

Social, Cultural, and Economic Considerations in Participatory Rice Varietal Selection



Participatory varietal selection (PVS) was used in CGIAR Challenge Program on Water and Food (CPWF) work in India for selecting rice varieties for salinity affected areas. The first step in PVS is identifying farmers' needs within their agro-ecological and socio-cultural environments. In Asia, understanding the socio-cultural diversity is crucial in accelerating adoption of improved varieties in stressed environments. It is thus, important to include social considerations—i.e.,

ethnicity, religion, social class/caste and gender in PVS. Gender is one of the most important socio-economic factors that delineate roles, tasks, responsibilities and needs among farmers. Men and women have different roles and varying perceptions and needs. These social considerations also involve issues of equity and community empowerment. Involving women and empowering communities are central to the PVS concept and protocol.

Factors that determine adoption

- a. **Livelihood needs.** Different varieties fulfill different livelihood functions and can provide food, livestock, fodder, thatching or cash.
- b. **Socio-economic status of farmers.** Farmers choose different grain types according to their socio-economic status and degree of market integration.
- c. **Gender-specific roles.** Rice production involves gender-specific roles and, based on these roles, men and women have different criteria for varietal adoption.

Methods for mainstreaming socio-cultural and economic dimensions in PVS

The participatory rice varietal improvement process has several stages that involve farmers and the community (Fig. 1). Each of the methods and tools in integrating social, economic and cultural aspects of varietal selection is discussed briefly in this article.

Stage 1: Set breeding goals.

1. **Social and gender analysis.** Social analysis requires information on social activities and culture (way of life, which includes language, arts and sciences, thought, spirituality and

interactions), while gender analysis deals with roles or domains of men and women as they interact in agricultural activities. This tool is partly incorporated in participatory rural appraisals (PRA), baseline surveys and other methods of data collection.

2. **Participatory rural appraisal.** This is a general methodology for development research, planning, monitoring and evaluation. It presents the link between technical (or biophysical) and socio-economic information

The following questions are central to gender analysis:

- a. **Who does what, when and where?**
This covers crop-specific and livestock activities and operations, farm enterprises and off-farm, nonfarm and household maintenance activities that compete with or complement other tasks. Also included are crop production management and postharvest of seeds, root crops, tuber crops, other commodities, and livestock.
- b. **Who has access to or control over the resources? Access means that resources may be available but there are no choices related to the timing or amount of use or there are conditions attached. Control means having decision-making authority concerning a resource.**
- c. **Who benefits from each crop enterprise? What are the incentives and disincentives for managing or for making changes to them? The question of who benefits from these is closely related to roles and responsibilities, equity, and issues of access and control.**

