Planning Agricultural Research: A Sourcebook

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Participatory Rural Appraisal

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There has been an explosion recently of methods to enable farmers to express, present, and analyze their knowledge and to share this with scientists and extensionists. Many of the methods evolved from agroecosystem analysis and entail farmers making observations, maps, and diagrams. These are now described as "participatory rural appraisal" (PRA) methods. PRA is an extended process of appraisal and analysis that can lead to local action by a community or group. Crucial to the successful use of these methods are the attitudes and behavior of the facilitator. PRA is particularly useful in fostering interaction with resource-poor farmers.

What is participatory rural appraisal?

Participatory rural appraisal (PRA) is a method used by researchers who want to plan their work in close collaboration with a rural community. PRA is a process of appraisal and analysis that may lead to local action by a community or group, such as the establishment of farmer-planned and designed experiments. PRA not only improves researchers' information on farming constraints; it also improves interaction and exchange of ideas between rural communities and researchers. Moreover, the logical conclusion of a PRA process is the joint planning of research projects or experiments (see also Sperling and Ashby, this volume). The PRA tool kit is diverse and growing. It combines instruments for information sharing with tools for collective decision making and planning.

PRA does not necessarily or exclusively lead to joint planning and execution of research projects. While undertaking a PRA, problems may emerge that need to be investigated at experiment stations or in the laboratory. But for those problems that can be handled within the rural locality, research plans are drawn up together with farmers. Participation of farmers in planning and executing research tends to increase the relevance of results and the likelihood of achieving outcomes that can be applied in the rural context. PRA is especially useful when research is aimed to help resource-poor farmers who work under severe financial and ecological constraints.

An approach closely related to PRA is rapid rural appraisal (RRA). Both offer creative means of information sharing and challenge prevailing biases and pre-

conceptions about rural peoples' knowledge. Whereas RRA is a more extractive, eliciting approach in which the main objective is data collection by outsiders, PRA recognizes that besides producing timely and relevant knowledge, rural people should have control over the use of information that they provided or helped to collect (Waithaka 1998).

Doing participatory rural appraisal

There are no strict rules for doing PRA. There are four points, however, that should be kept in mind: choice and sequencing of methods, selection of farmers, triangulation of data, and behavior and attitudes of facilitators.

Choice and sequencing of methods

An extensive range of PRA methods is available, including older techniques like joint observation, farm walks, transect walks, semistructured interviews, and discussion in focus groups of farmers. Newer, visual methods have proved powerful for the presentation, analysis and discussion of complex farming realities. These can complement some of the older methods. Visualization often entails drawing and diagramming on the ground or on paper with sticks, chalk, powders, or pens. Or it may involve sorting items, cards, or symbols and scoring and estimating using local materials such as stones, seeds, and lengths of sticks or straws. These enable detailed and sophisticated analysis, often at a level impossible to achieve through discussion alone. Visualization makes it easy for farmers to add to and modify information, progressively elaborating on the knowledge shared. Visualization, furthermore, encourages wide participation by enabling less confident and illiterate community members to express their views visually. To express farmers' reality in all of its complexity, PRA methods may combine various dimensions (table 1).

Of the rich diversity of methods available, some have proved especially fitting for encouraging interaction between farmers and agricultural scientists (see table 2). PRA methods can be used in conjunction with traditional research

Table 1. Dimension and Methods of PRA

Dimension	Methods
Spatial	mapping and modeling
Nominal	collecting, naming, listing
Temporal	sequencing over days, seasons, or years
Ordinal	sorting into types, ranking
Numerical	counting, estimating, scoring
Relational	linking to show flows and connections

Table 2. Tested Methods for Use by Farmers and Scientists and Examples of Applications

