

Attachment II.4.4.1 Indicative TORs for Programme Managers and Technicians at PMU

1. Programme Manager (Audit)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in establishing financial control systems, financial management and project accounting systems, Taxes (GST/ IT etc.) and Duties compliances, facilitate statutory audits, conduct/ supervise Internal/ Concurrent audits, track claims and disbursement status, capacity development of stakeholders, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Establish financial management systems and procedures as per the approved operation manual
- Provide guidance for establishing accounting and financial reporting system
- Track compliances regarding Taxes and Duties, and settlement of issues with the respective departments
- Develop and establish system of undertaking internal/ concurrent audits, and supervise the exercise for each financial year
- Develop ToRs for hiring CA Firms for statutory and concurrent audits
- Facilitated statutory audits at PMU level
- Facilitate submission of SOEs vis-à-vis budget releases
- Track status of Reimbursement Claims and Disbursement on monthly basis
- Participate and contribute in review meeting and project events
- Facilitate capacity building initiatives, and act as resource for financial management and audits orientations
- Coordinate with other stakeholders for operationalizing and maintaining financial management system
- Compilation of progress reports and preparing various reports and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (Administration, Finance and Audits) at start of the month. This report would be submitted to Project Director (Administration, Finance and Audits) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Certified CA, ICWA, Master's degree along with Certified Public Accountant (CPA) or Certified Internal Auditor (CIA) credential or equivalent certification from recognized institution;
- ii) Excellent knowledge to work on computers, accounting software and spreadsheets;
- iii) Experience of around 10 years or more in similar work profile;
- iv) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v) Excellent writing and communication skills in English and Hindi;
- vi) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

2. Programme Manager (Forestry and Biodiversity)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in annual planning and implementation of PFM and Non-PFM models/ interventions and promotion of Forestry models and NTFP interventions in project areas, creation of people's biodiversity register, micro planning, design templates, guidelines and manual, monitoring & reporting and capacity building; coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Contribute to and facilitate for annual planning at PMU by coordinating with the DMUs/ FCCUs
- Contribute in developing and dissemination of guidelines and manuals/ hand books
- Coordinate with Wildlife Wing for project activities
- Guide and facilitate implementation of forestry and biodiversity interventions
- Facilitating NTFP interventions and coordinate with the NTFP Cell and Clusters for implementation
- Guide and facilitate survey and demarcation works, and installation of pillars around PFM areas
- Guide and facilitate micro-planning process for forestry operations both in PFM and non-PFM areas
- Coordinate with Program Manager (GIS, MIS and Website) for updating information on MIS and GIS platform
- Participate and contribute in review meeting and project events
- Undertake field visits and extend guidance, particularly on forestry and biodiversity activities
- Participate and contribute in review meeting and project events
- Facilitate capacity building initiatives, and act as resource for subject related orientations
- Coordinate with other stakeholders for achieving project targets and results
- Compilation of progress reports and preparing various reports, ToRs and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (Planning & Implementation) at start of the month. This report would be submitted to Project Director (Planning & Implementation) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Post Graduate in forestry, forest management, wildlife/ biodiversity management, natural resource management, environmental sciences or related areas from recognized institution;
- ii) Excellent knowledge to work on computers, software and spreadsheets;
- iii) Experience of around 10 years or more in similar work profile;
- iv) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v) Excellent writing and communication skills in English and Hindi;
- vi) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

3. Programme Manager (Livelihoods & Training)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in annual planning and implementation of community development and livelihood interventions; design small business/enterprise for community institutions for income generation, cluster promotion, design templates, guidelines and manual, monitoring & reporting, capacity building and trainings, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Contribute to and facilitate for annual planning at PMU by coordinating with the DMUs/ FCCUs
- Contribute in developing and dissemination of guidelines and manuals/ hand books
- Plan, guide and facilitate community mobilization and micro-planning process
- Plan, guide and facilitate implementation of community development and livelihoods initiatives, and initiating income generation activities
- Coordinate at state level to facilitate inter-sectoral convergence and cluster development
- Coordinate with Program Manager (GIS, MIS and Website) for updating information on MIS and GIS platform
- Undertake field visits and extend guidance, particularly on community development and livelihoods activities
- Participate and contribute in review meeting and project events
- Plan, guide and facilitate capacity building initiatives, and act as resource for subject related orientations
- Coordinate with other stakeholders for achieving project targets and results
- Compilation of progress reports and preparing various reports, ToRs and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (Institutional and Capacity Development) at start of the month. This report would be submitted to Project Director (Institutional and Capacity Development) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Post Graduate in social work, sociology, rural management, natural resource management, business administration specializing in rural management or related areas from recognized institution;
- ii) Excellent knowledge to work on computers, software and spreadsheets;
- iii) Experience of around 10 years or more in similar work profile;
- iv) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v) Excellent writing and communication skills in English and Hindi;
- vi) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

4. Programme Manager (Marketing & Rural Financing)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in annual planning and implementation of livelihood promotion; value chain and market analysis, product development, facilitate rural financing, design templates, guidelines and manual, monitoring & reporting, capacity building and training, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Contribute to and facilitate for annual planning at PMU by coordinating with the DMUs/ FCCUs
- Contribute in developing and dissemination of guidelines and manuals/ hand books
- Plan, guide and facilitate promotion of livelihoods initiatives and income generation activities
- Plan, guide and facilitate product designing, packaging and marketing by engaging specialized agencies, and seeking licenses/ clearances etc.
- Plan, guide and facilitate linkages with the financial institutions
- Facilitate inter-sectoral convergence and cluster development
- Coordinate with Program Manager (GIS, MIS and Website) for updating information on MIS and GIS platform
- Undertake field visits and extend guidance, particularly on rural marketing and rural financing
- Participate and contribute in review meeting and project events
- Plan and facilitate capacity building initiatives, and act as resource for subject related orientations
- Coordinate with other stakeholders for achieving project targets and results
- Compilation of progress reports and preparing various reports, ToRs and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (Institutional and Capacity Development) at start of the month. This report would be submitted to Project Director (Institutional and Capacity Development) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Post Graduate in social work, sociology, rural management, natural resource management, agribusiness management, business administration specializing in marketing/ rural finance or related areas from recognized institution;
- ii) Excellent knowledge to work on computers, software and spreadsheets;
- iii) Experience of around 10 years or more in similar work profile;
- iv) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v) Excellent writing and communication skills in English and Hindi;
- vi) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

5. Programme Manager (Monitoring, Safeguards & Publication)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in establishing M&E system, operation & effect indicators, monitoring and safeguards compliances, monitoring annual plans, preparing quarterly and annual reports, preparing guidelines and manuals, project publicity and information dissemination, events/ workshops, develop knowledge material, publish newsletters, reports, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Establish M&E systems and protocols as per the approved operation manual
- Contribute in developing and dissemination of guidelines and manuals/ hand books
- Plan, guide and facilitate establishing operation & effect indicators, monitoring and safeguards compliances
- Monitor project implementation vis-à-vis annual plans
- Plan, guide and facilitate project publicity and information dissemination
- Plan, guide and facilitate organizing project events/ workshops
- Supervise and track Social Audits and Grievance Redressal
- Coordinate and facilitate development of knowledge material and publish newsletters
- Facilitate in preparation of quarterly and annual reports
- Coordinate with IT/ GIS Cell for updating information on MIS and GIS platform
- Participate and contribute in review meeting and project events
- Undertake field visits and extend guidance, particularly on M&E activities
- Participate and contribute in review meeting and project events
- Plan and facilitate capacity building initiatives, and act as resource for subject related orientations
- Coordinate with other stakeholders for achieving project targets and results
- Compilation of progress reports and preparing various reports, ToRs and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (M&E, Environmental and Social Safeguards) at start of the month. This report would be submitted to Project Director (M&E, Environmental and Social Safeguards) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Post Graduate in statistics, economics, forestry, forest management, natural resource management, environmental sciences, business administration or related areas from recognized institution;
- ii) Excellent knowledge to work on computers, analytical software (SPSS etc.) and spreadsheets;
- iii) Experience of around 10 years or more in similar work profile;
- iv) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v) Excellent writing and communication skills in English and Hindi;
- vi) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

6. Programme Manager (GIS, MIS and Website)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in GIS based M&E, maintaining GIS systems and equipment, software inventory, procurement of imageries and spatial analysis, map production and analysis for planning & decision making, monitoring & reporting; establish GIS operations at all levels; coordinate with IT/ GIS Cell of HPFD; coordinate for progress tracking and reporting; coordinate with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Develop protocols, systems and procedures for GIS based monitoring and spatial analysis;
- Contribute in developing and dissemination of guidelines and manuals/ hand books;
- Plan, guide and facilitate developing GIS database and its linkage with MIS;
- Plan, guide and facilitate updating information on MIS and GIS platform;
- Prepare technical specifications for procurement of equipment, software, imageries, and spatial data etc.;
- Plan, guide and facilitate production of various maps and analysis for planning and monitoring;
- Plan and establish GIS operations at all levels of project implementation;
- Coordinate with IT/ GIS Cell for various project requirements and generation of reports/ maps;
- Development, maintenance and regular updating of project website;
- Participate and contribute in review meeting and project events;
- Undertake field visits and extend guidance, particularly on GIS activities;
- Participate and contribute in review meeting and project events;
- Plan and facilitate capacity building initiatives, and act as resource for subject related orientations;
- Coordinate with other stakeholders for achieving project targets and results;
- Compilation of progress reports and preparing various reports, ToRs and documents;

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (M&E, Environmental and Social Safeguards) at start of the month. This report would be submitted to Project Director (M&E, Environmental and Social Safeguards) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Post Graduate in geography, forestry, forest management, natural resource management, environmental sciences, information technology or related areas from recognized institution;
- ii) Technical qualification/ exposure on GIS related software and application and having excellent Cartographic and Remote Sensing skill, data modelling standards and techniques;
- iii) Efficiency in ARC GIS, ERDAS IMAGINE, Open source database management, web enabled technology
- iv) Experience of around 10 years or more in similar work profile;
- v) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- vi) Excellent writing and communication skills in English and Hindi;
- vii) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

7. Project Technicians (GIS/ MIS)

1. Objectives of the Assignment

Assist the Project Management Unit (PMU) – a project apex unit at state level, in maintaining systems, GIS/ MIS operations at all levels, computer generated analytical GIS maps, MIS reports, website and digital repository, software inventory & maintenance, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

- Assist Program Manager (GIS, MIS and Website) in day-to-day operations and GIS/ MIS initiatives;
- Facilitate developing GIS database and its linkage with MIS
- Facilitate updating information on MIS and GIS platform, and report generation
- Facilitate production of various maps and analysis for planning and monitoring
- Facilitate and establish MIS/ GIS operations at all levels of project implementation
- Coordinate with IT/ GIS Cell for various project requirements and generation of reports/ maps
- Development, maintenance and regular updating of project website
- Facilitate maintenance of software and equipment
- Coordinate with other stakeholders for GIS/ MIS Operations
- Preparing various reports, maps and documents

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Project Director (M&E, Environmental and Social Safeguards) at start of the month. This report would be submitted to Project Director (M&E, Environmental and Social Safeguards) through Program Manager (GIS, MIS and Website) and approved by the Chief Project Director (CPD).

5. Desired Qualifications

The person should possess following key qualifications:

- i) Graduate in geography, forestry, natural resource management, environmental sciences, information technology or any areas from recognized institution along with certified technical course;
- ii) Technical qualification/ exposure on GIS related software and application; preference would be given having good Cartographic and Remote Sensing skill, data modelling standards and techniques;
- iii) Efficiency in ARC GIS, ERDAS IMAGINE, Open source database management, web enabled technology
- iv) Experience of around 3 years or more in similar work profile;
- v) Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- vi) Basic writing and communication skills in English and Hindi;
- vii) Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at state level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 35 years.

Attachment II.4.4.2. Indicative TOR for FCCU Subject Matter Specialist (M&E - GIS/MIS)

1. Objectives of the Assignment

Assist the Forest Circle Coordination Unit (FCCU) – a project unit at forest Circle level, in monitoring annual plans of the project, MIS/ GIS data compilation, capacity building, progress monitoring based on MIS and GIS and reporting and, contribute in other project related activities including coordinate with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

1. Coordinate with DMUs for annual planning and budget releases;
2. Supervise timely submission of SOEs by DMUs;
3. Coordinate at district level to facilitate inter-sectoral convergence;
4. Participate and contribute in review meeting and project events;
5. Undertake field visits and extend guidance, particularly on M&E activities and reporting/ documentation;
6. Guide and supervise survey and demarcation, and geo-referencing works;
7. Follow-up with DMUs for updating and supplying information on MIS and GIS platform;
8. Follow-up with DMUs on data-entry operations in MIS/ accounting software;
9. Facilitate Capacity Building initiatives, and act as resource for M&E orientations;
10. Compilation of progress reports and preparing various reports and documents;
11. Documentation and record keeping on grievance redressal.

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with FCCU Officer at start of the month. This report would be submitted to FCCU Officer and approved by Circle Nodal Officer.

5. Desired Qualifications

The person should possess following key qualifications:

- i. Post Graduate in statistics, economics, forestry, natural resource management or related areas from recognized institution;
- ii. Excellent knowledge to work on computers, analysis software and spreadsheets;
- iii. Experience of around 7 years or more in similar work profile;
- iv. Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v. Excellent writing and communication skills in English and Hindi;
- vi. Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at circle level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 50 years.

Attachment II.4.4.3. Indicative TORs for DMU Subject Matter Specialists

A. Subject Matter Specialist (Forests & Biodiversity Management)

1. Objectives of the Assignment

Assist the Divisional Management Unit (DMU) – a project unit at forest division level, in microplanning, annual planning and implementation, guidance and supervision of forestry and biodiversity interventions, data compilation, monitoring & reporting and capacity building, coordinating with other stakeholders

2. Key Tasks to be Performed

Following would be the key tasks to be performed or extending assistance, but not limited to:

1. Contribute to and facilitate for annual planning at Range and Division level;
2. Coordinate with Wildlife Wing for project activities;
3. Guide and facilitate implementation of forestry and biodiversity interventions;
4. Guide and facilitate survey and demarcation works, and installation of pillars around PFM areas;
5. Guide and facilitate micro-planning process for forestry operations both in PFM and non-PFM areas;
6. Participate and contribute in review meeting and project events;
7. Facilitate dissemination of guidelines and manuals/ hand books;
8. Undertake field visits and extend guidance, particularly on forestry and biodiversity activities;
9. Update and supply information on MIS and GIS platform;
10. Facilitate Capacity Building initiatives, and act as resource for subject related orientations;
11. Compilation of progress reports and documents as required from time to time.

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Assistant DMU Officer at start of the month. This report would be submitted to Assistant DMU Officer and approved by DMU Officer.

5. Desired Qualifications

The person should possess following key qualifications:

- i. Post Graduate in forestry, forest management, wildlife/ biodiversity management, natural resource management or related areas from recognized institution;
- ii. Experience of around 7 years or more in similar work profile;
- iii. Good knowledge to work on computer, and having exposure to internet, word and spreadsheets etc.;
- iv. Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v. Excellent writing and communication skills in English and Hindi;
- vi. Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at division level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 45 years.

B. Subject Matter Specialist (Livelihoods, Rural Financing & Marketing)

1. Objectives of the Assignment

Assist the Divisional Management Unit (DMU) – a project unit at forest division level, in microplanning, community mobilization, annual planning and implementation, guide on livelihoods; small business/ enterprise plan, inter-sectoral convergence, assist in value chain and market analysis, rural financing, support cluster development, extend support to leverage funds, monitoring & reporting and capacity building, coordinating with other stakeholders.

2. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

1. Contribute to and facilitate for annual planning at Range and Division level;
2. Guide and facilitate community mobilization and micro-planning process;
3. Guide and facilitate implementation of livelihoods initiatives;
4. Guide and facilitate linkages with the financial institutions;
5. Guide and facilitate product designing, packaging and marketing by engaging specialized agencies, and seeking licenses/ clearances etc.;
6. Coordinate at Block level to facilitate inter-sectoral convergence and cluster development;
7. Participate and contribute in review meeting and project events;
8. Facilitate dissemination of guidelines and manuals/ hand books;
9. Undertake field visits and extend guidance, particularly on livelihood/ income generation, rural financing and marketing activities;
10. Update and supply information on MIS and GIS platform;
11. Facilitate Capacity Building initiatives, and act as resource for subject related orientations;
12. Compilation of progress reports and documents as required from time to time.

3. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

4. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Assistant DMU Officer at start of the month. This report would be submitted to Assistant DMU Officer and approved by DMU Officer.

5. Desired Qualifications

The person should possess following key qualifications:

- i. Post Graduate in social work, sociology, rural management, natural resource management or related areas from recognized institution;
- ii. Experience of around 7 years or more in similar work profile;
- iii. Good knowledge to work on computer, and having exposure to internet, word and spreadsheets etc.;
- iv. Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v. Excellent writing and communication skills in English and Hindi;
- vi. Strong interpersonal skills and the ability to communicate and work well with diverse people.

6. Others

It's a full-time position located at division level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 45 years.

Attachment II.4.4.4 Indicative TOR for FTU Coordinator (Livelihood Support and Inter-sectoral Convergence)

1. Objectives of the Assignment

Assist the Divisional Management Unit (DMU) – a project unit at forest division level, in microplanning, community mobilization, annual planning and implementation, guide on livelihoods; small business/ enterprise plan, inter-sectoral convergence, assist in value chain and market analysis, rural financing, support cluster development, extend support to leverage funds, monitoring & reporting and capacity building, coordinating with other stakeholders.

2. Objectives of the Assignment

Assist the Field Technical Unit (FTU) – a project unit at forest range level, in annual planning and implementation, guide and facilitate microplanning, livelihood initiatives, small business/ enterprise plans, inter-sectoral convergence, cluster promotion, capacity building, monitoring & reporting, and coordinating with other stakeholders.

3. Key Tasks to be Performed

Following would be the key tasks to be performed/ extending assistance, but not limited to:

1. Contribute to and facilitate for annual planning at VFDS/ BMC and Range level;
2. Guide and facilitate community mobilization and micro-planning process;
3. Guide and facilitate implementation of livelihoods initiatives;
4. Guide and facilitate linkages with the financial institutions;
5. Coordinate at Panchayat level to facilitate inter-sectoral convergence and cluster development;
6. Participate and contribute in review meeting and project events;
7. Facilitate dissemination of guidelines and manuals/ hand books;
8. Undertake field visits and extend facilitation, particularly on livelihood/ income generation, rural financing and marketing activities;
9. Update and supply information on MIS and GIS platform;
10. Facilitate Capacity Building initiatives, and act as resource for subject related orientations;
11. Compilation of progress reports and documents as required from time to time.

4. Duration of the Assignment

The engagement would be for the duration of the project, however the contract would be for one year that could be renewed annually based on the performance to the satisfaction of the DMU and PMU. Candidate would be eligible for receiving increment at renewal based on satisfactory performance and as decided by the PMU.

5. Outputs/ Deliverables

Monthly Assignment Report highlighting tasks performed during the month vis-à-vis monthly plan to be finalized with Assistant FTU Officer at start of the month. This report would be submitted to Assistant FTU Officer and approved by FTU Officer.

6. Desired Qualifications

The person should possess following key qualifications:

- i. Graduate in social work, sociology, rural management, natural resource management or related areas from recognized institution;
- ii. Experience of around 5 years or more in similar work profile;
- iii. Functional knowledge to work on computer, word and spreadsheets etc.;
- iv. Fit to work in Himachal Pradesh conditions, and willing to travel across the state in remote and hilly terrains;
- v. Basic writing and communication skills;
- vi. Strong interpersonal skills and the ability to communicate and work well with diverse people.

7. Others

It's a full-time position located at range level. The position to be hired on contract from open market. This is equal opportunity position open to all eligible candidates. Women candidates will be encouraged. Age limit: Less than 35 years.

Attachment II.4.5.1 Proposed Institutional Arrangement of VFDS

(1) Composition of Executive Committee of VFDS

As per the HP PFM Rules 2001, there shall be a Society for a Gram Panchayat Ward. However, where the Ward is not compact and the hamlets within it do not have common forests, common grazing lands, common rights and concessions more than one Society may be formed for each cluster of hamlets. The Society shall be registered under section 3 of the Societies' Registration Act, 1860. (Act No. 21 of 1860). All voters of a Gram Panchayat Ward shall be entitled to be enrolled as members of the Society. Elected members of the Executive Committee shall hold office for a period of two years from the date of assumption of office. The composition would be as follows:

Table 1 Composition of the Executive Committee of Village Forest Development Society (VFDS)

No.	Member Category	Members	Remarks
1	President	1	To be elected by the Gram Sabha
2	Vice President	1	To be elected by the Gram Sabha
3	Member Secretary	1	To be elected by the Gram Sabha
4	Joint Secretary	1	Woman; To be elected by the Gram Sabha
5	Members	4	To be elected by the Gram Sabha
6	Member	1	Ward Panch; Ex-officio member
7	Member	1	President Mahila Mandal; To be elected by the Gram Sabha
8	Member	1	Representative local women group; To be elected by the Gram Sabha
9	Member	3	To be co-opted from the village level committees constituted by other departments of the Government, societies registered under the Societies Registration Act, 1860, (Act No. 21 of 1860), user groups, self-help group and grazier group;
10 Total Members		14	
11	Treasurer	1	To be nominated by the elected members from amongst the members of the Society

Note: Provided that at least 7 members of the Executive Committee shall be from amongst the women. Joint Secretary shall assist the Member Secretary

Source: HP PFM Rules 2001; Compiled by: JICA Study Team (2017)

The Executive Committee shall exercise the powers of a "Forest Officer" as assigned by the Government under the Indian Forest Act, 1927.

(2) Bank Accounts for Implementing Project Interventions

For the project the VFDS would open separate account. Two bank accounts would be opened in nearest service area bank branch or post office, viz., a) Forests & Ecosystem Management (FE account), and b) Community Development & Livelihood Improvement (CD&LI account). These accounts shall be operated under the signatures of the President, Treasurer and Member-Secretary of the Society.

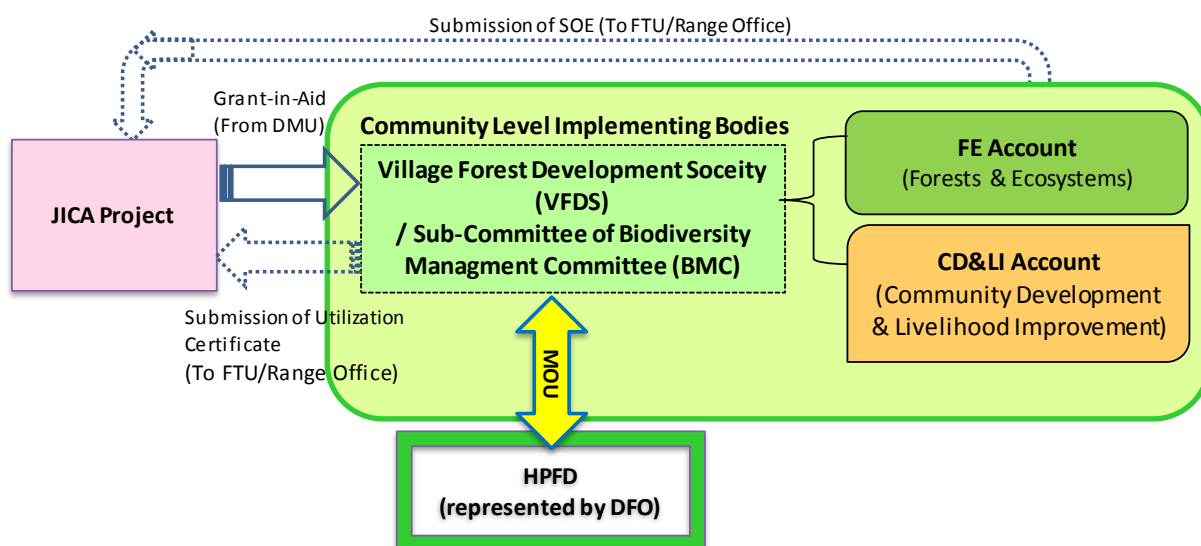
(3) Office Space

The VFDS may arrange its own office space. VFDS may also approach the Gram Panchayat for providing office space for the project period, if possible with Panchayat office or allocating some space in other properties under control of the Gram Panchayat. Strengthening of the VFDS office would be supported by the Project.

(4) Project Planning

Following the participatory planning processes and with involvement of community as well as the HPFD, VFDS will prepare a micro plan constitute of two sub-plans, viz., a) Forest Ecosystems Management Plan (FEMP), and b) Community Development and Livelihood Improvement Plan (CD&LIP). These plans would first be approved by the Ward Sabha. The tenure of these plans would be 5 years or more, if required. Annual Implementation Plans (AIPs) would be prepared for every financial year for each of these plans.

The process of preparing these plans afresh will be initiated 6 months prior to the expiry. For the project implementation MoU would be signed between the VFDS and HPFD. The activities planned in these plans shall be financed through two separate accounts to keep track of the financial transaction and transparency. The flow of the fund is given in **Figure 1**. The outline of the FEMP and CD&LIP are given in **Part II Chapter 3 (Section 3.7.1.1)**.



Source: JICA Study Team (2017)

Figure 1 Fund Flow to the VFDS under the Project

(5) Fund Flow to VFDS

The funds would flow to respective village level institutions for executing the plans. The funds from the project would be first received by VFDS in respective bank accounts viz., 'FE account' and 'CD&LI account' as per annual implementation plan (AIP). VFDS would make expenditures as prescribed in the approved plans following project norms, and will also report the expenditures to the Gram Panchayat from time to time during social audits for each financial year. Through its institutional arrangements, the Project would also extend accounting and data-entry support at the VFDS level.

The funds according to the AIP formulated for each financial year referring the approved FEMP would be received in the 'FE account', whereas the funds for community development & livelihood improvement allocated as per the approved CD&LIP in similar manner would be received in the 'CD&LI account'.

The funds could be given to the village institutions only after beneficiary share in terms of ‘membership fee’ is collected as per the Ward Voter’s Register and deposited in the FE account, and reported by the President of VFDS. The membership fee could be collected from all recognized houses falling in a Gram Panchayat Wards as far as possible to build in the stakes of the large set of community as well as to equitably spread the benefits from the project. The fee is basically realization of a minimal cost up-front for receiving the benefits from the target forest areas or ecosystem or in other words it is PES by the first users, and would be utilized to create a Corpus Fund.

Table 2 Funds for Implementation

No.	Items	Share/ Contribution	Remarks
1	Beneficiary Share	Rs.200 per household – one time (or decided by VFDS)	Contribution to Corpus fund
2	Project Fund	Matching Contribution – one time	Contribution to Corpus fund
3	Project fund	As per approved FEMP	For implementation of FEMP
4	Project fund	As per approved CD&LIP	For implementation of CD&LIP

Source: JICA Study Team (2017)

The funds collected as beneficiary share along with the Project contribution to the Corpus would be fix deposited in a nationalized bank or post office as ‘Corpus Fund’. This corpus fund would act as security for the village institution in future, and could be utilized for maintenance of forests and ecosystems after cycle of interventions gets over during the project period and/or after project completion.

(6) Method of Executing Project Works

The funds through the Project are available for executing works adopting PFM mode and Department mode. These works would be executed directly by the VFDS or the department respectively. Some of the activities would also be executed by the project by engaging VFDS members as per MoU. **Table 3** depicts category of works and method of executing these works.

Table 3 Method of executing Project Works by VFDS

No.	Mode	Responsibility	Method of Executing Works	Category of Works
1	PFM	VFDS	Direct through User’s Group/ SHGs as per CD&LIP	Planning, small structures, EPA, in-situ training, livelihood improvement works, NTFP Cultivation on private lands/ clusters etc.
2	Department	PMU/ HPFD	MOU between VFDS and DFO (DMU Officer) as per FEMP	Plantations and forestry operations, nurseries, SMC & SWC/ DLT works, pasture management, protection – plantation and forest fire etc.

Source: JICA Study Team (2017)

(7) MoU between VFDS and HPFD

The Memorandum of Understanding (MoU) between VFDS represented by the President VFDS on one hand and HPFD represented by DFO (DMU Officer) on other hand would act as an instrument for executing project works as per the FEMP as well as for joint management of forests and ecosystems. The MoU will spell out the roles, regulations, rights & responsibilities and rewards/ incentives for executing project works as well as sustainably manage forest resources/ ecosystems together with equitable sharing of usufructs. The approved FEMP will be attached and will form part of the signed MoU for records and monitoring purposes.

(8) Maintenance of VFDS Records and Accounts

Treasurer would be responsible for maintaining cash book and payment register whereas Member Secretary with the VFDS will maintain membership register, project works register, proceeding register, expenditure bill book, complaint register and community development and livelihood promotion/ community institution loan register etc.

(9) Audit of VFDS Accounts

PMU would conduct independent annual audits of the VFDS project accounts. In addition, concurrent audits – quarterly or semi-annually or as per the frequency indicated in the operation manual will also be conducted. Also, the VFDS would also be liable to the audits as spelt out in the HP Societies Registration Act, 2006.

(10) Mobile App based Updating of Project Progress and Accounting

GP Motivators would update the project progress and accounting details (as per the cash book entries) on the mobile app to be developed by the Project. Project accountant at FTU level would be responsible to supervise and check the entries every month in a routine manner.

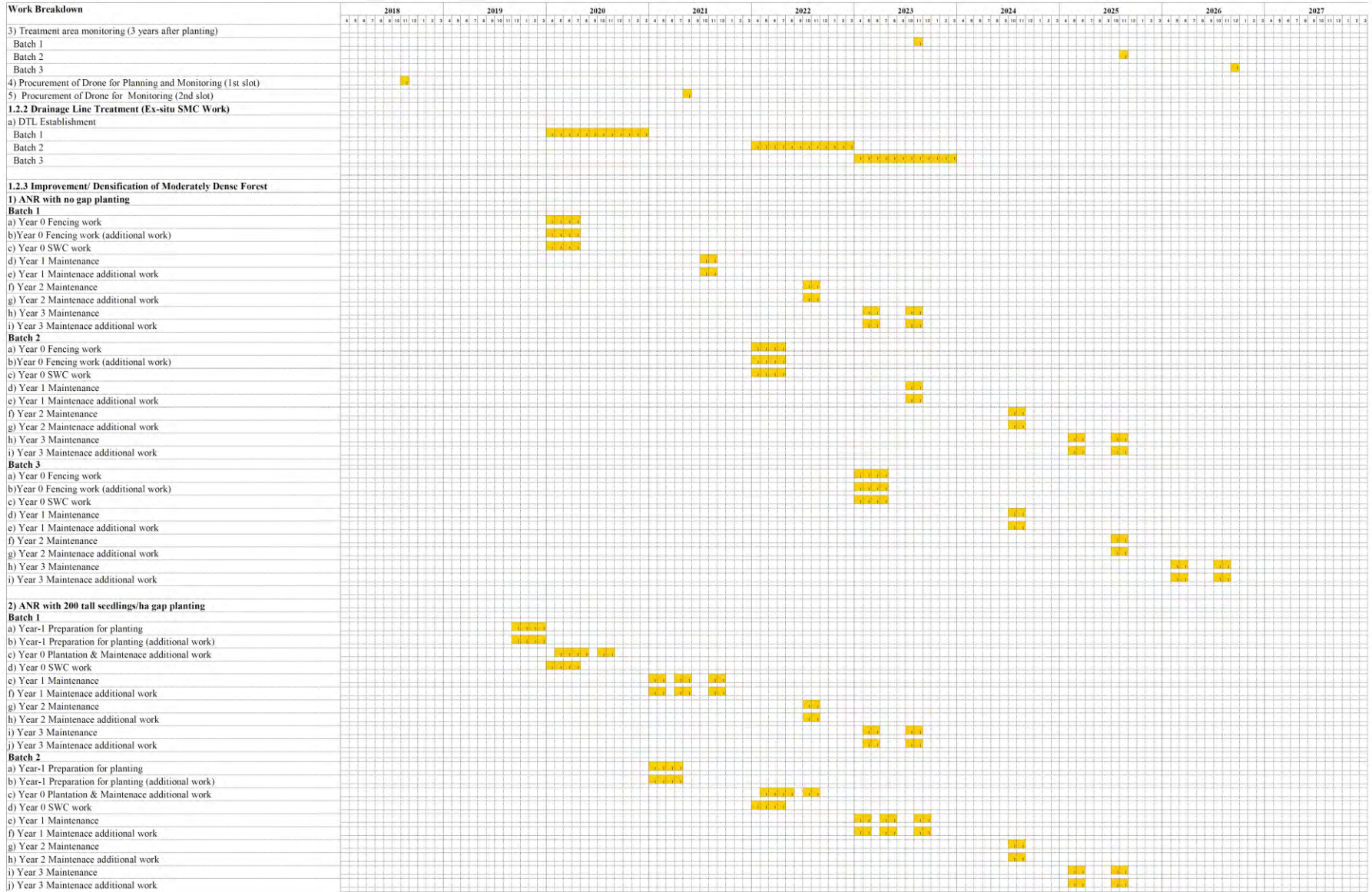
(11) Support to VFDS

During project implementation, following support (indicative) would be extended to the VFDS created within Gram Panchayat Wards to facilitate project implementation.

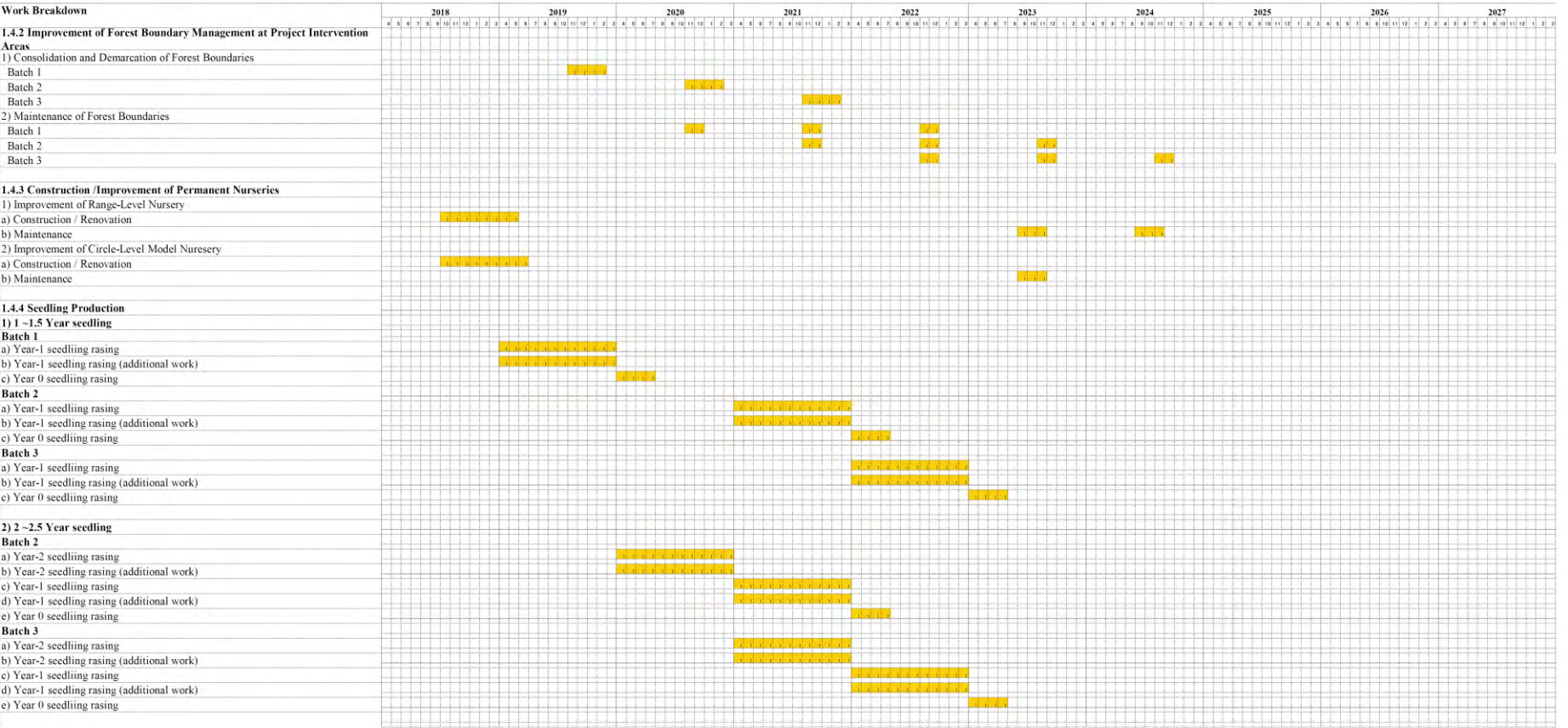
Table 4 Indicative Support to VFDS under the Project

No.	Support Item	Description/ Provision	Remarks
1.	Office Furniture	One small Almirah, Two Tables with chairs, four visitor's chairs, a Dari (carpet).	One-Time support; say 10,000 INR
2.	Annual Office Operation	Rs.60 per month or 720 INR to be given one-time at the start of the financial year	For meeting stationery, photocopy, hospitality etc.
3.	Project Stationery	Membership Register/ Project Works Register/ Bill Book/ Cash Book/ Payment Register/ Proceeding Register/ Complaint Register/ Livelihood Promotion/ SHG Loan Register	To be printed by the project and provided to Gram Panchayat
4.	Smartphone	One quantity: Smartphone would be used to access mobile apps designed for updating project's physical and financial progress, capturing, geo-tagging and uploading site/ activity photographs, and to communicate with the project authorities using messaging tools.	One time cost; Rs.5000~Rs.6000
5.	Social Audit	Social Audits by VFDS for the project interventions.	Supported by the project
6.	Financial Audit	In addition to the Financial Audits to be conducted as per the HP Societies Registration Act, 2006, the project would also conduct annual financial audit as well as concurrent audits	Supported by the project

Source: JICA Study Team (2017)



Work Breakdown	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Batch 3										
a) Year-1 Preparation for planting					■					
b) Year-1 Preparation for planting (additional work)					■					
c) Year 0 Plantation & Maintenance additional work						■	■			
d) Year 0 SWC work						■				
e) Year 1 Maintenance							■	■	■	
f) Year 1 Maintenance additional work							■	■	■	
g) Year 2 Maintenance								■		
h) Year 2 Maintenance additional work								■		
i) Year 3 Maintenance									■	■
j) Year 3 Maintenance additional work									■	■
1.2.4 Afforestation/ Improvement of Open/ Scrub Forests										
1) Fuel and Fodder Plantation										
Batch 1										
a) Year-1 Preparation for planting		■								
b) Year-1 Preparation for planting (additional work)		■								
c) Year 0 Planting Work			■	■						
d) Year 0 Plantation & Maintenance additional work			■	■						
e) Year 0 SWC work					■	■				
f) Year 1 Maintenance (10% Replanting)					■	■				
g) Year 1 Maintenance additional work					■	■				
h) Year 2 Maintenance (5% replanting)						■	■			
i) Year 2 Maintenance additional work						■	■			
j) Year 3 Maintenance							■	■		
k) Year 3 Maintenance additional work							■	■		
Batch 2										
a) Year-1 Preparation for planting				■	■					
b) Year-1 Preparation for planting (additional work)				■	■					
c) Year 0 Planting Work						■	■			
d) Year 0 Plantation & Maintenance additional work						■	■			
e) Year 0 SWC work								■	■	
f) Year 1 Maintenance (10% Replanting)						■	■			
g) Year 1 Maintenance additional work						■	■			
h) Year 2 Maintenance (5% replanting)							■	■		
i) Year 2 Maintenance additional work							■	■		
j) Year 3 Maintenance								■	■	
k) Year 3 Maintenance additional work								■	■	
Batch 3										
a) Year-1 Preparation for planting					■	■				
b) Year-1 Preparation for planting (additional work)					■	■				
c) Year 0 Planting Work						■	■			
d) Year 0 Plantation & Maintenance additional work						■	■			
e) Year 0 SWC work								■	■	
f) Year 1 Maintenance (10% Replanting)						■	■			
g) Year 1 Maintenance additional work						■	■			
h) Year 2 Maintenance (5% replanting)							■	■		
i) Year 2 Maintenance additional work							■	■		
j) Year 3 Maintenance								■	■	
k) Year 3 Maintenance additional work								■	■	
2) NTFP/ Medicinal Plantations										
Batch 1										
a) Year-1 Preparation for planting		■								
b) Year-1 Preparation for planting (additional work)		■								
c) Year 0 Planting Work			■	■						
d) Year 0 Plantation & Maintenance additional work			■	■						
e) Year 0 SWC work					■	■				
f) Year 1 Maintenance (10% Replanting)					■	■				
g) Year 1 Maintenance additional work					■	■				
h) Year 2 Maintenance (5% replanting)						■	■			
i) Year 2 Maintenance additional work						■	■			
j) Year 3 Maintenance							■	■		
k) Year 3 Maintenance additional work							■	■		
Batch 2										
a) Year-1 Preparation for planting				■	■					
b) Year-1 Preparation for planting (additional work)				■	■					
c) Year 0 Planting Work						■	■			
d) Year 0 Plantation & Maintenance additional work						■	■			
e) Year 0 SWC work								■	■	
f) Year 1 Maintenance (10% Replanting)						■	■			
g) Year 1 Maintenance additional work						■	■			
h) Year 2 Maintenance (5% replanting)							■	■		
i) Year 2 Maintenance additional work							■	■		
j) Year 3 Maintenance								■	■	
k) Year 3 Maintenance additional work								■	■	



Work Breakdown	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Component 2: Biodiversity Conservation										
2.1 Scientific Biodiversity Management										
2.1.1 Preparatory Works	[Yellow bar from start of 2018 to start of 2019]									
2.1.2 Protected Area Management Improvement	[Yellow bar from start of 2018 to start of 2026]									
2.1.3 Human-wildlife Conflict Mitigation/ Management	[Yellow bar from start of 2018 to start of 2026]									
1) Conflict Mitigation Management	[Yellow bar from start of 2018 to start of 2026]									
2) Rapid Response Team	[Yellow bar from start of 2018 to start of 2026]									
2.1.4 Wildlife Habitat Improvement	[Yellow bar from start of 2018 to start of 2026]									
1) Improvement of Native and Diversd Floral Species	[Yellow bar from start of 2018 to start of 2026]									
2) Provision of Water Drinking Space	[Yellow bar from start of 2018 to start of 2026]									
3) Maintenance of Water Drinking Space	[Yellow bar from start of 2018 to start of 2026]									
2.1.5 Recovery Program for Endangered Wildlife	[Yellow bar from start of 2018 to start of 2026]									
1) Conservation Breeding for Western Tragopan, Cheer Pheasant and Monal	[Yellow bar from start of 2018 to start of 2026]									
2) In-situ Conservation of Critically Endangered Wildlife	[Yellow bar from start of 2018 to start of 2026]									
3) Awareness Raising among Local Communities including Rehabilitation of Education Facilities	[Yellow bar from start of 2018 to start of 2026]									
2.2 Training of Project related staff of HPFD										
2.2.0 Preparation of Manuals and Guidelines	[Yellow bar from start of 2018 to start of 2019]									
2.2.1 TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation	[Yellow bar from start of 2018 to start of 2019]									
1) Training	[Yellow bar from start of 2018 to start of 2019]									
2) Follow up	[Yellow bar from start of 2018 to start of 2019]									
2.2.2 Training for GP Mobilisers and Facilitators	[Yellow bar from start of 2018 to start of 2019]									
1) Training	[Yellow bar from start of 2018 to start of 2019]									
2) Follow up	[Yellow bar from start of 2018 to start of 2019]									
2.3 Research										
2.3.1 Pilot Project on Biodiversity Corridor	[Yellow bar from start of 2018 to start of 2023]									
2.3.2 Basic Study for Designing Biodiversity Assessment	[Yellow bar from start of 2018 to start of 2020]									
2.4 Community Based Biodiversity Management										
2.4.1 Preparatory Works	[Yellow bar from start of 2018 to start of 2019]									
2.4.1.0 Preparation of Manuals and Guidelines (Completed 1.5.0)	[Yellow bar from start of 2018 to start of 2019]									
2.4.1.1 Identification of Potential Intervention Area	[Yellow bar from start of 2018 to start of 2019]									
2.4.1.2 Identification of BMC	[Yellow bar from start of 2018 to start of 2019]									
2.4.1.4 Engagement of GP Mobilisers/ Ward Facilitators	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
2.4.1.5 Training of GP Mobilisers/ Ward Facilitators	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
3) Follow Up	[Yellow bar from start of 2018 to start of 2023]									
2.4.1.6 Community Mobilisation	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
2.4.1.7 Preparation of CBMP & CD&LIP	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
2.4.1.9 Annual Planning/ Revisiting of Micro Plan (4th Year)	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
2.4.2 Implementation of CBMP	[Yellow bar from start of 2018 to start of 2026]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2026]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2026]									
2.5 Training of BMCs										
2.5.1 TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation	[Yellow bar from start of 2018 to start of 2019]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2019]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2019]									
2.5.2 Training of BMCs and sub-committee	[Yellow bar from start of 2018 to start of 2023]									
1) Batch 1	[Yellow bar from start of 2018 to start of 2023]									
2) Batch 2	[Yellow bar from start of 2018 to start of 2023]									
2.5.3 Exposure visits	[Yellow bar from start of 2018 to start of 2026]									
2.5.3.1 Exposure visits (Within State)	[Yellow bar from start of 2018 to start of 2026]									
2.5.3.2 Exposure visits (Outside State)	[Yellow bar from start of 2018 to start of 2026]									
2.5.4 Joint Workshop	[Yellow bar from start of 2018 to start of 2026]									
1) Range	[Yellow bar from start of 2018 to start of 2026]									
2) Division	[Yellow bar from start of 2018 to start of 2026]									

Work Breakdown	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Component 3: Livelihood Improvement Support										
3.1 Community Development										
3.1.1 Preparation of CD&LIP										
1) VFDS (Completed under 1.1.7)										
2) BMC (Completed under 2.4.1.7)										
3.1.2 Transfer of Funds - CD&LIP Fund										
1) VFDS Batch 1										
2) VFDS Batch 2										
3) VFDS Batch 3										
4) BMC Batch 1										
5) BMC Batch 2										
3.1.3 Implementation of CD activities										
3.1.4 Preparation of Guidelines/ manuals, Training Programmes for Community Development										
3.1.4.1 Preparation of Guidelines and Manuals (Completed under 1.5.0)										
3.1.4.2 Training Programmes for DMU, FTU and VFDS/ BMC										
1) FCCU										
2) FTU										
3) VFDS Batch 1										
4) VFDS Batch 2										
5) VFDS Batch 3										
6) BMC Batch 1										
7) BMC Batch 2										
3.1.5 Research: Pilot Project on Hydro Cultural Fodder Production										
1) Procurement of Resource Organisation										
2) Research Activities										
3.3 Non NTFP based Livelihood Improvement										
3.3.1 Preparation of Livelihood Improvement Strategy and Plan										
3.3.2 Preparation of CD&LIP										
1) VFDS (Completed under 1.1.7)										
2) BMC (Completed under 2.4.1.7)										
3.3.3 Formation/ Revising CIGs/ SHGs										
3.3.3.1 VFDS CIGs/ SHGs										
1) Batch 1										
2) Batch 2										
3) Batch 3										
3.3.3.2 BMC CIGs/ SHGs										
1) Batch 1										
2) Batch 2										
3.3.4 Implementation of Household/ Community Level Livelihood Improvement										
3.3.4.1 VFDS CIGs/ SHGs										
1) Batch 1										
2) Batch 2										
3) Batch 3										
3.3.4.2 BMC CIGs/ SHGs										
1) Batch 1										
2) Batch 2										
3.3.5 Promotion of Cluster based Livelihood Activities										
3.3.5.1 Identification of Potential Cluster Based Enterprises										
3.3.5.2 Preparation of Business Plans for Cluster Based Enterprises										
3.3.5.3 Promotion of potential activities with CIGs/ SHGs										
3.3.5.4 Establishment of cluster based organisations										
3.3.5.5 Handholding/ Business Development Services										
3.3.6 Capacity Development for CIGs/ SHGs and Clusterbased Organisations										
3.3.6.0 Preparation of Manuals										
1) Trainers' Manual										
2) Field Manual										
3) Skills Manual										
4) Operation Manual for Cluster Development Fund										
3.3.6.1 TOT for DMU/ FTU for Livelihood Interventions										
1) VFDS Batch 1										
2) VFDS Batch 2										
3) VFDS Batch 3										
4) BMC Batch 1										
5) BMC Batch 2										
3.3.6.2 Training for GP Mobilisers and Ward Facilitators										
1) VFDS Batch 1										
2) VFDS Batch 2										
3) VFDS Batch 3										
4) BMC Batch 1										
5) BMC Batch 2										
3.3.6.3 Training Programme for CIGs/ SHGs										
1) VFDS Batch 1										
2) VFDS Batch 2										
3) VFDS Batch 3										
4) BMC Batch 1										
5) BMC Batch 2										

Work Breakdown	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
4.3 Monitoring and Evaluation (M&E)										
4.3.1 Establishing and Operationalising M&E system										
1) Biodiversity Monitoring System										
2) Concurrent Monitoring & Periodic Review										
a) PMU										
b) Project Divisions										
c) Project Circles										
d) Governing Body of PMU										
e) HPC of PMU										
f) Gram Panchayats										
i) Batch-1										
ii) Batch-2										
iii) Batch-3										
3) Community-self Monitoring										
4) Computerized MIS & GIS staff (in-house development)										
5) Computerized Accounting System										
a) PMU										
b) FCCU										
6) GIS - Satellite images for Monitoring										
Batch-1										
Batch-2										
Batch-3										
7) Annual Strategy Planning & Review Workshops										
a) PMU										
b) Circles										
8) Impact Assessment										
a) Annual Outcome Assessments										
b) Baseline and Impact Surveys										
i) Socio-economic Gender Surveys										
Baseline										
Impact (mid and end-term)										
ii) Physical Surveys										
Baseline										
Impact (mid and end-term)										
9) Thematic and Short Studies										
10) Audits & Transparency										
a) Social Audit										
i) Batch-1										
ii) Batch-2										
iii) Batch-3										
11) Statutory Financial Audits										
a) PMU										
b) Project Divisions										
c) VFDS/BMC										
i) Batch-1										
ii) Batch-2										
iii) Batch-3										
12) Concurrent Audits										
a) PMU										
b) Project Divisions										
13) Grievance Redressal, RTI and Public Disclosure										
4.3.2 Enhancement and Promotion of GIS/ MIS/ ICT										
Implementing Agency										
1) MIS Training-Division/FCCU staff										
2) MIS Training-RO/FG/FTU										
3) GPS Boundary & Assets Survey										
4) GIS										
5) Biomass Assessment										
4.3.3 Communication and Publicity										
1) Publicity										
a) Newsletter										
b) Publicity events (exhibitions/ melas etc.)										
c) Short Films										
d) Website Development										
2) Publication										
a) Annual Report and Plan										
b) Quarterly Reports										
c) Guidelines & Manuals/ Handbooks										
d) Project Registers/ IEC material/ Success Stories										
4.4 Research										
4.4.1 Basic Study for Strengthening of ICT at HPFD										
4.5 PMC										
4.5.1 Procurement of PMC										
4.5.2 Deployment of PMC specialists										

Attachment II.6.1.1 Draft Detail Procurement and Implementation Methods

Table 1 1 Draft Project Activity-wise Procurement and Implementation Methods

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
Component 1: Sustainable Forest Ecosystem Management				
1.1	Preparatory Works for Participatory Forest Management			
1.1.1	Identification and Selection of Interventions Areas	PMU	DMU/ FTU	Direct Implementation
1.1.2	Identification of PFM mode or Departmental mode	PMU	DMU/ FTU	Direct Implementation
1.1.3	Surveying and Mapping of Intervention Areas	PMU	- DMU/ FTU - Specialised Agency	- Direct Implementation - Local Competitive Bidding or Direct Contract by Quotation
1.1.4	Identification and Selection of Target Communities	PMU	DMU/ FTU	Direct Implementation
1.1.5	Engagement of Motivators, Ward Level Facilitators	PMU	VFDS/ FTU	Direct Procurement
1.1.6	Community Mobilisation	PMU	VFDS/Ward Facilitator/ FTU	Direct Implementation
1.1.7	Preparation of FEMP and CD&LIP	PMU	VFDS/ Ward Facilitator/ FTU	Direct Implementation
1.1.8	Annual Planning/ Revisiting of Micro Plan (4th Year)	PMU	VFDS/ Ward Facilitator/ FTU	Direct Implementation
1.2	Participatory Forest Management (PFM) Mode			
1.2.1	Site Specific Planning and Monitoring			
	i) Site Specific Planning	FTU	VFDS/FTU	Direct Implementation
	ii) Site Specific Monitoring	FTU	VFDS/FTU	Direct Implementation
1.2.2	Drainage Line Treatment (ex-situ SWC work)	FTU	VFDS/FTU	Direct Implementation
1.2.3	Improvement/ Densification of Moderately Dense Forest	FTU	VFDS/FTU	Direct Implementation
1.2.4	Afforestation/ Improvement of Open/ Scrub Forest Fuelwood & Fodder Plantation	FTU	VFDS/FTU	Direct Implementation
1.2.5	Improvement of Forest Quality at Key Concerned Forest Areas	FTU	VFDS/FTU	Direct Implementation
1.2.6	Improvement of Pastures/ Grasslands (including in-situ SWC work)	FTU	VFDS/FTU	Direct Implementation
1.2.7	Forest Fire Protection			
	i) Fire Patrol	FTU	VFDS/FTU	Direct Implementation
	ii) Pine Needle Collection and Utilisation	FTU	VFDS/FTU	Direct Implementation
1.2.8	Forestry Intervention at Outside of Forest Areas	FTU	VFDS/FTU	Direct Implementation
1.3	Training for VFDS			
1.3.1	Training of VFDS			
	i) Project Orientation and Forestry/ Biodiversity Nexus	PMU	DMU/ FTU	Direct Implementation
	ii) Planning, Implementation and Organisational Management	PMU	DMU/ FTU	Direct Implementation
1.3.2	Exposure Visits by Community Institutions	FTU	FTU/ VFDS/ BMC	Direct Implementation
1.3.3	Joint Workshops for Community Level Institutions (VFDSs/BMCs and sub-committees)	PMU	DMU/ FTU	Direct Implementation
1.4	Departmental Mode			
1.4.1	Site Specific Planning and Monitoring	DMU	FTU/DMU	Direct Implementation
1.4.2	Improvement of Forest Boundary Management at Project Intervention Areas			
1.4.2.1	Survey for Geo-referencing Forest Boundaries	DMU	FTU/DMU	Direct Implementation
1.4.2.2	Installation of Boundary Pillars	DMU	FTU/DMU	Direct Implementation
1.4.2.3	Maintenance of Boundary Pillars	DMU	FTU/DMU	Direct Implementation

