

PROJECT PROPOSAL

ASSESSMENT OF SPREAD, PERFORMANCE, IMPACTS AND ECONOMIC ANALYSIS OF JOINT FOREST MANAGEMENT AND COMMUNITY FORESTRY IN INDIA

“Submitted to Ford Foundation”

Sponsoring Agency

~~Dr. Doris Capistrano~~
Programme Officer
The Ford Foundation
Lodhi Estate
New Delhi – 110 003

Principal Investigator and Institution

Dr. N. H. Ravindranath
Centre for ASTRA &
Centre for Ecological Sciences
Indian Institute of Science
Bangalore – 560 012

co-Investigator

Prof. N. V. Joshi ✓
C. E. S. I. S.
Indian Institute of Science *Bangal -*

Project Coordinating Institution

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ASSESSMENT OF SPREAD, PERFORMANCE, IMPACTS AND ECONOMIC ANALYSIS OF JOINT FOREST MANAGEMENT AND COMMUNITY FORESTRY IN INDIA

1. Introduction and Abstract

In order to enhance the rural economy and to promote forest regeneration in degraded forests, a nationwide programme called Joint Forest Management (JFM) was launched in 1990. JFM is a decentralized and people oriented forest management approach with a rationale that only a willing and active partnership between the Forest Department and local village communities can promote regeneration of degraded forests, conserve forests, and sustainable extraction and use. Forests used to be a major source of income and employment in the past but are now not able to meet even the basic needs of the local communities, particularly forest dependent communities. In India, forests have been largely managed by the Forest Department, with the prime objective of maximizing the production of valuable timber. In the process, the rights of forest dependent communities have been marginalised. It is increasingly recognized that involvement of people in forest management not only contributes to regeneration of degraded forests, but also helps in cost-effective conservation of the forests, apart from meeting the community's subsistence needs. Efforts at involving local people in management of forest resources seem to have produced encouraging results with respect to forest conservation and regeneration in states like West Bengal, Haryana, Madhya Pradesh, and Gujarat.

The 1988 Forest Policy of India has stated categorically that the needs of the forest dependent local communities should be given priority. In 1990, the Government of India issued an order on JFM, a participatory approach to forest management involving the Forest Department and the local community. The JFM Guidelines 2000 clearly define the community's role and responsibility and their right to an increasing share in the forest produce.

In India 23 states have issued orders on JFM and about 36,130 Forest Protection Committees have been initiated, protecting and regenerating about 10 million ha of forests (Bahuguna, 2000). The JFM provisions are expected to promote peoples' involvement, collective decision making, social fencing, empowerment of the village community, sharing of authority, focus on Non Timber Forest Products (NTFP) and sustained harvest of usufructs. It is also important to recognize that there are a large number of self-initiated community forest management (CFM) systems protecting and managing the forests. It is necessary to assess the institutional arrangements, vegetation management practices adopted and their impact and relevance to promotion of sustainable participatory forestry in India.

The JFM programme is a decade-old now, implementation of the programme is at various stages in different states and it is necessary to study the programme and learn from the experiences. There is a need to assess the rate of spread, extent of forest area covered, the performance of JFM. Finally, it is necessary to assess the economic, ecological and institutional impact of JFM. A study at this stage could generate information to plan the future strategies to promote sustainable and participatory forestry in India. The changing environment in forestry sector in India has placed new challenges and demands on forest management and particularly JFM.

The broad goals of the proposed study are;

- (a) *To Develop methodology for periodic and long-term monitoring and assessment of vegetational, institutional, economic and social aspects of participatory forestry (JFM and CFM)*

- (b) *To assess the rate of spread , the performance , ecological, economic and institutional impact of JFM in different states of India, at different stages of implementation of the programme to suggest strategies to promote participatory forestry in India.*
- (c) *Assessment of the vegetation practices adopted by the Forest Department under the JFM programme and social forestry, and by the communities under self-initiated community forest management systems, to develop potential good practices.*
- (d) *To conduct economic analysis of JFM approach to forest conservation and afforestation and compare the cost-effectiveness of JFM with other forest management strategies such as self-initiated community forest management groups to suggest cost-effective strategies.*

Such an analyses would assist policy-makers, donor agencies, Forest Departments, NGOs and Village Forest Committees to modify the practices and reorient the programmes and policies to promote participatory and sustainable forestry.

Given the scale of the programme and the diversity of socio-economic conditions and policies, it will be difficult for one agency to conduct a national level assessment. A study of this nature involving vegetation, institutional, social and economic assessment would require multi-disciplinary and multi-location studies by groups with intimate knowledge of the local conditions. Thus, it is essential to adopt a network approach for assessing the JFM, the cost-effectiveness of forestry strategies and forest vegetation management practices. The proposed study will be carried out by the Network members located and working in different states, using a shared methodology and coordinated by Ecological and Economics Research Network.

PART I

PROGRESS OF WORK DONE BY ECOLOGICAL AND ECONOMICS RESEARCH NETWORK AND CENTRE FOR ECOLOGICAL SCIENCES

I. Ecological and Economics Research Network Activities of PHASE I

A National Support Group (NSG) on JFM was set up to generate information through research, monitoring and policy advocacy to promote participatory forestry in India. NSG has four sub-networks to address the issues on i) institutional, ii) equity and gender, iii) training and iv) ecology and economic aspects of JFM. The Ecological and Economics Research Network aims to assess the ecological and economic aspects of JFM through a multi-locational coordinated research programme. Ecological and Economics Research Network was initiated in the year 1995. **Centre for Ecological Sciences**, has been coordinating this network. In the last five years, starting from 1995, the network has been engaged in understanding the impact of forest protection through JFM and self-initiated community forest management systems on the forest regeneration status, biodiversity, stem density, biomass growth rate and other ecological issues. Apart from these ecological issues, Ecological and Economics Research Network is also engaged in understanding the institutional structure of various forest protection groups including self-initiated CFM systems and their impact on vegetation. Further, Ecological and Economics Research Network was involved in understanding the economy of forest dependent rural community, who largely depend on NTFPs for their subsistence and commerce needs. The Network consisted of 11 institutions involving research as well as rural development groups and now has expanded to 13 institutions. All these institutions that worked with the Ecological and Economics Research Network shared a common methodology to enable comparison of the ecological and institutional aspects of JFM in different locations.

Training Programmes for Network Members: Several training programmes were conducted during the study period on the methodology for ecological, economic and institutional studies and for analysis and report preparation. The network also organized annual review meetings

to assess the methodology and lessons learnt. Forest Department was also involved in many of these programmes along with experts from different fields.