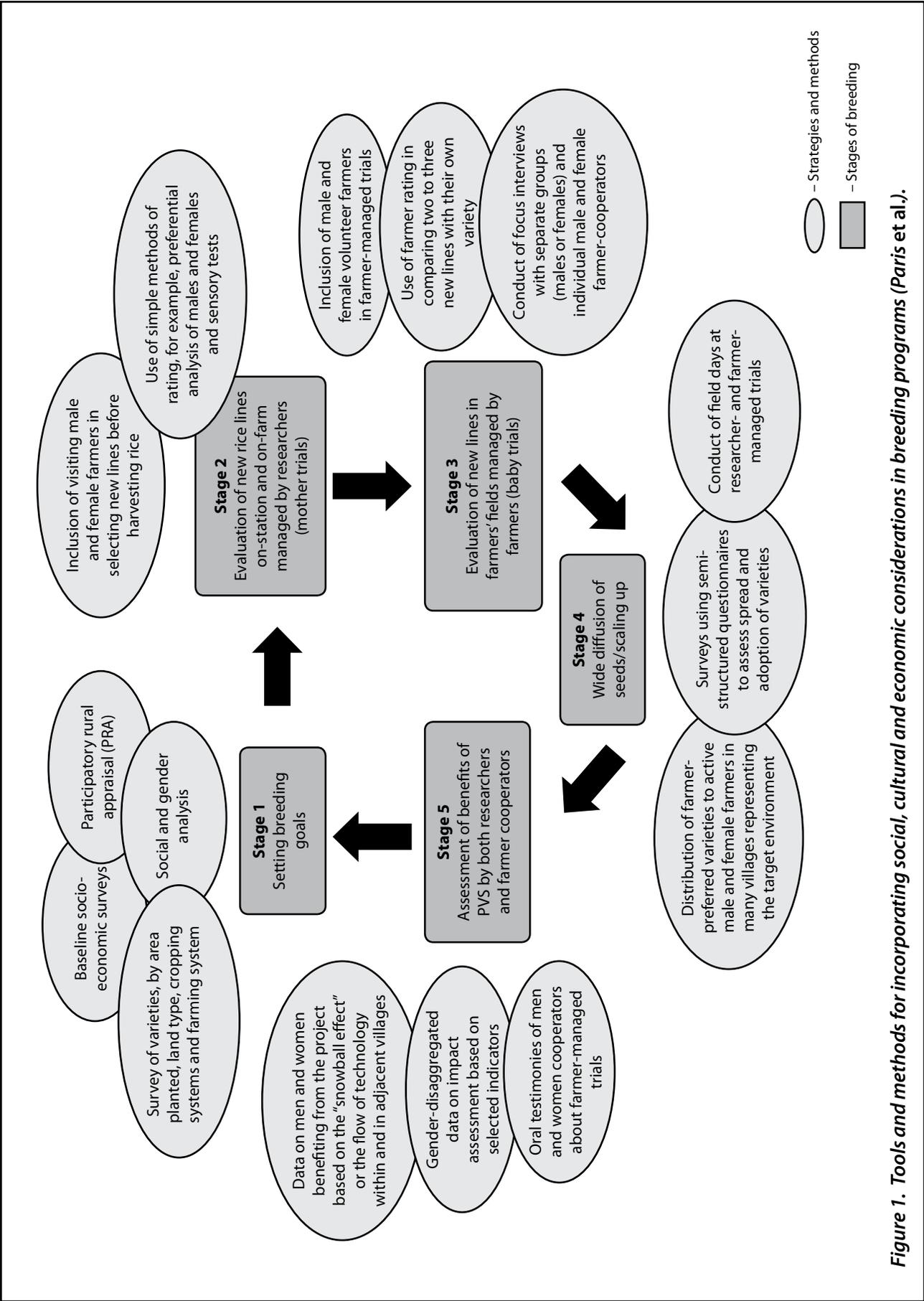


Figure 1. Tools and methods for incorporating social, cultural and economic considerations in breeding programs (Paris et al.).

to form the basis for the community's and the stakeholders' identification and prioritization of alternatives or courses of action.

The following PRA principles should be considered when identifying a good combination of tools and methods to use:

- a. Reversal of learning by gaining physical, technical and social knowledge from rural people directly, on-site, and personally.
- b. Learning rapidly and progressively with conscious exploration, flexible use of methods, iteration and cross-checking and adaptability in the learning process.
- c. Offsetting biases by being relaxed, by listening and by being unimposing (instead of feeling important) and seeking out poor people and women to discuss their concerns.
- d. Facilitating investigation, analysis, presentation and learning among rural people themselves so that they present, own and learn from the outcomes.
- e. Self-critical awareness and responsibility, meaning that facilitators are continuously examining behavior to do better and accepting personal responsibility rather than vesting it in a manual or a rigid set of rules.
- f. Sharing of information and ideas between rural people, between them and facilitators and between facilitators.

Probing questions

The following methods are used to better understand the phenomenon in an agricultural setting, particularly the social aspects for which people are the participants. The results contribute

to a deeper understanding of the experience from the perspective of those concerned.