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
1.4.3	Improvement of Nurseries			
	i) Upgrading to Modern Nurseries	DMU	Contractor/ FTU	Local Competitive Bidding / Direct Implementation
	ii) Improvement of Range Level Nurseries	DMU	Contractor/ FTU	Local Competitive Bidding / Direct Implementation
	iii) Maintenance of High Tech Nurseries	DMU	FTU/DMU	Direct Implementation
1.4.4	Seedling Production	DMU	FTU/DMU	Direct Implementation
1.4.5	Non-PFM Drainage Line Treatment (ex-situ SWC work: including treatable surface Erosion Control)	DMU	FTU/DMU/ Contractor	Direct Implementation/ Local Competitive Bidding
1.4.6	Secondary Silvicultural (Tending) Operations for Improvement of Existing Forests	DMU	FTU/DMU	Direct Implementation
1.4.7	Improvement/ Densification of Moderately Dense Forest	DMU	FTU/DMU	Direct Implementation
1.4.8	Afforestation/ Improvement of Open/ Scrub Forest	DMU	FTU/DMU	Direct Implementation
1.4.9	Improvement of Forest Quality at Key Concerned Forest Areas	DMU	FTU/DMU	Direct Implementation
1.4.10	Improvement of Pastures/ Grasslands	DMU	FTU/DMU	Direct Implementation
1.4.11	Forest Fire Management			
	i) Creation of Fire Line	DMU	FTU/DMU	Direct Implementation
	ii) Maintenance of Fire Line	DMU	FTU/DMU	Direct Implementation
1.5	Training of Project related staff of HPFD			
1.5.0	Preparation of Guidelines and Manuals	PMU	PMU/ PMC/ Resource Person	Direct Implementation/ Direct Procurement
1.5.1	TOT for DMU Subject Matter Specialist and FTU Coordinators for Field Facilitation	PMU	PMU/ PMC/ Resource Person	Direct Implementation/ Direct Procurement
1.5.2	Training for Ward Facilitators	PMU	DMU/ FTU/ Resource Person	Direct Implementation/ Direct Procurement
1.6	Research			
1.6.1	Monitoring Data Accumulation for Nursing and Planting of Tall Plants	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
1.6.2	Monitoring Data Accumulation for Effective Pasture Management	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
1.6.3	Study for Effective SWC and Land Slide Control Measures	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
Component 2: Biodiversity Conservation				
2.1	Scientific Biodiversity Management			
2.1.1	Preparatory Works	PMU	PMU/ DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
2.1.2	Protected Area Management Improvement	DMU	DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
2.1.3	Human-Wildlife Conflict Mitigation/ Management	DMU	DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
2.1.4	Wildlife Habitat Improvement	DMU	DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
2.1.5	Recovery Programmes for Endangered Wildlife			
	i) Conservation Breeding for Western Tragopan, Cheer Pheasant and Monal	DMU	DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
	ii) In-situ Conservation of Critically Endangered Wildlife	DMU	DMU/ FTU/Specialised	Direct Implementation/ Local Competitive

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
			Agency	Bidding
	iii) Awareness Raising among Local Communities including Rehabilitation of Education Facilities	DMU	DMU/ FTU/Specialised Agency	Direct Implementation/ Local Competitive Bidding
2.2	Training of Project related Staff of HPFD	PMU	DMU/ FTU	Direct Implementation/ Direct Procurement
2.3	Research			
2.3.1	Pilot Project on Biodiversity Corridor (Baseline Survey for Biodiversity Corridor)	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
2.3.2	Basic Study for Designing Biodiversity Assessment	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
2.4	Community Based Biodiversity Management			
2.4.1	Preparatory Works			
2.4.1.0	Preparation of Guidelines and Manuals	PMU	PMU/ PMC/ Resource Person	Direct Implementation/ Direct Procurement
2.4.1.1	Identification of Potential Intervention Areas	PMU	DMU/ FTU	Direct Implementation
2.4.1.2	Identification of BMCs	PMU	HPSBB/ DMU/ FTU	Direct Implementation
2.4.1.3	Survey and Mapping	PMU	- DMU/ FTU - Specialised Agency	- Direct Implementation - Local Competitive Bidding or Direct Contract by Quotation
2.4.1.4	Engagement of GP Mobiliser and Ward Facilitator	PMU	BMC/ FTU	Direct Procurement
2.4.1.5	Training of GP Mobiliser and Ward Facilitator	PMU	DMU/ FTU/ Resource Person	Direct Implementation/ Direct Procurement
2.4.1.6	Community Mobilisation	PMU	BMC / GP Mobilisers/ Ward Facilitators/ FTU	Direct Implementation
2.4.1.7	Preparation of Community Biodiversity Management Plan	PMU	BMC/ GP Mobiliser/ Ward Facilitator/FTU/ DMU	Direct Implementation
2.4.1.8	Annual Planning/ Revisiting Micro Plan (4th Year)	PMU	BMC/ GP Mobiliser/ Ward Facilitator/FTU/ DMU	Direct Implementation
2.4.2	Community Based Biodiversity Management			
2.4.2.1	SATOYAMA based Biodiversity Conservation Activities	FTU	BMC/FTU/ HPSBB	Direct Implementation
2.5	Training of DMU/ FTU/ BMC and sub-committee			
2.5.1	Training of DMU/ FTU	PMU	PMU/DMU/ FTU	Direct Implementation
2.5.2	Training of BMC and sub-committee	PMU	FTU/DMU	Direct Implementation
2.5.3	Exposure Visits by the Community Institutions	FTU	VFDS/ BMC/ FTU/ DMU	Direct Implementation
2.5.4	Joint Workshops for Community Level Institutions (VFDSs/ BMCs and sub-committees)	PMU	FTU/DMU/	Direct Implementation
Component 3: Livelihood Improvement Support				
3.1	Community Development			
3.1.1	Preparation of CD&LIP - CD Plan	PMU	VFDS/ BMC/ GP Mobiliser/ Ward Facilitator/ FTU/ DMU/ PMU	Direct Implementation
3.1.2	Transfer of Funds - CD&LIP Fund	PMU	PMC /DMU/ VFDS/ BMC	Direct Implementation
3.1.3	Implementation of CD activities	DMU/ FTU	VFDS/ BMC	Direct Implementation
3.1.4	Preparation of Guidelines Manuals and Training Programmes for Community Development	PMU	PMU/ PMC	Direct Implementation
3.1.5	Research (Pilot Project on Hydro Cultural Fodder Production)	PMU	Specialised Agency	Local Competitive Bidding or Direct

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
				Contract by Quotation
3.2	NTFP based Livelihood Improvement			
3.2.1	Preparatory Works			
	i) Establishment of a Jadi-Buti Cell in PMU	PMU	PMU/ PMC/ Resource Persons (as Jadi Buti Cell)	Direct Implementation/ Direct Procurement
	ii) Finalisation of NTFP Clusters	PMU	Jadi Buti Cell	Direct Implementation
	iii) NTFP Assessment	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
3.2.2	NTFP Cluster and Enterprise Development			
	i) Establishment of Cluster Level Him Jadi-Buti Cooperative Society/ Producer Group	PMU	Jadi Buti Cell/ PMC/ DMU	Direct Implementation
	ii) NTFP Enterprise Development	PMU	Jadi-Buti Cell/ DMU/ Cluster Societies/ Producer Groups/ VFDS/ SHGs/ CIGs	Direct Implementation
3.2.3	NTFP Research & Development			
	i) Development of agro-techniques of NTFPs including Medicinal Plants	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
	ii) Impact Assessment of 4-year Extraction Cycle of NTFPs	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
	iii) NTFP Assessment – Follow up Assessment in Target Clusters	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
3.2.4	NTFP Plantation and Cultivation			
	i) NTFP Improvement in Forest Areas	PMU	Jadi-Buti Cell/ FTU/ Cluster Societies/ Producer Groups/ VFDS	Direct Implementation
	ii) NTFP Improvement in Non-Forest Areas	PMU	Jadi-Buti Cell/ FTU/ Cluster Societies/ Producer Groups/ VFDS/ SHGs/ CIGs	Direct Implementation
3.2.5	Market Research and Promotion	PMU	Jadi-Buti Cell/ Cluster Societies/ Producer Groups	Direct Implementation
3.2.6	Training and Extension- Institutional Development for State and Cluster Level Him Jadi-Buti Societies			
	i) Training Programmes to be Organised at the State Level	PMU	Jadi-Buti Cell	Direct Implementation
	ii) Training Programmes to be Organised at the Cluster Level	PMU	Jadi-Buti Cell/ DMU	Direct Implementation
	iii) Production of Publicity and Communication Materials	PMU	Jadi-Buti Cell/ Specialised Agency	Direct Implementation/ Local Competitive Bidding or Direct Contract by Quotation
3.3	Non NTFP based Livelihood Improvement			
3.3.1	Preparation of Non NTFP based Livelihood Improvement Strategy and Plan	PMU	PMU/ PMC	Direct Implementation
3.3.2	Preparation of CD&LIP - Planning of Household/ Community Oriented Livelihood Activities	PMU	PMC/ FTU/ VFDS/ CIG/ SHG	Direct Implementation
3.3.3	Formation/ Reviving CIGs/ SHGs	PMU	DMU/ FTU/ VFDS/ BMC	Direct Implementation
3.3.4	Implementation of Household/	PMU	PMU/ PMC/ DMU/	Direct Implementation

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
	Community Oriented Livelihood Activities		FTU/ VFDS/ BMC/ CIG/ SHG	
3.3.5	Promotion of Cluster based Livelihood Activities	PMU	PMU/ DMU/ FTU/	Direct Implementation
3.3.6	Capacity Development for CIGs/ SHGs and Cluster Based Organisation			
3.3.6.0	Preparation of Manuals	PMU	PMU/ PMC	Direct Implementation
3.3.6.1	TOT for DMU/ FTU for Livelihood Interventions	PMU	PMU/ PMC/ Resource Person	Direct Implementation/ Direct Procurement
3.3.6.2	Training for GP Mobilisers and Ward Facilitators	PMU	DMU/ FTU	Direct Implementation
3.3.6.3	Training Programmes for CIGs/ SHGs	PMU	PMC/ DMU/ FTU/ Resource Person	Direct Implementation/ Direct Procurement
3.3.6.4	Exposure Visit	FTU	FTU/ Resource Person	Direct Implementation/ Direct Procurement
3.3.6.5	Training Programmes and Business Development Services for Cooperatives	FTU	FTU/ Resource Person	Direct Implementation/ Direct Procurement
Component 4: Institutional Capacity Strengthening				
4.1	Preparatory Works			
4.1.1	Establishment of PMU and Field Level Units	HPFD	HPFD	Notifications/ Orders
4.1.2	Strengthening of PMU and Field Level Units			
4.1.2.1	Strengthening of PMU Office and IT Cell of HPFD	PMU	PMU	Direct Implementation
4.1.2.2	Strengthening of FCCU Offices at District level	PMU	PMU	Direct Implementation
4.1.2.3	Strengthening of DMUs	PMU	PMU	Direct Implementation
4.1.2.4	Strengthening of FTU Offices at Range Level	PMU	PMU	Direct Implementation
4.1.3	Recruitment of the Personnel/ Subject Matter Specialists/ Resource Organisations	PMU	PMU	Direct Procurement
4.1.4	Preparation of Gender Action Plan	PMU	PMU/ PMC	Direct Implementation
4.1.5	Environmental and Social Consideration	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
4.2	Capacity Development			
4.2.1	Implementing Agency			
	i) Formulating Capacity Development Plan	PMU	PMU/ PMC	Direct Implementation
	ii) Nomination of Trainees	PMU	PMU/ PMC	Direct Implementation
	iii) Annual Training Calendar	PMU	PMU/ PMC	Direct Implementation
	iv) Elements of the Annual Training Calendar	PMU	PMU/ PMC	Direct Implementation
	v) Orientations	PMU	PMU/ PMC	Direct Implementation
	vi) Regular Trainings	PMU	PMU/ PMC/ Specialised Institutions	Direct Implementation/ Direct Procurement
	vii) Refresher Trainings	PMU	PMU/ PMC/ Specialised Institutions	Direct Implementation/ Direct Procurement
	viii) National/ Outside State Exposure	PMU	PMU/ PMC	Direct Implementation
	ix) Overseas Exposure-cum-Training	PMU	PMU/ PMC	Direct Implementation
	x) National Workshop	PMU	PMU/ PMC	Direct Implementation
	xi) Small Workshops / Seminars	PMU	PMU/ PMC	Direct Implementation
4.2.2	Gender Training	PMU	PMU/ PMC/ Subject Matter Experts/ Specialised Agency	Direct Implementation/ Direct Procurement/ Local Competitive Bidding or Direct Contract by Quotation
4.2.3	Environmental and Social Consideration	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
4.3	M&E			
4.3.1	Establishing and Operationalising M&E System	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement

Component/ Sub- Component	Activities	Proponent / Owner	Executor/ Contractor	Method
4.3.2	Enhancement and Promotion of GIS/ MIS/ ICT			
	i) MIS	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
	ii) Mobile Applications for M&E and Near Real Time Incident Reporting	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
	iii) Geographical Information System (GIS)/ Mapping	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
	iv) Video Conferencing between HQ and Field Offices	PMU	PMU/ Specialised Agency	Direct Contract
	v) Project Website	PMU	PMU/ Specialised Agency	Direct Contract
	vi) Data Security and Backup	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
	vii) Training	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
4.3.3	Communication and Publicity			
	i) Newsletter	PMU	PMU/ Specialised Agency	Direct Contract
	ii) Short Film	PMU	PMU/ Specialised Agency	Direct Contract
	iii) Publicity Event	PMU	PMU/ PMC/ Subject Matter Experts	Direct Implementation/ Direct Procurement
	iv) Website Development	PMU	PMU/ Specialised Agency	Direct Contract
	v) Publications	PMU	PMU	Direct Implementation
4.4	Research			
4.4.1	Basic Study for Strengthening of ICT at HPFD	PMU	Specialised Agency	Local Competitive Bidding or Direct Contract by Quotation
4.5	PMC	PMU	PMU	Direct Procurement
4.6	Phase Out/ Sustainability Mechanism			
4.6.1	Implementing Agency			
4.6.1.1	Preparation of Phase-Out/ Sustainability Mechanism Plan	PMU	PMU	Direct Implementation
4.6.1.2	Transfer of Assets and Resources	PMU	PMU	Direct Implementation
4.6.2	Community Based Organisations			
4.6.2.1	Preparation of Phase-Out/ Sustainability Mechanism Plan	PMU	PMU	Direct Implementation
4.6.2.2	Revisiting of FEMP/ CBMP and CD&LIP	PMU	VFDS/BMC/ FTU	Direct Implementation
4.6.2.3	Phase Out Training (VFDS/ BMC sub-committees)	PMU	FTU/DMU/ Specialised Institution	Direct Implementation/ Direct Procurement
4.6.3	FEMP/ CBMP Fund			
4.6.3.1	Preparation of Operation Manual of FEMP/ CBMP Fund	PMU	PMU/ Specialised Institution	Direct Implementation
4.6.3.2	Transfer of FEMP/ CBMP Fund	PMU	VFDS/BMC/ DMU	Direct Implementation

Source: Compiled by JICA Study Team (2017)

Attachment II.7.3.1. Activity-wise Cost (Indicative)

“Unit Rate” and “Cost” exclude taxes.

Component 1

Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)	
1.	Sustainable Forest Management			1,917,252,164	
1.1	Preparatory Works for Participatory Forest Management			196,400,000	
1.1.1	Identification and Selection of Interventions Areas	5,000	2,000,000	5,000	2,000,000
1.1.2	Identification of PFM mode or Departmental mode	0	0	0	0
1.1.3	Surveying and Mapping of Intervention Areas	25,000	10,000,000	25,000	10,000,000
1.1.4	Identification and Selection of Target Communities	21,000	8,400,000	21,000	8,400,000
1.1.5	Engagement of Mobilisers, Ward Level Facilitators	288,000	115,200,000	288,000	115,200,000
1.1.6	Community Mobilisation	20,000	8,000,000	20,000	8,000,000
1.1.7	Preparation of FEMP and CD&LIP	32,000	12,800,000	32,000	12,800,000
1.1.8	Annual Planning/ Revisiting of Micro Plan (4th Year)	100,000	40,000,000	100,000	40,000,000
1.2	Participatory Forest Management Mode			439,788,684	
1.2.1	Site Specific Planning & Monitoring			17,265,860	
	a) Drone and its accessories	ranges	55	210,200	11,561,000
	b) Site Specific Planning	10 ha	405	3,650	1,476,790
	c) Site Specific Monitoring (1st time)	10ha	405	3,650	1,476,790
	c) Site Specific Monitoring (2nd time)	10ha	405	6,800	2,751,280
1.2.2	Drainage Line Treatment (ex-situ SWC work)	ha	492	95,612	47,041,202
1.2.3	Improvement/ densification of Moderately Dense Forest			112,693,194	
	1) ANR without planting				
	a) Year 0 Fencing work	ha	1,150	15,853	18,222,967
	b) Year 0 Fencing work (additional work)	ha	1,150	8,507	9,778,636
	c) Year 0 SWC Work	ha	1,150	10,424	11,982,813
	d) Year 1 Maintenance	ha	1,150	626	719,806
	e) Year 1 Maintenance additional work	ha	1,150	313	359,903
	f) Year 2 Maintenance	ha	1,150	626	719,806
	g) Year 2 Maintenance additional work	ha	1,150	313	359,903
	h) Year 3 Maintenance	ha	1,150	626	719,806
	i) Year 3 Maintenance additional work	ha	1,150	313	359,903
	j) Year 3 SWC work	ha	1,150	0	0
	2) ANR with gap planting of 200 seedlings/ha (tall plant) (Tribal)				
	a) Year-1 Preparation for planting	ha	1,150	30,276	34,801,780
	b) Year 0 Planting year	ha	1,150	10,224	11,752,576
	c) Year 0 Plantation & Maintenance additional work	ha	1,150	5,176	5,949,628
	d) Year 0 SWC work	ha	1,150	10,424	11,982,813
	e) Year 1 Maintenance (10% replanting)	ha	1,150	1,996	2,294,229
	f) Year 1 Maintenance additional work	ha	1,150	836	961,091
	g) Year 2 Maintenance	ha	1,150	501	575,845
	h) Year 2 Maintenance additional work	ha	1,150	250	287,922
	i) Year 3 Maintenance	ha	1,150	501	575,845
	j) Year 3 Maintenance additional work	ha	1,150	250	287,922
	k) Year 3 SWC work	ha	1,150	0	0
1.2.4	Afforestation/ improvement of Open/ Scrub Forest - Fuelwood &			147,164,85	

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Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
Fodder plantation				
1) Fuel wood and Fodder Plantation 1,100 normal plants/ha				
a) Year-1 Preparation for planting	ha	925	28,440	26,296,026
b) Year 0 Planting year	ha	925	21,322	19,714,231
c) Year 0 Plantation & Maintenance additional work	ha	925	9,147	8,457,677
d) Year 0 SWC Work	ha	925	10,424	9,638,373
e) Year 1 Maintenance (10% replanting)	ha	925	5,193	4,801,564
f) Year 1 Maintenance additional work	ha	925	2,360	2,182,044
g) Year 2 Maintenance (5% replanting)	ha	925	3,218	2,975,602
h) Year 2 Maintenance additional work	ha	925	1,166	1,078,250
i) Year 3 Maintenance	ha	925	2,129	1,968,517
j) Year 3 Maintenance additional work	ha	925	1,065	984,259
k) Year 3 SWC Maintenance work	ha	925	0	0
2) Tree + Shrubs/Perennial Herbs Plantation (1,100 trees + 4,400 plants/ha)				
a) Year-1 Preparation for planting	ha	462	38,547	17,820,270
b) Year 0 Planting year	ha	462	37,602	17,383,250
c) Year 0 Plantation & Maintenance additional work	ha	462	12,905	5,965,766
d) Year 0 SWC Work	ha	462	10,424	4,819,186
e) Year 1 Maintenance (10% replanting)	ha	462	6,190	2,861,556
f) Year 1 Maintenance additional work	ha	462	2,117	978,532
g) Year 2 Maintenance (5% replanting)	ha	462	3,719	1,719,391
h) Year 2 Maintenance additional work	ha	462	1,482	684,972
i) Year 3 Maintenance	ha	462	3,192	1,475,508
j) Year 3 Maintenance additional work	ha	462	1,096	506,604
k) Year 3 SWC Maintenance work	ha	462	0	0
3) Tall Plant Block Plantation (500 tall plants/ha) with Wooden Fence Posts				
a) Year-1 Preparation for planting	ha	154	45,493	7,010,489
b) Year 0 Planting work	ha	154	17,799	2,742,831
c) Year 0 Plantation & Maintenance additional work	ha	154	12,940	1,993,992
d) Year 0 SWC Work	ha	154	10,424	1,606,395
e) Year 1 Maintenance (10% replanting)	ha	154	3,816	588,118
f) Year 1 Maintenance additional work	ha	154	1,517	233,713
g) Year 2 Maintenance (5% replanting)	ha	154	2,102	323,943
h) Year 2 Maintenance additional work	ha	154	647	99,700
i) Year 3 Maintenance	ha	154	1,002	154,394
j) Year 3 Maintenance additional work	ha	154	647	99,700
k) Year 3 SWC Maintenance work	ha	154	0	0
1.2.5 Improvement of Forest quality at key concerned Forest Areas				18,339,291
1) Planting 200 tall plants/ha + Rehabilitation 100% of invasive plants areas (Wooden Fence)				
a) Year-1 Preparation for planting and rehabilitation	ha	161	66,066	10,636,620
b) Year 0 Planting and rehabilitation	ha	161	13,914	2,240,224
c) Year 0 Plantation & Maintenance additional work	ha	161	6,067	976,712
d) Year 0 SWC Work	ha	161	10,424	1,678,324
e) Year 1 Maintenance (10% replanting) and rehabilitation	ha	161	5,766	928,299
f) Year 1 Maintenance additional work	ha	161	1,639	263,928
g) Year 2 Maintenance (5% replanting) and rehabilitation	ha	161	4,637	746,526
h) Year 2 Maintenance additional work	ha	161	914	147,086
i) Year 3 Maintenance and rehabilitation	ha	161	4,223	679,908

	Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
	j) Year 3 Maintenance additional work	ha	161	259	41,666
	k) Year 3 SWC Maintenance work	ha	161	0	0
1.2.6	Improvement of Pastures/ Grasslands (including in-situ SWC works)				36,049,836
	1) Dry Alpine Pasture Models (Broadcasting Method) (Tribal)				
	a) Year 0	ha	160	30,820	4,931,219
	b) Year 0 Additional work	ha	160	15,224	2,435,846
	c) Year 0 SWC Work	ha	160	10,424	1,667,899
	d) Year 1	ha	160	4,430	708,800
	e) Year 1 Maintenance additional work	ha	160	1,315	210,400
	f) Year 2	ha	160	3,115	498,400
	g) Year 2 Maintenance additional work	ha	160	658	105,200
	2) Dry Alpine Pasture Models (Patch/Strip Method)				
	a) Year 0	ha	160	37,683	6,029,279
	b) Year 0 Additional work	ha	160	15,224	2,435,846
	c) Year 0 SWC Work	ha	160	10,424	1,667,899
	d) Year 1	ha	160	4,430	708,800
	e) Year 1 Maintenance additional work	ha	160	1,315	210,400
	f) Year 2	ha	160	3,115	498,400
	g) Year 2 Maintenance additional work	ha	160	658	105,200
	3) Establishment of Fallow Grassland / Pasture	ha	450	23,060	13,836,248
1.2.7	Forest Fire Protection				24,880,000
	1) Fire Patrol				
	1st year	ha	2,000	1,260	2,520,000
	2nd year	ha	2,000	1,260	2,520,000
	3rd year	ha	2,000	1,260	2,520,000
	4th year	ha	2,000	1,260	2,520,000
	2) Pine needle Collection and Utilization Survey and Capacity Building	districts	3	4,000,000	12,000,000
	3) Pine needle Collection and Utilization	ranges	10	280,000	2,800,000
1.2.8	Forestry Interventions at outside of Forest Areas				36,354,447
	1) Tree + Shrubs/Perennial Herbs Plantation (1,100 trees + 4,400 plants/ha)				
	a) Year-1 Preparation for planting	ha	310	38,547	11,949,564
	b) Year 0 Planting year	ha	310	37,602	11,656,516
	c) Year 0 Plantation & Maintenance additional work	ha	310	12,905	4,000,405
	d) Year 0 SWC Maintenance work	ha	310	10,424	3,231,555
	e) Year 1 Maintenance (10% replanting)	ha	310	6,190	1,918,846
	f) Year 1 Maintenance additional work	ha	310	2,117	656,165
	g) Year 2 Maintenance (5% replanting)	ha	310	3,719	1,152,955
	h) Year 2 Maintenance additional work	ha	310	1,482	459,315
	i) Year 3 Maintenance	ha	310	3,192	989,417
	j) Year 3 Maintenance additional work	ha	310	1,096	339,708
	k) Year 3 SWC Maintenance work	ha	310	0	0
1.3	Training of VFDSs				88,055,556
1.3.1	Training of VFDSs	no. (for VFDS)	400	16,917	6,766,667
1.3.2	Exposure Visits				58,533,333
1.3.2.1	Within State	no. (for VFDS)	400	17,500	7,000,000
1.3.2.2	Out of State	no. (for VFDS)	400	128,833	51,533,333
1.3.3	Joint Workshop				22,755,556
1.3.3.1	Range	VFDS	400	40,000	16,000,000
1.3.3.2	Division	VFDS	400	16,889	6,755,556
1.4	Department Mode				1,146,206,146
1.4.1	Site Specific Planning & Monitoring				

	Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
	b) Site Specific Planning	10ha	748	658	491,810
	c) Site Specific Monitoring	10ha	748	658	491,810
	c) Site Specific Monitoring	10ha	748	72,849	54,490,977
1.4.2	Improvement of Forest Boundary Management at Project Intervention Areas				
	1) Survey for Geo-referencing Forest Boundaries	km	483	789	381,087
	2) Installation of boundary pillar	km	483	24,855	12,004,916
	3) Maintenance of Forest Boundary Pillars	km	483	11,833	5,715,480
1.4.3	Improvement of Nurseries				148,143,465
	1) Total cost of improvement of nursery at Range Level	range	45	1,721,570	77,470,659
	2) Nursery Maintenance Cost for Range Level Nursery (5%)	range	45	86,079	3,873,533
	3) Total cost of improvement of nursery at Circle Level	circle	6	10,603,059	63,618,355
	4) Nursery Maintenance Cost for Circle Level Nursery (5%)	circle	6	530,153	3,180,918
1.4.4	Seedling Production				187,394,324
	1) 1~1.5 year seedlings of normal chil/broad leaves plants				
	a) Year -1	seedlings	2,448,000	16	38,444,895
	b) Year -1 additional work	seedlings	2,448,000	4	9,473,104
	2) 2~2.5 years seedlings of tall/chil/broad leaves plants				
	a) Year -2	seedlings	1,299,000	31	39,970,534
	b) Year -2 additional work	seedlings	1,299,000	5	6,832,577
	c) Year -1	seedlings	1,299,000	11	14,726,011
	d) Year -1 additional work	seedlings	1,299,000	1	1,398,434
	3) ~ 3.5 years seedlings of tall deodar/ban oak plants				
	a) Year -3 raising of plants in polythene bags	seedlings	745,000	16	12,081,506
	b) Year -3 additional work	seedlings	745,000	4	3,022,904
	c) Year -2 shifting of plants in polythene bags	seedlings	745,000	40	29,744,617
	d) Year -2 additional work	seedlings	745,000	6	4,212,229
	e) Year -1	seedlings	745,000	7	5,382,241
	f) Year -1 additional work	seedlings	745,000	2	1,351,672
	4) Nursery cost of plants for shrubs (Tribal)	seedlings	3,488,000	6	20,753,600
1.4.5	Non-PFM Drainage Line Treatment (ex-situ SWC work: including treatable surface Erosion Control)	ha	1,849	138,217	254,872,332
1.4.6	Secondary Silvicultural Operations for Improvement of Existing Forests				
	1) Tending Operation				
	a) Year 0 Fencing work	ha	1,028	11,048	11,356,957
	b) Year 0 Fencing work (additional work)	ha	1,028	917	942,669
1.4.7	Improvement/ densification of Moderately Dense Forest				
	1) ANR without planting				
	a) Year 0 Fencing work	ha	1,196	15,853	18,952,203
	b) Year 0 Fencing work (additional work)	ha	1,196	8,507	10,169,951
	c) Year 0 SWC Work	ha	1,196	10,424	12,462,334
	d) Year 1 Maintenance	ha	1,196	626	748,611
	e) Year 1 Maintenance additional work	ha	1,196	313	374,305
	f) Year 2 Maintenance	ha	1,196	626	748,611
	g) Year 2 Maintenance additional work	ha	1,196	313	374,305
	h) Year 3 Maintenance	ha	1,196	626	748,611
	i) Year 3 Maintenance additional work	ha	1,196	313	374,305
	j) Year 3 SWC work	ha	1,196	0	0
	2) ANR with gap planting of 200 seedlings/ha (tall plant)				
	a) Year-1 Preparation for planting	ha	1,196	30,276	36,194,457
	b) Year 0 Planting year	ha	1,196	10,224	12,222,884
	c) Year 0 Plantation & Maintenance additional work	ha	1,196	5,176	6,187,717

Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
d) Year 0 SWC work	ha	1,196	10,424	12,462,334
e) Year 1 Maintenance (10% replanting)	ha	1,196	1,996	2,386,038
f) Year 1 Maintenance additional work	ha	1,196	836	999,551
g) Year 2 Maintenance	ha	1,196	501	598,889
h) Year 2 Maintenance additional work	ha	1,196	250	299,444
i) Year 3 Maintenance	ha	1,196	501	598,889
j) Year 3 Maintenance additional work	ha	1,196	250	299,444
k) Year 3 SWC work	ha	1,196	0	0
1.4.8	Afforestation/ improvement of Open/ Scrub Forest - Fuelwood & Fodder plantation			238,339,952
	1) Fuel wood and Fodder Plantation 1,100 normal plants/ha (Tribal)			
	2) Tree + Shrubs/Perennial Herbs Plantation (1,100 trees + 4,400 plants/ha) (Tribal)			
	3) Tall Plant Block Plantation (500 tall plants/ha) with CC Fence Posts (Tribal)			
a) Year-1 Preparation for planting	ha	2,199	57,466	126,368,259
b) Year 0 Planting work	ha	2,199	17,924	39,415,471
c) Year 0 Plantation & Maintenance additional work	ha	2,199	12,940	28,454,180
d) Year 0 SWC Work	ha	2,199	10,424	22,923,190
e) Year 1 Maintenance (10% replanting)	ha	2,199	3,816	8,392,413
f) Year 1 Maintenance additional work	ha	2,199	1,517	3,335,077
g) Year 2 Maintenance (5% replanting)	ha	2,199	2,002	4,402,756
h) Year 2 Maintenance additional work	ha	2,199	647	1,422,709
i) Year 3 Maintenance	ha	2,199	1,002	2,203,189
j) Year 3 Maintenance additional work	ha	2,199	647	1,422,709
k) Year 3 SWC Maintenance work	ha	2,199	0	0
1.4.9	Improvement of Forest quality at key concerned Forest Areas			14,752,058
	1) ANR with gap planting of 200 seedlings/ha (tall plant) (Tribal)			
a) Year-1 Preparation for planting and rehabilitation	ha	242	30,276	7,326,691
b) Year 0 Planting year	ha	242	10,224	2,474,227
c) Year 0 Plantation & Maintenance additional work	ha	242	5,176	1,252,553
d) Year 0 SWC Work	ha	242	10,424	2,522,698
e) Year 1 Maintenance (10% replanting)	ha	242	1,996	482,996
f) Year 1 Maintenance additional work	ha	242	1,360	329,203
g) Year 2 Maintenance	ha	242	501	121,230
h) Year 2 Maintenance additional work	ha	242	250	60,615
i) Year 3 Maintenance	ha	242	501	121,230
j) Year 3 Maintenance additional work	ha	242	250	60,615
k) Year 3 SWC Maintenance work	ha	242	0	0
1.4.10	Improvement of Pastures/ Grasslands (including in-situ SWC works)			44,972,710
	1) Dry Alpine Pasture Models (Broadcasting Method) (Tribal)			
a) Year 0	ha	108	108	30,820
b) Year 0 Additional work	ha	108	108	15,224
c) Year 0 SWC Work	ha	108	108	10,424
d) Year 1	ha	108	108	4,430
e) Year 1 Maintenance additional work	ha	108	108	1,315
f) Year 2	ha	108	108	3,115
g) Year 2 Maintenance additional work	ha	108	108	658
	2) Dry Alpine Pasture Models (Patch/Strip Method) (Tribal)			
a) Year 0	ha	108	108	37,683
b) Year 0 Additional work	ha	108	108	15,224
c) Year 0 SWC Work	ha	108	108	10,424
d) Year 1	ha	108	108	4,430
e) Year 1 Maintenance additional work	ha	108	108	1,315
f) Year 2	ha	108	108	3,115
g) Year 2 Maintenance additional work	ha	108	108	658
3) Establishment of Fallow Grassland / Pasture	ha	1,300	1,300	23,060
1.4.11	Forest Fire Management			54,652,715

Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
1) Forest Fire Management (Tribal)				
a) Creation of Fire line	km	483	87,040	42,040,550
b) Maintenance of Fire line (1 year)	km	483	8,704	4,204,055
c) Maintenance of Fire line (2 year)	km	483	8,704	4,204,055
d) Maintenance of Fire line (3 year)	km	483	8,704	4,204,055
1.5	Training of Project related staff of HPFD			13,801,778
1.5.0	Preparation of Livelihood Improvement Strategy and Plan	LS	1	900,000
1.5.1a	TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation	no. (for Division)	36	70,833
1.5.1b	TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation (Follow up)	no. (for Division)	36	16,500
1.5.2a	Training for GP Mobilisors and Facilitators	no. (for VFDS)	600	19,994
1.5.2b	Training for GP Mobilisors and Facilitators Follow up	no. (for VFDS)	600	4,400
1.6	Research			33,000,000
1.6.1	Monitoring Data Accumulation for Nursing and Planting of Tall Plants	LS	1	9,000,000
1.6.2	Monitoring Data Accumulation for Effective Pasture Management	LS	1	9,000,000
1.6.3	Study for Effective SWC and Land Slide Control Measures	LS	1	15,000,000
	Total			1,917,252,164

Source: JICA Study Team (2017)

Component 2

Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
2.1	Scientific Biodiversity Management			442,267,884
2.1.1	Preparatory Works	LS	1	5,000,000
2.1.2	Protected area management improvement in core zone or buffer zone	LS	1	15,000,000
2.1.3	Human-wildlife conflict mitigation/management			169,100,000
	Human-wildlife conflict mitigation/management	LS	1	160,000,000
	Rapid Response Team	divisions	14	650,000
2.1.4	Wildlife habitat improvement			93,167,884
	Wildlife habitat improvement	LS	1	80,000,000
	Wildlife habitat improvement Water Pond	no	100	131,679
2.1.5	Recovery programmes for endangered wildlife	LS	1	160,000,000
2.2	Training of Project related Staff of HPFD (ref.4.2.1)			4,531,889
2.2.0	Preparation of Livelihood Improvement Strategy and Plan	LS	1	900,000
2.2.1a	TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation	no. (for Division)	36	70,833
2.2.1b	TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation (Follow up)	no. (for Division)	36	16,500
2.2.1a	Training for GP Mobilisors and Facilitators	no. (for BMC)	20	19,994
2.2.2b	Training for GP Mobilisors and Facilitators Follow up	no. (for BMC)	20	4,400
2.3	Research			29,520,000
2.3.1	Pilot Project on Biodiversity Corridor (Baseline survey for biodiversity corridor)	Set	1	15,400,000
2.3.2	Basic study for designing Biodiversity Census	Set	1	14,120,000
2.4	Community Based Biodiversity Management			117,517,054
2.4.1	Preparatory Works			37,227,667
2.4.1.1	Identification of Potential Intervention Area	BMC	20	5,000
2.4.1.2	Identification of BMC	BMC	20	30,000
2.4.1.3	Survey and Mapping (ref.1.1.3)	BMC	20	75,000
2.4.1.4	Engagement of GP Mobilisors/ Ward Facilitators	BMC	20	1,008,000
2.4.1.5	Training of GP Mobilisors/ Ward Facilitators	BMC	20	66,383

Item		Unit	Quantity	Unit Rate (INR)	Cost (INR)
a					
2.4.1.5	Training of GP Mobilisers/ Ward Facilitators (Follow-up)	BMC	20	11,000	220,000
b					
2.4.1.6	Community Mobilisation	BMC	20	30,000	600,000
2.4.1.7	Preparation of CBMP and CD&LIP	BMC	20	128,000	2,560,000
2.4.1.8	Annual Planning/ Revisiting of Micro Plan (4th Year)	BMC	20	508,000	10,160,000
2.4.2	Community Based Biodiversity Management				80,289,387
2.4.2.1	Satoyama Based Biodiversity Conservation Activities				78,289,387
2.4.2.1	Promotion of Sustainable use and Management of Natural Resources (Major Cost to be represented by forestry activities)				58,289,387
a					
1	Site Specific Planning & Monitoring				992,640
	b) Site Specific Planning	10 ha	70	3,650	256,960
	c) Site Specific Monitoring (1st time)	10ha	70	3,650	256,960
	c) Site Specific Monitoring (2nd time)	10ha	70	6,800	478,720
2	Drainage Line Treatment (ex-situ SWC work)	ha	73	95,612	6,979,691
3	Improvement/ densification of Moderately Dense Forest				16,911,332
	1) ANR without planting	ha	173	-	6,486,352
	2) ANR with gap planting of 200 seedlings/ha (tall plant)	ha	173	-	10,424,980
4	Afforestation/ improvement of Open/ Scrub Forest - Fuelwood & Fodder plantation				22,060,403
	1) Fuel wood and Fodder Plantation 1,100 normal plants/ha	ha	139	-	11,706,880
	2) Tree+Shrubs/Perennial Herbs Plantation (1,100 trees + 4,400 plants/ha)	ha	69	-	8,126,978
	3) Tall Plant Block Plantation (500 tall plants/ha) with Wooden Fence Posts	ha	23	-	2,226,545
5	Improvement of Forest quality at key concerned Forest Areas				1,463,014
	2) ANR with gap planting of 200 seedlings/ha (tall plant)	ha	24	-	1,463,014
6	Improvement of Pastures/ Grasslands (including in-situ SWC works)				4,852,136
	1) Dry Alpine Pasture Models (Broadcasting Method)	ha	20	-	1,319,721
	2) Dry Alpine Pasture Models (Patch/Strip Method)	ha	20	-	1,456,978
	3) Establishment of Fallow Grassland / Pasture	ha	90	23,060	2,075,437
7	Forest Fire Protection	ha	300		1,512,000
	1) Fire Patrol (x 4 years)	ha	1,200	1,260	1,512,000
8	Forestry Interventions at outside of Forest Areas				3,518,172
	1) Tree+Shrubs/Perennial Herbs Plantation (1,100 trees + 4,400 plants/ha)	ha	30	-	3,518,172
2.4.2.1	Designation of Biodiversity Registers (Survey and planning)	BMCs	20	100,000	2,000,000
b					
2.4.2.1	Implementation of CBMP	BMCs	20	900,000	18,000,000
c					
2.4.2.2	Eco Clubs	Ls	1	2,000,000	2,000,000
2.5	Training of BMCs				11,557,778
2.5.1	TOT for DMU Subject Matter Specialist/ FTU Coordinators for Field Facilitation	no. (for Division)	36	74,333	2,676,000
2.5.2	Training of BMCs and sub-committee	no. (for BMC)	20	40,833	816,667
2.5.3	Exposure Visits				6,927,333
2.5.3.1	Within State	no. (for BMC)	20	59,500	1,190,000
2.5.3.2	Out of State	no. (for BMC)	20	286,867	5,737,333
2.5.4	Joint Workshop				1,137,778
2.5.4.1	Range	no. (for BMC)	20	40,000	800,000
2.5.4.2	Division	no. (for BMC)	20	16,889	337,778
2.6	Biodiversity Monitoring System	Biennial	5	2,348,500	11,742,500
	Total				617,137,105

Source: JICA Study Team (2017)

Component 3

Item		Unit	Quantity	Unit Rate (INR)	Cost (INR)
3.1	Community Development				219,776,000
3.1.1	Preparation of CD&LIP (ref.1.1.7 or 2.4.1.7)				0
3.1.2	Transfer of Funds	VFDS/ BMC sub committee	460	475,000	218,500,000
3.1.3	Implementation of CD activities (ref.3.1.2)			0	0
3.1.4	Preparation of Guidelines Manuals and Training Programmes for Community Development (ref.1.5.0)			0	0
3.1.5	Research: Pilot Project on Hydro Cultural Fodder Production	LS	1	1,276,000	1,276,000
3.2	NTFP based Livelihood Improvement				205,517,400
3.2.1	Preparatory Works			45,193,400	49,827,400
	a) NTFP Assessment	Clusters	11	463,400	5,097,400
	b) Establishment of Him Jadi-Buti Society	Nos.	1	44,730,000	44,730,000
3.2.2	NTFP Enterprise Development Clusters	Clusters	11	11,502,000	126,522,000
3.2.3	NTFP Research and Development	Nos.	1	10,000,000	10,000,000
3.2.4	NTFP Cultivation			0	0
3.2.5	NTFP Market Research and Promotion	Nos.	1	10,650,000	10,650,000
3.2.6	NTFP Training and Extension	Nos.	1	1,718,000	1,718,000
3.2.7	NTFP Publicity and Communication	Nos.	1	6,800,000	6,800,000
3.3	Non NTFP based Livelihood Improvement				351,350,802
3.3.1	Preparation of Livelihood Improvement Strategy and Plan	LS	1	450,000	450,000
3.3.2	Preparation of CD&LIP (ref.1.1.7 or 2.4.1.7)			0	0
3.3.3	Formation/ Reviving CIGs/ SHGs	VFDS/ BMC sub committee	460	18,000	8,280,000
3.3.4	Implementation of Household/ Community level livelihood improvement	CIG/ SHG	920	140,000	128,800,000
3.3.5	Promotion of Cluster based Livelihood Activities	LS	1	100,000,000	100,000,000
3.3.6	Capacity Development for CIGs/ SHGs and Cluster based Organisations				113,820,802
3.3.6.0	Preparation of Manuals and Guidelines	LS	1	900,000	900,000
3.3.6.1	TOT for DMU/FTU for Livelihood Improvement	Division	36	27,768	999,643
3.3.6.2	Training for GP Motivators and Facilitators (VFDS)	no. (for VFDS)	400	18,278	7,311,111
	Training for GP Motivators and Facilitators (BMC)	no. (for BMC)	20	63,972	1,279,444
3.3.6.3	Training for CIGs/ SHGs	no VFDS/ BMC sub committee	460	16,054	7,384,825
3.3.6.4	Exposure Visits				
3.3.6.4.1	Within State	CIG/ SHG	920	8,667	7,973,333
3.3.6.4.2	Out of State	CIG/ SHG	920	95,622	87,972,444
3.3.7	Capacity Development for CIGs/ SHGs and Cluster Based Organisation (ref.3.3.6)			0	0
	Total				776,644,202

Source: JICA Study Team (2017)

Component 4

Item		Unit	Quantity	Unit Rate (INR)	Cost (INR)
4.1	Preparatory Works				1,230,129,894
4.1.1	Establishment of PMU and Field Level Units				0
4.1.2	Strengthening of PMU and Field Level Units				540,930,632
4.1.2.1	Mobility Support (vehicle hiring instead of procuring)				412,590,000
	a) PMU	months	120	340,000	40,800,000
	b) FCCU	months	826	42,500	35,105,000
	c) FTU	months	6,018	42,500	255,765,000

	Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
	d) Project Divisions	months	1,904	42,500	80,920,000
4.1.2.2	Equipment Support				41,507,800
	a) PMU	Nos.	1	8,826,000	8,826,000
	b) FCCU	Nos.	7	602,800	4,219,600
	c) FTU	Nos.	55	382,600	21,043,000
	d) Project Divisions	Nos.	16	463,700	7,419,200
4.1.2.3	Office				65,787,832
	a) PMU	Nos.	1	4,435,923	4,435,923
	b) FCCU	Nos.	7	786,563	5,505,941
	c) FTU	Nos.	55	786,563	43,260,962
	d) DMU	Nos.	16	786,563	12,585,007
4.1.2.4	Furniture				21,045,000
	a) PMU	Nos.	1	1,244,000	1,244,000
	b) FCCU	Nos.	7	306,500	2,145,500
	c) FTU	Nos.	55	276,500	15,207,500
	d) DMU	Nos.	16	153,000	2,448,000
4.1.3	Recruitment of the Personnel/ Subject Matter Specialists/ Resource Organisations				684,399,262
4.1.3.1	Human Resource Support				640,929,262
	1) PMU				
	a) Contractual/ Direct Hiring	months	120	675,615	81,073,800
	b) Outsourcing	months	120	309,738	37,168,536
	c) short term SMS 1	months	15	180,000	2,700,000
	d) short term SMS 2	months	15	180,000	2,700,000
	e) short term SMS 3	months	6	180,000	1,080,000
	2) FCCU		0		
	a) Contractual/ Direct Hiring	months	826	87,600	72,357,600
	b) Outsourcing	months	826	13,586	11,222,036
	3) Project Division - Contractual/ Direct Hiring	months	1,904	87,600	166,790,400
	4) FTU				
	a) Contractual/ Direct Hiring	months	6,490	27,375	177,663,750
	b) Outsourcing	months	6,490	13,586	88,173,140
4.1.3.2	Support for VFDS/BMC			23,400	43,470,000
	1) Strengthening support to VFDS/BMC	VFDS/BMC	420	12,500	5,250,000
	2) Operation support to VFDS/BMC	months	37,800	900	34,020,000
	3) Maintenance Corpus Contribution to VFDS/BMC	VFDS/BMCs	420	10,000	4,200,000
4.1.4	Preparation of Gender Action Plan	LS	1	900,000	900,000
4.1.5	Environmental and Social Consideration				3,900,000
	a) Environmental and Social Consideration Expert (ESCE)	MM	10	165,000	1,650,000
	b) Environmental and Social Consideration Field Expert (ESCFE)	MM	30	75,000	2,250,000
4.2	Capacity Development				137,695,002
4.2.1	Implementing Agency				123,749,475
4.2.1.1	Training Plan Development				
	1) National	LS	1	0	0
	2) Overseas	LS	1	0	0
4.2.1.2	Regular Trainings				67,744,380
	1) Officers				
	a) Within State	batches	14	439,450	6,328,080
	b) Outside State	batches	22	704,000	15,206,400
	2) Frontline Staff				
	a) Within State	batches	44	325,050	14,302,200
	b) Outside State	batches	66	483,450	31,907,700
4.2.1.3	Refresher Trainings				22,636,900
	1) Officers				
	a) Within State	batches	5	439,450	2,197,250
	b) Outside State	batches	7	704,000	4,928,000
	2) Frontline Staff				
	a) Within State	batches	15	325,050	4,875,750
	b) Outside State	batches	22	483,450	10,635,900

Item		Unit	Quantity	Unit Rate (INR)	Cost (INR)
4.2.1.4	Exposure Visits	nos.		7,471,785	30,299,570
	a) National/ Within State	batches	18	959,750	17,275,500
	b) Overseas 1	batches	2	3,805,000	7,610,000
	c) Overseas 2	batches	2	2,707,035	5,414,070
4.2.1.5	Workshops/ Seminars			2,732,625	3,068,625
	a) National Annual Workshop	nos.	1	2,690,625	2,690,625
	b) State-level workshops/ seminars	nos.	9	42,000	378,000
4.2.2	Gender Training				7,792,567
4.2.2.1	Gender Training (PMU)	LS	1	17,500	17,500
4.2.2.2	Gender Training FCCU/ FTU (TOT Mode)	Division	16	35,875	574,000
4.2.2.3	Gender Training VFDS/ BMC/ Sub Committees/ Cluster Organisations/ VFDS/BMC Motivators/ Ward Facilitators (VFDS)	no. (for VFDS)	400	7,200	2,880,000
	Gender Training VFDS/ BMC/ Sub Committees/ Cluster Organisations/ VFDS/BMC Motivators/ Ward Facilitators (BMC)	no. (for BMC)	20	25,920	518,400
4.2.2.4	Gender Training (e) CIGs/ SHGs	CIG/ SHG	920	4,133	3,802,667
4.2.3	Environmental and Social Consideration				6,152,960
	a) Training (PMU/FCCU) at Circle Level	batches	28	17,600	492,800
	b) Training (DMU/FTU) at Division Level	batches	64	88,440	5,660,160
4.3	Monitoring & Evaluation (M&E)				107,381,300
4.3.1	Establishing and operationalising M&E System				87,429,050
4.3.1.1	Monitoring				34,653,200
	1) Biodiversity Monitoring System (to be covered in Component 2)				
	2) Concurrent Monitoring & Periodic Review				
	a) PMU	quarters	38	7,500	285,000
	b) Project Divisions	months	1,728	2,025	3,499,200
	c) Project Circles	quarters	278	1,250	347,500
	d) Governing Body of PMU	quarters	40	5,600	224,000
	e) HPC of PMU	half-years	20	4,050	81,000
	f) Gram Panchayats	months	38,400	200	7,680,000
	3) Community Self-monitoring	quarters	12,800	375	4,800,000
	5) Computerized Accounting System				
	a) PMU	PMU	1	397,400	397,400
	b) FCCU	FCCU	7	88,800	621,600
	7) Annual Strategy Planning & Review Workshops				
	a) PMU	PMU	9	352,500	3,172,500
	b) Project Circles	Circles	63	215,000	13,545,000
4.3.1.2	Impact Assessment				22,449,350
	1) Annual Outcome Assessments	Annual	9	698,500	6,286,500
	2) Baseline and Impact Surveys				
	a) Socio-economic/ Gender Surveys				
	i) Baseline	times	1	1,945,350	1,945,350
	ii) Impact (mid and end-term)	times	2	2,499,200	4,998,400
	b) Physical Surveys				
	i) Baseline	times	1	1,842,500	1,842,500
	ii) Impact (mid and end-term)	times	2	2,465,320	4,930,640
	3) Thematic and Short Studies	times	6	407,660	2,445,960
4.3.1.3	Audits & Transparency				30,326,500
	1) Social Audits				
	a) Batch-1	audits	1470	2,550	3,748,500
	b) Batch-2	audits	2,460	2,550	6,273,000
	c) Batch-3	audits	1,500	2,550	3,825,000
	2) Statutory Financial Audits				
	a) PMU	audits	10	47,500	475,000
	b) Project Divisions	audits	160	29,000	4,640,000
	c) VFDS/BMCs				
	i) Batch-1	audits	735	3,000	2,205,000
	ii) Batch-2	audits	1,230	3,000	3,690,000

	Item	Unit	Quantity	Unit Rate (INR)	Cost (INR)
	iii) Batch-3	audits	750	3,000	2,250,000
	3) Concurrent Audits				
	a) PMU	audits	10	34,000	340,000
	b) Project Divisions	audits	160	18,000	2,880,000
	4) Grievance Redressal, RTI and Public Disclosure				
4.3.2	Enhancement and Promotion of GIS/ MIS/ ICT				4,315,200
	a) Development of Mobile Apps. for M&E and Incident Reporting	ls.	1	1,500,000	1,500,000
	b) GIS Monitoring	ls.	1	715,200	715,200
	c) Computerised GIS/MIS staff	ls.	1	2,100,000	2,100,000
4.3.3	Communication and Publicity				15,637,050
4.3.3.1	Publicity				6,771,050
	a) Newsletter	editions	36	61,600	2,217,600
	b) Publicity events (exhibitions/ melas etc.)	events	14	260,700	3,519,450
	c) Short Films	films	4	258,500	1,034,000
	d) Website Development			0	0
4.3.3.2	Publication				8,866,000
	a) Annual Report and Plan	years	10	108,900	1,089,000
	b) Quarterly Reports	quarters	38	24,200	919,600
	c) Guidelines & Manuals/ Handbooks	times	3	1,203,400	3,610,200
	d) Project Registers/ IEC material/ Success Stories	times	3	1,082,400	3,247,200
4.4	Research				3,750,000
4.4.1	Basic Study for Strengthening of ICT at HPFD	LS	1	3,750,000	3,750,000
4.5	PMC				164,948,684
4.5.1	Procurement of PMC	LS	1	250,000	250,000
4.5.2	Deployment of PMC specialists (ref.4.5.3)			0	0
4.5.3	Provision of Technical and Managerial Advisory Services	LS	1	164,698,684	164,698,684
4.5.4	Preparation of Reports (ref.4.5.3)			0	0
4.6	Phase Out				173,599,185
4.6.1	Implementing Agency				48,000,000
4.6.1.1	Preparation of Phase-Out/ Sustainability Mechanism Plan	LS	1	48,000,000	48,000,000
4.6.1.2	Transfer of Assets and Resources	LS	1	0	0
4.6.2	Community Based Organisations				42,629,185
4.6.2.1	Preparation of Phase-Out/ Sustainability Mechanism Plan (VFDS)	VFDS	400	19,000	7,600,000
	Preparation of Phase-Out/ Sustainability Mechanism Plan (BMC)	BMC	20	61,000	1,220,000
4.6.2.2	Revisiting of FEMP/ CBMP and CD&LIP	VFDS/ BMC sub-committee	460	61,000	28,060,000
4.6.2.3	Phase Out Training (VFDS)	VFDS	400	5,593	2,237,037
	Phase Out Training (BMC)	BMC	20	21,252	425,037
	Phase Out Training (CIG/ SHGs)	CIG/ SHGs	920	3,356	3,087,111
4.6.3	FEMP/ CBMP Fund				82,970,000
4.6.3.1	Preparation of Operation Manual of FEMP/ CBMP Fund	LS	1	170,000	170,000
4.6.3.2	Transfer of the FEMP/ CBMP Fund	VFDS/ BMC sub-committee	460	180,000	82,800,000
	Total of Above				1,817,504,065
	Total (Excluding PMC)				1,652,805,381

Source: JICA Study Team (2017)

Attachment II.8.3.1 Economic Cash Flow of the Project

Year	Sustainable Forest Management										Livelihood Improvement (SHG Based)				CO ₂ Sequestration / Emission Reduction of Degradation	Total Benefit (1,000 INR)	B-C (1,000 INR)		
	Investment Cost	O&M Cost	Total	Deodar (Timber/wood)	Other Block Plantation (Timber/wood)	Chir Pine (Timber/wood)	Fuel Wood	Fodder Production	Oak foliage	ANR/Block (Seabuck horn Battery)	NITFP (Various)	Soil Conservation	Mushroom	Poultry				Shawl	NITFP based Cluster Development
1	516,524	0	516,524	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	701,902	0	701,902	0	0	0	0	0	0	0	0	-5,333	2,855	0	0	0	0	-9,085	
3	663,282	0	663,282	0	0	0	0	0	0	0	5,940	-10,890	-27,377	-11,063	-1,703	67	0	-45,026	
4	670,036	0	670,036	0	0	0	1,075	54,030	0	-8,872	18,555	-4,208	686	4,418	3,539	261	0	60,649	
5	626,583	0	626,583	0	0	0	4,203	0	0	14,017	40,346	7,200	111,066	17,783	8,782	542	0	203,938	
6	631,842	0	631,842	-36	0	0	7,335	155,722	0	76	73,294	14,400	171,962	22,463	14,593	824	0	525,782	
7	637,308	0	637,308	-109	0	0	8,494	71,525	0	76	126,848	17,100	199,642	22,463	19,223	1,106	4,415	557,553	
8	642,988	0	642,988	-163	0	0	8,307	155,722	0	189	132,524	102,376	17,100	199,642	19,223	1,388	4,415	663,023	
9	597,138	0	597,138	-163	0	0	7,803	71,525	0	189	129,801	113,432	17,100	199,642	19,223	1,670	4,415	586,936	
10	197,877	0	197,877	-163	0	0	9,028	155,722	0	189	124,554	124,494	17,100	188,842	22,463	1,952	4,415	667,656	
11	0	58,855	58,855	-163	0	0	11,858	71,525	0	189	124,554	164,933	19,223	199,642	15,263	2,233	4,415	600,452	
12	0	58,855	58,855	-163	0	0	13,903	155,722	0	189	131,376	146,174	15,885	183,442	8,063	19,223	2,515	4,415	680,581
13	0	58,855	58,855	-163	0	0	13,780	71,525	0	189	136,839	155,918	16,493	186,142	8,063	19,223	2,797	4,415	615,057
14	0	58,855	58,855	-163	0	0	13,818	155,722	0	189	132,789	165,100	17,100	199,642	22,463	19,223	3,079	4,415	733,213
15	0	58,855	58,855	-163	0	0	13,333	71,525	0	189	124,554	171,186	17,100	199,642	22,463	19,223	3,361	4,415	646,664
16	0	58,855	58,855	-163	0	0	12,512	155,722	0	189	124,554	176,286	17,100	199,642	22,463	19,223	3,642	4,415	735,422
17	0	58,855	58,855	219	0	0	-4,232	71,525	0	189	144,656	179,117	17,100	199,642	22,463	19,223	3,924	4,415	658,078
18	0	58,855	58,855	1,173	0	0	-33,972	155,722	0	189	160,753	177,923	17,100	199,642	22,463	19,223	4,206	4,415	728,673
19	0	58,855	58,855	-163	0	0	-42,196	71,525	0	189	148,820	179,423	17,100	199,642	22,463	19,223	4,488	4,415	624,766
20	0	58,855	58,855	-163	0	0	-18,932	155,722	0	189	124,554	176,638	17,100	188,842	22,463	19,223	4,770	4,415	694,657
21	0	58,855	58,855	-163	0	563	348	71,525	0	189	124,554	175,827	16,493	199,642	15,263	19,223	5,051	4,415	632,930
22	0	58,855	58,855	1,174	0	1,289	4,683	155,722	0	189	160,275	178,049	15,885	183,442	8,063	19,223	5,333	4,415	737,741
23	0	58,855	58,855	4,512	0	926	6,991	71,525	0	189	188,399	180,270	16,493	186,142	8,063	19,223	5,615	4,415	692,763
24	0	58,855	58,855	-163	0	-163	7,803	155,722	0	189	165,765	182,491	17,100	199,642	22,463	19,223	5,897	4,415	780,383
25	0	58,855	58,855	-163	0	-163	9,028	96,837	0	189	119,735	184,712	17,100	199,642	22,463	19,223	6,179	4,415	679,196
26	0	58,855	58,855	-163	0	-163	11,858	155,722	0	189	119,735	186,934	17,100	199,642	22,463	19,223	6,460	4,415	743,415
27	0	58,855	58,855	3,657	0	-163	13,903	227,246	0	189	182,910	189,155	17,100	199,642	22,463	19,223	6,742	4,415	886,482
28	0	58,855	58,855	13,195	0	-163	13,780	227,246	22,182	189	233,979	191,376	17,100	199,642	22,463	19,223	7,024	4,415	971,651
29	0	58,855	58,855	-163	0	-163	13,818	227,246	21,351	189	197,909	193,597	17,100	199,642	22,463	19,223	7,306	4,415	923,932
30	0	58,855	58,855	-163	0	-163	13,333	227,246	62,763	189	124,554	195,525	17,100	188,842	22,463	19,223	7,588	4,415	882,915
31	0	58,855	58,855	-163	0	638	12,512	227,246	90,457	189	124,554	197,452	16,493	199,642	15,263	19,223	7,870	4,415	927,969
32	0	58,855	58,855	15,881	0	1,437	-4,232	227,246	86,915	189	210,073	198,864	15,885	183,442	8,063	19,223	8,151	4,415	999,885
33	0	58,855	58,855	55,942	0	1,037	-33,972	227,246	83,373	189	278,556	196,713	16,493	186,142	8,063	19,223	8,433	4,415	1,070,108
34	0	58,855	58,855	-163	0	-163	-42,196	227,246	80,350	189	227,791	198,089	17,100	199,642	22,463	19,223	8,715	4,415	962,702
35	0	58,855	58,855	-163	0	-163	-18,932	227,246	77,327	189	124,554	193,802	17,100	199,642	22,463	19,223	8,997	4,415	875,700
36	0	58,855	58,855	-163	0	-163	348	227,246	75,292	189	124,554	192,059	17,100	199,642	22,463	19,223	9,279	4,415	891,483
37	0	58,855	58,855	13,589	0	-163	0	227,246	73,962	189	235,209	180,870	17,100	199,642	22,463	19,223	9,560	4,415	1,007,989
38	0	58,855	58,855	47,927	0	-163	6,991	227,246	72,632	189	323,819	183,091	17,100	199,642	22,463	19,223	9,842	4,415	1,134,418
39	0	58,855	58,855	-163	0	-163	7,803	227,246	71,302	189	258,134	171,267	17,100	199,642	22,463	19,223	10,124	4,415	1,008,583
40	0	58,855	58,855	-163	0	-163	9,028	227,246	69,972	189	124,554	163,071	17,100	188,842	22,463	19,223	10,406	4,415	856,183

EIRR 10.6%
NPV(Rs. 1,000) 228,052

Attachment II.8.3.2 Benefit Valuation Methods

Methodologies for valuing the selected benefits for the Project are explained below.