PRA Method	Examples of Applications
Seasonal calendars	examine seasonal patterns in the incidence of animal or crop pests and diseases, rainfall, household expenditure, or farm labor
Venn diagramming	reveal the importance, relevance, and involvement of local and external institutions in addressing agricultural issues; examine sources of new agricultural ideas and information and determine partners for work
Timelines and trends	enable analysis of change over time, such as in crop varieties grown, extent of soil erosion, occurrence of drought, herd numbers, diet
Matrix scoring	examine peoples' own criteria for choosing among options such as crop varieties, soil fertility measures taken, and characteristics of a good irrigation system; indicate the severity of problems such as animal disease
Resource and agroecological zone mapping	map areas sharing similar characteristics in terms of soil types, crops grown and rotations, and land access and tenure
Causal and impact diagramming	show flows, causal relationships or other connections, such as expected impact of an irrigation system or the causes of soil erosion
Farm mapping and flow diagramming	map individual farm plots and their location in relation to each other; examine different soil management practices according to distance from the homestead, crops grown, and rotations; examine nutrient flows within the farm system or the division of labor at the households level
Transect walks	learn about the locality, crops and trees grown, soil types, and amount of fallow land
Farm type sorting, wealth and well-being ranking	learn the ways in which people differ with regard to wealth or well-being and gain a quick understanding of relative socioeconomic status and households' and the community's definitions of wealth; assist in identifying key informants for other PRA exercises

methods: the way in which each complements the other is increasingly recognized (Abbot 1997). For example, farmers and scientists can use agroecosystem and farm mapping to identify locations where soil samples should be taken (Turton et al. 1997) or to find particular types of farmers to be interviewed.

Flexibility is key in selection and use of PRA techniques. Methods should be developed and evolve to meet particular circumstances. Mistakes in method selection should not be seen as failure. Rather, they are trial-and-error learning opportunities from which subsequent exercises can be refined. As such, new forms and combinations of methods are continually being devised. Among the many ways in which information is expressed are maps, models, matrices, pie dia-

grams, card piles, lists; ranks, scores, histograms, and graphs, as well as spider, causal, linkage, and Venn diagrams.

There seems no limit to visual and diagramming inventiveness. For example, mapping has now been modified and adapted beyond village-scale mapping to include, cascade mapping of irrigation systems spanning many villages and catchment-level mapping for understanding soil and water conservation issues. At the other end of the scale, body mapping of animals has been invented to investigate farmers' perceptions of pests and diseases affecting livestock and their remedies. Other innovations include mobility mapping, to investigate where people go for particular resources or to obtain new agricultural ideas.

As with the choice of methods, no blueprint exists for the order in which PRA exercises should be done. PRA frequently begins with mapping or timelines, as these impart general information about an area. Then it might be appropriate to move on to methods such as Venn diagramming or matrix scoring. However, local circumstances should be considered in choosing methods. For example, mapping may not be appropriate in sensitive areas such as those adjacent to protected areas or where there are or have been boundary disputes. While it is useful to start with a plan, it is equally important to be flexible to enable methods to flow from one to another according to information arising at each stage. This approach has the further advantage of enabling practitioners to avoid becoming too mechanical in the process (for an example of sequencing, see Turton et al. 1997).

Which farmers

Farmers' perceptions, daily realities, needs, priorities, and opportunities will vary according to many factors. Some of the most significant are one or a combination of gender, wealth, age, and ethnicity. Hence, it is always important to know which farmers are involved in PRA exercises. The tendency for them to be men rather than women, and better-off rather than poorer, needs to be resolutely countered in order to gain a balanced view. However, it is also important to avoid making assumptions about different groups and creating artificial groupings according to presumed differences. The differences that affect people's livelihoods in the communities in question are the ones that should be examined (Cornwall 1998). Methods such as farm sortings and wealth and well-being rankings can be used to help identify these categories.