- a. **Focus group discussions.** It is a rapid assessment and semi-structured data collection method in which a purposively selected set of participants or social groups gather to discuss concerns based on a list of key themes that the researcher/facilitator has drawn up.
- b. **Semi-structured questionnaires.** This is a simple process of talking with individuals, families or groups to discuss a specific topic in an informal setting. The information that needs to be collected is predetermined by the team and only an interview guide is developed and not a complete questionnaire.
- c. **Use of probing questions.** This means getting additional information and dealing with a topic or idea more deeply and logically, especially with complex and controversial issues that need further discussion and clarification.
- d. **Use of selected PRA tools and methods.**

In characterizing the village, four additional major groups of PRA tools and methods will be used. The PVS protocol aims to (1) characterize biophysical and socio-economic conditions at target sites; (2) determine seasonality (climate, cropping pattern and calendar) and characterization of stress in rice farming (nature, timing, intensity and depth); (3) identify problems related to rice farming in target areas using a causal link approach such as the problem tree analysis; (4) analyze physical resources, human resources, institutional linkages and technology, information, and input delivery systems at target sites; and (5) integrate and analyze all the information collected as basis for identifying interventions. Table 1 shows some of the most important PRA tools and methods that can be used for Stage 1 of the PVS protocol. These are mainly used

in the preparation of village descriptors and baseline information.

3. **Baseline socio-economic survey.** The baseline survey provides data to gain a better understanding of socio-economic conditions that affect flow of technologies and information and the driving forces behind current conditions in the community.
4. **Key informant surveys (KIS).** Additional information can be collected by conducting a survey with a small group of key informants. An alternative method is through focus group discussions on specific topics.

Stage 2: Researcher-managed evaluation of new rice lines on-station and on-farm (mother trials)

- ◆ **Inclusion of visiting male and female farmers in selecting new lines before harvesting of rice.** All forms or information to be collected should be gender-disaggregated to ensure that both men and women participate and are consulted when selecting new lines for the researcher-managed trials before harvest.
- ◆ **Use of simple voting methods to identify the two most preferred and two least preferred lines in the preferential analysis performed by male and female farmers.** It is suggested that at least 30% of the participants be female to allow the collection of reliable information that can be subjected to both qualitative and quantitative analysis of data and information. The design of the preferential analysis and sensory tests already incorporates the disaggregation of data for male and female cooperators/participants.

PROBING QUESTIONS

- ◆ **What qualities do consumers look for? What is the market price of this compared with a certain variety?**
- ◆ **Why do farm laborers prefer this?**
- ◆ **What is maturity period? Why do you like short/medium/long duration?**
- ◆ **Why is it easier to grow? How is it compared with that variety?**
- ◆ **How does this variety fit into the cropping system?**

Stage 3: Farmer-managed evaluation of new lines in farmers' fields (baby trials)

- ◆ **Inclusion of male and female volunteer farmers in farmer-managed trials.** The baby trials involve the participation of men and women in the growing, testing and selection of new rice lines in farmer-managed trials under their own farm conditions.
- ◆ **Use of farmer ratings in comparing two to three new lines with their own variety.** PVS makes use of farmer ratings in comparing two to three new lines with their local/traditional variety.
- ◆ **Conduct of focus interviews with separate groups (males or females) and individual male and female farmers.** The baby trials should contain a group discussion on the performance of the varieties and farmers should be asked to talk about the good and bad (positive

and negative) characteristics of the varieties. These ratings and the information about trial conditions should be recorded in a form that clearly summarizes farmers' opinions and preferences. Separate focus interviews can be done for male and female farmer-cooperators.

Stage 4: Wide diffusion of seeds/scaling up

- ◆ **Distribution of farmer-preferred varieties to active male and female farmers in villages that represent the target environment.**

