# CHAPTER 7 ACTION PLAN

## 7.1 Outline of Target Scale of Action Plan (A/P)

### 7.1.1 General

The A/P targeting to the Year 2017/18 for the promotion of diversified agriculture in Himachal Pradesh has been prepared within the frame of target scale of crop diversification and proposed development programs given in the Master Plan up to year 2022/23.

This Action Plan consists of target scale of crop conversion to vegetables, implementation plans of the three programs formulated in the Master Plan, proposed implementation organization and tentative schedule, preliminary cost estimate, evaluation of the A/P. The preliminary cost is based on the Sample study results and experiences of similar projects and existing programs of the Department of Agriculture (DOA).

### 7.1.2 Targets of Action Plan (A/P) up to Year 2017/18

(1) Target Incremental Vegetable Production and Cultivation Area

The target beneficiaries of the Plan are the small and marginal farmers in the state. The target production and target crop conversion area from food grain crops to vegetables in Year 2017/18 are given in the following table:

**Table 7.1.1 Target Vegetable Cultivation Area and Production**

| Diversified Crops | Present & Target Production (ton) | | | Present & Target Cultivation Area (ha) | | |
|---|---|---|---|---|---|---|
| | Present (2005/06) | A/P (2017/18) | Incremental (till 2017/18) | Present (2005/06) | A/P (2017/18) | Incremental (till 2017/18) |
| Peas | 202,700 | 360,000 | 157,300 | 19,500 | 34,900 | 15,400 |
| Potato | 172,900 | 262,400 | 89,500 | 15,000 | 16,000 | 1,000 |
| Tomato | 248,900 | 362,400 | 113,500 | 8,300 | 11,700 | 3,400 |
| Cauliflower | 51,300 | 89,700 | 38,400 | 3,200 | 5,000 | 1,800 |
| Other Commercial Vegetables | 134,500 | 198,600 | 64,100 | 9,300 | 13,100 | 3,800 |
| Sub-total | 810,300 | 1,273,100 | 462,800 | 55,300 | 80,700 | 25,400 |
| Other Vegetables | 279,100 | 369,000 | 89,900 | 17,700 | 22,500 | 4,800 |
| Total | 1,089,400 | 1,642,100 | 552,700 | 73,000 | 103,200 | 30,200 |

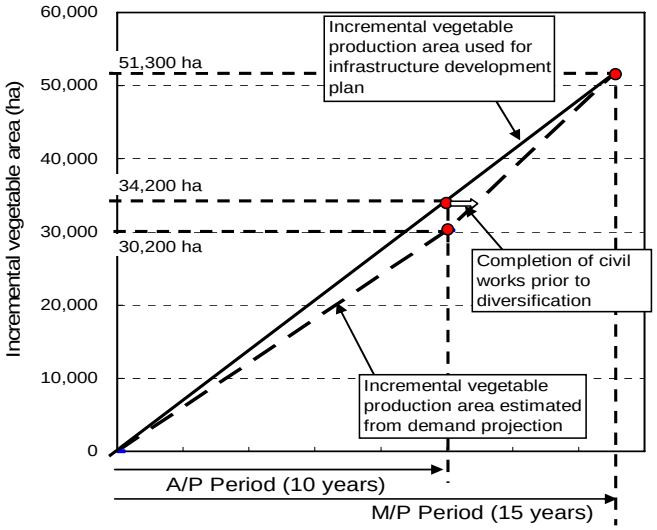
*Note; *: Data in 2005/06 Blocks, Department of Agriculture, Production & Area have half-adjusted.*
*Source: JICA Study Team*

Target incremental production of vegetables is 552,700 ton and target incremental cultivation area is 30,200 ha up to 2017/18.

(2) Target Infrastructure Development

The target infrastructure development in the 10-year period of A/P was simply estimated by applying the ratio of the duration from the total requirements in the master plan period of 15 years while the estimate of incremental vegetable area for 10 years is estimated based on marketing conditions as mentioned in the previous chapter. The civil works development should have the same progress rate in both first 10 years and remaining 5 years as shown in Figure 7.1.1.

The target infrastructure development requirement of A/P up to 2017/18 for irrigation and access farm roads is estimated based on the requirement in the M/P by interpolation method given in the above and is summarized below.




*Source: JICA Study Team*

**Fig. 7.1.1 Schematic Progress of Irrigation Development**

(Estimated by Interpolation from Incremental Target of M/P)

**Table 7.1.2 Target Irrigation Development Area of A/P**

| Irrigation Area | Diversification to Vegetable Area | Target Farmland for Irrigation | Remarks |
|---|---|---|---|
| Existing Irrigation Area | 9,500 | - | |
| Irrigation Area to be developed by On-going Programs | 13,000 | - | |
| Minor Irrigation Area | 4,700 | 10,700 | |
| Supplementary Irrigation Area | 3,300 | 3,300 | |
| Rainfed Area | 3,700 | - | |
| Total | 34,200 | 14,000 | |
| Irrigation Needs in Workshop | | 18,000 | Short List |
| | | 33,200 | Long List |

*Note; Short list: relatively realistic needs, Long list: needs with less information*
*Source: JICA Study Team*

**Table 7.1.3 Target Access Farm Road Development of A/P**

| Farm Road | Required Length of General Farm Road | Crop Diversi-fication related F. Road (57%) | Remarks |
|---|---|---|---|
| Farm Road Construction by RDD | 1,520 | 2,010 | |
| Farm Road Construction by APMC | 130 | 170 | |
| Access Farm Road Construction by DOA | - | 890 | |
| Total | | 3,070 | |
| Access Farm Road Needs in Workshop | | 1,900 | Short List |
| | | 4,600 | Long List |

*Note; Short list: relatively realistic needs, Long list: needs with less information,*
*RDD: Rural Development Department, APMC: Agricultural Produce Market Committee of Market Board*
*Source: JICA Study Team*

In order to attain the above targets, the following activities are proposed to be implemented during the period of A/P which is given below:

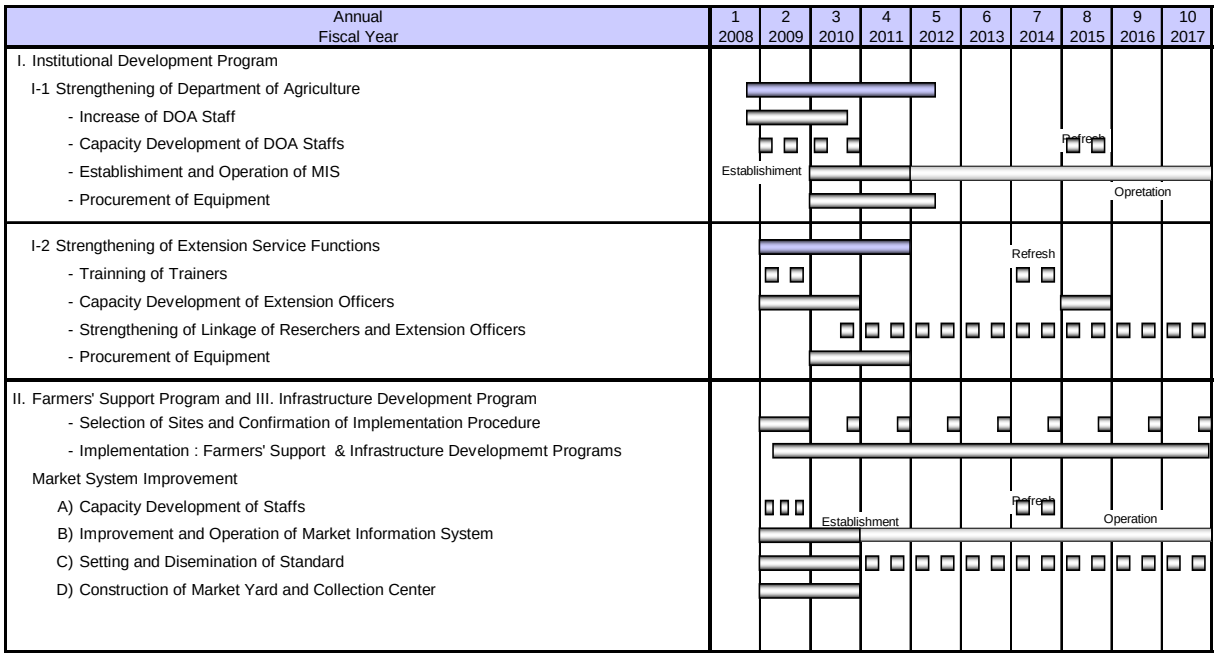
**Table 7.1.4 Proposed Major Activities in A/P**

| Programs | Plan | Major Activities |
|---|---|---|
| **Institutional Development** | Strengthening of DOA | • Capacity development of staffs<br>• Establishment of the MIS and capacity development on the effective use and maintenance<br>• Provision of necessary equipment and tools to department, district & soil conservation offices and office renovation/construction<br>• Increase of staffs |
| | Strengthening of Extension Service Function | • Trainings for the extension trainers<br>• Establishment of farm schools (model demonstration farms)<br>• Workshops & field visits |
| **Farmers' Support**<br><br>- Production | Vegetable Promotion | • Promotion of cultivation through crop conversion from food grain crops to diversified crops, especially vegetables<br>• Increase of their productivity and quality<br>• Provision of protective farm facility for demonstration |
| | Food Grain Productivity Improvement | • Improvement of productivity of food grain crops to generate the crop conversion area |
| | Integrated Farm Management | • Improvement of productivity and quality of horticulture crops<br>• Promotion of fodder production, fish culture in irrigation system. |
| - Marketing | Post Harvest Processing Promotion | • Introduction or improvement of post harvest works such as sorting, grading and packing for marketing<br>• Promotion of small scale agro-processing activities<br>• Introduction of P.P.P activities |
| | Marketing System Improvement | • Capacity building of Market Board staffs,<br>• Establishment of market information system, construction or improvement of marketing facilities |
| **Infrastructure Development** | Infrastructure Development/Improvement | • Development and improvement of minor irrigation systems and access farm roads |
| | Infrastructure Development Support | • Strengthening of operation and maintenance (O&M) of the constructed/improved facilities<br>• Provision of micro irrigation instruments |

*Source: JICA Study Team*

The implementation of the above programs is proposed to start in early fiscal year 2009/10. However, recruitment of additional staff for the DOA should commence as early as possible in order to launch the main activities of the programs.

Priority program for commencement is the "Institutional Development Program" in which the component "Strengthening of Department of Agriculture" is given top priority, followed by "Strengthening of Agricultural Extension Functions" and "Farmers' Support Program". This was initiated since crop diversification can not be promoted on a full scale without strengthening of DOA which has a central management function. Program component "Market System Improvement" will be conducted by the Agriculture Market Board in collaboration with DOA, and will start almost at the same time as the "Institutional Development Program". The "Infrastructure Development Program" will start simultaneously with the "Farmers' Support Program". These relations are illustrated below;




*Source: JICA Study Team*

**Fig. 7.1.2 Proposed Overall Implementation Plan of A/P Development**

## 7.2 Institutional Development Program

### 7.2.1 Strengthening Plan of DOA

The A/P related to each activity and its requirements, as well as the schedule are mentioned below.

**Table 7.2.1 Proposed A/P of Strengthening Plan of DOA**

| Activity | Proposed Plan | Target | Executed by |
|---|---|---|---|
| Capacity building of staffs on planning, implementation, monitoring and evaluation of crop diversification | • Capacity building on planning, implementation, monitoring and evaluation of crop diversification for extensions staff. | • Staff of DOA for planning / Monitoring | • DOA |
| | • Capacity building trainings shall be carried out at regular interval on planning, implementation, monitoring and evaluation of infrastructure facilities for crop diversification for soil conservation staff. | • Staff of Soil conservation offices of DOA | • DOA |
| Establishment of the MIS for implementation of crop diversification | • Establishment of the MIS system with computer facilities at the state, district and block levels, and soil conservation offices.<br>• Updating of information on yearly basis. | • District, Zonal and Block offices for extension work<br>• Divisions and sub-divisional offices for soil conservation work | • DOA |
| Training of staffs for the effective use and maintenance of the MIS system | • Capacity building trainings shall be carried out at regular interval on the effective use and maintenance of the MIS system for both extension and soil conservation staff. | • Staff of District and Blocks for planning / Monitoring | • DOA |
| Provision of necessary equipment and tools to department, district and block offices, and soil conservation offices for implementation of crop diversification | • Transport vehicles shall be provided for the 75 blocks.<br>• Data storage and maintenance equipment such as computers shall be provided for the 75 blocks.<br>• Visual aids extension equipment such as projectors shall be provided for the 75 blocks.<br>• Survey, design & maintenance equipment for soil conservation offices shall be provided.<br>• Project Room Renovation at DOA, District and Soil Conservation Offices at the district level | • District and Blocks for planning / Monitoring | • DOA |

| | | | |
|---|---|---|---|
| Increasing the number of extension, and soil conservation staff in the DOA, and filling up the vacancies. | • Increasing the number of extension and soil conservation staff in the department within the first 3 years period.<br>• Each block needs a minimum of 2 additional extension officers (AEO) solely for the proposed crop diversification activities during the action plan period.<br>• Increasing the number of additional 30 Assistant Engineer (1 person x 30 offices) & 60 Jr. Engineer (2 person x 30 offices) | • Agricultural Extension Officers<br>• Soil Conservation Officers | • DOA |

*Source: JICA Study Team*

### 7.2.2 Strengthening Plan of Extension Service Functions

The action plan related to each activity and its requirements are mentioned below.