1. Basis of Benefit Calculation

The project benefits were estimated by comparing the “with-project conditions” to the “without project conditions.” **Table 1.1** shows the basic assumptions in the changes of forest status with-project and without-project conditions.

Table 1.1 Basic Assumptions of With-Project and Without-Project

With-Project Conditions	Without-Project Conditions
1) Bare lands/Scrubs/ Open Forest Bare lands/ bushes will be converted to block plantations. Valuable species planted in the plantations can be used for domestic/ economic purposes. The woodlots will be protected and improved to regenerating natural/ secondary forests	1) Bare lands/Scrubs Bare lands/ bushes will be maintained as they are. The woodlots will be maintained as they are or further degraded into scrubs and bare lands.
2) Moderately Dense Forest Existing forests targeted for interventions can be protected, improved and maintained.	2) Natural forests (Dense Forest) The area and quality of existing forests will be stagnated or reduced /degraded.

Source: JICA Study Team (2017)

For the estimation of the economic project cost, each item of the financial cost is divided into the foreign currency portion and the local currency portion. The local currency portion is converted into economic cost by applying a standard conversion factor (SCF) at 0.9. The rate of SCF was adopted referring to project analysis and economic analysis applied in the similar types of project financed by the World Bank.

2. Sustainable Forest Management

Under the sustainable forest management component, various types of trees would be planted. The economic benefit will be estimated by (1) Timber Production, (2) Fuelwood and Fodder Production, (3) Non Timber Forest Products (NTFP), and (4) Soil Conservation.

2.1 Timber Production by Block Plantation

For timber production, following species were assumed for the benefit estimate.

- ◆ Deodara (*Ceduru deodara*)
- ◆ Ban Oak (*Quercus leucotrichophora*)
- ◆ Chir pine (*Pinus roxburghii*)

Assumed operational areas of each species are described in **Table 2.1.1**.

Table 2.1.1 Assumed Block Plantation Area for Timber Production

Species	1st Batch	2nd Batch	3rd Batch	Total (Ha)
Deodara	122	244	183	549
Ban Oak	122	244	183	549
Chir Pine	122	244	183	549
Total	366	732	549	1,647

Source: JICA Study Team (2017)

The economic benefits were estimated based on the stumpage value of the planted trees and harvested values were calculated from assumed harvesting and thinning operations indicated in **Tables 2.1.2 to 2.1.4.**

Basic Assumptions:

1) Density, Yield and Volume are derived from yield tables (Reference: Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972)

2) Harvested Value calculated based on Fixation of Royalty Rates of Different Species for the Year 2016-17, set by the Pricing Committee Meeting held on 27th March 2017. Harvesting (stumpage) value = fixed cost for product - harvesting cost

3) Harvesting/thinning cost assumed as 20% of harvesting value, referring to the harvesting cost set for other similar forestry projects and also based on empirical assumptions of forestry activities.

4) Tending (maintenance) cost after 3rd year will be 20% of 3rd year tending cost, referring to the tending cost set for other similar forestry projects and also based on empirical assumptions of forestry activities.

5) Year 41 and onward is assumed for maturity thus final harvesting was not included in the benefit valuation for the Project

6) Though green felling ban is currently imposed in HP, it was assumed that thinning and other felling operations to be conducted.

Table 2.1.2 Assumptions for Benefit Calculation by Deodara (*Ceduru deodara*)

Year	Stumpage Value Info			Thinning Volume (m ³ /ha)		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m ³ /ha)	No. of Stem(#/ha)	Value (INR/ha)	Timber	Small Wood		Non Capital Cost	Economic Cost		
2	0.00	500	0	0.00	0.00	0	0	0	0	0
6	0.00	467	0	0.00	0.00	0	330	297	0	-297
7-10			0				330	297	0	-297
11	0.99	446	21,873	0.00	0.00	0	330	297	0	-297
12-15			0				330	297	0	-297
16	7.50	232	165,611	0.00	0.14	3,125	330	297	3,125	2,828
17-20			0				330	297		-297
21	21.31	158	470,273	0.00	0.50	10,937	330	297	10,937	10,640
22-25			0				330	297		-297
26	35.12	125	774,935	0.00	1.42	31,247	330	297	31,247	30,951
27-30			0				330	297		-297
31	49.63	110	1,095,221	0.99	4.96	131,239	330	297	131,239	130,942
32-35			0				330	297		-297
36	58.13	103	1,282,705	1.49	3.61	112,491	330	297	112,491	112,194
37-40			0				330	297		-297

Year	Stumpage Value Info			Thinning Volume (m ³ /ha)		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m ³ /ha)	No. of Stem(#/ha)	Value (INR/ha)	Timber	Small Wood		Non Capital Cost	Economic Cost		
41	66.41	102	1,465,502	2.19	2.76	109,366	330	297	109,366	109,069

Source: Compiled by JICA Study Team (2017) based on Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972, and other information received from HPFD

Table 2.1.3 Assumptions for Benefit Calculation by Ban Oak (*Quercus leucotrichophora*)

Year	Stumpage Value Info			Thinning Volume (m ³ /ha)		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m ³ /ha)	No. of Stem (#/ha)	Value (INR/ha)	Timber	Small Wood		Non Capital Cost	Economic Cost		
2	0.00	500	0	0.00	0.00	0	0	0	0	0
6			0				330	297	0	-297
7-20			0				330	297	0	-297
21	12.21	321	23,303	0.00	3.12	5,944	330	297	5,944	5,647
22-30			0				330	297		-297
31	20.60	220	39,312	0.11	3.33	6,552	330	297	6,552	6,255
32-40			0				330	297		-297
41	25.06	182	47,823	0.21	2.62	5,769	330	297	5,769	5,107

Source: Compiled by JICA Study Team (2017) based on Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972, and other information received from HPFD

Table 2.1.4 Assumptions for Benefit Calculation by Chir pine (*Pinus roxburghii*)

Year	Stumpage Value Info			Thinning Volume (m ³ /ha)		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m ³ /ha)	No. of Stem (#/ha)	Value (INR/ha)	Timber	Small Wood		Non Capital Cost	Economic Cost		
2	0.00	500	0	0.00	0.00	0	0	0	0	0
6			0				330	297	0	-297
7-20			0				330	297	0	-297
21	0.00	285	0	0.00	0.00	0	330	297	0	-297
22-30			0				330	297	0	-297
31	16.78	170	222,726	0.00	7.50	99,616	330	297	99,616	99,319
32-40			0				330	297		-297
41	23.08	98	306,365	0.00	9.63	127,809	330	297	127,809	127,712

Source: Compiled by JICA Study Team (2017) based on Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972, and other information received from HPFD

2.2 Fuelwood and Fodder Production

2.2.1 Fuelwood Production

Wood from Acacia and other fast growing species used for fuelwood are valued for estimation of the economic benefit from fuelwood and fodder production.

Assumed operational areas of each species are described in **Table 2.2.1**.

Table 2.2.1 Assumed Block Plantation Area for Fuelwood Production

Mode	1 st batch	2 nd batch	3 rd batch	Total (Ha)
PFM Mode/ VFDS	256	513	385	1,154
BMC	86	86	86	259
Departmental Mode	49	98	73	220
Total	391	697	544	1,632

Source: JICA Study Team (2017)

Calculation of the production value is calculated based on the assumptions shown in **Table 2.2.2**.

Basic Assumptions:

- 1) Yield and growth based on the hearing from HPFD, and Firewood Farming on Degraded Lands (UP Forest Bulletin No. 50 1985)
- 2) Assumed final harvesting is in the 16th year (15th year after planting) and regeneration with planting density of 1,100 seedlings/ha to be conducted in 17th year
- 3) Harvested Value calculated based on Fixation of Royalty Rates of Different Species for the Year 2016-17, set by the Pricing Committee Meeting held on 27th March 2017. Harvesting (stumpage) value = = fixed cost for product - harvesting cost
- 3) Harvesting/thinning cost assumed as 20% of harvesting value, referring to the harvesting cost set for other similar forestry projects and also based on empirical assumptions of forestry activities.
- 4) Tending (maintenance) cost after 3rd year will be 20% of 3rd year tending cost, referring to the tending cost set for other similar forestry projects and also based on empirical assumptions of forestry activities.

Table 2.2.2 Assumptions for Benefit Calculation by Fuelwood Production (Acacia and other fast growing species)

Year	Stumpage Value Info		Harvested Volume (m3/ha)	Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m3/ha)	No. of Stem (#/ha)			Non Capital Cost	Economic Cost		
2	0.000	1,100		0	0	0	0	0
3	0.007	963	0.96	2,749	0	0	2,749	2,749
4	0.017	843	2.04	5,847	0	0	5,847	5,847
5	0.017	738	1.79	5,116	0	0	5,116	5,116
6	0.024	646	2.21	6,328	639	575	6,328	5,753
7	0.024	565	1.94	5,572	639	575	5,572	4,997
8	0.024	494	1.70	4,884	639	575	4,884	4,309
9	0.057	432	3.53	10,129	639	575	10,129	9,554
10	0.057	378	3.08	8,822	639	575	8,822	8,247
11	0.076	331	3.57	10,238	639	575	10,238	9,663
12	0.076	290	3.12	8,931	639	575	8,931	8,356
13	0.094	254	3.38	9,699	639	575	9,699	9,124
14	0.094	222	3.01	8,621	639	575	8,621	8,046
15	0.094	194	2.63	7,543	639	575	7,543	6,969
16	0.179	170	4.30	12,313	49,972	44,975	12,313	-32,662
17	0.000	1,100	0.00	0	40,894	36,804	0	-36,804
18	0.007	963	0.96	2,749	7,553	6,798	2,749	-4,049
19	0.017	843	2.04	5,847	4,384	3,946	5,847	1,901
20	0.017	738	1.79	5,116	3,194	2,874	5,116	2,242
21	0.024	646	2.21	6,328	639	575	6,328	5,753
22	0.024	565	1.94	5,572	639	575	5,572	4,997
23	0.024	494	1.70	4,884	639	575	4,884	4,309
24	0.057	432	3.53	10,129	639	575	10,129	9,554
25	0.057	378	3.08	8,822	639	575	8,822	8,247

Year	Stumpage Value Info		Harvested Volume (m3/ha)	Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (m3/ha)	No. of Stem (#/ha)			Non Capital Cost	Economic Cost		
26	0.076	331	3.57	10,238	639	575	10,238	9,663
27	0.076	290	3.12	8,931	639	575	8,931	8,356
28	0.094	254	3.38	9,699	639	575	9,699	9,124
29	0.094	222	3.01	8,621	639	575	8,621	8,046
30	0.094	194	2.63	7,543	639	575	7,543	6,969
31	0.179	170	4.30	12,313	49,972	44,975	12,313	-32,662
32	0.000	1,100	0.00	0	40,894	36,804	0	-36,804
33	0.007	963	0.96	2,749	7,553	6,798	2,749	-4,049
34	0.017	843	2.04	5,847	4,384	3,946	5,847	1,901
35	0.017	738	1.79	5,116	3,194	2,874	5,116	2,242
36	0.024	646	2.21	6,328	639	575	6,328	5,753
37	0.024	565	1.94	5,572	639	575	5,572	4,997
38	0.024	494	1.70	4,884	639	575	4,884	4,309
39	0.057	432	3.53	10,129	639	575	10,129	9,554
40	0.057	378	3.08	8,822	639	575	8,822	8,247

Source: Compiled by JICA Study Team (2017) based on Firewood Farming on Degraded Lands (UP Forest Bulletin No. 50 1985) and other information received from HPFD

2.2.2 Grass (Fodder) Production

Extraction of grass species from project treatment areas for fodder and other purposes are valued for estimation of the economic benefit. Assumed operational areas of each species are described in **Table 2.2.3**.

Table 2.2.3 Assumed Area for Grass Production

Mode	1 st batch	2 nd batch	3 rd batch	Total (Ha)
PFM Mode/ VFDS & BMC	1,171	2,050	1,317	4,537
Departmental Mode	1,328	2,653	1,991	5,972
Total	2,499	4,703	3,308	10,509

Source: JICA Study Team (2017)

Calculation of the production value is calculated based on the assumptions below and in **Table 2.2.4**.

Basic Assumptions:

- 1) Yield and growth based on the hearing from HPFD, and 250 bundles (1 bundle = 30kg) is assumed as extraction amount per ha.
- 2) Assumed harvesting (extraction) value is 100 INR/ bundle
- 3) Harvesting/extraction cost assumed as 15% of harvesting price, referring to empirical assumptions of forestry activities in HP.
- 4) Extraction starts from the next year after the planting (or the other main treatment activities) and done for every other year up to year 20. After year 21, extraction to be conducted every year.

Table 2.2.4 Assumptions for Benefit Calculation by Grass Production

Year	Stumpage Value Info		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (Kg/ha)	No. of Bundle (#/ha)		Non Capital Cost	Economic Cost		
2	7,500	250	25,000	5,000	4,500	25,000	20,500
3				0	0		0
4	7,500	250	25,000	5,000	4,500	25,000	20,500
5				0	0		0
6	7,500	250	25,000	5,000	4,500	25,000	20,500
7				0	0		0
8	7,500	250	25,000	5,000	4,500	25,000	20,500
9				0	0		0
10	7,500	250	25,000	5,000	4,500	25,000	20,500
11				0	0		0
12	7,500	250	25,000	5,000	4,500	25,000	20,500
13				0	0		0
14	7,500	250	25,000	5,000	4,500	25,000	20,500
15				0	0		0
16	7,500	250	25,000	5,000	4,500	25,000	20,500
17				0	0		0
18	7,500	250	25,000	5,000	4,500	25,000	20,500
19				0	0		0
20	7,500	250	25,000	5,000	4,500	25,000	20,500
21				0	0		0
22	7,500	250	25,000	5,000	4,500	25,000	20,500
23	7,500	250	25,000	5,000	4,500	25,000	20,500
24	7,500	250	25,000	5,000	4,500	25,000	20,500
25	7,500	250	25,000	5,000	4,500	25,000	20,500
26	7,500	250	25,000	5,000	4,500	25,000	20,500
27	7,500	250	25,000	5,000	4,500	25,000	20,500
28	7,500	250	25,000	5,000	4,500	25,000	20,500
29	7,500	250	25,000	5,000	4,500	25,000	20,500
30	7,500	250	25,000	5,000	4,500	25,000	20,500
31	7,500	250	25,000	5,000	4,500	25,000	20,500
32	7,500	250	25,000	5,000	4,500	25,000	20,500
33	7,500	250	25,000	5,000	4,500	25,000	20,500
34	7,500	250	25,000	5,000	4,500	25,000	20,500
35	7,500	250	25,000	5,000	4,500	25,000	20,500
36	7,500	250	25,000	5,000	4,500	25,000	20,500
37	7,500	250	25,000	5,000	4,500	25,000	20,500
38	7,500	250	25,000	5,000	4,500	25,000	20,500
39	7,500	250	25,000	5,000	4,500	25,000	20,500
40	7,500	250	25,000	5,000	4,500	25,000	20,500

Source: Compiled by JICA Study Team (2017) based on information received from HPPD

2.2.3 Oak Foliage Collection

Foliage collections from ban oak forests/plantations are valued for estimation of the economic benefit from fuelwood and fodder production.

Assumed operational areas of each species are described in **Table 2.2.5**.

Table 2.2.5 Assumed Block Plantation Area for Oak Foliage Collection

Mode	1 st batch	2 nd batch	3 rd batch	Total (Ha)
PFM Mode/ VFDS & BMC	144	251	161	556
Departmental Mode	236	472	354	1,063
Total	380	723	515	1,618

Source: JICA Study Team (2017)

Calculation of the production value is calculated based on the assumptions shown in **Table 2.2.6**.

Basic Assumptions:

- 1) Yield based on the hearing from HPFD, and 2.5 bundles (1 bundle = 30kg) per tree is assumed as extraction amount per ha after maturity of ban oak forests.
- 2) Initial planting density is assumed as 500 seedlings per ha and density reduction is derived from yield tables (Reference: Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972)
- 3) Assumed harvesting (extraction) value is 100 INR/ bundle
- 4) Harvesting/extraction cost assumed as 15% of harvesting price, referring to empirical assumptions of forestry activities in HP.
- 5) Extraction starts from 26th year after the planting (or the other main treatment activities) and done for every other year

Table 2.2.6 Assumptions for Benefit Calculation by Oak Foliage Collection

Year	Stumpage Value Info		Harvested Value (INR/ha)	Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	Yield (Kg/ha)	No. of Bundle (#/ha)		Non Capital Cost	Economic Cost		
2		500		0	0		0
21		321		0	0		0
22		311		0	0		0
23		300		0	0		0
24		290		0	0		0
25		280		0	0		0
26	75,000	270	67,528	10,129	9,116	67,528	58,411
27	75,000	260	64,998	9,750	8,775	64,998	56,223
28	75,000	250	62,467	9,370	8,433	62,467	54,034
29	75,000	240	59,937	8,991	8,092	59,937	51,846
30	75,000	230	57,407	8,611	7,750	57,407	49,657
31	75,000	220	54,877	8,232	7,408	54,877	47,468
32	75,000	216	53,927	8,089	7,280	53,927	46,647
33	75,000	212	52,977	7,946	7,152	52,977	45,825
34	75,000	208	52,026	7,804	7,024	52,026	45,003
35	75,000	204	51,076	7,661	6,895	51,076	44,181
36	75,000	201	50,126	7,519	6,767	50,126	43,359
37	75,000	197	49,176	7,376	6,639	49,176	42,537
38	75,000	193	48,226	7,234	6,511	48,226	41,715
39	75,000	189	47,276	7,091	6,382	47,276	40,894
40	75,000	185	46,326	6,949	6,254	46,326	40,072

Source: Compiled by JICA Study Team (2017) based on information received from HPFD and data from Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972

2.3 NTFP Production

NTFP is important benefit from plantation and ANR that provides additional income opportunities as well as incentive and motivation for sustainable participation by people and communities in the Project. Sales of the NTFP would improve the income level of the project beneficiaries. As profitable NTFP, Medicinal Plant and Bamboo Development, i) Seabuckthorn berry (*Hippophae rhamnoides*) production and ii) mix NTFP development were valued as representatives.

Assumed operational areas of each species are described in **Table 2.3.1**.

Table 2.3.1 Assumed Block Plantation / ANR Area for NTFP Production

Mode	1st Batch	2nd Batch	3rd Batch	Total (Ha)
1 Seabuckthorn				
VFDS	34		51	85
BMC	12			12
Total	46	0	51	97
2 Mixed NTFP Production				
VFDS	88	174	131	393
BMC	30	30		60
Departmental	37	73	55	165
Total	155	277	186	618

Source: JICA Study Team (2017)

2.3.1 Seabuckthorn Berry Production

Calculation of the production value is calculated based on the assumptions shown below and in Tables 2.3.2.

- ◆ Yield and growth based on the hearing from HPFD other relevant stakeholders, and available secondary information.
- ◆ For ANR with gap planting, assumed 20% of gap planting seedlings to be covered for the target species and calculated.
- ◆ Harvesting (stumpage) value = minimum support (selling price) price - harvesting cost,
- ◆ Tending (maintenance) cost after 3rd year will be 20% of 3rd year tending cost, referring to empirical assumptions of forestry activities in HP.
- ◆ If there are any other specific assumptions, such assumptions are described under respective tables.
- ◆ Harvested Value calculated based on Himachal Pradesh minimum support price (selling price) of fruits and replacing, harvesting and transportation cost estimated as 40% of selling price, referring to empirical assumptions of forestry activities in HP.
- ◆ Rotational year is set at 40-year

Table 2.3.2 Assumptions for Benefit Calculation by Seabuckthorn Plantation

Year	Total Yield (kg/ha)	Total of fuelwood (kg/ha)	Stumpage value		Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
			Fruit (INR/ha)	Fuelwood (INR/ha)	Non Capital Cost	Economic Cost		
2			0	0	0	0	0	0
3			0	0	0	0	0	0
4			0	0	0	0	0	0
5			0	0	0	0	0	0
6	1,200	500	78,000	3,000	858	772	3,000	2,228
7	1,200	500	78,000	3,000	858	772	3,000	2,228
8	1,200	500	78,000	3,000	858	772	3,000	2,228
9	1,200	500	78,000	3,000	858	772	3,000	2,228
10	1,200	500	78,000	3,000	858	772	3,000	2,228
11	1,200	500	78,000	3,000	858	772	3,000	2,228
12	1,200	500	78,000	3,000	858	772	3,000	2,228
13	1,200	500	78,000	3,000	858	772	3,000	2,228
14	1,200	500	78,000	3,000	858	772	3,000	2,228
15	1,200	500	78,000	3,000	858	772	3,000	2,228
16	1,200	500	78,000	3,000	858	772	3,000	2,228
17	1,200	500	78,000	3,000	858	772	3,000	2,228
18	1,200	500	78,000	3,000	858	772	3,000	2,228
19	1,200	500	78,000	3,000	858	772	3,000	2,228

Year	Total Yield (kg/ha)	Total of fuelwood (kg/ha)	Stumpage value		Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
			Fruit (INR/ha)	Fuelwood (INR/ha)	Non Capital Cost	Economic Cost		
20	1,200	500	78,000	3,000	858	772	3,000	2,228
21	0	0	0	0	858	772	0	-772
22	0	0	0	0	858	772	0	-772
23	0	0	0	0	858	772	0	-772
24	0	0	0	0	858	772	0	-772
25	0	0	0	0	858	772	0	-772
26	1,200	500	78,000	3,000	858	772	3,000	2,228
27	1,200	500	78,000	3,000	858	772	3,000	2,228
28	1,200	500	78,000	3,000	858	772	3,000	2,228
29	1,200	500	78,000	3,000	858	772	3,000	2,228
30	1,200	500	78,000	3,000	858	772	3,000	2,228
31	1,200	500	78,000	3,000	858	772	3,000	2,228
32	1,200	500	78,000	3,000	858	772	3,000	2,228
33	1,200	500	78,000	3,000	858	772	3,000	2,228
34	1,200	500	78,000	3,000	858	772	3,000	2,228
35	1,200	500	78,000	3,000	858	772	3,000	2,228
36	1,200	500	78,000	3,000	858	772	3,000	2,228
37	1,200	500	78,000	3,000	858	772	3,000	2,228
38	1,200	500	78,000	3,000	858	772	3,000	2,228
39	1,200	500	78,000	3,000	858	772	3,000	2,228
40	1,200	500	78,000	3,000	858	772	3,000	2,228

Source: Compiled by JICA Study Team (2017) based information received from HPFD and other relevant stakeholders

2.3.2 Mixed NTFP Production

Calculation of the production value is calculated based on the assumptions shown below and in Tables 2.3.3 and 2.3.4.

- ◆ NTFPs described in Table 2.3.3 to be cultivated in mixture
- ◆ NTFP cultivation will start from 3 year of the project (and production start from following year)
- ◆ Average Annual NTFP Production Cost per ha: 64,020INR/ ha
- ◆ Average Annual NTFP Sales/Harvest Value per ha: 252,410INR/ ha
- ◆ As shade cover, tree species to be planted and utilized for fuelwood as well.

Table 2.3.3 Assumed NTFP Species and Their Production, Costs and Benefits

	NTFP/ MAP	Scientific name	Average production per ha (MT)	Total production for sale (MT)	Total Production Cost per Ha	Approximate Sale price/ MT	Total Sale Price	Net Income	Production cycle	Annualised Sales per ha	Annualised Return per ha	Products
1	Atis	<i>Aconitum spp.</i>	0.3	0.27	209,366	7,000,000	1,890,000	1,701,570	4	472,500	425,393	Roots/ Tubers
2	Brahmi	<i>Bacopa monnieri</i>	5	4.5	52,000	75,000	337,500	290,700	1	337,500	290,700	Whole plant
3	Bach	<i>Acorus calamus</i>	3	2.7	118,958	75,000	202,500	95,438	1	202,500	95,438	Rhizomes
4	Bankakri	<i>Podophyllum hexandrum</i>	3	2.7	190,333	300,000	810,000	638,700	3	270,000	212,900	Rhizomes, fruits, seeds
5	Chirayata	<i>Swertia chirayita/ spp.</i>	1	0.9	157,024	300,000	270,000	128,678	2	135,000	64,339	Whole plant
6	Chora	<i>Angelica glauca</i>	2.3	2.07	156,000	90,000	186,300	45,900	2	93,150	22,950	Roots
7	Jatamansi	<i>Nardostachys jatamansi</i>	0.75	0.675	385,424	700,000	472,500	125,618	3	157,500	41,873	Roots
8	Kapurkachri	<i>hedychium spicatum</i>	10	9	76,133	75,000	675,000	606,480	2	337,500	303,240	Rhizomes
9	Kuth	<i>Saussurea costus/ lappa</i>	3	2.7	166,542	220,000	594,000	444,112	3	198,000	148,037	Roots
10	Kutki/ Kadu	<i>Picrorhiza kurrooa/ Gentiana kurroo</i>	1	0.9	214,124	600,000	540,000	347,288	3	180,000	115,763	Dry stolons/ Roots
11	Pasanbhed	<i>Bergenia liguata</i>	7	6.3	130,241	80,000	504,000	386,784	3	168,000	128,928	Rhizomes
12	Puskarmool	<i>Inula racemosa</i>	8	7.2	71,946	170,000	1,224,000	1,159,249	2	612,000	579,624	Roots
13	Tagar	<i>Valeriana wallachi/ jatamansi</i>	2.5	2.25	114,200	110,000	247,500	144,720	3	82,500	48,240	Roots
14	Mandukparni	<i>Centella asiatica</i>	5	4.5	52,000	60,000	270,000	223,200	1	270,000	223,200	leaves
15	Mulethi	<i>Glycyrrhiza glabra</i>	6	5.4	162,500	150,000	810,000	663,750	3	270,000	221,250	Roots
			57.85	52.065	2,256,791	10,005,000	9,033,300	7,002,188	36	250,925	194,505	
									Average	252,410	194,792	

Source: Compiled by JICA Study Team (2017) based information received from HPFD and other relevant stakeholders

Table 2.3.4 Assumptions for Benefit Calculation by Mixed NTFP Production

Year	Harvested Value		Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	NTFP (INR/ha)	Fuelwood (INR/ha)	Non Capital Cost	Economic Cost		
2			0	0	0	0
3			64,020	57,618	0	-57,618
4	252,410		64,020	57,618	252,410	194,792
5	252,410		64,020	57,618	252,410	194,792
6	252,410	28,227	64,878	57,618	280,637	223,019
7	252,410		64,878	57,618	252,410	194,792
8	252,410		64,878	57,618	252,410	194,792
9	252,410		64,878	57,618	252,410	194,792
10	252,410		64,878	57,618	252,410	194,792
11	252,410	44,306	64,878	57,618	296,716	239,098
12	252,410		64,878	57,618	252,410	194,792
13	252,410		64,878	57,618	252,410	194,792
14	252,410		64,878	57,618	252,410	194,792
15	252,410		64,878	57,618	252,410	194,792
16	252,410	130,552	64,878	57,618	382,962	325,344
17	252,410		64,878	57,618	252,410	194,792
18	252,410		64,878	57,618	252,410	194,792
19	252,410		64,878	57,618	252,410	194,792
20	252,410		64,878	57,618	252,410	194,792
21	252,410	247,641	64,878	57,618	500,051	442,433
22	252,410		64,878	57,618	252,410	194,792
23	252,410		64,878	57,618	252,410	194,792
24	252,410		64,878	57,618	252,410	194,792
25	252,410		64,878	57,618	252,410	194,792
26	252,410	394,644	64,878	57,618	647,054	589,436
27	252,410		64,878	57,618	252,410	194,792
28	252,410		64,878	57,618	252,410	194,792
29	252,410		64,878	57,618	252,410	194,792

Year	Harvested Value		Cost (INR/ha)		Benefit (INR/ha)	Net Value (INR/ha)
	NTFP (INR/ha)	Fuelwood (INR/ha)	Non Capital Cost	Economic Cost		
30	252,410		64,878	57,618	252,410	194,792
31	252,410	555,411	64,878	57,618	807,821	750,203
32	252,410		64,878	57,618	252,410	194,792
33	252,410		64,878	57,618	252,410	194,792
34	252,410		64,878	57,618	252,410	194,792
35	252,410		64,878	57,618	252,410	194,792
36	252,410	718,655	64,878	57,618	971,065	913,446
37	252,410		64,878	57,618	252,410	194,792
38	252,410		64,878	57,618	252,410	194,792
39	252,410		64,878	57,618	252,410	194,792
40	252,410		64,878	57,618	252,410	194,792

Source: Compiled by JICA Study Team (2017) based on information received from HPFD and other relevant stakeholders

2.4 Soil Conservation: Prevention of Soil Erosion by Increase of Forest Cover

The vegetation covering the surface of the earth with trees and other plants would mitigate the rainfall impact on the surface soil so that surface erosion would be alleviated. The value of soil erosion prevention by the vegetative/ forest cover was calculated as surrogated cost being represented by the construction cost of check dams for prevention of sedimentation, which is equivalent to the effect of soil conservation by the vegetative measures.

Based on data of soil erosion rate of various watersheds in India¹, soil reduction rate (mm/year) was estimated as the effect of reduction of soil erosion with regards to the Project. Total effect by this soil conservation activities was calculated multiplying unit effect and area to be covered by the forest treatment types as shown in **Table 2.4.1**.

Table 2.4.1 Estimation of Total Volume of Soil Conservation

Category	Forest Treatment Type	Total Area (ha)	Reduction Rate (mm/year)	Reduction Rate factor	Total Volume (million cm ³)
PFM	1) ANR with no gap planting	1,322	0.50	0.75	0.007
	2) ANR with 200 tall seedlings/ ha gap planting	1,322	0.60	1	0.009
	3) Fuel and Fodder Plantation	1,063	0.67	1	0.007
	4) NTFP/ Medicinal Plantations	532	0.67	1	0.004
	5) Other Block Plantation (Tall Plants)	177	0.67	1	0.001
	6) Dry Alpine Pasture: Broadcasting Method	180	0.50	0.75	0.001
	7) Dry Alpine Pasture: Patch/ Strip Methods	180	0.50	0.75	0.001
	8) Fallow	600	0.33	0.5	0.002
	9) Drainage Line Treatment	556	0.67	1	0.004
Department	1) Tending Operations for Improvement of Existing Forests	1,028	0.50	0.75	0.005
	2) ANR with no gap planting	1,196	0.50	0.75	0.006
	3) ANR with 200 tall seedlings/ha gap planting	1,196	0.67	1	0.008
	4) Other Block Plantation (Tall Plants)	2,199	0.67	1	0.015
	5) Improvement of Mono-culture Stands	242	0.67	1	0.002

¹ Participatory Integrated Watershed Management Field Manual pp 295, Dehradun : Central Soil & Water Conservation Research & Training Institute, 2006

Category	Forest Treatment Type	Total Area (ha)	Reduction Rate (mm/year)	Reduction Rate factor	Total Volume (million cm ³)
	6) Dry Alpine Pasture: Broadcasting Method	108	0.50	0.75	0.001
	7) Dry Alpine Pasture: Patch/ Strip Methods	108	0.50	0.75	0.001
	8) Fallow	1,249	0.33	0.5	0.004
	9) Drainage Line Treatment	1,844	0.67	1	0.012
	Total	15,200			0.026

Source: Compiled by JICA Study Team (2017) based on Participatory Integrated Watershed Management Field Manual 2006 and information received from HPFD /other relevant stakeholders

Reduction rate factor was assumed either 1, 0.75 or 0.5, reflecting densities of vegetation covers to be maintained/ improved through respective interventions (i.e. block plantations are expected achieve higher soil reduction (1) due to significant increase in tree/ surface covers).

Construction cost of check dam was estimated by the JICA study team, reflecting the topography and feasible capacity of a dam in HP.

Table 2.4.2 Estimation of Cost for Soil Conservation

Category	Forest Treatment Type	Total Volume (million cm ³)	Design Annual Sedimentation Volume (million cm ³)	Required No. of Sabo Dam	Unit Cost (Economic Cost) (INR. million)	Total Construction Cost (INR. million)
PFM	1) ANR with no gap planting	0.007	0.012	0.55	172.0	94.595
	2) ANR with 200 tall seedlings/ ha gap planting	0.009	0.012	0.73	172.0	125.553
	3) Fuel and Fodder Plantation	0.007	0.012	0.59	172.0	101.474
	4) NTFP/ Medicinal Plantations	0.004	0.012	0.3	172.0	51.597
	5) Other Block Plantation (Tall Plants)	0.001	0.012	0.1	172.0	17.199
	6) Dry Alpine Pasture: Broadcasting Method	0.001	0.012	0.08	172.0	13.759
	7) Dry Alpine Pasture: Patch/ Strip Methods	0.001	0.012	0.08	172.0	13.759
	8) Fallow	0.002	0.012	0.19	172.0	32.678
	9) Drainage Line Treatment	0.004	0.012	0.31	172.0	53.317
Department	1) Tending Operations for Improvement of Existing Forests	0.005	0.012	0.43	172.0	73.956
	2) ANR with no gap planting	0.006	0.012	0.5	172.0	85.995
	3) ANR with 200 tall seedlings/ha gap planting	0.008	0.012	0.66	172.0	113.513
	4) Other Block Plantation (Tall Plants)	0.015	0.012	1.22	172.0	209.828
	5) Improvement of Mono-culture Stands	0.002	0.012	0.13	172.0	22.359
	6) Dry Alpine Pasture: Broadcasting Method	0.001	0.012	0.05	172.0	8.600
	7) Dry Alpine Pasture: Patch/ Strip Methods	0.001	0.012	0.05	172.0	8.600
	8) Fallow	0.004	0.012	0.35	172.0	60.197
	9) Drainage Line Treatment	0.012	0.012	1.03	172.0	177.150
	Total	0.026				1,264.127

Source: Compiled by JICA Study Team (2017) based on Participatory Integrated Watershed Management Field Manual 2006 and information received from HPFD /other relevant stakeholders

Based on the total construction cost of the check dams (1,264million INR), annual benefit of the soil conservation was estimated at 190.3million INR/year, which consists of annual depreciation

of the check dam at 188.4 million INR/year and annual O&M cost of the Sabo dam at INR.1.9 million INR/year, under the assumption of the 10-year depreciation period. Calculation of the conservation value is shown in **Table 2.4.3**.

Table 2.4.3 Assumptions for Benefit Calculation by Soil Conservation

Year	Total Area (ha)	Growth Rate (%)	Annual Benefit (INR)	Year	Total Area (ha)	Growth Rate (%)	Annual Benefit (INR)
1	0	0	0.0	21	14,046	92	175,827,353.2
2	0	0	0.0	22	14,223	94	178,048,588.6
3	474	3	5,939,767.9	23	14,401	95	180,269,824.0
4	1,482	10	18,554,733.2	24	14,578	96	182,491,059.3
5	3,223	21	40,345,776.8	25	14,756	97	184,712,294.7
6	5,204	34	65,150,356.3	26	14,933	98	186,933,530.1
7	6,934	46	86,806,618.3	27	15,110	99	189,154,765.4
8	8,178	54	102,375,924.5	28	15,288	101	191,376,000.8
9	9,061	60	113,431,627.9	29	15,465	102	193,597,236.2
10	9,945	65	124,494,270.0	30	15,619	103	195,524,565.3
11	10,815	71	135,382,840.9	31	15,773	104	197,451,894.4
12	11,677	77	146,174,270.0	32	15,886	105	198,864,351.1
13	12,455	82	155,917,652.3	33	15,714	103	196,713,462.4
14	13,189	87	165,099,542.2	34	15,824	104	198,089,449.1
15	13,675	90	171,185,742.3	35	15,482	102	193,801,840.2
16	14,082	93	176,286,044.8	36	15,342	101	192,058,558.8
17	14,309	94	179,116,961.1	37	14,449	95	180,869,755.3
18	14,213	94	177,923,362.8	38	14,626	96	183,090,990.6
19	14,333	94	179,423,435.5	39	13,682	90	171,267,246.0
20	14,111	93	176,638,063.4	40	13,027	86	163,070,687.3

Source: Compiled by JICA Study Team (2017) based on Participatory Integrated Watershed Management Field Manual 2006 and information received from HPFD /other relevant stakeholders

3. Livelihood Improvement

3.1 Cluster Based Livelihood Activities

From output 3, livelihood related activities are identified which would generate economic benefit. The benefits were calculated from the livelihood activities which would be promoted as clusters. Those include handloom& traditional woolen cloth making, mushroom cultivation, and poultry. The assumptions made to arrive at the benefits are given for each activity as below.

3.1.1 Handloom & Traditional Woolen Cloth Making

(1) Estimation of Cost

The assumptions include:

- ◆ Selling price of the shawl would be constant.
- ◆ On every 10th year handlooms would be replaced.
- ◆ Each member of the cooperative will produce 30 units of shawls in a year.
- ◆ Marketing cost of shawl has been kept at 5% of the production cost.
- ◆ Each of cooperative comprises of 20 member households.
- ◆ Each member will produce at his/ her own home but the shawls will be marketed collectively.
- ◆ The activity progresses batch wise.

Table 3.1.1 Batch wise No of Cooperatives – Shawl Making

Batch	1st Batch	2nd Batch	3rd Batch	Total
No of Cooperatives	10	20	20	50

Source: JICA Study Team (2017)

The total cost for material for one cooperative was estimated to be INR 1,085,000 and out of which, material cost and marketing cost of 285,000 INR is estimated to be the recurring cost. Cost of raw material has been assumed to be constant.

Table 3.1.2 Estimation of Cost per Cooperative – Shawl Making

Unit: INR

Item	Description	Unit	Quantity	Unit Price	Total per Cooperative
Handloom	1 per HH (Fixed cost)	Unit	20	11,000	220,000
Charkha	1 per HH (Fixed cost)	Unit	20	1,000	20,000
Tana	1 set(fixed cost)	Unit	20	25,000	500,000
Small khaddi	1 per HH (Fixed cost)	Unit	20	2,000	40,000
Accessories set	1 per HH (Fixed cost)	Unit	20	1,000	20,000
Raw material value	For a shawl of value INR1000-1500 raw material required is of INR425; 30 shawls to be produced by 20 members	Shawl	600	425	255,000
Marketing cost per shawl	INR 50 for per shawl(5%); 30 shawls to be produced by 20 members	Shawl	600	50	30,000
Total					1,085,000
	(Economical Cost)				976,500

Source: JICA Study Team (2017)

IN addition, the labour is also taken into consideration with the following condition.

Table 3.1.3 Estimation of Labour – Shawl Making

Particulars	Assumption
Skilled Labour Wage:	INR 275 per day per member
Working Hours:	4 hours per day per member

Source: JICA Study Team (2017)

(2) Estimation of Benefits

The selling price of one shawl was estimated to be 1,300 INR. Each member will produce 30 shawls, which makes the total production per cooperative to be 600 per year. In each batch, 1st year and 2nd year of production yields 50%, and 70% of the full sales. The 3rd year onwards, the full profit is expected to flow in. The benefit was estimated for 40 years. Batch 1 will start activity during 2nd year of project, batch 2 in the 3rd year, and batch 3 in 4th year of the project.

3.1.2. Mushroom Cultivation

(1) Estimation of Costs

Assumptions taken into consideration for assessing the economic benefit for mushroom include the following:

- ◆ A CIG/ SHG will collectively produce mushroom.
- ◆ Each CIG/ SHG will have 10 members.

- ◆ 1,000 bags will be divided into 5 lots.
- ◆ Marketing would be done collectively.
- ◆ Production per bag has been assumed as 2.5 kg.
- ◆ Every 10 years, wooden wreck will be replaced.
- ◆ Cost of production and sales prices remain constant.

Table 3.1.4 Batch wise No of CIG/ SHGs – Mushroom Cultivation

Batch	1st Batch	2nd Batch	3rd Batch	Total
No of CIG/SHG	30	60	30	120

Source: JICA Study Team (2017)

The total cost per CIG/ SHG was estimated to be INR 152,500, of which recurring cost was estimated to be INR 130,000 comprised of the mushroom compost, transportation charges for mushroom compost and marketing cost for mushroom. Production is assumed to be undertaken in a rented place and group members will take care of the mushroom collectively.

Table 3.1.5 Estimation of Cost – Mushroom Cultivation

Item	Description	Unit	Quantity	Unit Price	Total per CIG/ SHG
Mushroom compost bags	100 per HH (Fixed cost)	No	1,000	90	90,000
Cost of wooden wreck	500 sq. feet for 1000 bags (Fixed cost)	Area	10	1,000	10,000
Tools and equipment sets	1 set (fixed cost)	Set	1	2,500	2,500
Rent of mushroom cultivation room/shed	5 rooms of 10*10 sq feet (one room for 200 bags)	Rooms	5	2,000	10,000
Transportation charges for mushroom compost bags	INR20 per bag up to a distance of 200 km	l.s.	1	15,000	15,000
Marketing cost of mushroom	Packing in poly propylene box and transportation INR10/kg	Box	10	2,500	25,000
Total					152,500
	(Economical Cost)				137,250

Source: JICA Study Team (2017)

Labour cost was estimated on the basis of the following condition.

Table 3.1.6 Estimation of Labour – Mushroom Cultivation

Particulars	Assumption
Labour Wage:	INR 200 per day per member
Working Hours:	2 hours per day per member
Work Days in a year	90 days per member

Source: JICA Study Team (2017)

(2) Estimation of Benefit

Batch 1 CIG/ SHGs will start activities during 2nd year of the project, 2nd batch in 3rd year of the project and batch 3 in 4th year of the project. The condition of the year wise progress of the gross sales was applied for each batch starting from the 1st year of production. The condition of the production and sales for estimation is given in the table below. Selling price and production was assumed to be constant.

Table 3.1.7 Estimation of Profit – Mushroom Cultivation

Particulars	Assumption
Annual Production in Kg per CIG/ SHG	2,500 kg
Selling Price	INR 120 per kg
Year wise Progress of Gross Sales	1 st year of production: 0% 2 nd year of production: 50% 3 rd year of production: 70% 4 th year of production onwards: 100%

Source: JICA Study Team (2017)

4. Poultry

(1) Estimation of Costs

The assumptions for estimating the economic benefit deriving from poultry are as below:

- ◆ CIG/SHG members for collective purchase of input and sale of poultry produce.
- ◆ Each CIG/ SHG member will set an enterprise of 200 birds of 4 weeks.
- ◆ To rear 400 straight run birds provision of 200 chicks in two batches in a gap of one and a half year would be done.
- ◆ These birds are not being fed at home but to be fed free range.
- ◆ In this poultry enterprise male birds would be reared up to 16 weeks while female will be kept for one year.
- ◆ Apart from meat there would be production of 120 eggs per bird for one year period.
- ◆ Cost of feeding to these birds negligible because these are scavenging birds and little hand-feeding especially kitchen-waste is used. As precaution 30 gm feed would be required till 8th week and after that 15 gm per bird.
- ◆ If enterprise starts in the beginning of summer month in the cold place, most of the chicks would become adult and survive the snowbound condition.
- ◆ Fixed cost would require at every 10 years period.
- ◆ There would not be separate wage payment for CIG/SHG members.
- ◆ Production cost and unit sale price remain constant.

The activities shall be undertaken in batch wise. The number of CIG/ SHGs to be engaged for poultry is given in the table below.

Table 3.1.8 Batch wise No of CIG/ SHGs –Poultry

Batch	1st Batch	2nd Batch	3rd Batch	Total
No of CIG/SHG	80	120	100	300

Source: JICA Study Team (2017)

The total cost was estimated to be INR 903,364, of which 753,364 was estimated to be the recurring cost. The recurring cost is comprised of the cost of 4 weeks old chicks, feeding, interest on working capital, installment of fixed investment (night shelter).

Table 3.1.9 Estimation of Cost per CIG/ SHG – Poultry

Item	Description	Unit	Quantity	Unit Price	Total per CIG/ SHG
Night shelter	(Fixed cost)	No	1	15,000	150,000
Cost of 4 weeks old chicks	Recurring cost	Kg	400	50	200,000

Item	Description	Unit	Quantity	Unit Price	Total per CIG/ SHG
Cost of feeding for female and male 4 to 8 weeks	Recurring cost (30 gm per day for 56 days)	Kg	720	30	216,000
Cost of feeding for female 8 to 72 weeks	Recurring cost(15 gm per day)	Kg	1,080	30	324,000
Marketing expenses(5% of sale price)	Recurring cost	l.s.	1	0	0
Interest on working capital	Recurring cost	l.s.	1	9,920	9,920
Installment of fixed investment	Recurring cost	l.s.	1	3,444	3,444
Total					903,364
	(Economical Cost)				813,028

Source: JICA Study Team (2017)

No labour cost was estimated as the poultry will be kept at the backyard of each member's household and no substantial time is required to be spent looking after the poultry as they will be set free outside during the day time.

(2) Estimation of Benefit

For the estimation of benefit, the following condition is applied. The earning can be made from the sales of cocks and eggs. The year wise progress of gross sales was applied for each batch starting from the 1st year of production in each batch.

Table 3.1.10 Estimation of Profit per CIG/ SHG - Poultry

Particulars	Assumption
Annual Production	180 cock x INR 180 120 eggs/ year/ member x 10 members x 20 birds/ member
Selling Price	Cock: INR 180/ bird Egg: INR 8/ egg
Year wise Progress of Gross Sales	1 st year of production: 0% 2 nd year of production: 50% 3 rd year of production: 70% 4 th year of production onwards: 100%

Source: JICA Study Team (2017)

3.2 NTFP-Based Cluster Livelihood Activities

Calculation of the production/selling value is calculated based on the assumptions shown below and in Tables 3.2.1 and 3.2.2.