Publications: A summary report of the preliminary assessment of JFM at the national level and the case studies from 11 locations in India covering 8 States was prepared and distributed at the national JFM workshop in Delhi during June 2000. Further, these studies were documented, compiled and published by Oxford and IBH co., New Delhi as a book during 2000. There are also 11 technical reports from each of the participating institutions. The findings have been presented to the stakeholders such as JFM Network Committees of Ministry of Environment, Forest Departments, Village Forest Committees and NGOs on many occasions in different localities.

II. Ecological and Economics Research Network Activities of PHASE II

In the first phase of Ecological and Economics Research Network the emphasis was on assessing change in vegetation and NTFP availability due to community protection. During phase II, initiated during 1998, the emphasis was shifted to participatory forest monitoring by the local community and estimating the yield of NTFPs through simple measurements. The main goals of Phase II activities included:

- i) Developing and field testing the methods of participatory monitoring of vegetation,
- ii) Developing of methodology to estimate NTFP yield and field studies on yield estimation,
- iii) Developing of methodology for economic assessment of forest management systems including JFM.

A training programme was conducted on the methodology of participatory monitoring of vegetation as well as on monitoring of NTFP yields. The network members so far have completed their fieldwork and currently the results are being analyzed and synthesis report will be ready soon.

III. Research activities carried out at Centre for Ecological Sciences

i) Development of Methodology and organising training programme: One of the major activities of the Centre for Ecological Sciences is to develop methodology for vegetation, NTFP and institutional studies. Centre for Ecological Sciences has developed the methodology and conducted training programmes for Ecological and Economics Research Network members.

ii) Participatory Forest Monitoring: Participatory Forest Monitoring is an useful approach towards adaptive forest management. Participatory monitoring exercise was conducted in 8 Village Forest Committees of Uttara Kannada district, where JFM has been implemented in an intensive manner in Karnataka. The Participatory Forest Monitoring exercise was carried out by training and involving the Forest Department, local NGOs, and Village Forest Committees. A report is being prepared on this activity.

iii) Monitoring NTFP productivity and yield attributes: Centre for Ecological Sciences monitored 16 tree species for NTFP yield and yield attributes for three years starting from 1997. Yield equations linking yield to DBH, canopy cover and height of the tree were developed. The annual variation in yield was high indicating that tropical trees may be exhibiting alternate bearing systems as found in some important commercial tree crops. Under such conditions, it calls for developing different kind of methodology and also different yield estimation equations for different years.

iv) Preliminary assessment of JFM in Uttara Kannada, Karnataka and India: Centre for Ecological Sciences has completed a preliminary study to assess the rate of spread of JFM

and performance at district, state and national level, based on existing information. The performance of JFM at the district and national level has been published in the book, while preliminary performance of JFM in Karnataka is being currently analysed.

v) Economic analysis of JFM and social forestry: A preliminary attempt is being made by Centre for Ecological Sciences to conduct economic analysis of JFM and social forestry project activities in two case study villages in Uttara Kannada. This case study will provide inputs for developing methodology for the proposed large-scale assessment at the national level.

Several manuscripts on the methods used for determining yield estimations of various NTFPs will be published in the near future and a monograph about the experiences of the network members on Participatory Forest Monitoring will be brought out. The compilation of the experiences is expected to be complete by the end of February 2001.

IV Activities of other Network members

i) Participatory Forest Monitoring: Participatory Forest Monitoring was undertaken by all the network member institutions. The experiences vary from region to region. The data is being compiled to document the participation of people and the problems associated with motivation, and the process of carrying out the monitoring exercise.

ii) Monitoring NTFP productivity and yield estimations: All the network members have initiated NTFP yield monitoring. The productivity and the yield estimate methods will be compiled to make a report. Probably, this kind of compilation of over 20 species would be one of the first ever compilation of NTFP productivity patterns.

PART II

PROPOSED ACTIVITIES OF CENTRE FOR ECOLOGICAL SCIENCES AND ECOLOGICAL AND ECONOMICS RESEARCH NETWORK

The studies conducted by Centre for Ecological Sciences and the Ecological and Economics Research Network were largely based on case study approach focussing on one or a few villages in selected locations. The studies were largely exploratory, aimed at generating benchmark or baseline information on the status of JFM, vegetation status, current NTFP extraction and existing institutions. The proposed project studies will be conducted on a larger scale at forest division, state and national level to assess the following issues at macro level and generate information to assist in developing vegetation management strategies, institutional and financial arrangements required for promoting sustainable and participatory forest management in India.

1. Broad Objectives

The broad goals of the proposed project are;

- (a) *Develop methodology for periodic and long-term monitoring and assessment of vegetational, institutional, economic and social aspects of participatory forestry (JFM and self-initiated CFM) and to suggest an approach and methodology for monitoring and assessment of JFM at the national level.*
- (b) *Assessment of the rate of spread of JFM, the performance of JFM, and ecological, economic and institutional impact of JFM in different states of India, at different stages of implementation of the programme to suggest strategies to promote genuine participatory forestry in India and enhanced flow of benefits.*
- (c) *Assessment of the vegetation practices adopted by the Forest Department under the JFM*

programme and social forestry or territorial forestry, and by the communities under the self-initiated community forest management systems, to suggest potential good practices.

- (d) *To conduct economic analysis of JFM approach to forest conservation and afforestation and compare the cost-effectiveness of JFM with other forest management strategies such as self-initiated community forest management groups and social forestry to suggest cost-effective strategies.*

2. Broad Approach

The broad approach to be adopted is as follows:

- 1) Development of methodology, organizing training programme, monitoring and coordination by Centre for Ecological Sciences and ASTRA.
- 2) Ecological and Economics Research Network (selected) groups conduct field studies in respective states.
- 3) A technical team will assist the coordinator in methodology development and monitoring.
- 4) A Project Advisory Committee will guide the activities of the network.

