts.

Creating and managing tourism in protected areas (pp. 101-128). Discusses creation of a tourism management strategy, strategy implementation, key elements of a tourism management plan, working with tourism operators and working with local communities, with examples.

Producing an inventory of ecotourism attractions (pp. 160-161). Checklist for preparing an inventory of ecotourism attractions in a protected area.

Choudhury, Q.I. (ed.). 2001. Chittagong Hill Tracts. State of environment. Forum of Environmental Journalists of Bangladesh, Dhaka.

Provides a collection of articles on the current state of the physical and biological environment in the CHT.

Claridge, G. 1999. Protected areas management planning. Tiger Paper, 26(2): 15-17.

Discusses management plan structure, and the need to focus on information and issues of direct relevance to protected area managers.

Consulting and Audit Canada. 1995. What tourism managers need to know. A practical guide to the development and use of indicators of sustainable development. Prep. for the World Tourism Organization, Madrid.

Provides indicators for understanding tourism's links with and impacts on natural and cultural environments.

Davis, L.S. and L.I. DeLain. 1986. Linking wildlife-habitat analysis to forest planning with ECOSYM. Pages 361-369, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Provides an example of the integration of wildlife habitat analysis into land management planning, using a database and computerized Geographic Information System (GIS).

DNPWC. 1998a. Implementation guidelines for Area Conservation Facility. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Describes the use of a seed capital fund used to support micro-credit and green enterprises in protected area buffer zones.

DNPWC. 1998b. Guidelines for the preparation of buffer zone users group plan. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Provides step by step guidelines and proformas for planning community activities in protected area buffer zones.

DNPWC. 1998c. Guidelines for forestry initiatives outside the buffer zone. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Provides guidelines for planning use of forest resources adjacent to protected area buffer zones.

DNPWC. 1998d. Community-based biodiversity conservation. Strategy and operational framework. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Describes the Parks and People Program in Nepal, which has developed a number of innovative community-based biodiversity conservation initiatives.

DNPWC. 1999a. Buffer zone management guideline. Department of National Parks and Wildlife Conservation, Ministry of Forest and Soil Conservation, Kathmandu, Nepal.

Lists the detailed guidelines developed as an adjunct to buffer zone legislation in Nepal.

DNPWC. 1999b. Socio-economic development initiatives in buffer zones. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Describes the strategy and activities of the Parks and People Program in Nepal, with a focus on socio-economic development activities in buffer zones.

DNPWC. 1999c. Biodiversity conservation initiatives in and around protected areas. Department of National Parks and Wildlife Conservation/Park People Program (NEP/94/001), Kathmandu, Nepal.

Describes the strategy and activities of the Parks and People Program in Nepal, which has developed a number of innovative community-based biodiversity conservation initiatives.

Ecotourism Society. 1993. Ecotourism guidelines for nature tour operators. The Ecotourism Society, North Bennington, Vermont.

Specifies what guidelines should be observed by tour operators working in natural areas, and how services should be delivered, with what objectives and for whose benefit.

Elliott, S., D. Blakesley and V. Anusarnsunthorn (eds.). 1998. Forests for the future: growing and planting native trees for restoring forest ecosystems. Forest Restoration Research Unit/The British Council, Chiang Mai University, Thailand.

Selected tree species for restoring forest ecosystems (pp. 12-28). Describes the framework species method of forest restoration, based on species that shade out competing weeds, that are attractive to see-dispersing wildlife, and that are easy to propagate in nurseries.

Planting a forest (pp. 48-56). Describes planning, planting and aftercare aspects of forest restoration (planning and preparation, planting, caring for seedlings after planting, and monitoring).

FAO. 1978. Forestry for local community development. FAO Forestry Paper 7, Food and Agriculture Organization of the United Nations, Rome.

Land use planning (pp.32-33). Discusses land use classification as a planning tool.

FAO. 1999. Code of practice for forest harvesting in Asia-Pacific. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand. RAP Publication: 1999/12.

Planning guidelines for harvest exclusion areas (pp. 33-35). Provides guidelines for protecting sensitive and otherwise excluded areas, and for reducing downstream impacts.

Fountain Renewable Resources and Desh Upodesh. 1996. Case study. Proshika (Muk) community forestry: experience in Kaliakoir area. Appendix 9.1, in: Forestry Sector Study (ADB TA 2339-BAN). Final Report. Volume 2, Appendices. Prep. for Department of Forests, Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.

Details lessons learned in group formation, plantation establishment and management, and group protection of sal forest.

