Template for Environmental and Social Safeguards Management in NAIP

Project Title: Unraveling molecular processes involved in adventive polyembryony towards genetic engineering for fixation of heterosis

1**. Basic Information**
A. Project Data
Project Statistics:
Total Cost: Rs.669.89 Lakh
Duration: Four years and ten months
Location: New Delhi, Anand and Palampur

- **Consortium Leader :** NRC on Plant Biotechnology, Pusa Campus, New Delhi
- **Consortium Partners :** National Research Centre on Medicinal and Aromatic Plants, Anand
  : National Bureau of Plant Genetic Resources, New Delhi
  : Institute of Himalayan Bioresources and Technology, Palampur

- **Consortium PI:** Dr. S.R. Bhat
- **Consortium Partners:** Dr. K. A. Geetha
  Dr. S. K. Malik
  Dr. Y. Sreenivasulu

Project Objective:

- Identification and characterization of nuclear tissue-specific genes and and promoters of Arabidopsis.
- Confirmatory survey of citrus to identify plants whowing mono-or polyembryony.
- Survey of guggual to identify plants reproducing through apomictic or sexual pathways.
- Identification of molecular markers associated with polyembryony in citurs and guggul.
- Induction of polyembryony by nucellar specific expression of candidate genes.

Brief project Description

The project envisages identification and cloning of genes and promoters involved in embryo development so that the same could be used for transgenic manipulation for the production of asexual seeds. The ultimate goal of the project is to produce hybrid varieties which could be propagated through seeds.

B. Environmental Category:

2. Major issues in the subproject

- Social
- Environmental

3. **Safeguard Policies Triggered (Word Bank Plicies)**

Safeguard Polices Triggered (World Bank Policies)		
	Yes	No
Environmental Assessment (OP/BP 4.01)	[ ]	[X]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (Op 4.09)	[ ]	[X]
Cultural Property (draft OP 4.11-OPN 11.3-)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Indigenous Peoples (OD 4.20)	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP 7.60)	[ ]	[X]
Project on International Waterways (OP/BP 7.50)	[ ]	[X]

4. Rick related issues (not covered under3 above that perceived to be important in the sub-project) – Nil
5. Impact Assessment 9Annexure-1 and II)
6. Potential indirect and/or long-term impacts due to anticipated future activities in the project areas (Assessment of conflict/complimentarity with the likely anticipated activites current as well as proposed in the next five years) Nil
7. Identify the stakeholders and describe mechanisms for fonsultationi/disclosure so far done (Widely sharing the documents on the subproject, other mechanisms to get a buy –in with the stakeholders including the farmers). Not Applicable
8. Consultation/disclosures in future (Local disclosure through mechanisms such as launch workshop, interfaces during the implementation stage of the sub-project for sharing the result of the soliciting the feedback) A workshop of stakeholders is proposed during the third year.

CPI	**NC, NAIP**	**ND (NAIP)**
Dr. S.R. Bhat	**Dr. A. Bandyopadhyay**	**Dr. Mruthyunjaya**

Table 1:Environmental Safeguard : Activities, Issues, Impact and Measures

Activites[1]	**Issues**[2]	**Anticipated level of Impacts**[3]		**Mitigation Measures (Negative Impact)** [4]
		Positive	Negative	
Use of high yielding varieties	Effect on Agro-biodiversity	Positive		

B. Social Safeguard : Activities, Issues, Impact and mitigation Measures

Activities	**Issues**	**Anticipated Level of Impacts**		**Mitigation measures (Negative Impact)**
		Positive	**Negative**	
Development of hybrids	Availability of quality seeds	Positive	-	-