**Table 7.2.2 Proposed A/P of Strengthening Plan of Extension Service Functions**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| Using ATMA model, coordinating the extension officers of the line departments, and conducting trainings for the extension trainers | Capacity building trainings on technical and management aspects of crop diversification shall be conducted for the extension trainers at regular intervals. | • Extension officers of the 10 Hilly states | • DOA |
| | Himachal Pradesh Crop Diversification Model shall be disseminated to other sister hilly states of India. Interstate workshops shall be conducted two times during 5th and 10th year of the A/P. | • Extension officers of the 10 Hilly states | • DOA |
| (2) Preparation of extension manual & audio-visual extension materials | Simple and easy-understandable manual for crop diversification shall be prepared by DOA.<br>More easily understandable and area specific (block level) information on crop diversification shall be prepared by DOA, and shall be disseminated through television & radio networks on a regular basis. Kisan Call Center shall be popularized. | • Extension Staff of District and Block Offices<br>• H.P. State farmers | • DOA |
| (3) Improvement of soil diagnosis services of the DOA. | The equipment and facilities of the soil testing laboratories need to be improved. | • H.P. State Soil Laboratories | • DOA |
| (4) Linkage among Research, Extension, and Farmers | Periodical meetings and workshops shall be organized for the researchers, extension officers and farmers at the state and district level. | • Extension Staff of District and Block Offices<br>• H.P. State Agriculture researchers<br>• Farmers | • DOA |
| (5) Field visits of researchers together with extension officers | The researchers and/or extension officers shall conduct field visits together to analyze the constraints in the field and to link their research activities with the demands of the farmers | • Extension Staff of District and Block Offices<br>• H.P. State Agriculture researchers<br>• Farmers | • DOA |
| (6) Monitoring and Evaluation | Monitoring and evaluation of all the extension activities shall be carried out | • H.P. State extension officers | • University |

*Source: JICA Study Team*

## 7.3 Farmers' Support Program

### 7.3.1 Vegetable Promotion Plan

Activities for the Vegetable Promotion Plan, which are formulated for the M/P, are arranged, according to the features of four categories as follows: Requirement and estimate of cost are elaborated based on the activities by categories mentioned below table:

**Table 7.3.1 Activities for Vegetable Promotion Plan by Category**

| Activities | Category-I | Category-II | Category-III | Category-IV |
|---|---|---|---|---|
| (1) Organizing or strengthening of farmers' groups | To be applied | To be applied | To be applied | To be applied |
| (2) Introduction of cropping patterns suitable for markets | To be applied | To be applied | To be applied | To be applied |
| (3) Improvement of productivity and quality of vegetables | To be applied | To be applied | To be applied | To be applied |
| (4) Promotion of optimum use of pesticides under IPM | To be applied | To be applied | To be applied | - |
| (5) Promotion of farming practices to reduce soil erosion | To be applied | To be applied | To be applied | To be applied |
| (6) Demonstration of farm machinery and equipment for hilly area. | To be applied | To be applied | To be applied | - |
| (7) Promotion of organic farming | To be applied | To be applied | - | - |
| (8) Extension of protective cultivation (Greenhouse) and provision of facilities in model farms | To be applied | To be applied | - | - |
| (9) Introduction and promotion of exotic vegetables | To be applied | - | - | - |
| (10) Introduction of contract farming | To be applied | - | - | - |
| (11) Promotion of strategic vegetables such as potato, tomato, cauliflower and peas | - | To be applied | To be applied | To be applied |
| (12) Monitoring and Evaluation | To be applied | To be applied | To be applied | To be applied |

*Source: JICA Study Team*

Details of each activity are shown as follows:

**Table 7.3.2 Proposed A/P of Vegetable Promotion Plan**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (1) Organizing or strengthening of farmers' groups | • Promotion of farmers organization and its activities | • Farmers | DOA |
| (2) Introduction of cropping patterns suitable for markets | • Demonstration of diversified cropping pattern with combination of food grains and vegetables | • Farmers<br>• Extension staff | DOA |
| (3) Improvement of productivity and quality of vegetables | • Demonstration of vegetables suitable and proposed farming practices for the area | • Farmers<br>• Extension staff | DOA |
| (4) Promotion of optimum use of pesticides under IPM | • Demonstration of optimum practices of IPM | • Farmers<br>• Extension staff | DOA |
| (5) Promotion of farming practices to reduce soil erosion | • Demonstration of suitable farming practices to reduce soil erosion | • Farmers<br>• Extension staff | DOA |
| (6) Demonstration of farm machinery and equipment for hilly area. | • Demonstration of farm machinery suitable for hilly areas | • Farmers<br>• Extension staff | DOA |
| (7) Promotion of organic farming | • Demonstration of organic farming practices suitable for obtaining higher yields | • Farmers<br>• Extension staff | DOA |

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (8) Extension of protective cultivation (Greenhouse) and provision of facilities in model farms | • Demonstration of vegetable cultivation under protective cultivation | • Farmers<br>• Extension staff | DOA |
| (9) Introduction and promotion of exotic vegetables | • Demonstration of exotic vegetables and suitable farming practices in different areas<br>• Exposure visits of farmers to advanced farmers | • Farmers<br>• Extension staff | DOA |
| (10) Introduction of contract farming | • Introduction of contract farming<br>• Promotion of linkage between farmers and private traders. | • Farmers<br>• Extension staff | DOA |
| (11) Promotion of strategic vegetables such as potato, tomato, cauliflower and peas | • Demonstration of strategic vegetables and suitable farming practices in different areas | • Farmers<br>• Extension staff | DOA |
| (12) Monitoring and Evaluation | • Confirmation of progress of vegetable cultivation | • Farmers<br>• Extension staff | DOA |

*Source: JICA Study Team*

### 7.3.2 Food Grain Productivity Improvement Plan

Regarding the program on food grain and crop productivity improvement, same requirement and estimate of cost for each category are elaborated as shown below:

**Table 7.3.3 Proposed A/P of Food Grain Productivity Improvement Plan**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (1) Promotion of diversified cropping patterns suitable for productivity increase of food grain crops | • Cropping pattern suitable for increasing food grains production and the farm income | • Extension Staff<br>• Farmers | • DOA |
| (2) Promotion of optimum quantities of farm inputs such as seeds and fertilizers | • Demonstration of food grains varieties<br>• Package of practices for different varieties | • Extension Staff<br>• Farmers | • DOA |
| (3) Organizing or strengthening of farmers' groups | • Demonstration of farm machinery suitable for hilly areas | • Farmers | • DOA |
| (4) Demonstration of suitable farm machinery and equipment for hilly area. | • Optimum practices of IPM and biological control of pests and diseases | • Extension Staff<br>• Farmers | • DOA |
| (5) Promotion of optimum use of pesticides under IPM | • Suitable farming practices to reduce soil erosion | • Extension Staff<br>• Farmers | • DOA |
| (6) Promotion of farming practices to reduce soil erosion | • Progress of food productivity improvement | • Extension Staff<br>• Farmers | • DOA |
| (7) Monitoring and Evaluation | • Cropping pattern suitable for increasing food grains production and the farm income | • Extension Staff of DOA and Line departments<br>• H.P. State farmers | • DOA |

*Source: JICA Study Team*

### 7.3.3 Integrated Farm Management Plan

The A/P related to each activity of the integrated farm management plan, as well as its requirements are mentioned below.

**Table 7.3.4 Proposed A/P of Integrated Farm Management**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (1) Improvement of productivity and quality of horticulture crops | • Improved varieties of horticulture crops including replacement of old trees<br>• Improved cultivation practices of horticulture crops | • Extension Staff of Agriculture and Horticulture<br>• Farmers | • DOA / Department of Horticulture |

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (2) Promotion of fodder production and reuse of vegetable residues under integrated farming in crop diversification | • Methods of removing weeds in fodder areas<br>• Fodders suitable for the cropping pattern of the area | • Extension Staff of Agriculture and Animal Husbandry<br>• Farmers | • DOA / Dept of Animal Husbandry/ SAMETI |
| (3) Promotion of warm water fish culture (carp & cat fish) or cold water fish culture (trout) under integrated farming including the irrigation system | • Integrated fish farming techniques | • Extension Staff of Agriculture and Fisheries<br>• Farmers | • DOA / Dept of Fisheries |
| (4) Monitoring and Evaluation | • Progress of integrated farm management | • Extension Staff of District and Block Offices of DOA and Line departments<br>• Farmers | • DOA / Line Departments |

*Source: JICA Study Team*

### 7.3.4 Post Harvest Promotion Plan

The A/P related to each activity of post harvest promotion plan, including its requirements are mentioned below:

**Table 7.3.5 Proposed A/P of Post Harvest Promotion**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (1) Capacity development | - Introduction or promotion of post-harvest activities such as grading, sorting and packing etc. | - Staff of Marketing Board<br>- Staff of DOA<br>- Staff of District office | DOA with Marketing Board<br><br>by external experts |
| (2) Workshop on market promotion | - Dissemination of quality vegetables<br>- Dissemination of quality standard<br>- Dissemination of proposed post-harvest activities<br>- Dissemination of market information system<br>- To collect brand name or trade mark from the public<br>- Registration of brand name or trademark | - APMC staff<br>- CA<br>- Traders<br>- Farmers | DOA with Marketing Board |
| (3) Introduction and promotion of PPP for contract farming and direct purchase | - Dissemination of policy of state and district for PPP<br>- Arrangement of opportunity for introduction between stakeholders and farmers | - Farmers<br>- Retailers / other stakeholders | Marketing Board |
| (4) Introduction or promotion of small scale agro-processing activities. | - Organize small scale agro-processing groups in cooperation with the Agricultural Extension Officers<br>- Disseminate agro-processing technology to the groups<br>- Supply of sets of simple equipments and instruments required for agro-processing to 1 aggressive farmers' group each block. | - Farmers' groups, especially for women's groups | DOA with District Office and APMC |
| (5) Organizing or strengthening of farmers' groups | - Organize farmers' groups for implementing effective activities on extension, marketing and post-harvesting | - Farmers' groups | District Office |

*Source: JICA Study Team*

### 7.3.5 Market System Improvement Plan

Activities and requirements for the A/P of market system improvement plan are presented below.

**Table 7.3.6 Proposed A/P of Market System Improvement**

| Activity | Subjects | Target | Executed by |
|---|---|---|---|
| (1) Capacity development | - Improvement of filing system<br>- Management of data from APMC<br>- Feed back to O&M at APMCs<br>- Quality standard<br>- Proposed post-harvest activities | - Senior Marketing Officers<br>- Marketing officer<br>- District Agricultural Officer<br>- SMSs, DOA | Department of Agriculture<br>- External expert<br>- Staff of DOA<br>- Staff of Marketing Board |
| (2) Preparation of quality standard | - Preparation of quality standard for HP vegetables<br>- Central quality standard to be referred.<br>- Brand and trademark also to be considered.<br>- Opinions from stakeholders to be considered. | - Staff of Marketing Board | Marketing Board<br>- External expert<br>- Staff of DOA |
| (3) Guidance for quality standard | - Dissemination of quality vegetables<br>- Dissemination of quality standard<br>- Dissemination of market information system | - Extension officers (all) | DOA<br>with District and Marketing Board |
| (4) Workshop on market promotion | - Dissemination of quality vegetables<br>- Dissemination of quality standard<br>- Dissemination of proposed post-harvest activities<br>- Dissemination of market information system<br>- To collect brand name or trade mark from the public<br>- Registration of brand name or trademark | - APMC staff<br>- CA<br>- Traders<br>- Farmers | MB / APMC<br>- District staff<br>- Staff of Marketing Board |
| (5) Improvement and enhancement of the system | - How to record marketing information<br>- Maintenance of data base in AGAMRKNET | - APMC staff | Marketing Board<br>- MB staff<br>- DOA staff |
| (6) Establishment of new market information system | - Establishment of new market information system, linking mobile phone and AGMARKNET | - Staff of Marketing Board | Marketing Board/ DOA<br>- External expert |
| (7) Provision of computer set | - Market yards except seasonal market yard | Marketing Board | Marketing Board |
| (8) New construction of market yards and collection centres | - Review of 5-year plan of the Marketing Board<br>- Preparation of Detailed Plan Report (DPR)<br>- Construction or rehabilitation | - 10 APMCs for market yard (each APMC)<br>- 12 collection centres in respective 12 Districts | Market yard by Marketing Board<br><br>Collection centers by DOA |

*Source: JICA Study Team*

## 7.4 Infrastructure Development Program

### 7.4.1 Infrastructure Development/Improvement Plan

The A/P related to each activity for the infrastructure development/improvement plan and its requirements are presented below:

**Table 7.4.1 Proposed A/P of Infrastructure Development/Improvement**

| Activity | Proposed Plan | Requirement and Schedule |
|---|---|---|
| Construction of new minor irrigation systems | • Development of Flow irrigation, including construction of check dam<br>• Development of Lift irrigation, including construction of check dam<br>• Development of Groundwater irrigation | • 7,370 ha for 10 years |
| Rehabilitation and improvement of existing minor irrigation and traditional irrigation systems | • Rehabilitation and improvement of existing intake facilities and canals, mainly to upgrade from Katcha (earth works) to Pacca.(concrete works) | • 3,330 ha for 10 years |
| Construction of water harvesting facilities for life saving irrigation | • Development of Rain water harvesting with collector channel and farm pond / tank<br>• Development of Tank irrigation utilizing water source of small stream and spring | • 3,300 ha for 10 years |
| Provision of micro irrigation for demonstration | • Provision of drip and sprinkler irrigation in advanced areas in the category I and II for demonstration | • 15 locations in 32 blocks for 3 years period |
| Construction of new farm roads which will not be covered by PWD. | • Construction of new access farm road, including formation cut, construction of retaining wall, drainage structure, bridges and pavement | • 480 km for 10 years |
| Repair and rehabilitation of damaged existing farm roads | • Widening of existing farm road<br>• Pavement of existing farm road including water bound macadam, pre-mix bituminous carpet or asphalt and cement concrete<br>• Improvement of the existing muddy road | • 410 km for 10 years |
| Improvement of existing footpath and mule track | • Upgrading to motorable road<br>• Pavement of existing footpath with cement concrete | • Program continues for a 10 years period |

*Source: JICA Study Team*

### 7.4.2 Infrastructure Development Support Plan

Activity and requirements for the A/P of infrastructure development support plan are mentioned below.

**Table 7.4.2 Proposed A/P of Infrastructure Development Support**

| Activity | Proposed Plan | Requirement and Schedule |
|---|---|---|
| Strengthening of WUA for improvement of water management | • Capacity building trainings on technical and management aspects of O&M | • Employment of local consultants for each block for 10 years period<br>• Trainers for capacity building<br>• Arrangement of training materials |
| Strengthening of O&M activities for road and other infrastructures managed by farmers' groups | • Capacity building trainings on technical and management aspects of O&M | • Employment of local consultants for each block for 10 years period<br>• Trainers for capacity building<br>• Arrangement of training materials |
| Strengthening of supporting system for farmers' irrigation system including micro irrigation (sprinkler and drip irrigation, etc) | • Demonstration and training for new micro irrigation | • Program continue for a 10 years period |

*Source: JICA Study Team*

## 7.5 Program Implementation Plan

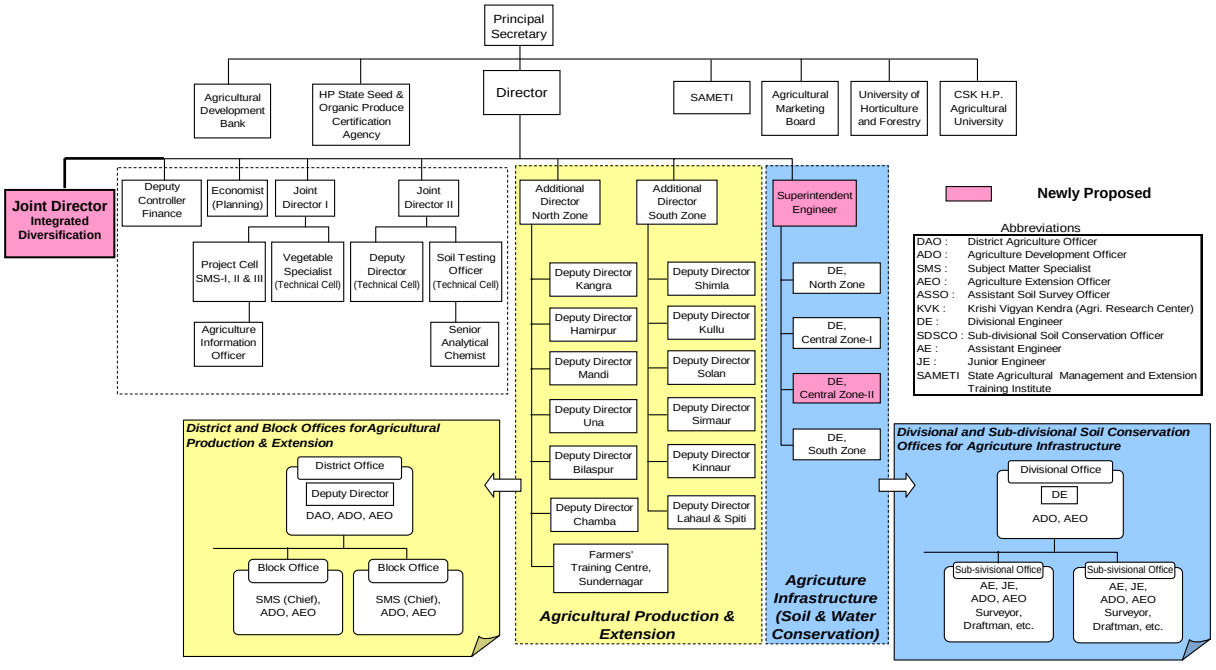
### 7.5.1 Organization for Program Implementation