Fox, J. 1990. Sketch mapping and natural resource management. Pages 23-41, in: Handbook on land use, mapping resources and sketch mapping techniques for Bangladesh. Based on a Workshop Organized by Winrock - ADAB - HESDM, 5-7 November 1990, Dhaka, Bangladesh.

Describes the use of sketch maps to show use patterns and indigenous ownership. Includes a field exercise and case study.

Gain, P. 1995. Forest and forest people of Bangladesh. Pages 43-49, in: P. Gain (ed.). Bangladesh. Land forest and forest people. Society for Environment and Human Development (SEHD), Dhaka, Bangladesh.

Discusses priority activities for protecting remaining forests, creating new reserves, and protecting forest-dependent communities.

Gain, P. 1998a. The last forests of Bangladesh. Society for Environment and Human Development (SEHD).

Deforestation. Loss of biodiversity (pp. 114-119). Discusses afforestation with exotics.

Modhupur Forest. The vanishing green (pp. 120-125). Discusses deforestation and afforestation with exotics in the Modhupur area.

Gain, P. 1998b. Forests. Pages 69-93, in: P. Gain (ed.). Bangladesh environment: facing the 21st Century. Society for Environment and Human Development (SEHD), Dhaka.

Reviews the current state of hill, sal and mangrove forests; assesses extent, causes and effects of deforestation; and discusses forest management.

Given, D. R. 1994. Principles and practice of plant conservation. Chapman and Hall, London.

Plant conservation in protected natural areas (review, conservation objectives) (pp 85-87)

Considerations in designating protected areas (size and shape; edge effects, buffer zones and core areas; vest pocket and garrison reserves; representativeness) (pp. 87-96)

Protected area categories, biosphere reserves, on-site gene banks (pp 96-100)

Managing protected areas (research and information management; active management techniques; managing for population fluctuations, disturbance and stress) (pp. 100-107)

Management plans (pp. 109-111)

The education function of protected areas (pp. 171-177)

Glowka, L., F. Burhenne-Guilmin, H. Synge, J.A. McNeely and L. Gundling. 1994. A guide to the Convention on Biological Diversity. IUCN Gland and Cambridge.

Provides an article by article interpretation and explanation of the CBD.

Gorkhali, C. P. 1986. Some principles for resolving conflicts about protected areas. Parks 11(1): 15-16.

Outlines principles of conflicts about protected resources and discusses conflict resolution.

Government of Bangladesh. 1992. Forestry master plan. Conservation. Ministry of Environment and Forests, GoB.

Includes sections on major issues, fauna and flora, major forest ecosystems, significant nonforest ecosystems and critical habitats, pressures on biological resources, wildlife management and research, protected area management, tourist development potential, current forest management and biodiversity, integration with other agencies, recommended conservation improvement, institutional changes, and recommended programs, and an appendix detailing protected area buffer zone management guidelines.

Government of Bangladesh. 1993a. Forestry master plan. Main plan – 1993/2012. Volume 1. Ministry of Environment and Forests, GoB.

Environmental management (pp. 30-37)
Participatory forestry (pp. 37-50)
Wood-based energy conservation (pp. 50-54)

Government of Bangladesh. 1993b. Forestry master plan. Environment and Land Use. Ministry of Environment and Forests, GoB.

Appendix 9 – Case studies in Social Forestry
Case Study No. 1: excerpts from "micro case studies of forestry in Bangladesh"
Case Study No. 2: indigenous cultures and forestry
Case Study No. 3: perspectives of some private foresters and timber merchants
Case Study No. 4: selected public attitude survey results
Case Study No. 5: gender differentials in access to forestry resources
Case Study No. 6: community forest management models
Appendix 18 – Guidelines for conservation of biodiversity
Appendix 19 – Criteria for sustainable management of tropical forests

Government of the People's Republic of Bangladesh (Forest Directorate). 1984. Bangladesh Wildlife (Preservation) (Amendment) Act, 1974. Bangladesh Government Press, Dhaka.

Details regulations relating to the management of wildlife, including definitions of protected area categories.

Government of the People's Republic of Bangladesh. 1994. National Forest Policy, 1994. Ministry of Environment and Forest, GoB.

Reformulation of the 1979 National Forestry Policy in response to the Forestry Master Plan.

Government of the People's Republic of Bangladesh. 1995. National Environment Management Action Plan (NEMAP). Volume II: Main Report. Ministry of Environment and Forest, GoB.

Forestry (pp. 81-86). Describes people's concerns, existing policies, key issues and actions required.

Government of the People's Republic of Bangladesh. 1997. Project Proforma (PP), Forestry Sector Project (1997-98 – 2003-04). Forest Department, Ministry of Environment and Forests, GoB.