Some exercises are best conducted in groups and others with individuals. Groups tend to be good in exploring general issues and are often most useful at the start of the research process, although their input may also be valuable at decision-making stages when it is important for all stakeholders to be involved. In some instances, PRA exercises might need to be done with different groups, such as men's and women's groups, simultaneously. Each group can then pres-

ent its results to the others, stimulating debate and enhancing understanding. PRA conducted at the individual or household level may be appropriate for exploring specific issues, or those of a sensitive nature.

Triangulation of data

While PRA stresses the magnitude and complexity of local peoples' knowledge such knowledge should not be accepted at face value. Factors such as farmers' past experiences with researchers, the prevailing development rhetoric, government policy, and expectations of the organizations involved all influence local people' perceptions (see Christoplos 1995, Lindblade 1997). Moreover, researchers themselves have biases and the potential exists for misinterpreting PRA results. For example, in Kabale, Uganda, during historical mapping exercises, local people reported that peas were no longer grown owing to soil infertility; yet peas were observed growing on a considerable number of plots during transects. The reality was that peas were no longer cropped alone as they had been in the past (Lindblade 1997). Rather than being a weakness of the approach, discrepancy and contradictions enable the PRA team to learn more about the issue under study. Discrepancies should be seen as opportunities to learn further rather than as errors to be glossed over or ignored. In such cases, the PRA team should return to the sources of any apparently contradictory information and probe further (Nabasa 1995).

Triangulation or cross-checking of data is an important but often forgotten component of participatory work and can take various forms. The use of multidisciplinary teams, using the same methods but with different informants, and investigating the same theme using different research methods can all help determine the validity of data collected.

Behavior and attitudes

In PRA, the behavior and attitudes of outsiders – scientists or extensionists in the case of agriculture – have proved more important than the methods used. Outsiders come as facilitators, not teachers. When outsiders dominate, farmers are inhibited or reflect back what was said. To empower farmers to freely reflect, present, and analyze, the outsider has to learn to be low key – to initiate a process and then sit down and keep quiet for much of the time, to listen and watch. These behaviors do not come easily to scientists and extensionists who are energetic, enthusiastic, and knowledgeable. Their normal behavior has to be unlearned and new, less forceful, lower profile behavior and attitudes adopted. Only then can PRA methods be well facilitated and their potential realized. A number of tips can assist in PRA's application:

- Have a team contract. Agree among yourselves who will be the main facilitator and that others will not interrupt.

- Take time to develop rapport. Explain who you are, why you have come, and what farmers can and cannot expect from your visit. If they can expect nothing, make that very clear. Unless they are very busy, farmers are usually willing to take part and will find the activities interesting.
- Relax, do not rush. Allow more time than you expect you will need.
- Hand over the stick. That means pass the initiative to farmers. Do not do anything for them (e.g., counting out seeds or drawing a matrix) that they can do for themselves. Show confidence that farmers can use PRA methods.
- Remember that the key output is not the matrix, map, or other end product, but rather the discussion and analysis among farmers that led to the product's development.
- Keep quiet. Do not interrupt, criticize, or put forward your own ideas or knowledge until the end. This is extremely difficult. But the more researchers share their knowledge, the more farmers will defer to them and more difficult it is for them to express their own thoughts.
- Interview the map or diagram once it has been completed. There is often much to be gained from discussing it. It provides an agenda. Farmers are usually very willing to explain what they have shown and why.
- Do not "convert" local classifications and terminology into "scientific" terms, as this may undermine local knowledge. Try instead to learn as much as possible from the criteria used for local classifications.
- Remember that the information generated belongs to the farmers involved. Discuss how it is to be used and what records should be kept where. If results are to be published, request permission from the farmers and give due acknowledgment.

Relevance for agricultural research

PRA arose from concerns about the quality of data collected using traditional questionnaire surveys. Much relevant information falls outside the scope of such questionnaires. That which is not accommodated is usually ignored. One strength of PRA is that it enables researchers to take local priorities into account in their research by enabling expression of local complexity. Results gleaned using conventional research methods are often quite different from those generated using PRA. For this reason, farmer participatory approaches are increasingly being adopted to pinpoint researchable issues and develop on-farm research plans for the selection and breeding of crop varieties and for other types of agricultural research (Witcombe 1996).