DOA is the executing agency for the overall program implementation of the proposed crop diversification, and is responsible for the implementation of all the plans excluding the Market System Improvement Plan. The Market Board is responsible for the implementation of the Market System Improvement Plan, in collaboration with DOA in principle. Proposed responsibilities of respective key persons for the program implementation are given below:

**Table 7.5.1 Proposed Responsibilities and Key Persons**

| Item | Organization or Person | Responsibility |
|---|---|---|
| Executing Agency | DOA | Overall program implementation |
| Responsible person for the overall execution | Director of Agriculture | Overall execution of the programs |
| Partly responsible person | Managing Director of Agriculture Marketing Board | Execution of Market System Improvement program component excluding construction of collection centers |
| Partly Responsible person in headquarter | Joint Director I<br>(for integrated diversification) | Coordination in DOA and technology for vegetable cultivation & promotion |
| Partly Responsible person | Additional Director North Zone | Extension Activities in North zone |
| Partly Responsible person | Additional Director South Zone | Extension Activities in South zone |
| Partly Responsible person | Superintendent Engineer | Execution of Infrastructure Development program |

*Source: JICA Study Team*



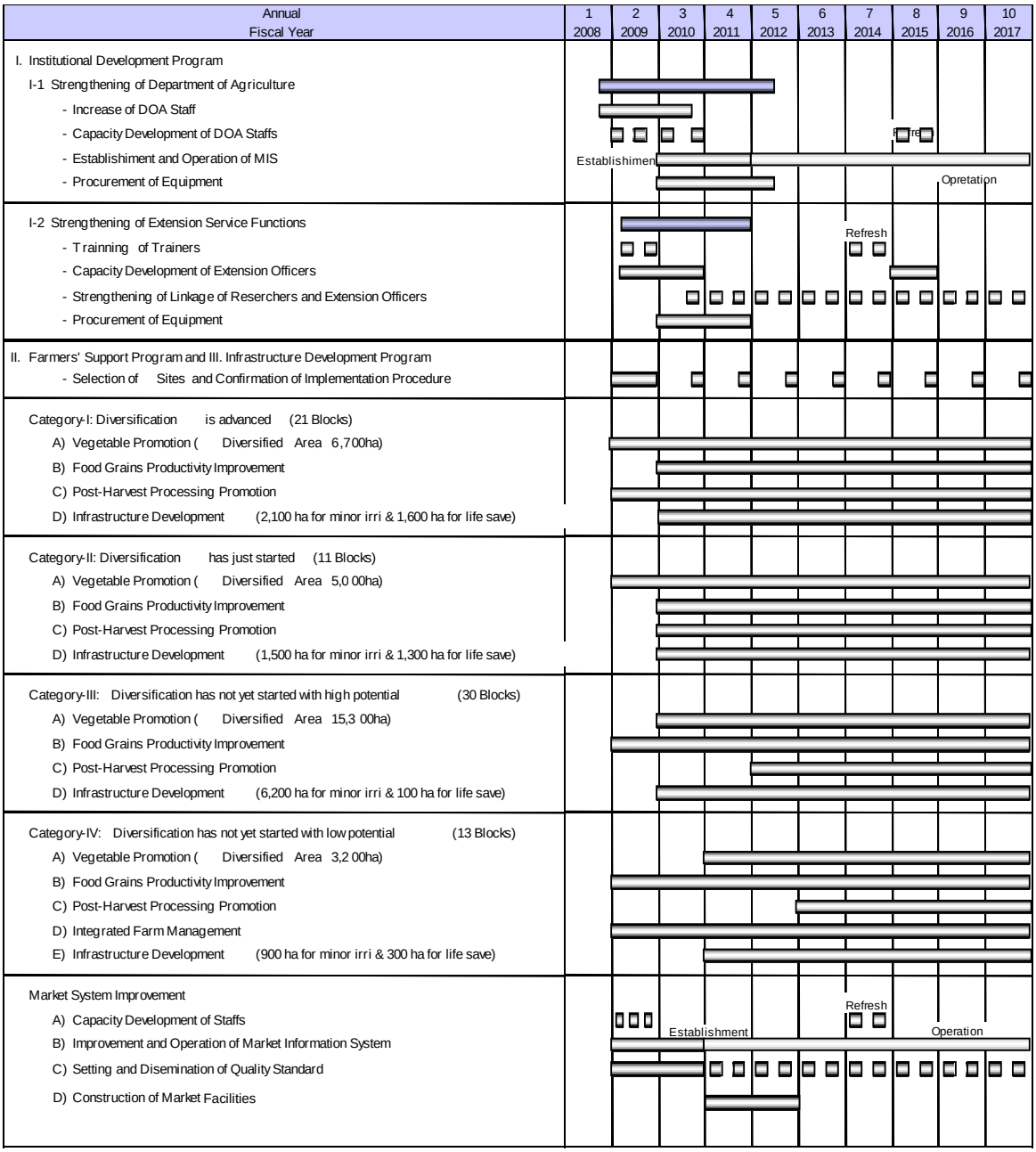

*Source: JICA Study Team*

**Fig. 7.5.1 Proposed Organization for Program Implementation**

In order to implement the Infrastructure Development Program which includes construction of 10,700 ha of minor irrigation, 3,300 ha of life saving facilities, 890 km of access farm roads and 12 collection centers, it is proposed to dispose a new additional zone office in the central zone and a superintendent engineer responsible for executing the program.

### 7.5.2 Proposed Implementation Schedule

Implementation schedule for executing the programs in the A/P up to Year 2017/18 is proposed as shown in the following figure:




*Source: JICA Study Team*

**Fig. 7.5.2 Proposed Implementation Schedule**

For the implementation of Farmers' Support Program and Infrastructure Development, respective schedules of respective four diversified patterns, i.e. Category-I, II, III and IV, are proposed as follows;

- Category-I (Advanced area for diversification)

  Vegetable promotion and post-harvest processing promotion will be conducted at first, since the crop diversification in this category has already started and certain

farmers produce and deliver vegetables to markets. Additional infrastructure will be provided where diversification potential with irrigation is confirmed or access farm roads for transport of diversified crops are required. Food productivity will be improved with irrigation.

- Category-II (Area where diversification just started)

  Vegetable promotion will be conducted first, followed by food grain productivity improvement, post-harvest processing and infrastructure development. This was determined since the crop diversification in the category has just started and vegetable area expansion is an urgent need.

- Category-III (Potential diversification area where diversification has not started)

  Food grain productivity improvement will be promoted first, followed by vegetable promotion and infrastructure development since the crop diversification in this category can not start without improvement of food grain productivity. Post-harvest processing is scheduled to be promoted two years after the vegetable promotion.

- Category-IV (Area not covered in the above)

  Food grain productivity improvement and integrated farm management will be promoted first then followed by vegetable promotion and infrastructure development since the crop diversification in this category can not start without improvement of food grain productivity. Post-harvest processing is scheduled to be promoted two years after the vegetable promotion.

### 7.5.3 Preliminary Estimated Cost for Program Implementation

Program cost has been estimated based on the past experiences of DOA, results of sample study at pre-feasibility level and workshop's results. The preliminary estimate is based on the following conditions:

i) The exchange rates for Indian Rupee, US $ and Japanese Yen is set at
   US $ 1.00 = Rs 43.73 = Japanese Yen 109.33
ii) The construction works for minor and life saving irrigation will be executed on community contract basis with DOA's support in survey, design and construction. On the other hand, the construction works for access farm roads and the building works for collection centers and market yards will be executed on a contract basis.
iii) All the costs are estimated based on the current prices in September 2008.
iv) Administration cost of DOA for the program implementation is assumed at 5% of the eligible portion, and other cost including administration cost for the marketing board and ATMA and maintenance cost of market yards are preliminary estimated.
v) Physical contingency in the cost estimate is assumed at 10 % of the base cost and price contingencies are computed by applying 2.6 % per annum for foreign portion and 4.8 % per annum for national portion.

The preliminarily estimated cost is Rs. 9,435 million in total. The summary of estimate is given below:

**Table 7.5.2 Summary of Preliminarily Estimated Cost**

| Item | Amount (Rs. Million) |
|---|---|
| **1. Institutional Development** | |
| (1) Strengthening of Department of Agriculture | 309 |
| (2) Strengthening of Extension Service Function | 247 |
| **Sub-total of 1.** | **556** |
| **2. Farmers' Support** | |
| (1) Vegetable Promotion | 523 |
| (2) Food Grain Productivity Improvement | 128 |
| (3) Integrated Farm Management | 79 |
| (4) Post Harvest Processing Promotion | 2 |
| (5) Marketing System Improvement | 130 |
| **Sub-total of 2.** | **862** |
| **3. Infrastructure Development Program** | |
| (1) Infrastructure Development/Improvement | 3,757 |
| (2) Infrastructure Development Support | 175 |
| **Sub-total of 3.** | **3,932** |
| **Total (1+2+3)** | **5,350** |
| **4. Price escalation** | **1,433** |
| **5. Physical contingency** | **678** |
| **Total (1+2+3+4+5)** | **7,461** |
| **6. Engineering services** | 380 |
| Price escalation | 62 |
| Physical contingency | 44 |
| **Sub-total of 6.** | **486** |
| **Total of 1+2+3+4+5+6** | **7,947** |
| a Land Acquisition | 0 |
| b Administration cost | 397 |
| c Other cost (Market board, ATMA, etc.) | 296 |
| d Tax & Duty | 795 |
| **Total (a+b+c+d)** | **1,488** |
| **Grand Total** | **9,435** |

*Source: JICA Study Team*

## 7.6 Project Evaluation

### 7.6.1 General

Purpose of the economic evaluation is to assess economic feasibility of the overall Action Plan, and is carried out in terms of the economic internal rate of return (EIRR), the cost-benefit ratio (B/C), and the net present value (B-C), based on the following assumption:

i) Economic life of the project is assumed to be 30 years beginning from year 2009.
ii) For the calculation of EIRR, only direct benefit is counted, and no indirect and intangible benefits are taken into account.
iii) The same rate as in the cost estimate is applied as of September 2008.
iv) Transfer payment such as tax, subsidy and interest rate are excluded from the economic project cost, and the standard conversion factor is applied to estimate economic price.
v) Discount rate is set as 12% for calculation of B/C and B-C.

### 7.6.2 Key Assumption of With and Without Project Condition

The present cultivable land is 730,400 ha in the State. Out of this area, 468,600 ha are utilized for such annual crops as food grains and vegetables, and the remaining 261,800 ha are fruits trees and the current fallow land. Fruit trees are generally under rainfed condition, and irrigated and life saving irrigation are mostly located in the annual crops area.

Presently, the area under irrigation and life saving irrigation is 113,100 ha as the result of continuous efforts by IPH and DOA with annual expansion of about 3,000 ha per annum since several years ago. IPH and DOA likely continue this effort under the without project condition, and 30,000 ha of irrigation area will expand during the Action Plan period till 2018/18. Under the with project condition, 157,100 ha will be irrigated by irrigation and life saving by the Infrastructure Development Program, as summarized below:

**Table 7.6.1 Change in Irrigation Condition in the A/P Period**

| Cultivable Land Condition | Present (2007/08) | Without Project Condition (2017/18) | | With Project Condition (2017/18) | |
|---|---|---|---|---|---|
| Food Grains and Vegetables | | | | | |
| - Rainfed | 355,500 ha | 325,500 ha | (-30,000 ha) | 312,800 ha | (-12,700 ha) |
| - Life Saving Irrigation | 12,400 ha | 12,400 ha | (0 ha) | 15,700 ha | (+3,300 ha) |
| - Irrigation | 100,700 ha | 130,700 ha | (+30,000 ha) | 141,400 ha | (+10,700 ha) |
| **- Total for vegetables and grains** | **468,600 ha** | **468,600 ha** | **(0 ha)** | **468,600 ha** | **(0 ha)** |
| Orchard (Fruits Trees) | 192,000 ha | 192,000 ha | (0 ha) | 192,000 ha | (0 ha) |
| Current Fallow | 69,800 ha | 69,800 ha | (0 ha) | 69,800 ha | (0 ha) |
| Total Cultivable Land | 730,400 ha | 730,400 ha | (0 ha) | 730,400 ha | (0 ha) |

*Note: Life saving irrigation is effective for supplemental use in Kharif season. Orchard and current fallow is under rainfed condition.*

*Source: Estimation and projection by the JICA Study Team based on the Action Plan*

Taking the above condition into account, the future cropping pattern is assumed for the without and with project conditions in the Action Plan period, as shown below.

**Table 7.6.2 Cropping Area under the Future Conditions**

| | | Kharif | | | Rabi | | |
|---|---|---|---|---|---|---|---|
| | | Food Grain | Vegetables | Total | Food Grain | Vegetables | Total |
| Present Condition | Rainfed | 343,100 ha | 12,400 ha | 355,500 ha | 330,300 ha | 0 ha | 330,300 ha |
| | Life Saving | 0 ha | 12,400 ha | 12,400 ha | 0 ha | 0 ha | 0 ha |
| | Irrigation | 76,600 ha | 24,100 ha | 100,700 ha | 76,600 ha | 24,100 ha | 100,700 ha |
| | Total | 419,700 ha | 48,900 ha | 468,600 ha | 406,900 ha | 24,100 ha | 431,000 ha |
| Without Project Condition | Rainfed | 313,100 ha | 12,400 ha | 325,500 ha | 330,300 ha | 0 ha | 330,300 ha |
| | Life Saving | 0 ha | 12,400 ha | 12,400 ha | 0 ha | 0 ha | 0 ha |
| | Irrigation | 105,600 ha | 25,100 ha | 130,700 ha | 105,600 ha | 25,100 ha | 130,700 ha |
| | Total | 418,700 ha | 49,900 ha | 468,600 ha | 393,400 ha | 25,100 ha | 461,000 ha |
| With Project Condition | Rainfed | 298,400 ha | 14,400 ha | 312,800 ha | 327,200 ha | 0 ha | 327,200 ha |
| | Life Saving | 0 ha | 15,700 ha | 15,700 ha | 0 ha | 0 ha | 0 ha |
| | Irrigation | 95,000 ha | 45,100 ha | 149,100 ha | 113,400 ha | 28,000 ha | 141,400 ha |
| | Total | 393,400 ha | 75,200 ha | 468,600 ha | 440,600 ha | 28,000 ha | 468,600 ha |

*Source: Estimation and projection by the JICA Study Team based on the Action Plan*

Under the without project condition, the area under food grains would be maintained to sustain the food security of the State, and food grains production will increase not by unit yield increase but through expansion of irrigation area (30,000 ha) by the on-going programs. In this case, no additional land will be available for crop diversification and vegetable production will remain at the present level.

In order to promote the crop diversification, the Programs and Components will be implemented under the Action Plan. Under the Action Plan, unit yield of food grains will increase by improved farming, and this enables to decrease the food grain area while maintaining the food security of the State and to diversify the decreased area to the vegetable area. As a result, vegetable cultivation area will increase 30,200 ha in total, consisting of 26,300 ha in Kharif season and 2,900 ha in Rabi season.