3. Potential Locations and Institutions

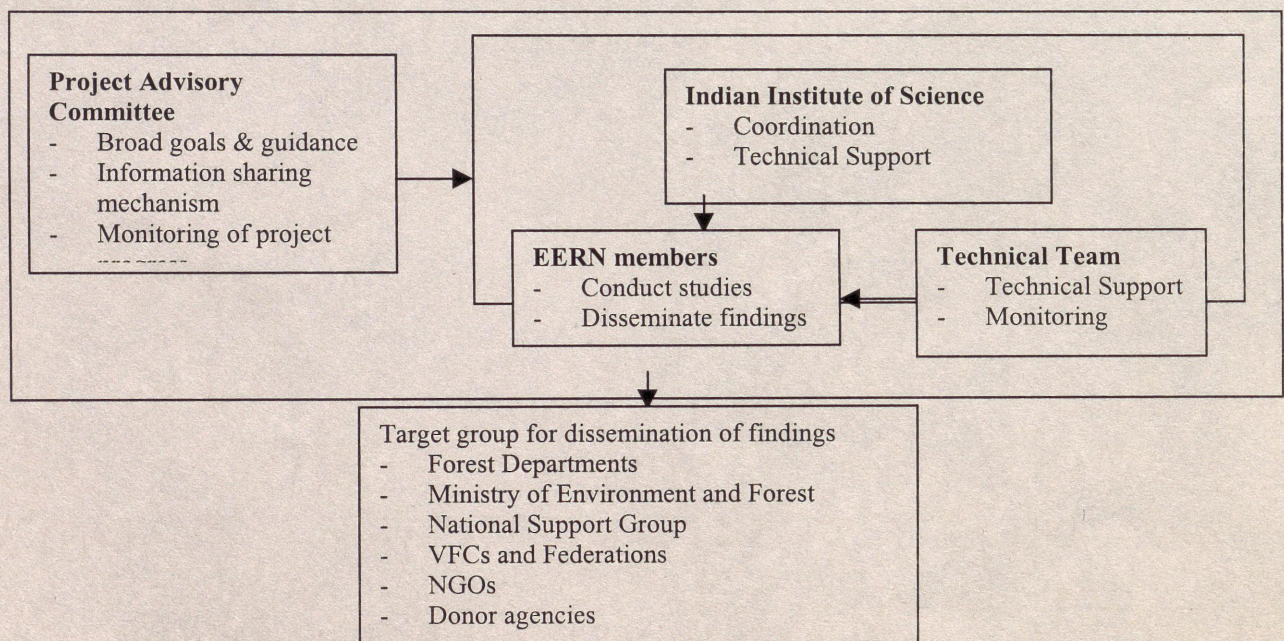
The criteria for selecting the states included; i) states with diverse JFM and self-initiated community forest management systems, ii) varying periods under JFM, and iii) significant scale spread of JFM. The potential Ecological and Economics Research Network institutions, with knowledge of the JFM programme in the region and methodology and technical capability are proposed.

State	Features	Lead Institution
West Bengal	<ul style="list-style-type: none"> • Large-scale implementation of JFM programme • JFM implemented for longer period 	IBRAD Kharagpur
Andhra Pradesh and Orissa	<ul style="list-style-type: none"> • Two types of JFM; World Bank funded and State government funded • JFM intensively implemented • Large self-initiated CFM 	Andhra University, Visakhapatnam
Gujarat	<ul style="list-style-type: none"> • Large JFM programme as well as self-initiated CFM 	VIKSAT, Ahmedabad
Rajasthan	<ul style="list-style-type: none"> • Large JFM programme funded by OECF • Several innovative institutional arrangements • Large self-initiated CFM 	Indian Institute of Forest Management, Bhopal
Karnataka	<ul style="list-style-type: none"> • JFM over 5 years in Western Ghats under DFID • JFM under OECF programme in the Eastern districts 	Indian Institute of Science

The lead institutions identified, could cover an additional neighbouring state for some studies, such as Andhra University could potentially cover Orissa. The lead institution identified would involve other Ecological and Economics Research Network group in the region and any other institution for field studies.

4. Institutional Structure

The project will be coordinated by the Indian Institute of Science. The project will be assisted by a Project Advisory Committee and a Project Technical Team. The institutional arrangements and responsibilities are depicted in the following diagram.



i) Project Coordination: Centre for Ecological Sciences of Indian Institute of Science will coordinate the programme with the following roles:

- i) Development of methodology and field testing
- ii) Conducting training programme on methodology for field studies and for data analysis and synthesis
- iii) Organize annual review workshops
- iv) Monitoring of the project activities in different locations
- v) **Coordinate preparation of mid-term and final synthesis report and dissemination of findings.**

ii) Project Advisory Committee

A Project Advisory Committee will be set up to guide the work of the Ecological and Economics Research Network and project work. The Committee meets at the beginning, mid-period and at the end of the project to advise the network. It will help in dissemination of findings. It will be convened by the coordinator from Indian Institute of Science. The membership of the Committee is as follows:

- Chairperson** : To be selected from among the members
- Members** : Representative of MoEF,
 : Representative from Forest Department of the respective states
 : Society for Promotion of Wasteland Development
 : Ford Foundation
 : Indian Council for Forestry Research and Education
 : Indian Institute of Forest Management
 : Experts (Ajit K. Banerjee, K. C. Malhotra, S. Palit, G. Kadekodi, D. N. Pandey, S. B. Roy)
- Convener** : Coordinator, Ecological and Economics Research Network (Indian Institute of Science)

iii) Project Technical Team

A small technical team will assist the Network and Centre for Ecological Sciences in methodology development and monitoring. The team would meet periodically. The functions are:

- To assist the Ecological and Economics Research Network. in methodology development
- To undertake field visits to project locations
- To participate in training programmes and review meetings

The members of the team are:

- Prof. K. C. Malhotra (Anthropologist, Social Scientist and Wild Life)
- Ajit K. Banerjee (IFS)
- S. Palit (IFS)
- Dr. M. H. Swaminath (IFS)

- D. N. Pandey (IFS)
- Prof. G. Kadekodi (Economist)
- S. B. Roy (Anthropology, Training Network)
- Prof. Kameswara Rao (Botanist, Ecologist)
- Dr. K. S. Murali (Ecologist)
- Dr. N. H. Ravindranath (Ecologist, Economist)

iv) Ecological and Economics Research Network Institutions (Lead Institutions)

The potential lead institution in each state will conduct studies, analyse results and disseminate findings. Further, the lead institutions will be coordinated by Indian Institute of Science. The potential institutions and team leaders are;

1. Andhra University : Prof Kameswara Rao
2. IBRAD : Prof. S. B. Roy
3. VIKSAT : Srinivas Mudrakartha
4. IIFM : D. N. Pandey
5. IISc : Dr. N. H. Ravindranath

5. Dissemination of information and policy advocacy

There is inadequate information on all the issues proposed to be addressed in this study (refer Part II) These issues are very critical for sustaining JFM in a more effective way and for making it more participatory. Thus, it is very important to ensure that the findings are disseminated at different levels and the information is also used for policy advocacy. The main target groups for the information generated and the activities for promoting information dissemination are (refer to Box);

