

**Project Title:** Harmonizing biodiversity conservation and agricultural intensification through integration of plant, animal and fish genetic resources for livelihood security in fragile ecosystems

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**Harmonizing biodiversity conservation and agricultural intensification through integration of plant, animal and fish genetic resources for livelihood security in fragile ecosystems – NBPGR, New Delhi**

**Environmental and Social Safeguards Management in NAIP**

**Basic information**

**A) Project data**

Component Code : 3-SRLS  
Code of Proposal : 4373

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Consortium Partners :  
1. NBAGR, Karnal  
2. NBFGR, Lucknow  
3. CSKHPKV, Palampur  
4. MPUA&T, Udaipur  
5. ANGRAU, Hyderabad  
6. APSBDB, Hyderabad  
7. Seva Mandir, Udaipur

Proposed Date of Start : **1<sup>st</sup> April 2008**

Planned Duration : 4 years (till 31<sup>st</sup> March 2012)

Project cost : **889.86**

### **Project objectives:**

1. Assessment, documentation and valuation of on- farm agro-biodiversity for livelihood and food security.
2. Assessment of economic potential of target species vis-a vis cost and effect of conservation
3. Development of an information management system to facilitate planned intervention for conservation, sustainable utilization of targeted species/population and enhanced market access
4. Adding value to targeted species/population through technological interventions for enhancing rural livelihood security
5. Capacity building in agro-biodiversity management for livelihood security.

### **Brief project description:**

The proposal envisages addressing two major aspects of biodiversity management in traditional production systems integrating plant, animal and fishing genetic resources. The first component deals with the on-farm conservation research for identifying genetically important crop populations, animal breeds and fish resources and the farming systems that are priorities for conservation. The second component deals with assessing options for “adding value” to these populations or in other words, increasing the benefits that farmers get from cultivating diverse crop resources, maintaining animal breeds and managing fish resources in a given social, economic and ecological context. The project will be operative in a few selected villages of three districts, Chamba in Himachal Pradesh, Udaipur in Rajasthan and Adilabad in Andhra Pradesh.

The benefit enhancing options for farmers from local diversity shall be assessed for their genetic, ecological and economic impacts on farming systems to see if they do indeed fulfill the goal of maintaining high level of genetic diversity on-farm, as well as achieving the benefits of supporting agro ecosystem health and improving farmers’ livelihoods in different contexts. Such assessments are very important for developing of a national action plan for on-farm conservation of genetic diversity

### **Major innovations**

1. Identification of genetically important crop, animal and fish populations, and farming systems that are priorities for conservation in traditional production systems.
2. Investigating different options for “adding value” to these populations or increasing the benefits that farmers get from cultivating diverse crop landraces, maintaining different animal breeds and managing fish resources in a given social, economic and ecological context. It may be through:
  - Improving the material itself
  - Improved farmers’ access to genetic materials
  - Increasing consumer demand for products
3. Empowerment of farm communities through documentation, validation through characterization and registration of the extant varieties (Farmers’ varieties) together with genetic resources management support for benefit sharing and incentive for agriculture diversification using local resources, community seed banking, marketing etc.
4. Developing a replicable model for livelihood security (agro-biodiversity conservation and agricultural intensification) based on integrated farming system approach and policy support.

## B. Environmental Category: B

### Major issues in the sub project

- **Social:**

- A challenge undertaken by on-farm conservation research is to quantify the effects of social, cultural and economic factors on farmers' actions with regard to the maintenance of crop genetic diversity, animal breeds and fish resources.
- Understanding these relationships will provide insights into the conditions fostering landrace/animal breed conservation and better enable the design of formal *in situ* conservation strategies.
- Social research investigates how people group together in institutions and organizations for collective action. Cultural research focuses on the customs and values through which a society or group defines itself.
- Economics deals with the decisions people make regarding the allocation and use of resources, based on their market and non-market values.

- **Environmental:**

- Cultivation of local varieties linked with low input, or organic farming, can support farming systems through improving agro-ecosystem health and stability.
- Use of landraces adapted to local environmental conditions can improve soil structure and allow for decreased use of chemical inputs like fertilizers, pesticides and herbicides relative to widely adapted modern varieties.
- Cultivation of diverse varieties decreases agro-ecosystem vulnerability to pests and other environmental stresses.