Unit yield of crops are also estimated based on the information and data on the present and potential yields, as summarized below:

**Table 7.6.3 Unit Yield of Crops under the Future Conditions**

| | Rainfed | Life Saving | Irrigated | Rainfed | Life Saving | Irrigated |
|---|---|---|---|---|---|---|
| Maize | 1.8 ton/ha | - | 3.6 ton/ha | 1.8 ton/ha | - | 4.0 ton/ha |
| Paddy | 1.6 ton/ha | - | 3.0 ton/ha | 1.6 ton/ha | - | 3.5 ton/ha |
| Wheat | 1.5 ton/ha | - | 2.7 ton/ha | 1.5 ton/ha | - | 3.0 ton/ha |
| Tomatoes | 18.0 ton/ha | 24.0 ton/ha | 30.0 ton/ha | 25.1 ton/ha | 28.3 ton/ha | 31.4 ton/ha |
| Potatoes | 6.9 ton/ha | 9.2 ton/ha | 11.5 ton/ha | 11.8 ton/ha | 13.2 ton/ha | 14.7 ton/ha |
| Peas | 6.2 ton/ha | 8.3 ton/ha | 10.4 ton/ha | 8.3 ton/ha | 9.4 ton/ha | 10.4ton/ha |
| Cauliflower | 9.5 ton/ha | 12.7 ton/ha | 15.9 ton/ha | 9.9 ton/ha | 13.2 ton/ha | 16.5 ton/ha |

*Source: Estimation by the JICA Study Team through adjustment and modification of available data and information*

### 7.6.3 Project Benefits

The economic benefit is estimated as the increment of net production value of crops between future "with" and "without" project conditions. The crop diversification benefit is accrued from i) conversion of cropping pattern from food grains to vegetables and ii) increase of crop productivity, especially for food grains.

The economic benefit is estimated based on the following assumptions,

vi) In estimation of net production value, vegetables are represented by the strategic vegetables of tomato, potato, peas and cauliflower, in order to avoid confusion by using many kind of vegetables.

vii) Crop diversification is assumed to progress according to the implementation schedule of the Programs and Component, particularly the Farmers' Support Program and Infrastructure Development Program. Increase of unit yield and other associated effect like sales of vegetables in each site will partially appear in the next year, and reach to the full benefit in 3rd year. Accordingly, total full benefit will be attained in 12th year after implementation.

For estimation of the project benefit, crop budgets in the financial terms are prepared for the major crops both for without and with project conditions, based on the information available information with modification. Vegetable prices are fluctuating Then, economic crop budgets are calculated by applying the economic prices. Crop budgets are shown in Attachment I-3 for financial and Attachment I-4 for economic terms, as summarized below:

**Table 7.6.4 Summary of Economic Crop Budget for Food Grains**

(Rs./ha)

| | | Without Project Condition | | | With Project Condition | | |
|---|---|---|---|---|---|---|---|
| | | Rainfed | Life Saving | Irrigated | Rainfed | Life Saving | Irrigated |
| Maize | Gross Income | 10,300 | - | 20,500 | 10,300 | - | 22,800 |
| | Production Cost | 10,200 | - | 17,000 | 10,200 | - | 18,600 |
| | **Net Income** | **100** | **-** | **3,500** | **100** | **-** | **4,200** |
| Paddy | Gross Income | 12,200 | - | 22,800 | 12,200 | - | 26,600 |
| | Production Cost | 11,800 | - | 17,900 | 11,800 | - | 20,200 |
| | **Net Income** | **400** | **-** | **4,900** | **400** | **-** | **6,400** |
| Wheat | Gross Income | 12,900 | - | 23,200 | 12,900 | - | 25,800 |
| | Production Cost | 12,400 | - | 17,000 | 12,400 | - | 18,200 |
| | **Net Income** | **500** | **-** | **6,200** | **500** | **-** | **7,600** |

*Source: Estimation by the JICA Study Team through adjustment and modification of available data and information.*

**Table 7.6.5 Summary of Economic Crop Budget for Vegetables**

(Rs./ha)

| | | Without Project Condition | | | With Project Condition | | |
|---|---|---|---|---|---|---|---|
| | | Rainfed | Life Saving | Irrigated | Rainfed | Life Saving | Irrigated |
| Tomato | Gross Income | 68,400 | 91,200 | 114,000 | 95,400 | 107,500 | 119,300 |
| | Production Cost | 57,900 | 78,000 | 92,900 | 77,800 | 87,600 | 96,800 |
| | **Net Income** | **10,500** | **13,200** | **21,100** | **17,600** | **19,900** | **22,500** |
| Potato | Gross Income | 33,100 | 44,200 | 55,200 | 56,600 | 63,400 | 70,600 |
| | Production Cost | 27,300 | 36,200 | 45,500 | 43,700 | 48,800 | 55,600 |
| | **Net Income** | **5,800** | **8,000** | **9,700** | **12,900** | **14,600** | **15,000** |
| Peas | Gross Income | 53,300 | 71,400 | 89,400 | 71,400 | 80,800 | 89,400 |
| | Production Cost | 39,200 | 51,400 | 64,100 | 49,400 | 56,700 | 63,900 |
| | **Net Income** | **14,100** | **19,800** | **25,300** | **22,000** | **24,100** | **25,500** |
| Cauliflower | Gross Income | 63,700 | 85,100 | 106,500 | 66,300 | 88,400 | 110,600 |
| | Production Cost | 47,100 | 60,400 | 74,800 | 47,300 | 62,800 | 78,500 |
| | **Net Income** | **17,600** | **24,700** | **31,700** | **19,000** | **25,600** | **32,100** |

*Source: Estimation by the JICA Study Team through adjustment and modification of available data and information.*

Based on the economic crop budgets and future cropping area, the net production value at the full development stage is estimated at Rs.2,593.5 million under the without project condition and Rs.3,794.7 million under the with project condition. Accordingly, the project benefit is Rs.1,201.2 million as the net incremental production value, as shown below.

**Table 7.6.6 Estimated Overall Project Benefit**

| | Net Production Value | | |
|---|---|---|---|
| | Food Grains | Vegetables | Total |
| (1) Without Project Condition | Rs.1,271.6 million | Rs.1,321.9 million | Rs.2,593.5 million |
| (2) With Project Condition | Rs.1,517.1 million | Rs.2,277.6 million | Rs.3,794.7 million |
| (3) Increment from (1) to (2) | Rs.245.5 million | Rs.955.7 million | Rs.1,201.2 million |

*Source: Estimation by the JICA Study Team based on Tables and Attachments in this Section.*

### 7.6.4 Project Cost

Based on the financial estimated project cost, the economic project cost is estimate at Rs.5,988 million. Operation and maintenance cost for farm road is estimated totally Rs.1,201 million per annum after completion of construction, however, irrigation O&M cost is included in the crop budgets. Irrigation pump will be replaced after 20 years of installation and its cost is envisaged at Rs.1,889 million in total. Economic project cost is summarized in the table below:.

**Table 7.6.7 Estimated Economic Cost**

*Unit: Million Rs.*

| Description | Project Cost | |
|---|---|---|
| | Financial | Economic |
| 1. Institutional Development | 557 | 529 |
| 2. Farmers' Support | 862 | 819 |
| 3. Infrastructure Development | 3,932 | 3,736 |
| **Sub-Total 1 to 3** | **5,350** | **5,083** |
| 4. Physical Contingency | 678 | 508 |
| 5. Price Escalation | 1,433 | 0 |
| **Sub-Total 1 to 5** | **7,461** | **5,591** |
| 6. Consulting Services | 486 | 397 |
| **Sub-Total 1 to 6** | **7,947** | **5,988** |
| a. Land Acquisition | 0 | 0 |
| b. Administration Cost | 397 | 0 |
| c. Other Cost | 296 | 0 |
| d. Tax and Duty | 795 | 0 |
| **Sub-Total a to d** | **1,488** | 0 |
| **Grand Total** | **9,435** | **5,988** |

*Source: JICA Study Team*

### 7.6.5 Evaluation Results

Based on flow of the economic cost and benefits presented in Attachment I-8, EIRR is calculated at 13.5% with Rs.463 million of B-C and 1.11 of B/C, as summarized below:

**Table 7.6.8 Economic Benefit of the Project**

*Unit: Million Rs.*

| EIRR (%) | Net Present Value (12% discount rate) | | | B/C |
|---|---|---|---|---|
| | Benefit | Cost | B-C | |
| **13.5%** | 4,525 | 4,062 | 463 | **1.11** |

*Estimated by JICA Study Team*

In addition a sensitivity analysis was carried out to evaluate the viability of the project against possible adverse change in the future, and the result is shown in the table below:

**Table 7.6.9 Sensitivity Analysis of the Project**

| EIRR (%) | Cost | | |
|---|---|---|---|
| Benefit | Base | +10% | +20% |
| Base | 13.5% | 12.2% | 11.0% |
| -10% | 12.0% | 10.7% | 9.6% |
| -20% | 10.4% | 9.1% | 8.0% |

*Estimated by JICA Study Team*

Evaluation results indicate the followings:

i) Evaluation indicators of EIRR, B-C and B/C show the higher economic viability in the agricultural and rural development sector, and the crop diversification in the Action Plan is attractive to upgrade the agricultural production structure and rural livelihood in the State. However, this level of return may not allow investment from the private sector; therefore, investment is required by the public sector.

ii) Since the project is aiming at crop diversification with keeping food security at farmers' and State level, the crop diversification under the Action Plan is feasible paying attentions on marginal and small farmers. Thus it can be said that the project also socially acceptable.

iii) Sensitivity analysis shows such adverse effects as 10% benefit decrease and 10% cost increase may not reduce the economic viability of the project. But the plan is sensitive to further decrease of benefit and increase of cost

# CHPATER 8 ENVIRONMENTAL EXAMINATION

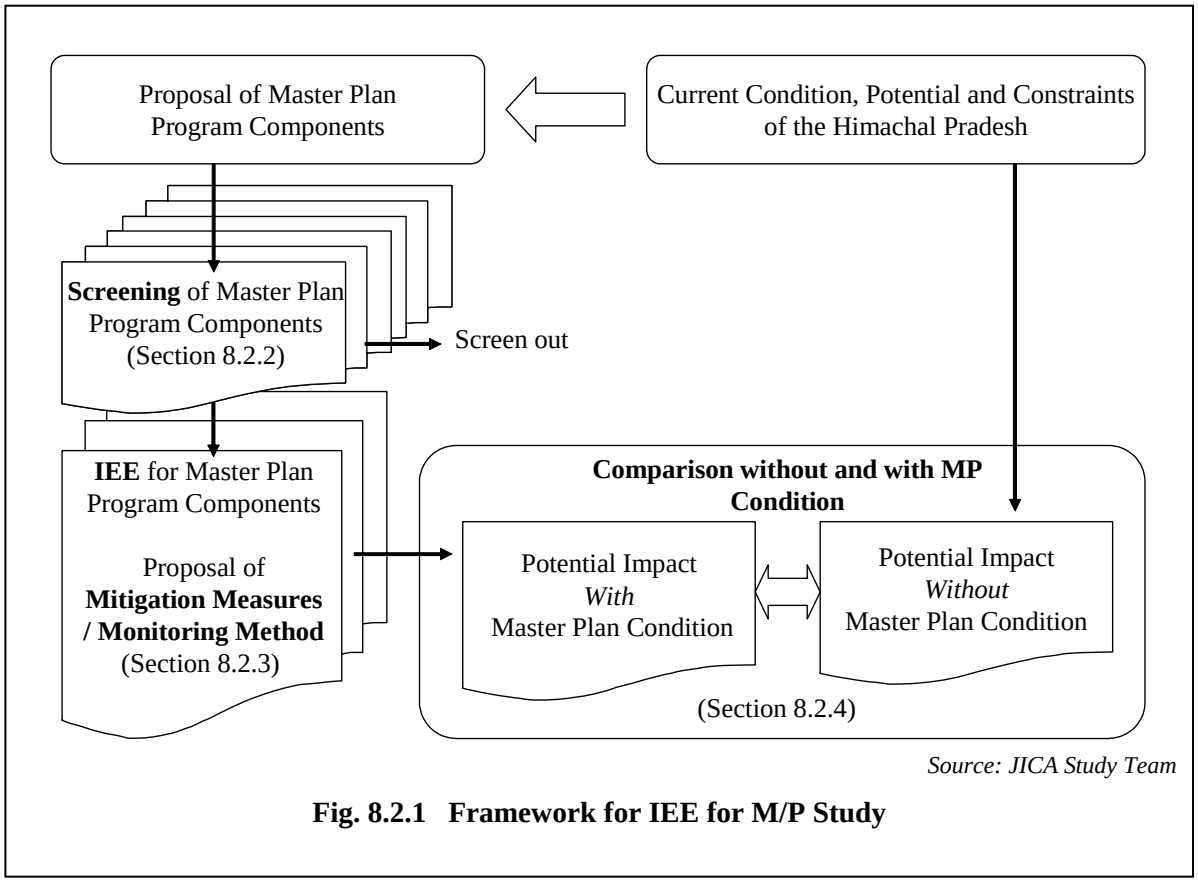
## 8.1 General

Initial environmental examination (IEE) was carried out in order to identify potential negative environmental impacts caused by the implementation of the proposed program components of the Master Plan (M/P). This chapter shows the results of the IEE of the M/P program components.

## 8.2 Initial Environmental Examination for Master Plan

### 8.2.1 Framework for IEE for M/P

The framework of the IEE study in this section is shown in the following figure. After the screening of the program components of the M/P, corresponding IEEs are implemented. The potential impacts of the activities of the program components are examined. In addition, the mitigation measures and monitoring methods are preliminarily proposed. Similarly, the impacts resulting from non-implementation of any activities of the M/P were also examined based on the current condition. The results were compared with the impacts due to implementation of all program components of the M/P.




*Source: JICA Study Team*

**Fig. 8.2.1 Framework for IEE for M/P Study**

### 8.2.2 Screening of M/P Program Components

The results of the screening of the proposed program components are summarized below.

**Table 8.2.1 Result of Screening of the M/P Program Components**

| Program | Sub-Program | Program Component | Screening | Remarks |
|---|---|---|---|---|
| **I. Institutional Development Program** | | 1. Strengthening of Department of Agriculture | Screened Out | Capacity Development and Training |
| | | 2. Strengthening of Extension Service Functions | Screened Out | Capacity Development and Training |
| **II. Farmers Support Program** | **II-1 Production** | 3. Vegetable Promotion | Screened Out | Demonstration, and dissemination |
| | | 4. Food Grain Productivity Improvement | Screened Out | Demonstration and dissemination |
| | | 5. Integrated Farm Management (Horticulture, Animal Husbandry and Fishery) | Screened Out | Demonstration and dissemination |
| | **II-2 Post Harvest Processing and Marketing** | 6. Post Harvest Processing Promotion | Screened Out | Demonstration, dissemination |
| | | 7. Marketing System Improvement | **IEE** | **Construction of new Market Yard and Collection Centers** in this program may have some environmental and social impacts |
| **III. Infrastructure Development Program** | | 8. Infrastructure Development/Improvement | **IEE** | **Construction activities for new minor irrigation, new water harvesting facilities and new farm road** may give some environmental or social impacts. |
| | | 9. Infrastructure Development Support | Screened Out | Strengthening of community institution of water management and maintenance and promotion of drip and sprinkler irrigation |

*Note: Screening result is categorized into two groups; i) program component needs Initial Environmental Examination which is stated as IEE in the table and ii) program component is screened out and no IEE is required.*

*Source: JICA Study Team*

### 8.2.3 IEE for M/P Program Components

Impact matrix has been prepared for the above five activities of the two program components in M/P. In the matrix, the following screening toward potential and phase-wise impacts has been carried out. The result of the IEE of M/P program component is summarized the following Table 8.2.2.