Target Groups

- MoEF
- Forest Departments
- Donor agencies
- Researchers and NGOs
- VFC/FPC

Activities for promoting information dissemination, target groups and time frame

Activities	Target Groups	Time Frame
1. Methods manuals for - Monitoring - Performance and impact assessment - Economic analysis	- MoEF JFM Network - Forest Departments - NGOs - Research Institutions	1. Manuals will be prepared by the middle of the project period (18 months) 2. Provide manuals to different agencies
2. Conduct training		

programmes on methodology 3. Present methods to the MoEF-JFM Network Committee		
2. Interim project reports	- MoEF JFM Network Committee - NGOs - Forest Departments - Donor agencies	- Mid project period, by 18 months - During Annual Review Meetings
3. Booklets on various issues, such as; - Cost-effectiveness of JFM - Silvicultural practices for JFM - Criteria and indicators for sustainability of JFM - Biomass productivity of regenerated forests - Participatory approach to JFM monitoring	- MoEF JFM Network committee - NGOs - Forest Department - Research institutions	- As the findings become available, brief booklets will be prepared every 6 months after the first year.
4. Contribute information from study findings to existing web sites on JFM	- To all who have access to the internet	- Every 6 months or as and when the brief notes are ready.
5. Presentation of study findings to MoEF JFM Network Committee	- MoEF JFM Network Committee	- Twice a year, the key findings will be presented
6. Presentation at Project Annual Review Meetings	- Members of the Project Advisory Committee and Network members	- Annual review meeting
7. Sharing findings with other sub-networks such as - Gender network - Training network - Institutional network	- Network members and Coordinators	- During annual review meetings
8. Publications	- Researchers and research institutions	- Several scientific papers will be published every year - A comprehensive book at the end of the project period

6. Linkage with other Networks and Institutions

The Ecological and Economics Research Network will have close interactions with other networks and institutions to exchange information and seek advice and guidance. The institutions and networks are:

- National JFM network of the MoEF
- Gender and Equity network on JFM
- Training network on JFM
- Regional and National networks on JFM, coordinated by SPWD
- JFM Cell at ICFRE
- JFM Units/cells at State Forest Departments

- Indian Institute of Forest Management

These institutions are members of the Project Advisory Committee and/or Project Technical Team and/or participating Network Research Groups.

Activities for promoting linkage: The activities for promoting the linkage are:

- Participation of members from above institutions in the Annual Review Meetings, where findings of the studies and plan of work are presented.
- Ecological and Economics Research Network members will participate in different workshops and other network meetings.
- Ecological and Economics Research Network will present the findings to "JFM National Network", periodically.

The activities for disseminating the findings were presented in Section 5. There will be a close linkage with other institutions.

PART III

OBJECTIVES, ISSUES AND METHODS

Details of objectives, issues to be addressed and methods to be adopted for each of the four objectives is presented in the following sections. What was achieved earlier and new issues and methods proposed are also presented.

7. Objective 1: Methodology for periodic and long-term monitoring and assessment of vegetational, institutional, economic and social aspects of participatory forestry (JFM and self-initiated CFM).

Methodology development in the earlier phase: In the earlier phase, development of methodology was limited for i) conducting village or VFC level case studies, focussing on assessing vegetation status at a given time, ii) institutional arrangements existing again, at the village level using a case study approach and iii) estimating forest product extraction based on household survey. The earlier phase also attempted participatory monitoring in a few selected villages.

Additional issues and methods for the proposed project: In the proposed project, the following aspects of methodology development will be addressed, which were not addressed in the earlier phase.

- develop methodology for assessment of performance of JFM at macro-level; forest division, district and state level,
- develop methodology for assessment of impact of JFM and self-initiated CFM,
- develop methodology for monitoring of JFM at the national level, and
- develop methodology for economic analysis of the JFM programme

In view of the lack of experience and availability of a proper methodology for assessing JFM and self-initiated CFM at macro-level or micro-level this study proposes to develop such a methodology. As the assessment has to be a holistic one, involving various aspects

covering ecology, silviculture, economics, sociology and anthropology is needed, an interdisciplinary team will be constituted for the purpose.

A network of institutions from different states will be involved in development and field-testing of the methodology. The experience and methodology developed from this approach by field work in multiple locations by different institutions will be most valuable.

The present study will differentiate methodology needs for monitoring, verification, impact assessment and evaluation. Many of the macro studies initiated are often focussed on verification of claims on issues such as number of VFCs formed, area brought under JFM, number of VFCs functioning and so on. The proposed study will also assess the institutions, technical capacity and resources required for institutionalizing JFM monitoring and assessment. Current efforts are largely *ad hoc* in nature.

Some details of the issues covered and methods proposed are presented in this section.

i) Differentiate between: monitoring, verification, assessment and evaluation

There is a need to differentiate between verification, monitoring, assessment and evaluation because in this proposal seeks to use these terminology with a definite purpose.

Monitoring: Monitoring means a periodic observation of events. In this proposal monitoring will be undertaken to assess parameters such as the changes in species regeneration, functioning of VFCs over time.

2. Verification: Verification means a comparison of targets achieved with that claimed. For example the Forest department will have a target of covering an extent of area to be covered under JFM and the number of VFCs to be formed. A verification of this will be done under the proposed project. Verification often is restricted to physical parameters such as area covered or number of VFCs formed and financial expenditures.

3. Assessment: Means understanding the performance of the project from different perspectives. In this proposal performance of the project will be undertaken from different perspectives, particularly from the community perspective. For example the forest department may be interested in achieving the target of a specified extent of area to be covered and number of VFCs to be formed during a period of time, while the aspirations of the people and their perspectives may be different. A comparison of this kind would help to a great extent in making the JFM efforts more participatory.

4. Evaluation: Evaluation is an overall assessment of the project and its achievements. Thus will give the extent of success from the perspective of stakeholders in the project.

Further, there is a need to periodically, say annually, monitor the performance of the JFM programme, policies and activities. This may require studies at various levels from village to national level.

In the proposed project, the methodology needed for monitoring and assessment (of impacts and performance) will be developed by the Ecological and Economics Research Network and field tested by network institutions. Such an approach has not been taken by the Ecological and Economics Research Network or other institutions so far in India.

ii) Identify the monitoring and assessment needs from the perspective of VFC, Forest Department, donor agencies and so on

- **VFC:** VFCs may be interested in monitoring the species turnover, change in stem density of species of interest, regeneration potential and increased resource availability (flow of benefits).

- **Forest Department:** Forest Department would like to know the number of VFCs formed, area covered, survival rates, basal area and biomass growth rates
- **Donor agencies:** Donor agencies will be interested in understanding the cost-effectiveness of protection and regeneration, return on investment, capacity building, empowerment of women etc..
- **Ministry of Environment and Forest:** Government would be interested in understanding the impact of policies on the spread of JFM, participation of communities and NGOs, increase in forest area and biomass supply.

iii) Identify levels of monitoring and assessment for different states

Monitoring needs to be undertaken at different levels, because of information needs of different agencies are different and the information required is also of different intensities. Such information is not available for issues to be addressed in JFM and thus are important. Some examples of the information that will be generated at different levels are as follows:

VFC: Impact of protection or grazing on regeneration, regeneration of NTFP yielding species, growing stock (biomass), participation of women, etc.

Forest division/Circle/District: Functioning of VFCs, investment made, infrastructure developed, area covered under the programme, participation of NGOs, etc.