### 3. Safeguard policies triggered (World Bank policies)

Safeguard Policies Triggered (World Bank Policies)		
	Yes	No
Environmental Assessment (OP/BP 4.01)	[ <input checked="" type="checkbox"/> ]	[ <input type="checkbox"/> ]
Natural Habitats (OP/BP 4.04)	[ <input checked="" type="checkbox"/> ]	[ <input type="checkbox"/> ]
Pest Management (OP 4.09)	[ <input checked="" type="checkbox"/> ]	[ <input type="checkbox"/> ]
Cultural Property (draft OP 4.11-OPN 11.03 -)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]
Involuntary Resettlement (OP/BP 4.12)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]
Indigenous Peoples (OD 4.20)	[ <input checked="" type="checkbox"/> ]	[ <input type="checkbox"/> ]
Forests (OP/BP 4.36)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]
Safety of Dams (OP/BP 4.37)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]
Projects in Disputed Areas (OP/BP 7.60)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]
Projects on International Waterways (OP/BP 7.50)	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]

( Measures to address these issues is given in 8(a) )

### 4. Risk analysis and related issues

There is no risk involved in undertaking the project activities. However, the issue of interface with the communities is also important to the subproject. Measures to address this issue is given in 8(b)

## **5. Impact assessment**

Once an option has been proposed for “adding value” to local diversity, it will be important to design a mechanism for monitoring its progress and assessing its impact. On-farm conservation research must develop indicators to assess the effects of any initiatives on genetic diversity over time, as well as evaluating the benefits to farmers’ livelihoods and agro-ecosystem health. Economic analysis is one tool for the assessment of one among many possible types of impact. Genetic diversity analysis is a tool to understand the loss or gain of genetic diversity within the system, while other measures are needed to understand the impact of intervention on ecosystem health and services. It is useful to begin by identifying the type of impact; we can select quantifiable indicators for assessment purposes. (Enclosure 1)

## **6. Potential indirect and/ or long-term impacts due to anticipated future activities in the project areas (assessment of anticipated conflict/ complimentary with the current as well as those proposed for the next five years in the areas of activities of the sub-project):**

It is useful to begin by identifying the type of impact of any “adding value” options; we can select quantifiable indicators for assessment purposes. For example, we may conclude that Option A fails miserably in terms of economic indicators of efficiency, ranks better in terms of equity, has an indeterminate effect on ecosystem health, but is likely to have a major impact on genetic diversity. By comparing Option A with Option B, we can learn the nature of the social trade-offs that occur when we pursue one option versus another in the target area. We can generalize across target areas and options, looking for patterns associated with genetic diversity and market development.

## **7. Identify the key stakeholders and describe mechanisms for consultation with and to them done/ disclosure so far done including pre-project consultations with stake holders workshop before formulating the full proposal, discussing the full proposal with some stakeholders before submission to the PIU:**

Initially we had a preliminary discussion with the National Director, NAIP and the National Coordinator (Component 3) NAIP. The lead institute subsequently organized a meeting of the Directors of three Bureaux (NBPGR, NBAGR and NBFGR) and the Vice- Chancellors of concerned SAUs were contacted. The NBPGR identified the team of scientists from three Bureaux. The team met periodically and developed the concept note. It was followed by discussions with National Director and National Coordinator, NAIP. The CPI participated in the interaction workshops at Hyderabad (28<sup>th</sup> November 2007) and with DG, ICAR and NAIP officials at New Delhi on 28<sup>th</sup> December 2007.

Following the above discussions, a working group constituted by the Director NBPGR (lead institute) who drafted the proposal. It was followed by the stakeholders’ workshop on 7-8<sup>th</sup> January 2008 wherein the project activities were finalized. The draft proposal was again sent to respective partners for modification/correction, if any. The opinion of experts were also taken for refinement of the project activities. The final proposal was discussed with NAIP. On incorporating the required suggestions the project has been submitted to PIU- NAIP for consideration and approval.

## **8 Measures to address issues**

### **8(a)**

i. **Environment-** The very purpose of the sub project is to sustainably improve the biodiversity conservation and cultivation of local genetic diversity in the target areas. The screening of environmental issues has been done to include possible impacts and appropriate mitigation measures are proposed (enclosure I)

ii. **Pest management** – Encouraging the use of Integrated pest management practices will discourage the use of chemical pesticides. This will provide advantage of environment and health security to the farmers. Field demonstrations and training of farmers on IPM and INM are integral part of the subproject.