GoB's operational description of project objectives and implementation details.

Gurung, P. C. 1998. Ecotourism and conservation: hand in hand in the Annapurna region of Nepal. Tiger Paper 25(2): 19-23.

Case study of tourism development in a major protected area.

Hagen, R. 1997. Sustainable farming, forestry and fishing practices. Pages 82-85, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Defines and discusses sustainable resource use as it pertains to agriculture, forestry and fisheries.

Hamilton, L.S., J.C. Mackay, G.L. Worboys, R.A. Jones and G.B. Manson. 1996. Transborder protected area cooperation. Australian Alps National Parks, Canberra, Australia and IUCN, Gland, Switzerland.

Discusses and mechanisms and benefits of cooperative protected areas management across national, regional and other borders.

Haque, N. 2000. Importance of environmental awareness and education using audio-visual materials at grassroots level. Proc. of an International Workshop, Cox's Bazar, Bangladesh, 13-14 February 2000. Bangladesh POUSH, Dhaka.

Provides technical background and reviews lessons learned regarding development of environmental awareness in South and Southeast Asia.

Henning, D. H. 1991. Tropical forest values of protected areas. Tiger Paper (October - December): 24-32.

Identifies and describes some of the values associated with tropical rain forests in natural and near natural conditions of protected areas. Discusses defining values, biological diversity, genetic diversity, species diversity, tropical forest people, scientific research, water conservation, soil protection, outdoor recreation, education, ecotourism and future generations.

Henning, D. H. 1993. Environmental education and national parks: The WCS, values, and naturalist interpretive activities. Tiger Paper 20(3): 12-16.

Discusses interpretive activities in national parks in the context of the World Conservation Strategy.

Heywood, V. H (ed.) 1995. Global biodiversity assessment. Published for the United Nations Environment Program by Cambridge University Press.

Inventorying and monitoring (pp. 459-473). Describes the rationale for inventorying and monitoring of biodiversity at different levels, and both inside and outside of protected areas.

Indicator species (pp. 487-489). Describes the attributes of species that flag changes in biotic or abiotic conditions.

Protecting ecosystems, protected areas (management objectives, categories, effectiveness of protected areas for maintaining biodiversity; protecting species, population and genetic resources; in-situ conservation of species, population and genetic resources; ex-situ management strategies (pp 981-1004)

Restoration and rehabilitation of species, populations and ecosystems (pp. 1004-1008). Discusses restoration ecology as a tool in biodiversity conservation.

Socio-economic strategies to sustainably use, conserve and share the benefits of biodiversity (pp. 1016 – 1028). Discusses social interventions at local and community levels; economic tools and incentives.

Ecotourism (pp. 1028-1033). Discusses ecotourism potential in developing countries with examples from the Caribbean, Ecuador and Nepal.

Higgs, E. S. 1997. What is good ecological restoration? Conservation Biology 11 (2):338-348.

Discusses the importance of ecological fidelity (structural/compositional replication, functional success and durability), and the consideration of historical, social, cultural, political, aesthetic, and moral aspects, in the achievement of good ecological restoration.

Hossain, M.K. 1998. Ecological techniques in ethnobotanical studies. Pages 30-35, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses field techniques for assessing species composition of vegetation stands.

Hossain, M.K. 2001. A review of forest biodiversity conservation in Bangladesh. Journal of Forestry & Environment, Institute of Forestry and Environmental Sciences, University of Chittagong, Bangladesh: 102-110.

Discusses the current status of forest biodiversity and its conservation in Bangladesh.

Huq, S. (ed.). 1987. Trees and tenure in Bangladesh. Proc. of a Discussion Meeting held on 10 December 1987 at the Ford Foundation Guest House, Dhaka, Bangladesh. Bangladesh Center for Advanced Studies, Dhaka.

Discusses early experience with social and community forestry in Bangladesh.

Huq, S. 1995. Participatory planning. The experience of PPP and NEMAP. The Daily Star, Dhaka, 1 December, 1995.

Discusses the experience of two recent, large-scale participatory planning initiatives in Bangladesh.

Hussain, T. 1995. Land rights in Bangladesh. Problems of management. University Press, Dhaka.

Provides a comprehensive examination of all aspects of land management and administration in Bangladesh (land surveys, land records, land administration and management, land use planning, land reforms, settlement operations).

Hussain, T., P. Bibi and P. Kaushal. 1999. We are all part of the same "Kudrat". Community forest management in Rajaji National Park. Forests, Trees and People Newsletter No. 38: 35-38.

Describes community forest management planning and implementation in a protected area in India.