State/National level: Increase in area under forest, rate of formation of VFCs, capacity development in Forest Department and among NGOs, biomass supply etc.

iv) Identify issues for short and long-term monitoring and assessment

The parameters and issues to be monitored in the short-term and long-term are different. Long-term monitoring is needed to assess the sustainability of vegetation regeneration, biomass growth rate, institution development and so on. Short-term monitoring is needed to take decisions on harvesting, release of funding to activities etc. Such an assessment has not been made so far. Short and long-term issues are presented in this section.

Ecological or vegetation related issues

- Parameters to be monitored for short-term are basal area, stem density, species number and density, current extraction, etc
- Parameters to be monitored for long-term are growth rates, change in basal area, regeneration patterns and productivity.

Institutional and social aspects

- Parameters to be monitored in the short-term; current social setup, institutional arrangements for protection of forests and community involvement.
- Parameters to be monitored in the long-term are changed scenario in terms of protection measures, community involvement and adaptive management practices followed, if any.

Economic and benefit flows

- Parameters to be monitored for short-term study are current dependency of community on forests, the economic benefits derived and investment (labour, time etc..) made to protect the forest and procure forest products.

- Parameters to be monitored for long-term study are change in flow of economic benefits from the forests, alternative means adopted by the community to derive benefits and change in dependency on forests.

v) Develop monitoring and assessment approaches

The normal approach adopted is a questionnaire approach for getting information on parameters of interest (number of VFCs formed, number of VFCs functioning, area covered etc). Very often, data is collected and sent by implementing agencies. In the proposed study, multiple approaches will be used for information gathering such as;

- participatory approach, where the members of the VFC or village community members gather or monitor the information,
- Attempt would be made to involve the Forest Department staff at the field level in data gathering,
- Research staff of the project will measure, survey, observe and record information on some parameters (such as GBH, height etc),
- Local NGOs will gather information through group discussion, observation etc.

Some of the techniques and approaches are as follows:

Vegetation measurements: Formats will be developed for communities and project researchers to monitor various vegetation parameters

Household surveys: A questionnaire will be developed to understand the perception of the community with respect to the JFM and its performance and their views on ways to improve the performance.

VFC surveys: A questionnaire will be developed for use by NGOs and researchers to seek views of the Management Committee and General Body of VFCs regarding the institutions and current performance and to better future performance

Records of VFC meetings: Minutes of the meeting of VFCs recorded will be collected to understand the current involvement of community in forest management, decisions made and assess their performance.

vi) Develop standard monitoring and assessment formats, records along with periodicity

Parameter	Periodicity	Level monitored
NTFP monitoring	Weekly/Seasonal	VFC
Vegetation monitoring	Yearly	VFC
Household survey	Monthly/Yearly	VFC
VFC surveys	Yearly	Division/District/state

vii) Assess technical capacity, training needs and resources for monitoring and assessment

Monitoring and assessment of JFM periodically at various levels requires skills, technical capacity and institutional infrastructure. Before launching monitoring of JFM at national and state level, it is necessary to assess the institutions and resources required. Such an assessment has not been attempted so far. In the proposed project, institutional and technical capacity requirement will be assessed at different levels.

VFC level: Training programme needs to enable VFC members to undertake monitoring exercise, resources needed such as measuring tape, rope *etc.*, and human capacity needed to undertake the exercise will be assessed.

District/Forest Division level: At district or division level, need for coordination of the monitoring activity at VFC level will be assessed. The assessment mainly involves the number of person days of work and the necessary resources (material and financial) and transportation required to undertake the monitoring work. Need for and role of NGOs will be assessed. Training needs and infrastructure for training and monitoring will be assessed.

State and National level: Man power and infrastructure needed for coordination, training, travel and supervision of monitoring at district/division and VFC level, will be assessed. Technical capacity for synthesis of information and technical reporting at state and national level will be assessed.

viii) Developing guidelines for analysis and report preparation and information dissemination approaches

Often at national and state level, voluminous data is gathered without any specific institutional arrangement for analysis, synthesis, report preparation, technical review and dissemination. It is very important to ensure all the data gathered through monitoring is synthesized and disseminated. No such attempts have been made up front in a project. We are trying to assess the institutional requirement and methodology for analysis and synthesis of data. Guidelines and training programmes would be developed to assist in synthesis of information. The potential options for disseminating information are as follows.

Periodic report to Ministry: Once every six months a report on the progress made would be reported to the ministry giving details on the achievements in the reporting period.

Web site: A website will be developed or the existing websites will be used to disseminate information periodically and an update will be made on monthly basis.

Working papers: Working papers or technical reports will be prepared at regular intervals, as and when work is accomplished.

Presentation in workshops and meetings: The findings will be presented in the Network and other meetings and workshops. Further, in the network meeting the information generated will be discussed annually.

Methods for Objective 1

Work done so far: In the earlier phase, methodology was developed only for studies on JFM at village level, largely based on case study approach. Methods for monitoring JFM at macro-level and for assessment of performance and impacts at macro-level were not developed in the project so far. Methods for assessing the impacts from the perspective of the community have not been tested. Some experience is available from other countries such as Nepal, the Philippines and Indonesia.

Methodology work in the proposed project phase: In the proposed phase, methodology and guidelines would be developed for monitoring, assessment, evaluation, analysis and report writing for information dissemination. Methodology development would involve the following aspects.

- i) Survey of literature on methods adopted for ecological, economic and institutional assessment in India, Nepal, Philippines *etc.*,

- ii) Review and assess the methods adopted in the earlier studies of the network for modification in the proposed phase of the project.
- iii) Assess the current mechanisms and methods adopted for monitoring and reporting in different states in India under JFM and other programmes
- iv) Develop methods and field test during the study period to assess the capacity, time and resource needed
- v) The methods used so far included:
 - Quadrat method for vegetation assessment to be carried out by trained researchers
 - Questionnaire survey for socio-economic assessment for use by trained researchers
 - Group discussion conducted by trained researchers.

Examples of additional methods to be developed and used are as follows:

- Rapid vegetation monitoring techniques
- Participatory vegetation monitoring techniques to enable members of VFC to monitor vegetation periodically
- Satellite imagery method for assessing the area brought under JFM, area regenerated, crown density of regenerating forest, and even biomass (growing stock)
- Permanent plots for long-term monitoring of vegetation changes (biodiversity, biomass growth rate, regeneration, mortality)
- Questionnaire method for intensive and extensive survey of socio-economic aspects
- Group discussion and meetings
- vi) Conduct workshop involving various stakeholders such as VFC, Forest Departments, Donor agencies, Ministry of Environment and Forestry to validate and disseminate the methods

8. Objective 2: "Assessment of the rate of spread, performance and impact of JFM".

JFM is over 10 years old covering over 10 million ha and 35,000 village forest committees. Large investment has been made to achieve this goal. A number of institutional innovations have been developed and implemented. There are state level variations in implementation of JFM. In some states, JFM is on the decline and in some others it is expanding. In order for JFM to sustain the JFM institution should be dynamic and evolve continually. This requires learning from experience, adapting new strategies as the scenario changes and thus needs continuous monitoring.