- ◆ NTFPs described in Table 3.2.1 to be cultivated in mixture
- ◆ NTFP cultivation will start from 3 year of the project (and production start from following year)
- ◆ The total area for NTFP-based Cluster Livelihood Activities will be 110 ha
 - 3rd year = 30 ha
 - 4th year = 30+30 = 60 ha
 - 5th year = 60+30= 90 ha
 - 6th year = 90+20 = 110 ha
 - 7th year onwards = 110 ha

- ◆ Average Annual NTFP Production Cost per ha: 63,090INR/ ha
- ◆ Average Annual NTFP Sales/Harvest Value per ha: 231,538INR/ ha

Table 3.2.1 Assumed NTFP Species and Their Production, Costs and Benefits

Sl.	NTFP/ MAP	Scientific name	Average production per ha (MT)	Total production for sale	Cultivation cost /ha	Total Production Cost	Total Sale Price	Net Income	Production cycle	Annualised Sales per ha	Annualised Cost per ha	Products
1	Atis	<i>Aconitum spp.</i>	0.3	0.27	161,051	209,366	1,890,000	1,701,570	4	472,500	52,342	Roots/ Tubers
2	Brahmi	<i>Bacopa monnieri</i>	5	4.5	40,000	52,000	337,500	290,700	1	337,500	52,000	Whole plant
3	Bach	<i>Acorus calamus</i>	3	2.7	91,506	118,958	202,500	95,438	1	202,500	118,958	Rhizomes
4	Bankakri	<i>Podophyllum hexandrum</i>	3	2.7	146,410	190,333	810,000	638,700	3	270,000	63,444	Rhizomes, fruits, seeds
5	Chirayata	<i>Swertia chirayita/ spp.</i>	1	0.9	120,788	157,024	270,000	128,678	2	135,000	78,512	Whole plant
6	Chora	<i>Angelica glauca</i>	2.3	2.07	120,000	156,000	186,300	45,900	2	93,150	78,000	Roots
7	Jatamansi	<i>Nardostachys jatamansi</i>	0.75	0.675	296,480	385,424	472,500	125,618	3	157,500	128,475	Roots
8	Kapurkachri	<i>hedychium spicatum</i>	10	9	58,564	76,133	675,000	606,480	2	337,500	38,067	Rhizomes
9	Kuth	<i>Saussurea costus/ lappa</i>	3	2.7	128,109	166,542	594,000	444,112	3	198,000	55,514	Roots
10	Kutki/ Kadu	<i>Picrorhiza kurrooa/ Gentiana kurroo</i>	1	0.9	164,711	214,124	540,000	347,288	3	180,000	71,375	Dry stolons/ Roots
11	Pasanbhed	<i>Bergenia liguata</i>	7	6.3	100,185	130,241	504,000	386,784	3	168,000	43,414	Rhizomes
12	Puskarmool	<i>Inula racemosa</i>	8	7.2	55,343	71,946	1,224,000	1,159,249	2	612,000	35,973	Roots
13	Revandchini	<i>Rheum emodi/ australe</i>	5	4.5	296,480	385,424	450,000	103,118	4	112,500	96,356	Roots
14	Seabuckthorn	<i>Hippophae rhamnoides</i>	10	9	73,205	95,167	225,000	139,350	6	37,500	15,861	Fruits and leaves
15	Tagar	<i>Valeriana wallachi/ jatamansi</i>	2.5	2.25	87,846	114,200	247,500	144,720	3	82,500	38,067	Roots
16	Mandukparni	<i>Centella asiatica</i>	5	4.5	40,000	52,000	270,000	223,200	1	270,000	52,000	leaves
17	Mulethi	<i>Glycyrrhiza glabra</i>	6	5.4	125,000	162,500	810,000	663,750	3	270,000	54,167	Roots
			72.85	65.565	2,105,678	2,737,381	9,708,300	7,244,657	46	3936150	1,072,523	
										231,538	63,090	

Source: JICA Study Team (2017)

Table 3.2.2 Assumptions for Benefit Calculation by NTFP Based Cluster Activities

Year	Size of Plantation (ha)	Harvesting/ production area (ha)	Total Harvesting Sales Value (INR)	Total Cost (INR)	Economical Cost (INR)	Total Net Value (INR)
1						
2						
3	30			1,892,700	1,703,430	-1,703,430
4	60	30	6,946,147	3,785,400	3,406,860	3,539,287
5	90	60	13,892,294	5,678,100	5,110,290	8,782,004
6	110	90	20,838,441	6,939,900	6,245,910	14,592,531
7	110	110	25,469,206	6,939,900	6,245,910	19,223,296
8	110	110	25,469,206	6,939,900	6,245,910	19,223,296
9	110	110	25,469,206	6,939,900	6,245,910	19,223,296
10	110	110	25,469,206	6,939,900	6,245,910	19,223,296
11	110	110	25,469,206	6,939,900	6,245,910	19,223,296
12	110	110	25,469,206	6,939,900	6,245,910	19,223,296
13	110	110	25,469,206	6,939,900	6,245,910	19,223,296
14	110	110	25,469,206	6,939,900	6,245,910	19,223,296
15	110	110	25,469,206	6,939,900	6,245,910	19,223,296
16	110	110	25,469,206	6,939,900	6,245,910	19,223,296
17	110	110	25,469,206	6,939,900	6,245,910	19,223,296
18	110	110	25,469,206	6,939,900	6,245,910	19,223,296
19	110	110	25,469,206	6,939,900	6,245,910	19,223,296
20	110	110	25,469,206	6,939,900	6,245,910	19,223,296

Year	Size of Plantation (ha)	Harvesting/ production area (ha)	Total Harvesting Sales Value (INR)	Total Cost (INR)	Economical Cost (INR)	Total Net Value (INR)
21	110	110	25,469,206	6,939,900	6,245,910	19,223,296
22	110	110	25,469,206	6,939,900	6,245,910	19,223,296
23	110	110	25,469,206	6,939,900	6,245,910	19,223,296
24	110	110	25,469,206	6,939,900	6,245,910	19,223,296
25	110	110	25,469,206	6,939,900	6,245,910	19,223,296
26	110	110	25,469,206	6,939,900	6,245,910	19,223,296
27	110	110	25,469,206	6,939,900	6,245,910	19,223,296
28	110	110	25,469,206	6,939,900	6,245,910	19,223,296
29	110	110	25,469,206	6,939,900	6,245,910	19,223,296
30	110	110	25,469,206	6,939,900	6,245,910	19,223,296
31	110	110	25,469,206	6,939,900	6,245,910	19,223,296
32	110	110	25,469,206	6,939,900	6,245,910	19,223,296
33	110	110	25,469,206	6,939,900	6,245,910	19,223,296
34	110	110	25,469,206	6,939,900	6,245,910	19,223,296
35	110	110	25,469,206	6,939,900	6,245,910	19,223,296
36	110	110	25,469,206	6,939,900	6,245,910	19,223,296
37	110	110	25,469,206	6,939,900	6,245,910	19,223,296
38	110	110	25,469,206	6,939,900	6,245,910	19,223,296
39	110	110	25,469,206	6,939,900	6,245,910	19,223,296
40	110	110	25,469,206	6,939,900	6,245,910	19,223,296

Source: JICA Study Team (2017)

4. CO₂ Sequestration and Emission Reduction

Following two benefits in relation to the carbon were estimated for the Project.

- ◆ CO₂ sequestration by afforestation and ANR
- ◆ Reduction of CO₂ emissions through prevention of forest degradation

4.1 Benefits from CO₂ Sequestration by Block Plantation and ANR

(1) Calculation Method

The amount of the carbon sequestration by block plantation and ANR was calculated based on the guidelines of “JICA Climate-FIT Version 2.0 (March 2014) 01. Forest and Natural Resources Conservation / Afforestation”.

The calculation formula is shown below.

$$\Delta C_t = (N_t - N_{t-1}) * \left(\frac{44}{12}\right) / \Delta t$$

Where:

ΔC_t : actual net CO₂ removal by sinks of afforestation model per annual (tCO₂-e/year)

$N_t = (AGB + BGB) \times CF$

Where: AGB: above ground biomass at time t under the project scenario (tC/ha),

$AGB = SV_t \times BEF \times WD$

Where: SV_t : stem volume at time t for the project scenario (m³/ha)

BEF: biomass expansion factor

WD: basic wood density (td.m./m³)

BGB: below ground biomass at time t under the project scenario (tC/ha),

$BGB = AGB \times RBA$

RBA: ratio of below to above ground biomass

Δt : time increment (1 year)

(2) Assumptions

The basic assumptions for the benefit calculation are as follows.

Area

- ◆ Afforestation/ Improvement of Open/ Scrub forests:
3,970ha (with assumption of 2.96t/ha annual incremental growth)
- ◆ ANR: 2,517 ha (with assumption of 1.0t/ha annual incremental growth)

Species Considered for Block Plantation

- ◆ Deodara (Ceduru deodara)
- ◆ Ban Oak (Quercus leucotrichophora)
- ◆ Chir pine (Pinus roxburghii)

The assumptions and factors applied in the formula shown above are summarized in **Table 4.1.1**.

Table 4.1.1 Factors for Calculation of CO₂ Sequestration by Block Plantation and ANR

Tree Species	Annual Increment Volume (m ² /ha)	Wood Density (Bulk density)	BEF (Biomass expansion factor)	Annual Above-ground Biomass (t dm/ha)	CF (Carbon Fraction)	Ratio of Below to Above Ground Biomass
Deodar				2.29 ¹	0.47	0.32
Ban Oak				3.53 ¹		0.35
Chir Pine				3.07 ¹	0.47	0.32
ANR (Adjusted value)	3.0 ¹	0.47	1.4	0.7* (1.974)	0.47	0.203

Note: * based on the value 1.974, and in consideration of possible ANR operations to be implemented, conservative value of 0.7t dm/ha was assumed for the annual above-ground biomass value.

Source: 1: Data derived from "Growth and Yield Statistics of Common Indian Timber Species Volume II, 1972"

Others: Default value set by IPCC

The annual average CO₂ sequestration per hectare was calculated by using the methodology described in the guidelines of JICA Climate-FIT Version 2.0 and shown in **Table 4.1.2** and **Table 4.1.3**.

Table 4.1.2 Annual CO₂ Sequestration per Hectare by Afforestation/ Improvement of Open/ Scrub forests

Emission Reduction			Value	Unit
ER _{AR,y}	Net absorption		7	tCO ₂ /year
ΔC _{PJ,y}	Project absorption		7	tCO ₂ /year
ΔC _{BL,y}	Baseline absorption		0	tCO ₂ /year
PE _y	Project emission		0	tCO ₂ /year

Inputs		*Input only orange cell		
Parameter	Description	Value	Unit	
A _{PJ,i}	Acreage of the stratum i in the forested land	Deodar	0.33	ha
		Ban Oak	0.33	ha
		Chir Pine	0.33	ha
		ANR		ha
				ha
T _{A,y,i}	Per hectare aboveground biomass in the stratum i in year y	Deodar	2.29	t dm/ha
		Ban Oak	3.53	t dm/ha
		Chir Pine	3.07	t dm/ha
		ANR		t dm/ha
				t dm/ha
T _{A,y-1,i}	Per hectare aboveground biomass in the stratum i in year y-1	Deodar		t dm/ha
		Ban Oak		t dm/ha
		Chir Pine		t dm/ha
				t dm/ha
				t dm/ha
CF _i	Carbon fraction of trees in the stratum i	Deodar	0.47	tC/t dm
		Ban Oak	0.47	tC/t dm
		Chir Pine	0.47	tC/t dm
				tC/t dm
				tC/t dm
R _i	Ratio of belowground biomass to aboveground biomass (ratio of belowground vs. aboveground) for the stratum i	Deodar	0.32	
		Ban Oak	0.35	
		Chir Pine	0.32	
A _{gr,j}	Acreage of the stratum j			ha
				ha
				ha
				ha
V _{A,py,j}	Per hectare aboveground biomass in the stratum j in the year of clearance			t dm/ha
				t dm/ha
				t dm/ha
				t dm/ha
R _j	Ratio of belowground biomass to aboveground biomass for the stratum j			

Source: Compiled by JICA Study Team (2017)

Table 4.1.3 Annual CO₂ Sequestration per Hectare by ANR

Emission Reduction		Value	Unit
ER _{AR,y}	Net absorption	1.00	tCO ₂ /year
ΔC _{PJ,y}	Project absorption	1.00	tCO ₂ /year
ΔC _{BL,y}	Baseline absorption	0.00	tCO ₂ /year
PE _y	Project emission	0.00	tCO ₂ /year

Inputs *Input only orange cell

Parameter	Description	Value	Unit
A _{PJ,i}	Acreage of the stratum i in the forested land	Deodar	ha
		Ban Oak	ha
		Chir Pine	ha
		ANR	1.00 ha
			ha
T _{A,y,i}	Per hectare aboveground biomass in the stratum i in year y	Deodar	t dm/ha
		Ban Oak	t dm/ha
		Chir Pine	t dm/ha
		ANR	0.7 t dm/ha
			t dm/ha
T _{A,y-1,i}	Per hectare aboveground biomass in the stratum i in year y-1	Deodar	t dm/ha
		Ban Oak	t dm/ha
		Chir Pine	t dm/ha
		ANR	0 t dm/ha
			t dm/ha
CF _i	Carbon fraction of trees in the stratum i	Deodar	tC/tdm
		Ban Oak	tC/tdm
		Chir Pine	tC/tdm
		ANR	0.47 tC/tdm
			tC/tdm
R _i	Ratio of belowground biomass to aboveground biomass (ratio of belowground vs. aboveground) for the stratum i	Deodar	
		Ban Oak	
		Chir Pine	
		ANR	0.24
A _{gr,j}	Acreage of the stratum j	Grassland	ha
		Grass land with shrubs	ha
		Annual crops/fallow land	ha
		Perennial crops	ha
V _{A,py,j}	Per hectare aboveground biomass in the stratum j in the year of clearance	Grassland	t dm/ha
		Grass land with shrubs	t dm/ha
		Annual crops/fallow land	t dm/ha
		Perennial crops	t dm/ha
R _j	Ratio of belowground biomass to aboveground biomass for the stratum j	Grassland	
		Grass land with shrubs	
		Annual crops/fallow land	
		Perennial crops	

Source: Compiled by JICA Study Team (2017)

The price of carbon credit is assumed at USD 5.1/tCO₂ by referring to averaged price for forestry and land use projects described in “the State of the Voluntary Market 2017²”, which globally provides the information on environmental finance, markets and payments for ecosystem services. A carbon credit market survey conducted revealed the actual price widely ranged and total average among all sectors was USD 3.0/ton in 2016.

² Forest Trends, 2017. State of Voluntary carbon markets 2017, Washington DC, United States.

(3) Benefits and CO2 Sequestration Amount

Based on the above assumptions, the amount of CO₂ sequestration and its benefit for 40 years calculated on the basis of the annual average for the block plantation and ANR are described in **Table 4.1.4** and **Table 4.1.5**, respectively.

Table 4.1.4 Economic Benefit (CO₂ Sequestration) from Block Plantation

Batch-1			Batch-2			Batch-3			Total Seq'n	Annual Benefit (US\$)	Annual Benefit (INR)
*	947		*	1,777		*	1,246				
**	7		**	7		**	7		(t-CO ₂ /yr)	(US\$)	(INR)
Year	incremental growth (dt m/ha)	Seq'n	Year	incremental growth (dt m/ha)	Seq'n	Year	incremental growth (dt m/ha)	Seq'n	(t-CO ₂ /yr)	(US\$)	(INR)
1		0			0			0	0	0	0.00
2		0	1		0			0	0	0	0.00
3	2.96	196	2		0	1		0	196	1,002	65,229.66
4	5.9	393	3	2.96	369	2		0	762	3,884	252,859.65
5	8.9	589	4	5.93	737	3	2.96	259	1,585	8,085	526,314.51
6	11.9	786	5	8.89	1,106	4	5.93	517	2,409	12,285	799,769.38
7	14.8	982	6	11.86	1,475	5	8.89	776	3,233	16,486	1,073,224.24
8	17.8	1,179	7	14.82	1,843	6	11.86	1,034	4,056	20,686	1,346,679.10
9	20.7	1,375	8	17.78	2,212	7	14.82	1,293	4,880	24,887	1,620,133.97
10	23.7	1,572	9	20.75	2,581	8	17.78	1,551	5,703	29,087	1,893,588.83
11	26.7	1,768	10	23.71	2,949	9	20.75	1,810	6,527	33,288	2,167,043.70
12	29.6	1,965	11	26.67	3,318	10	23.71	2,068	7,351	37,488	2,440,498.56
13	32.6	2,161	12	29.64	3,687	11	26.67	2,327	8,174	41,689	2,713,953.42
14	35.6	2,358	13	32.60	4,055	12	29.64	2,585	8,998	45,890	2,987,408.29
15	38.5	2,554	14	35.57	4,424	13	32.60	2,844	9,822	50,090	3,260,863.15
16	41.5	2,751	15	38.53	4,793	14	35.57	3,102	10,645	54,291	3,534,318.01
17	44.5	2,947	16	41.49	5,161	15	38.53	3,361	11,469	58,491	3,807,772.88
18	47.4	3,144	17	44.46	5,530	16	41.49	3,619	12,292	62,692	4,081,227.74
19	50.4	3,340	18	47.42	5,899	17	44.46	3,878	13,116	66,892	4,354,682.61
20	53.3	3,536	19	50.38	6,267	18	47.42	4,136	13,940	71,093	4,628,137.47
21	56.3	3,733	20	53.35	6,636	19	50.38	4,395	14,763	75,293	4,901,592.33
22	59.3	3,929	21	56.31	7,005	20	53.35	4,653	15,587	79,494	5,175,047.20
23	62.2	4,126	22	59.28	7,373	21	56.31	4,912	16,411	83,694	5,448,502.06
24	65.2	4,322	23	62.24	7,742	22	59.28	5,170	17,234	87,895	5,721,956.92
25	68.2	4,519	24	65.20	8,111	23	62.24	5,429	18,058	92,095	5,995,411.79
26	71.1	4,715	25	68.17	8,479	24	65.20	5,687	18,882	96,296	6,268,866.65
27	74.1	4,912	26	71.13	8,848	25	68.17	5,946	19,705	100,496	6,542,321.52
28	77.1	5,108	27	74.09	9,217	26	71.13	6,204	20,529	104,697	6,815,776.38
29	80.0	5,305	28	77.06	9,585	27	74.09	6,463	21,352	108,898	7,089,231.24
30	83.0	5,501	29	80.02	9,954	28	77.06	6,721	22,176	113,098	7,362,686.11
31	85.9	5,698	30	82.99	10,323	29	80.02	6,980	23,000	117,299	7,636,140.97
32	88.9	5,894	31	85.95	10,691	30	82.99	7,238	23,823	121,499	7,909,595.84
33	91.9	6,091	32	88.91	11,060	31	85.95	7,497	24,647	125,700	8,183,050.70
34	94.8	6,287	33	91.88	11,429	32	88.91	7,755	25,471	129,900	8,456,505.56
35	97.8	6,483	34	94.84	11,797	33	91.88	8,014	26,294	134,101	8,729,960.43
36	100.8	6,680	35	97.80	12,166	34	94.84	8,272	27,118	138,301	9,003,415.29
37	103.7	6,876	36	100.77	12,535	35	97.80	8,531	27,942	142,502	9,276,870.15
38	106.7	7,073	37	103.73	12,903	36	100.77	8,789	28,765	146,702	9,550,325.02
39	109.7	7,269	38	106.70	13,272	37	103.73	9,048	29,589	150,903	9,823,779.88
40	112.6	7,466	39	109.66	13,641	38	106.70	9,306	30,412	155,103	10,097,234.75

Source: Compiled by JICA Study Team (2017)

Table 4.1.5 Economic Benefit (CO₂ Sequestration) from ANR

Batch-1			Batch-2			Batch-3			Total Seq'n	Annual Benefit (US\$)	Annual Benefit (INR)
*	607		*	1,128		*	782				
**	1.00		**	1		**	1				
Year	incremental growth (dt m/ha)	Seq'n	Year	incremental growth (dt m/ha)	Seq'n	Year	incremental growth (dt m/ha)	Seq'n	(t-CO ₂ /yr)	(US\$)	(INR)
1		0			0			0	0	0	0.00
2		0	1		0			0	0	0	0.00
3	1.00	6	2		0	1		0	6	31	2,015.30
4	2.0	12	3	1.00	11	2		0	23	119	7,775.67
5	3.0	18	4	2.00	23	3	1.00	8	49	248	16,132.37
6	4.0	24	5	3.00	34	4	2.00	16	74	376	24,489.06
7	5.0	30	6	4.00	45	5	3.00	23	99	505	32,845.75
8	6.0	36	7	5.00	56	6	4.00	31	124	633	41,202.44
9	7.0	42	8	6.00	68	7	5.00	39	149	761	49,559.13
10	8.0	49	9	7.00	79	8	6.00	47	174	890	57,915.82
11	9.0	55	10	8.00	90	9	7.00	55	200	1,018	66,272.52
12	10.0	61	11	9.00	102	10	8.00	63	225	1,146	74,629.21
13	11.0	67	12	10.00	113	11	9.00	70	250	1,275	82,985.90
14	12.0	73	13	11.00	124	12	10.00	78	275	1,403	91,342.59
15	13.0	79	14	12.00	135	13	11.00	86	300	1,531	99,699.28
16	14.0	85	15	13.00	147	14	12.00	94	325	1,660	108,055.97
17	15.0	91	16	14.00	158	15	13.00	102	351	1,788	116,412.67
18	16.0	97	17	15.00	169	16	14.00	109	376	1,917	124,769.36
19	17.0	103	18	16.00	180	17	15.00	117	401	2,045	133,126.05
20	18.0	109	19	17.00	192	18	16.00	125	426	2,173	141,482.74
21	19.0	115	20	18.00	203	19	17.00	133	451	2,302	149,839.43
22	20.0	121	21	19.00	214	20	18.00	141	476	2,430	158,196.12
23	21.0	127	22	20.00	226	21	19.00	149	502	2,558	166,552.82
24	22.0	134	23	21.00	237	22	20.00	156	527	2,687	174,909.51
25	23.0	140	24	22.00	248	23	21.00	164	552	2,815	183,266.20
26	24.0	146	25	23.00	259	24	22.00	172	577	2,944	191,622.89
27	25.0	152	26	24.00	271	25	23.00	180	602	3,072	199,979.58
28	26.0	158	27	25.00	282	26	24.00	188	628	3,200	208,336.28
29	27.0	164	28	26.00	293	27	25.00	196	653	3,329	216,692.97
30	28.0	170	29	27.00	305	28	26.00	203	678	3,457	225,049.66
31	29.0	176	30	28.00	316	29	27.00	211	703	3,585	233,406.35
32	30.0	182	31	29.00	327	30	28.00	219	728	3,714	241,763.04
33	31.0	188	32	30.00	338	31	29.00	227	753	3,842	250,119.73
34	32.0	194	33	31.00	350	32	30.00	235	779	3,970	258,476.43
35	33.0	200	34	32.00	361	33	31.00	242	804	4,099	266,833.12
36	34.0	206	35	33.00	372	34	32.00	250	829	4,227	275,189.81
37	35.0	212	36	34.00	384	35	33.00	258	854	4,356	283,546.50
38	36.0	219	37	35.00	395	36	34.00	266	879	4,484	291,903.19
39	37.0	225	38	36.00	406	37	35.00	274	904	4,612	300,259.88
40	38.0	231	39	37.00	417	38	36.00	282	930	4,741	308,616.58

Source: Compiled by JICA Study Team (2017)

The total amount of CO₂ sequestration and its benefit for 40 years for the Project is described in **Table 4.1.6.**

Table 4.1.6 Total Economic Benefit (CO₂ Sequestration) of the Project

Year	Annual Benefit (INR)	Year	Annual Benefit (INR)	Year	Annual Benefit (INR)	Year	Annual Benefit (INR)
1	0.00	11	2,233,316.21	21	5,051,431.77	31	7,869,547.32
2	0.00	12	2,515,127.77	22	5,333,243.32	32	8,151,358.88
3	67,244.96	13	2,796,939.32	23	5,615,054.88	33	8,433,170.43
4	260,635.32	14	3,078,750.88	24	5,896,866.43	34	8,714,981.99
5	542,446.88	15	3,360,562.43	25	6,178,677.99	35	8,996,793.54
6	824,258.43	16	3,642,373.99	26	6,460,489.54	36	9,278,605.10
7	1,106,069.99	17	3,924,185.54	27	6,742,301.10	37	9,560,416.65
8	1,387,881.54	18	4,205,997.10	28	7,024,112.65	38	9,842,228.21
9	1,669,693.10	19	4,487,808.66	29	7,305,924.21	39	10,124,039.77
10	1,951,504.66	20	4,769,620.21	30	7,587,735.77	40	10,405,851.32

Source: Compiled by JICA Study Team (2017)

4.2 Benefits from Reduction of CO₂ Emissions through Prevention of Forest Degradation

(1) Calculation Method

The amount of the reduction of CO₂ emissions through prevention of forest degradation was calculated based on the guidelines of “JICA Climate-FIT Version 2.0 (March 2014) 02. Forest / Countermeasures for Deforestation and Forest Degradation”.

(2) Assumptions

It is assumed that the carbon stock of the target forest would be maintained as the status quo under the with-the-project condition. In contrast the same would be reduced at the average rate of the carbon loss under the without-the-project condition. Therefore, the reduction of potential CO₂ emissions is estimated by assessing the changes in forest areas in the target forest area between two scenarios under the with-project and without-project conditions.

The basic assumptions for the benefit calculation are as follows.

- ◆ Manali Wildlife Sanctuary (WLS), Khokhan WLS, Kias WLS, Bandli WLS
- ◆ 8,866 ha
- ◆ 75% of the above area to be prevented from deforestation and forest degradation
- ◆ Benefit to be produced every year after 4th year of the project intervention (i.e. from 7th year of the Project)

The annual average reduction of CO₂ emission per hectare was calculated by using the methodology described in the guidelines of JICA Climate-FIT Version 2.0 and shown in Table 4.2.1.

Table 4.2.1 Annual Reduction of CO₂ Emission per Hectare by the Project

Emission Reduction		Value	Unit		
ER _{AR,y}	Emission reduction	2	tCO ₂ /year		
ΔC _{PJ,y}	Project emission	0	tCO ₂ /year		
ΔC _{BL,y}	Baseline emission	2	tCO ₂ /year		
ΔC _{LK,y}	Leakage	0	tCO ₂ /year		
Inputs		*Input only orange cell			
Parameter	Description	Value	Unit		
A _{BL,y,k}	Acreage of the stratum k in the forest in the year y in the case of without project	Alpine Scrub Alpine Scrub	0.0551 ha		
		Montane & Moist Temperate Forest	0.4595 ha		
		Sub Alpine & Dry Temperate Forests	0.1273 ha		
		Subtropical Pine/Broadleaved Hill	0.2323 ha		
		Tropical Dry Deciduous Forests	0.0974 ha		
		Tropical Moist Deciduous Forests	0.0284 ha		
		A _{BL,y+1,k}	Acreage of the stratum k in the forest in the year y+1 in the case of without project	Alpine Scrub Alpine Scrub	0.0545 ha
				Montane & Moist Temperate Forest	0.4526 ha
Sub Alpine & Dry Temperate Forests	0.1254 ha				
Subtropical Pine/Broadleaved Hill	0.2277 ha				
Tropical Dry Deciduous Forests	0.0955 ha				
Tropical Moist Deciduous Forests	0.0278 ha				
A _{PJ,y,k}	Acreage of the stratum k in the forest in the year y in the case of project			Alpine Scrub Alpine Scrub	0.0551 ha
				Montane & Moist Temperate Forest	0.4595 ha
		Sub Alpine & Dry Temperate Forests	0.1273 ha		
		Subtropical Pine/Broadleaved Hill	0.2323 ha		
		Tropical Dry Deciduous Forests	0.0974 ha		
		Tropical Moist Deciduous Forests	0.0284 ha		
		A _{PJ,y+1,k}	Acreage of the stratum k in the forest in the year y+1 in the case of project	Alpine Scrub Alpine Scrub	0.0551 ha
				Montane & Moist Temperate Forest	0.4595 ha
Sub Alpine & Dry Temperate Forests	0.1273 ha				
Subtropical Pine/Broadleaved Hill	0.2323 ha				
Tropical Dry Deciduous Forests	0.0974 ha				
Tropical Moist Deciduous Forests	0.0284 ha				
TT _{A,y,k}	Per hectare aboveground biomass in the stratum k in year y			Alpine Scrub Alpine Scrub	50 tdm/ha
				Montane & Moist Temperate Forest	60 tdm/ha
		Sub Alpine & Dry Temperate Forests	50 tdm/ha		
		Subtropical Pine/Broadleaved Hill	60 tdm/ha		
		Tropical Dry Deciduous Forests	50 tdm/ha		
		Tropical Moist Deciduous Forests	127 tdm/ha		
		CF _k	Carbon fraction of trees in the strata i	Alpine Scrub Alpine Scrub	0.47 tC/tdm
				Montane & Moist Temperate Forest	0.47 tC/tdm
Sub Alpine & Dry Temperate Forests	0.47 tC/tdm				
Subtropical Pine/Broadleaved Hill	0.47 tC/tdm				
Tropical Dry Deciduous Forests	0.47 tC/tdm				
Tropical Moist Deciduous Forests	0.47 tC/tdm				
R _k	Ratio of belowground biomass to aboveground biomass (ratio of belowground vs. aboveground) for the stratum i			Alpine Scrub Alpine Scrub	0.27
				Montane & Moist Temperate Forest	0.24
		Sub Alpine & Dry Temperate Forests	0.27		
		Subtropical Pine/Broadleaved Hill	0.24		
		Tropical Dry Deciduous Forests	0.27		
		Tropical Moist Deciduous Forests	0.24		

Source: Compiled by JICA Study Team (2017)

(3) Benefits and Reduction of CO₂ Emission Amount

Based on the above assumptions, the reduction amount of CO₂ emission and its benefit for 40 years calculated on the basis of the annual average reduction of CO₂ emission is described in **Table 4.2.2.**

Table 4.2.2 Total Economic Benefit (Reduction of CO₂ Emission) of the Project

Year	Area (ha)	CO ₂ Reduction (t-CO ₂ /yr)	Annual Benefit (US \$)	Annual Benefit (INR)	Year	Area (ha)	CO ₂ Reduction (t-CO ₂ /yr)	Annual Benefit (US \$)	Annual Benefit (INR)
1	0	0	0	0	21	6,650	13,299	67,825	4,415,401
2	0	0	0	0	22	6,650	13,299	67,825	4,415,401
3	0	0	0	0	23	6,650	13,299	67,825	4,415,401
4	0	0	0	0	24	6,650	13,299	67,825	4,415,401
5	0	0	0	0	25	6,650	13,299	67,825	4,415,401
6	0	0	0	0	26	6,650	13,299	67,825	4,415,401
7	6,650	13,299	67,825	4,415,401	27	6,650	13,299	67,825	4,415,401
8	6,650	13,299	67,825	4,415,401	28	6,650	13,299	67,825	4,415,401
9	6,650	13,299	67,825	4,415,401	29	6,650	13,299	67,825	4,415,401
10	6,650	13,299	67,825	4,415,401	30	6,650	13,299	67,825	4,415,401
11	6,650	13,299	67,825	4,415,401	31	6,650	13,299	67,825	4,415,401
12	6,650	13,299	67,825	4,415,401	32	6,650	13,299	67,825	4,415,401
13	6,650	13,299	67,825	4,415,401	33	6,650	13,299	67,825	4,415,401
14	6,650	13,299	67,825	4,415,401	34	6,650	13,299	67,825	4,415,401
15	6,650	13,299	67,825	4,415,401	35	6,650	13,299	67,825	4,415,401
16	6,650	13,299	67,825	4,415,401	36	6,650	13,299	67,825	4,415,401
17	6,650	13,299	67,825	4,415,401	37	6,650	13,299	67,825	4,415,401
18	6,650	13,299	67,825	4,415,401	38	6,650	13,299	67,825	4,415,401
19	6,650	13,299	67,825	4,415,401	39	6,650	13,299	67,825	4,415,401
20	6,650	13,299	67,825	4,415,401	40	6,650	13,299	67,825	4,415,401
Total CO₂ Reduction		452,166 (t-CO₂/yr)			Total Benefit		150,123,634	INR	

Source: Compiled by JICA Study Team (2017)

Attachment II.11.3.1 Draft Environmental and Social Assessment Framework (ESAF)

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Draft Environmental and Social Assessment Framework (ESAF)

1 Objectives and Scope of ESAF

In the course of the design and implementation of the Project, two vulnerabilities within the society require to be carefully considered, that is, **Environmental and Social vulnerabilities**. **Environmental vulnerability** is a condition when the integrity of ecosystem is threatened by human activities or interference and/or natural causes, which could occur over spatial or temporal scales. Vulnerability could possibly increase with the intensity and frequency of human interventions and/or natural hazards. **Social vulnerability** is the helplessness or defencelessness of an individual or group of people who are typically socially excluded, underprivileged, often discriminated against and restricted to access benefits of development or opportunities offered through socio-economic enhancement schemes. Their social characteristics such as identity and social status, culture, economic status and practices, and social institutions, often results in their discrimination and segregation from the main stream.

The Environmental and Social Assessment Framework (ESAF) for the “Himachal Pradesh Forest Ecosystems Management and Livelihoods Improvement Project (HPFEMLIP)” has been prepared to act as the primary reference document that outlines the Environmental and Social Considerations (ESC) that will be dealt with the above vulnerabilities in project design and implementation. ESAF works together with the Involuntary Resettlement Plan Framework (IRPF) and the Vulnerable Scheduled Tribes Plan Framework (VSTPF) and also refers to the other safeguards tools which are intended to focus on or elaborate specific aspects (i.e., micro plan, social assessment plan, etc.).

1.1 Objectives of ESAF

The HPFEMLIP in the selected project area are expected to have mostly positive environmental impacts. Further, the Project is anticipated to bring social benefits for locals including vulnerable groups such as the poor, landless/landed poor, Scheduled Tribes (ST), Scheduled Castes (SCs), Other Backward Classes (OBC), etc. in the project area. However, the Project could possibly lead to potential negative environmental and social impacts as well. In this regard, ESAF is prepared to assess the potential negative impacts and ensure that such impacts are safeguarded against in accordance with JICA’s policies on environmental and social considerations in development projects, as well as relevant policies, laws and regulations of the country and the state.

1.2 Overview and Positions of Safeguards Instruments

(1) Draft Environmental and Social Assessment Framework

Unlike a typical infrastructure project, this Project is anticipated to have multi-sectoral interventions and activities, being implemented at several sites with many sub-projects and many of these sub-projects are yet to be defined in detail (site location, size/scope of the activity). In these circumstances, it would be inappropriate at this stage of project preparation to assess the environmental and social impacts and propose detailed management and mitigation measures. However, the Study Team assessed the broad types of activities proposed and outlined procedures to manage and mitigate potential risks associated with the activity during the project implementation. Accordingly, ESAF which provides guidance on the appropriate management and mitigation measures against environmental and social risks was prepared as the main safeguards instrument considering the existing environmental and social management systems in Indian and HP state as well as the JICA requirements.

(2) Draft Vulnerable Scheduled Tribes Planning Framework

In the Indian context, the term “Scheduled Tribe (ST)” is applied to refer “Indigenous Peoples” as used by JICA and other multilateral funding agencies, such as World Bank, Asian Development Banks, etc. And this framework shall be particularly applied to **individuals/communities who could be severely affected their daily lives by project activities among Scheduled Tribes (STs) and Forest Dwellers as defined in The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**. Among the two social groups, the number of forest dwellers would be quite small considering the progress of the implementation of FRA in the state as mentioned in **Table 11.3.1**, therefore, the name of the framework is replaced as “Vulnerable Scheduled Tribes Planning Framework” (VSTPF).

For the above targeted social groups, guidance for specific measures shall be provided under the framework which may be required in addition to the provisions of ESAF. Other vulnerable groups including poor households, the landless, women as well as deprived classes, such as the Scheduled Castes (SCs) and Other Backward Classes (OBCs) population are considered well in ESAF to ensure the opportunities for effective consultation, participation, receive appropriate benefits and are overall not adversely harmed by the Project.

The main objectives of VSTPF are (i) to ensure the targeted social groups affected by any additional project interventions will receive culturally appropriate social and economic benefits from the Project, (ii) to ensure their participation in the entire process for the preparation, implementation and monitoring of project activities, and (iii) do not suffer any adverse impacts as a result of the Project or sub-projects.

(3) Draft Involuntary Resettlement Plan Framework

The Project will not involve any physical relocation nor involuntary resettlement as long as ESAF is fully applied for the project preparation and its implementation. However, there might be certain sub-projects that might require physical relocation or involuntary resettlement, especially for entry point activities or other project activities which could potentially lead to acquisition of lands for afforestation, soil and moisture conservation structures, creation of combined civil and bio-engineering structures, etc. Therefore, the Involuntary Resettlement Plan Framework (IRPF) has been designed to clarify the required procedures when any acquisition of private lands for construction activities related to the Project and its sub-projects are required which cause (i) loss of assets, (ii) restrictions to the use of or loss of access to places of interest, (iii) loss of existing sources of income and livelihood, and (iv) depreciation of adjacent property value, thus resulting in adverse impacts on the sustenance and livelihoods of the displaced persons.

The processes of consultations, grievance redressal mechanisms as well as the monitoring system are required to be followed as depicted in ESAF.

1.3 Target Social Groups of ESAF

ESAF shall be applicable to all communities and peoples within the project area. The draft framework is designed to ensure their participation in the course of the project implementation and include as beneficiaries as well as to avoid/mitigate any impacts affected by the Project. **Table 1** indicates the key groups identified in ESAF to address environmental and social considerations. It should be noted that an individual or household may be categorised into more than one of the categories below;

Table 1 Key Targeted Social Groups of ESAF

Social Groups	Definition/ Description
Scheduled Tribes (STs)	<p>According to the Article 342 of the Constitution, STs are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the President through a public notification. As per 2011 Census, tribal population in the country is about 8.6% of the total population, while in HP state, they represent 5.71% of the total population of the state.</p> <p>Eight tribal communities are notified in HP state, namely, i) Bhot, Bodh, ii) Bhot, Bodh, Gaddi, iii) Gujjar, iv) Jad, Lamba, Khampa, v) Kanaura, Kinnaura, vi) Lahaula, vii) Pangwala, and viii) Swangla, and all of these groups reside in the project area, in which the highest concentration is found in districts of Kinnaur, Lahaul and Spiti and blocks of Bharmour and Pangi of Chamba district. Also, three areas are nominated as Scheduled Areas by Constitution Order 102, dated 21st November 1975; 1) Lahaul and Spiti district, 2) Kinnaur district, and 3) Pangi tehsil and Bharmour sub-tehsil in Chamba district.</p>
Scheduled Castes (SCs)	<p>Traditionally, there are four main castes and one category of the society falls outside the caste system, and occupy the lowest rank in the ritual hierarchy of Indian society. These communities were notified as the SCs as per provisions contained in Clause 1 of Articles 341 and 342/ Clause 24 of Article 366 under the Constitution of India which require special consideration for safeguarding their interests and to accelerate their socio-economic development.</p> <p>In HP state, there are 65 notified communities belonging to SCs. Unlike STs who live in isolated regions, major portion of the Schedule Caste population lives in scattered households or concentrated colonies with people of other caste groups, although there exists an invisible social</p>

Social Groups	Definition/ Description
	segregation. The SCs in the project area comprise about 27% of the total population in the project area, and about 8.2% of the total population of the state. Highest distribution of SCs is in districts Sirmour (30.34%), Solan (28.35) and Shimla (26.51%).
Other Backward Classes (OBCs)	Other Backward Class (OBC) is a collective term used by GoI to classify castes which are socially and educationally disadvantaged; the Constitution of India describes OBCs as “socially and educationally backward classes”. All tribal communities and castes deemed under article 341 and 342 of the constitution of India are considered backward classes and there are OBC, which are not scheduled. According to the Department of Social Justice and Empowerment and the Himachal Backward Classes Finance and Development Corporation, 48 communities belong to OBC. Social and educational backwardness has been identified as reasons due to which the OBCs also need special attention. OBC population constitutes about 13.51% of the total population of the state.
Transhumance	<p>Transhumance is a type of controlled nomadism or pastoralism, a seasonal movement/ migration of people along-with their livestock between fixed summer and winter pastures, i.e., higher pastures in summers and lower pastures in winters. In the state, Gaddi and Gujjar are two nomadic communities which account for 69% of the total ST population in the state (Census of India 2011).</p> <ul style="list-style-type: none"> - Gaddi: a semi nomadic tribe and usually have a permanent homestead either in the valleys of Kangra, Kullu or in the foothills of Una. During summer months, May-June to August, these people move to the higher areas in district Lahaul & Spiti. Before the on-set of winter, usually by end-August, the Gaddis along with flock, usually comprising of sheep and goats, travel back to their respective destinations or beyond up to the foot-hills of Una, where they engage in agricultural activities; they own small parcels of land. Gaddi women engage in the weaving of wool. - Gujjar: a pastoral nomadic tribe, who move to high alpine regions during summer in search of good pastures. Their herds comprise of sheep, goats, buffaloes and a few cows. Typically, the Gujjars migrate in groups (known as kafila or convoy) of several households, and carry all essential household items that serve as protection from the elements, utensils, etc., on horseback. By September, the Gujjars start moving towards the plains, where they spend the winters.
Forest Dwellers	<p>The term “forest dweller” refers to the Forest Dwelling Scheduled Tribes (FDST) and the Other Traditional Forest Dwellers (OTFD)” as members or communities who primarily reside in and who depend on the forests or forest lands for bona fide livelihood needs, as per “The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006” known as FRA.</p> <p>As per a FAO Working Paper No: APFSOS/WP/27¹, forest dwellers have been classified into 3 categories:</p> <ul style="list-style-type: none"> - People living inside forests, often as hunter-gatherers or shifting cultivators, and heavily dependent on forests for their livelihood on a subsistence basis - often consisting of scheduled tribe or people from minority ethnic groups - People living near forests, usually engaged in cultivation outside the forest, who regularly use forest products (timber, fuelwood, bush foods, medicinal plants etc) partly for their own subsistence purposes and partly for income generation - People engaged in commercial activities such as trapping, collecting minerals or forest industries such as logging, may be part of a mixed subsistence and cash economy, depend on income from forest-dependent labour <p>If a person is certified as a “Forest Dweller” legally, he/she has all right over the forestland. However, in practical, the progress of the administrative procedures is very slow in HP state. As per the FRA status report of February 2016 of Ministry of Tribal Affairs (MOTA), GOI, 346 titles were distributed including 108 community claims, but objections were raised by the MOTA on the constitution of Forest Rights Committees (FRCs) at the Gram Panchayat level and process of claim settlement, therefore, these titles were not given.</p>
Poor Households	Poor households tend to be more dependent on forest resources and are thus disproportionately impacted by forest protection and development activities. For various reasons, they may also be

¹ “People and Forests in Asia and the Pacific: Situation and Prospects”, Asia-Pacific Forestry Sector Outlook Study Working Paper Series, Regional Community Forestry Training Centre Kasetsart University, Bangkok, Thailand, by R.J. Fisher Somjai, Srimongkontip, Cor Veer assistance of Michael Victor Nitiya Kijtewachakul, December 1997

Social Groups	Definition/ Description
	<p>excluded from decision-making processes.</p> <p>In HP state, 23.87% of the rural population is considered to be below poverty line. The highest incidences of poverty are observed in Chamba district (54.15%), followed by Lahaul-Spiti (43.50%). Followed by Shimla (29.07%). Sirmaur (19.44%), Una (16.92%) and Kullu (16.24%) indicated the lowest figures. “Scaling the Heights (World Bank, 2015)”, mentions successful reduction of the poverty rate regardless of gender and caste, both in the rural and urban areas. The report has highlighted that the poverty level in the rural areas of the state has declined from 36.8 % in 1993 to 8.5 % in 2011. This is better than any other state in the country, but still consideration on poor households are required as one of the marginalized groups in the society.</p>
Landless Households	<p>According to “The Himachal Pradesh Tenancy and Land Reforms Act, 1972” by Revenue Department, Government of HP, “Landless person” means a person who holding no land for agriculture purposes, whether as an owner or a tenant, earns his/her livelihood principally on manual labour on land and intends to take the profession of agriculture and is capable of cultivating the land personally. The landless households are often dependent on forest resources for their daily subsistence needs and as a safety net in times of duress, but neglected from development interventions as targets are often focused on farmers who have land and assets.</p>
Women and Female Headed Households	<p>Women play a specific and differentiated role in terms of agricultural production and forest management (e.g. sowing, tending/weeding, marketing/selling produce, collection of NTFPs, craft production). In HP state, many women collect fodder grasses from the forest areas and feed their cattle and collect fuelwoods to be used for cooking and warming the houses which not having LPG. In the recent past, along with the economic growth, literacy, education access to communication, banking services have improved amongst women. The proportion of women who have gone through ten or more years of education are much higher than the national average. On the other hand, women’s work participation and ownership of a house/land still significantly behind in comparison to rest of India so that females traditionally have not inherited any lands.</p> <p>Female Headed Households should also be a key target group as they are a particularly vulnerable sub-group with typically limited asset/livelihood options.</p>
Affected Persons/ Families	<p>Criteria to be defined as “Affected Persons/ Families” are as follows;</p> <ol style="list-style-type: none"> Whose land or other immovable property has been acquired, Which does not own any land, but family may be agricultural laborers, tenants with any form of tenancy or usufruct rights, share croppers or artisans, residing in the affected area for the last three years before acquisition of land, and who primary source of livelihoods has been affected due to acquisition of land, STs and other traditional forest dwellers who have lost their forest rights recognized by the FRA due to acquisition of land, Whose primary source of livelihood, three years prior to acquisition of land, is dependent of forests or water bodies, including gatherers of forest produce, hunters, fisher folk, boatman, etc., and whose livelihood is affected due to acquisition of land, and Member of family who has been assigned land by the Government (central/ state) under any scheme, and such land has been acquired.
Displaced Families	<p>Displaces Families mean any family, that has to be relocated and resettled from the affected areas to a new resettlement site (<i>* Family will include a person with his/her spouse, minor children, minor brother and sister dependent on him/her</i>)</p>

Source: Prepared by JICA Study Team (2017)

1.4 Structure of ESAF

ESAF of the Project is structured as follows:

- i) **Project Summary Description** will describe the project objectives, proposed Project components and expected outcomes, phasing of Project, etc,
- ii) **Environmental and Social Safeguard Policies of JICA:** briefly describes JICA's environmental and social safeguard policies, and clarifies how the Project shall be categorised and what types of measures will be required,
- iii) **Existing Environmental and Social Management Systems:** Outline the legal and policy context for environmental and social safeguard in India as well as in the HP state,
- iv) **Environmental and Social Considerations and Potential Impacts:** details-out the environmental and social considerations within the Project and assessment of positive and negative impacts,
- v) **Environmental and Social Management Measures and Monitoring:** explains the procedures to be followed to manage and monitor environmental and social aspects, including the procedures for the preparation of environmental management plan and environmental monitoring plan,
- vi) **Institutional Arrangement and Capacity Development for ESAF:** identifies the recommended institutional arrangement and capacity development and training requirements for effective implementation of ESAF,
- vii) **Public Consultation Mechanism:** describes the mechanisms for public consultations including Free, Prior and Informed Consent (FPIC) as one of important principles,
- viii) **Grievance Redress Mechanism:** identifies the available and suggested mechanisms for grievance redress, and
- ix) **Cost Estimation and Budget Allocation:** identifies the required cost to implement ESAF, with the estimation of the necessary human resources and capacity development programme, and its budget allocation.

2 Project Summary Description

2.1 Project Objectives

The objective of the proposed Project is “to enhance current carrying capacities of ecosystems in forest. Ultimately, the proposed Project aims at contributing to the improvement of forest ecosystem in HP state.

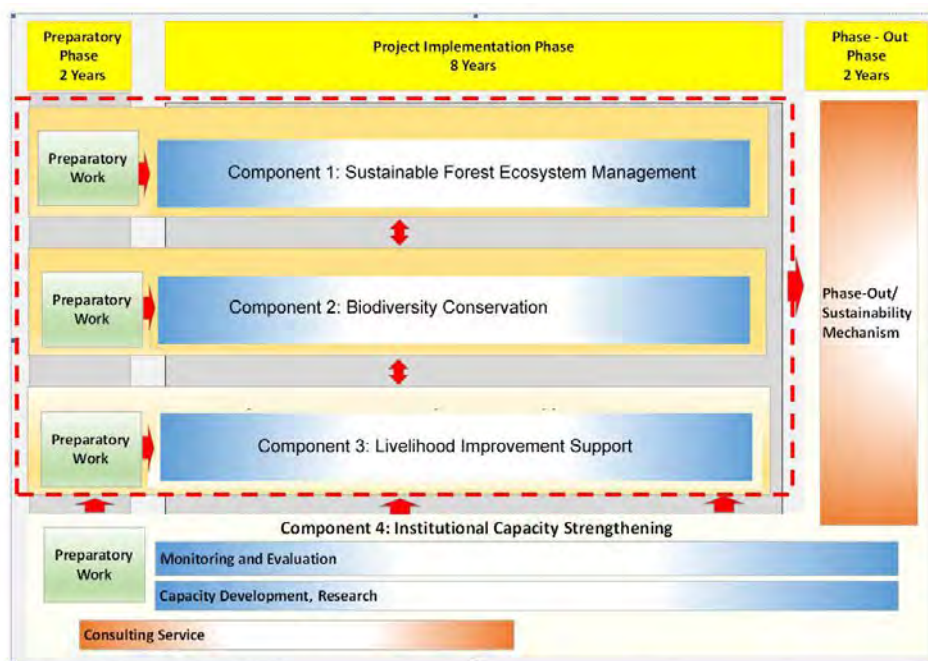
2.2 Identified Project Area

As per the agreement made between JICA and HPFD prior to the commencement of the Study, a total of seven districts (in case of Chamba district, only Bhramour and Pangti sub-divisions are included) within HP state was considered as districts for the proposed project area. In the Study,

14 territorial forest divisions (49 ranges) and two wildlife divisions (four protected areas and two wildlife ranges) are proposed as the project prioritised area.

2.3 Proposed Project Components

Restructured proposed project components are indicated in **Figure 1** as follows. Out of 9 components proposed, the Component 2: Forest Management and the Component 3: Biodiversity Conservation are regarded as the core components of the Project.



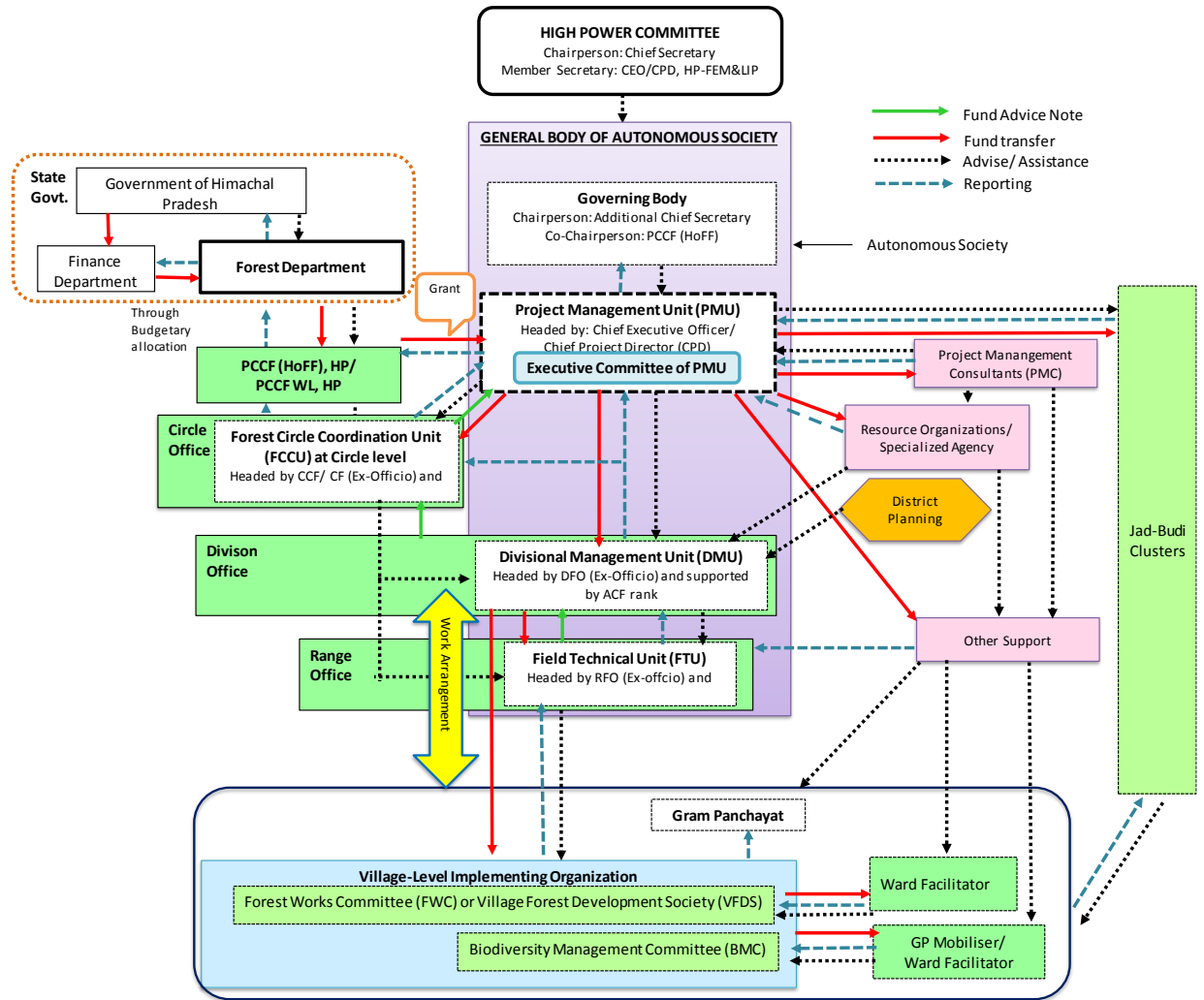
Source: JICA Study Team (2017)

Source: JICA Study Team (2017)

Figure 1 Framework of Project Components and Flow of the Phases

2.4 Project Implementation Structure

The Project is proposed to be implemented through an autonomous society created specifically for this Project, namely Himachal Pradesh Forest Ecosystems Management and Livelihoods Improvement Project Society (HPFEMLIPS) The Society's implementation structure is depicted in **Figure 2**.



Source: JICA Study Team (2017)

Figure 2 Proposed Project Implementation Structure

The Project Management Unit (PMU) of the Project would be established as autonomous registered society, and be made responsible to manage, coordinate, implement and monitor the proposed activities. The High Power Committee (HPC) created for the Project will act as highest decision-making body for the Project at state government level, and will not form part of the autonomous society. To support project implementation at the field level, PMU will create and coordinate with two set of offices viz., Divisional Management Units (DMUs) and Field Technical Units (FTUs). In addition, Forest Circle Management Units (FCCUs) to be created at circle level and outside the society will provide overall guidance and supervise the project works at divisional and field levels. The PMU including DMUs and FTUs will implement the project as well as assist and play facilitative roles, and will source funds for project implementation. Further details of the institutional arrangement are described in **Part II, Chapter 4**. Under the propose project implementation structure, Chief Project Director (CPD) of PMU, and a Director under CPD who would be vested with additional responsibility to ensure implementation and monitoring and compliance of ESAF would be focal points to communicate with JICA on environmental and social safeguard matter.

2.5 Implementation Schedule of the Proposed Project

The followings are indicative description about the overall implementation schedule for the proposed Project based on the discussion with HPFD.

- ◆ The proposed Project to be broadly divided into three phases, namely, i) Preparatory Phase, ii) Implementation Phase, and iii) Phase-out Phase
- ◆ Duration for each phase is i) two years for Preparatory Phase, ii) eight years for Implementation Phase, and iii) two years for Phase-out Phase
- ◆ Three batches are considered, reflecting locations and seedling raising period (less than 1.5, 2 ~2.5 years, and ~3.5 years) of potential major species to be targeted by the respective VFDSs
- ◆ In consideration of overall schedule of required preparatory works, 1st batch VFDSs shall be selected by the first quarter of Year 2 (by June 2019), 2nd batch by the first quarter of Year 3 (by June 2020), and 3rd batch by fourth quarter of year 4 (by January 2021).
- ◆ 75, 175 and 150 VFDSs are tentatively assumed to be selected for 1st batch, 2nd batch and 3rd batch respectively. The actual selection of VFDSs and their batches will be conducted by FTU with thorough consultation/confirmation with concerned VFDSs.

3 Environmental and Social Safeguard Policies of JICA

3.1 JICA Principles for Environmental and Social Considerations

The environmental and social safeguards policies of JICA are covered within the JICA Guidelines for Environmental and Social Considerations (2010), in which it is committed to ensure that human rights are respected and that environmental issues are seriously considered in its investments, projects and programmes, with the following principles:

- ◆ JICA is committed to address environmental and social issues in a prompt/ timely manner,
- ◆ Assess a wide range of environmental and social impacts in all JICA projects/programmes,
- ◆ Issues related to environmental and social must be considered from an early stage, from design and throughout the project cycle,
- ◆ Accountability and transparency is JICA's responsibility,
- ◆ Requirement of stakeholder consultation/participation in consideration of environmental/ social issues,
- ◆ Requirement for Information disclosure, and
- ◆ Implementation of the guidelines should enhance organizational capacity to ensure appropriate consideration, management and monitoring of environmental/ social issues.

3.2 Key Process Elements as per the requirements of JICA Guideline

Key processes in JICA projects related to environmental and social considerations are summarised below;

(1) Categorisation of Projects

Projects are categorised according to the scope/severity of the environmental and social impacts or risks, indicated as follows;

- **Category A:** Significant adverse impacts (e.g. Large-scale development/ infrastructure),
- **Category B:** Generally site-specific impacts, few impacts are irreversible, normal mitigation measures can be designed,
- **Category C:** Minimal/little adverse impact
- **Category FI (Financial intermediary):** Substantial selection and appraisal of sub-projects after JICA approval of funding

The proposed Project is currently categorised as ‘**FI**’ as per the JICA Guidelines (2010), and the classification remains valid for the following reasons:

- a) JICA’s funding of projects will be provided to a financial intermediary or executing agency,
- b) The selection and appraisal of the sub-projects will be substantially undertaken by the executing agency only after JICA’s approval of the funding, so that the sub-projects cannot be specified prior to JICA’s approval of funding,
- c) Sub-projects will be selected in participatory mode by communities and as such cannot be specifically defined at this stage, and
- d) Sub-projects with significant adverse environmental or social impacts requiring environmental clearance will be eliminated through screening procedures. However, certain potential environmental and social impacts are perceived, and the Project may involve depressed groups (SCs, STs, OBCs, forest dwellers, etc.).