**Table 8.2.2 Result of IEE of the M/P Program Components**

| Activities / Potential Impacts | | II. Farmers' Support Program | | III. Infrastructure Development Program | | |
|---|---|---|---|---|---|---|
| | | 7 (a) Market Yard | 7 (b) Collection Center | 8 (a) Minor Irrigation | 8 (b) Water Harvesting | 8 (c) Farm Road |
| **Social Environment** | | | | | | |
| 1 | Involuntary Resettlement | * | * | * | * | * |
| 2 | Local economy (employment, etc) | ++/B | ++/C | ++/B | ++/B | ++B |
| 3 | Land use and utilization of local resources | * | =/C | --/C | --/C | --/C |
| 4 | Social institutions | * | ++/C | ++/B | ++/B | * |
| 5 | Existing social infrastructures and services | ++/C | ++/C | * | * | ++/C |
| 6 | The poor, indigenous and ethnic people | ++/C | ++/C | ++/B | ++/B | ++/C |
| 7 | Misdistribution of benefit and damage | * | * | * | * | * |
| 8 | Cultural heritage | * | * | * | * | * |
| 9 | Local conflict of interests | * | * | * | * | * |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | Water Usage | * | * | --/D | * | * |
| 11 | Sanitation | --/C | * | * | * | --/C |
| 12 | Hazards (Risk), Infectious diseases | --/C | * | * | * | --/C |
| **Natural Environment** | | | | | | |
| 13 | Topography & Geographical features | * | * | * | * | * |
| 14 | Soil Erosion | * | * | * | * | * |
| 15 | Groundwater | * | * | --/D | * | * |
| 16 | Hydrological Situation | * | * | * | * | * |
| 17 | Flora, Fauna and Biodiversity | --/D | * | --/C | * | --/C |
| 18 | Meteorology | * | * | * | * | * |
| 19 | Landscape | * | * | * | * | * |
| 20 | Global Warming | * | * | * | * | * |
| **Pollution** | | | | | | |
| 21 | Air Pollution | --/C | * | * | * | * |
| 22 | Water Pollution | * | * | * | * | * |
| 23 | Soil Contamination | * | * | * | * | * |
| 24 | Waste | =/C | * | * | * | --/C |
| 25 | Noise and Vibration | * | * | * | * | * |
| 26 | Ground Subsidence | * | * | * | * | * |
| 27 | Offensive Odor | * | * | * | * | * |
| 28 | Bottom sediment | * | * | * | * | * |
| 29 | Accidents | --/C | --/C | --/C | --/C | --/C |

*Left-side of each cell represents a direction of impact and right side represents a magnitude of impact as follows:*
*Left side: ++: Positive impact --: Negative Impact =: Neutral Impact*
*Right side: A: relatively significant impact, B: relatively medium size impact,*
*C: relatively small impact, D: unknown as of now*
**: No impact or no corresponding impact*

*Source: JICA Study Team*

## Table 8.2.3 Potential Impacts and Possible Mitigation Measures of M/P Program Components

| Potential Impacts | Phase | Impact Cause/ Severity | Assumed Mitigation Measures / Monitoring Method | Action Time for Avoidance / mitigation |
|---|---|---|---|---|
| **Social Environment** | | | | |
| 3. Land Use and Utilization of Local Resources<br><br>**7 (b), 8 (a), 8 (b), 8 (c)** | Design | Securing land is required for construction. | - Farmer's meeting to discuss and obtain consensus with land owners | Design (Mitigation) |
| 10. Water Usage<br><br>**8 (a)** | Design and Operation | Water intake from a river is registered in district office. New water intake may affect other existing intake downstream in the river. | - Confirmation of new water intake in district office in design stage get necessary clearance from IPH and other concerned departments and no-objection from neighbor Panchayats.<br>- Meeting to discuss and obtain consensus with the affected irrigation system under district administration in design stage<br>- When necessary, meeting to discuss and obtain consensus in water allocation among water users in operation stage | Design & Operation (Mitigation) |
| 11. Sanitation<br><br>**7 (a), 8 (c)** | Construction | Sanitary condition may degenerate due to input of construction workers at construction site. | - Provision of temporary sanitary arrangements (toilet, other requirement). | Construction (Mitigation) |
| 12. Hazard (Risk), Infectious Diseases<br><br>**7 (a), 8 (c)** | Construction | Infected construction workers may enter into the construction site. | - Implementation of health monitoring for construction workers through self-declaration | Construction (Mitigation) |
| **Natural Environment** | | | | |

| | | | | |
|---|---|---|---|---|
| 15. Groundwater<br><br>**8 (a)** | Design and Operation | Groundwater intake is managed and a new intake must be permitted by Irrigation & Public Health Department (IPHD) and the Ground Water Authority (GWA) in the design phase.<br>Over-lift of groundwater will cause decline of water level in operation stage. | - Confirmation of new water intake in IPHD and GWA in design stage<br>- When necessary, meeting to discuss and obtain consensus in groundwater intake allocation among water users in operation phase | Designing & Operation (Mitigation) |
| 17. Flora, Fauna and Biodiversity<br><br>**7 (a), 8 (a), 8 (c)** | Design and Construction | Some forest land may be required during construction in some cases. | - Meetings with the local Forest Department to assess the use and get due clearance for the use of land<br>- Construction by approved manner. | Designing and Construction (Mitigation and Avoidance) |
| **Pollution** | | | | |
| 24. Waste<br><br>**7 (a), 8 (c)** | Construction | In shipping some agric produces may become waste. - 7 (a)<br>Excavated earth material will be generated - 8 (c) | - Effective utilization of vegetable or fruit waste (for animal feed, or compost)<br>- Dispose waste at designated place<br>- The excavated earth material should be reused as much as possible<br>- Dumping sites for the debris must be identified. | Design and Construction (Mitigation) |
| 29. Accidents<br><br>**7 (a), 7 (b), 8 (a), 8 (b), 8 (c)** | Construction | Accidents caused by construction machineries and vehicles are predicted during the construction phase. | - Appropriate maintenance of machineries and vehicles<br>- Periodic cautioning of workers regarding disciplines on safety operation. | Construction (Mitigation) |

### 8.2.4 Comparison between With and Without Master Plan

The following tables show the supposed conditions under the "Without M/P" case, compared with the "With M/P" case. It is noted that in the latter case mitigation measures are assumed to be implemented properly under the M/P.

**Table 8.2.4 Comparison of Conditions between With and Without M/P**

| Item | Without Master Plan | With Master Plan |
|---|---|---|
| Agriculture | Unable to tap the potential for the natural advantage considering that the State has growing off-season vegetables. The production of traditional agriculture will not increase. | The State will be able to tap its potential for the production and effective marketing of its off-season vegetables. In 2005-2006 the total area under vegetable production was 73,000 ha.<br>With the M/P the area for vegetable cultivation is projected to be 124,000 ha by 2022/23 |
| Availability of Irrigation Facilities, Water and Access Farm Road | Inefficient use of its water resources<br>Unable to tap the existing potential for irrigation<br>Unable to promote crop diversification because of lack of irrigation water and access farm road. | Will rehabilitate existing structures and create minor irrigation and water harvesting structure for more efficient use of available sources of irrigation.<br>With the M/P, an additional 16,000 ha will be brought under irrigation and 5,000 ha under life saving irrigation by 2022/23<br>Construction of farm road can promote crop diversification especially in the hilly areas. |
| Society | Weak social institutions for management of local resources | Strengthening of local institutions for effective management of local resources |
| Environmental Impact | Improper management of local resources including water | Proper use of resources as well as promotion of organic farming and rational use of fertilizers. |

(1) Examination of the Condition "Without M/P"

The following table shows potential negative impacts for "without M/P" case.

**Table 8.2.5 Potential Negative Impacts for "Without M/P" case**

| Potential Impacts | Impact cause/ severity |
|---|---|
| **Social Environment** | |
| Local Economy | Almost 66.7% of the population is dependent on agriculture and traditional agriculture productivity has seen only a slight increase over the years because of the continuous existence of small landholdings, lack of adequate irrigation facilities, lack of agricultural know-how and poor marketing. Diversification of agriculture to vegetables has been projected as absolutely essential for contributing towards economic growth, ensuring food security and reducing the vulnerability of farmers to poverty, as the price fetched by vegetables is nearly four times more than food grains. Hence, without the M/P, local economy may take much longer time to improve. This diversified agriculture will not be attained without the implementing the M/P |
| Social Institutions | Most social institutions like farmers interest groups, Water Users Associations etc had performed only a one-time input. Many of them are not effective and some have become defunct. In other areas there seems a total breakdown of traditional institutions of resource management. Without inputs as designed in the M/P, these institutions will only further weaken. |
| The poor, indigenous ethnic people | There is both class and caste based difference in the rural economy. In most areas scheduled castes are among the poorest, without a planned effort to include them, many tend to be marginalized from the social institutions and from sharing accrued benefits to initiatives. Hence without M/P this injustice may not be rectified. Moreover, without proper regulation and norms, the more well-off people tend to be take advantage of any new initiatives. |
| Local Conflict of Interest | Without proper mechanisms for transparency and equitable distribution of benefits, local conflicts of interest often occur especially in relation to the water where disputes between upstream and downstream communities are common. Since water scarcity may be further heightened without the program interventions, the local conflicts may continue to prevail. |
| Water Usage | The current shortage of irrigation facilities and lack of maintenance of the existing structures has led to inefficient use of the existing water sources and resources. Rain water harvesting potential of the State has not been adequately explored as yet. |
| **Natural Environment** | |
| Soil Erosion | Improper and unplanned farming poses threats to soil erosion along the hill sides. |

*Source: JICA Study Team*

(2) Examination of the Condition "With M/P"

The following table shows the potential negative impacts with implementation of the M/P. As described above, the program components of the M/P are assumed implemented with appropriate environmental management activities in order to avoid and /or mitigate the negative impacts.

**Table 8.2.6 Potential Negative Impacts with M/P**

| Potential Impacts | Impact/ Cause Severity |
|---|---|
| **Social Environment** | |
| Land Use and Utilization of local resources | Some amount of private land and sometimes farmland may be used for the various infrastructure development activities. This however will be minimized and land will be secured with the farmers consent and will be used to give them benefits to better use their land resources. |
| Sanitation, Hazards (Risk), Infectious diseases | Sanitary condition may degenerate due to input of construction workers at construction site and infected construction workers may enter into construction site. |
| **Natural Environment** | |
| Groundwater | Over-lift of groundwater may cause decline of water level during operation stage. |
| Flora, fauna and bio Diversity | Some forest land may be required for the construction of minor irrigation pipeline or farm road. |
| ***Pollution*** | |
| Air pollution, waste and increase of accidents during construction phase | During the construction phase, small and temporary impacts on air quality, waste and increase of accidents might be made. |

*Source: JICA Study Team*

(3) Result of Comparison

The result of comparison of with and without M/P cases is shown in the following table.

**Table 8.2.7 Result of Comparison With and Without M/P**

| Potential Impact \ Activity | | Without Master Plan | With Master Plan |
|---|---|---|---|
| **Social Environment** | | | |
| 1 | Involuntary Resettlement | * | * |
| 2 | Local economy (employment, etc) | --/C | ++/B |
| 3 | Land use and utilization of local resources | * | --/C |
| 4 | Social institutions | --/C | ++/B |
| 5 | Existing social infrastructures and services | * | ++/C |
| 6 | The poor, indigenous and ethnic people | --/C | ++/B |
| 7 | Misdistribution of benefit and damage | * | * |
| 8 | Cultural heritage | * | * |
| 9 | Local conflict of interests | --/C | * |
| 10 | Water Usage | --/C | * |
| 11 | Sanitation | * | --/C |
| 12 | Hazards (Risk), Infectious diseases | * | --/C |
| **Natural Environment** | | | |
| 13 | Topography & Geographical features | * | * |
| 14 | Soil Erosion | --/C | * |
| 15 | Groundwater | * | --/D |
| 16 | Hydrological Situation | * | * |
| 17 | Flora, Fauna and Biodiversity | * | --/C |
| 18 | Meteorology | * | * |
| 19 | Landscape | * | * |
| 20 | Global Warming | * | * |
| **Pollution** | | | |
| 21 | Air Pollution | * | --/C |
| 22 | Water Pollution | * | * |
| 23 | Soil Contamination | * | * |
| 24 | Waste | * | * |
| 25 | Noise and Vibration | * | * |
| 26 | Ground Subsidence | * | * |
| 27 | Offensive Odor | * | * |
| 28 | Bottom sediment | * | * |
| 29 | Accidents | * | --/C |

*Left-side of each cell represents a direction of impact and right side represents a magnitude of impact as follows:*
*Left side: ++: Positive impact --: Negative Impact =: Neutral Impact*
*Right side: A: relatively significant impact, B: relatively medium size impact,*
*C: relatively small impact, D: unknown as of now*
**: No impact or no corresponding impact*

*Source: JICA Study Team*

(4) Conclusions

The IEE study for the M/P concludes as follows;

- M/P have positive impacts for social environment, especially for local economy, encouraging social institutions to strengthen. The M/P also made consideration of the poor, indigenous and ethnic people. Thus it judged acceptable form an environmental viewpoint.
- Implementation of M/P would not bring about serious social and natural negative environmental impacts. Moreover, said impacts can be avoided / mitigated through proposed countermeasures.
- It is understood that implementation of the M/P will bring about positive impacts while avoiding negative impacts, and/or initiating corresponding mitigation measures.

# CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS

## 9.1 Conclusions

The Study presents Master Plan (M/P, target 2022/23), and Action Plan (A/P, target 2017/18), for diversified agriculture to enhance the income of farmers in the State of Himachal Pradesh. The goal of these plans is to initiate agricultural diversification concerning a shift from food grains crops to diversified crops (especially vegetables) in order to enhance the income of small and marginal farmers in the State who occupy a majority of the rural population.

Diversification of agriculture is an important policy for sustaining the economic success of the State and for contributing towards its fiscal self sufficiency as well as generating employment for its large rural population. The favorable natural and social conditions surrounding agriculture create huge potentials for agro-diversity, which are different from those of other states in India. Major potentials are off-season produces in other states and temperate or exotic produces only cultivable in the State.

In order to promote the diversified agriculture through effective use of the favorable environmental conditions, the Study Team selected Farmers' Support Program, Infrastructure Development Program and Institutional Development Program to support the previous two programs. These three programs consist of nine components aiming to produce 1.6 million tons of vegetables in 2017/18 and 2.0 million tons in 2022/23. It is expected that implementation of these proposed programs will contribute to the enhancement of the income of rural small and marginal farmers, and improve their living standards.

Taking these into consideration, it is concluded that the proposed A/P should be implemented as early as possible.