Work done during earlier phase: In the earlier phase, JFM and self-initiated CFM systems were assessed through case study approach in only a few selected villages, except in one district (Uttara Kannada, in Western Ghats region). A preliminary attempt was made by the Centre for Ecological Sciences in Karnataka and in Uttara Kannada district of Karnataka.

However as a coordinated activity the Network did not undertake assessing JFM at macro-level such as forest division or forest circle or at the state level.

New issues proposed to be addressed: The proposed study aims at assessing the spread, performance and impact of JFM in the selected states. Barriers to the spread of JFM and the issue of sustainability of JFM will be assessed. The assessment will include: ecological (vegetation), economic and institutional aspects. The performance and impacts will be assessed from the perspective of village community, Forest Department, donor agencies and ecological sustainability.

Rationale: Participatory forestry is an approach to forest conservation, development and sustained flow of benefits. Currently, there is so little information available on the performance and impacts of JFM programme and policies. The on going efforts largely focus on verification of issues such as number of VFCs formed, extent of functioning of VFCs and area brought under JFM. The proposed study aims to assess the performance and impacts from the perspective of local community as well as ecological sustainability. The proposed study also involves local community institutions through participatory monitoring methods, unlike the ongoing efforts where government or research institutions are conducting assessment studies at one point of time (cross-section study).

The proposed study also aims at developing criteria and indicators for assessing JFM in India in future. Such an effort to develop criteria and indicators for assessing JFM has not been attempted from the ecological, economic and institutional perspectives in India, though some experience is available from other countries.

i) Assessment of rate of spread and total spread in selected states

- The number of VFCs formed in each year in the state or division will be collected from various sources and the yearly spread will be computed.
- The area covered under JFM will be collected from various sources in different years and the yearly spread will be computed and total area under JFM will be estimated.
- Ground truthing will be carried out in sample locations
- Apart from area under JFM and the number of VFCs, land category covered under the JFM such as wasteland, degraded land or reserve forest (with vegetation status) will also be recorded.

ii) Assessment of JFM from the perspective of different stakeholders (Community, Forest Department and Donor Agency)

Normally JFM programme is evaluated from the perspective of Forest Department or the donor agencies. In the proposed project, JFM will also be evaluated or assessed from the perspective of local communities and ecological sustainability. A few examples of issues to be addressed from the perspective of different stake holders are as follows:

Local community perspective: could include regeneration of economically valuable tree species, NTFP availability, species choice for planting, role of women in decision making process, financial transparency etc.

Forest Department perspective: could include canopy cover, growing stock, area covered, timber production, revenue generation, infrastructure development etc.

Donor's perspective: could include assessment of capacity development, rate of return, employment generated, cost-effectiveness etc.

iii) **Barriers to spread and performance of JFM**

Though the potential for spread is large, literally every village with forest or even degraded village commons, only 35,000 VFCs have been formed. Further, it is not clear as to how many are really functioning effectively. Thus, it is very important to assess the barriers to the spread as well as performance of VFCs.

Policy barriers: Barriers such as land category allotted to JFM and profit sharing mechanisms will be addressed.

Institutional barriers: Constraints such as decision and implementation powers, lack of financial powers will be addressed

Technical barriers: such low productivity and regeneration and lack of silvicultural methods will be addressed

Financial constraints: such as inadequate investment and timely availability of finance will also be addressed

iv) **Assessment of impact of JFM**

Impact of JFM on ecological, economic and institutional aspects will be addressed from the perspectives of the community and the other agencies involved in JFM through comparison of different forest management systems such as self-initiated community management, social forestry or territorial forestry systems.

- Ecological parameters that would be compared are the regeneration status, biomass growth rate, biodiversity, etc.,
- Economic impacts would be measured using parameters such as employment and income generated, proportion of fuelwood demand met, financial returns from sales proceeds of timber and non-timber products etc.,
- Institutional impacts would be assessed based on the participation of the community in decision making process, empowerment of the VFCs and the involvement of women in decision making.

Methods for Objective 2

Methods to be adopted include participatory methods, rapid vegetation assessment techniques, conventional ecological methods, household survey, satellite assessment, group meeting and discussion. Some details of these methods and the previous work done on the methods were given in the earlier section (for Objective 1).

- i) Participatory assessment methods.
- ii) Secondary data collection and analysis: Data such as number of VFCs formed in different states, or districts, the area brought under JFM, yearly formation of VFCs, number of VFCs that have completed Memorandum of Understanding, prepared micro-plans, income sharing may have to be verified through ground truthing.
- iii) Vegetation assessment in selected locations using ecological methods, rapid assessment techniques, satellite imagery etc.
- iv) Developing criteria and indicators for assessing performance and impacts. This is a new aspect of the study. Some information is available from

CIFOR, World Bank, etc. The studies to be conducted for assessing the performance and impacts mentioned in the earlier section, would provide adequate information for developing a set of criteria and indicators.

- v) Questionnaire survey for socio-economic status.

9. Objective 3: "Assessment of the vegetation and silvicultural practices adopted by the Forest Department and communities under JFM"

The approach to forest conservation or afforestation under JFM is participatory unlike the conventional forestry largely aimed at timber or industrial wood production. This study aims at assessing silvicultural practices adopted under JFM and compare it with traditional silvicultural practices adopted, from the perspective of biomass growth rate, sustainable flow of benefits and biodiversity.

Work done so far in the earlier phase: This was not addressed under the earlier phase of the study. The issues under this objective are issues that have arisen at later stages of JFM implementation in India and thus are planned to be addressed in the proposed phase of the project.

Rationale: Traditional forestry was aimed at producing timber or fuelwood or industrial wood and is largely dominated by species such as teak, eucalyptus and *Acacia auriculiformis*. These were largely dominated by a single species and are even-aged. Forestry under JFM involves more often promotion of natural regeneration and in some situations, plantations. The goal of forestry under JFM is to promote multiple product forestry focussed on traditional or local species such as Mahua (*Bassia latifolia*), Sal (*Shorea robusta*), Neem (*Azadiracta indica*), Tendu (*Diospyros melanoxylon*), etc.

It is very important to assess the silvicultural practices adopted under JFM and their implications and compare with the silvicultural practices adopted under social or territorial forestry. The focus will be on the practices of protection, grazing, land preparation, species choice, planting method, after-care and extraction. The practices adopted under the self-initiated community forestry and the potential to adapt such practices in JFM will be assessed.

Such a study would assist in identifying good practices for forest management under participatory forestry. The proposed project will only assess the practices already adopted and will not experiment with new practices.

The present study will focus on the following aspects of silvicultural practices in selected locations.