International Working Group on Indicators of Sustainable Tourism. 1993. Indicators for the sustainable management of tourism. Report to the Environment Committee, World Tourism Organization.

Reports on the development of indicators addressing the links between tourism and the natural and social environment.

Islam, M.Z. and M.S. Islam. 1998. Conservation of wildlife in the forests of Ramu and Ukhia: problems and possible alternatives. Tigerpaper 25(3):17-20.

Discusses wildlife populations, human land use and potential for ecotourism in southeastern Bangladesh.

Islam, S.I. and Md. Z. Islam. 2001. Status of capped langur and rhesus macaque in southwest Madhupur deciduous forest and proposed conservation measures. Tigerpaper 28(4):19-21.

Describes the status of primate populations in the Madhupur area and the conservation measures required to alleviate pressures on forest resources.

IUCN. 1996. Assessing benefits to the economy from protected areas: a summary for decision-makers. IUCN, Gland, Switzerland.

Discusses the need for calculating the economic benefits of protected areas, and provides examples.

Jodha, N.S. and D. Russell. 1997. Equity in conservation. Pages 32-34, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Describes the importance of community involvement and community organizing in conservation of resources.

Johnson, N. C. 1995. Biodiversity in the balance: approaches to setting geographic conservation priorities. Biodiversity Support Program. WWF, The Nature Conservancy and World Resources Institute.

Biodiversity conservation priorities: values and approaches (pp. 7-28). Describes the criteria for assessing conservation value (biological criteria, social and institutional criteria) and approaches to priority setting.

Principles for setting biodiversity conservation priorities (pp. 93-100). Outlines 10 principles for establishing conservation priorities.

Kabraji, A. 1997. Management styles. Pages 107-110, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Discusses good management practice for conservation, with an example from northern Pakistan.

Karlsson, B.G. 1999. Ecodevelopment in practice. The Buxa Tiger Reserve, the World Bank and indigenous forest people in Northeast India. Forests, Trees and People Newsletter No. 38:39-45.

Describes and analyzes problems encountered in planning and implementing "ecodevelopment" (village development, community forest management, participation in wildlife conservation) in a protected area inhabited by indigenous people.

Khan, M.A. 1998. Wildlife biodiversity and its resource potential. Pages 115-135, in: P. Gain (ed.). Bangladesh environment: facing the 21st Century. Society for Environment and Human Development (SEHD), Dhaka.

Discusses extent and condition of biodiversity in Bangladesh, major biodiversity conservation areas, and biodiversity management.

Khan, M.S. 1998. Genetic resources. Pages 137-146, in: P. Gain (ed.). Bangladesh environment: facing the 21st Century. Society for Environment and Human Development (SEHD), Dhaka.

Discusses the status and use of plant genetic resources in Bangladesh, and existing and potential conservation programs.

Khan, N.A. 1994. Participation in South Asian social forestry: chasing a mirage? Journal of Rural Development 13(3):343-355.

Argues that the role of social forestry in ensuring participation and empowering the local populace has been marginal. Includes case studies.

Khan, N.A. 1996. Revisiting community forestry developments in Nepal: a selected review of performance. Asian Journal of Environmental Management 4(2):95-101.

Reviews the extent of achievement of community forestry's physical and participatory goals, and evaluates reasons for poor performance in terms of people's participation.

Khan, N.A. 1998a. Land tenurial dynamics and participatory forestry management in Bangladesh. Public Admin. Dev. 18:335-347.

Examines land ownership and tenure factors in the implementation and success of social forestry programs.

Khan, N.A. 1998b. Interviews with the Sahibs: bureaucratic constraints on community forestry programs in Bangladesh. Journal of World Forest Resource Management 9:73-93.

Examines attitudes to community forestry among senior and junior foresters, and farmers' attitudes towards the Forest Department.

Khattak, G.M. 1995. Community involvement in resource management in the North West Frontier Province in Pakistan. IUCN Forest Conservation Program Newsletter No. 21:7-9.

Describes initiatives which have tested different approaches to community-based management of resources.

Khisa, S.K. 1998. Ethnobotanical and cultural background of ethnic communities in forest resource management in Chittagong Hill Tracts. Pages 56-66, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses use of forest products by tribal people in eastern Bangladesh.

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Leech, J. and S.S. Ali. 1997. Extended natural resources survey: Part II –field manual. GOB/WB Forest Resources Management Project, Technical Assistance Component. Mandala Agricultural Development Corporation, Dhaka, Bangladesh.

Use of the Garmin GPS (p. 5)

Leisher, C. 2001. The long and short of ICDPs. Tigerpaper 27(1):24-25.

Discusses the importance of maintaining a long timeframe for integrated conservation and development projects to be effective tools for biodiversity conservation.