### iii. **Indigenous people**

- In three districts, which have tribal population, interventions related to local trait specific germplasm of crops, animals. and fish would strengthen the indigenous practices with the involvement of the community
- Since the project details with the biodiversity conservation and agricultural intensification through integration of plant, animal and fish genetic resources. The interventions related to biodiversity conservation as explained in the project will help in conserving the bio resources of plant, animal and fish genetic resources.
- The interventions for agricultural intensification will also add to the value of biodiversity and livelihood security of the community.

### **8(b)**

#### i. **Interface with the communities**

The selection of beneficiaries will be made through involvement of local institutions and communities; preference will be given to a willing partner. The selection of the families would have proportionate representation from the following groups:

- a. Small, marginal and landless farmers
- b. Women
- c. SC and ST group

**Subproject implementation plan** would be prepared and agreed with the communities and displayed. Participatory approach and transparency in the implementation would be maintained.

**Gender issues** would be adequately addressed

**9. Consultation/disclosures to be done in future:**

Local disclosure through mechanisms such as launch workshop, interfaces during the implementation stage of the sub-project for sharing the results and soliciting feedback, circulating project brochures and implementation progress from time to time, putting up annual reports on the website and annual stakeholder workshops wherever feasible. All means of affective local communication will be ensured need based stakeholders workshop will be organized at the cluster level and all events of the project implementation and the results thereof will be put on the website.

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**Consortium PI**

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**National Coordinator**

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**National Director**

**Safeguards Template for NAIP Projects**

**A: Environmental safeguard: Activities, Issues, Impact and Mitigation Measures**

Table 1: Environmental safeguard: Activities, Issues, Impact and Mitigation Measures

Activities <sup>1</sup>	Issues <sup>2</sup>	Anticipated level of impacts <sup>3</sup>		Mitigation measures (negative impact) <sup>4</sup>
		Positive	Negative	
Survey inventorization, characterization and conservation of plant, animal and fish genetic resources	Enhanced bio diversity conservation through change in farming system pattern; improve nutrient status of soil	(3)	-	-
	The use of indigenous bio diversity will attract less pest and pathogen	(2)		
	Control of pest and pathogen		(1)	Use of INM and IPM practices. Field demonstration and farmers training on INM & IPM are an integral part of the sub project
Improvement in biodiversity through farmers participants	Enhanced conservation and integration of local improved agro-biodiversity components	(3)	-	
Use of local trait specific crop landraces, animal breeds and fish for increased productivity	Improved human health through food chain of nutrient rich bio diversity	(3)	-	-
Promotion of rainwater harvesting structures and vermi composting	Increase availability of water for agriculture, animal and fish and improved soil fertility.	(4)	-	-

## B. Social Safeguards: Activities, Issues, Impact and Mitigation Measures

Table 2: Social safeguard: Activities, Issues, Impact and Mitigation Measures

Activities <sup>1</sup>	Issues <sup>2</sup>	Anticipated level of impacts <sup>3</sup>		Mitigation measures (negative impact) <sup>4</sup>
		Positive	Negative	
Survey inventorization, characterization and conservation of plant, animal and fish genetic resources	Conservation and use of genetic biodiversity will improve income, nutritional security and employment through	(2)		After diversity assessment the conservation methods will be suggested.
Improvement in biodiversity through farmers participants	Increased farmers participation particularly women will help in bio diversity conservation and use	(3)		
	• Unequal access to input	-	(3)	Measures be employed to ensure availability of quality planting material & other inputs to all
	• Employment generation	(3)	-	-
	Effective conservation and use of local bio diversity		(1)	Awareness generation on conservation and use of improved plant, animal and fish genetic resources through diversity fares, breed show, aquaculture demonstration and need based trainings
Crop diversification, value addition and marketing.	Employment of farm labour, increased income and change in occupational pattern Food and nutritional security	(3)		
	Marketing of value added products		(1)	The issue of marketing will be addressed through involvement of SHG and cooperatives linking to major markets in the area
	Effect on community ownership on natural resources and intellectual property will be addressed as per National Laws	(4)	-	-