The Project is anticipated to have primarily positive impacts on the environment, provided that the main objective of the Project is to enhance sustainable forest and biodiversity management practices and improve livelihoods in the project areas. Although it is not possible to precisely state which sub-projects will be executed in which specific location and scale, the Project will exclude “Category A”, sub-projects with significant environmental impacts or risks.

At the time of selection, finalisation and approval of sub-projects, respective sub-projects will be categorized as either “Category B” or “Category C” according to the scope and severity of the environmental and social impacts or risks.

(2) Potential Impacts Assessment

An array of environmental and social impacts and risks are taken into account with a view towards enhancing positive benefits and at the same time avoiding/mitigating negative impacts.

Table 2 indicates the required items to be assessed as potential environmental and social impacts respectively.

Table 2 Potential Impacts to be Assessed

Type of Impact	Items to be Assessed
Environmental Impact	On the natural environment transmitted through air, water, soils, waste, accidents, water usage, climate change, ecosystems, fauna and flora and trans-boundary/global scale impacts.
Social Impact	On community/people's lands, resettlement, economies, livelihoods, employment, social institutions, vulnerable groups, gender, indigenous peoples, children, health, cultural heritage, utilization of land and local resources, existing social infrastructures and services, equality of benefits and losses, local conflicts, working conditions, etc.

Source: Compiled by JICA Study Team (2017) based on the JICA Guidelines for Environmental and Social Considerations 2010

(3) Information Disclosure and Consultation

Implementing Agency (IA) of the Project shall monitor the sub-projects following the Environmental Monitoring Programme (EMoP) which are the requirement for only Category B sub-projects. Such sub-projects information on the environmental and social impacts is encouraged to disclose to all relevant stakeholders. Also, IA shall prepare annual report of the Project in which ESC relevant report will be incorporated as one chapter/section.

3.3 Compatibility with International Standards

JICA corroborates that projects do not deviate considerably from the World Bank's Safeguard Policies, and refers to it as a benchmark to the standards of international development agencies; to internationally recognized standards, or international standards, treaties, and declarations, etc. and to the good practices, etc. of developed nations as appropriate.

JICA also suggests international policies, procedures and standards such as the World Bank. Of relevance to the Project, Although JICA has particular trepidations with respect to Indigenous Peoples, it does not reflect a detailed policy with clear procedures for such peoples affected by the projects interventions, and refers to the World Bank Operational Policy 4.10 (OP4.10) on Indigenous Peoples. Thus, the contents and format of the safeguards framework elaborated for the Project follows that indicated in the World Bank OP 4.10, as requested by JICA for the preparation of the Project.

3.4 Requirements as per JICA Guidelines

As per the JICA guidelines, the following conditions are examined with respect to the project implementation. Financial intermediary or the executing agencies are mandated to comply with the following requirements:

- a) Ensure appropriate environmental and social considerations,
- b) Sufficiency of institutional capacity to confirm environmental and social considerations of the financial intermediary/ executing agency is sufficient; if requires adequate measures be taken to strengthen the capacity,

- c) Financial intermediary or executing agency to assess potential positive and negative environmental impacts of sub-projects, takes appropriate measures to avoid, minimise, mitigate, or compensate for potential negative impacts, and promote positive impacts if any available,
- d) Disclosure of the results of environmental reviews on its website after concluding agreement documents, and
- e) Confirm with project proponents on the results of monitoring items that have significant environmental impacts. Project proponents are undertaking environmental and social considerations for projects that fall under Categories A, B, and FI.

4 Existing Environmental and Social Management Systems

The following section focuses on the existing environmental and social management systems in Indian and HP state and examines the probable manner for implementing the Project. Through the review by the Study Team, the existing legal and regulatory frameworks are confirmed to be in line with the requirement of JICA Guideline as well as the World Bank's Safeguard Policies. An overview of the environmental and social legal frameworks and institutional arrangements processes and procedures for its implementation are presented as follows.

4.1 Existing Systems for Environmental Management

In the Indian context, there are a number of laws, rules, regulations, notifications, and policies for addressing various issues related to control, protection and management of environment. **Appendix A** lists the main environmental policies, laws and regulations, in the Indian as well as in HP state, relevant to the types of activities that have been proposed under the Project.

In the following sections, the processes adopted in India for environmental clearance and the forest clearance is described although the Project is not anticipated any environmental or forest clearances.

(1) Environmental Clearance Procedures

Under the ambit of EIA laws and regulations in India, all projects and activities requiring "Environmental Clearance" (EC) are classified broadly into two categories - **Category A** (hereafter refer to as "Indian EIA Category A") and **Category B** (hereafter refer to as "Indian EIA Category B"), which is based on the spatial extent of potential impacts on natural and man-made resources.

Indian EIA Category 'A' projects or development activities are mandated to conduct EIA studies along with conducting the "Public Consultation" as per the procedure stipulated in the Notification, and the environmental clearance is required from the Central Government or MoEF&CC.

Indian EIA Category 'B' projects fall under the purview of the state authority as mentioned in

EIA notification 2006 and decentralized procedure is done. The Government of India has constituted the State Expert Appraisal Committee (SEAC) and State Environmental Impact Assessment Authority (SEIAA) committee for decentralized procedure of environmental clearance. The category 'B' projects are further divided into **Category 'B1'** (projects that require submitting an EIA report) and **Category 'B2'** project activities which do not require EIA report.² The stages in the environmental clearance procedure as per EIA notification 2006 is described in **Figure 3**. For convenience, stages of EIA have been divided into following six stages in this report; 1) *Screening*, 2) *Scoping*, 3) *EIA Study*, 4) *Public Consultation*, 5) *Appraisal*, and 6) *Monitoring*.

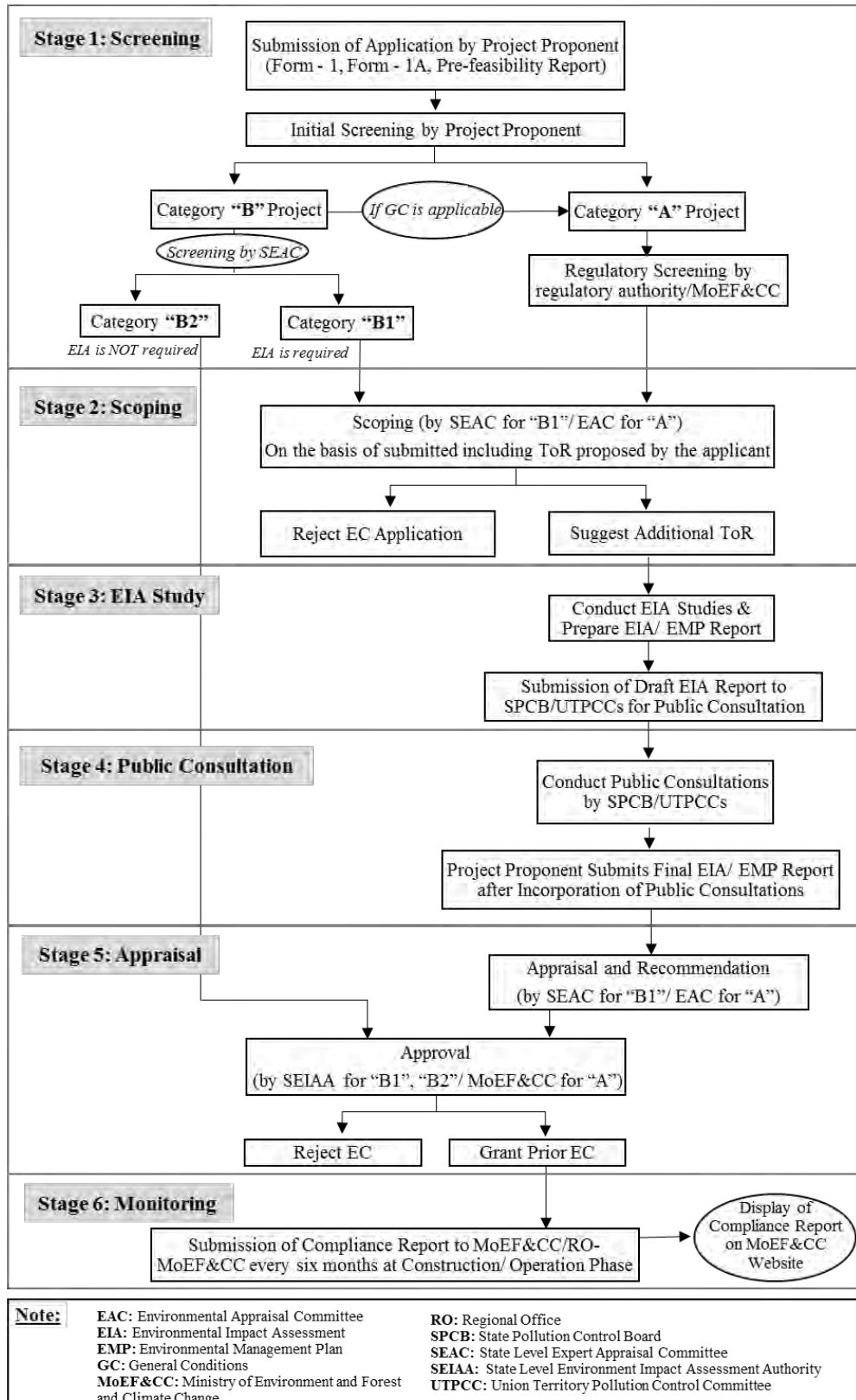
(2) Forest Clearance Procedures

Forest Clearance from the statutory authority will be required if forest area is to be diverted for the Project (including, notified roadside plantations). For this purpose, application is submitted to the state government, which in turn recommends the case to MoEF&CC.

The process of Forest Clearance consists of two stages; **First Stage Clearance** and **Second Stage Clearance**. In the First Stage Clearance, the application could be granted "In Principle Approval", or it could be subject to fulfilment of conditions, if applicable, which could include: deposition of Net Present Value of Forest (@ 438,000 to 1,043,000 INR/ha), money for compensatory afforestation, plantation of at least double the number of trees felled, submission of plan for afforestation, certificate of compliance under FRA, etc. During this phase, no activity will be allowed until final clearance is accorded and the state can stipulate additional conditions³. In the Second Stage Clearance process, it will be ensured if the conditions prescribed have been fulfilled. **Figure 4** describes the process of forest clearance.

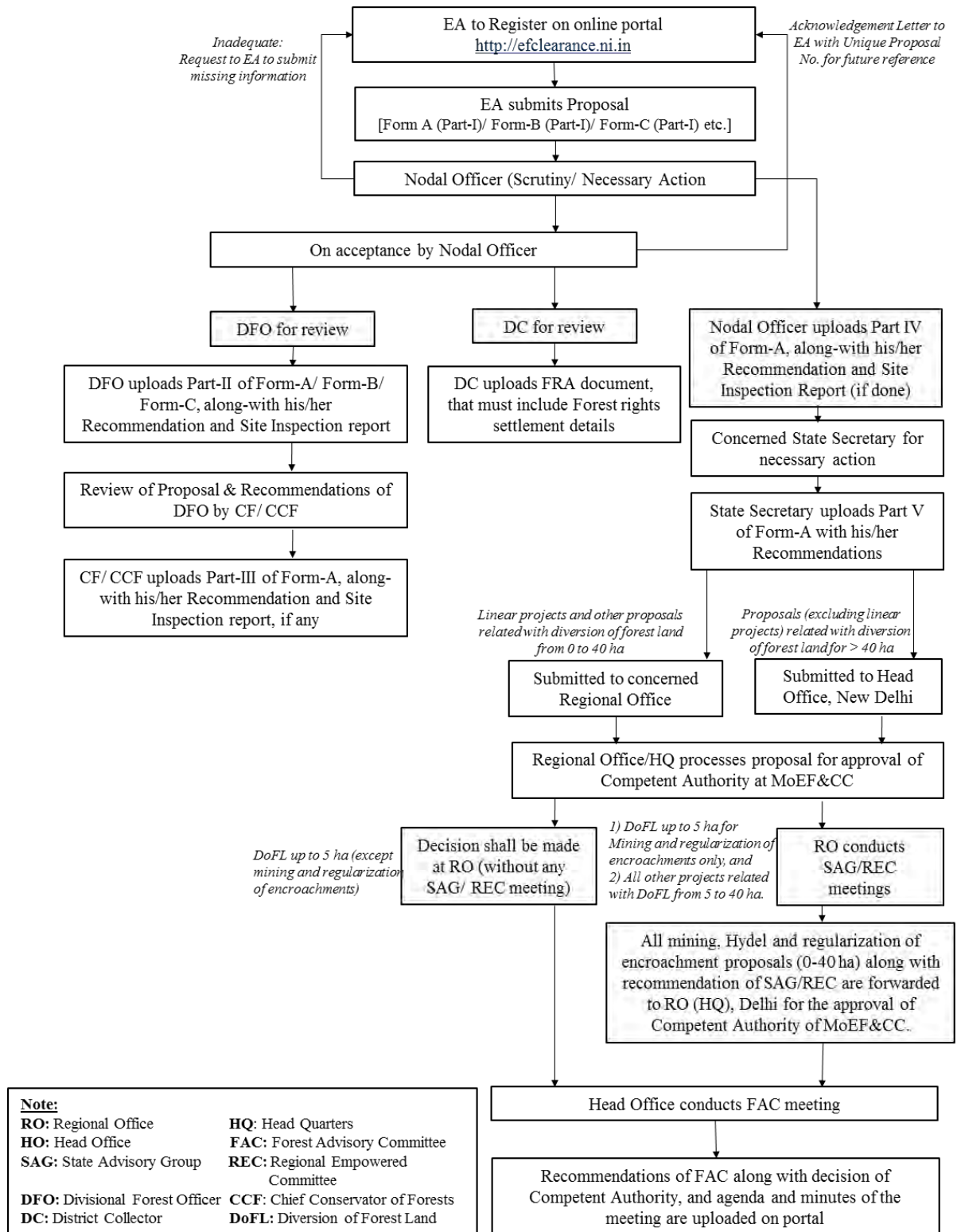
² Source: EIA Notification 2006 and <http://www.sciencebeing.com/2012/10/eia-notification-and-its-implementation-in-india/>

³ Source: http://www.teriuniversity.ac.in/mct/pdf/new/environment/Infrastructure_development_and_environment.pdf



Source: Prepared by JICA Study Team (2017) based on EPA 1984 and Notification 2006 and Amendments, MoEF&CC

Figure 3 Prior Environmental Clearance Process as per Indian EIA Law



Source: Compiled by JICA Study Team (2017) based on information from MoEF&CC <http://www.moef.gov.in/citizen/specinfo/forflow.html>

Figure 4 Forest Clearance Process as per Relevant Indian Law

4.2 Existing Systems for Social Management

JICA concerns that development projects are implemented with special attention to vulnerable groups such as the poor, landless/landed poor, indigenous peoples (or STs in India) and women. Rights of local communities and STs should be respected in all interventions.

The potential negative social impacts are much lower compared with the large infrastructure projects which involve physical displacement and involuntary resettlement, but still there is a possibility to negatively impacts the local communities on their livelihoods, loss of access, ownership or use rights, and increased conflicts on forest lands by forestry activities which involve restricting practices or change existing land uses. Therefore, **Appendix B** identifies some of the main relevant policies, laws and regulations with respect to addressing social issues and concerns, for the types of activities that have been proposed under the Project. The Project will involve the local communities to work through their respective village level implementation bodies in the designated project areas so that the relevant labour laws are also listed up.

In the following sections, the procedures for land acquisition and involuntary resettlement applied in India are presented. Further detail procedures should be referred to Involuntary Resettlement Planning Framework (IRPF).

(1) Land Acquisition and Involuntary Resettlement

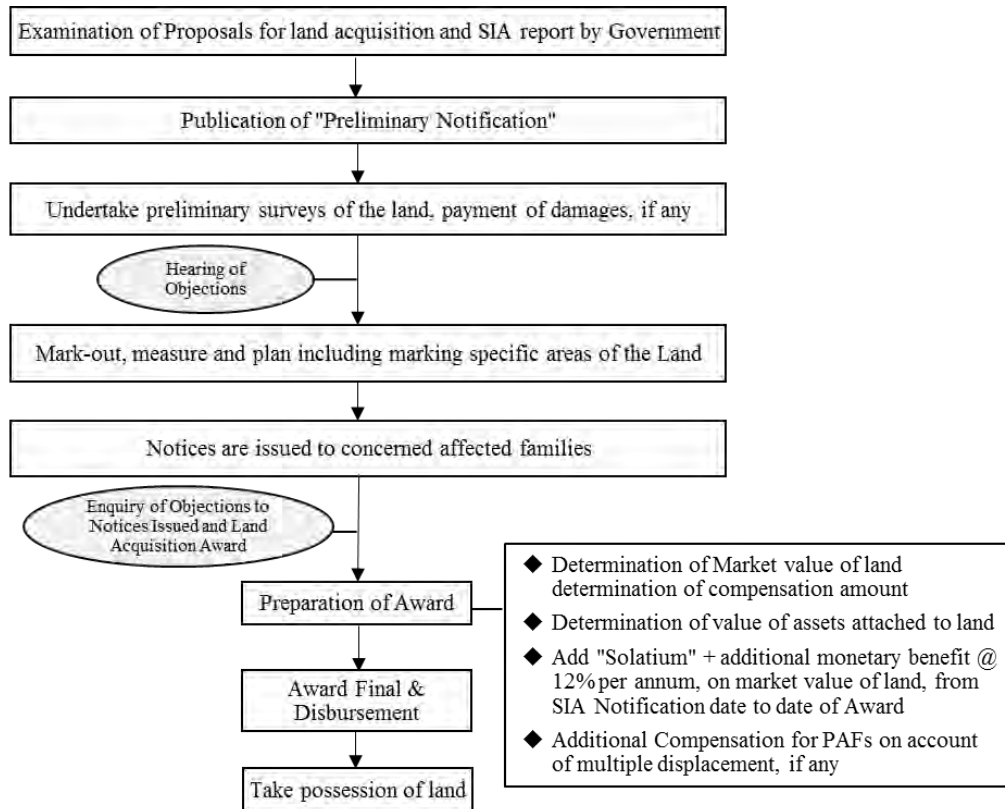
“The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 [No. 30 of 2013] dated 26th September 2013” (RFCTLARR Act 2013), came into force on 01-Jan-2014, is the legal foundation for all matters related to land acquisition and involuntary resettlement in the country.

According to the Act; it ensures “a humane, participative, informed and transparent process for land acquisition for the purpose of industrialisation, development of essential infrastructural facilities and urbanisation, which is in consultation with the local self-government institutions and Gram Sabhas established under the Constitution”.

Also, the Act ensures that the negative impacts on the land owners and other affected families shall be minimised with the provision with a just and fair compensation to the affected families, leading to an improvement in their socio-economic status for their rehabilitation and resettlement.

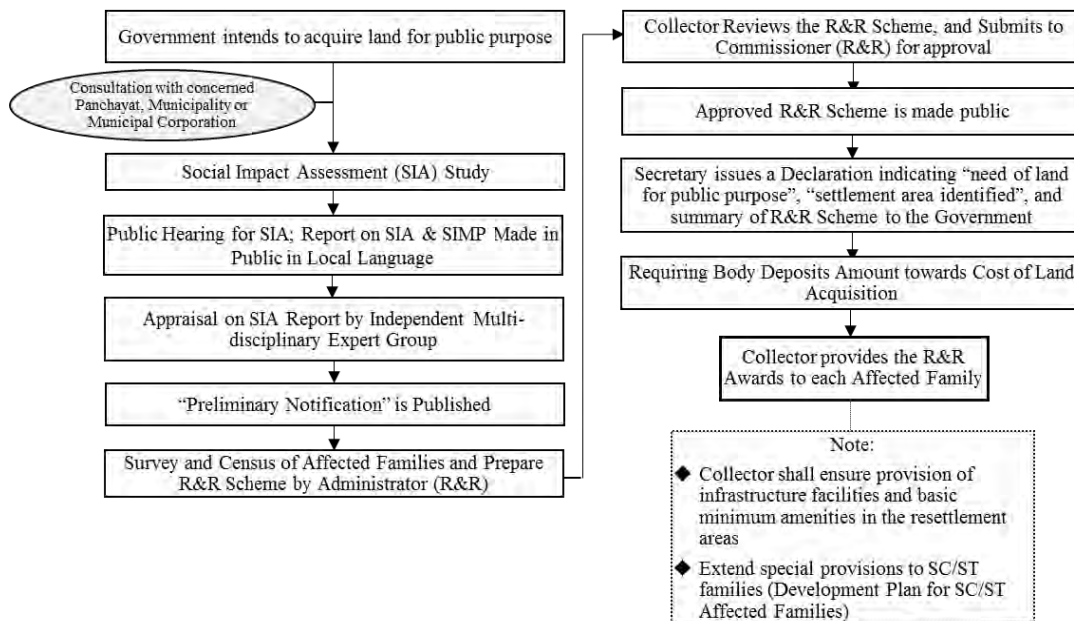
The state government of HP has notified the HP Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement, Rules 2015, dated 27 Jan 2015. As per this Rule, the state government shall (i) identify, establish and build a database of SIA resource partners and practitioners, who will be responsible to ensure that SIAs are commissioned and conducted with project specific terms of reference, (ii) the state government will thereafter recommend an area for acquisition depending on the SIA report with the bearing that minimal adverse impact is suffered by the people, (iii) written consent will be sought from all individuals who are opposing any project; such persons will be asked to record their objections.

The processes involved in land acquisition and involuntary settlement are depicted in **Figure 5** and **Figure 6** respectively.



Source: JICA Study Team (2017) based on information from RFCTLARR Act 2013 and subsequent Rules

Figure 5 Flow Diagram for Land Acquisition Process



Source: Compiled by JICA Study Team (2017) based on information from RFCTLARR Act 2013 and subsequent Rules

Figure 6 Flow diagram for Resettlement and Rehabilitation

4.3 Existing Agencies for Environment and Social Management System

HPFEMLIPS, as the Executing Agency (EA), shall be responsible for the implementation of the entire Project, while the JFMCs and their respective Gram Sabha are PRIs to control and support the project activities in their lands from community perspective. Key gaps and shortfalls identified in each institution in comparison to international standards as indicated in the JICA Guidelines are summarised in **Table 3**.

Table 3 Key Gaps and Shortfalls in Comparison to the Standards in the JICA Guidelines

Executing Agency/ Body	Key Gaps and Shortfalls	Possible Gap Filling Measures
Implementing agency (General body of autonomous society)	<ul style="list-style-type: none"> - Prior consultations with beneficiaries and project-affected communities is limited - Insufficient appraisal of environmental and social considerations prior to implementation (weak baseline for impact evaluation) - Restricted procedures for environmental screening and subsequent management of environmental risks associated with small-scale construction and other activities with potential adverse impacts - Inadequate monitoring of safeguard processes and procedures 	<ul style="list-style-type: none"> - Application of ESAF and VSTPF - Implementation of Capacity Development Plan for Environmental and Social Safeguards - Engagement of Environmental and Social Consideration Expert/Specialist(s)
PRI: JFMCs/ Gram Sabha	<ul style="list-style-type: none"> - Lack/ limitation in owning project activities within their areas - Irregular community participation in JFMC or Gram Sabha meetings, thus paucity of prior consultation with project-affected communities - Shortcomings in attending to concerns of ST, SC and OBCs - Inadequate awareness of potential adverse environmental impacts - Restrictive comprehension of safeguard processes and procedures 	<ul style="list-style-type: none"> - Application of ESAF and VSTPF - Implementation of Capacity Development Plan for Environmental and Social Safeguards

Source: JICA Study Team (2017)

HPFEMLIPS or HPFD does not have any system for environment and social management, for screening, managing and monitoring environmental and social risks. Thus, it is recommended to incorporate subject matter experts and specialist under PMC in charge of environmental and social safeguards and support PMU for the compliance of the required environmental and social safeguards, that further described in **Section 7** of this document

5 Environmental and Social Considerations, Potential Impacts and Mitigation Measures

As mentioned above, it is impracticable at this study phase to assess the detailed environmental and social impacts and propose management and mitigation measures for each sub-project level which are not yet defined in detail. Therefore, in this section, the potential environmental and social impacts for proposed broad types of activities are assessed and mitigation measures are proposed through ESMS checklist (**Appendix C**), environmental and social scoping matrixes (**Appendix D**), and component-wise potential deleterious environmental and social impacts assessment (**Table 4** and **Table 5**). The purpose of the initial assessment is to summarise the potential (especially negative) impacts which could be referred when Environmental Management Plans (EMPs) as well as Environmental Monitoring Plan (EMoP) are required to

prepare. Also, IA, i.e. PMU/ FCCUs/DMUs/ FTUs, can refer these documents at the screening and selection stage of range level plans as reference documents which indicate major points to be concerned from ESC perspective.

5.1 Environmental Considerations and its Potential Impacts

(1) Environmental Considerations

JICA guidelines indicate a wide range of environmental considerations that are required to be taken into account. Initial scoping identified the following impacts on the natural environment to be assessed;

- ◆ Ecosystems (especially afforestation, densification of forests, sites of importance to biodiversity conservation and protected areas)
- ◆ Biodiversity (fauna and flora)
- ◆ Air, Water, Waste and Soils (resulting from infrastructure activities)
- ◆ Climate Change

Appendix C reflects the initial environmental screening and assessment by making use of the Environmental Checklists provided by the JICA Guideline. A wide range of environmental and social potential impacts have been assessed and considered. Moreover, the extents of the potential environmental and social risks were assessed and evaluated by using the environmental and social scoping matrixes shown in **Appendix D**. The purpose of scoping is to identify the potential environmental and social impacts caused by the Project based on available secondary data and information, and preliminary site reconnaissance.

(2) Assessment of Potential Environmental Impacts

i) Positive Environmental Impacts

The proposed Project primarily focuses on development, protection and restoration of forests and improves livelihoods for the community, therefore the associated activities are expected to present various environmental benefits, including;

- ◆ Increase the overall forest area in the state - proportionate increase in dense & moderately dense forests,
- ◆ Additional plantations resulting in decrease of area under open forests,
- ◆ Climate change mitigation through reduced emissions from deforestation and forest degradation,
- ◆ Improved ecosystem services such as watershed protection, protection of soils, moisture conservation measures, etc,
- ◆ Reduction in unsustainable utilization of forest resources through improvements and support for NTFPs, medicinal herbs and plants, investments in alternative livelihoods and income generating opportunities,

- ◆ Improvements in range and pasture management in the dry temperate region of the Project,
- ◆ Enhancements in protection of protected areas, and significant conservation of species and habitats,
- ◆ Well managed forests and plantations would augment the livelihood resource base of the forest dependent population,
- ◆ Eco-system services would increase due to improvements in natural capital, and
- ◆ Forest Department to be well equipped and strengthened to manage forest resources with active participation of an empowered & organized community.

ii) Negative Environmental Impacts

Table 4 below depicts potential deleterious environmental impacts associated with each project component. The table includes all aspects of implementation components, including project management, monitoring and evaluation components. Specific mitigation measures to the project components and activities are also indicated and these measures will be implemented through ESAF, especially through EMP and EMoP.

5.2 Social Considerations and Potential Impacts

(1) Social Considerations

JICA Guideline specifies a wide range of social aspects to be considered. Initial scoping identified the following social impacts to be assessed:

- ◆ Involuntary resettlement and land acquisition
- ◆ Poverty, vulnerability and loss of livelihoods
- ◆ Specific impacts on Scheduled Castes (SCs), Scheduled Tribes (STs), Transhumance, Other Backward Classes (OBC), etc.
- ◆ Gender

(2) Assessment of Potential Social Impacts

i) Positive Social Impacts

The primary objective of the Project is forest development, protection, restoration, and conservation. It will also focus on livelihoods of the local communities, thus it is anticipated to provide a number of social benefits that would include;

- ◆ Improvement of physical capital for rural communities, including poor, with the help of renovation upgraded community infrastructure,
- ◆ Employment and income opportunities from forest protection activities would result in enhanced financial capital,
- ◆ Well managed forests and plantations would supplement livelihood resource-base of the forest dependent population,

- ◆ Increase in income levels of people,
- ◆ Improvements in range/pasture management would cater to fodder requirements of the rural communities,
- ◆ NTFP-based livelihoods would improve due to Robust scientific management practices, and
- ◆ Improved livelihood opportunities through project support for alternative income generating activities.

ii) Negative Social Impacts

Table 5 details-out the potential deleterious social impacts or risks associated with each project component. Impacts on the social setting often over-weigh the environmental risks associated with the project activities. The project area includes a diverse variety of tribal communities, transhumance (also designated as STs), the SCs and other forest dependent communities, vulnerable groups including women, widows, destitute, poor, landless, etc., on whom a number of potentially significant social safeguard issues could be linked with respect to their lands and forest rights and impacts on their livelihoods.

Table 4 Potential Deleterious Environmental Impacts

Component	Sub-Component	Potential Environmental Concerns	Scoping	Mitigations Measures/ Suggestions
Component 1: Sustainable Forest Ecosystem Management	1.1 Preparatory Works for Participatory Forest Management	- Use of chemical fertilizers, insecticides and pesticides may seep into ground water	Low	- Ensure judicious use of chemical fertilizers, insecticide/ pesticides - Ensure use of bio fertilizers and insecticides/ pesticides
	1.2 Participatory Forest Management (PFM) Mode	- Use of non-native and exotic species may have a negatively impact the bio-diversity	Low	- Ensure use of native species - Ensure propagation of native species
	1.3 Training of VFDS	- Engineering structures for moisture retention may lead to removal of top soils resulting in soil erosion	Low	- Proper drainage to avoid water logging and percolation into ground water
	1.4 Department Mode	- Civil engineering structures may lead to soil erosion		- Ensure proper restoration of areas surrounding the civil engineering structures, through compaction of soils, plantation of vegetation, etc. - Ensure proper restoration of areas surrounding the civil engineering structures, through compaction of soils, plantation of vegetation, etc.
	1.5 Training of Project related Staff of HPFD			
	1.6 Research			
		- Purchase, storage and disposal of chemicals in the form of fire retardants may pose environmental concerns and contamination of the site	Low	- Proper storage and disposal of chemical as prescribed by vendor and safety aspects
		- Fire roads and paths may encourage illegal transportation of forest produce by un-authorized and bonafide individuals	Low	- Ensure proper handling of fire control equipment
	- Digging top soils for installation of boundary pillars may loosen top soils	Low	- Ensure dug-up muck is re-utilized - Ensure construction materials are properly disposed - Re-Vegetation surrounding the boundary pillars	
	- Construction works may lead to air and noise pollution - Construction works may lead to smoke and dust from construction sites - Water mixed with concrete, oil from construction equipment may contaminate nearby forest/ private lands, water sources and channels, agricultural fields, plantations, etc. - Construction worker's labour camps may lead to deterioration of environment	Low	- Construction equipment to be serviced regularly and installed with noise mufflers and resonators - Sprinkling of water in the construction sites and nearby areas - Ensure proper storage of and control on spillage of diesel, machine lubricants, and other oils - Judicious use of water and containment of water from construction site from run-off - Proper disposal of solid wastes from labour camps - Proper disposal of waste water from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment	

Component	Sub-Component	Potential Environmental Concerns	Scoping	Mitigations Measures/ Suggestions
		<ul style="list-style-type: none"> - Creation of watershed structures may lead to destabilization of top soils leading to soil erosion - Establishment of civil/ mechanical structures may lead to destabilization of top soils leading to soil erosion - Excavated muck from percolation tanks may run-off and contaminate sources of water and lands 	Low	<ul style="list-style-type: none"> - Ensure proper vegetative cover surrounding watershed structures, civil/ mechanical structures, percolation tanks to arrest soil erosion - Ensure excavated muck is either disposed properly or it is spread-out and planted with vegetative cover. - Proper maintenance of percolation tanks
Component 2: Sustainable Biodiversity Management	2.1 Scientific Biodiversity Management 2.2 Training of Project related Staff of HPFD 2.3 Research 2.4 Community Based Biodiversity Management	<ul style="list-style-type: none"> - Wildlife movement in/ around project areas may pose threat to human life and property - Project interventions may impact endangered wildlife 	Low	<ul style="list-style-type: none"> - Avoid project activities in or around known wildlife movement corridors - Ensure wildlife/ endangered wildlife is not hurt/ killed - Construct fencing and other similar arrangements to discourage wildlife, especially monkeys and other wildlife that can potentially affect plantations and agricultural fields
Component 3: Livelihood Enhancement	3.1 Community Development 3.2 NTFP Based Livelihood Improvement 3.3 Non-NTFP Based Livelihood Improvement	<ul style="list-style-type: none"> - Construction activities may lead to air, water, noise, pollution - Dust from construction sites and smoke from construction equipment, if used, may affect vegetation cover/ forests 	Low	<ul style="list-style-type: none"> - Water sprinklers may be used to settle dust and soil - Noise mufflers are advised to be used in equipment - Properly serviced equipment to be used - Ensure water mixed with concrete from mixers does not run-off
		<ul style="list-style-type: none"> - Development of certain NTFPs and medicinal plants could lead to illegal and unsustainable extraction leading to deleterious impacts on forest ground cover - Indiscriminate grazing or cutting for fodder may lead to harmful impacts on forests ground cover 	Low	<ul style="list-style-type: none"> - Ensure appropriateness in selection of livelihood options - Devise livelihood models that are productive, profitable and does not impact the environment to prevent agricultural expansion and deforestation - Provide guidelines for NTFPs/ cash crop cultivation / extraction to ensure environment sustainability and sustained production
		<ul style="list-style-type: none"> - Conflicts within the community institutions may become counter-productive anticipated Project activities 	Low	<ul style="list-style-type: none"> - Ensure cohesion among community institutions, immediate resolution of conflicts and redress of grievances, following ESAF procedures
Component 4: Institutional Capacity Strengthening	4.1 Preparatory Works 4.2 Capacity Development 4.3 M&E 4.4 Research 4.5 PMC 4.6 Phase Out	<ul style="list-style-type: none"> - Lack of awareness/capacity of relevant stakeholders on ESC may possibly lead to negative environmental impacts 	Low	<ul style="list-style-type: none"> - ECS Specialist under PMU and subject matter experts assist PMU/FCCU/DMU/FTU to implement project activities with compliance of ESAF, - Provision of the ESC relevant capacity development trainings to the respective administrative stakeholders

Source: Compiled by JICA Study Team (2017)

Table 5 Potential Deleterious Social Impacts

Component	Sub-Component	Potential Social Concerns	Scoping	Mitigations Measures/ Suggestions
Component 1: Sustainable Forest Ecosystem Management	1.1 Preparatory Works for Participatory Forest Management	- Following activities on private lands may result in formal acquisition of land, involuntary resettlement, loss of agricultural production, reduce income levels, increase vulnerability, loss of access to resources; ✓ Establishment of nurseries ✓ Civil engineering structures ✓ Creation of watershed structures or civil/mechanical structures ✓ Construction of new access roads/ paths	Low	- Ensure that private or lands held by community by virtue of customary traditions, are avoided which may result in (i) formal land acquisition, (ii) resettlement/ physical relocation, and (iii) Involuntary resettlement, loss of livelihoods, loss of access to resources - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation
	1.2 Participatory Forest Management (PFM) Mode			
	1.3 Training of VFDS			
	1.4 Department Mode			
	1.5 Training of Project related Staff of HPFD			
	1.6 Research			
		- Loss of access to resources through limited access to grazing lands for transhumance	Low	- Ensure active participation of beneficiary and affected community members, especially transhumance for the activities relevant to the pasture management
		- Limited access to customarily held resources	Low	- Ensure informed consultations and sharing of project related information to prepare the community for intended project activities - Ensure participation of community in all aspects of planning, implementation and monitoring of the project activities
		- Infrastructure development may result in acquisition of private lands, or loss of access to customarily held resources, or loss of incomes or loss of agricultural production	Low	- Ensure all forest infrastructure development activities are restricted within forest areas - Ensure access to customarily held resources is not limited or restricted due to construction of forest infrastructure
	- Disturbance and inconvenience from air and noise pollution, smoke and dust resulting from construction activities	Low	- All construction equipment to be regularly serviced, installation of noise mufflers and resonators, etc., to control air pollution due to smoke from exhausts, noise and vibrations from construction equipment	
	- Contaminated water from construction sites may pollute water sources, water channels, agricultural fields, plantations, etc., resulting in risk to health and reduction of incomes	Low	- Sprinkling of water in the construction sites and nearby areas to control dust - Judicious use of water to control contaminated water from construction site from run-off into agricultural fields, water sources, etc.	
	- Conflicts with construction workers on sharing of resources, such as fuel wood, NTFPs, and others from the forests	Low	- Provision of fuel for cooking and heating to avoid cutting from forests and sharing of natural resources of the community	
	- Health risks associated with local domesticated livestock foraging (disposed food items, plastics, blades, etc.) from solid wastes disposed in labour camps	Low	- Proper disposal of solid wastes in the labour camps, fencing of labour camps to ensure stray livestock from foraging	
	- Incestuous relationships between local community and construction workers resulting in spread of	Low	- Ensure medical check-up for laborers before commencing work in the construction sites, regular health check-ups	

Component	Sub-Component	Potential Social Concerns	Scoping	Mitigations Measures/ Suggestions
		Sexually transmitted diseases, AIDS/ HIV, etc.		thereafter
Component 2: Sustainable Biodiversity Management	2.1 Scientific Biodiversity Management 2.2 Training of Project related Staff of HPFD 2.3 Research 2.4 Community Based Biodiversity Management	- Wildlife movement in/ around project areas may pose threat to human life and property	Low	- Avoid project activities in or around known wildlife movement corridors - Imparting education to community members to drive away wildlife rather than hurt/ killed wildlife - Fencing and other similar arrangements to discourage wildlife, especially monkeys and other wildlife that can potentially destroy plantations and agricultural fields
Component 3: Livelihood Enhancement	3.1 Community Development 3.2 NTFP Based Livelihood Improvement 3.3 Non-NTFP Based Livelihood Improvement	- Disparity in selection of beneficiaries on income generating activities, and livelihood opportunities	Low	- Appropriate and representative selection of beneficiaries for livelihood options and income generation activities
		- Conflicts within the community individuals and institutions may arise on benefit sharing	Low	- Ensure cohesion among community institutions, immediate resolution of conflicts and redress of grievances
		- Exclusion of vulnerable groups from project activities and benefits	Low	- Identify specific activities for marginalized groups such as landless, poor households, female headed households, women, etc. - Specify minimum quota for selection of women, SCs, STs, and other vulnerable groups such as women, women headed households, landless, poor/ near poor, etc., as beneficiaries for livelihood development activities
		- Small scale infrastructure development may result in acquisition of private lands, or loss of access to customarily held resources, or loss of incomes or agricultural production	Low	- No acquisition of land: ensure up-gradation of existing infrastructure or ensure alignments that do not require additional acquisition of land (If un-avoidable, encourage voluntary land acquisition on community initiatives)
Component 4: Institutional Capacity Strengthening	4.1 Preparatory Works 4.2 Capacity Development 4.3 M&E 4.4 Research 4.5 PMC 4.6 Phase Out	- Lack of awareness/capacity of relevant stakeholders on ESC may possibly lead to negative social impacts such as loss of access to resources or loss of livelihoods, or involuntary resettlements, - Inequitable distribution of benefits based on forest land tenure arrangements. - Local community may get isolated or would merely act as target groups of project activity interventions	Low	- ECS specialist under PMU and subject matter experts assist PMU/FCCU/DMU/FTU to implement project activities with compliance of ESAF - Provision of the ESC relevant capacity development trainings to the respective administrative stakeholders - Ensure active participation of beneficiary and affected community members in baseline surveys and micro-planning activities, for selection of project areas, and reduce conflicts - Beneficiaries should be selected through a transparent process to ensure equitable benefit-sharing - Fully ensure and consider active participation of community in the Project following ESAF

Source: Compiled by JICA Study Team (2017)

5.3 Gender Aspects

Gender plays an important role in development projects related to forest protection and development activities, management and use of forests, akin to any other development initiative; men and women typically have gender based divisions of labour. Generally, women in the remote areas, especially in rural and mountainous parts, are either excluded or not allowed to participate in natural resource planning and decision-making, more-so due to patriarchal land tenure systems, male-dominated society and cultural beliefs; despite the fact that women are typically more attached to forests and more knowledgeable about various aspects of forest management.

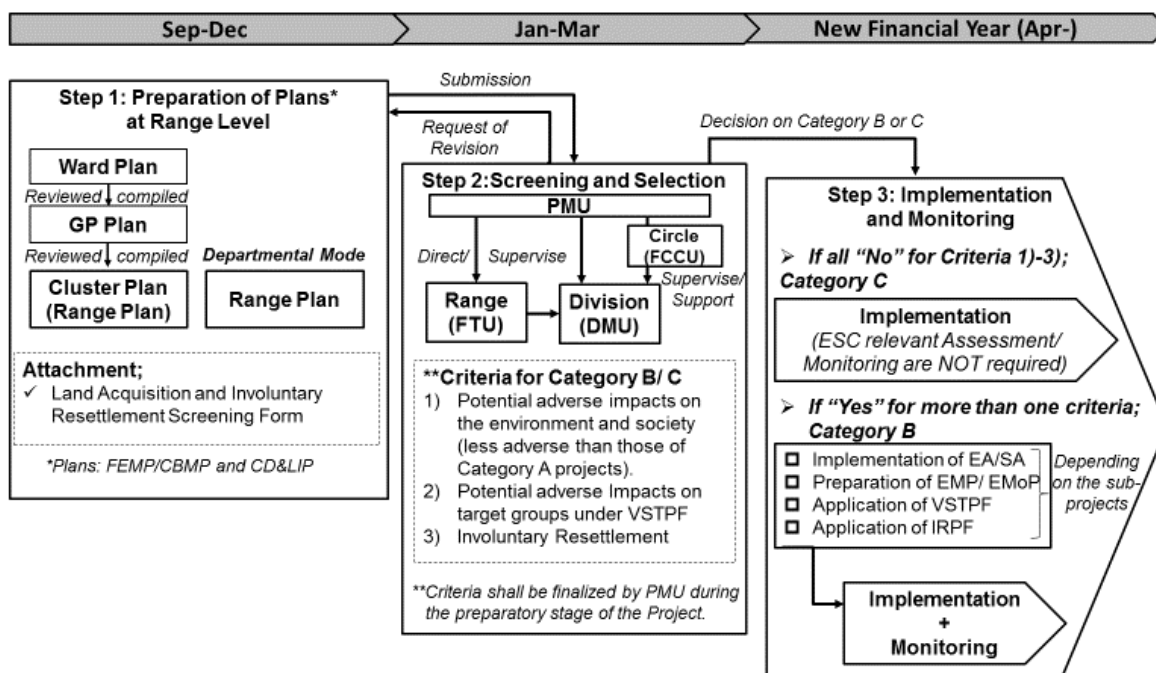
On the other hand, unlike in many parts of the country, women in HP relatively share a more equitable position in society and with the household, are more vocal in sharing their opinions, more educated in comparison, and many have jobs and financially independent; yet they are burdened with domestic chores, tending to the needs of the children and other family members, tending to livestock, collection of fuel-wood, fodder and water, involved in all aspects of agricultural activities, etc. Even during leisure, women folk get together and involved in activities such as knitting and weaving, mending cloths, grinding flour and masalas, plastering floors and walls, etc.

Another factor that is specifically relevant in remote areas is the fact that typically girls spend less time in school and drop out to assist in activities related to tending to siblings, agriculture, and other domestic chores. This combined with other restrictions, vis-à-vis., role of women/ girls within the house, in the community and their exposure to outside world limits their awareness, knowledge and participation; it is therefore imperative to boost active involve and participation of women in forest and livelihood based improvement activities.

6 Environmental and Social Management Measures and Monitoring

ESAF has been prepared to ensure that potential adverse environmental and social impacts associated with the Project are either avoided or minimised in line with the JICA Guideline as well as India and HP's relevant policies, laws and regulations. ESAF targets at managing the potential unfavourable and deleterious impacts, with the help of simple procedures to expedite appropriate environmental and social management.

An EIA study would not be required for the entire Project, however, the Project may need to be evaluated from the environmental and social risk perspective before implementation of sub-projects. Overall procedures which the Project shall be accountable are depicted in **Figure 7**.



Source: JICA Study Team (2017)

Figure 7 Overall Flow Diagram for ESAF Procedures

As depicted above, there are mainly three steps, i.e. 1) Preparation of Plans at Range Level, 2) Screening and Selection of Sub-projects, and 3) Implementation and Monitoring of Sub-projects. Further detail descriptions of each step are given in **Table 6**.

Table 6 Indicative ESAF Procedures

Step	Description	Key Stakeholders
Step 1: Preparation of Plans at Range Level	<ul style="list-style-type: none"> - As described in Part II, Chapter 3, Section 3.7.1.1, The proposed project intends to have a cohesive activity plans among ward, GP and range levels. Firstly, micro plans such as Forest Ecosystems Management Plan (FEMP), Community based Biodiversity Management Plan (CBMP), and Community Development and Livelihood Improvement Plan (CD&LIP) shall be prepared at ward level with assistance from Ward Facilitators. Based on the five years action plan and vision for 10 years, annual planning is to be developed between September and December prior to the next financial year. The ward plans shall be reviewed and compiled at GP level with assistance of GP Motivators then compiled at range level as cluster plan. - For departmental mode, the minimum planning unit is at the range level so that FTU officer shall be in charge of the preparation of the plan. - The Project may conduct scoping for each individual sub-project to exclude land acquisition and involuntary resettlement, which can be carried-out with the help of a “land acquisition and involuntary resettlement screening form” (Refer Appendix E). The form shall be attached to the range level plans. 	FWC/BMC sub-committees, Ward Facilitators, GP Motivators, FTU officers
Step 2: Screening and Selection of Sub-projects	<ul style="list-style-type: none"> - Criteria listed in Figure 7 are indicative and shall be finalised prior to the commencement of the Project or at the early stage of the preparatory work. - Under the guidance/direction from PMU, screening and selection of the sub-projects shall be conducted at range, division levels. - DMU officer, under the guidance/direction of PMU, shall determine whether the sub-projects are classified as Category B or C. - In case of Category B, depending on the potential adverse impacts by the sub-projects, required measures are determined from the following assessment tools/ frameworks; <ul style="list-style-type: none"> ✓ Implementation of Environmental Assessment (EA) and Social Assessment (SA) ✓ Preparation of Environmental Management Plan (EMP) and 	FTU and DMU officers, subject matter experts

Step	Description	Key Stakeholders
	<ul style="list-style-type: none"> ✓ Environmental Monitoring Plan (EMoP) ✓ Compliance of VSTPF (If sub-projects affect vulnerable STs or Forest Dwellers) ✓ Compliance of IRPF (If sub-project entails any land acquisition and involuntary resettlement) 	
Step 3: Implementation and Monitoring of Sub-projects	<ul style="list-style-type: none"> - In case, the sub-projects are classified as Category C, sub-projects can be implemented from new financial year and ESC relevant assessment and monitoring are not required. - In case, the sub-projects are classified as Category B, the requirements following the decisions at step 2 need to be satisfied for implementation of the sub-projects 	FTU and DMU officers, a specialist under PMC, subject matter experts

Source: JICA Study Team (2017)

The following sections indicate the further outline of important procedures/ requirements of ESAF as below;

- ◆ Screening and Selection of Sub-Projects,
- ◆ Environmental and Social Assessments,
- ◆ Preparation of Environmental Management Plan,
- ◆ Preparation of Environmental Monitoring Plan, and
- ◆ Implementation and Monitoring of Sub-projects

6.1 Screening and Selection of Sub-Projects

Generally, the guidelines for selection of sub-project reinforce the key objectives of the Project. Specific sub-projects will be selected based on the preferences of the communities/ needs of HPFD, thus the guidelines should not be too prescriptive in terms of defining what a given community/HPFD can and cannot do. At the same time, exclusion criteria should be clearly shown to eliminate sub-projects that may cause potentially significant adverse environmental impacts, resulting in the requirement of EIA.

The categorisation (Category B or C) of sub-project as per the JICA Guideline and exclusion criteria will be finalised by PMU prior to the commencement of the Project or at the early stage of the preparatory work. In accordance with the JICA Guidelines, various exclusion criteria have also been developed and are summarised in the **Table 7**.

Table 7 Sub-project Exclusion Criteria

Component	Exclusion Criteria for Sub-project
1. Overall	<ul style="list-style-type: none"> - diversion of forest land - acquisition of private land - cannot demonstrate the broad community support - likely to have major adverse impacts on the environment - fall into “Category A⁴” as per the JICA Guideline.
2. Forest and Natural Environment	<ul style="list-style-type: none"> - activities conducted inside protected areas such as national parks/ wildlife sanctuaries and will not contribute to environmental protection/ conservation of the selected protected areas. - likely to cause damage to wildlife and their habitats - planting of non-native or invasive or exotic species of forest trees, shrubs or plants - felling of trees on Reserved Forest or PA unless ancillary to conservation and management of

⁴ Though sub-projects which fall into the “Category A” as per the JICA Guideline are not anticipated in the Project, the following scale of sub-projects are regarded as the “Category A”.

- Conversion or felling of more than 100 ha of forest
- Construction of embankments/dams with water reservoir area of more than 100 ha
- Development of more than 100 ha agricultural area

Component	Exclusion Criteria for Sub-project
	<ul style="list-style-type: none"> - forests and wildlife defined in the working plan (e.g. fire breaks, thinning etc.) - collection, processing and sale of NTFP species listed under CITES, India's Red List of threatened species of fauna and flora or scheduled under the Wildlife Act (1972) - use of fertilizers and pesticides banned by WHO (Classes IA, IB and II)
3.Social Environment	<ul style="list-style-type: none"> - child labour - could lead to the exploitation of women - acquisition of private land and/or resettlement - cause damage to places of religious importance, historical monuments or cultural properties

Source: JICA Study Team (2017)

6.2 Environmental and Social Assessments

Although, the Project is not anticipated to bring-out deleterious environmental and social impacts, yet it is suggested to conduct Environmental Assessment (EA) and Social Assessment (SA) for specific sub-project classified as Category B, which shall be conducted after the screening and selection procedures. DMU under the guidance/direction of PMU as well as support/ supervise of FCCU shall determine the necessity of the assessments, considering the types of potential adverse impacts of the sub-projects. The assessment results will be utilised for the preparation of EMP/EMoP. The following sections describe the key tasks for the assessments and indicative contents of the reports.

(1) Environmental Assessment

The main purpose of EA is to help understand the issues and risks associated with environmental aspects, and its resultant impacts on the target population. Regular monitoring of environmental parameters such as air and water quality, noise levels, degradation of forests and land, soil erosion, solid waste disposal, disposal of sewage, etc., will enable the Project to understand the temporal changes in environmental conditions. Such monitoring activities would enable the Project to devise short/ long-term, recommendations, strategies and mitigation measures to address the concerns and issues that affect environment.

EA plan will be prepared by IA, assisted by ESCE/ESCFE hired by PMU providing reasonable details outlining the objectives, contents, methods and schedule for its implementation. **Table 8** specifies key tasks for EA.

Table 8 Key Tasks for Environmental Assessment

No.	Tasks	Descriptions
1	Describe Environmental Setting	It will address the existing environmental setting, in terms of physiography and geology, land-use patterns, forest cover and dependence on forests, ambient air quality, noise levels, water quality, areas prone to land slips and avalanches, socio-economics, etc.
2	Legal and Regulatory Environmental Consideration	Provides an account of the existing legal and regulatory milieu, compliance with multilateral funding agencies, such as World Bank, JICA, shortfalls, if any, etc.
3	Impacts Assessment and Mitigation Measures	It will describe all the activities/ sub-projects that have potential to impact the environment in a deleterious manner, assess and analyse in-depth various potential negative impacts related activities/ sub-projects, provide mitigation measures environmental risk and vulnerabilities.
4	Devise Strategies to Manage and Monitor Environmental	Provide strategies to manage and monitor potential environmental concerns and parameters. It will also provide roles and responsibilities of various key positions, institutions, bodies that will manage and monitor the control and protection of

No.	Tasks	Descriptions
	Concerns and Parameters	environmental aspects, conservation of resources, etc. It also examines the opportunities for community involvement in project preparation and implementation, the existing and proposed framework for property rights/ access to resources, and sustainable management and monitoring of environment.
5	Recommendations for Project Design and Implementation Arrangements	It reviews proposals for project design and provide guidance to the implementing agency on participatory alternatives and institutional strengthening measures appropriate to the environmental characteristics of the project area(s). This will provide a basis for integrating the environmental analysis of the core elements into proposals for implementation arrangements.

Source: Compiled by JICA Study Team (2017)

EA report shall include at least following contents.

Table 9 Indicative Contents of Environmental Assessment Report

No.	Chapter	Descriptions
1	Introduction	Define basic purposes for EA, its scope and a brief outline of report organisation.
2	Sub-Project Description	Provide an outline of the proposed sub-project, its rationale, objectives, area, key activities, the proposed implementation schedule, etc.
3	Approach and Methodology	Describe the study approach and methodology adopted for carrying-out the EA, including collation of quantitative data and information, describe tools for monitoring and management of environmental parameters
4	Environmental Baseline	Provide brief profiles of the target area, existing environmental conditions in these areas, that will serve as a reference for future comparison and monitoring
5	Sub-Project Impacts	Describe sub-projects, its objectives and activities of the sub-projects, explains potential positive and negative impacts as a result of establishment of the sub-projects.
6	Public Consultation and Information Disclosure	Describe the results of public consultations, meetings and other interaction events with the communities.
7	Conclusion and Recommendations	Provide overall conclusions and recommendations, describe precise measures to avoid, minimise and/or mitigate adverse impacts on the environment, communities and particularly vulnerable groups due to sub-project activities, environmental management mechanism and implementation arrangements and monitoring activities and implementation arrangements.

Source: JICA Study Team (2017)

(2) Social Assessment (SA)

The main purpose of the Social Assessment (SA) is to help understand basic social issues and risks, and to determine social impacts on the target population of the proposed sub-projects. Analysis of the collected socio-economic information enables the Project to prioritise critical issues and means to address them, in consultation with other stakeholders.

The assessment will (i) establish baseline socio-economic situation of the target communities in the project area that will act as a reference for measuring project impacts in future, (ii) assess the access to and opportunities for getting benefits of basic social and economic services, (iii) stipulates a basis to identify appropriate interventions for community development and livelihoods under the Project, and (iv) determine short/ long-term, direct/ indirect, and positive/ negative impacts of the Project on the socio-cultural and economic status, especially for vulnerable groups, including women, poor/ near poor households, female-headed households, landless, SCs/STs, etc.