Lewis, C. 1996. Managing conflicts in protected areas. IUCN, Gland, Switzerland and Cambridge, U.K.

Introduction (handbook overview, conflict resolution overview and key principles) (pp. 1-5)

A framework for resolving conflicts (getting started/determining roles, assessment, involving affected stakeholders, implementation and evaluation) (pp. 7-20)

Other considerations and special situations (providing benefits to local people, enforcement, education and public relations, conflicts involving indigenous people, armed conflict, the role of non-governmental organizations) (pp. 21-28)

Case studies and glossary (pp. 33-34, 43-44, 78-79, 89). Case studies from Nepal, Pakistan and Panama.

Lewis, C. 1997. Conflicts in conservation. Pages 62-64, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

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Lwin, T. 1998. Ecotourism development in Myanmar. Tigerpaper 25(4):5-8.

Discusses the potential for forest-based ecotourism in Myanmar, including the role of local communities and linkages with the protected areas system.

MacKinnon, J., K. MacKinnon, G. Child and J. Thorsell. 1986. Managing protected areas in the tropics. IUCN. Gland, Switzerland.

Provides a comprehensive overview of protected areas management in the tropical areas of the world, including chapters on categories of protected areas; selection of sites for protected areas; policy, law and administration for managing protected areas; integrating protected areas in regional land-use programs; local people and protected areas; communication and public relations for protected areas; management of natural resources in protected areas; planning for protected areas; implementing management; evaluating the effectiveness of management; and international cooperation.

Modern concepts of protected areas (pp 1-5)

Categories of protected areas (criteria for classifying protected areas; developing a system of categories for protected areas; international system of categories) (pp 15-22)

Criteria for consideration when selecting protected areas (pp 53-54).

Development of protected area buffer zones (definition; buffer zone requirements and restrictions; types of buffer zone; examples) (pp. 90-94)

Public works installations in protected areas; integrating protected areas into regional development programs (pp 95-98)

Local people and protected areas (protected areas and indigenous people; human enclaves within protected areas; protection of cultural sites; direct harvesting from protected areas and buffer zones; examples) (pp 99-109)

Communication and public relations for protected areas (visitor information and interpretation services; protected area reference center/collection; schools and education service; local village extension service; publicity and public relations) (pp 120-139)

Human-wildlife conflict (management of over-abundant populations; control of problem animals originating from protected areas, with examples of elephant problems in Africa and tropical Asia) (pp 155-161)

Planning for protected areas (national strategies for conservation; systems planning for protected areas; planning of feasibility studies; management plans; annual operation plans – action plans; site plans; planning research programs) (pp 185-208)

Types of management zones (pp 195-196)

Implementing management (allocation of duties and staff selection; management of staff; reporting, inspection and supervision; maintenance of physical structure and stores; patrolling, in-service training; concession services; controlling resource utilization; law enforcement) (pp 209-234)

MacKinnon, J. and K. MacKinnon. 1986. Review of the protected areas system in the Indo-Malayan Realm. IUCN, Gland, Switzerland and Cambridge, U.K.

Reviews the protected areas system in the Indo-Malayan Realm (including Bangladesh) as it existed in the mid-1980s. Introductory sections discuss objectives and criteria of protected areas and protected areas system design.

Martin, R. 1997. Sustainable use of wildlife. Pages 79-81, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Describes tenure, biological, ecological, management and economic principles.

McNeely, J.A., K.R. Miller, W.V. Reid, R.A. Mittermeier and T.B. Werner. 1990. Conserving the world's biological diversity. IUCN, Gland, Switzerland and World Resources Institute, Conservation International, World Wildlife Fund-US and the World Bank, Washington, D.C.

Includes chapters on why biological diversity is important, the values of biological diversity, how and why biological resources are threatened, approaches to conserving biological diversity, information required to conserve biological diversity, establishing priorities for conserving biological diversity, the role of strategies and action plans in promoting the conservation of biological diversity, how to pay for conserving biological diversity, and enlisting new partners for the conservation of biological diversity.

McNeely, J., M. Rojas and F. Vorhies. 1997a. Economic valuation in conservation. Pages 96-99, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Describes methods for assigning values to natural biological resources and their conservation.

McNeely, J., M. Rojas and F. Vorhies. 1997b. Incentives and disincentives to conservation. Pages 100-102, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Defines and discusses the use of incentives (inducements for the conservation of biological diversity) and disincentives (inducements designed to discourage the depletion of biological diversity) in altering people's perceptions of what types of resource use behavior are in their own self-interest.