## 9.2 Recommendations

(i) Financial Arrangement for Implementation of the A/P

One of the major constraints which hamper smooth implementation of the A/P is the financial resources. According to the cost estimate, corresponding budgetary requirement is approximately Rs 9.4 billion for ten years, up to 2017/18. It is necessary to secure the amount in a timely manner for the smooth implementation of the plan. It is therefore recommended that the Department of Agriculture (DOA) and Department of Finance should take action for necessary budgetary arrangement for prompt implementation of the A/P.

(ii) Needs for Monitoring the Implementation of the A/P

The A/P proposes nine components of the interrelated programs to be implemented by 2017/18. The balanced implementation of the respective components is indispensable for achieving the projected benefits. In order to grasp the actual progress accurately, monitoring and evaluation are essential. Based on the results of the monitoring, the A/P should be reviewed and updated when required.

(iii) Necessity of a view from Comprehensive Rural Development

The Study deals with agriculture, horticulture, animal husbandry, fishery and agricultural marketing sector for diversified agriculture in the State. In addition, comprehensive rural development study covering tourism, education, light industry/manufacturing, forestry, etc

will be necessary to formulate the multi-functioning plans for future improvement of the living standards of the rural population..

(iv) Development of diversification technology package

Specific agricultural technologies for the crop diversification have been developed to a certain level in the State or in India, however, technology packages integrating the specific technologies for farmer use have not developed yet. Accordingly it is necessary and recommended to develop such practical and comprehensive technology packages for implementation and extension of the crop diversification.

(v) Improvement of extension officers' capacity for providing effective impacts to farmers for the diversification

Agricultural extension of crop diversification from food grain cultivation has started recently in the State and present extension officers have not been familiar to cultivation of diversified crops. Accordingly it is necessary and recommended to improve capacity of present and newly-employed extension officers for providing effective impacts to farmers for the diversification.

(vi) Improvement of Farm Management including farm economy

Traditional farm management has been conducted by most of farmers who mainly grows food grains in the State. However, it is necessary for the crop-diversified farmers to have improved farm management including cost analysis and marketing etc. Accordingly it is recommended to improve farm management method prevailing in most of traditional farmers.

(vii) Formation of farmers' groups and farmers' organizations for smooth implementation of crop diversification

Sufficient farmers' groups and farmers' organizations have not been formed yet in the State. It is strongly recommended to form farmers' groups and farmers' organizations where farmers have not been grouped or organized yet, since the groups and organizations are essential in joint marketing of diversified crops or join purchase of farm inputs such as seeds in the crop diversification.

# *Attachments*

# *Attachment-1*
# *Scope of Works (S/W)*

SCOPE OF WORK

FOR

THE STUDY

ON

DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME

IN THE STATE OF HIMACHAL PRADESH

IN

THE REPUBLIC OF INDIA

AGREED UPON BETWEEN

THE GOVERNMENT OF HIMACHAL PRADESH DEPARTMENT OF AGRICULTURE

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

Shimla, July 18, 2006

Ms. Bharathi S. Sihag
*Secretary*
*Department of Agriculture*
*The State Government of Himachal Pradesh*

Mr. Tomoyuki Fujii
*Leader of Preparatory Study Team,*
*Japan International Cooperation Agency*
*The Government of Japan*

*Ministry of Agriculture*
*The Government of the Republic of India*

(MUKESH KHULLAR)
Joint Secretary
Ministry of Agriculture
Govt. of India
(Deptt. of Agri. & Coopn.)
Krishi Bhawan, New Delhi

## 1. INTRODUCTION

In response to the official request of the Government of the Republic of India (herein after referred to as "the Government of India"), the Government of Japan has decided to conduct the Study on Diversified Agriculture for Enhanced Farm Income in the State of Himachal Pradesh in the Republic of India (hereinafter referred to as "the Study") together with the Government of India in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of India.

The present document sets forth the Scope of Work with regard to the Study.

## 2. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To formulate a Master Plan on rural development through diversified agriculture for enhanced farm income in the State of Himachal Pradesh,
2. To formulate the Action Plans (including project documents and strategies for implementation of the projects) in the priority areas to be established in the Master Plan, and
3. To transfer relevant skills and technologies to the Indian counterpart personnel through on-the-job training in the course of the Study.

## 3. OUTLINE OF THE STUDY

1. Study Area
   (1) The Master Plan shall cover the entire area of the State of Himachal Pradesh.
   (2) The Action Plans shall cover the priority areas to be established in the Master Plan.

2. Scope of the Study
   In order to achieve the above objectives, the Study will consist of the following activities.

   Phase 1:

   (1) Situation analysis
      1) Review of the existing data, information and reports

      2) Baseline survey for supplementary data collection on the following aspects:
         a Natural, social and economic conditions
         b National and state policy, strategy and plans
         c Agriculture, horticulture, animal husbandry and inland fisheries
         d Farming system
         e Post-harvesting and marketing
         f Agricultural and social infrastructure and facilities including irrigation system
         g Operation and maintenance of existing agricultural and social infrastructure and facilities
         h Agricultural extension and credit
         i Environmental issues

j Location of rural villages and population distribution
k Inventory of farm roads and marketing related facilities
l Others

3) Review of the relevant projects and plans by the State Government, donors and NGOs etc.

(2) Identification and clarification of potentials and constraints for attaining rural development for four (4) Agro-ecological Zones[a]

(3) Conceptualization of the Master Plan in line with the above potentials and constraints.

Phase 2:

(1) Selection of the priority areas for formulation of the Action Plans and conceptualization of the Action Plans

(2) Preparation of activities plans in the priority areas

(3) Implementation of planned activities such as pre-feasibility studies, small-scale trials and so on with capacity development

(4) Extraction and summarization of lessons and experiences learnt through the above activities

(5) Formulation of the Action Plans in the priority areas

(6) Finalization of the Master Plan reflecting the particularities of each agro-ecological zone

## 4. STUDY SCHEDULE

The Study will be carried out during a period of approximately twenty-four (24) months in accordance with the attached Tentative Work Schedule (ANNEX).

## 5. REPORTS

JICA shall prepare and submit the following reports written in English to the Ministry of Agriculture and Cooperation of the Government of India and the Government of Himachal Pradesh Department of Agriculture.

| | |
|---|---|
| Inception Report: | Thirty (30) copies at the commencement of the Study |
| Interim Report: | Thirty (30) copies at the middle of the Study |
| Progress Reports: | Thirty (30) copies during the course of the Study |
| Draft Final Report: | Forty (40) copies at the end of the field work; the Ministry of Agriculture of the Government of India and the Government of Himachal Pradesh Department of Agriculture will provide JICA with its comments on the Draft Final Report within one (1) month of the receipt of the Draft Final Report |
| Final Report: | Sixty (60) copies within two (2) months of the receipt of the comments on the Draft Final Report by the Ministry of Agriculture of the Government of India and the Government of Himachal Pradesh, Department of Agriculture |

[a] The entire area of the state of Himachal Pradesh will be classified into four (4) major Agro-ecological Zones (nine (9) subzones).

## 6. UNDERTAKINGS OF THE GOVERNMENT OF INDIA

1. To facilitate the smooth conduct of the Study, the Government of India shall take the following necessary measures:

(1) To permit the members of the Team to enter, leave and sojourn in India for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees;
(2) To exempt the members of the Team from taxes, duties and any other charges on equipment, machinery and other material brought into India for the implementation of the Study;
(3) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study;
(4) To provide necessary facilities to the Team for the remittance as well as utilization of the funds introduced into India from Japan in connection with the implementation of the Study;

2. The Government of Himachal Pradesh Department of Agriculture shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the Team.

3. The Government of Himachal Pradesh Department of Agriculture shall, provide the Team with the following, in cooperation with other organizations concerned as well as the Ministry of Agriculture, Government of India:

(1) Security-related information on as well as measures to ensure the safety of the Team;
(2) Information on as well as support in obtaining medical service;
(3) Available data (including topographic maps and photographs) and information related to the Study;
(4) Counterpart personnel;
(5) Suitable office space
(6) Credentials or identification cards.

## 7. UNDERTAKINGS OF JICA

For the implementation of the Study, JICA shall take the following measures:

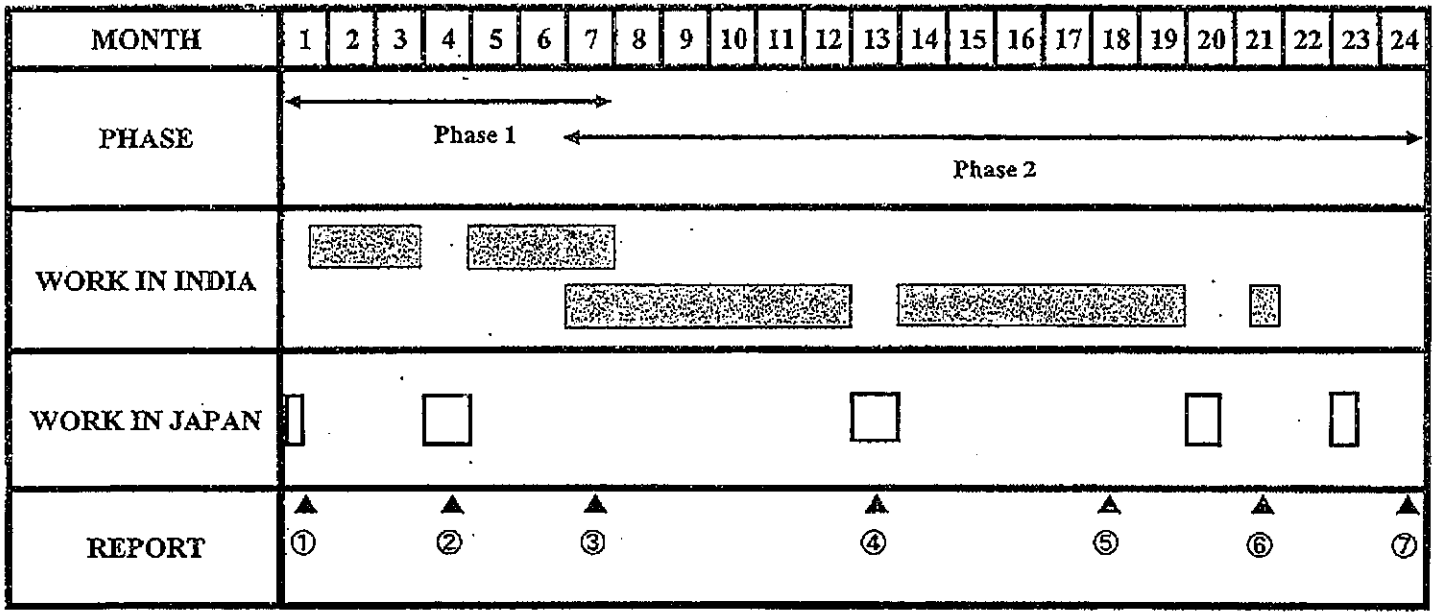
1. To dispatch, at its own expense, a Study Team to India, and

2. To pursue skills and technologies transfer to Indian counterpart personnel in the course of the Study.

## 8.CONSULTATION

JICA and the Government of Himachal Pradesh Department of Agriculture shall consult with each other in respect of any matter that may arise from or in connection with the Study.

# TENTATIVE WORK SCHEDULE




① Inception Report
② Progress Report 1
③ Progress Report 2
④ Interium Report
⑤ Progress Report 3
⑥ Draft Final Report
⑦ Final Report

# *Attachment-2*
# *Minutes of Meeting (M/M)*
# *on 1st Steering Committee Meeting*

MINUTES OF MEETING
ON
INCEPTION REPORT
FOR
THE STUDY
ON
DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME
IN THE STATE OF HIMACHAL PRADESH
IN
THE REPUBLIC OF INDIA

1. Date: March 5, 2007
2. Time: 11:00 am to 12:30 pm
3. Place: Principal Secretary's Office of Department of Agriculture
4. List of Participants: Refer Attachment-1
5. Main Points Discussed at the Meeting:

In accordance with the Scope of Work (hereinafter referred as "the S/W") for the Study on Diversified Agriculture for Enhanced Farm Income, the Study team officially submitted thirty (30) copies of Inception Report to Department of Agriculture.

Following the opening address by Principal Secretary, the conditions set forth in the Minutes of Meeting on the S/W were discussed, and in principle, were confirmed by both the parties. Additionally, the following points were explained by Mr. Matsumoto, the team leader of Monitoring Team of JICA, and were confirmed.

(1) For the smooth and effective implementation of the Study, the Steering Committee meeting shall be arranged at least twice a year. For instance, the Committee meeting could be arranged for explanation of Progress Report (1) in June 2007 and Interim Report in November, 2007.

(2) The Indian side noted that the office space is ready for the Study Team to use; however some assistance for furnishing the space is requested to the Japanese side. The Monitoring Team understood the request and promised to convey this issue to JICA Headquarter.

(3) In response to a confirmation regarding the appointment of Indian Consultants, it was clarified that the JICA Study Team includes four (4) Indian consultants for the assignments of (i) animal husbandry, (ii) inland fisheries, (iii) fruits, and

(iv) environmental and social considerations / rural community and gender to facilitate the Study.

(4) The Monitoring Team of JICA explained that the Ministry of Agriculture of the Government of India showed its interest on the smooth implementation of this study. The Department of Agriculture of the Government of Himachal Pradesh promised to ensure that the Ministry of Agriculture of the Government of India will be fully informed of the progress of the Study.

(5) The Japanese side requested that state counterparts should be appointed for each member of the Study Team. Particularly, it is strongly requested that three (3) counterparts for Mr. Ishizaki, Dr. Murugaboopathi, and Dr. Sugimoto are arranged immediately. The Indian side promised that list of counterparts as well as deployment of those three (3) counterparts will be prepared as early as possible.

(6) As a part of capacity building activities, the Department of Agriculture of the Government of Himachal Pradesh requested that the counterpart training in Japan mentioned in S/W shall be arranged as early as possible.

(7) With regard to contingency expenses, JICA Monitoring Team explained that travel allowance for the counterpart personnel was prepared by Japanese side but some portion of these expenses should be also prepared by Indian side. The Department of Agriculture of the Government of Himachal Pradesh further requested the Japanese side to bear other expenses as well..

(8) The Indian side informed that small-scale trials, if possible, shall be implemented during the Phase 2 to confirm the pre-feasibility studies. The Japanese side explained that small-scale trials will be made as a part of the activities of the beneficiary farmers themselves based on the results of the workshops with the farmers.

Further Mr. Ishizaki, the Deputy Team Leader of the JICA Study Team, explained the contents of Inception Report. All the participants of the meeting confirmed and agreed that the Report was prepared in compliance with the conditions mentioned in the S/W.

Furthermore, the capacity building for counterparts shall be strongly requested to be carried out as mentioned in the S/W.