SA shall be carried out with assistance/supervise by hired subject matter experts and the results would assist the executing agency in reaching-out to the vulnerable and the poor and thus ensures

that the objectives of the Project are acceptable to the intended beneficiaries. **Table 10** specifies key tasks for SA.

Table 10 Tasks for Social Assessment

No.	Tasks	Descriptions
1	Elucidate Social Setting, Socio-cultural Practices, Institutional, Historical, and Political Contexts	Address the macro-policy context of the Project. Describe the social settings, explain the extent of socio-cultural fragmentation or homogeneity. Address wide-ranging queries on traditional and cultural norms for using resources and how it relates to inter-relationships between stakeholder groups.
2	Legal and Regulatory Environmental Consideration	Provide an account of the existing legal and regulatory milieu of the Project, especially with regards to ownership of and access to arrangements and its implications to different stakeholder groups, specifically the poor and vulnerable.
3	Application of Core Aspects of Social Development to the Project	Describe the potential outcomes of the proposed Project in terms of social opportunities, constraints, impacts, and risks, such as socio-cultural diversity, gender, institutions, rules, stakeholder's interests, social risk and vulnerability.
4	Devise Strategy to Achieve Social Development Outcomes	Examine the opportunities for community involvement in project preparation and implementation, the existing and proposed framework for property rights/ access to resources, and sustainable management alternatives to achieve the desired social development outcomes.
5	Recommendations for Project Design and Implementation Arrangements	Review proposals for project design and provide guidance to the implementing agency on participatory alternatives and institutional strengthening measures appropriate to the socio-cultural characteristics of the project area(s). This will provide a basis for integrating the social analysis of the core elements into a proposal for implementation arrangements.
6	Development of a Monitoring Plan	The monitoring system needs to have local participation in the generation and refinement of indicators over the project cycle in order for the affected communities to be involved in balancing their own interests in the management of resources for conservation and productive purposes.

Source: *Social Analysis Guidelines in Natural Resource Management (2005)*, World Bank

SA report shall include at least following contents.

Table 11 Indicative Contents of Social Assessment Report

No.	Chapter	Descriptions
1	Introduction	Define basic purposes for Social Assessment, its scope and a brief outline of report organisation.
2	Sub-Project Description	Provide brief outline of proposed sub-project, its rationale, objectives, area, key activities, the proposed implementation schedule etc.
3	Approach and Methodology	Describe the study approach and methodology adopted for carrying-out the assessment, including quantitative and qualitative data and information collation
4	Socio-economic Baselines	Provide brief profiles of the study (target) area
5	Sub-Project Impacts	Describe sub-projects, its objectives and activities of the sub-projects, socio-economic and livelihoods assessment, explain potential positive and negative impacts of the sub-project.
6	Vulnerable Groups:	Identify and describe particularly vulnerable groups within the community and how Project may affect them.
7	Public Consultation and Information Disclosure	Describe the results of public consultations, meetings and other interaction events with the communities.
8	Conclusion and Recommendations	Provide overall conclusions and recommendations.
9	Mitigation Measures	Describe precise measures to avoid, minimise and/or compensate for sub-project activities with adverse impacts on communities and particularly vulnerable groups.
10	Monitoring	Provide the developed monitoring plan including monitoring mechanism and monitoring implementation arrangements

Source: JICA Study Team (2017)

6.3 Preparation of Environmental Management Plan

Environmental Management Plan (EMP) shall consist and cover environmental mitigations and consideration measures which shall be taken-up during construction and operation phases, which shall examine description and assessment results of environmental, social, health and safety impacts. As indicated in **Figure 7**, EMP shall be prepared only for “Category B” sub-projects. Though quantifications of impacts as well as concerned mitigation measures of sub-projects are yet to be determined, indicative EMP is described in **Table 12**. Any additional costs for the proposed mitigation measures shall be included in the construction cost.

Table 12 Indicative Environmental Management Plan

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
Construction Phase		
Air Pollution/generation of dust and smoke	<ul style="list-style-type: none"> - Ensure that dust and smoke is minimised with the help of dust control measures and equipment - Regular servicing of construction equipment and vehicles - Sprinkling of water on dusty roads and construction sites - Loaded and/or stockpiled construction materials to be covered from being exposed to wind - Prevent soils, sands, materials and dusts from scattering during transportation. - Installation of air quality monitoring equipment for outdoor ambient air at strategic locations in and around the construction site 	IA/ Contractor
Water Pollution	<ul style="list-style-type: none"> - Sewage from the labour camps may undergo a Primary treatment, in which sewage is temporarily held in a quiescent basin where heavy solids settle to the bottom while oil, grease and lighter solids float to the surface; the settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment. - Mobile lavatories must be provided at each construction site depending on the number of laborers; waste and wastewater from toilets be discharged into holding 	IA/ Contractor

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
	<ul style="list-style-type: none"> tanks and thereafter removed from the site - Temporary embankments to be created to restrict water mixed with concrete and other construction materials do not run-off to contaminate sources of water and water channels. 	
Solid Waste	<ul style="list-style-type: none"> - Litter bins, waste collection bins and pits to be judiciously placed within the construction site/ work areas - Contractor shall educate and ensure all laborers to segregate solid waste into bio-degradable, non-bio-degradable and recyclable. - No burning of refuse, or on-site burying or dumping of solid wastes. - Reusable construction materials such as wooden plates for trench works, steel, scaffolding materials, packaging material, etc. to be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale. 	IA/ Contractor
Chemical or hazardous wastes (Waste)	<ul style="list-style-type: none"> - Designated areas to be properly lined, roofed, fenced and appropriately labeled, for storage of oils, lubricants, chemicals, etc. - Used oil, lubricants, cleaning materials shall be collected in holding tanks and removed from site. 	IA/ Contractor
Soil Erosion and Restoration of affected areas	<ul style="list-style-type: none"> - All sites that include excavation, digging, shall ensure proper restoration after concerned activities, such as compaction and re-vegetation of dug-up areas, and proper disposal of dug-up muck. - All excavations to be avoided during rainy season. - All areas allocated and used for disposal of refuse, site facilities, workers' camps, stockpiles areas, working platforms, any temporarily occupied areas during construction of the project works to be restored using landscaping, re-vegetation, with adequate drainage. - Trees and other soil binding shrubs, herbs and grass, such as vetiver could be planted on exposed and sloping land to prevent or reduce land collapse and stabilize the slopes. Vertivers have multipurpose utilities, such as herbal skin care, soil and water conservation, run-off mitigation and water conservation, crop protection and pest (incl. termite) repellent, animal feed, food and flavoring, perfumery and aromatherapy, etc. 	IA/ Contractor
Noise and Vibrations	<ul style="list-style-type: none"> - All construction equipment to be regularly serviced, and installed with noise mufflers to control noise from construction equipment - To be ensured that noise from construction equipment is within permissible limits prescribed by Law - All vehicles must have appropriate "vehicle inspection certificate," and "technical worthiness and safety protection certificate". - Permissions from local authorities should be obtained in case of night time activities, if necessary. 	IA/ Contractor
Disruption of vegetative cover and ecological resources (Ecosystems)	<ul style="list-style-type: none"> - Cutting of any tree shall be prohibited, unless authorized by a competent authority. - Temporary protective fence to be set up to protect preserved trees and forest areas before commencement of any works. - No hunting, trapping, shooting, poisoning of any fauna. - Chemicals shall not be used to clear vegetation. 	IA/ Contractor
Communication with local communities (Resettlement)	<ul style="list-style-type: none"> - IA shall disseminate project information to communities/ groups/ entities likely to be affected by the construction activities - The contractor shall share project information with communities/ groups/ entities likely to be affected by the construction activities through community meetings before construction commencement. - IA or Contractor may depute a Public Relations Officer (PRO) who will provide project related information about on-site activities, status of Project and implementation, construction and work schedules, interruption of services, traffic detour routes, etc. - Information Banners and Boards to be installed at all construction sites providing project related information. 	IA/ Contractor
Worker and public Safety (Work environment)	<ul style="list-style-type: none"> - Training on Environment, Health and Safety (incl. occupational health and safety) and Social Aspects to be mandatory for all on-site construction workers and staff. - It should be mandated that all construction workers are provided and wear safety equipment (helmets, gloves, shoes, goggles, safety harness if working above ground, etc.) and protective clothing. - Pre-construction medical check-up and subsequent regular health check-ups is mandated for all on-site workers and staff. - Installation of boundary fences, barriers and barricades, Danger warning sign boards, 	IA/ Contractor

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
	to be installed in and around the construction area. - Depute flag personnel with lights to regulate traffic, traffic access routes and construction areas to be installed with appropriate signs, directions, safety advice, warnings, etc - Emergency evacuation plan to be prepared and shared with all concerned. Emergency evacuation route, assembly areas, to be marked with appropriate signage. - First-aid stations, safety equipment, and warning signals, for immediate administration, fully equipped Ambulance and Fire Engine to be stationed on-site for untoward eventuality.	
Operation Phase		
Air, Noise and Vibrations	- All construction facilities, forest roads and community/ village roads to be maintained on a regular basis	IA/ Contractor
Water Quality	- All sources of water for drinking purposes and irrigation to be maintained on a regular basis	IA/ Contractor
Accidents	- Emergency evacuation plan to be prepared and shared with all concerned and appropriate training imparted to all concerned. - Emergency evacuation route, assembly areas, to be marked with appropriate signage. - On-site First-aid stations with registered medical practitioner, fire safety equipment, and warning signals, fully equipped Ambulance and Fire Engine on call, for untoward eventuality.	IA/ Contractor

Source: Compiled by JICA Study Team (2017)

6.4 Preparation of Environmental Monitoring Plan

Environmental Monitoring Plan (EMoP) provides monitoring plan to administer and scrutinize the implementation of proposed environmental mitigation measures and considerations and to regularly monitor the quality of surrounding environments during construction, and operation phases. Same as EMP, EMoP shall be prepared only for “Category B” sub-projects.

EMoP ensures that environmental and social safeguards adopted measures are bringing the desired results. Therefore, indicators of environmental and social considerations are utilised to measure the quality environmental parameters and safeguard processes. **Table 13** presents indicative monitoring items, their indicators, means of verification, frequency and responsible parties for measuring safeguards measures that have been implemented. However, these aspects need to be finalised in relation to EMP, in case, EMP are prepared for some specific sub-projects.

It shall be the responsibility of the designated DMU officers to implement, monitor, and report safeguards, as an integral part of the project implementation, and for the purpose of site-level planning and implementation, the designated DMU and FTU officers ensure the required monitoring activities are conducted. The compliance of environmental and social safeguards during implementation of sub-project must be also closely observed by FTUs, and relevant local stakeholders such as PRIs, representatives of the FWC/BMC, local NGOs, if any appointed, women’s groups, youth groups, etc. Periodic visits should also be carried out by the designated officers to confirm that mitigation measures for deleterious impacts are being carried out properly by the contractors.

Table 13 Indicative Environmental Monitoring Programme

Aspects	Parameters to be monitored	Locations	Method	Frequency	Responsibility
Construction Phase					
Air pollution	Dust, smoke, ambient air, are SPM, RPM, SO2 and NOx.	Sub-project areas	Site visits, visual checks,	Twice a year	IA, Environment Safe Officer/ Contractor
			High and low volume air sampler	Twice a week for 24 hours for twelve consecutive weeks	IA, Environment Safe Officer
Noise and Vibrations	Noise of equipment, complaints from local residents	Sub-project areas - Major sources of noise	Sound Level Meter	Once in three months	IA, Environment Safe Officer
Ground water quality	pH, Electrical conductivity, Turbidity, TDS, TSS, Total Hardness, Alkalinity, Carbonate, BOD, COD, Nitrates, Phosphates, Fluorides, Chlorides, Sulphates, Sodium, Potassium, Calcium, Magnesium, Oil & Grease, Iron, Manganese, Copper, Zinc, Phenolic Compounds, Colour, Cadmium, Chromium, Cyanides, Lead, Total Coliform	Sub-project areas and nearest villages - 10 location	Collected sample to be analysed from HPSPCB Laboratory	Once in three months	IA, Environment Safe Officer
Surface water quality					
Solid waste (Waste)	Volume and kind of construction wastes,	Sub-project areas	Site visits and visual checks	Once in three months	IA, Environment Safe Officer
	Kitchen and other solid waste generated in labour camp	Sub-project areas	Site visits and visual checks	Once every month	IA, Environment Safe Officer
Chemical or hazardous wastes	Oils, lubricants, cleaning agents, etc	Sub-project areas	Site visits and visual checks	Once in three months	IA, Environment Safe Officer
Drainage and sedimentation		Sub-project areas	Site visits and visual checks	Once in three months	IA, Environment Safe Officer
Soil erosion	Visual inspection of rain water run-off	Sub-project areas	Site visits and visual checks	Twice in a Year	IA, Environment Safe Officer
Disturbance to ecological resources and vegetative cover	Illegal tree felling, wildlife hunting, illegal extraction of forest resources	Sub-project areas	Site visits and visual checks	Twice in a Year	IA, Environment Safe Officer
Interactions with local communities	Complaints and grievances, from local residents	Sub-project areas	Site visits and visual checks	Once in two months	IA, Social Safeguards Officer
Resettlement (loss of income or loss of access)	Economic condition of households, process of selection of project areas	Sub-project areas	Interviews	Twice in a Year	IA, Social Safeguards Officer
Impact of livelihoods	Direct or indirect impacts of livelihoods	Sub-project areas	Interviews	Twice in a Year	IA, Social Safeguards Officer
Health and Safety	Training and health check-ups for workers, fencing, warning	Sub-project areas	Site visits and visual checks	Twice in a Year	IA, Environment Safeguards

Aspects	Parameters to be monitored	Locations	Method	Frequency	Responsibility
	signs, emergency evacuation				Officer
Accidents and traffic management	Signage, regular maintenance	Sub-project areas	Site visits and visual checks, record of accidents and training	Twice in a Year	IA, Environment Safeguards Officer
Operation Phase					
Impact of livelihoods	Direct or indirect impacts of livelihoods	Sub-project areas	Interviews	Twice in a Year	IA, Social Safeguards Officer
Accidents	Direct or indirect impacts of livelihoods	Sub-project areas	Site visits and visual checks, record of accidents and training	Twice in a Year	IA, Environment Safeguards Officer

Source: Compiled by JICA Study Team (2017)

6.5 Implementation and Monitoring of Sub-projects

The institutional arrangement for the implementation and monitoring system for EMP and EMoP is basically same as the project component monitoring system, but again it should be noted that only the sub-projects which are identified as Category B as per JICA Guideline shall be the target of this monitoring. At the ward/GP level, monitoring and reviews will be conducted by respective level implementing organization assisted by Ward Facilitators/ GP Motivators and report to FTU. A sample monitoring format at this level is attached in **Appendix F**. Then, FTU officer shall compile monitoring results and reviews regularly, thereafter, DMU shall compile and report to PMU (CC: FCCU), which analyse the result and share to concerned departments in the state government as well as annual report to JICA. A sample format for the monitoring report from PMU to JICA is described in **Appendix G**. These sample formats shall be revised/updated according to the types of sub-projects and prepared EMoP. A specialist under PMC, and subject matter experts, identified in **Section 7.1** below shall support PMU/ FCCUs/ DMUs/ FTUs for the monitoring related activities which are in line with JICA Guideline.

7 Institutional Arrangement and Capacity Development for ESAF

7.1 Institutional Arrangement

In the proposed Project, most of the environment and social issues and protection are managed through the institutions responsible for forest management i.e. HPFD, is responsible for overall planned intervention in the proposed Project, legal/policy development, ensuring adequate consultation and participation, inclusion of vulnerable groups such as STs, poor/ women headed households, in planning and implementation and the equitable distribution of benefits associated with site-level project interventions. Other agencies would also be involved in different environment and social safeguard aspects or issues. The district administration is the designated agency responsible for land administration, land acquisition and disbursement of compensation and providing Resettlement and Rehabilitation (R&R) benefits to the project-affected families.

ESAF will be implemented through the institutional structure of the Project and a director/

officers at each administrative level shall be appointed as focal persons for ESAF compliance.

Table 14 highlights the institutional structure for ESAF with key environmental and social management roles and responsibilities.

Table 14 Institutional Structure for ESAF Implementation and Monitoring

Institution	Role in the Project	(Additional) Role and/or Responsibility in ESAF
High Power Committee/ Governing Body	<ul style="list-style-type: none"> - Highest decision-making body - Lay-down the broad policy framework for functioning of HPFEMLIP Society - Review the Society's performance - All administrative and financial powers - Monitor utilisation of funds 	<ul style="list-style-type: none"> - Overall supervision on ESAF and its implementation and M&E - Facilitation and coordination with various line departments and other agencies - Provide directions/advice to PMU to ensure smooth/efficient project operation on environment and social consideration - Periodical checks and due diligence on safeguards reports, monitoring data etc.
Project Management Unit (PMU)	<ul style="list-style-type: none"> - Project implementation, supervision and monitoring of all activities. - Documentation and reporting 	<ul style="list-style-type: none"> - Owner and implementation of ESAF - Report to concerned departments in the state government as well as to JICA in relation to environmental and social consideration - Information disclosure through project information brochures and project homepage, etc. - Consultation and guidance to FCCU/DMU/FTU, and field level officers on information disclosure and consultation - Ensure FPIC consultation - Technical guidelines on beneficiary selection, safeguard checks/ guidelines for particular activities (if required) - Development of planning/ monitoring forms, review of monitoring data, reporting, assistance with evaluations - Finalise criteria for categorisation (Category B or C) as per JICA Guidelines as well as exclusion criteria - Review of participatory Environmental and Social Assessments - Performance of due diligence follow-up - Guide, instruct, prepare guidelines, establish and operate M&E, dissemination of project information, hand-holding support in the field for all project activities
Forest Circle Coordination Unit (FCCU)	<ul style="list-style-type: none"> - support and facilitate the PMU for project implementation at circle level, and would extend all technical inputs and guidance to the forest division level at requirement basis and through regular review meetings which frequency to be determined during the preparatory phase of the Project - FCCU would not form the part of the society 	<ul style="list-style-type: none"> - Coordinate, monitor and supervise the ESC relevant activities at circle level, including the screening and selection of sub-projects and determination of the required procedures for specific sub-projects following the guidance/instruction of PMU, - Liaise with other line departments at the appropriate level, for inter-sector convergence - Provided any specific support required for implementation and monitoring of the Project
Division Management Unit (DMU)	<ul style="list-style-type: none"> - function as the dedicated and extended wing of the PMU for project implementation at division level and as a subordinate office of the autonomous society. - facilitate project implementation at division level, and would extend all technical inputs and guidance to the FTUs 	<ul style="list-style-type: none"> - Coordinate, monitor and supervise the ESC relevant activities at division level, - Conduct the screening and selection of sub-projects and determine the required procedures for specific sub-projects following the guidance/instruction of PMU, - Liaise with other line departments at the appropriate level, for inter-sectoral convergence - Provided any specific support required for implementation and monitoring of the Project - Coordinate with subject matter experts
Field Technical Unit (FTU)	<ul style="list-style-type: none"> - facilitate project implementation at the range level, and would extend all technical inputs and guidance at field level on day-to-day basis 	<ul style="list-style-type: none"> - Coordinate with range-level implementing organisation to select sub-projects with screening procedures and to conduct participatory Environmental and Social Assessments - Support range-level implementing organisation with monitoring and reporting, logistical support for independent evaluations. - Regularly undertake site visits at construction areas to ensure compliance of ESAF.

Institution	Role in the Project	(Additional) Role and/or Responsibility in ESAF
Gram Panchayat Level		
Village-Level Implementation Bodies	<ul style="list-style-type: none"> - Assist in selecting target beneficiaries - Clarify local needs and expectations on the Project 	<ul style="list-style-type: none"> - Conceive and raise awareness in the locality on environmental and social considerations. - Provision of support in micro planning activities at ward level to GP level. - Participating in Environmental and Social Assessments - Support HPFEMLIPS for FPIC consultation, and due diligence checks.

Source: JICA Study Team (2017)

The Project Management Unit (PMU) headed by the CPD shall be responsible for project administration, programme management, procurement, financial management, supervision of field units, project implementation, monitoring and evaluation, and providing direction and support to the Project. Thus, the overall responsibility of the implementation of ESAF shall be vested with PMU. Under PMU, one Director (Position: Additional Project Director (M&E, Environmental and Social Safeguards)) is required to be given a responsibility to ensure implementation and monitoring and compliance of environment and social safeguards, and provide technical advice on environmental and social safeguard during the project implementation. And FCCU/ DMU/ FTU officers shall be responsible for ensuring implementation and monitoring of ESAF at circle level, division level and range level respectively.

However, as mentioned earlier, HPFEMLIPS or HPFD does not have any dedicated units or personnel for the purpose of ESC. Hence, one specialist in PMC and subject matter experts will support PMU for the compliance of the environmental and social safeguards for its smooth and efficient implementation such as environmental and social assessment, management and monitoring of the environmental and social aspects within the ambit of the Project, which are proposed as follows.

- ◆ (PMC member) Environmental and Social Consideration/ Environmental Economics/ PES Specialist: The specialist is planned to be deployed under the Project Management Consultant (PMC) to assist PMU on ESC issues of the Project. He/she is expected to support PMU to review the project activities with focus on the compliance on ESAF, provide guidance and technical advice to PMU for required environment and social safeguard measures, as well as reporting to JICA to ensure smooth and efficient implementation of environment and social safeguard measures.
- ◆ (Subject Matter Expert) Environmental and Social Consideration Expert (ESCE): ESCE shall/ could be engaged as contract basis with PMU from the initial Preparatory Phase of the Project. This is to assist the PMU in head start with the safeguard related actions while waiting for the PMC specialist to be placed. Once the project implementation begins, ESCE shall fulfil the gaps that may occur, while the PMC specialist is absent from the field. ESCE will report to the Director under PMU who would be vested with additional charge to ensure the compliance of ESC. ESCE will assist PMU for the following aspects;

- a) To facilitate and coordinate with various implementation and line departments,
- b) To update and finalise ESAF/VSTPF,
- c) To develop appropriate training materials on environmental and social safeguards, following the requirements in ESAF,
- d) To provide training courses and capacity enhancement at the different levels of stakeholders who will be designated with the responsibilities to ensure implementation of environment and social safeguards, and
- e) To supervise/ manage the project activities to ensure that the required procedures indicated in ESAF are followed properly. The expert may also be required to follow-up in the field where particular issues are identified and report to the specialist/ PMU.

- ◆ (Subject Matter Expert) Environmental and Social Consideration Field Expert (ESCFE):
ESCFE will also be engaged as contract basis with PMU, and will assist ESCE to provide the relevant trainings at respective administrative level such as preparation of the training materials, record minutes of meeting of the relevant consultation meeting, etc. Therefore, the expert shall be mainly allocated with focused on the training period, which are depicted in ESAF.

7.2 Capacity Development Programme

In order to ensure effective implementation of the proposed ESAF and associated safeguards procedures under the above proposed institutional arrangement, it would be obligatory to enhance capacity of various agencies and stakeholders. In this regard, capacity development programmes, supported by the above proposed specialist/experts will not only help addresses gaps in the existing environmental and social management system, but would also ensure that environmental and social safeguards are effectively operationalised.

The details of the training programme such as venue, time, date, frequency of the proposed trainings sessions should be further developed by hired specialist/experts with comments and clearance of PMU. An indicative capacity development programme has been devised and depicted in **Table 15** as a reference to devise capacity enhancement training programmes.

Table 15 Indicative Capacity Development Programme for Environmental and Social Safeguards

Item	Descriptions
Training 1 Programme for Management/ Administrative Level	
Key Participants	Designated officials of PMU, FCCU
Training Programme	<p>Topic 1: General Orientation on ESAF and VSTPF for the Project</p> <ul style="list-style-type: none"> - Legal framework on environmental and social safeguard of India and JICA - Basic introductory concept of safeguard - Environmental and social impact assessment: overview & regulations - Safeguard issues (vulnerable groups, SCs, STs, transhumance, Gender, etc.) - ESAF: steps and procedures with respect to the Project - FPIC <p>Topic 2: Monitoring and Evaluation for Environmental and Social Safeguard</p> <ul style="list-style-type: none"> - Concept of M&E - M&E and reporting procedures - Use of M&E results and feedback, including Grievance Redress Mechanism (GRM)
Duration	Two days training (once a year in the first four years at each district)
Training 2 Programme for Field/ Operational Level	
Key Participants	<ul style="list-style-type: none"> - Designated officials and staff of DMU and FTU - Designated field level officers such as Ward Facilitators, GP Motivators - (If necessary) representatives of PRI/ GP/ FWC/ BMC
Training Programme	<p>Topic 1: General Orientation on ESAF and VSTPF for the Project</p> <ul style="list-style-type: none"> - Basic introductory concept of safeguard - Environmental and social impact assessment: overview - ESAF: steps and procedures with respect to the Project - Environmental protection, EIA and social safeguard regulations (specific) - Safeguard issues (vulnerable groups, SCs, STs, transhumance, gender etc.) - Process of community consultation and public participation - FPIC - PRA for data collection, analysis and report preparation - Micro-planning <p>Topic 2: Monitoring and Evaluation for Environmental and Social Safeguard</p> <ul style="list-style-type: none"> - Concept of M&E - M&E and reporting procedures - Use of M&E results and feedback, including GRM
Duration	Two days training (once a year in the first four years at each division)
Training 3 Community Facilitation and Environmental and Social Assessment for ESC	
Key Participants	<ul style="list-style-type: none"> - Designated field level officers such as Ward Facilitators, GP Motivators - (If necessary) representatives of PRI/ GP/ FWC/ BMC
Training Programme	<ul style="list-style-type: none"> - ESAF: steps and procedures with respect to the Project - Project activities planning (and micro planning) - Role of Ward, GP, FTU, DMU, FCCU - Participatory ESA procedures - Working with vulnerable groups - Gender issues - Conflict resolution/ grievance procedures
Duration	One session as part of other community related trainings (Once a year in the first four years/ location and timing shall be determined accordingly)
Training 4 Specific Training for Specific Techniques/Tasks to be Required	
Key Participants	To be defined according to the main topics
Training Programme	<p>For example:</p> <ul style="list-style-type: none"> - Appropriate chemical use - Environment health & safety standard for construction - Occupational health & safety - Mitigation planning and implementation
Duration	To be defined when necessary

Source: JICA Study Team (2017)

8 Public Consultation Mechanism

Public consultation and participation is an apt process to provide information to community, project-affected persons and other stakeholders relevant to the proposed Project, so that they (i) are sufficiently educated about the project's objectives, activities, benefits and risks; (ii) have

equal opportunities to participate in the Project; (iii) receive culturally appropriate benefits which are more suited to their interests, capabilities and priorities; these shall be identified during the course prior consultations, and such benefits are shared equitably; (iv) are not adversely affected by the Project or its associated activities; adverse impacts shall be mitigated appropriately; and (v) can raise project related grievances and required mechanism is in place.

Consultation and Participation provides an opportunity and platform for people to express and sharing their views and concerns, contribute to design and implementation of the programme activities, discussions on sensitive social mitigation measures, while at the same time creating a sense of ownership for the Project. In this regard, FPIC is an important process to minimise any negative impacts and for a broad community support. Summary of FPIC relevant activities are described in **Table 16**.

Table 16 Summary of FPIC Activities

Item	Descriptions
Objective	To establishing a broad community support and willingness for implementation of the Project
Topic for Consultation:	<ul style="list-style-type: none"> - Disclosure of basic project related information including area, location, purpose/objectives, key activities, stakeholders involved, target beneficiaries. - Expected role and involvement of communities. - An overview of anticipated environmental and social risks. - Involuntary Resettlement Plan and Vulnerable Scheduled Tribal Plan (if any)
Participants:	<ul style="list-style-type: none"> - Relevant members of FWC/ BMC/ SHG, etc. - Gram Sabha members - Other important key persons (e.g. Gram Panchayat President)
Process:	<ul style="list-style-type: none"> a) Before on-set of sub-project implementation, immediately following formations of beneficiary groups, appropriate community meetings and consultations that are culturally appropriate and in simple and understandable language b) Encourage community's participation in discussions, meetings and consultations, facilitate participation of women, elders and other vulnerable groups c) Field level officers will participate in general community meeting to discuss concerns, visit individuals who express doubt and/or criticism on any aspect of project implementation. d) Participants to be provided adequate time to assimilate information provided/ shared e) Opportunity to decide if they do not wish to participate. f) Presentation and discussion with Gram Sabha
Material Required:	<ul style="list-style-type: none"> - Provision of simple/easy to read project brochures in local language. - Consultation and Participation Monitoring Sheets

Source: JICA Study Team (2017)

The public consultation mechanism shall reduce conflicts between the affected and the management committees. This is particularly focused on ensuring that vulnerable groups, including the poor, landless, STs/SCs and other forest dependent groups, and women, are properly consulted during site-level project planning and that they are given the opportunities and encourage to participate in the Project.

9 Grievance Redress Mechanism

While there are the existing legal frameworks related to the Grievance Redress Mechanism (GRM) in the country⁵, a Project-level GRM which shall be applied all sub-projects is expected

⁵ EIA Notification 2006 states that "Public Consultation and Public Hearing" which refers to "the process through which the concerns of local affected persons and others who have plausible stake in the environmental impacts of a project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category 'B1' projects or activities shall undertake Public Consultation...". Further, the RFCTLARRA-2013, involves consultations and redress of concerns of affected persons at various stages. Besides,

to be institutionalised, in which project-related grievances such as disputes over locations of forest development and management and community development infrastructure, selection of beneficiaries, distribution of project benefits, behaviour of fellow community members, contractor and his workers, project-related staff or consultants, etc. can be reported directly to HPFEMLIPS.

In this regard, FTU officer, would be the first level of intervention, as FTU acts as the link for community liaison and forest management in general. Thus, all concerns of the community shall be recorded in a project grievance logbook. Individuals can raise their grievances in name or anonymously, or through traditional institutions according to culture and context, as appropriate, which shall be recorded in written form. A grievance redress format/ template could be devised for this purpose, which would depend on the type and context of the grievance.

FTU officers should resolve all concerns or grievances raised by the communities, beneficiaries, etc. and in case an anonymous grievance has been put-up, it shall be addressed through public consultation through a village meeting, retorting generally to the raised point(s) and minutes of the meeting and outcomes shall be recorded. The grievance redress or compliance response is sent to the applicant in written, after resolving the grievance/ concerns.

However, in case the applicant (individual/ group) is not satisfied, s/he may approach to DMU for further redress, or in case of grievances that are more serious in nature, the FTU officers should forward such grievances to DMU. DMU officers shall be responsible to redress the grievance in consultation with the FTU officer, concerned applicants. All grievances should be addressed, redressed and resolved at this level.

In case of more serious grievances, then they should be dealt with through the project hierarchy as necessary and any complainant should be made aware of their legal rights according to the relevant legal documents.

10 Cost Estimation and Budget Allocation

ESAF is a tool to provide guidance on how the project activities should be carried out following the requirements of the JICA Guideline. And in many instances, the actions or measures mentioned in ESAF do not necessarily entail additional costs as they are often already identified in the project cost estimate. For example, baseline survey for identification and selection of target communities/ intervention areas are already proposed as project activities. Therefore, while there are activities related to ESAF implementation such as SA, Consultation, Information Dissemination, GRM, M&E, etc., these costs are embedded within the budgets of the corresponding project components. However, still some of the items/topics are required the additional budget which are described in the following sections.

Department of Administrative Reforms & Public Grievances under the Ministry of Personnel, Public Grievances & Pensions, GoI, has issued a Compilation of Guidelines for Redress of Public Grievances and also operates a web-based portal (<http://pgportal.gov.in/>).

10.1 Personnel

As proposed above, considering the current capacity of the implementation agencies, external specialist/experts in charge of environmental and social safeguard should be allocated as indicated below. The cost of such personnel has been incorporated into the proposed budget.

- ◆ **Environmental and Social Consideration/ Environmental Economics/ PES Specialist:** It is proposed that xx man-months during Preparatory and Implementation phase for the allocation of the specialist under PMC and he/she would work as a team with relevant experts specified below. The specialist is expected to review the project activities with focus on the compliance on ESAF, and provide directions or advice to PMU to ensure smooth and efficient implementation of environment and social safeguard measures, including the reporting to JICA.
- ◆ **Environmental and Social Consideration Expert (ESCE):** ESCE shall/ could be engaged from the initial Preparatory Phase and following-up the ESAF requirements with close communication with the above specialist/ESCFE as well as PMU when required. In total, 39 man-months are proposed for the tasks described in **Section 7.1** in this document.
- ◆ **Environmental and Social Consideration Field Expert (ESCFE):** ESCFE will be engaged mainly during planned training period to support ESCE. 13 man-months are proposed to be allocated for this position.

1-2 members from respective administration level such as PMU, FCCUs, DMUs, FTUs shall be nominated as responsible positions for environmental and social safeguard and these costs shall be covered by their own organization, i.e. HPFD.

10.2 Capacity Development Programme

The following capacity development trainings are proposed in the **Section 7** in this document and ESCE/ESCFE shall support PMU to ensure such capacity building trainings are delivered at each administrative level adequately.

- ◆ **Training 1: Programme for Management/Administrative Level** (once a year in the first four years at each district, two days training/year/division, PMU only need to attend one training in a division)
- ◆ **Training 2: Programme for Field/ Operational Level** (once a year in the first four years at each division, two days training/year/division)
- ◆ **Training 3: Community Facilitation and ESA for Environmental Special Safeguard** (Conducted as part of other community related trainings at once a year in the first four years/ the location/timing shall be determined accordingly)
- ◆ **Training 4: Specific Training for Specific Techniques/Tasks to be Required** (To be determined)
- ◆

Basically, these trainings are delivered as a lecture style and no special equipment is required so that the cost requirement would be small (i.e. mainly for personnel, material preparation, accommodation or allowance for participants, etc.) Also, at the community level, the trainings are delivered as a part of other trainings considering the several trainings are organized during the course of project implementation.

Attachment II.11.3.1 Appendix-A: Laws, Regulations and Policies relevant to Environment/ Forest Sectors in Indian and Himachal Pradesh

The existing laws, regulations and policies relevant to environment and forest sectors in the country and Himachal Pradesh are compiled in **Tables 1** and **Table 2** respectively.

Table 1 Legal and Policy Framework for Environment/ Forest Sectors in India

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Environment Protection and EIA		
Environment (Protection) Act, 1986 and Amendment 1991	An umbrella regulation that concerns all aspects of environmental safeguards, and provides a framework for coordination among various central and state government authorities for protection and improvement of environment and prevention of hazards to human beings, other living creatures and property. It is mandated to prevent environmental pollution in all its forms and to tackle specific environmental problems peculiar to different parts of the country.	MoEF&CC Central and/or State Pollution Control Boards
Environment (Protection) Rules 1986 and Amendments	The Rules provide Standards for Emissions or discharge of environmental pollutants, prohibitions/restrictions on the location of industries and on carrying-out processes and operations in different areas, procedure for taking samples and submission of samples for analysis and the form of laboratory report, providing information to authorities and agencies in certain cases, prohibition and restriction on handling hazardous substances in different areas and submission of environmental statement.	MoEF&CC, Central and/or State Pollution Control Boards
EIA Notification 2006 and Amendments 2007, 2008, 2009, 2011 and 2012	This Notification provides procedures required for environmental clearance (EC), categorization of projects for EC, activities for EC and stages of EC, for the purpose of construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule	MoEF&CC,
The National Green Tribunal Act 2010	The Act provides for the establishment of a National Green Tribunal to provide specialized medium for effective and prompt clearance of case related to environment protection, conservation of forests and other natural resources. This Act also includes enforcement of any legal right relating to environment and providing relief and compensation for damages caused to people or property due to violation of environmental laws or conditions specified while granting permission.	National Green Tribunal (NGT: under MoEF&CC)
Forest & Wildlife		
Indian Forest Act 1927	This Act was enacted to preserve forest cover and significant wildlife. It defines procedure for declaring Reserved Forest, Protected Forest and Village Forest. Further, describes power to impose duty on timber and other forest-produce and to make rules to regulate transit of forest-produce, and collection of drift and stranded timber. The Act also has provision to impose penalties and procedures thereof.	MoEF&CC State level Environment and Forest departments Implementing Agency
The National Forest Policy 1988	The policy was prepared with a national goal to have a minimum of 1/3 of the total land area of the country under forest or tree cover. Whilst in the hills and mountainous regions, to maintain 2/3 of the area under forests or tree cover to prevent erosion and land degradation and to ensure stability of the fragile eco-system. The policy provides for maintenance of environmental stability through preservation, restoration of ecological balance impacted by serious depletion of forests, preserving natural forests with vast variety of flora and fauna, check erosions/ degradations, and to minimize pressure to existing forests.	MoEF&CC, State level Environment and Forest departments
Forest Conservation Act 1980 and Amendment 1988	The Act provides for conservation of forests and lays emphasis on restriction on de-reservation of forests or use of forest lands for non-forest purposes. It also provides that any reserved forest can be reserved, any forest land may be used for non-forest purposes, any forest land could be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation, any forest land may be cleared of trees, which have grown	MoEF&CC, State level Environment and Forest departments

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
	naturally, for the purpose of reforestation.	
The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The Act, commonly known as 'Forests Right Act". The Act seeks to recognize and bestow the forest rights and occupation in forest land among the forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations. Two enabling Rules namely, Scheduled Tribes and other Traditional forest dwellers (Recognition of Forest Rights.) Rules, 2008 & Scheduled Tribes and other Traditional forest dwellers (Recognition of Forest Rights), (Amended) Rules, 2012 have been formed to facilitate implementation of the provisions of the Act.	Ministry of Tribal Affairs State Government
Wildlife (Protection) Act 1972 and Amendment 1993	This Act provides for protection of wild animals, birds and plants, prohibition on hunting any wild animal specified in Schedule I, II, III and IV, prohibition on picking, uprooting, of specified plants, constitution of Sanctuaries, National Parks and Closed Areas, prohibition on trade or commerce of wild animals, in Trophies, Animal Articles derived from Certain Animals. The Act also empowers certain officials to investigate and impose penalties.	MoEF&CC, Forest Department
Biological Diversity Act 2002	This is umbrella legislation aimed at conservation of biological resources and associated knowledge as well as facilitating access to them in a sustainable manner and through a just process.	National Biodiversity Authority, Chennai State bio-diversity board
Water, Air and Pollution		
Water (Prevention and Control of Pollution) Act 1974 and Amendment 1988	This Act provides for prevention and control of water pollution and the maintaining or restoring of wholesomeness of water. For this purpose, it provides for establishment of Boards, and confers them with powers and functions for the prevention and control of water pollution.	Central and/or State Pollution Control Boards
Air (Prevention and Control of Pollution) Act 1981	This Act provides for prevention, control and reduction of air pollution. The Act further provides for establishment of Boards, and assigning them with powers and functions towards prevention, control and reduction of air pollution.	Central and/or State Pollution Control Boards
Rules and Notifications framed under the Environment (Protection) Act 1986	The Act has given powers to the Central Government to take measures to protect and improve environment while the state government coordinates the actions. The most important functions of Central Govt, under this Act include setting up of: (a) The standards of quality of air, water or soil for various areas and purpose; (b) The maximum permissible limits of concentration of various environmental pollutants (including noise) for different areas; (c) The procedures and safeguards for the handling of hazardous substances in different areas; (d) The prohibition and restriction on the location of industries and to carry on process and operations in different areas; (e) The procedures and safeguards for the prevention of accidents which may cause environmental pollution and provide remedial measures for such accidents.	Central and/or State Pollution Control Boards

Source: Compiled by JICA Study Team (2017)

Table 2 Legal and Policy Framework for Environment/ Forest Sectors in Himachal Pradesh

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Environment Protection and EIA		
Environment Policy Guidelines	The policy guidelines encompass a range of important areas such as Land, Water, Air, Mineral Resources, Health, Biodiversity, Agriculture, Horticulture, Energy and Tourism etc. The Policy intends developing approaches compatible with mountain eco-systems and its unique characteristics vis-à-vis fragility, inaccessibility, marginality, diversity, climatic peculiarities, etc.	Department of Environment , Science and Technology (DEST) Himachal Pradesh State Pollution Control Board (HPSPCB)
Environmental Regulations	The Himachal Pradesh has adopted, follows and implements the Union level regulations and laws pertaining to environment protection and control of pollution: (i) The Water (Prevention & Control of Pollution) Act, 1974 and Rules; (ii) The Air (Prevention & Control of Pollution) Act 1981 and Rules; (iii) The Water (Prevention & Control of Pollution) Cess Act, 1977, as amended by Amendment Act, 1991, 2003 and Rules; (iv) Environment (Protection) Act, 1986; (v) Environmental Protection Rules, 1986; (vi) Environmental Impact Assessment Notification, 1994, 1997, 2002, 2004, 2006 as amended. Besides, the State has formulated other Acts, which are described below.	DEST, HPSPCB
Hazardous Waste (Management, Handling, and Trans-boundary Movement) Rules, 2008.	These Rules impose restrictions and prescribe procedures for management, handling, disposal and trans-boundary movement of hazardous wastes, which are specified in the Schedules appended to the Rules. However, this rule shall not be applicable to (a) waste-water and exhaust gases; (b) wastes arising out of the operation form ships beyond five kilometers; (c) radio-active wastes; (d) bio-medical wastes; and (e) municipal solid wastes	DEST, HPSPCB
Manufacture, Storage and Import of Hazardous Chemical Rules, 1989	These Rules apply to any Industry that manufacture, store and import chemicals that are Toxic, Flammable and Explosive; and recommends isolated storage of hazardous chemicals; identification of major accident hazards; prevent such major accidents; prevent their consequences to persons and environment; provide site personnel with information, provide training and equipment necessary to ensure their safety.	DEST, HPSPCB
Plastics Manufacture, Sale and Usage Rules, 1999 and 2003;	This Act has been notified by the central government under the Environment (Protection) Act, 1986 to regulate the manufacture, sale and use and recycling of plastic bags; plastic carry bags should have a minimum thickness of 20 microns; carry bags or containers made of recycled plastic not to be used for packaging of food items and recycling of plastic waste in accordance with BIS specifications. State Pollution Control Boards / Pollution Control Committees have been delegated for taking action for violation of Rules promulgated under the Environment (Protection) Act, 1986	DEST, HPSPCB
Bio-Medical Waste (Management & Handling) Rules, 1998 and Amendment Rules 2000 and 2003;	These rules apply to all persons/ agencies/ institutions that generate, collect, receive, store, transport, treat, dispose, or handle bio-medical waste in any form. Hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, etc., to ensure that bio-medical waste is handled, treated and disposed without any adverse effect to human health and the environment, as specified in the Act.	DEST, HPSPCB
Municipal Solid Wastes (Management & Handling) Rules, 2000;	Every Municipal Authority is responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes. Local bodies are required to ensure that solid waste generated in city/town is managed in accordance with the provisions of the Rule relating to collection, segregation, storage, transportation, processing and disposal.	DEST, HPSPCB
Ozone Depleting Substances	These Rules provide Regulations on production and consumption of ozone depleting substances. The rules provide that No person shall produce or cause to produce, import or	DEST, HPSPCB

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
(Regulation) Rules, 2000;	cause to import from or export or cause to export to any country any ozone depleting substance.	
Batteries (Management and Handling) Rules, 2001.	These Rules provide that It shall be the responsibility of a manufacturer, importer, assembler and re-conditioner to ensure that used batteries are collected back, file a half-yearly return of their sales and buy-back to the State Board, set-up collection centres either individually or jointly, ensure used batteries are sent to the registered recyclers, ensure safe transportation from collection centres to the premises of registered recyclers, ensure no damage to the environment occurs during transportation, buy recycled lead and bring to the notice of the State Board or the Ministry of Environment and Forests any violation by the dealers.	DEST, HPSPCB
Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms, Genetically Engineered Organisms or Cells Rules, 1989.	These rules shall be applicable in the following specific cases: (a) sale, offers for sale, storage for the purpose of sale, offers and any kind of handling over with or without a consideration; (b) exportation and importation of genetically engineered cells or organisms; (c) production, manufacturing, processing, storage, import, drawing off, packaging and repacking of the Genetically Engineered Products; (d) Production, manufacture etc. of drugs and pharmaceuticals and food stuffs distilleries and tanneries, etc. which make use of micro-organisms genetically engineered micro-organisms one way or the other.	DEST, HPSPCB
Chemical Accident (Emergency Planning, Preparedness and Response) Rules, 1996.	These rules shall be applicable in the following specific cases; (a) sale, offers for sale, storage for the purpose of sale, offers and any kind of handling over with or without a consideration; (b) exportation and importation of genetically engineered cells or organisms; (c) production, manufacturing, processing, storage, import, drawing off, packaging and repacking of the Genetically Engineered Products; and (d) Production, manufacture etc. of drugs and pharmaceuticals and food stuffs distilleries and tanneries, etc. which make use of micro-organisms genetically engineered micro-organisms one way or the other.	DEST, HPSPCB
Public Liability Insurance Act, 1991.	An Act to provide for public liability - insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.	DEST, HPSPCB, Insurance Company
H.P. Non-Biodegradable Garbage (Control) Act, 1995.	An Act to prevent depositing non-biodegradable garbage in public drains, roads and places open to public view to regulate the use of non-biodegradable material] in the State of Himachal Pradesh	DEST, HPSPCB
Motor Vehicle Act, 1988.	The legislation has been prepared to provide for (a) modification and amplification of certain definitions of new type of vehicles ; (b) simplification of procedure for grant of driving licenses; (c) putting restrictions on the alteration of vehicles; (d) certain exemptions for vehicles running on non-polluting fuels; (e) ceilings on individuals or company holdings removed to curb "benami" holdings; (f) states authorized to appoint one or more State Transport Appellate Tribunals; (g) punitive checks on the use of such components that do not conform to the prescribed standards by manufactures, and also stocking / sale by the traders; (h) increase in the amount of compensation of the victims of hit and run cases; (i) removal of time limit for filling of application by road accident victims for compensation; (j) punishment in case of certain offences is made stringent; (k) a new pre-determined formula for payment of compensation to road accident victims on the basis of age / income, which is more liberal and rational	DEST, HPSPCB Ministry of Surface Transport Police Department Judiciary Insurance Companies
Forest & Wildlife		
Himachal Pradesh Forest Sector Policy and Strategy 2005	The Government of Himachal Pradesh has developed the Forest Sector Policy and Strategy, 2005 has been developed in line with Government of India's policy guidelines and incorporating amendments to the previous Himachal Pradesh Forest Policy 1980. The Forest Sector Policy endeavors to achieve the vision to harmonize the relations between people and environment. The policy seeks to address the aspirations of the people by making forestry a vibrant sector contributing towards livelihood enhancement of forest dependent communities through the departments working on natural resource management.	HPFD
Forest and Wildlife Act	The State of Himachal Pradesh follows the following National Level Acts, vis-à-vis forest and wildlife protection and conservation: <ul style="list-style-type: none"> ▪ The Indian Forest Act, 1927 	HPFD, DEST,

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
	<ul style="list-style-type: none"> ▪ The Wildlife Protection Act,1972 ▪ Forest Conservation Act,1980 ▪ Indian Penal Code ▪ Code of Criminal Procedure, 1973 ▪ Forest Right Act,2006 <p>Despite these Himachal Pradesh has promulgated many rules and regulations with respect to different aspects and addressed different issues related to forests. These are being elucidated below:</p>	
Himachal Pradesh Forest Produce Transit (Land Routes) Rules, 2013 and Amendment Rules, 2014, 2017	<p>Prohibition on transportation of forest produce, other than fuel-wood, khair wood, bamboo, charcoal, medicinal plants, grass, other plants including bark, leaves, flowers, fruits, cones and seeds. Registration and Transit pass is mandatory to transport such produce by land routes, which can be obtained from the office of divisional forest officer.</p> <p>Any person felling tree either for domestic, agricultural, commercial or public purposes shall plant 3 trees in lieu of 1 tree felled.</p>	HPFD
Himachal Pradesh Forest (Timber Distribution to the Right Holders) Rules, 2013 and Amendments 2015 and 2016	<p>Timber shall be granted to the Right Holders who have their recorded rights in the concerned Forest Settlement Reports for grant of Timber for construction, repair and additional or alteration of residential house, cow shed for bonafide domestic use.</p>	HPFD
PFM Rules Regulating the Grant in-Aid to the village Forest Development Societies 2002	<p>The purpose of Grant-in-aid is for the furtherance of objectives of PFM and its implementation through the Societies. The assistance in the shape of Grant-in-Aid would be meant for expenditure on plantation & pasture improvement, soil & water conservation, income generation activities, maintenance, fencing, protection etc., subject to the availability of funds, and based on such norms and for such other purposes. The amount of Grant-in-aid shall be sanctioned and released quarterly by the DFO, subject Grant-in-aid has been spent for the purpose for which it has been sanctioned, assets acquired wholly or substantially out of Government grants would not, without the prior sanction of the Govt. be disposed of, encumbered or utilized for purposes other than those for which grants are sanction</p>	HPFD
Himachal Pradesh Participatory Forest Management Regulations 2001	<p>These Rules apply to Government forests and such Government lands including the common land; that will be selected jointly for participatory forest management by the Society and the Forest Department. VFDS will be formed for a Gram Panchayat Ward, and registered under section 3 of the Societies' Registration Act, 1860. (Act No. 21 of 1860).</p>	HPFD and Community Members
The Himachal Pradesh Forest Fire Rules, 1999	<p>The HP Fire Rules Prohibits kindling of Fire: (1) within one hundred meters from a forest without the permission of DFO, or his authorized representative; (2) Any person lighting a fire even beyond on hundred meter from the boundary of a forest shall take precautions, by clearing a fire path, not less than 10 meters in width between such place and such boundary, of by employing watchers or otherwise, to prevent the fire from spreading.</p>	HPFD
Transit Rules- Notifications MFP	<p>With the powers conferred under sub section (2) of section 2 of the Indian Forest Act, 1927, the Governor, Himachal Pradesh appoints Pradhans of the Gram Panchayats in Himachal Pradesh as Forest Officer to carry out the purpose of rule 11 of the Himachal Pradesh Forest Produce Transit (Land Routes) Rules, 1978 for the issuance of pass for transport of minor forest produce collected from the forests in the concerned paychayats under to the conditions that the provisions of the Himachal Pradesh Forest Produce Transit (Land Routes) Rules are adhered to (notified vide Notification No. Fts. (A)/3-1/77 dated 20.11.1978 and published in the Rajpatra, Himachal Pradesh (Extra Ordinary) dated 4th March 1978 as amended from time to time by the Government).</p>	HPFD
State Compensatory Afforestation Fund Management and Planning Authority	<p>In compliance to the instructions contained in Ministry of Environment and Forests, Government of India's letter No.1-58/09-MoS(I/c)-E&F dated 15th July 2009, the Governor of Himachal Pradesh reconstituted "State Compensatory Afforestation Fund Management and Planning Authority (CAMPAA), which is intended as an instrument to accelerate activities for Compensatory afforestation, forest resource management preservation of natural forests, management of wildlife, infrastructure development in the sector and allied works.</p>	HPFD
HP Forest FRA Rules,	<p>The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights)</p>	HPFD

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
2008	Act, 2006 was formulated to protect the marginal and tribal communities of our country to assert their rights over the forestland over which they were traditionally dependent. This Act provides for the restitution of deprived forest rights across India, including both individual rights to cultivated land in forestland and community rights over common property resources. The notification of Rules for the implementation of the Forest Rights Act, 2006 on 1st Jan 2008, has finally paved the way to undo the 'historic injustice' done to the tribals and other forest dwellers. The Act could be a potential tool to (i) empower and strengthen the local self-governance, (ii) address the livelihood security of the people, leading to poverty alleviation and pro poor growth, and (iii) address issues of Conservation and Management of the Natural Resources.	
Rules Governing the felling of the felling of trees in HP	This is a Government Order bearing No. FFE-B-A(3)-4/99-I dated 15-Mar-2017 Indicating that there is lack of clarity amongst most field functionaries of the Forest Department regarding provisions with respect to felling of tree. Felling of trees over private, forest, non-forest lands are governed under various acts and rules. Thus, this Order elucidates purpose for felling, Act/ Rules governing the felling, competent authority for grant of permission, etc	HPFD
The Wildlife Protection Act, 1972	Subject related to wildlife and its conservation in India draws strength from Article 48-A of 'Directive Principles of State Policy under the Constitution of India, which states that "the state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country". The Constitution vide Article 51-A (g), specifying fundamental duties of the citizens of India, states that "it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife and to have compassion for living creatures. The primary law governing matters related to wildlife in the country is the Wildlife (Protection) Act, 1972. The state of Himachal Pradesh has adopted this Act and its subsequent amendments as the prime legislation to manage and guide wildlife related matters in the state (Source: http://hpforest.nic.in/pages/display/NHNkZmFohjRmNjVz-wildlife-legislation)	HPFD
Letter No. Fts (B)-(7)-16/85-II dated 26th October, 1998:- Loss caused by the wild animals to the Personal properties of the public- relief thereof.	As per this Letter issued by the Commissioner-cum-Secretary (Fts.) to the Govt. of H.P. addressed to The Principal Chief Conservator of Forests, H.P. Shimla-171001 and copy of which endorsed to The Chief Wildlife Warden, H.P. Shimla-2 and DFOs (Wildlife) Shimla, Sarahan, Kullu and Chamba. Refers to the context of granting relief to the public on account of losses caused by the wild animals, especially by monkeys Indicates and draws their attention on Section-11(1) (a) and (b) of Chapter-III of the wildlife (Protection) Act, 1972 "which provides that chief Wildlife Warden or the authorized officer is fully empowered to issue the permit to hunt animals which cause damage to human life or public property (including standing crops or any land)".	HPFD
Himachal Pradesh Forest (Sale Of Timber) Act, 1968 The Himachal Pradesh Forest (Sale Of Timber) Rules, 1960	Any person wishing to establish or maintain a depot shall register the same in the office of the Forest Division. Every person registering a depot shall be and remain responsible for the observance of all rules which may from time to time be notified by the Himachal Pradesh Government under section 3 of the Himachal Pradesh Forest (Sale of Timber) Act, 1968. The Divisional Forest Officer, with the approval of the Conservator, may exempt by order in writing any timber dealer from the operation of such rules as he may consider necessary.	HPFD
Himachal Pradesh Resin and Resin (Products (Regulation of Trade) Act, 1981	An Act in the interest of the general public for the carrying on by the State of the trade of purchase and distribution of resin, and for the regulations of manufacture and preparation of various articles based on resin.	HPFD
The Himachal Pradesh Land Preservation Act, 1978	An Act to provide for the better preservation and protection of certain portions of the territories of Himachal Pradesh. Whenever it appears to the State Government that it is desirable to provide for the conservation of sub-soil water or the prevention of erosion in any area subject to erosion or likely to become subjected to erosion, the State Government may, by notification published in the Official Gazette, make a direction accordingly.	HPFD
Himachal Pradesh Private Forest Act and	An Act to provide for the conservation of Private Forests. The State Government may, by notification and such conditions as may be imposed by the Forest Officer concerned, prohibit	HPFD

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Rules 1969	the cutting, felling, grid ling, lopping, burning, stripping off the bark or leaves or otherwise damaging any tree or counterfeiting or defacing marks on trees or timber in such private forest as may be specified. Demarcation of private forests.-In Every private forest shall be demarcated in accordance with the revenue records, and shall erect boundary pillars at the expense of the Government.	
Water and Air		
Himachal Pradesh State Water Policy 2013	The policy recommends optimal utilization of water, with the appreciation that water is a scarce resource and needs to be fostered. A scientific assessment and periodic review of the availability of water resources and its use by various sectors in various basin and states in the country is recommended in the Policy. The policy emphasizes pricing of water, which should ensure its efficient use and reward conservation. It says that the conservation of rivers, river corridors, water bodies and infrastructure should be undertaken in a scientifically planned manner through community participation.	HPSPCB
Water (Prevention and Control of Pollution) Act 1981	The National Water Act is followed in Himachal Pradesh. No Separate Rules have been prepared specifically for Himachal Pradesh	HPSPCB
Air (Prevention and Control of Pollution) Act 1981	The National Air Act is followed in Himachal Pradesh No Separate Air rules have been prepared specifically for Himachal Pradesh	HPSPCB
Land, Resettlement and Tribes		
Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules 2015	The rule provides procedures to be applied in the State in accordance with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (30 of 2013), and extends all provisions mentioned in the Act-2013 to the affected families.	Government of HP - District Collector(s)
Himachal Pradesh Panchayati Raj Act, 1994	An Act to consolidate, amend and replace the law relating to Panchayats with a view to ensure effective involvement of the Panchayati Raj Institutions in the local administration and developmental activities.	Government of HP

Source: Compiled by JICA Study Team (2017)

Attachment II.11.3.1 Appendix-B: Relevant Social Policies, Laws and Regulations in Indian and Himachal Pradesh

The following tables identify and describe some of the main relevant policies, laws and regulations to address social issues and concerns for the types of activities that have been proposed under the Project.