McNeely, J., J.W. Thorsell and H. Ceballos-Lascurain. 1992. Guidelines: development of national parks and protected areas for tourism. World Tourism Organization and United Nations Environment Program, UNEP-IE/PAC Technical Report Series No. 13.

Provides guidelines for tourism development oriented to national parks and protected areas in developing countries, and intended as input to management plan preparation or revision.

McQuistan, C. 1998. Equality: a pre-requisite for effective buffer zone management. Tropical Forest Update 8(2): 12-15.

Describes the experience of an ITTO project in Thailand where equitable buffer zones management/sustainable development reduced destructive forest practices and promoted gender equality.

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Documents human-wildlife conflicts resulting from human settlement and land use in Chunati.

Miller, K.R. and S.M. Lanou. 1995. National biodiversity planning. Guidelines based on early experiences around the world. World Resources Institute, Washington D.C.; United Nations Environment Program, Nairobi; and the World Conservation Union (IUCN), Gland, Switzerland.

Spells out a seven-step process for national-level biodiversity planning, including illustrations and examples from around the world.

Miyata, H. 1991. Concerted actions for the management of protected areas in Asia and the Pacific. Tiger Paper (October - December 1991): 18-24.

Discusses global and regional initiatives for the conservation of biodiversity.

MoEF and IUCN. 1991. towards sustainable development. The National Conservation Strategy of Bangladesh. Ministry of Environment and Forest, Government of Bangladesh, and International Union for Conservation of Nature and Natural Resources.

Appendix IV. Main areas of environmental concern and their major problems (pp. 268-271)

Moral, S. 1998. Energy resources. Pages 147-163, in: P. Gain (ed.). Bangladesh environment: facing the 21st Century. Society for Environment and Human Development (SEHD), Dhaka.

Reviews the importance of traditional biomass fuels and discusses current and potential uses of biogas and solar energy.

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Defines and discusses terms and concepts related to social sustainability in conservation and resource use.

Newaz, Md.S. and Md. A. Kabir. 2001. Consumption and marketing of woodfuel in the rural area of Bangladesh – a case study in the Sandwip Upazilla of Chittagong. Journal of Forestry & Environment, Institute of Forestry and Environmental Sciences, University of Chittagong, Bangladesh: 76-84.

Discusses marketing problems that depress potential participant's interest in commercial fuelwood plantations.

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Describes experience in use of participatory rural appraisal and formation of user groups in and ongoing community forestry program.

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Discusses the need for designing appropriate institutions and the hazards involved.

Parr, J. and M. Parr. 1998. Co-operative management of a wetland in central Lao P.D.R. –Nong Bo. Tigerpaper 25(4):5-8.

Provides a case study of cooperative management of wetland resources and related conservation benefits.

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Reviews the legal framework for establishment and management of protected areas in 10 countries in Southeast Asia, and makes recommendations for improvements.

Parr, J. 2001. Discussion paper for protected area managers: zoning protected areas and applying complementary regulations. Tigerpaper 27(1):1-9.

Provides a generalized zoning scheme for protected area management planning, and examples of applicable regulations.

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Six steps towards sustainability (pp. 27-44). Describes a six-step process (species selection, inventory, yield studies, regeneration surveys, harvest assessments, harvest adjustments) for determining and adjusting NTFP harvest levels in tropical forest.

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Examines a successful model of community forestry management in the Nepalese terai.

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Price, T. 1995. Community-based management of ron palm in Niger. IUCN Forest Conservation Program Newsletter No. 21:9-10.

Describes a successful model of community-based management.

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Habitat management (pp. 351-357)
Landscape ecology and park design (pp. 357-359)

Managing protected areas (keystone resources, park management and people, national parks and local people) (pp. 360-368)
Restoration ecology (pp. 389-403)

Rabinowitz, A. 1993. Wildlife field research and conservation training manual. The Wildlife Conservation Society, New York, USA.

Use of map, compass and basic field survey equipment (pp. 29-53, 245-247)
Making field observations and taking notes (pp. 55-62)
Leadership and problem solving (pp. 149-150)
Planning and implementation (pp. 151-162)
Designing a management plan (pp. 163-165)
Establishment and expansion of protected areas (pp. 181-186)
Notes on protection and management of protected areas (pp. 187-194)

Rana, C.J., M. Millat-e-Mustafa and N.A. Khan. 2001. An overview of community forestry in Nepal. Journal of Forestry & Environment, Institute of Forestry and Environmental Sciences, University of Chittagong, Bangladesh: 29-42.

Discusses the development of community forestry in Nepal, including the organization of traditional users into Forest User Groups, the role of the Department of Forests, and community forestry as a vehicle for community development.