- impacts of different practices adopted on biodiversity, biomass growth rate and regeneration of NTFP yielding plant species.
- cost of different practices.
- species choice and implications for silvicultural practices.

i) Participation of community in decision making process on vegetation practices

An assessment would be made on the involvement of community on decisions on forestry practices to be adopted. The practices could include choice of species to be planted (in case of

plantations), protection practices (voluntary), grazing practices (rotational grazing or banning grazing during some months), mode of harvesting of fuelwood and non-timber products, etc.

ii) Inventory of vegetation management practices under JFM, social forestry, self-initiated community forest management system.

Inventory of vegetation practices such as afforestation techniques, protection practices, grazing practices, land preparation, planting techniques and mode of extraction of forest products would be made in the selected states under different management systems.

iii) Assessment of impact of vegetation management practices on;

Impact of vegetation or silvicultural practices will be assessed for the following:

Biodiversity: the change or variation in biodiversity between different management practices will be compared

Biomass growth rates: Change in Mean Annual Increment and basal area in different management systems will be compared

Regeneration: of tree and non-tree species, particularly NTFP species will be compared across various forest management systems

iv) Estimation of the cost per hectare under different practices

- Investment made in different management practices on land preparation, planting, after care etc., will be assessed through surveys.
- Investment made in protection of forests such as watch and ward, fencing, cattle trenches, etc., will be assessed through surveys.

Methods for Objective 3

Methods such as field monitoring, observation, measurement and recording of different practices and their impacts would be adopted. This part of the study would involve field ecological and silvicultural studies. This would involve survey and recording of the practices adopted by the Forest Department and measuring impacts through ecological and silvicultural methods. The methods to be adopted for monitoring different parameters is identical to methods described for assessing the impact of JFM on vegetation or ecological parameters. Some of the methods are as follows.

- i) Study of species composition, basal area, height, mode of regeneration and so on through field ecological methods.
- ii) Survey of VFC and Forest Department for information on practices adopted, costs and benefits under different management systems.

10. Objective 4: "Economic Analysis of JFM approach to forest conservation and afforestation"

The study aims at conducting economic analysis of afforestation and reforestation under JFM and assess the cost-effectiveness of JFM and compare it with other forestry approaches including self-initiated CFM and social forestry (or territorial forestry). Ultimately, JFM should be a cost-effective strategy for sustainable forest conservation and regeneration.

Work done so far: So far, only a preliminary study has been conducted in two villages. It was more an exploratory study. We need to develop an appropriate method applicable to

different locations, forest management systems and data availability situations.

New issues addressed: Economic analysis of JFM and its cost-effectiveness (Rs/ha, Rs/t of biomass, investment and life cycle costs, benefit-cost ratio) of JFM in different locations is a new study proposed for the current phase.

Rationale: JFM is largely externally funded. The cost of raising plantations under JFM or promoting regeneration is not clear for different locations. There are conflicting reports, some suggesting that the cost of forest regeneration under JFM is nearly identical to that of social forestry or territorial forestry.

Even though India has implemented one of the largest forest regeneration programme under JFM and social forestry in the world, the economic aspect of such a large programme is poorly understood. JFM should be cost-effective to be sustainable, given the vast areas to be protected and regenerated. If JFM is financially viable, then it may be possible for Village Forest Committees and Forest Department even to borrow funds at concessional rates from government agencies or banks. There are no serious studies on economic analysis of JFM in India.

Thus, the proposed study will generate empirical evidence on the cost-effectiveness of JFM from different locations in India.

i) ***Estimate investment, annual protection and maintenance cost:*** Actual costs (investment, annual and extraction) of different forest management systems would be estimated and compared. The cost parameters to be estimated are;

- Land preparation, fencing, nursery, planting, thinning, and after care etc.,
- Protection cost,
- Extraction of NTFP, fuelwood, timber etc., and
- Transportation

Some of the forest management systems to be considered are as follows:

- JFM village forests or plantations
- Self-initiated community forest management system villages
- Social forestry or watershed plantation or territorial forestry

ii) ***Valuation of benefit flow:*** It is very important to value all the benefits, marketed and non-marketed products. Information on the following products will be collected;

- Fuelwood, timber, poles
- Grass, medicinal plants
- Seeds, fruits, flowers, leaves, bark, tubers etc
- Non-market services such as biodiversity, soil conservation, cultural value would be noted but may not be monetised.

iii) ***Assess the organizational, overhead and management cost for the selected projects as well as self-initiated CFM and social forestry:*** Very often infrastructural, organizational

and administrative costs are not considered in making financial or economic analysis. Some examples are:

- Forest Department staff devoted to the project
- Jeep, cars, tractors, trucks and fuel cost
- Building, computers
- Training programmes, tours.

iv) **Valuation of community contribution to JFM and other systems:** The contribution made by the village community and the benefits sacrificed by the community are rarely valued and considered for economic analysis. It is very important to value them. Some examples are:

- Labour
- Opportunity cost, land, grazing facility
- Other factors and contributions of local community

v) **Conduct cost-benefit analysis and assess cost-effectiveness of JFM, social forestry, self-initiated CFM:** Based on the data (as mentioned above) collected (costs and benefits) financial and economic analysis will be carried out using the standard discounted cash flow and cost-benefit analysis techniques to assess:

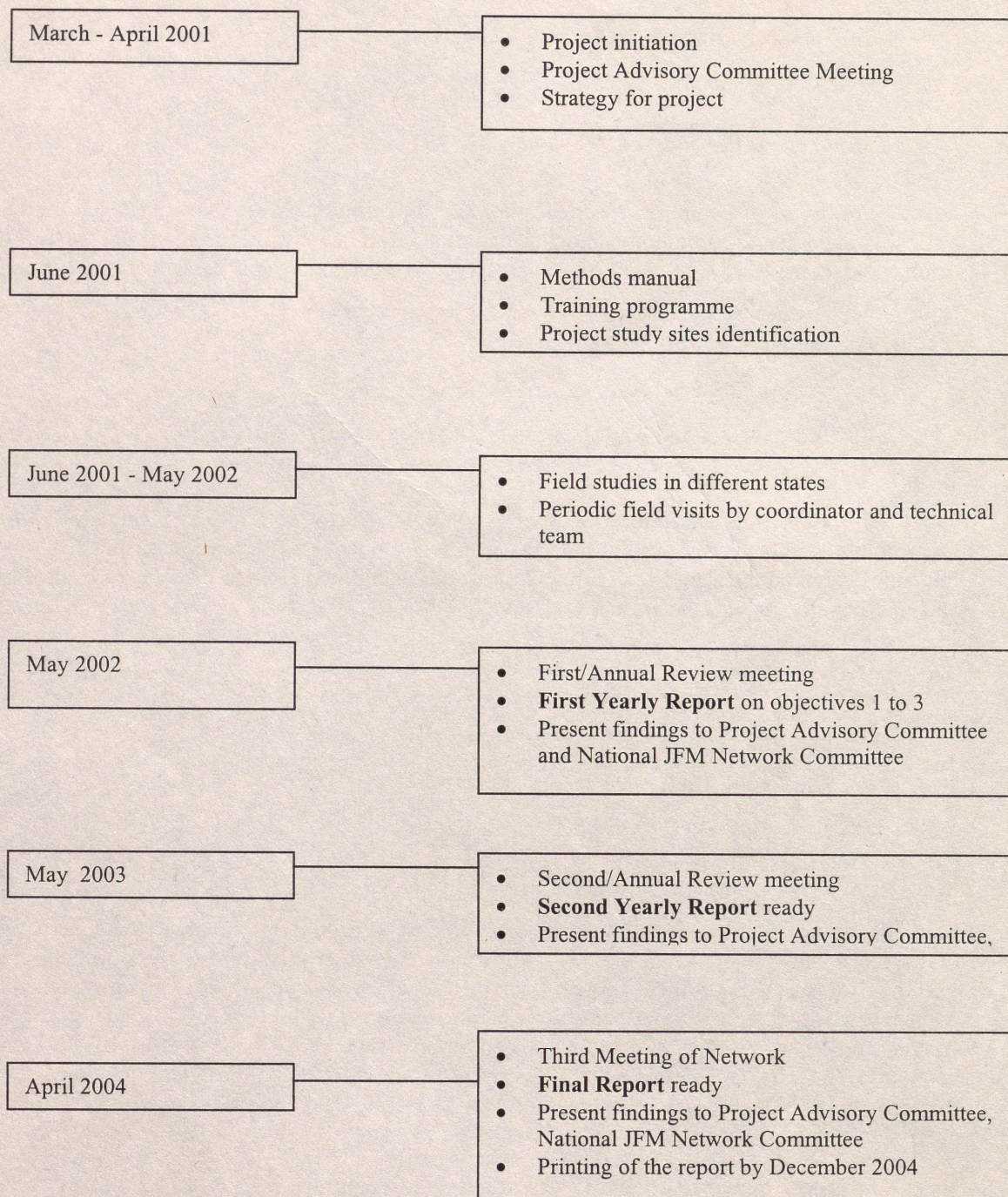
- Benefit-cost ratio
- Annualized life cycle cost
- Investment cost / t of biomass
- Internal rate of return

Methods for Objective 4

Methods to be adopted for collecting data will be identical to methods mentioned for Objective 1 and Objective 2. Some modification and simplification may be needed. For example, to assess the timber volume (growing stock), rapid vegetation assessment method may be used. Different cost-effectiveness parameters such as investment cost/ha, life cycle cost/ha and life cycle cost/t of biomass, benefit-cost ratio etc will be estimated. Different economic analysis techniques would be used to identify the appropriate technique for different stakeholders. Some of the methods for collecting data and analysis described earlier are as follows.

- Questionnaire survey of VFCs, households, contractors
- Procurement of data from Forest department, VFCs, on organizational cost, nursery, land preparation, fencing cost etc.
- Vegetation study in selected locations on biomass growth rate, and NTFP production through rapid assessment methods.
- Use of appropriate economic analysis techniques: Different techniques would be used and the most useful technique from the perspective of village communities, Forest Department and donor agencies would be identified.
- Case study approach

11. Major Outputs and Time-budgeting (assuming the project starts on March 1, 2001)



12. Schedule for the outputs of the project

Time schedule for some of the different outputs, assuming the project begins on March 1, 2001 is given in the following Box.

Period	Example of outputs
May 30, 2001	1. Status paper on "Monitoring and Evaluation of JFM in India; Approaches and Methods adopted in Selected States"
June 30, 2001	2. Methods Manual for vegetation assessment (for micro and macro-level) 3. Methods Manual for socio-economic assessment of VFCs. 3. Review of methods for estimating biomass or growing stock 4. Methods Manual for estimating NTFP yields and production
Sept 30, 2001	5. Methods manual for economic analysis 6. Report on " training needs for monitoring and assessment of JFM"
Jan 30, 2002	Report on " Inventory and costing of silvicultural practices under JFM, self initiated CFM and social forestry "
April 30, 2002	Interim / annual report on 1. Monitoring and assessment of JFM in India 2. Silvicultural practices, costs and implications under different forest management systems 3. Economic analysis of JFM in India
July 30, 2002	" Report or Review of JFM evaluation studies in India and status of JFM"
April 30, 2003	Second Interim Report on : 1. Performance and impacts of JFM in India 2. Silvicultural practices, costs and implications under different forest management systems OR Good practices for vegetation management under participatory forestry". 3. Economic analysis of JFM in India
Dec 30, 2003	Final Report on " Economic analysis of JFM and other forest management systems in India " Monograph on " Methods for studies on Participatory forestry : ecological, economic and institution"
Jan 30, 2004	Final Report on 1. Performance and impacts of JFM in India 2. Silvicultural practices, costs and implications under different forest management systems OR Good practices for vegetation management under participatory forestry". 3. Economic analysis of JFM in India
Feb 2004	National workshop on "JFM: an ecological, economic and Institutional Assessment in India"

Detailed budget for “Network coordination activities” and for “Conducting studies in Karnataka”

Main Component	Details	Year 1	Year 2	Year 3	Total
Budget for Research and Coordination to Indian Institute of Science	Project Staff	9,60,000	9,60,000	9,60,000	28,80,000
	Meetings & Workshops of Project Advisory Committee, Technical team and Network members	4,00,000	2,50,000	2,00,000	8,50,000
	Field work, Project Administration, Communication etc	3,50,000	3,50,000	3,00,000	10,00,000
	Travel for monitoring, methodology development, participation in meetings	1,50,000	1,50,000	1,50,000	4,50,000
	Computer (note book for field use)	2,00,000	-	-	2,00,000
Project Technical Team	For payment to external experts; towards honorarium and travel expenses	3,00,000	2,40,000	2,40,000	7,80,000
Budget to Network Institutions	Funds to be transferred to identified institutions, which will carryout the work in their respective states	16,00,000	16,00,000	12,00,000	44,00,000
Project Total	Grand Total	3,960,000	3,550,000	3,050,000	10,560,000
	Overheads for the project (at 8%)	2,81,666	2,81,667	2,81,667	8,45,000
	Total Project Budget (in Rs)	85,200	65,600	121,44	1,584,000 ✓
PROJECT BUDGET IN US\$ AT RS. 46.50/US\$		\$85,161	\$73,344	\$65,591	\$2,45,270

5,28,000 ✓
Total Project Budget for 3 Years = US \$ 2,45,27

96,516 87,698 96,946
\$261,160,