Table 1 Relevant Indian Laws and Regulations for Social Considerations

Laws & Regulations	Description	Responsible Ministry/ Agency
The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	This Act provides for a humane, participative, informed and transparent process for land acquisition for the purpose of industrialization, development of essential infrastructural facilities and urbanization with the least disturbance to the owners of the land and other affected families. The Act ensures consultation with institutions of local self-government and Gram Sabhas. This Act regulates land acquisition and lays down the procedure and rules for granting compensation, rehabilitation and resettlement to the affected families. It ensures a just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition and makes adequate provisions for their rehabilitation and resettlement. It ensures cumulative outcome of compulsory acquisition, and that affected persons become partners in development, thereby leading to improvement in their post-acquisition social and economic status.	Ministry of Rural Development Ministry of Tribal Affairs Revenue Authorities Department of Land Resources,
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006	This Act recognizes and bestows forest rights and occupation in the forest land to the forest dwelling scheduled tribes and other forest dwellers, who have been living in such forests for generations, but their rights could not be recorded. Thus, the recognized rights include responsibilities and authority for sustainable use and conservation of bio-diversity and maintenance of ecological balance, thus strengthening the conservation regimes of the forests while ensuring livelihood and food security to the forest dwelling communities.	Forest Department Ministry of Tribal Affairs
Scheduled Caste and Scheduled Tribes (Prevention of Atrocities) Act 1989	This Act aims to prevent the offences of atrocities against the members of the Scheduled Castes and the Scheduled Tribes. The Act also provides for Special Courts for the trial of such offences and for the relief and rehabilitation of the victims of such offences.	Ministry of Social Justice and Empowerment Ministry of Tribal Affairs
National Policy on Safety, Health and Environment at Work Place	The Government of India is committed to regulate all economic activities for management of safety and health risks at workplaces and to provide measures to ensure safe and healthy working conditions for every working man and woman in the nation. This Policy gives leverage to every Ministry or Department to work-out their own detailed policy relevant to their working environment as per the guidelines on the National Policy. This Policy is devised based on the Directive Principles and international instruments. The Directive Principles described in the Constitution are as follows: - Securing the health & strength of employees, men and women - Tender age of children are not abused - Citizens are not forced by economic necessity to enter any vocation unsuited to their age or strength - Just & humane conditions of work and maternity relief are provided - Govt. shall take steps to secure participation of employee in the management	Ministry of Labour and Employment

Laws & Regulations	Description	Responsible Ministry/ Agency
Land Acquisition Act 1894 and amendment 1985	<p>The Land Acquisition Act, 1894 was put-together by the British Rule in India, which governed the process of land acquisition in India. The Government acquired lands for public purposes after paying the owners of land government-determined compensation to cover losses incurred by landowners. This Act has been replaced by the new Act, “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013”.</p> <p>However, the stipulations of this law are still effective in some contexts.</p>	Revenue Department, State Government
National Resettlement and Rehabilitation Policy (NRRP) 2007	<p>The government, through this Policy, specified processes through people can be compensated as well as minimum levels of compensation that should be paid to the affected families. This Policy provided for benefits and compensation viz., land, house, monetary compensation, skills training and preference for jobs, and the specified criteria for eligibility, to people displaced by land acquisition, or any other involuntary displacement, and created project-specific, state and national authorities to formulate, implement, and monitor the rehabilitation and resettlement process.</p> <p>This Policy has been replaced by the new Act, “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013”</p>	Revenue Department, State Government
A People Centred Service Delivery Policy	<p>There is no one single policy or legal regulation at the Centre or States level that can claim to be ‘people centred delivery policy’. On the contrary, there are a number of Ministries, such as Ministry of Rural Development, Ministry of Labour and Employment, Ministry of Social Justice and Empowerment, Ministry of Tribal Affairs, Ministry of Health and Family Welfare, Ministry of Human Resource Development, and their concerned departments at the Centre and State levels, among others, that extend people centred services through their various programs related to health care, socio-economic development, vocations and employment, education, social justices, etc., especially to the poor and under-privileged citizens of India.</p>	Various Ministries
Social Audit Policy	<p>Social audits were made statutory in a 2005 Rural Employment Act and government also issued the Social Audit Rules in 2011 under the MGNREGA Act. The Social audits are normally supervised by autonomous bodies consisting of government and non-government representatives. Gram Sabhas were empowered to conduct Social Audits, after the 73rd Amendment of the Constitution, in addition to their other functions. No central policy or regulation exists that makes accounting audit and social audit mandatory.</p>	Ministry of Rural Development
Guidelines for Redress of Public Grievances 2010	<p>The Department of Administrative Reforms and Public Grievances is the nodal agency to formulate policy guidelines for citizen-centric governance in the country. Redress of citizens' grievances, being one of the most important initiatives of the department, DAR&PG formulates public grievance redress mechanisms for effective and timely settlement of citizens' grievances.</p> <p>The DAR&PG has initiated a Government of India Portal which is aimed at providing citizens with a platform for redress of their grievances, against any Government organization in the country, which will be passed onto the concerned Ministry/ Department/ State Government for immediate redress.</p>	Department of Administrative Reforms and Public Grievances, Government of India Various Ministries

Source: Compiled by JICA Study Team (2017) based on information from respective Acts

Table 2 Labour Relevant Laws

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Article 24 of the Constitution of India	Article 24 of the Constitution of India mandates that no child below the age of 14 years will be employed in any factory or mine or any other hazardous working environment.	Executing agency (EA) / Implementation agency (IA), contractors
The Indian Penal Code (IPC), the Juvenile Justice (Care and Protection) of Children Act 2000	The IPC provides a basis in law to identify, prosecute and stop child labour in India	EA/ IA, Contractors, Sub-contractors
Child Labour (Abolition and Regulation) Act 1988	This Act prohibits employment of children below the age of 14/15 years, in certain occupations and processes, and stipulates that no child shall be permitted to work or be employed in any of the occupations set forth in Part A of the Schedule or in any workshop wherein any of the processes set forth in Part B of the Schedule of this Act. Contrarily, in case children are engaged, this Act regulates the working conditions of such children, in terms of number of working hours, period of rest between working hours, no night working, no overtime working, etc.	EA/ IA, Contractors, Sub-contractors
Labour Laws (Exemption from Furnishing Returns and Maintaining Registers by Certain Establishments) Act, 1988.	The Act has been passed to give relief to Small Establishments (10-19 persons) and Very Small Establishments (≤ 9 persons) are employed or were employed during past 12 months [section 2(f)], from furnishing returns and maintaining registers under certain labour laws.	EA/ IA, Contractors, Sub-contractors
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)	This Act deals with various problems concerning safety, health, efficiency and well-being of the persons at work places, and serves to assist in formulating national policies in India with respect to occupational safety and health in factories and docks in India. The Act is applicable to any factory where (i) ≥ 10 workers are working/ were working in the last 12 months, and in a manufacturing process is being carried on ordinarily with the aid of power, (ii) where ≥ 20 workers are working/ were working in the preceding 12 months, and in which a manufacturing process is being ordinarily carried on without the aid of power. This does not include a mine, or a mobile unit belonging to the armed forces of the union, a railway running shed or a hotel, restaurant or eating place. The Act is administered by the	EA/ IA, Contractors, Ministry of Labour and Employment, GoI through its Directorate General Factory Advice Service & Labour Institutes (DGFASLI) State Governments through Factory inspectorates.
Contract Labour (Regulation and Abolition) Act 1970	The act ensures that the employers provide the basic welfare measures are made available to the contract workers engaged by them. The Act provides to prevent exploitation of contract laborers and ensure better working conditions. The Act enjoins Joint and Several responsibilities on the Principal Employer and the Contractor. The Principal Employer should ensure that the Contractor does the following: (a) Pays wages to the contract labour as determined by the Government, or as fixed by the Commissioner of Labour, (b) Maintains various registers and records, displays notices, abstracts of the Acts, Rules etc., (c) Issues employment card to his workmen, etc. (d) Provides the following facilities: (i) Canteen (if employing 100 or more workmen in one place) and if the work is likely to last for 6 months or more, (ii) Rest rooms where the workmen are required to halt at night and the work is likely to last for 3 months or more, (iii) Requisite number of latrines and urinals - separate for men and women, (iv) Drinking water, (v) Washing, (vi) First Aid, and (vii) Crèche	EA/ IA, Contractors
The Building and	This Act was promulgated to ensure the safety of these workers at the construction work	EA/ IA,

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
other Construction Workers Act 1996	site and other welfare measures to be provided to the construction workers near their work place, such as canteen, first-aid facilities, ambulance, housing accommodation etc	Contractors
Workmen's Compensation Act 1923	This Act provides for payment of compensation to workmen and their dependents, in case of injury and accident (including certain occupational disease) arising out of and in the course of employment and resulting in disablement or death. The Act applies to railway servants, persons employed in factories, mines, plantations, mechanically propelled vehicles, construction works and certain other hazardous occupations. The amount of compensation to be paid depends on the nature of the injury and the average monthly wages and age of workmen. The minimum and maximum rates of compensation payable for death and for disability have been fixed and are subject to revision from time to time.	EA/ IA, Contractors
Maternity Benefit Act of 1961	The Act ensures that any woman employee, who has worked in any establishment for at least 80 days during the 12 months immediately preceding the date of her expected delivery, is entitled to receive maternity benefits under the Act, that gives her the assurance that her rights will be looked after while she is at home to care for her child. The Act mandates, that the woman on her part, (i) should intimate the employer Seven Weeks before her delivery date about the leave period (ii) Ten weeks before the expected delivery date she may ask employer to give her light work, (iii) name the person to whom the payment will be made in case she cannot take herself.	EA/ IA, Contractors
Payment of Wages Act 1936	This Act regulates the payment of wages to certain classes of persons employed in industry and guarantees payment of wages on time and without any deductions except those authorized under the Act. The Act provides for (i) the responsibility for payment of wages, fixation of wage period, time and mode of payment of wages, permissible deduction as also casts upon the employer, a duty to seek the approval of the Government for the acts and permission for which fines may be imposed by him and also sealing of the fines, and (ii) a machinery to hear and decide complaints regarding the deduction from wages or in delay in payment of wages, penalty for malicious and vexatious claims. The Act does not apply to persons whose wage is 10,000 INR or more per month.	EA/ IA, Contractors
Minimum Wages Act 1948	The Minimum Wages Act ensures minimum wages in all enterprises and in some cases, those working at home. Under the law, wage rates in scheduled employments differ across states, sectors, skills, regions and occupations owing to difference in costs of living, regional industries' capacity to pay, consumption patterns, etc. Hence, there is no single uniform minimum wage rate across the country and the structure has become overly complex. Central and State Governments can and do revise minimum wages at their discretion. Minimum wages are further classified by nature of work, location and numerous other factors at the discretion of the government.	EA/ IA, Contractors
Employees Provident Fund and Miscellaneous Provisions Act of 1952	This act seeks to ensure the financial security of the employees in an establishment by providing for a system of compulsory savings. Minimum contribution by the employees shall be 10-12% of the wages, while the employee's share will be equivalent to employer's share. This amount is payable to the employee after retirement and could also be withdrawn partly for certain specified purposes.	EA/ IA, Contractors
Payment of Bonus Act of 1965	This act, applies to an enterprise employing 20 or more persons, wherein the employer is required to pay a bonus to persons on the basis of profits or on the basis of production or productivity. The act was modified to include that a minimum bonus is paid by employer, despite suffering losses during the accounting year, which is currently 8.33% of the salary.	EA/ IA, Contractors
Payment of Gratuity Act of 1972	This act applies to all establishments employing 10 or more workers. Gratuity is payable to the employee if he or she resigns or retires. The Indian government mandates that this payment be at the rate of 15 days salary of the employee for each completed year of service subject to a maximum of 1,000,000 INR. Extends payment of gratuity to employees engaged in factories, mines, oilfields, ports, plantations, shops or other establishments and for matters connected therewith or incidental thereto.	EA/ IA, Contractors

Source: Compiled by JICA Study Team (2017) based on information from respective Acts

Attachment II.11.3.1 Appendix-C: Draft Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process?	N	EIA is not required for the proposed Project according to Indian Law
		(b) Have EIA reports been approved by authorities of the host country's government?	N	ditto
		(c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied?	N	ditto
		(d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	N	Other environmental permits are also not required for the proposed Project
	Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders?	N	<ul style="list-style-type: none"> - Specific stakeholder consultation meetings/workshops are yet to be planned. However, a series of meetings/ workshops are to be held with various stakeholders in relation to project formulation. - Comments of local stakeholders will be integrated into the design of sub-projects and activities prior to their implementation, following the social assessment and consultation processes. - Consultation and information disclosure procedures to be implemented before and during preparatory phase prior to subproject (component) implementation. - EIA is not required for the proposed project according to Indian Law. However, based on necessity, public consultation related to project shall be considered.
		(b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	N	Since majority of project activities to be implemented through communities, comments of local stakeholders will be integrated into design of sub-projects and activities prior to their implementation following the social assessment and consultation processes.
	Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	N	The project location and components have not been fully determined yet. However social and environmental considerations to been factored into project design (through exclusion/selection criteria for project activities). For the proposed project sites alternative locations have examined by factors including environmental and social considerations.

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
2 Pollution Control	Air Quality	(a) Do air pollutants, such as dust, soot and dust, sulfur oxides (SO _x), nitrogen oxides (NO _x), and organic chemical substances emitted from various sources, such as logging operations, forest products manufacturing processes, and incinerators comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken?	NC	No significant serious impacts by the Project are predicted. However, if any impact may be predicted by further studies, as required, necessary measures will be carried out. In one of the problem areas, viz., Rohtang Pass, exorbitant numbers of tourists, disproportionate vehicular traffic, disposal of food and other solid wastes from food and refreshment joints, open urination & defecation, etc., lead the NGT to impose ban on all commercial and tourist activities including plying of tourist vehicles on the Pass. At present, the ban has been relaxed, but still there is heavy traffic and high density of tourist population visiting the Pass.
	Water Quality	(a) Is there a possibility that the use of chemicals, such as fertilizers, and agrochemicals will cause water pollution?	Y/NC	There is possibility of water pollution in the surround water due to inappropriate usages of fertilizers /pesticides for certain project activities. Some limited usage of chemicals as fertilizers/ pesticides for certain forest plantation / nursery activities is anticipated. However, no significant serious impacts to water quality by the Project are predicted.
		(b) Where facilities, such as forest products manufacturing facilities are installed, do effluents from the facilities comply with the country's effluent standards and ambient water quality standards?	Y/NC	There will be no large-scale manufacturing facilities of forest products such as pulp, paper or timber operations planned under the Project. Although there may be some small-scale manufacturing facilities, thus associated effluent and effect on water sources/supply will be nil or negligible
	Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations?	Y	It is anticipated that there will be no significant waste generation associated with the project activities since there will be virtually no manufacturing. However, if any impact may be predicted by further studies, as required, necessary measures will be carried out according to national regulations.
	Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by use of chemicals, such as agrochemicals?	N	Use of such chemicals will be minimal under the Project. Thus, no significant serious impacts by the Project are predicted. However, if any impact may be predicted by further studies, necessary measures will be carried out as required.
		(b) Are any agrochemicals management plans prepared? Are any usages or any implementation structures organized for proper use of the plans?	NC	Based on the necessity, existing guidelines will be adopted or guidelines will be prepared if mass use of agro-chemicals is unavoidable by the Project.

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	Y	Certain parts of the Project area include protected areas such national parks and wildlife sanctuaries. Even though national park and sanctuaries are included in the project area, all the proposed project interventions are aimed at promoting sustainable/ scientific management of selected protected areas that would contribute to environmental conservation of the area. Thus, certain positive impacts are anticipated from the project interventions.
	Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?	NC	Coral reefs, mangrove, tidal flats and other valuable habitats do not form part of this Project. However, primeval forest, ecologically valuable habitats may be part of this project. If any adverse impact may be predicted by further studies, required countermeasures will be examined to avoid/mitigate the predicted impacts.
		(b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?	NC	Through project activities, this Project intends to conserve the protected habitats and will not involve any activities which affect them negatively. If any adverse impact may be predicted by further studies, required countermeasures will be examined to avoid/mitigate the predicted impacts.
		(c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation?	N	No large-scale timber harvesting in the Project is anticipated
		(d) Is there a possibility that a large-scale timber harvesting will result in loss of breeding and feeding grounds for wildlife?	N	No large-scale timber harvesting in the Project is anticipated
		(e) In the case of reforestation projects, is there a possibility that mono-species plantations will adversely affect wildlife habitats? Is there a possibility that mono-species plantations will cause outbreaks of pests?	NC	The Project will involve reforestation in the degraded forest lands. There may be a possibility of mono-species plantations, probably in small scale. Adverse impacts on wildlife habitat or outbreak of pests is not anticipated.
		(f) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?	N	Significant negative ecological impacts are not anticipated. Ecological restoration is a key project goal.
		(g) Isn't an illegal deforestation associated with the project being carried out, or is an acquisition of the forest certification by the project proponent being carried out?	N	The Project will not involve any deforestation. Small-scale removal of trees associated with small-scale infrastructure development may occur and subject to relevant legislation requiring clearance.

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	Hydrology	(a) Is there a possibility that alteration of rainwater runoff and runoff characteristics due to a large-scale timber harvesting and access road construction will cause impacts on the hydrology of the surrounding areas?	NC	There will be no large-scale timber harvesting. The Project should have generally positive impacts on surrounding hydrology due to improvement of degraded forests including activities such as soil and moisture conservation (SMC) measures. Basically, no significant adverse impact is predicted.
		(b) Is there a possibility that decreased water retention capacity due to deforestation will affect the existing drainage patterns of the forest?	N	The Project intends to increase the water retention capacity through improvement of degraded forests. SMC measures such as small-scale check dams and drainage line treatments are designed and implemented to maintain and improve drainage patterns of the forest.
	Topography and Geology	(a) Is there a possibility that loss of forest stability due to timber harvesting will cause slope failures or landslides?	N	There will be no significant timber harvesting in the Project.
	Management of Abandoned Sites	(a) Are adequate restoration and re-vegetation plans considered for the harvested areas? In particular, are adequate measures taken to prevent soil runoff from the harvested areas?	N	There will be no significant or large-scale harvesting of timber in the Project
		(b) Is a sustainable management system for the harvested areas established?	N	There will be no significant or large-scale harvesting of timber in the Project
		(c) Are adequate financial provisions secured to manage the harvested areas?	N	There will be no significant or large-scale harvesting of timber in the Project
4 Social Environment	Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?	N	Though settlements exist in the proposed project area, resettlement (either voluntary or involuntary) associated with the Project is not anticipate, but draft ESAF, specifically IRPF also indicate the required procedures for resettlement including monitoring, grievance redress mechanism, consultations to deal with resettlements if any.
		(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate.
		(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate.
		(d) Are the compensations going to be paid prior to the	N	Resettlement (either voluntary or involuntary) associated with the

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		resettlement?		Project is not anticipate.
		(e) Are the compensation policies prepared in document?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate.
		(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate, but particular attention to vulnerable groups are fully considered in Environmental Social Assessment Framework (ESAF) as well as Vulnerable Scheduled Tribes Framework (VSTPF).
		(g) Are agreements with the affected people obtained prior to resettlement?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate.
		(h) Is the organisational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate.
		(i) Are any plans developed to monitor the impacts of resettlement?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate, but monitoring system shall be fully considered in ESAF as well as VSTPF.
		(j) Is the grievance redress mechanism established?	N	Resettlement (either voluntary or involuntary) associated with the Project is not anticipate, but grievance redress mechanism is fully considered in ESAF as well as VSTPF.
	Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? Is particular attention paid to the inhabitants whose livelihoods are based on primary industries, such as farming, raising livestock, or hunting and gathering in the forests?	NC	The Project intends to have a positive impact in terms of improving local people's livelihoods/ living conditions. However, it is possible that certain forest protection activities could have some negative impact on local people's customary access to natural resources. Such impacts will be addressed through participatory planning and required countermeasures will be examined to avoid/mitigate the predicted impacts.
		(b) Are adequate measures taken to prevent illegal entry into the forestry resource areas from the outside through newly constructed access roads?	NC	The Project will not construct new access roads in the majority of project areas. Road upgrade/reconstruction may be activities. If any adverse impact may be predicted by further studies, required countermeasures will be examined to avoid/mitigate the predicted impacts.

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(c) Is there a possibility that the forest right of common is obstructed?	NC	A key project objective is to strengthen community-based forest institutions and empower local people to realise their forest management. The Project is however state implemented and there is the possibility that the Forest Department could extend its power over community forests and customary management regimes. The Project is very aware of this risk and is designed in such a way that local peoples forest rights will be respected at all times.
		(d) Are considerations given to life of residents before implementation of project?	Y	A key objective of the Project is to improve local livelihoods. Local people will be consulted prior to any project activities and thus project activities will be defined by the communities themselves. project activities will also be implemented through community institutions by and for the communities
	Heritage	(a) Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	NC	There may be archaeological, historical, cultural, and religious heritage sites within the project area. However, the Project will have no significant impact on such sites. If any adverse impact may be predicted by further studies, required countermeasures will be examined to avoid/mitigate the predicted impacts.
	Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	N	Basically, no significant impact is predicted affecting the landscape since infrastructure under the Project will be on a small scale. Improvement of forest cover and forest resources through the project interventions may increase the natural beauty of the landscape.
	Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples?	Y	VSTPF to be prepared for the Project
		(b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	Y	VSTPF is planned to include measures to ensure that the rights of STs and Forest Dwellers as per FRA are respected in terms of access to land and resources
	Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project?	N	The working conditions will be protected by India's laws and regulations. As required, the Project will prepare internal regulations for occupational health and safety referring to regulations imposed by international organisations and relevant national legislation and standard practices regarding working conditions.

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials?	N	As required, proper instruction and guidance on safety consideration will be given to workers and other individuals involved in the Projects.
		(c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?	NC	Ditto (Such activities are relevant for large scale construction or commercial forestry but not for this type of Project.)
		(d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	NC	Ditto (Security guard will not be required for most of the proposed project activities)
5. Others	Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?	NC	Construction will be of small-scale with limited and temporary environmental impacts. However, if required, following measures will be taken: <ul style="list-style-type: none"> - Noise & vibration: Low noise and vibration methods and constructional vehicles and equipment. - Turbid water: Sediment basins, etc. - Exhaust gas: Less exhaust gas constructional vehicles and equipment. - Construction dusts: Spraying water, etc. - Wastes: solid wastes, etc. will be properly disposed or reclaimed
		(b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?	Y	It is considered that the construction activities will not affect the natural environment adversely in the construction sites, but adequate measures will be considered to mitigate impacts as required.
		(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	Y	Adverse social impacts of construction are expected to be eliminated through the exclusion/ selection criteria (e.g. resettlement, use of private land, damage to cultural buildings etc). However, if required, adequate measures such as detours, etc. will be taken to mitigate impacts to social environment.
	Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?	Y	Monitoring should be executed, based on a monitoring system to be developed for the Project which includes the monitoring of environmental and social safeguards measures

Category	Environmental Item	Main Check Items	Yes: Y No: N Not Clear: NC	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(b) What are the items, methods and frequencies of the monitoring program?	Y	The items, methods, and frequencies of the monitoring system are covered in ESAF.
		(c) Does the proponent establish an adequate monitoring framework (organisation, personnel, equipment, and adequate budget to sustain the monitoring framework)?	Y	Ditto. (Also, adequate provisions are made in the project proposal to cover monitoring requirements)
		(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	N	The monitoring requirements will be entirely for the purposes of the Project and additional reporting to regulatory agencies will not be required because the project activities will not require environmental clearance.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Agriculture checklist should also be checked.	NC	It is possible that the Project may include some agricultural activities but these will be of a very small scale (home gardens/plots) and no significant impacts are predicted for the Project, However, details needed to be confirmed at further study for the Project.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans-boundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as trans-boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	N	The Project will not have any significant global or trans-boundary impact. It will have a slight positive global impact due to forest restoration and carbon sequestration.

Source: JICA Survey Team (Based on JICA Environmental Checklist 17. Forestry)

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

Attachment II.11.3.1 Appendix-D: Preliminary Results of Scoping for Environmental and Social Impact Assessment

Evaluation: A-: Significant Negative Impact A+: Significant Positive Impact
 B-: Some Negative Impact B+: Some Positive Impact
 C: Impacts are not clear, need more investigation
 D: No Impacts or Impacts are negligible, no further study required

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
Pollution	Air Pollution	D	C	C	<p>Pre-CP: During this phase, there is no significant impact to be considered because there is no activity to cause air pollution.</p> <p>CP: Not significant, but emission of exhaust gas from operation of construction equipment, machinery, and vehicles and dust generation from construction/demolition activities such as vehicles movement in/out of the site, loading and unloading of construction materials and excavated soils, and demolition of old structures are anticipated.</p> <p>OP: There is a possibility of air pollution due to increase in vehicular movement during execution of the Project. However, associated effluent and effect on water sources/supply will be negligible</p>
	Water Pollution	D	B-	B-	<p>Pre-CP: During this phase, there is no significant impact to be considered because there is no activity to cause water pollution</p> <p>CP: Soil erosion, construction runoff and drainage, oil spills, sewage effluent and domestic wastewater are potential sources of water pollution.</p> <p>OP: Indiscriminate use of fertilizers and pesticides under certain project activities could potentially be the source of water pollution. However, no significantly serious impacts to water quality by project activities are predicted. There may be some small-scale manufacturing facilities introduced by the Project. However, associated effluent and effect on water sources/supply will be negligible</p>
	Solid Waste	D	B-	B-	<p>Pre-CP: During this phase, no significant impact is anticipated.</p> <p>CP: Both non-hazardous and hazardous solid waste from land excavation, and constructions of building structures is anticipated to rise.</p> <p>OP: Shedding of Pine needles could possibly have deleterious impacts, such as forest fire. Proper management of forest and regular clearing of forest floor and either disposal or use by local community members for animal mulch. Other domestic solid waste does not post any potential impacts.</p>
	Soil Contamination	D	C	C	<p>Pre-CP: During this phase, no significant impact is anticipated.</p> <p>CP & OP: No impacts are foreseen, but there is possibility of soil contamination due to inadequate usages of fertilizers /pesticides for certain project activities. Also there is possibility on soil contamination in case of</p>

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
					accidental spillage and oil leakage from machineries or oil storage facility.
	Noise and Vibration	D	B-	D	Pre-CP: During this phase, no significant impact is anticipated. CP: Noise and vibration from operation of construction machinery and on-site vehicles are anticipated. OP: During this phase, no significant impact is anticipated.
	Ground Subsidence	D	D	D	Pre-CP: During this phase, no significant impact is anticipated. CP/ OP: Excavation work and intake of underground water that cause subsidence are not anticipated.
	Offensive Odor	D	D	D	Pre-CP/ CP/ OP: No significant impact is anticipated.
Natural Environment	Protected Area	D	B+	B+	Pre-CP: During this phase, no significant impact is anticipated. CP/ OP: Even though national park and sanctuaries are included in the project area, all the proposed interventions are aimed at promoting a sustainable and scientific management within the selected project areas, which will contribute to environmental conservation of the area. Thus certain positive impacts are anticipated from the Project.
	Flora and Fauna Ecosystem	D	B+/B-	B+/B-	Pre-CP: During this phase, no significant impact is anticipated. CP/OP: Interventions are aimed at conservation and sustainable/ scientific management which contribute to improve flora and fauna. Therefore, positive impacts are anticipated. However, there are possibilities of negative impacts in case of inadequate construction activities and operation activities such as over usage of natural resources and damages caused by fires, planting of non-native species, etc.
	Hydrology	D	B+/B-	C	Pre-CP: During this phase, no significant impact is anticipated. CP: The Project has generally positive impacts on surrounding hydrology due to improvement of degraded forests including activities such as soil and moisture conservation (SMC) measures. Significant impacts to damage the hydrological cycle or regimes are not anticipated, except for negative impacts which may arise from inadequate construction activities. OP: No significant impact is anticipated. However, surface water and ground water wherever available will be used for watering purpose at nurseries and plantation sites. Therefore there are possibilities of adverse impacts when inadequate water usages are done
	Topography and Geography	D	D	D	Pre-CP: During this phase, no significant impact is anticipated. CP: Some soil erosion is anticipated during the construction of infrastructure facilities and other installations, preparing for soil conservation measures, plantation works. However, it is anticipated that this would be minimal and would not pose any major concerns.

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
					OP: There may be possibilities of erosions at forest treatment areas due to changes of drainage patterns, but anticipated impacts will be minimal.
	Management of Abandoned Sites	D	B+	B+	Pre-CP: During this phase, no significant impact is anticipated. CP/OP: The Project will contribute to improve forest/ tree cover in the project area. Therefore positive impacts are anticipated at degraded forest areas.
Social Environment	Involuntary Resettlement and Land Acquisition	C	B-	C	Pre-CP: There may be cases of encroachments within the proposed project area. CP: Project area is basically notified forest areas. Though settlements exist inside the proposed project area, resettlement/ encroachments in project area may be possible. Entry Point Activities may be require private patches of land for its construction. OP: Encroachments cannot be anticipated
	Local Economy (e.g., employment and livelihood)	D	B+	B+/B-	Pre-CP: During this phase, no significant impact is anticipated. CP: Job opportunity for local people will be provided to some extent during construction phase. OP: Positive impacts are anticipated through increase the supply of wood fuel for domestic use, small timber for rural housing, fodder for livestock, and NTFP for local industries. The Project is expected to provide jobs for the unskilled workers and raise the standards of living and improve the quality of life of the rural communities. On the other hand, there may be possibilities for loss of customary/ traditional knowledge as communities are trained in formal forest management approaches, loss of customary land/ resources access and use, increased development induced dependence.
	Poor People	D	B+	B+/B-	Pre-CP: During this phase, no significant impact is anticipated, CP: Job opportunities may be enhanced during the construction phase that would enable the poor to increase their earnings. OP: Similar positive/ negative impacts indicated in the above "local economy" are anticipated.
	Indigenous and Ethnic People	D	B+	B+/B-	Pre-CP: During this phase, no significant impact is anticipated. CP: Job opportunities and sources of livelihoods are anticipated to increase during the construction. About 7.6% of the people/beneficiaries within the proposed project area comprises of ST/ indigenous and ethnic people. The proposed project interventions will improve their sources for livelihoods and increase their earnings. OP: Similar positive/ negative impacts indicated in the above "local economy" are anticipated.
	Land Use and Local Resources	D	D	B+	Pre-CP: During this phase, no significant impact is anticipated. CP: During this phase, no significant impact is anticipated. OP: Land-use in the project area is not likely to change; however, the degraded forest areas and plantation

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
					areas and their resources are anticipated to improve. The population that is living in the vicinity of these forest areas depend on the forests for various resources, such as fuel-wood, fodder, NTFP, and other forest produce. The proposed is anticipated to provide for these resources through its various interventions.
	Water Usage	D	C	C	Pre-CP: During this phase, no significant impact is anticipated. CP/OP: It is necessary to confirm water usage conditions especially for forest plantation and nursery activities
	Existing Social Infrastructures and Services	D	C	C	Pre-CP/ CP: During this phase, social infrastructure is not likely to be disturbed or relocated OP: There may be positive impacts by the provision of proper services and infrastructure (e.g., road development). Also, there may be possibilities of disturbance/ relocation of existing social infrastructure due to the Project.
	Uneven Distribution of Benefit and Damage	D	C	C	Pre-CP: During this phase, no significant impact is anticipated. CP/ OP: Though no significant impact is anticipated, it is necessary to confirm uneven distribution of benefits and damages, especially during the construction and operation phase. Some, who join the participatory activities; they will receive benefits from the Project. However, those who do not get associated with the project activities, may not benefit or may get affected negatively.
	Conflict of Interests within the Region	D	D	C	This Project will not induce any significant impact of conflict of interests within the region. However, there are possibilities of conflicts between groups over their rights over their Common Property Resources (CPRs), which may be curtailed and used by another groups from within/outside the community under this Project.
	Cultural Heritage	C	D	D	No significant impact to be anticipated, though there may be archeological, historical, cultural, and religious heritage sites within the Project area. In case sacred groves and other tribal cultural important sites are within the Project area, such sites shall be either avoided from the Project or introducing interventions related to conservation of such sites.
	Landscape	D	D	B+	Pre-CP/CP: During this phase, no significant impact is anticipated. OP: Improvement of forest cover and forest resources through the Project may increase the natural beauty of the landscape.
	Gender Discrimination	D	D	B+	The Project will not induce any significant adverse impact of gender discrimination. Overall in Himachal Pradesh and more-so in the tribal areas, women are accorded equal status, rights, and freedom to participate, voice their opinions and concerns during project meetings and decision making.
	Children's Right	D	D	D	The Project will not induce any significant adverse impact to children's right. Child laborers to be excluded in the Project.

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
Health and Safety	Occupational Health and Safety	D	B-	B-	Pre-CP: During this phase, no significant impact is anticipated. CP/ OP: Impacts on occupational health and safety during construction and plantation establishment/maintenance works may occur if appropriate measures to ensure occupational health and safety are not taken into consideration and adopted.
	Community Health and Safety	D	B-	B+/B-	Pre-CP: During this phase, no significant impact is anticipated. CP: Impact on community health and safety (e.g. traffic safety, pedestrians' accidents by construction activities, carelessness of construction workers, air pollution due to vehicular movement, water contamination due to construction activities, etc.) are anticipated. OP: There may be increases in negative impacts (e.g. traffic hazard, ambient air pollution by vehicles, water pollution, hazardous wastes, health risk, etc.) if efficient mitigation measures and considerations are not applied. Also there may be positive impacts (e.g. easier access to urban areas, health related facilities by the Project), if improved facilities and services by the Project will be available for general public so that it can contribute to community health care. Thus, appropriate mitigation measures need to be put-in place to ensure community health and safety.
	Risks for infectious disease such as AIDS/HIV	D	C	D	Pre-CP/OP: During this phase, no significant impact is anticipated. CP: It could be anticipated, that new strains of viruses, diseases, and infections (communicable/ non-communicable) could be brought into the project area, by the influx of construction workers, other workers, speculative business-persons, and others. There may be risks of infectious diseases by immigrant workers.
	Accident	C	B-	B-	Pre-CP: During this phase, no significant impact is anticipated, but it is necessary to confirm accident risks during this stage. CP: There may be risks in increase of traffic accidents and construction site accidents. OP: There may be risks in increase of traffic accidents due to increase of river/ road traffic.
Emergency Risk	Flood Risk and Other Natural Disaster	C	B-	B-	Pre-CP: During this phase, no significant impact is anticipated. CP: Risks such as heavy rain, cloud bursts, etc., may be anticipated and affect the construction and forest treatment areas. OP: Risks such as heavy rain, cloud bursts, earthquakes, landslides, etc., is anticipated to affect the established of infrastructure or disrupt implementation activities.
	Risk for Fire	D	B-	B-	Pre-CP: During this phase, no significant impact is anticipated. CP: Risk for fire is expected with a fixed probability. OP: Risk for fire is expected with a fixed probability.
Others	Climate	D	D	B+	Pre-CP: During this phase, no significant impact is anticipated.

Category	Impact Item	Evaluation			Reasons for Evaluation
		Pre-Constructi on Phase (Pre-CP)	Constructi on Phase (CP)	Operation Phase (OP)	
	Change				<p>CP: Gas emission will be temporary and limited to the Project area thus significant impact to global climate change in not anticipated.</p> <p>OP: Certain positive impact due to forest restoration and carbon sequestration is anticipated</p>

Source: Compiled by JICA Study Team (2017)

Attachment II.11.3.1 Appendix-E: Land Acquisition and Resettlement Screening Form

Once the individual sub-projects are identified, the following “Scoping Form” could be utilized to exclude land acquisition and involuntary resettlement.

A. Introduction Each core project output is assigned an involuntary resettlement category depending on the likelihood and the significance of the probable involuntary resettlement impacts.

B. Information on Sub-project

Sub-project name	
Location	
Scope of sub-project (description of the nature and scope of works)	

C. Screening Questions for Resettlement Categorization Involuntary

Resettlement Effects	Yes	No	Extent of Impacts And Other Remarks
Does the sub-project include upgrading or rehabilitation of existing physical facilities?			
Does the sub-project include the construction of new physical facilities?			
Will it require permanent land acquisition?			
Is the ownership status and current usage of the land known?			
Are there any non-titled people who live or earn their livelihood on affected land?			
Will there be loss of housing? Will there be loss of agricultural plots?			
Will there be losses of crops, trees and fixed assets?			
Will there be loss of businesses or enterprises?			
Will there be loss of incomes and livelihoods?			
Will people lose access to facilities, services, or natural resources?			
Will any social or economic activities be affected by land use-related changes?			

Attachment II.11.3.1 Appendix-F: Environmental and Social Compliance Monitoring Form to be Submitted to FTU

1. General Information

Items	Descriptions
Project	Himachal Pradesh Forest Ecosystems Management and Livelihoods Improvement Project
Name of Sub-projects	
Location	
Contractor	

2. Information of Monitoring

Items	Descriptions
Name of Monitor	
Date of Monitoring	
Location of Monitoring	
Weather Conditions	

3. Monitoring Environmental Impact and Possible Mitigation Measures (for Silviculture and Small Scale Rural Infrastructure)

Items	Environmental Impact Observed	Mitigation measures applied (Yes/No). If Yes, please specify	Effectiveness of mitigation measures (1-5 Scaling)	Action to be taken for improvement
Dust generation/ Air pollution (Dust and Smoke)				
Water Quality (Change in water quality)				
Drainage and sedimentation				
Solid waste (Waste from construction works (types and volume)				
Chemical or hazardous wastes (oil, lubricants, cleaning materials)				
Disruption of vegetative cover and ecological resources (Illegal tree clearing, wild animal hunting)				

Items	Environmental Impact Observed	Mitigation measures applied (Yes/No). If Yes, please specify	Effectiveness of mitigation measures (1-5 Scaling)	Action to be taken for improvement
Traffic management (Signs)				
Restoration of affected areas				
Soil Erosion (Visible soil erosion and water runoff including rill/gully erosion)				
Worker and public Safety (Training for worker, fences, barriers warning signs)				
Communication with local communities (complaints from local residents about resettlement, loss of livelihoods, etc.)				

4. Monitoring Environmental Impact and Possible Mitigation Measures (for Forest Development Activities)

Items	Environmental Impact Observed	Mitigation measures applied (Yes/No). If Yes, please specify	Effectiveness of mitigation measures (1-5 Scaling)	Action to be taken for improvement
Disruption of vegetative cover and ecological resources (Illegal tree clearing, wild animal hunting)				
Communication with local communities (complaints from local residents about resettlement, loss of livelihoods, etc.)				

Attachment II.11.3.1 Appendix-G: Outline of an Annual Environmental and Social Performance Report to JICA

1. Basic Information

Name of Organization:	
Completed by (Name):	
Position in Organization:	
Reporting Period:	From: To:
Completed in (MM/YY)	

2. Sub-projects using JICA Funds during the Reporting Period

Name of Subproject approved during the reporting period	Industry Sector	Project Scope	Project Cost (JPY)	Approval Date	Environmental Category*	Reason of Categorization	Documents made (e.g. EIA, RAP, IPP)	Any outstanding environmental, IR or IP ¹ issues

* Please refer the Criteria of Categorization finalized by PMU which are in line with JICA Guidelines for Environmental and Social Considerations (April 2010), and in case of **Category B**, please fill out the table below for the specific activities (at ward or GP level).

Location	Scope of the Activities	Specific Reason of Category B	Executor/ Contractor

3. Subprojects using JICA Funds to be Approved in the Next FY

Name of Subproject approved during the reporting period	Industry Sector	Project Scope	Project Cost (JPY)	Approval Date	Environmental Category*	Reason of Categorization	Documents made (e.g. EIA, RAP, IPP)	Any outstanding environmental, IR or IP** issues

* Please refer the Criteria of Categorization finalized by PMU which are in line with JICA Guidelines for Environmental and Social Considerations (April 2010), and in case of **Category B**, please fill out the table below for the specific activities (at ward or GP level).

Location	Scope of the Activities	Specific Reason of Category B	Executor/ Contractor

4. Environmental and Social Management System (ESMS)

Please describe if ESMS of your organization has changed in any way (e.g. establishment of a new division for environmental and social management) since JICA's appraisal.

¹ IR = Involuntary Resettlement, IP = Indigenous People

Attachment II.11.3.2 Draft Vulnerable Scheduled Tribes Planning Framework (VSTPF)

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Draft Vulnerable Scheduled Tribes Planning Framework

1. Overview

1.1 Objective of Vulnerable Scheduled Tribes Planning Framework

In the Indian context, the term “Scheduled Tribe (ST)” is applied to refer “Indigenous Peoples” as used by JICA and other multilateral funding agencies, such as World Bank, Asian Development Banks, etc. And this framework shall be particularly applied to **individuals/communities who could be severely affected their daily lives by project activities among Scheduled Tribes (STs) and Forest Dwellers as defined in The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**. Among the two social groups, the number of forest dwellers would be quite small considering the progress of the implementation of FRA in the state as mentioned in **Table 11.3.1**, therefore, the name of the framework is replaced as “Vulnerable Scheduled Tribes Planning Framework” (VSTPF).

The main objectives of VSTPF are (i) to ensure the targeted social groups affected by any additional project interventions will receive culturally appropriate social and economic benefits from the Project, (ii) to ensure their participation in the entire process for the preparation, implementation and monitoring of project activities, and (iii) do not suffer any adverse impacts as a result of the Project or sub-projects.

VSTPF has been designed as an additional framework that works together with the Environmental and Social Assessment Framework (ESAF), which is the primary safeguards document for the Project. Other vulnerable groups including poor households, the landless, women as well as deprived classes, such as the Scheduled Castes (SCs) and Other Backward Classes (OBCs) population are considered well in ESAF to ensure the opportunities for effective consultation, participation, receive appropriate benefits and are overall not adversely harmed by the Project.

1.2 Structure of VSTPF

VSTPF is structured in an almost identical way to ESAF for easy usage by simply referring ESAF. The structure of VSTPF is described below.

- i) **JICA’s Requirements on Safeguard:** briefly describes JICA’s requirements on social safeguard, and clarifies the measures which the Project shall be addressed,
- ii) **Definition of the Target Social Groups under VSTPF:** analyses and defines the appropriate target social groups as the scope of VSTPF to ensure particular consideration in the course of the project design and implementation,
- iii) **Legal and Policy Framework for STs and Forest Dwellers:** Outline of the legal and policy context for STs and Forest Dwellers as the target groups under VSTPF,
- iv) **Environmental and Social Risks and Mitigation Measures:** describes the environmental and social risks on the targeted STs and Forest Dwellers and procedures to be followed to manage/mitigate and monitor the social aspects,

- v) **Framework and Procedures of Vulnerable Scheduled Tribes Plan:** describes the required procedures for the VSTP preparation, including Free, Prior and Informed (FPIC) Consultation, Social Assessment (SA), micro planning, selection and screening of sub-project, Monitoring and Evaluation (M&E), and Grievance Redress Mechanism (GRM), and
- vi) **Institutional Arrangement and Capacity Development:** identifies the required institutional arrangement and capacity development programme for preparation and implementation of the VSTP.

2 JICA's Requirement on Safeguard Policies

VSTP aims to ensure that JICA's safeguards policies relating to the protection of indigenous peoples with respect to their lands, territories and livelihood to be an essential part in the project framework, and sub-projects are designed and implemented in a way that fosters full respect for indigenous peoples. The JICA Guidelines for Environmental and Social Considerations, 2010 (JICA Guideline) states that appropriate environmental and social considerations for indigenous people should be undertaken, which highlighted as follows;

- i) Adverse impacts of any nature anticipated on indigenous peoples are to be avoided when feasible, by exploring all possible alternatives. Even after such examination, if avoidance is not possible, then effective measures must be taken to minimize impacts and to compensate indigenous peoples for their losses,
- ii) In case the Project have potentially adverse impacts on indigenous peoples, all their rights with respect to land and resources must be respected in accordance with the spirit of relevant international declarations and treaties, including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP),
- iii) Free, Prior and Informed Consultations (FPIC) must be carried-out with Indigenous Peoples and their consent must be obtained in the process,
- iv) Measures addressing issues related to affected IP must be prepared as an Indigenous Peoples Plan (IPP) and must be made public in compliance with the relevant laws and ordinances of the host country, and
- v) While devising the IPP, consultations must be carried-out with the affected IPs, in which sufficient and appropriate information must be shared with them in advance. Consultations are required to be conducted desirably in a form, manner, and language that are understandable to the concerned people.

JICA Guideline also states that it is desirable that the IPP include the elements laid out in the World Bank Safeguard Policy, OP 4.10, Annex B.

3 Target Social Groups under VSTPF

3.1 Rationales for Identification of the Targeted Social Groups under VSTPF

This section describes two important rationales which help to identify target social groups under VSTPF, namely 1) World Bank Safeguard Policy (Operational Policy 4.10) and 2) The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA) 2006.

1) World Bank Safeguard Policy (Operational Policy 4.10)

There is no widely accepted definition of indigenous peoples. World Bank's official position is that "because of the varied and changing contexts in which Indigenous Peoples live and because there is no universally accepted definition of Indigenous Peoples, this policy does not define the term. OP 4.10 describes "Indigenous People" in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees;

- vi) self-identification as members of a distinct indigenous cultural group and recognition of this identity by others,
- vii) collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories,
- viii) customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture, and
- ix) an indigenous language, often different from the official language of the country or region.

OP 4.10 also indicates that Indigenous Peoples may be referred to in different countries by such terms as 'indigenous ethnic minorities,' 'aboriginals,' 'hill tribes,' 'minority nationalities,' 'scheduled tribes,' or 'tribal groups'. And in the Indian context, the term of Scheduled Tribes (STs) appears to be in the line with the "Indigenous Peoples" described in the World Bank's generic definitions. Degrees of social, cultural, ethnical, linguistically, institutional and geographical distinctions fluctuate among STs.

2) The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA) 2006

The Forest (Recognition of Forest Rights) Act 2006 defines "the Forest Dwelling Scheduled Tribes (FDST) and the Other Traditional Forest Dwellers (OTFD)" as members or communities who primarily reside in and who depend on the forests or forest lands for bona fide livelihood needs (Section 2 Part c of the Act). The criteria and evidence required for a FDST and OTFD to claim rights under FRA are described in **Table 1**.

Table 1 Criteria for FDST and OTFD under the FRA

Types of Forest Dwellers	Criteria to be Given the Certification
FDST	1) Must be a Scheduled Tribe in the area where the right is claimed, 2) Primarily resided in forest or forest land prior to 13-12-2005, and 3) Depend on the forest or forests land for bonafide livelihood needs
OTFD	1) Primarily resided in forest or forests land for three generation (75 years) prior to 13-12-2005, and 2) Depend on the forest or forests land for bonafide livelihood needs

Source: Prepared by JICA Study Team (2017) based on *The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA) 2006*

It is noteworthy to mention that the term “Forest Dweller” has a specific meaning in the context of the Indian forest legislation. If a person is certified as a “Forest Dweller” legally, he/she has all right over the forestland, however, in practical, the progress of the administrative procedures is very slow in HP state. As per the FRA status report of February 2016 of Ministry of Tribal Affairs (MOTA), GOI, 346 titles were distributed including 108 community claims, but objections were raised by the MOTA on the constitution of Forest Rights Committees (FRCs) at the Gram Panchayat level and process of claim settlement, therefore, these titles were not given.

3.2 Selection of the Target Groups

Considering the World Bank’s OP 4.10, the FRA 2006 and actual socio-economic conditions in the state, the two social groups, i.e. **Scheduled Tribes (STs) and Forest Dwellers under FRA with only focused on the individuals/communities who could be severely affected their daily lives by project activities** are identified as the target social groups under the framework. The defined targeted social groups shall be identified at the stage of screening and selection of the sub-projects which further explained within ESAF.

In fact, STs in HP state are categorised into relatively “well-off” compared to other states. The number of STs in the state, having completed secondary or higher levels of schooling, in rural and urban areas is higher than other states (World Bank 2015) and Census of India (2011) provides that the literacy rate of STs in the state is 83.2% for male and 64.2% for female while the rate among STs as national average is 68.5% and 49.4% respectively. Also, work participation rate of STs in the state is much higher than average rate at union level and the rate in the state is ranked the third highest (53.5%) in the country. Considering the above situation, all STs as well as Forest Dwellers in project area are not necessarily required to be covered under VSTPF.

In HP state, “transhumance” is also one of the distinct social groups to be defined as “Indigenous People” according to the criteria of WB, and “Gujjar” and “Gaddi” are two nomadic communities in the state. Since, these two groups are declared as STs, and majority of STs, 69% are composed of these two tribes, VSTPF does explicitly refer to the transhumance as they are already a part of STs.

It should be also noted that SCs and OBCs who are often considered within a similar framework together with STs in the Indian constitution and legal framework are not treated as “Indigenous People” (except “Forest Dwellers” within the groups) in the framework since they are seen in all parts of India and throughout Indian society. These groups are more related to social status than a

separate or distinct indigenous cultural group. For SCs and OBCs, appropriate and necessary safeguard measures are already dealt with under ESAF to the above two groups as well as other vulnerable groups, such as landless poor households, women/female headed households.

4 Legal and Policy Framework for Scheduled Tribes and Forest Dwellers

The relevant applicable laws and regulations pertaining to the rights and social welfare of marginalised social groups including STs and Forest Dwellers are provided in ESAF. Therefore, this section briefly summarizes the legal framework and status of STs and Forest Dwellers in HP state. Again, it should be emphasised that VSTPF shall target only “vulnerable” social groups among STs and Forest Dwellers.

4.1 Scheduled Tribes

Since independence, India has been committed to the ideal of “economic growth with social justice” meaning there is considerable onus on the state to protect and develop the weaker sections of the society, especially the STs. However, it should be noted that there are issues related to how tribes are defined, which may be academic in nature but have very real implications in terms of who or which groups are actually safeguarded by the national legal and policy framework as well as their eligibility for various social welfare benefits and programmes. The President of India accordingly issued lists of STs appended to the following orders;

- i) The Constitution (Scheduled Tribes) Order, 1950
- ii) The Constitution (Scheduled Tribes) Order, 1951
- iii) The Scheduled Tribes Lists (Modification) Order, 1956
- iv) The Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1956
- v) The Scheduled Tribes Order (Amendment) Act, 1976

As of now, the Indian Constitution does not prescribe any criteria for distinguishing a tribe or tribal community from other communities. It rather prescribes a method or an agency for designating them. Once promulgated, the list of scheduled lists can only be varied by an Act of the Parliament (HIPA, 1987). Recognizing the historical discrimination and deprivation, list of caste and tribe were identified in government schedule as a target group for reservation policies. Anyone not mentioned in the list of ST (in terms of Article 342 of the Indian Constitution) is considered a non-tribe and vice-versa. **Table 2** and **Table 3** indicate the ST population and the list of STs and their characteristics in the state respectively.

Table 2 Scheduled Tribe Population in India and Himachal Pradesh

Country/ State/ Level		Total Population	Scheduled Tribe	
			Population	Percentage
India	Total	1,210,569,573	104,281,034	8.61
	Rural	833,463,448	93,819,162	11.26
	Urban	377,106,125	10,461,872	2.77
Himachal Pradesh	Total	6,864,602	392,126	5.71

Country/ State/ Level	Total Population	Scheduled Tribe	
		Population	Percentage
Rural	6,176,050	374,392	6.06
Urban	688,552	17,734	2.58

Source: Compiled by JICA Study Team (2017) based on Primary Census Abstract, Census of India 2011

Table 3 List of Scheduled Tribes of HP State and their Characteristics

No.	Tribe Name	Distribution	Description
1	Bhot, Bodh	Tehsil Lahaul, district Lahaul & Spiti	The Bodh or Bhot people are an ethnic group of HP state, and concentrated in tehsil Lahaul of district Lahaul & Spiti. Predominantly they live in the Chandra and Bhaga valleys, and to a lesser extent in the Pattani valley, Miyar valley and upper reached of Pangi valley in HP state. These people mainly follow Buddhism.
2	Gaddi	N/A	The Gaddi is a pure Hindu tribe with Aryan features. Compared to other tribes, the Gaddis are the most dominant and populous tribe community living in HP state. The term Gaddi is a generic name and it includes; Brahmins, Rajputs, Khatris, Rathis (belonging to the higher castes) and Kolis, Rihards, Lohars, Badies, Sipis, Halis (belonging to low castes). The language of the Gaddis is Gaddi. The Gaddis lead a semi-nomadic, semi-pastoral and semi-agricultural life; their main occupation is rearing sheep and goats. A few male members of this tribe migrate seasonally together with their herds looking for pastures and fodder for the livestock, halt temporarily and move-on. During the winter months, they are stationed in the relatively plain areas of the state, while during the summer months they travel along-with their herds to higher altitudes in search of pastures. Their occupations include sale of wool, milk products, kids/ lambs, aged livestock for meat; in the plains, they are engaged in agriculture.
3	Gujjar	N/A	Gujjar or Gurjar (other spellings include Gurjara, Gurjjar, Gojar and Gūjar.) tribe in HP state is a pastoral agricultural ethnic group, who lead a nomadic life. However, some of them have settled down at one place. Gujjars have their own language, known as GUJARI. They are known to variously follow Hinduism, Islam and Sikhism. Although they are classified as OBC in some states in India, in parts of HP state, they are classified as ST. The main occupation of the Gujjar, like the Gaddis, is rearing cattle, which includes sheep, goats and buffaloes. These semi-nomadic people are in the habit of migrating to upper parts of Himalayas along with their cattle during the summer season and back to the plains with the onset of chilly winters.
4	Jad, Lamba, Khampa.	Kinnaur, Kullu, Chamba, and Lahaul	Notified as Scheduled Tribe, and are known to have come from Tibet. The dialect spoken is called Khampa and their traditional script is Tibetan. Earlier they lead a nomadic life trading pashmina wool, sheep, goats, yaks from Tibet in return for carpets, moonga, etc from India. Now they have settled themselves as agriculturist and as orchardists, running shops and restaurants, as labourers in road building sites, some own land and work on their own fields.
5	Kanaura, Kinnaura.	District Kinnaur, Lahaul & Spiti, Chauhra to Sangla and north along the Satluj River to Morang and several villages of the upper Ropa River Valley.	The Kanaura, also known as Kinnaura are a community of HP state, classified as Scheduled Tribe, speak Kinnauri language. The Kinnaura are the largest ethnic group in district Kinnaur, and typically, they inhabit villages in high altitudes, between 5,000 and 6,770 meters (16,400 to 22,200 ft.) above sea level, in areas that are described as having “mountainous topography, cold climate, dense forests, low rainfall and heavy snowfall”. The Kinnaura territory forms the border between the Buddhist and Hindu worlds, and accordingly the Kinnaura's religious belief is a fusion of the two. These Kinnaura tribes have the tradition of maintaining herds of cattle in their houses. Women of this Kinnaura tribal community are quite hard working. Weaving is practiced mainly by the female groups of this community. This Kinnaura tribal community produces exquisite baskets and other utensils, which have got demand not only on the local markets but also in the entire nation. The women also work in fields.