Rastogi, A. 1998a. Basic survey and assessment methodology for applied ethnobotanical research. Pages 47-51, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses participatory, community-based techniques for documenting local knowledge of botanical resources and their management.

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Discusses the issue of intellectual property rights over indigenous knowledge, cultural traditions and biodiversity resources.

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Discusses common conflicts between national parks management and traditional practices and proposes ways through which these might be resolved.

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Describes public auditing as a tool for building trust and cooperation among beneficiaries and development partners.

Roy, M.K. and Md. S. Hossain (eds.). 1997. Importance of non-formal environmental education. Bangladesh POUSH, Dhaka.

Includes a series of workshop papers discussing non-formal education in relation to environmental management, environmental education, sustainable development; community-based non-formal education; and people's involvement in enforcement of environmental laws in Bangladesh.

Saeed, S., W. Goldstein and R. Shrestha. 1998. Planning environmental communication and education: lessons from Asia. IUCN Bangkok and Switzerland. xi + 79 pp.

Provides extracts of policies, strategies and tactics in environmental education and communication, based on the experience of Asian Ministries of the Environment working in partnership with other government ministries, NGOs and the media.

Sah, J.P., R.L. Singh, R.D. Tiwari and R.P. Chaudhary. 1999. Biodiversity in Parsa Wildlife Reserve, Nepal: status, significance and conservation.

Provides an example of the inventory and use of biological resources in the protected area context.

Salwasser, H. 1986. Modeling habitat relationships of terrestrial vertebrates – the manager's viewpoint. Pages 419-424, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Discusses the state of the art regarding models that predict the responses of wildlife to habitat change, and their roles in the conservation decision-making process.

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Provides a case study of threats to biodiversity (deforestation, rubber production, shifting cultivation, and hunting) in a tropical forest area, and the development of land uses (protected areas, agroforestry systems, butterfly farming, traditional conservation, and traditional firewood cultivation) that are compatible with biodiversity conservation.

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Discusses buffer zones in forested lands, forest management in buffer zones, buffer zones and forest dwelling peoples, and buffer zones and agricultural encroachment.

Sayer, J. 1991b. Rain forest buffer zones. Guidelines for protected area managers. Forest Conservation Program, IUCN, Gland, Switzerland.

Introduction (pp. 1-5). Definition, general concepts and benefits of buffer zones.
Land tenure (pp. 17-19). Background and guidelines.
Rural development in buffer zones. Background and guidelines (pp. 20-26); case study (pp. 30-32).
Tree crops and agroforestry in buffer zones (pp. 39-46). Background, guidelines and case studies.
Buffer zones and forest-dwelling peoples (pp 51-54). Background, guidelines and case studies.
Forest management in buffer zones (pp. 57-59). Background and guidelines.
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Schamberger, M.L. and L.J. O'Neil. 1986. Concepts and constraints of habitat model testing. Pages 5-10, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Presents the conceptual basis for Habitat Suitability Index (HSI) models used in land use planning, and discusses validation and testing.

Schulze, H. 1998. Nature conservation through ecotourism development – a case study of a village in the lower Kinabatangan area, Sabah. Tigerpaper 25(3):12-17.

Analyzes problems in developing community-based ecotourism.

Shengji, P. and A. Godbole. 1998. Use of market surveys to assess plant products in ethnobotanical studies: two case studies from Himalayan region. Pages 36-46, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses use of market surveys as a tool for investigating local use of plant products.

Short, H. L. and S.C. Williamson. 1986. Evaluating the structure of habitat for wildlife. Pages 97-104, in: J. Verner, M.L. Morrison and C.J. Ralph. Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison.

Describes methods for evaluating habitat structure based on interpretation and ground truthing of aerial photographs to obtain land use and surface cover information.

Siddiqi, N.A. 1986. Impact of forest management practices in Bangladesh on wildlife and the environment. Tiger Paper 13(1):8-9.

Reviews general effects of clear-felling, selection felling and plantation establishment on forest habitat and wildlife.

Siddiqi, N.A. 1998. Ethnobotany of non-timber forest products of Chittagong Hill Tracts. Pages 52-55, in: R.L. Banik, M.K. Alam, S.J. Pei and A. Rastogi. 1998. Applied ethnobotany. Proc. of the Subregional Training Workshop on Applied Ethnobotany, Bangladesh Forest Research Institute, Chittagong, 17-22 December 1997.

Discusses use of NTFPs by tribal people in eastern Bangladesh.

Spergel, B. 1997. Compensation and substitution programs. Pages 91-93, in: G. Borrini-Feyerabend (ed.) Beyond fences: seeking social sustainability in conservation. Volume 2: A resource book. IUCN, Gland, Switzerland.