P. C. KAPOOR

Principal Secretary (Agriculture)
Ministry of Agriculture
The State Government of Himachal Pradesh

ISHIZAKI Yoshiyuki

Deputy Leader of the Study Team

Witness:

MATSUMOTO Kenichi

Leader of Monitoring Team
Japan International Cooperation Agency

Attachment-1

LIST OF PARTICIPANTS

The State Government of Himachal Pradesh (Shimla)

Department of Agriculture

| | |
|---|---|
| Dr. P.C.Kapoor | Principal Secretary |
| Mr.B.L.Raghav | Joint Secretary |
| Dr.J.C.Rana | Director |
| Dr.Vinod K.Sharma | Subject Matter Specialist |
| Mr.P.C.Sharma | Subject Matter Specialist |

Himachal Pradesh Marketing Board

| | |
|---|---|
| Mr. O.C.Verma | Managing Director |

University of Horticulture and Forestry, Solan

| | |
|---|---|
| Dr. Ravinder Sharma | Deputy Director, Planning |

JICA Head Office (Rural Development Department)

| | |
|---|---|
| Mr. Kenichi Matsumoto | Senior Program Officer / Leader of Monitoring Team |
| Mr. Taku Seo | Associate Expert / Member of Monitoring Team |

JICA Study Team

| | |
|---|---|
| Mr. Yoshiyuki Ishizaki | Deputy Team Leader / Marketing / Processing |
| Dr. Chellasamy Murugaboopathi | Farm Management / Agronomy |
| Dr. Daizo Sugimoto | Agro-economy / Economic Analysis |

# *Attachment-3*
# *Minutes of Meeting (M/M)*
# *on 2nd Steering Committee Meeting*

**MINUTES OF THE STEERING COMMITTEE MEETING ON STUDY PROGRAMME "DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME IN H.P." HELD UNDER THE CHAIRMANSHIP OF DR.P.C.KAPOOR, PRINCIPAL SECRETARY (AGRICULTURE) TO THE GOVERNMENT OF H.P. SHIMLA-2, ON 25.5.2007 AT 11 A.M. IN THE DIRECTORATE OF AGRICULTURE, H.P. SHIMLA-5.**

The list of participants is enclosed at Annexure I

At the outset, Director of Agriculture welcomed all the participants and expressed his gratitude to the Principal Secretary (Agriculture) to the Govt. of H.P. Shimla-2, for giving time for holding this meeting. He also welcomed Mr. Toru Kobayakawa, from JICA India Office New Delhi to participate in this meeting and Mr. Y. Matsumoto, Team Leader of the Study Team. After introduction of all the members, Director of Agriculture gave a brief presentation about the study progrmme titled "Diversified Agriculture for Enhanced Farm Income in H.P." as follows:

- The Director of Agriculture in his presentation highlighted that Project "Diversified Agriculture for Enhanced Farm Income" was prepared and forwarded to the Ministry of Agriculture, Govt. of India during August, 2004 and the approval/concurrence by the Ministry of Agriculture was given during December, 2004. Thereafter, the said project was approved by the Planning Commission, Govt. of India and was further submitted to the Department of Economic Affairs, Ministry of Finance, Government of India, during May 2005 for posing to some funding agency. The JICA accepted the said proposal and its Appraisal Missions visited Himachal Pradesh on 04-07 August 2005, 1-3 Oct., 2005, April-May 2006 and 11-20 July, 2006. The Mission in its last visit in July 2006 signed the Scope of Work on 18th July, 2006 with Government of HP and on 21st July 2006 with Ministry of Agriculture, Government of India. Thereafter the JICA Study team arrived at Shimla on 23.2.2007 and study work was undertaken by them. The study area is entire Himachal Pradesh.

- While presenting the time frame for the study, Director of Agriculture informed that it will be conducted in a period of 24 months from February, 2007 to February, 2009.

The study shall be carried out in two phases. In Phase-1, from February, 2007 to November, 2007, formulation of M/P and A/P shall be undertaken.

In Phase-2, November 2007 to February, 2009, execution of pre feasibility studies shall be undertaken. The activities of stakeholder departments shall also be included in the Phase-I and Phase-II plans. The Steering Committee for monitoring the progress was constituted on 03.03.2007.

Mr.Y.Matsumoto, Team Leader while presenting the progress of study conducted so far, gave overall study schedule comprising first field work for draft M/P and A/P preparation, first home work for preparation of Interim Report, second field work for execution of Pre- F/S and workshops, second home work for preparing Draft Final Report, fourth field work for explanation and discussion of DFR and third home work for preparation of F/R. He highlighted the progress of first field work with regard to collection and analysis of natural socioeconomic and agricultural conditions, review of policies and programmes of India, marketing/farm management of farm economy survey.

While presenting the first field work performance, he gave progress of block-wise data collection and work items to be done with regard to formulation of draft master plan, selection of candidate sites for implementing Pre-F/S of model areas, formulation of draft action plan etc.

The Chairman pointed out that stress has been laid on diversification of vegetable crops but the activities of other departments like Fisheries, Horticulture, Animal Husbandry also required to be included in the study progrmme.

Dr. Venkatramiah, Consultant, Livestock, informed that fodder crops have not been given required important in the State as there is 50% shortage of green fodder, 25 to 30% shortage of dry fodder and there is an urgent need to diversify area under fodder crops also. He further informed that there is a problem of carrying capacity also. Dr. H.C. Sharma, Consultant (Fruits) informed that during interaction with the farmers in Mandi, Kullu areas, he has observed that major problem in apple cultivation is of old trees and non availability of good quality plants which is affecting their production.

The Chairman suggested that deep study on all the aspects should be conducted and recommendations be given so that effective conclusions are drawn.

The Joint Director, Planning suggested that study on medicinal plant may also be taken up. The Chairman stressed that while conducting study, the Ayurveda Department may also be contacted with regards to cultivation of herbs and aromatic plants in the farmers field which are presently being grown in forests. The Jt.Director, Planning, suggested that land use data is available with other departments that may also be downloaded from their websites to draw conclusion.

Dr. Murugaboopathi suggested that there is an urgent need for increasing need based irrigation facilities for which rainwater harvesting techniques is required to be popularized on community basis.

Mr. Okuwa informed that irrigation data from Rural Development Department is also required to conduct the study for which it was assured by the Chairman that the said department shall be asked to arrange the same at the earliest.

Director Fisheries pointed out that there is need to include the activities of his department to be covered under the said study. The Team Leader informed that the fisheries Consultant will be joining the team soon. The Director of Agriculture presented the time schedule for following follow up projects.

**Proposal for future cooperation:**

**1. Technical Cooperation:**

The Director of Agriculture informed that the Department has prepared another proposal for technical cooperation covering all aspects, and requested that JICA may go through this proposal. The said proposal titled ***"Establishment of Demand Driven Cash Crops Production and Farmers friendly Marketing System"*** shall be sent to Govt. of India in due course of time with the request to recommend the technical cooperation proposal to JICA. It was informed that the Department also proposes to prepare a mega project for economic cooperation by

JBIC. The YEN loan project would be focusing on infrastructural development and credit facilities for promoting crop diversification based on vegetable production and marketing.

Mr.Toru Kobayakawa thanked for the support extended to the Study Team and assured that liberal assistance to the State in the Development of Agriculture as well as allied sectors shall be considered.

In the concluding remarks, the Chairman expressed satisfaction of the progress of the study. He desired that the Study Team should have free interaction with the farmers as well as the stakeholder departments and draw need based development strategies. He assured that JICA Study Team shall be provided with full cooperation in conducting their study and constraints if any be brought to his notice. He also desired that next meeting of the Steering Committee be convened in the first week of July, 2007.

The Director of Agriculture extended vote of thanks to the Chair and assured full cooperation of the department as well as allied departmental officers in timely completion of study.

**The meeting ended with a vote of thanks to the Chair.**

***

## LIST OF ATTENDANTS TO SECOND STEERING COMMITTEE

| No. | Name | Institute | Position |
|---|---|---|---|
| 1 | Dr. P. C. Kapoor | Government of H.P. | Principal Secretary (Agriculture) |
| 2 | Dr. S. K. Shad | Government of H.P. | Joint Director (Planning) |
| 3 | Dr. J. C. Rana | Dept. of Agriculture | Director |
| 4 | Mr. K. K Gupta | Dept. of Irrigation & Pub. Health | XEN-P&I (B) |
| 5 | Mr. K. S. Katoch | Dept. of Horticulture | SMS |
| 6 | Dr. B. E. Bisht | Dept. of Animal Husbandry | Director |
| 7 | Dr. B. N. Sharma | Dept. of Animal Husbandry | Deputy Director (Animal Husbadry) |
| 8 | Mr. B. D. Sharma | Dept. of Fisheries | Director |
| 9 | Dr. Ranbeer Singh Rana | CSK H.P. Agricultural Univ. | Scientist GIS center |
| 10 | Dr. Ravinder Sharma | Univ. of Horticulture & Forestry | Deputy Director (Execution) |
| 11 | Mr. Toru KOBAYAKAWA | JICA India Office | Assistant Resident Representative |
| 12 | Mr. Yutaka MATSUMOTO | JICA Study Team | Team Leader / Rural Development |
| 13 | Mr. Yoshiyuki ISHIZAKI | JICA Study Team | Deputy Team Leader / Marketing & processing |
| 14 | Mr. Kunita OKUWA | JICA Study Team | Irrigation / Water Resources |
| 15 | Dr. Chellasamy MURUGABOOPATHI | JICA Study Team | Farm Management / Agronomy |
| 16 | Dr. P. VENKATRAMAIAH | JICA Study Team | Animal Husbangry |
| 17 | Dr. Harish SHARMA | JICA Study Team | Fruits |
| 18 | Mr. Takafumi SUZUKI | JICA Study Team | Facility Plan |
| 19 | P. C. Sharma | Dept. Agriculture | Counterpart (Project Cell) |
| 20 | Dr. R. S. Thakur | Dept. Agriculture | Counterpart (Project Cell) |

# *Attachment-4*
# *Minutes of Meeting (M/M)*
# *on 3rd Steering Committee Meeting*

**MINUTES OF THE THIRD STEERING COMMITTEE MEETING FOR THE STUDY ON "DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME IN THE STATE OF HIMACHAL PRADESH" HELD UNDER THE CHAIRMANSHIP OF DR. P. C. KAPOOR, PRINCIPAL SECRETARY (AGRICULTURE) TO THE STATE GOVERNMENT OF HIMACHAL PRADESH, SHIMLA-2, ON 03. 03. 2008 AT 4.30 P.M. IN THE COMMITTEE ROOM H.P. SECRETARIATE.**

The list of participants is enclosed at Annexure I.

At the outset, the Director of Agriculture welcomed all the participants and expressed his gratitude to the Principal Secretary (Agriculture) for giving time to chair this meeting. He also welcomed Mr.Toru Kobayakawa, JICA India Office in New Delhi for his participation in this meeting and Mr. Y. Matsumoto, Team Leader of the Study Team. After that the Director of Agriculture briefed the participants about the issues to be discussed during the meeting, and confirmed the minutes of the earlier meeting held on 25. 5. 2007.

He further requested the Team Leader of the JICA Study Team to apprise the Steering Committee on the following issues:

- **A.1 Action taken by JICA on the points/issues raised during Second Steering Committee meeting held on 25. 5. 2007**
- **A.2 Progress of JICA study**
- **A.3 Acceptance of site selection for pre-feasibility study**
- **A.4 Study schedule and program up to 4th Steering Committee Meeting**
- **A.5 Any other items with the permission of the Chair**

The Team Leader of the JICA Study Team presented the study schedule and informed the participants that the study is being conducted in a period of 24 months from February, 2007 to February, 2009 in two phases. In Phase-1 (February 2007 to November 2007), the 1st field work for formulation of M/P and A/P has already been undertaken in the study area from February to July 2007, and has submitted the first progress report to the State Government of Himachal Pradesh. Afterwards, the Study Team left India to Japan, finalized the draft master plan and action plan during the homework period, and prepared the draft Interim Report of the Study.

The Phase-2 (November 2007 to February 2009) of the Study has started from November 2007, and the Study Team has submitted the draft Interim Report to the State

Pr. Secretary (Agr.) to the
Govt. of Himachal Pradesh

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Government of Himachal Pradesh in November 2007. The Study Team has undertaken the 2nd field work and finalized the candidate sites for the pre-feasibility studies. The schedule for holding workshops in all the blocks is being finalized. The workshops are being organized to sensitize the officers for preparing the need based projects of their area as per the requirements of the farmers to be included in the mega project.

**A.1 Action taken by JICA on the points/issues raised during Second Steering Committee meeting held on 25.5.2007**

- The Team Leader informed that, as suggested in the previous meeting, the medicinal and aromatic plants cultivation on the cultivated fields is being considered and horticulture expert is studying the scope of inclusion of such crops in the diversification study.
- The fishery expert has been appointed for studying inclusion of on-farm fish culture under the Study.
- Regarding the status of the proposal of Project-type Technical Cooperation on "Establishment of Demand Driven Cash Crops Production and Farmers Friendly Marketing System", Mr. Kobaykawa, JICA India Office in New Delhi, informed that the proposal has been forwarded by the Government of India to JICA India Office in January 2008 for examination and consideration. The proposal is to be sent to JICA (HQ) before the end of next August based on the regular practice of JICA's annual needs survey. The decision-making by the Japanese government on the proposal is expected to be made in early 2009.

**A.2 Progress of JICA Development Study**

The Team Leader reported the participants about the progress of the Study during the 2nd phase. He informed that the Study Team on the basis of the field data collected during the 1st phase of the Study has identified the development potential for diversification in the State, vegetables being the core sector and fruits, animal husbandry, and fisheries are the secondary sectors of the on-going Study. Four strategic crops have been identified namely; Potato, Tomato, Cauliflower and Peas for different Agro-ecological Zones of the State. Regarding infrastructural development, the first priority will be accorded to Bilaspur, Chamba, Hamirpur and Mandi Districts for the development of all the components of infrastructure required for diversification and the second priority will be given for the development of road and irrigation in Kangra, Kullu,

Shimla, Sirmaur and Solan Districts under the on-going Study. In the agricultural supports for diversification, the focus will be on strengthening of quality aspects of the produce and demonstration of the improved production technology. Agricultural extension, credit and research support shall also be considered in the Study.

He further informed that for the purpose of selecting the model areas for the pre-feasibility study, the following three criteria have been set up for categorization of the blocks:

1. Current situation of the diversification to fruits and vegetables
2. Crop diversification for area expansion and quantitative potential and
3. Future crop diversification potential based on development stage

On the basis of the above criteria, 75 blocks of the State have been grouped into the following four categories;

| | |
|---|---|
| Category I | Quality improvement of produce in already diversified blocks |
| Category II | Quantity/Production increase in ongoing diversification area |
| Category III | Areas having potential for diversification |
| Category IV | Areas having low potential for diversification |

According to above categorization, 21 blocks fall under Category I, 11 blocks in Category II, 30 blocks in Category III and 13 blocks in Category IV.

The Team Leader further informed that the Master Plan for diversification will focus on (i) quality improvement under Category I, (ii) increase in production per unit area and acceleration of diversification under Category II, (iii) promotion of diversification where there is high potential for production increase in Category III and (iv) under Category IV, alternative plan for diversification will be worked out as there is low potential for crop diversification.