Some PRA tools and methods			
Objective	Specific tools	Rationale for use	Output
1. Characterize the biophysical and socio-economic conditions of the site	a. Village transect/ transect walk	To collect information on biophysical and social conditions of farming communities and how these factors can support or constrain technology adoption	Transects that show land types, irrigation facilities and areas affected by submergence and other stresses
	b. Resource and social mapping		Resource and social maps of the village
2. Define the cropping pattern and determine the characteristics of the abiotic stress (submergence problem)	a. Seasonal calendar (climate, cropping pattern and period when rice is sufficient and scarce)	To understand the importance of rice and how this is affected by submergence and other stresses	A monthly calendar showing the cropping patterns and the nature, timing, depth, intensity, and days when submergence and other stresses occur. It shows the months when rice supply is sufficient or scarce.
	b. Trend analysis		A trend diagram showing the incidence of submergence in the last 5 years
3. Analyze the submergence problem in the farming community, its primary and secondary causes, and its effect on rice yield	Problem tree analysis-causal effect link approach	To understand farmers' perception of the problem, its causes, and effects (extent of loss) on rice yield	A diagram showing biophysical, socio-economic, and institutional causes of the submergence problem, and the effects of such stress on the various aspects of life in the community. The resulting chart will serve as a basis for identifying intervention points for research and extension.
4. Identify resources, social capital, communication, and seed delivery system (including flow of information)	a. Venn diagrams showing the relative importance and roles of each actor (relative importance reflected by size of Venn diagrams).	To understand the relative importance of each actor in the extension and communication delivery system	Schematic and Venn diagrams showing the interlinkages between actors involved in the extension and communication delivery system
	b. Schematic diagram of the seed delivery system, including the flow of information.		Schematic diagram showing the flow of seed delivery; room for improvement identified

Technology improvements should include the development of varieties based on preferences and the impacts on male and female farmers. The project should ensure that the number of women and men involved is proportional to how they are already involved in their respective activities.

- ◆ **Survey using a semistructured questionnaire for the “snowball effect” to assess the spread and adoption of varieties.** Snowball sampling uses an informant as a source for locating other people from whom data can be generated (in this case, the spread of technology or variety), who then can refer the researcher to other people, and so on.
- ◆ **Conduct of field days at researcher- and farmer-managed trials.** For both the researcher-managed PVS and the farmer-managed PVS, male and female farmers should be invited and given equal opportunity to participate, be heard, and take part in the decision-making process. This eliminates any

social barriers against women and enables their interaction with male development/extension workers and other stakeholders.

Stage 5: Assessment of PVS benefits by both researchers and farmer-cooperators

- ◆ **Oral testimonies of men and women cooperators about farmer-managed trials.** It will assess initial benefits accruing to direct beneficiaries of the project, which can be gathered and presented in a simple case study, a feature article or an information clip.
- ◆ **Data on women benefiting from the project based on the “snowball effect” or the flow of technology within or in adjacent villages.** It can include the assessment of communication flow within the community that would give equal access to and control of information to both men and women.





- ◆ **Gender-disaggregated data on impact assessment based on selected indicators.** The impact assessment to be conducted should have, when possible, gender disaggregation of data and information.

Outcomes of social and gender analysis in rice varietal improvement

- ◆ Clearer understanding among plant breeders of farmers' selection criteria. These would be considered in formulating breeding objectives.
- ◆ Poor women included as visiting farmers in evaluating the performance of new lines in researcher-managed trials (mother-trial design).
- ◆ Farmers are exposed to many varieties or new lines and have many to choose from.
- ◆ Active poor women farmers included as project cooperators in farmer-managed trials.
- ◆ Both men and women farmer-cooperators able to make more objective evaluation of new genotypes using their resources.

- ◆ Farmers' rights promoted.
- ◆ Faster uptake of new varieties in rainfed areas.
- ◆ Men and women have better access to seeds and new knowledge.
- ◆ Varieties approved from PVS by formal release systems, which consider both yields and other traits for poor and subsistence farmers.
- ◆ Men and women farmers, rather than breeders, making the final decision to accept or reject new varieties.
- ◆ Women's empowerment enhanced.

Factors that influence women empowerment have considerable differences in terms of

1. economic status (poor, wealthy, small, marginal or large farming households);
2. social group (lower and upper caste);
3. ethnic group;
4. access to land (farming, landless);
5. production system (rainfed lowland, upland); and
6. type of market integration (subsistence, commercial).



Contact Persons

Thelma Paris (t.paris@irri.org), Digna Manzanilla, Gerlie Tatlonghari, Romeo Labios, Amelia Cueno, Donald Villanueva

Partner Organization

International Rice Research Institute

Key Reference

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