Describes the use of compensation (cash payments or goods and services provided to local people in exchange for their agreement to forego exploitation of protected resources) and substitution (alternative sources of resources or income) in conservation programs.

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Describes how the private sector, including major biological resource-based industries such as agriculture, pharmaceuticals and forestry, can contribute to biodiversity conservation.

Tecsult. 1999a. Guidelines for protected area management plan preparation. Draft MS. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Discusses the management planning process and management plan contents.

Tecsult. 1999b. Guidelines for protected area zoning. Draft MS. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Discusses zoning concepts and proposes a zoning system for Bangladesh's protected areas.

Tecsult. 1999c. Participatory forests management module. Orientation Course, Deputy and Assistant Conservators of Forest. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. TECSULT in association with SODEV, NRP, HCL and EPC.

Introductory unit
Unit 1 – definition and purpose of participatory forests management and cost-benefit sharing, and case study (SWOT analyzes of participatory forests management)
Unit 2 – participatory rural appraisal: definition and uses, and case study
Unit 3 – planning and implementation of participatory forests management

Tecsult. 1999d. Community organizing and mobilizing for participatory forestry module. Orientation Course, Deputy and Assistant Conservators of Forest. Forestry Sector Project

(1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. TECSULT in association with SODEV, NRP, HCL and EPC.

Introductory unit
Unit 1 – definition, objectives, principles and activities
Unit 2 – support programs in social forestry
Unit 3 – working with the people

Tecsult. 1999e. Feasibility Study for Tangail Division. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of the FSP intervention in Madhupur National Park. Lists biodiversity conservation measures applicable to FSP natural forest and plantation models elsewhere in the Division.

Tecsult. 1999f. Feasibility Study for Cox's Bazar Division. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of the FSP intervention in Himchari National Park and Teknaf Game Reserve. Lists biodiversity conservation measures applicable to FSP plantation models elsewhere in the Division.

Tecsult. 1999g. Feasibility Study for Chittagong Division. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of the FSP intervention in Chunati Wildlife Sanctuary and Hazarikhil WS (proposed). Lists biodiversity conservation measures applicable to FSP plantation models elsewhere in the Division.

Tecsult. 1999h. Environmental guidelines for sustainable forest resources development and management. Draft. Forestry Sector Project, Forest Department, Ministry of Environment and Forests, Government of the People's Republic of Bangladesh. ADB Loan 1486-BAN. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides guidelines related to policies and legislation, and for land use planning, conservation and protection of forest resources, sustainable production of forest products, and for forest conversion.

Tecsult. 2000a. First five year management plan for Lawachara National Park. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of the FSP-supported management plan for Lawachara National Park in Sylhet FD.

Tecsult. 2000b. First five year management plan for Rema-Kalenga Wildlife Sanctuary. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests,

Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of the FSP-supported management plan for Rema-Kalenga Wildlife Sanctuary in Sylhet FD.

Tecsult. 2000c. Compendium of conservation area and biodiversity conservation components of feasibility studies. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of FSP-supported management planning in all of the 17 Forest Divisions included in the project.

Tecsult. 2000d. Training requirements for participatory protected areas management. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Reviews current training of all levels of FD staff; provides an analysis of immediate staffing and training requirements for protected areas included under FSP support; identifies modular (subject area) components of proposed in-country training programs, including module outlines; and identifies relevant existing training materials in an annotated bibliography.

Tecsult. 2001a. Participatory conservation management planning for Cox's Bazar Forest Division. Teknaf Game Reserve. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of FSP-supported management planning for Teknaf Game Reserve in Cox’s Bazar FD.

Tecsult. 2001b. Participatory conservation management planning for Cox's Bazar Forest Division. Himchari National Park. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of FSP-supported management planning for Himchari National Park in Cox’s Bazar FD.

Tecsult. 2001c. Participatory conservation management planning for Tangail Forest Division. Madhupur National Park. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of FSP-supported management planning for Madhupur National Park in Tangail FD.

Tecsult. 2001d. Participatory conservation management planning for Chittagong Forest Division. Chunati Wildlife Sanctuary. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.

Provides background information and details of FSP-supported management planning for Chunati Wildlife Sanctuary in Chittagong FD.

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[1] This annotated bibliography has been modified and updated from: Tecsult. 2000. Training requirements for participatory protected areas management. Forestry Sector Project (1997/8-2003/4), Forest Department, Ministry of Environment and Forests, Dhaka. ADB Project BAN No. 1486. TECSULT in association with SODEV, NRP, HCL and EPC.)