**A.3 Acceptance of site selection for pre-feasibility study**

The Team Leader presented the methodology for the selection of candidate sites for pre-feasibility study. He informed the participants that six districts were identified representing different Agro-ecological Zones of the State. After the selection of the district, the model areas were identified on the block basis representing different existing farming systems and the level of diversification. Afterwards in each model area, two candidate sites were identified on the basis of identification parameters. All the 12 sites in 6 districts were visited by the JICA Study Team

members and counterparts to interact with the farming communities and collect the information on the identification parameters. After studying the information of the 12 sites, 6 sites have been selected for conducting the pre-feasibility study. The identification parameters are of (A) Availability of water source for irrigation, (B) Availability of marketing facilities, (C) Road access to the villages, (D) Potential for crop diversification, (E) Potential for animal husbandry, (F) Potential for fish culture, (G) Possibility for duplication, and (H) Farmers intention to diversification.

| No. | District | Block | Candidate site | Parameters Identified | Agro-ecological zone |
|---|---|---|---|---|---|
| 1. | Hamirpur | Hamirpur | Lalri | A, B, C, D, F, G. & H as very good parameters and E as good parameter | Zone-I |
| 2. | Kangra | Nagrota Bagwan | Malan | A, B, C, E, G & H as very good parameters and D as good parameter | Zone-II |
| 3. | Mandi | Mandi | Nagwain | A, B, C, D, F, G & H as very good parameters | Zone-II |
| 4. | Solan | Dharmpur | Chamo | A, C, D, G & H as very good parameters and B & E as good parameters | Zone-II |
| 5. | Kullu | Naggar | Halan-I | A, B, C, D, F, G. & H as very good parameters and E as good parameter | Zone-III |
| 6. | Shimla | Theog | Bagain | A, D, G & H as very good parameters and B, C & E as good parameter | Zone-III |

### A.4 Schedule of Study Programme up to Fourth Steering Committee Meeting

The Team Leader informed the participants that the Study Team is expected to leave India to Japan around 15th March 2008 after submission of Progress Report II and will return back to India in June 2008 for undertaking the 3rd field work. He reported the participants about the future study schedule. The Study Team will undertake field investigations and survey through participatory mode at pre-feasibility sites. The Study Team will also organize a series of workshops for identification of need based projects in each block and formulation a mega project

for promotion of the diversification in Himachal Pradesh. The Study Team will prepare and submit Progress Report III by the end of the 3rd field work.

**A.5 Any other items with the permission of the Chair**

The Team Leader informed that in the scope of work there was provision of conducting small scale field trials, but due to the time and crop season constraints, only workshops are being conducted during the pre-feasibility study period.

The Director of Agriculture pointed out the following to the Study Team:

1. The contingency funds (minimum Rs. 4,000.-) at block level for data collection and preparation of perspective sub-projects may be provided so as to cover the expenses on stationary, mobility and photocopying, etc.
2. The Study Team members should move in a group to a particular area instead of individual visit so as to save the time and the period of consultancy be enhanced to full study period.
3. The training of counterparts as agreed in the Scope of Work be arranged immediately.

After the presentation by the JICA Study Team, the Chairman observed that the candidate sites selected for pre-feasibility study are already diversified. These sites represent similarly situated large area so that experience of pre-feasibility study could be replicated.

The Director of Agriculture pointed out that the pre-feasibility study should focus more on the areas/blocks which have potential for diversification. The Managing Director, Marketing Board, pointed out that focus should be on garlic and onion in the feasibility studies. The Director of Horticulture also suggested that the feasibility studies in the model areas should also include sub tropical fruits in addition to temperate fruits. The Deputy Director, Animal Husbandry, pointed out that the study may also consider the issue of breed improvement in cattle.

Thereafter, the Chairman advised the JICA Study Team that they should hold more consultations with the stakeholders for undertaking pre-feasibility studies. He further stressed that the Master Plan on "Diversified Agriculture for Enhance Farm Income in Himachal Pradesh" should be prepared in such a way that it should fulfill the aspirations and expectations of the farming communities and all the stakeholders.

In the concluding remarks, the Chairman expressed satisfaction on the progress of the Study. He desired that the Study Team should feel free to interact with him, and the stakeholder departments so as to draw need based development strategies for diversification. He assured that the JICA Study Team shall be provided with full cooperation in conducting their study.

The Director of Agriculture extended vote of thanks to the Chair and assured full cooperation of the department as well as all stakeholders in timely completion of the Study.

**The meeting ended with a vote of thanks to the Chair.**

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In accordance with the Chairman's advice, JICA Study Team held more consultations with stakeholders of Department of Animal Husbandry on 4th March 2008, Department of Horticulture and Marketing Board on 5th March 2008, Department of Fisheries and Department of Agriculture on 7th March 2008. Afterwards, JICA Study Team apprised the Chairman on 7th March 2008 concerning the results of consultation with all the stakeholders and further explanation on the selection of model areas. The Chairman suggested to JICA Study Team to proceed pre-feasibility study for the six selected model sites as mentioned in A-3 of Minutes of Steering Committee in replicable manner to other similar large areas.

**Team Leader**
**JICA Study Team for Diversified Agriculture**
**Room No.406, Krishi Bhawan**
**Shimla-5**

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**Annexure-I**

**List of the participants in the 3rd Steering Committee meeting of JICA Study on 3.3.2008**

| Sr. No. | Name | Designation |
|---|---|---|
| 1. | Dr.J.C.Rana | Director of Agriculture, H.P. |
| 2. | Dr.O.C.Verma | Managing Director, H.P. State Marketing Board, Shimla |
| 3. | Dr.Gurdev Singh | Director of Horticulture, H.P. |
| 4. | Sh.Champeshwar Lall Sood | SE (P&I)-II, Department of Irrigation and Public Health, Shimla |
| 5. | Dr.B.N.Sharma | Deputy director (AP) Hqrs. Directorate of An. Husbandry, Shimla |
| 6. | Dr.Ravinder Sharma | Dy. Director (Planning)University of Horticulture & Forestry, Solan,H.P. |
| 7. | Dr.Ranbir Singh Rana | Scientist, GIS Center, H.P. Agri. University, Palampur, Distt.Kangra,H.P. |
| 8. | Sh.P.C.Patial | Asstt. Director, Fisheries, Directorate of Fisheries, Bilaspur,H.P. |
| 9. | Kamla Verma | Research Officer, Planning, Govt.of H.P.Shimla |
| 10. | Dr.Vinod K Sharma | Subject Matter Specialist, Project Cell, Directorate of Agriculture, Shimla |
| 11. | Mr. T.Kobayakawa | JICA,India,New Delhi |
| 12. | Mr.Y.Matsumoto | Team Leader, JICA, Study Team |
| 13. | Dr. C.Murugaboopathy | JICA, Study Team (Agronomy expert) |
| 14. | Dr.P.Venkatramaiah | JICA, Study Team (An.Husb.expert) |
| 15. | Dr.B.S.Mehta | JICA, Study Team (An.Husb.expert) |
| 16. | Dr.A.Laxminarayana | JICA, Study Team (Fishery expert) |
| 17. | Dr.P.S.Thakur | JICA, Study Team(Fruits expert) |
| 18. | Dr.R.H.Singh | JICA, Study Team(Fruits expert) |
| 19. | Mr.T.Suzuki | JICA, Study Team(Facilities Plan expert) |
| 20. | Priya Dass | JICA, Study Team(Environmental expert) |

# *Attachment-5*
# *Minutes of Meeting (M/M)*
# *on 4th Steering Committee Meeting*

MINUTES OF MEETING
ON
PROGRESS REPORT (III) FOR THE STUDY
ON
DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME
IN THE STATE OF HIMACHAL PRADESH
IN
THE REPUBLIC OF INDIA

1. Date: October 4, 2008
2. Time: 11:00 am to 12:30 pm
3. Place: Conference Room, Secretariat
4. List of Participants: Refer to Attachment-1

In accordance with the Scope of Work for the Study on Diversified Agriculture for Enhanced Farm Income in the State of Himachal Pradesh in the Republic of India (the Study), the JICA Study Team officially submitted thirty (30) copies of the Progress Report (III) to Directorate of Agriculture.

The Steering Committee Meeting was opened under the chairmanship of the Principal Secretary (Agriculture). The Director of Agriculture briefed the participants about the background and past discussions made in the course of the Study. Then, the Team Leader of the JICA Study Team explained the contents of the Progress Report (III), focusing on the revised Master Plan and Action Plan modified based on the results of the Workshop and further studies as well as the Pre-Feasibility Study. The main points discussed among the participants are mentioned below:

1. The Master Plan, Action Plan and Pre-feasibility Study described in the report are acceptable since the counterpart and stakeholders were also involved in the preparation process during the course of the Study.

2. Regarding the Pre-feasibility Study on the six model sites conducted as the sample area for formulation of the Master Plan and Action Plan, the project consensus meeting with the stakeholders need not to be held in this stage but in the detailed design stage after confirmation of implementation. This is to avoid misunderstanding and confusion among the stakeholders that the project at each site will be implemented immediately after the meeting.

3. In the overseas training carried out in Japan in August 2008 under the Study, the counterparts obtained the good knowledge and valuable lessons learnt from the agricultural cooperative (JA). In order to formulate the plan to establish JA style cooperatives in Himachal Pradesh, Department of Agriculture expressed their desire to send their officials along with stakeholders for JICA training programs on JA in Japan. JICA answered

that they will convey this matter to the JICA Headquarter.

4. Department of Agriculture requested JICA to hand over the data and information collected during the Study for future program implementation of the Department at the end of the field activities, except the documents needed for preparation of the Draft Final Report.

   Department of Agriculture also requested JICA to hand over the office equipment and vehicles procured for the Study to the Department.

   JICA answered that JICA will hand over the data and information, office equipment and vehicles based on the written request from the Department.

5. For implementation of a part of the Action Plan, Department of Agriculture expressed their strong intension to request JICA to provide technical cooperation project.

   In response to the above request, JICA answered that they will convey the request to the Japanese side concerned.

6. The Draft Final Report will be prepared in Japan by the Study Team. In this regard, additional comments and suggestions on the Progress Report III, if any, shall be sent to the JICA Study Team through the JICA India Office within 10 days.

Dr. P.C. KAPOOR
Principal Secretary
(Agriculture)
The State Government of H.P.
Shimla-5

Takashi SEKI
Team Leader
JICA Study Team for
Diversified Agriculture for
Enhanced Farm Income

Witness

Yumiko ASAKUMA
Senior Representative
JICA India Office

at: Conference Room, Secretariat, Shimla — October 4, 2008

| No. | Name | Organization & Position | |
|---|---|---|---|
| 1 | Dr. B.C. Bisht | Director Animal Husbandry | |
| 2 | B.D. Sharma | Director Cum Warden Fisheries | |
| 3 | D.R. BUSHEHRI | Advisor (Hq) | |
| 4 | H. R. Sharma | Joint Director Agri | |
| 5 | Dr. RANBIR SINGH | Scientist CSICHPKV-Palampur | |
| 6 | Dr Babal | HDO (HTM) Directorate of Horticulture | |
| 7 | Dr. J.C. Rana | Director (Agri.) | |
| 8 | Yumiko Asakawa | Dy. Res. Representative JICA | |
| 9 | Naduka Imamura D'Souza | Senior Programme Officer | |
| 10 | O.C. VERMA | MANAGING DIRECTOR HPSAMB | |
| 11 | ISHIZAKI YOSHIYUKI | JICA Study Team Member | |
| 12 | SHIMIZU KEISUKE | JICA Study Team Member | |
| 13 | CHELLASAMY MURUGABOOPATHI | JICA Study Team | |
| 14 | Kunita OKUWA | JICA Study Team | |
| 15 | Naoto MORIOKA | " | |
| 16 | PRIYA D DAS | JICA Study Team | |
| 17 | L. R. Tanwar | Under Secy (Agri.) | |
| 18 | Jai Dev Garg | SDE (Agri.) | |
| 19 | T. SEKI | JICA Team Member | |
| 20 | | | |
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# *Attachment-6*
# *Minutes of Meeting (M/M)*
# *on 5th Steering Committee Meeting*

# MINUTES OF MEETING
# ON
# DRAFT FINAL REPORT
# ON
# DIVERSIFIED AGRICULTURE FOR ENHANCED FARM INCOME IN THE STATE OF HIMACHAL PRADESH
# IN
# THE REPUBLIC OF INDIA

| | |
|---|---|
| 1. Date: | December 19, 2008 |
| 2. Time: | 3:00 pm to 4:40 pm |
| 3. Place: | Conference Room, Secretariat |
| 4. List of Participants: | Refer to Attachment |

In accordance with the Scope of Work for the Study on "Diversified Agriculture for Enhanced Farm Income in the State of Himachal Pradesh in the Republic of India" (the Study), the JICA Study Team officially submitted forty (40) copies of the Draft Final Report to Department of Agriculture.

The Steering Committee Meeting was convened under the chairmanship of the Principal Secretary (Agriculture). The Director of Agriculture briefed the participants about the background of the Study. Then, the Team Leader of the JICA Study Team presented and explained the contents of the Draft Final Report prepared in Japan, focusing on the Master Plan and Action Plan proposed by the Study Team.

The main points discussed on the Draft Final Report during the meeting are mentioned below.

1. The contents of the Draft Final Report are accepted in principle, since the counterpart and stakeholders were also involved in the preparation process during the course of the Study.

2. All the member of the Steering Committee are requested to send their comments, if any, to Department of Agriculture by December 30, 2008.

3. The Final Report will be prepared in Japan by the Study Team. In this regard, additional comments and suggestions on the Draft Final Report, if any, shall be sent to the Study Team through JICA India office by 1st week of January 2009 by the Department of Agriculture, H.P.

After discussion on the Draft Final Report, Mr. K. Ito, Director of Rural Development Department, JICA Headquarter, explained that New JICA is responsible both for Technical cooperation and Financial cooperation. And one Technical Cooperation Project requested by the State Government of the Himachal Pradesh has been taken by Japanese Government. Ms. M. Yamamoto, JICA Headquarter, explained about JICA Technical Cooperation Scheme, focusing on 1) Cooperation with respect to ownership, 2) Project cycle and 3) Project input.

In the concluding remarks, the Principal Secretary (Agriculture) and other stakeholder departments appreciated and agreed to the output of the JICA Study and expressed the thanks to JICA Headquarter, JICA India office and JICA Study Team.

Dr. P.C. KAPOOR
Principal Secretary
(Agriculture)
The State Government of H.P.
Shimla-5

Takashi SEKI
Team Leader,
JICA Study Team for
Diversified Agriculture for
Enhanced Farm Income

Witness

Kozo ITO
Director,
Rural Development Department
JICA Headquarter

# List of participants

State level Steering Committee (SLSC) under JICA development Study on "Diversified agriculture for Enhanced Farm Income in H.P." meeting on 19.12.2008 at 3PM under chairmanship of Principal Secretary (Agri) to the Govt. of H.P. in Armsdale building H.P. Secretariat, Shimla

| Sr No. | Name & Design | Signature |
|---|---|---|
| 1. | Ranbir Singh, Senior Technical Officer CSKHPKV-Palampur | |
| 2 | Dr. B. C. Bisht Director Animal Husbandry | |
| 3. | B. D. Sharma Director cum Warden Fisheries | |
| 4. | [illegible] DDA(P) | |
| 5. | J. C. Rana ~~DAHP~~ | |
| 6. | L. R. Tanwar Dy. Secy. (Agr. & Hort.) | |
| 7. | J. D. Garg SO (Agr. B) | |
| 8. | Director, HPSCOPERA Shimla | |
| 9. | S. T. Raghuraman CGM - NABARD | |
| 10. | Dr. Rajender Singh, GM, NABARD | |
| 11. | Dr. Vinod Kumar Dhama, SMS, Project cell DOA, Shimla | |
| 12 | O. C. Verma MD NABSAPCON | |
| 13 | Sachiko Imamura D'Souza Additional | |
| 14 | Minako YAMAMOTO JICA HQs Chief Administrative Officer | |
| 15 | Kozo Ito JICA HQ | |
| 16 | ISHIZAKI YOSHIYUKI JICA STUDY TEAM | |
| 17 | Kunita OKUWA JICA STUDY TEAM | |
| 18 | T. Seki " | |
| 19 | | |
| 20 | | |