PRA methods have frequently revealed considerable differences between farmers and researchers in the criteria they use to select and adopt new technologies. For example, in India when a matrix scoring of wheat varieties was done separately by a researcher and farmers, the researcher selected seed primarily

based on characteristics of high yield and resistance to insects and pests. Farmers placed importance on a whole other range of factors. Seed that did not shatter was more important to farmers than resistance to insects and pests, yet this characteristic did not even feature on the researcher's list of criteria. Implications for research planning obviously are great.

PRA techniques are most commonly used in the initial stages of the agricultural research process in problem identification and analysis and in exploration of possible solutions. Yet PRA methods can be used at all stages in agricultural research, by farmers and researchers, including in the planning and design stage of experiments and in the monitoring and evaluation of both on-farm and on-station trials. Through participatory processes, scientists boost the own-initiated research in which farmers are already involved as well as supporting the work of local institutions. PRA thus facilitates the development of research plans that are linked to the overall development requirements of rural localities.

Example

In a study covering 13 villages in Nepal, a variety of PRA and more conventional research methods were used by a multidisciplinary team of researchers from a government research organization. The aim was to explore the complex issue of soil fertility in the hills of Nepal. The sequence of methods used for initial problem definition and analysis is shown in figure 1. Use of conventional surveys in parallel with participatory approaches was found to be one way to

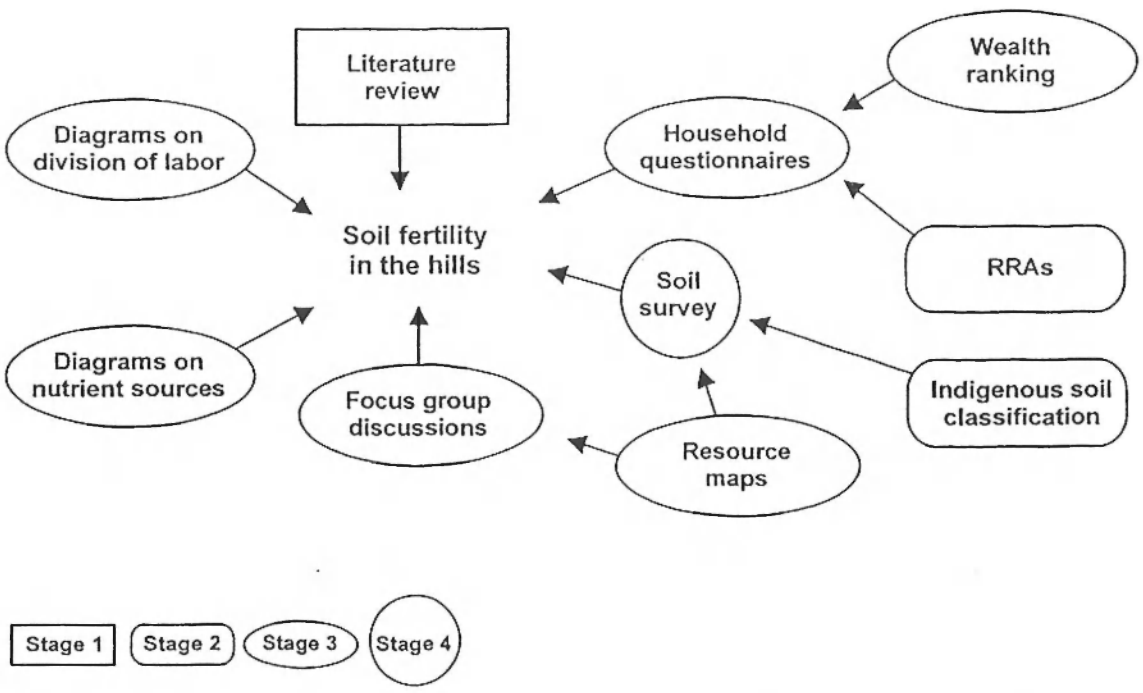

Figure 1. Sequence of methods used in a participatory rural appraisal

achieve "breadth of coverage" whilst maintaining the "depth and quality" of the information obtained (Turton et al. 1997).