No.	Tribe Name	Distribution	Description
6	Lahaula.	District Lahaul and Spiti	The Lahaula people have a close affinity with Ladakhis and Tibetans, and are more akin to the Tibetans in physical appearance. They follow both Hindu and Buddhists religion. Their dialect resembles Tibetan language. The main source of livelihood for the Lahaulas is agriculture and allied activities. Occupations include animal husbandry, daily wage earning as laborers in government programs, regular government service, business (mainly shop-keeping), and crafts like weaving.
7	Pangwala.	Snow-bound areas of Chamba District	The Pangwala are a community that are Hindus and have Aryan features, they are healthy and fit and are known for their charming features. They follow the Hindu religion and worship several Gods and Goddesses, such as Shiva, Nag, Devi, etc. The main sources of economy among the Pangwala people include agriculture, animal husbandry and village crafts.
8	Swangla	Pattan region of Lahaul sub-division.	The Swangla are a tribe community residing in the Pattan region of Lahaul sub-division, district Lahaul and Spiti. They are part of the South Himalaya people cluster within the Tibetan/ Himalayan Peoples affinity bloc. Their primary language is Pattani, and practice ethnic religion, which is deeply rooted to their ethnic identity.

Source: Compiled by JICA Study Team (2017) based on:

Encyclopedic Ethnography of the Himalayan Tribes: A-D, edited by Narendra S. Bisht, T. S. Bankoti

4.2 Forest Dwellers

The term “forest dweller” refers to the Forest Dwelling Scheduled Tribes (FDST) and the Other Traditional Forest Dwellers (OTFD)” as members or communities who primarily reside in and who depend on the forests or forest lands for bona fide livelihood needs, as per “The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006” known as FRA.

In the state, Forest Rights Committees (FRCs) were initially constituted at the Gram Panchayat level and the implementation of the act was limited to Schedule V areas only. FRCs received claims and recommended them to their respective SDLCs (Sub-Divisional Level Committees) and subsequently to DLCs (District Level Committees). There are 57 Sub Divisional Level Committees and 12 District Level Committees to implement the FRA. However, as per the FRA status report of February 2016 of Ministry of Tribal Affairs (MOTA), GOI, 346 titles were distributed including 108 community claims.¹ But objections were raised by the MOTA on the constitution of FRCs at the Gram Panchayat level and process of claim settlement due to the inappropriate procedures were taken.

Therefore, as of now, only 60 titles have been given i.e. 7 community rights and 53 individual forest rights in Chamba district. No other districts of the state titles under FRA have been given.

5 Environmental and Social Risks and Mitigation Measures

ESAF discusses the overall environmental and social concerns of the Project. The key impacts of the Project on the vulnerable ST and Forest Dwellers have been described below. Potential positive and negative impact will be assessed at the initial stage of the project implementation by HPFD through consultation with relevant agencies, local governments and stakeholders.

¹ MOTA. FRA Statewise Report Feb 2016 - <http://forestrights.nic.in/report/individualStateWise.jsp#>

(1) Potential Positive and Adverse Impacts

The Project is anticipated to bring-out mainly positive environmental and social impacts, although deleterious impacts by the Project cannot be ruled-out. Based on the proposed Project activities, **Table 4** below indicates some of the key benefits and positive environmental and social impacts on vulnerable STs and Forest Dwellers by the Project.

Table 4 Key Positive Impacts on Vulnerable STs and Forest Dwellers by the Project

Type of Capital Benefit	Positive Impact
a. Forest / Natural and Physical Capital Benefits	<ul style="list-style-type: none"> - Enhanced awareness towards forest protection and conservation, - Increase in forest covered area and density, - Degraded areas to be brought under forest cover, - Improvement in forest quality and quantity, - Human-wildlife conflicts to be reduced, - Increase NTFP production , and - Improved watershed protection, reduction of soil erosion, etc., resulting in improved ecosystem services from forests
b. Social Capital Benefits	<ul style="list-style-type: none"> - Community institutions to be strengthened, and - Prudent utilization of land, water, forest resources, etc. due to the project interventions, thus safeguarding the environment
c. Financial Capital Benefits	<ul style="list-style-type: none"> - Income levels to be increased, - Project activities/ interventions to create direct and indirect employment opportunities, - Diversification of sources of incomes, - Reduced financial risk, and - Value addition and better marketing for their products
d. Human Capital Benefits	<ul style="list-style-type: none"> - Increase technical capacity for sustainable forest management and biodiversity conservation, - Improved entrepreneurial and business management capacity of JFMCs and SHGs, - Active participation towards community development planning and activities to increase, - Improved participation of local people in forest management and biodiversity conservation, and - Cohesion amongst community members, PRIs, JFMCs, SHGs to improve

Source: Prepared by JICA Study Team (2017)

The Project is not anticipated to bring-out significant deleterious impacts on the targeted ST and Forest Dwellers, although the Project could potentially beget adverse impacts of the environmental and social setting. **Table 5** presents potential adverse risks and mitigation measures for them.

Table 5 Adverse Environmental / Social Risks and Possible Mitigation Measures for Vulnerable STs and Forest Dwellers

Activities	Potential Adverse Risks	Possible Mitigation Measures
Planning	<ul style="list-style-type: none"> - Disempowerment of customary village forest management institutions - Conflict among community members - Micro planning could lead to conflicts over natural resources, due to formalization of previously fluid, flexible and informal agreements and practices 	<ul style="list-style-type: none"> - Avoid major impacts through participatory procedures for screening of sub-projects - Ensuring adequate consultations and participation of vulnerable groups for micro-planning - Promote best-practice participatory approaches for forest management planning - Prioritize vulnerable groups as beneficiaries
Community Development	<ul style="list-style-type: none"> - Encroachments - Loss of common property resources - Loss of property, houses and other physical assets - Loss of other customary land/ resource access and use - Disempowerment of customary institutions 	<ul style="list-style-type: none"> - Strict delineation and survey of forest boundaries - Stringent action against encroachment - Increased awareness programs - Participatory procedures for screening of sub-projects and avoidance of major impacts - No use of private land or resettlement for community infrastructures - Ensure members of the community participation in Gram Sabha

Activities	Potential Adverse Risks	Possible Mitigation Measures
	<ul style="list-style-type: none"> - Construction activities related air, water, soil and noise pollution - Possible damage to flora and fauna 	<ul style="list-style-type: none"> - Participatory procedures for screening of sub-projects and avoidance of major impacts - Proper design and planning of infrastructure activities to minimize environmental risks - Community-based/participatory land/resource use planning
Livelihood and Traditional Knowledge	<ul style="list-style-type: none"> - Denial of basic rights - Increased dependency - Loss of traditional livelihood - Loss of traditional knowledge/skill - Inequitable benefit sharing - Resource use conflicts - Gender issues 	<ul style="list-style-type: none"> - Proper implementation and monitoring of ESAF, VSTPF, including Social Assessment - Clear and equitable beneficiary selection and prioritizing vulnerable STs, Forest Dwellers, poor vulnerable households, etc. - Documentation and utilisation of traditional knowledge/ practices - Active bottom-up approach - Community involvement and employment in all aspects of construction, operation and maintenance - Corpus fund to ensure sustainability of investment - Selection of female beneficiaries with deliberate attempts to empower women
Sustainable Forest Management/ Biodiversity Conservation	<ul style="list-style-type: none"> - Impacts from construction activities including air (dust), water (siltation of water bodies), soil (soil contamination, erosion, and loss), local fauna and flora, noise pollution, waste disposal etc. - Possibility of loss of access to customary lands and resources - Potential loss of customary/traditional knowledge as communities are trained in formal management approaches 	<ul style="list-style-type: none"> - Participatory procedures for micro planning, screening of sub-projects and avoidance of major impacts - Proper design and planning of activities to minimize environmental risks - Community-based/participatory land/resource use planning - Prioritization of vulnerable groups as beneficiaries - Documentation and utilization of traditional knowledge/ practices - Preparation of Local regulations

Source: Compiled by JICA Study Team (2017)

6 Framework and Procedures of Vulnerable Scheduled Tribes Plan

6.1 Preparation of Vulnerable Scheduled Tribes Plan

The Vulnerable Scheduled Tribes Plan (VSTP) shall be prepared at the Gram Panchayat or JFMC level when adverse impacts are anticipated due to the Project on the vulnerable STs and Forest Dwellers. It should be ensured that the contents of VSTP should be incorporated in the micro-plan. VSTP should be prepared in a manner that it is led by field officers/ animators and with active participation of the identified vulnerable groups of the village/ habitation. Indicative steps for the preparation of VSTP have been described in **Table 6**.

Table 6 Processes for Preparation of VSTP

No.	Step	Safeguard Activity, Methods, Processes
1	Screening and Basic Information Collection	<ul style="list-style-type: none"> - Consultations leading to the decision whether a plan is required to be prepared - Collection of basic and baseline information and data on the village/ habitation such as socio-economic status of ST and Forest Dwellers, etc.; participation of ST and Forest Dwellers in the Project; potential impacts of the Project on ST and Forest Dwellers.
2	Social Assessment	<ul style="list-style-type: none"> - Needs and Priorities assessment to be carried-out for the identification of vulnerable STs and Forest Dwellers with the help of tools such as Participatory Rural Appraisal (PRA)
3	Consultation with identified vulnerable STs and Forest Dwellers	<ul style="list-style-type: none"> - Workshops and discussions with the vulnerable ST and Forest Dwellers on identification of adverse impacts and devising mitigation measures and other support activities
4	Drafting and Approval of the Plan	<ul style="list-style-type: none"> - Preparation based on outcomes of workshop/discussion conducted - Meeting at Gram Panchayat or/and JFMC level

Source: JICA Study Team (2017)

VSTP shall include at least the following contents as indicated in **Table 7**.

Table 7 Indicative Contents of VSTP

No.	Chapter	Descriptions
1	Introduction	- Define the basic purpose of the plan, its scope and objectives, and outline of the report
2	Sub-projects Description	- Brief description of the sub-projects, rationale, objectives, location/area, key activities, the implementation schedule, etc.
3	Socio-economic Baselines	- Brief profiles of the target area. - Baseline information on the demographic, social, economic and cultural characteristics of all STs and Forest Dwellers - Baseline information on natural resources, viz., land, water, forest, forest products, etc., utilized and managed by ST and Forest Dwellers
4	Summary of the Social Assessment and Free, Prior and Informed Consultation	- Identify and mapping of key project stakeholders - Stakeholder engagements - Consultations with the targeted social groups under VSTP - Assess potential adverse and positive effects of the Project
5	Action Plan	- Define/identify vulnerable STs and Forest Dwellers based on the results of socio-economic baselines and SA - Identify measures to avoiding potential adverse effects of the Project - Identify mitigating measures for potential adverse effects of the Project - Identify activities support the vulnerable ST and Forest Dwellers to participate in the Project (if any)
6	Public Consultation and Information Disclosure	- Document and present results of public consultation with the communities
7	Cost Estimation and Financing Plan	- Provide activities-wise budget and possible sources of finance
8	Monitoring Plan	- Provide details of concurrent and end of project monitoring mechanism for targeted groups under VSTP

Source: JICA Study Team (2017)

6.2 Detail Procedures of VSTPF

(1) Free, Prior and Informed Consultation

Free, Prior and Information Consultations (FPIC) are important to be carried-out with the target beneficiary population, including the vulnerable STs and Forest Dwellers, to consolidate a strong community support at local levels of the Project. At the initial stage, the locations where each of these communities live and derive a livelihood will be mapped. Efforts have to be made to ensure that these communities are adequately represented during the preliminary information disclosure and in subsequent consultation meetings. During these disclosures/ consultations, information in the form of written materials and language of communication should be in the local language/ dialect, which are simple and comprehended by everyone. Furthermore, animators/ field officers should be made responsible to ensure that visualization and visual presentations are used as much as possible; a well-designed program would benefit from well documented consultations with target beneficiaries including vulnerable STs and Forest Dwellers. Also, opportunities and facilities to encourage participation of women, elders and other vulnerable should be considered.

(2) Social Assessment and Micro Planning

The process of Social Assessment (SA) and Micro Planning shall involve specific procedures that ensure the needs and priorities of the vulnerable groups, which will be reflected in sub-projects

under the Project. Thus, SA for VSTP should follow the procedure determined in ESAF. However, in case, there are targets with following issues should be also covered in the SA.

- x) Demography, literacy levels, occupational profiles, religious and cultural practices, kinship and social organization and socio-political characteristics and institutions of affected STs & Forest Dwellers,
- xi) Lands occupied, customarily used or traditionally possessed by affected ST & Forest Dwellers, and
- xii) Natural resources utilized for their social as well as economic bases by the affected ST & Forest Dwellers

It is anticipated that many Gram Panchayats would probably have existing micro plans or similar documents in place; participatory review would be carried-out in such a case. In cases where Gram Panchayats do not have existing micro-plans or similar documents, participatory development of micro-plans will take place. The micro-plan shall focus on proposals concerning Gram Panchayats, and stipulate community development and livelihood needs/priorities expressed by villagers, who reside within and on the fringes of the forest area.

(3) Selection and Screening for Sub-Projects

Selection of sub-projects will be prioritized keeping in mind the target beneficiaries, including the vulnerable ST and Forest Dwellers, so that they face no or minimal deleterious impacts due to project activities. All sub-projects need to be finalised through the participatory consultations process; vulnerable communities will be an integral part of this process. Target beneficiaries will have preferential treatment during the project implementation stage.

(4) Monitoring and Reporting

Monitoring and reporting system for VSTP should be consistent with the regular monitoring and reporting system of the Project, but the identified vulnerable ST and Forest Dwellers should be consulted separately, through a participatory monitoring process that is included by the Project. In this process, it is ensured that they are not isolated and are part of the beneficiary community, and have fair opportunity to provide their feedback on the implementation of the Project.

(5) Grievance Procedures

Grievance redress procedures for the vulnerable ST, Forest Dwellers and other vulnerable groups would be the same as provided in ESAF. However, if required, it may necessitate establishing a grievance redress committee to respond more sensitively, effectively, and in a timely and responsible manner.

6.3 Institutional Arrangement and Capacity Development

In principle, the institutional arrangement for ESAF will be applied for implementation of VSTPF as well. And capacity development for addressing vulnerable ST and Forest Dwellers' relevant issues is generally covered under the proposed training courses for PMU, FCCU, FTU, and Gram Panchayat level identified as institutional arrangement of ESAF. The training program covers safeguards issues, micro-planning process, environmental and social safeguards procedures (including FPIC or process of community consultation and public participation), and monitoring and evaluation for environmental and social safeguard.

Attachment II.11.3.3 Draft Involuntary Resettlement Planning Framework (IRPF)

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Draft Involuntary Resettlement Planning Framework

1 Overview

1.1 Objective of the Involuntary Resettlement Planning Framework

The Project will not involve any physical relocation nor involuntary resettlement as long as ESAF is fully applied in the selection of the project area and scope of the sub-projects. On the other hand, unlike a typical infrastructure project, this Project will have multi-sectoral intervention and activities implemented by numerous sites with many sub-projects which are not yet defined in detail at this stage (site location, size/scope of the activities). In this regard, the Involuntary Resettlement Planning Framework (IRPF) has been designed to clarify the required procedures if any acquisition of private lands for construction activities related to the Project and its sub-projects are required which result in (i) loss of assets, (ii) restrictions to the use of or loss of access to places of interest, (iii) loss of existing sources of income and livelihood, and (iv) depreciation of adjacent property value.

1.2 Structure of IRPF

The above-mentioned objectives are expected to be achieved through the following contents:

- i) Principles of Resettlement Plan (RP),
- ii) Legal Framework,
- iii) Process of RPs Preparation,
- iv) Project Affected Population (PAPs) and its Eligibility,
- v) Evaluation of Affected Properties, Disbursement of Compensation and Resettlement Benefits,
- vi) Grievance Redress Mechanisms,
- vii) Funding/ Resettlement Budget,
- viii) Consultation, and
- ix) Monitoring

2 Legal Framework

The “Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act, 2013 (RFCTLARRA-2013)” is the applicable law at the union level stipulates the procedures for land acquisition as well as providing rehabilitation and resettlement benefits to the affected/ displaced persons. The act came into force on 1st January 2014, and superseded the “Land Acquisition Act, 1894” and its Amendment 1984, as well as the “National Rehabilitation and Resettlement Policy 2007”. Based on the Act, HP state enacted “Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition. Rehabilitation and Resettlement Rules 2015” which elaborates more specifically on required procedures on Social Impact Assessment (SIA).

3 JICA's Requirement for RPs Preparation and Implementation

The Resettlement Plans (RPs) shall be prepared and implemented in line with the JICA Guideline. Following the Guideline, the following principles need to be applied;

- ◆ Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives. When avoidance is proved unfeasible, effective measures to minimize impact and affected persons to be compensated for losses,
- ◆ Affected persons who must be resettled involuntarily and people whose means of livelihood hampered or lost must be sufficiently compensated and supported by project proponents in a timely manner,
- ◆ Prior compensation, at full replacement cost, must be provided,
- ◆ Efforts to enable affected people to improve their standard of living, income opportunities, and production levels, or at least to restore these to pre-project levels,
- ◆ Appropriate participation by affected people and their communities must be promoted in the planning, implementation, and monitoring of resettlement action plans and measures to prevent the loss of their means of livelihood,
- ◆ Appropriate and accessible grievance mechanisms must be established for the affected people and their communities, and
- ◆ Consultations to be held in a form, manner, and language that are understandable to the affected people.

4 Process of RPs Preparation

The process of preparing the RPs for the Project is depicted in **Figure 1** which is in-line with the relevant legal system adopted in the country, namely RFCTLARRA-2013.

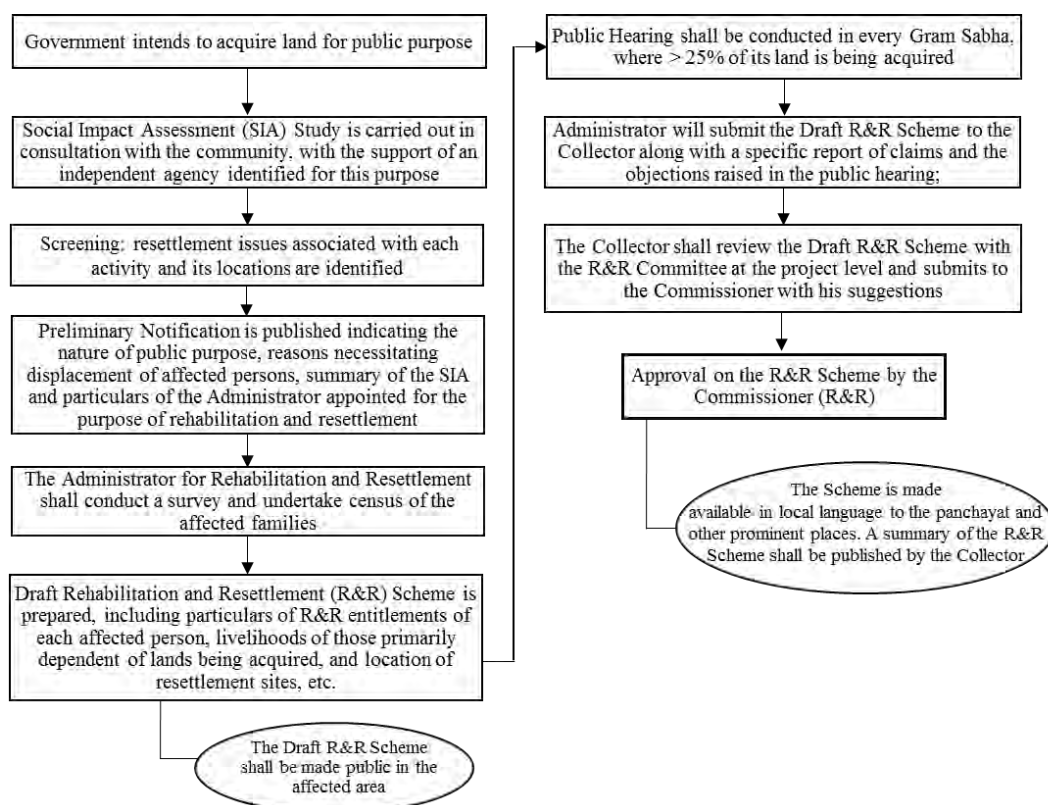


Figure 1 Process of Preparing the Resettlement Plans

SIA shall be conducted which covers; (i) whether proposed Project serves a public purpose or not; (ii) estimate numbers of affected families to be impacted and displaced; (iii) quantify extent of public and private lands, houses, settlements, common properties, etc. to be impacted due to acquisition; (iv) land acquisition at an alternative place has been considered and not found feasible; (v) assess social impacts of the Project; (vi) impacts of livelihoods of affected families; and (vii) impacts on public and community properties, assets and infrastructure.

5 Affected Population and the Eligibility

5.1 Estimated Population

While the Project is anticipated to bring-out positive impacts on both environmental and social aspects to the beneficiaries and any types of involuntary resettlement/ land acquisition are not expected to take place, limited number of persons might possibly be affected by certain activities. However, it should be emphasised again that due to the characteristic of the Project, it is very difficult to provide a reasonable estimation of such persons at the present level of information, in which the sites for respective activities are not known.

5.2 Eligibility Criteria of Displaced Persons for Compensation

RFCTLARRA-2013 shall be the basis to set the eligibility criteria of displaced persons for compensation and assistance of R&R. Eligibility criteria for compensation would be different depending on the nature of impacts and status of land tenure, which can be broadly categorised into formal, semi-formal and informal, resulting in (i) Legal titleholders/ with customary land right/ with Permit from local authority; (ii) Tenants and leaseholders (whether having written tenancy/lease documents or not)/ share cropper; (iii) Leaseholders; (iv) Encroachers; and (v) Squatters. Recommended compensation and R&R assistance for each category are presented in **Table 1**.

Table 1 Compensation and R&R Assistance

No.	Type of Loss	Application	Definition of Entitled Person	Entitlement
1	Loss of private land	Agricultural land, homestead land or vacant plot	Common*	<ul style="list-style-type: none"> All displaced families will receive (i) monthly subsistence allowance of 3,000 INR for one year from the date of award, and (ii) SC/ST households will receive additional one-time payment of 50,000 INR. 60 days advance notice to harvest standing seasonal crops prior to damage. If notice cannot be given, compensation for share of crops will be provided. Additional compensation for vulnerable households. Exemption from fees and taxes related to compensation
			Legal titleholders/ Affected Persons (APs) with customary land right/ APs with Permit from local authority	<ul style="list-style-type: none"> Compensation at replacement value¹ or land-for-land² where feasible. One time resettlement allowance of 50,000 INR per affected family One time assistance option from: (i) Job for at least one member of the displaced family³ in project which has created impact or in similar such other project; or (ii) One-time payment of 500,000 INR per displaced family.
			Tenants and leaseholders (whether having written tenancy/lease documents or not)/ share cropper	<ul style="list-style-type: none"> Compensation for rental deposit or unexpired lease. Share of the crop loss between owners and sharecroppers/ tenants/ lease-holders as per the agreement (50% of crop)
2	Loss of Government land	Vacant plot, Agricultural land and homestead land	Common	<ul style="list-style-type: none"> Additional compensation for vulnerable households.
			Leaseholders	<ul style="list-style-type: none"> Reimbursement of unexpired lease. All displaced families will receive (i) monthly subsistence allowance of 3,000 INR for one year from the date of award, and (ii) SC/ST households will receive additional onetime payment of 50,000 INR. 60 days advance notice to harvest standing seasonal crops prior to damage. If notice cannot be given, compensation for share of crops will be provided. Exemption from fees and taxes related to compensation

1 Compensation at one to two times of the market value of the land, including all assets attached to the land. Market value to be multiplied by factor: "1" for land in urban area, "1" to "2" for land in rural area depending on distance from urban area. An additional "Solatium" equal to the amount of compensation (100%) for land including all attached assets.

2 If land for land is offered, titles will be in the names of original landowners. Joint titles in the name of husband and wife will be offered in case of married APs. Re-titling of the remaining land will be the responsibility of the EA and will occur following land acquisition, within six months of time and in-case of delay, the EA will issue interim certificate/provisional proof of the titling for the delayed period.

3 "displaced family" means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area

No.	Type of Loss	Application	Definition of Entitled Person	Entitlement
			Encroachers	<ul style="list-style-type: none"> 60 days advance notice to shift from encroached land. Notice to harvest standing seasonal crops. If notice cannot be given, compensation for share of crops will be provided.
			Squatters	<ul style="list-style-type: none"> 60 days advance notice to shift from occupied land. 60 days advance notice to harvest standing seasonal crops prior to damage. If notice cannot be given, compensation for share of crops will be provided. All displaced families will receive (i) monthly subsistence allowance of 3,000 INR for one year from the date of award, and (ii) SC/ST households will receive additional onetime payment of 50,000 INR.
			Government land without being used by anybody (not applied "Common")	<ul style="list-style-type: none"> Transfer of land through inter government department Payment of land value by the EA to the concerned government departmental for transfer its ownership.
3	Loss of residential structure	Residential structure and other assets ⁴	Common	<ul style="list-style-type: none"> All physically displaced families will receive both: (i) One time shifting assistance of 50,000 INR towards transport costs etc.; and (ii) monthly subsistence allowance of 3,000 INR for one year from the date of award, and (iii) SC/ST households will receive additional onetime payment of 50,000 INR. Compensation will be at replacement value excluding depreciation Each affected family having cattle shed shall get one time financial assistance of such amount as the appropriate Government may, by notification, specify subject to a minimum of 25,000 INR for construction of cattle shed One time resettlement allowance of 50,000 INR per affected household Additional compensation for vulnerable households.
			Legal titleholders	<ul style="list-style-type: none"> Replacement value of the structure and other assets (or part of the structure and other assets, if remainder is viable). If house lost in rural areas, constructed house as per Indira Awas Yojana specifications. If in urban area, house of minimum 50 sq. m. plinth area. This benefit should be extended irrespective of title if the affected family is residing in affected area for continuously at least for three years prior to issue of notification. In urban area if family is not willing to accept the constructed house then shall get one-time financial assistance of at least 150,000 INR. In rural areas, the actual cost of house construction shall be offered in such cases. Right to salvage materials from structure and other assets with no deductions from replacement value. Exemption from fees and taxes related to compensation
			Tenants and Leaseholders	<ul style="list-style-type: none"> Replacement value of the structure and other assets (or part of the structure and other assets, if remainder is viable) constructed by the AP. Compensation for rental deposit or unexpired lease. Right to salvage materials (of the portion constructed by tenants or leaseholders) from structure and other assets Right to salvage materials from structure and other assets with no deductions from replacement value. Exemption from fees and taxes related to compensation
			Squatters	<ul style="list-style-type: none"> Replacement cost of structure constructed by the squatter Right to salvage materials from structure and other assets
			Encroachers (not	<ul style="list-style-type: none"> 60 days advance notice to shift from encroached

4 Other assets include, but are not limited to walls, fences, sheds, wells, etc.

No.	Type of Loss	Application	Definition of Entitled Person	Entitlement
			applied "Common")	<ul style="list-style-type: none"> structure. Right to salvage materials from structure and other assets Additional compensation for vulnerable households.
4	Loss of Commercial Structures	Commercial structure and other assets	Common	<ul style="list-style-type: none"> One time Resettlement allowance of 50,000 INR per affected family All displaced families will receive both: (i) One time Shifting assistance of 50,000 INR towards transport costs etc.; and (ii) monthly subsistence allowance of 3,000 INR for one year from the date of award, (iii) SC/ST households will receive additional onetime payment of 50,000 INR. Each affected family having petty shop shall get one time financial assistance of such amount as the appropriate Government may, by notification, specify subject to a minimum of 25,000 INR for construction of petty shop Right to salvage materials from structure and other assets with no deductions from replacement value Additional compensation for vulnerable households. Exemption from fees and taxes related to compensation
			Legal titleholders	<ul style="list-style-type: none"> Reconstruction cost (without depreciation) for lost frontage/structure; affected person shall be allowed to take salvaged material from the demolished structure at no costs.
			Tenants and leaseholders	<ul style="list-style-type: none"> Replacement cost of part/whole of structure constructed by the tenant/leaseholder, and this will be deducted from the compensation amount of the total structure. Compensation will be at replacement value excluding depreciation. Compensation for rental deposit or unexpired lease.
			Squatter	<ul style="list-style-type: none"> Replacement cost of structure constructed by the squatter. Compensation will be at replacement value excluding depreciation
			Encroachers (not applied "Common")	<ul style="list-style-type: none"> 60 days advance notice to shift from encroached structure. Right to salvage materials from structure and other assets Additional compensation for vulnerable households
5	Loss of livelihood	Livelihood	Legal titleholder/ tenant/ leaseholder/ non-titled/ employee of commercial organization, farmer/ agricultural worker/ artisan/ small trader/ self-employed	<ul style="list-style-type: none"> One time financial assistance of minimum 25,000 INR or as decided by the appropriate government agencies, whichever is higher. Income restoration and training to eligible APs Additional compensation for vulnerable households. Consideration for project employment.
6	Loss of trees and crops	Standing trees and crops	Legal titleholder/ tenant/ leaseholder/ sharecropper/ non-titled AP	<ul style="list-style-type: none"> 60 days advance notice to harvest standing seasonal crops prior to damage, fruits, and timber. Compensation for standing crops based on an annual crop cycle at market value Compensation for trees based on timber value at market price, and compensation for perennial crops and fruit trees at annual net product market value multiplied by remaining productive years; to be determined in consultation with the Forest Department for timber trees and the Horticulture Department for other trees/crops
7	Impacts on	All impacts	Vulnerable APs ⁵	<ul style="list-style-type: none"> One time lump sum assistance of 25,000 INR to

⁵ *Vulnerable groups* include poor households, households headed by women, STc and SCs. Poor households may be identified as per the BPL card issued by the government. In addition, international standard of poverty level will also be taken into consideration for defining poverty level especially the income level. (approximately 2 USD per day per person as a bench mark). All the vulnerable groups will be provided with one time vulnerability allowance.

No.	Type of Loss	Application	Definition of Entitled Person	Entitlement
	vulnerable APs			<ul style="list-style-type: none"> vulnerable households. This will be paid above and over the other assistance. Vulnerable APs will receive preferential income restoration training program under the Project. Consideration for project employment
8	Temporary loss of land	Land temporarily required for sub-project construction	Legal titleholders, non-titled AP	<ul style="list-style-type: none"> Provision of rent for period of occupation for legal titleholders Compensation for assets lost at replacement value. Restoration of land to previous or better quality Additionally, cash compensation will be paid for the temporary damage of crop under the Right of Way (RoW) during the maintenance and repair after the construction. In case there is a need for repair or maintenance of the transmission lines in the future, the project authorities would reach agreement with the land owners for access to the land for maintenance and repairs, when necessary, and that the land owners would continue to use the land for farming activities.
		Temporary Occupation of waste or arable land	Title holder/ government	<ul style="list-style-type: none"> The appropriate government may direct the collector to procure the occupation and use of waste/arable land for such terms it shall think fit, not exceeding three years from commencement of such occupation. Compensation either in gross sum of money or by monthly or other periodical payments, as shall be agreed in writing between collector and the user/ contractor. In case of non-agreement on compensation and difference amount, the collector shall refer such difference to the decision of the authority. On the expiration of the term, the land will be reassessed to see the damage and will either be restored or be compensated further for the dam age. In case of full damage and non-use of the land post the temporary occupation/use period, the land will be permanently acquired as per the standard norm.
9	Loss of common resources	Common resources	Communities	<ul style="list-style-type: none"> Replacement or restoration of the affected community facilities – including public water stand posts, public utility posts, temples, shrines, etc. All community facility and utility replacement is compensated and also re-built.
10	Any other loss not identified	N/A	N/A	<ul style="list-style-type: none"> Unanticipated involuntary impacts will be documented and mitigated based on the principles of the RPs

Note: *Common: Common means common entitlements given to the persons listed on "Definition of Entitled Person".
Source: Compiled by JICA Study Team (2017) based on the RFCTLARRA-2013

In order to determine the eligibility of displaced persons for compensation and resettlement assistance, the cut-off dates can be determined at the time of completion of the SIA, after sub-projects' sites have been identified. Thus, those dates will be fixed by the Project Management Unit, as part of its implementation programme, after consultations with the Collector and APs and other stakeholders. Any person occupying the area thereafter would not be eligible for compensation or resettlement assistance.

6 Evaluation of Affected Properties and Disbursement

6.1 Evaluation of Affected Properties

RFCTLARRA-2013 specifies methods and procedures for valuating and determining the market value of land, house, buildings and other immovable properties or assets attached to the land or building. This Act bestows the Collector with the powers to;

- ◆ determine the market value of land to be acquired, as per the procedure specified in the Act,
- ◆ engaged competent engineer(s) or any other specialists in the relevant field, in determining the market value buildings and other immovable properties or assets attached to the land or buildings, which are to be acquired,
- ◆ use the service of experienced persons in the field of agriculture, forestry, horticulture, sericulture or any other field, in determining value of trees and plants attached the land to be acquired, and
- ◆ use the service of experienced persons in the field of agriculture for assessing the value of standing crops damaged during the process of land acquisition.

The total compensation will be worked-out after considering all the above aspects. Thereafter, the Collector will impose a “Solatium” amounting to 100% of the total compensation amount to arrive at the final award will be paid to each AP.

6.2 Component of R&R benefits

Based on the R&R Scheme prepared by the Administrator, the R&R entitlement package would be worked-out for each displaced/ affected family and extended to them. These R&R facilities and monetary benefits are over and above the compensation for acquired land and/or house and other assets attached to the land. Second Schedule attached to the Act provides the following components for rehabilitation and resettlement benefits, which is highlighted in **Table 2**. As per the Third Schedule attached to the Act provides infrastructure facilities and basic minimum amenities for the displaced families in the relocation sites. The cost shall be borne by the requiring agency.

Table 2 Components for Rehabilitation and Resettlement Benefits

Elements of R&R Entitlements	Non-Monetary Provisions	Monetary Provisions
House in case of Displacement	<ul style="list-style-type: none"> • A constructed house as per the Indira Awas Yojana • A constructed house with 50 sqm plinth area in urban areas 	If, affected family does not opt for constructed house: Equivalent cost of house to be offered in-lieu of constructed house in rural areas Financial assistance of 150,000 INR/- in urban areas for construction of house
Land for Land	<ul style="list-style-type: none"> • In irrigation projects, each family owning agricultural land whose land has been acquired, or family has been reduced to the status of marginal farmer or landless, shall be allotted a minimum of 1 acre in the 	N/A

Elements of R&R Entitlements	Non-Monetary Provisions	Monetary Provisions
	<ul style="list-style-type: none"> command area, in lieu of compensation SC/ ST families losing land will be allotted land equivalent to acquired land or 2.5 acres, whichever is lower 	
Offer of Developed Land	<ul style="list-style-type: none"> In urbanization projects, 25% developed land will be reserved and offered at a price equivalent to the cost of acquisition and development. 	N/A
Choice of Annuity and Employment	<ul style="list-style-type: none"> In case jobs are created through the Project, jobs in the Project or in other project after suitable training and skill development is provided; this will be offered to one person per affected family 	<ul style="list-style-type: none"> One-time payment of 500,000 INR/- per affected family, OR Annuity @ 2,000 INR/month per family for 20 years
Subsistence Allowance	N/A	<ul style="list-style-type: none"> Displaced families to be provided 3,000 INR/month for 12 months from the date of award SC and ST displaced from scheduled areas shall receive 3,000 INR/month for 12 months from the date of award 50,000 INR/-
Transportation Cost for Displaced Families	N/A	<ul style="list-style-type: none"> Each displaced family to get one-time financial assistance of 50,000 INR/- for shifting family, building materials, belongings, cattle, etc.
Cost towards Cattle shed/ Petty Shop	N/A	<ul style="list-style-type: none"> Each affected family to get one-time financial assistance of 25,000 INR/- for construction of shop or petty shop as the case may be.
One-time Grant to Artisans, Small Traders, Self-employed, Owning Non-agricultural Land, or Commercial, Industrial or Institutional Structure in the Affected Area	N/A	<ul style="list-style-type: none"> One-time financial assistance of 25,000 INR/-
Fishing Rights	<ul style="list-style-type: none"> In irrigation/ hydel projects, affected families may be allowed to do fishing as per the prescribed norms of the government 	N/A
One-time Resettlement Allowance	N/A	<ul style="list-style-type: none"> 50,000 INR/ affected family
Stamp Duty and Registration Fee	<ul style="list-style-type: none"> Payable for registration of land or house to be borne by Requiring Body Land for house shall be free from encumbrances Land or house allotted may be in the joint names of wife and husband of the affected family 	N/A
Additional Benefits to SC and ST	<ul style="list-style-type: none"> No acquisition of land in scheduled areas Prior consent is required from concerned Gram Sabha or Panchayat, if acquisition of land in Scheduled areas Development Plan shall be prepared in case of land acquisition involving displacement of SC and ST families, which will include development of alternate fuel, fodder, NTFP for a period of five years ST families to be relocated within the same scheduled areas Resettlement areas predominant with SC and ST families to get land, free of cost, for community and social gatherings Fishing rights to STs, other traditional forest dwellers and SCs in rivers, ponds and dam in the affected area All reservation benefits to continue in resettlement sites for SC and ST families 	<ul style="list-style-type: none"> If SC and ST families are relocated outside the district, 25% additional R&R benefits (in monetary terms) will be extended (one time entitlement of 50,000 INR/-) 1/3 compensation shall be paid initially as first instalment, and remaining after taking possession of land

Source: Compiled by JICA Study Team (2017) based on the RFCTLARRA-2013

6.3 Disbursement of Compensation and Resettlement Benefits

As per Section 37 and 38 of the RFCTLARRA-2013, the Awards shall be filed in the Collector's office and shall be verified the area and market value of land and assets attached to it, then solatium and apportionment of compensation among the interested persons shall be determined. Further, the Collector shall give notices to all interested persons who are not present personally. The Collector shall ensure that the full payment of compensation and the monetary part of the R&R entitlements are paid to the interested persons within a period of three to six months respectively, from the date of award. Subsequently, the Collector will take possession of land. As per Section 77 (1) of the Act, the payment of compensation award would be deposited in the bank accounts of the affected/ displaced families/ persons.

7 Grievance Redress Mechanisms

All matters pertaining to disputes and grievances related to land acquisition and resettlement benefits, among the community members on any matter related to the Project and its sub-projects shall be resolved and redressed through the Grievance Redress Mechanism that has been provided in ESAF. The grievances shall be made in writing as far as possible or recorded at the appropriate levels and to designated officials.

8 Funding/ Resettlement Budget

Although it is impossible to estimate the budget for the involuntary resettlement, the implementing agency will bear all the costs of the resettlement compensation if required. Disbursements based on budgetary requirements will be made through the relevant District Administration as all the activities are under the jurisdiction of the District Collector.

9 Consultation

The process of resettlement and compensation shall participatory and consultative in nature. Public consultation and participation may be conducted through local meetings, workshops and presentations, radio and television programs, and explanations of the project ideas and requirements. The mechanism adopted for public consultations has been elaborated in ESAF, which will be applicable for resettlement and compensation process, in addition to the mechanism provided in the law for compensation and resettlement. Especially, the vulnerable groups, such as women, disables, poor and destitute, etc., shall be considered well to ensure their involvement in the process.

10 Monitoring

The primary objective in this context is to ensure that project-affected persons are not disadvantaged in any ways. Thus, their direct involvement in the process of monitoring and evaluation would be helpful to achieve the objective. Although, the RFCTLARRA-2013 authorises the Collector to ensure that all the processes of compensation and resettlement are

carried-out without any aggrieved parties, yet the Project may incorporate its own monitoring program as clarified in ESAF, which would be responsibility of PMU, assisted by a specialist under PMU, i.e. Environmental and Social Consideration/ Environmental Economics/ PES/ Specialist as well as subject matter experts directly hired by PMU.

Attachment II.12.1.1 Risk Management Framework

Project Name:	Himachal Pradesh Forest Ecosystems Management and Livelihoods Improvement Project		
Country:	The Republic of India		
Sector:	Forestry		
Responsible Agency:	Himachal Pradesh Forest Department (HPFD), Government of Himachal Pradesh		
Officers In-Charge:	Contact: Alok P Nagar	Title: Chief Project Director	
	Mobile: +91-9418007426	Email: apnagar@gmail.com; apccfprojecthp@gmail.com	
Operational Staff			
Engineering Staff			
Country Office Staff			

KEY RISKS AND MITIGATION MEASURES

Potential project risks	Assessment
1. Stakeholder Risk	Probability: H/M/L
(Description of risk)	Impact: H/M/L
Shortly, the state assembly elections would conclude by mid-November 2017, and the new government will be in place by end of December 2017. With the new government it is likely that there will be change in political situations and governance models as well as priorities. However, commitments and priorities related to the forest sector is expected to maintain more or less the same and no significant changes are assumed.	Analysis of probability and impact:
For the project implementation, existing structures and human resources of HPFD to be utilised as much as possible.	Moderate risk is estimated. The field staff may not proactively participate in the project works and view it as a burden in addition to the regular departmental works. A focused time and effort would be required by the field formation to identify potential wards under GPs as per the criteria and continuously handhold and encourage for participatory forest management and community development initiatives. For effective convergence the project field staff has to reach out the line departments and district / block administration.
For the project's community level implementation bodies, instead of engaging Gram Panchayats (GPs) and its sub-committees the village forest development society (VFDS) has been re-targeted as the main community level implementation bodies which will be the organisation to be established based on the Participatory Forest Management Regulations 2001. However, cooperation and coordination from other relevant line departments and Panchayat Raj Institutions is also envisaged.	Mitigation measures:
	The mitigation measures to the risks are identified as follows: (a) strengthening the communications to stakeholders to help enhance the understanding of the benefits of the project, and (b) enhancing proactive information disclosure and quick grievance redressal by the state as well as by the HPFD, (c) continuous guidance and supervision, including capacity building initiatives.
	Action during the implementation:
	Not required
	Contingency plan (if applicable):
	Not applicable
2. Executing Agency Risk	
2.1. Capacity Risk	Probability: H/M/L
(Description of risk)	Impact: H/M/L
Given that, the state/ HPFD would get exposed to new approaches, processes and technical know-how particularly for the ecosystem management, biodiversity monitoring, engineering structures, and for these interventions HPFD in general has limited institutional capacity which may affect planning, management, and monitoring of efficient service delivery. Furthermore, due to inadequacy in the allocation of human resources and their capacity, especially in the project management, major risks to project implementation exist.	Analysis of probability and impact:
	Moderate risk is estimated. It may be difficult for the project stakeholders to operate and implement the project in the initial years as they have less experience in implementation of a JICA loan project. However, once they learn how to operate and manage the project in accordance with the project implementation guidelines, it is expected that there would be less difficulties that they would face in the project operation.

Potential project risks	Assessment
	<p>Mitigation measures:</p> <p>The proposed mitigation measures to the risks are identified as follows: (a) the project will focus on strengthening the institutional capacity through capacity building of existing human resources and hiring the necessary skills contracted from the market; (b) required capacities identified during project preparation will be closely monitored; (c) the project design prioritizes addressing human resource constraints for required skill-sets, and program management cadres, and (d) Operation Manual and Accounting Rules/ guidelines would be developed and adopted, and training will be provided on project processes and mechanisms and contract management.</p> <p>Action during the implementation:</p> <p>PMU with technical assistance from the project consultant shall i) prepare the project implementation guidelines, ii) hold orientation and guidance workshops/ seminars on the guidelines for the project officers, and iii) provide periodic handholding and training to the project staff to enable them to operate and manage the project as envisaged.</p> <p>Contingency plan (if applicable):</p> <p>Not applicable</p>
<p>2.2. Governance Risk</p> <p>(Description of risk) High Powered Committee, governing body and PMU are planned to be established for overall decision makings, coordination, and implementation of the project. Timely organising and decision makings of relevant meetings will be crucial for the project implementation. District level convergence with other line departments may not be fully attained due to i) difference in administrative boundaries between HPFD and other departments, and ii) there is no specific project implementation unit to cover district level convergence.</p>	<p>Probability: H/M/L</p> <p>Impact: H/M/L</p> <p>Analysis of probability and impact:</p> <p>Moderate risk is estimated. As long as the HPC and PMU are established at the state level as proposed and functioned as in the project plan, the prospect of any difficulty or delay caused by insufficient coordination would be less.</p> <p>Mitigation measures:</p> <p>The HPC led by Chief Secretary, and PMU led by full-time cadre officer on deputation to manage the project should be established at the respective levels. For the convergence, more linkages between community development blocks (under the district) and range level offices (FTUs) are envisaged for the project.</p> <p>Action during the implementation:</p> <p>Same as above.</p> <p>Contingency plan (if applicable):</p> <p>Not applicable</p>
<p>2.3. Fraud & Corruption Risk</p> <p>(Description of risk) Due to lack of experience and less capacities currently with the HPFD, it is likely that procurement processes as envisaged for goods & services may get diluted or perhaps are not well understood and executed. This would require that project management consultants are in place in early stage of the project, and support the PMU on various procurements and contracts. The international bidding has well laid out procedures and prior concurrence is required from JICA at each stage of selection, whereas for local bidding procedures need to be developed and</p>	<p>Probability: H/M/L</p> <p>Impact: H/M/L</p> <p>Analysis of probability and impact:</p> <p>Low risk is estimate. There is less probability that any fraud, misappropriation, or issues on financial management would take place. There is a possibility that some inappropriate sub-projects, which may not necessarily benefit local people who participate in the project activities, might be selected and implemented.</p> <p>Mitigation measures:</p>

Potential project risks	Assessment
<p>adopted by the PMU at initial stage. The key staff also need to be trained on procurement processes.</p> <p>Also, by way of constitutional provisions system of right to information act (RTI) is in place, thus in a democratic set-up it is unlikely that the fraud and corruption will happen undetected.</p>	<p>Under the managerial features of the Institutional Arrangements provisions have been made for conducting independent audits by the CAG and well as system of undertaking concurrent audits is proposed. Under the Monitoring & Evaluation proposal, system of Grievance Redressal as well as RTI has been made to bring in transparency as well as accountability. For procurement of Goods & Services well defined procurement guidelines are in place at state level and the key staff would be sufficiently trained. Also, prior concurrence would be required from JICA on implementation of key sub-projects and services.</p> <p>Action during the implementation:</p> <p>At the start of the project implementation financial management and accounting rules and regulations for the project will be developed and would form the part of the Operation Manual to be approved by the HPC. PMU with technical assistance from the project consultant will monitor and supervise the project financial management and provide guidance and advice for proper and transparent management on a regular basis over the course of the project.</p> <p>Contingency plan (if applicable):</p> <p>Not applicable</p>
3. Project Risk	
3.1. Design Risk	Probability: H/M/L
(Description of risk)	Impact: H/M/L
<p>Several of the activities planned under the project, such as ecosystem management, recovery programme of endangered species, PA corridors network strengthening and management, raising quality planting material and plantation works particularly in alpine zone, community based biodiversity management, pasture / grassland management vis-s-vis traditional grazing, working with / communities for participatory forest management and community development, NTFP based livelihood models, NTFP cultivation on private lands and marketing etc., are innovative and unprecedented so far for the HPPFD. Furthermore, the topography of the state might make it difficult to achieve high implementation efficiency and to reach the scattered population that lives in deep hill and forest areas.</p>	<p>Analysis of probability and impact:</p> <p>Moderate risk is estimated. It might be difficult for PMU to find out contractors/facilitators capable to implement process at the field level. In case there is no competent organization at the provincial level, PMU shall procure a contractor at the national or regional level and provide necessary guidance to the contractor with assistance from the project consultant. The project divisions and ranges will need managerial and technical support from PMU and the project consultant for smooth operations of the project, especially in the supervision and technical guidance to contractors, monitoring and data management, and reporting. In case the project officials are not properly guided by provision of orientation and project implementation guidelines in the beginning of the project, the project implementation might be affected.</p>
	Mitigation measures:

Potential project risks	Assessment
	<p>The proposed mitigation measures to the risks are identified as follows: (a) the provision of technical support to the HPFD during design and implementation of new/innovative activities by way of PMC and other resource organisations; (b) the lessons learned for the state from the innovative activities which have been already initiated in a limited way in the state; (c) phase out of activities in a systematic manner in light of the innovative nature of the project activities and the state's limited capacity; and (d) collaboration between the GPs and local human resources from these communities for better outreach to the underserved population.</p> <p>Action during the implementation: Same as above.</p> <p>Contingency plan (if applicable): Not applicable</p>
3.2. Program & Donor Risk	Probability: H/M/L
<p>(Description of risk) The project has been designed aligning with the state's sector strategies and policies, as well as considering priorities with HPFD. It is assumed that the policies may remain unchanged during the implementation period, and project would help to achieve the sector policies aims and objectives, which emphasize on linkage of biodiversity conservation to livelihoods, traditional knowledge systems, equitable benefit sharing and recognizing the unique role of women.</p>	<p>Impact: H/M/L</p> <p>Analysis of probability and impact: Low risk is estimated. HP is recognized as biodiversity hotspot and most impacted with the climate change vulnerability that adversely impact human lives and livelihoods, forestry sector is one of the priorities with the government. The state also recognizes that a large population is dependent on forest resources and ecosystem services directly or indirectly.</p> <p>Mitigation measures: Not required</p> <p>Action during the implementation: Not required</p> <p>Contingency plan (if applicable): Not applicable</p>
3.3. Delivery Quality Risk	Probability: H/M/L
<p>(Description of risk) It would not be difficult for PMU to collect necessary data and information for the operation and effect indicators. All the information and data could be collected through regular monitoring by PMU or reviews of outputs. It is, however, also necessary to develop and introduce a mechanism for collaborative management of the project areas for sustainable forest management in the post project period. The state is conflict free state but prone to natural disasters. There is little possibility that natural disasters or social turmoil which would adversely affect the progress and effect of the project will happen during the project period. It is expected that the project beneficiaries or local communities who participate in the project could be properly selected without exclusion of socially vulnerable groups as long as consultations are</p>	<p>Impact: H/M/L</p> <p>Analysis of probability and impact: Moderate risk is estimated. There is some probability that PMU would face difficulties in gathering/collecting necessary data and information for monitoring of the operation and effect indicators, particularly for biodiversity and climate related data. In case that a collaborative management system is not well developed or introduced during the project implementation, sustainable forest management in the project areas, may impact the project results. Inequitable distribution of benefits might happen in case the selection of beneficiaries and identification of potential livelihood options are not carried out properly.</p> <p>Mitigation measures:</p>

Potential project risks	Assessment
properly conducted as planned and described in the guidelines/ project report.	The proposed mitigation measures to the risks are identified as follows: (a) the project will focus on strengthening the institutional capacity through capacity building of existing human resources and hiring the necessary skills contracted from the market; (b) required capacities identified during project preparation will be closely monitored; (c) the project design prioritizes addressing human resource constraints for required skill-sets, and program management cadres, and (d) Operation Manual and Accounting Rules/ guidelines would be developed and adopted, and training will be provided on project processes and mechanisms and contract management.
	Action during the implementation:
	Same as above.
	Contingency plan (if applicable):
	Not applicable.
4. Other Risk – Financial Capacity and Arrangements	Probability: H/M/L
(Description of risk)	Impact: H/M/L
The Himachal Pradesh continue to enjoy the status of special state where the GoI extends 90% financial support (as Grant) for any initiatives between the GoI-State. This also indicates that still the state has to depend a lot on the external financial support to drive its economy as well as to undertake priority developmental initiatives, irrespective of the fact that per capita income of the people is higher in comparison to other states in India. For JICA Loan projects, the process followed for loan disbursement is through reimbursement of claims. Meaning thereby, the state has to spend first from its own budget and later get reimbursements from the JICA on regular basis. Under the assumption that HP state government would be able to extend annual budgets or may provide upfront revolving fund of around Rs.300 million (say or more), and the project is able to efficiently revolve this fund minimum 2.5 times in a year i.e. spending Rs.750 million per year or more, it may be concluded that with the assumed pace of expenditures the project could spend around Rs.7,500 million (Rs.750 Cr.) in 10 years.	Analysis of probability and impact:
	Moderate risk is estimated.
	Mitigation measures:
	Annual budgetary flows for the project to be ensured by the state government under the Loan Agreement. In adverse case, if annual budget releases are not possible the government may think to provide upfront revolving fund to the project.
	Action during the implementation:
	The PMU/ HPFD proactively approach the state government for release of budgets on time every year, and must timely get approved the annual budgets from HPC prior to release of budgets.
	Contingency plan (if applicable):
	Not applicable.
5. Overall Risk Rating	Probability: H/M/L
(Overall comments)	Impact: H/M/L
The overall risk is estimated as Moderate. The project faces significant risks in (a) institutional capacity for implementation and sustainability, (b) technical design of the project, (c) Delivery quality, (d) financial capacities and arrangements, and (e) stakeholders. The key risks, which may impair the effective implementation of the project, are related to the highly innovative nature of the activities being undertaken, to the limited institutional capacity and ongoing human resource constraints faced by the state, and to possible resistance from service providers in the sector as the project involves changes which may affect their status quo.	

Source: Compiled by JICA Study Team (2017) based on existing data/information