References

Abbot, J. et al. (eds). 1997. Methodological Complementarity. PLA Notes No. 28. London: International Institute for Environment and Development.

Bainbridge, V. 1998. Participatory Approaches and Agriculture Topic Pack. Brighton: Institute of Development Studies.

Chambers, R., A. Pacey, and L. Thrupp (eds). 1993. Farmer First: Farmer Innovation and Agricultural Research. London: Intermediate Technology Publications.

Christoplos, I. 1995. Representation, Poverty and PRA in the Mekong Delta. Research Report No. 6. Linkoping, Sweden: Linköping University.

Conway, G. 1985. Agroecosystem analysis. *Agricultural Administration,* 20: 31–55.

Cornwall, A. 1998. Gender, participation and the politics of difference. In *The Myth of Community: Gender Issues in Participatory Development* edited by I. Guijt and M. Kaul Shah. London: Intermediate Technology Publications.

Drinkwater, M. 1993. Sorting fact from opinion: The use of a direct matrix to evaluate finger millet varieties. *RRA Notes,* 17: 24–28.

Guijt, I. and J. Pretty (eds.). 1992. Participatory Rural Appraisal for Farmer Participatory Research in Punjab, Pakistan. London: Sustainable Agriculture Programme.

Jones, C. 1997. PRA Behavior and Attitudes Topic Pack. Brighton: Institute of Development Studies.

Kumar, S. (ed.). 1996. ABC of PRA: Attitude Behavior Change. Patna, India: ActionAid. (Available on request from the Institute for Participatory Practices PRAXIS, 12 Patliputra Colony, Patna, Bihar 800 013, India. e-mail: praxis@ActionAidIndia.org.

Lindblade, K. and G. Carswell. 1997. Discrepancies in understanding historical land use changes in Uganda. In *Developing technology with farmers: a trainers guide for participatory learning* by Van Veldhuizen et al., pp.59-63. PLA Notes 28.

Manoharan, M. K., K. Velayudham, and N. Shunmugavalli. 1993. PRA: An Approach to Find Felt Needs of Crop Varieties. *RRA Notes,* 18: 66–68.

Nabasa, J. et al. 1995. Participatory Rural Appraisal: Practical Experiences. London:: National Resources Institute.

Paliniswamy, A., S. R. Subramanian, J. N. Pretty, and K. C. John (eds.). 1992. Participatory Rural Appraisal for Agricultural Research at Paiyur, Tamil Nadu, Centre for Agricultural and Rural Development Studies. Coimbatore: Tamil Nadu Agricultural University and London: International Institute for Environment and Development.

Premkumar, P. D. 1994. Farmers are Engineers: Indigenous Soil and Water Conservation Practices in a Participatory Watershed Development Programme. Pidow-MYRADA, Prakruthi-Gnana Kendra, Kamalapura 585313, Gulbarga District, Karnataka, India.

Turton, C. et al. 1997 . The use of complementary methods to understand the dimensions of soil fertility in the hills of Nepal. *PLA Notes* 28 (Feb): 37--41.

Waithaka, M. 1998. Integration of a User Perspective in Research Priority Setting: The Case of Dairy Technology Adoption in Meru, Kenya. Kommunikation und Beratung No. 22. Weikersheim: Margraf Verlag.

Witcombe, J. 1996. Participatory approaches to plant breeding and selection. *Biotechnology and Development Monitor*, 29 (Dec.): 2–6.

Further sources of information

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