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Farmers as analysts and facilitators in Participatory Rural Appraisal & Planning

Parmesh Shah, Girish Bharadwaj and Ranjit Ambastha

• Farmers as analysts

In most development farmers are informants or at best data collectors. They do not participate in analysing data and taking decisions based on the analysis. This process loses the use of inherent analytical capacity of the farmers. The resultant development process although may lead to tangible development results in the short run does not lead to a sustained innovation by the local villagers and also does not lead to institution building at the village level. This does not lead to building of an enabling environment in which innovations are encouraged from local people.

AKRSP in its work with the village communities has tried to involve villagers in data collection, data analysis, data use and now also as facilitators for the participatory appraisal and planning exercise. There have been many important lessons.

In the Watershed Management programme, the farmers prepare watershed maps after doing transects and intensive discussion with the farmers showing all natural resources in the watershed, runoff flows and drainage outlets etc. They also discuss possible treatments with farmers and outlet groups and prepare watershed treatment plans based on mapping, transects, group discussions and individual interviews. If this exercise is done by the farmers and not by outsiders (as is normally done) the people become more confident in analysis and decision making. Such plans should be first prepared by the villagers and then discussed with the outsiders.

A number of steps are important participatory technology generation. These comprise:

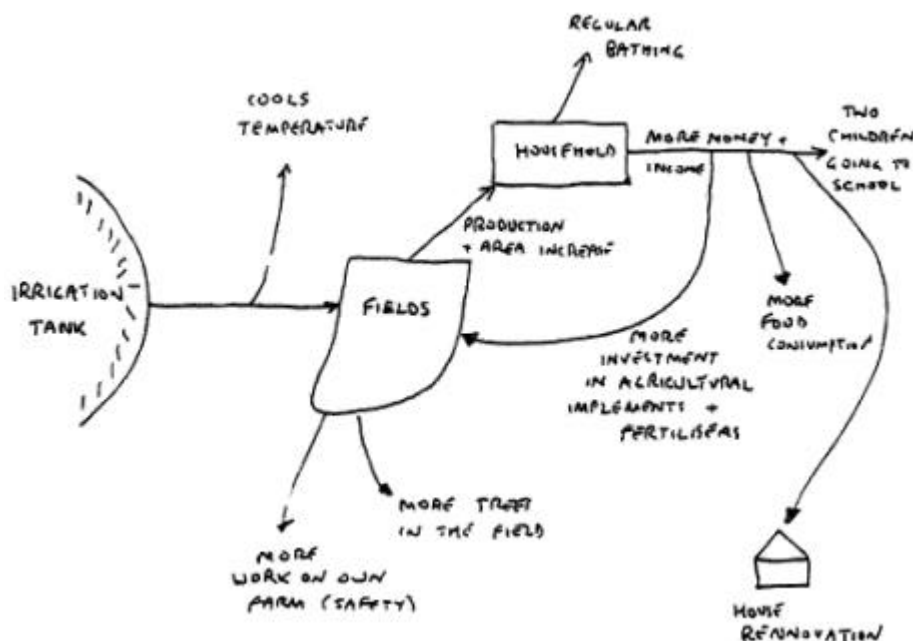
- farmers are asked to do observation exercises for various technologies being tried out by farmers in different zones of the village and are asked to make sketches of the innovations. Farmers are good at making such sketches and showing line diagrams of the techniques tried out by the farmers. Such drawings are then collected by the extension volunteers and presented to other farmers encouraging further discussion;
- once these experiences are shared, they inventory all local techniques and examine its impact on solving the problem associated with a particular land or soil type. At this stage discussions are held with the help of diagrams to suggest modifications. There are situations when the local solutions are more effective than the solutions evolved or suggested by the outsiders. There are also situations when local solutions are inadequate or have a considerable scope for improvement. At this stage outsiders offer suggestions on modifying technology already tried out or suggest new solutions aimed at solving the problems already identified by the people. These are then discussed in a group, modified as a result of the discussion, adapted to local conditions and line diagrams are prepared for explaining to other farmers;
- discussions are now held with the farmer facing the problem in the field and his reaction to the diagram are sought in the field. Farmers suggest specific changes

and contribute to the technology evolution process and then the adaptation process. Finally technologies (adapted and evaluated on farmers fields are compiled in form of technical guidelines). Based on this exercise it is decided that which technologies would be experimented with, at which locations and at what scale. The extension volunteers follow the experimentation process with the farmers again in the field during the experimentation phase and finally the results are observed. Guidelines on very specific aspects like criteria for construction of earthen bunds as compared to the stone bunds, spillways vs other options, vegetative bunding vs other options and deep ploughing vs others are also worked out. The advantages of this approach is that the extension volunteers and the farmers both become more observant and are dynamically engaged in developing and adapting technologies and experimenting with them. They do not

stick to a blueprint technology. They are also able to discern between various technologies suggested by the outsiders and learn to experiment with them. It becomes a learning process in which innovations are constantly encouraged; and,

- at the end of the agricultural or the rainy season, feedback sessions are held with the farmers and technologies tried out by the farmers are evaluated through impact analysis e.g. performance of many smaller section bunds compared to a single large contour bund and data is presented in form of a diagram to farmers and the volunteer groups. Evaluation of technologies enables refinement of specific technologies and also stimulates further experimentation and innovation by farmers and also enables the extension volunteer to facilitate such a process.

Figure 22. Impact diagram of irrigation tank in Gadechi village, made by Savsi Bhura (farmer) in Surendranagar District. Redrawn from original



• Rainfall analysis and crop planning

Farmers have evolved a number of indicators which forecast the expected rainfall (based on local indicators such as the wind direction, growth of certain types of weeds, animal and bird behaviour etc). They are also able to establish a relationship between the expected rainfall, actual rainfall received, soil moisture availability, appropriate soil and water conservation practices and crop mix suitable for that type of land. These recommendation domains are developed based on experiences of farmers, soil profile, moisture retention capacity of the soil and the earlier experimentation of the farmers.

• Impact studies and analysis

Farmers are able to decide impact study variables through diagrams. These diagrams are the field sketches, maps, impact diagrams related with the area, the watershed or the activity. This process involves the following steps:

- diagrammatic representation of aspects like moisture retention, soil depth, erosion; extent and the type, land reclaimed due to silt deposition and number of intensive rain storms required for good growth of biomass and the crop. These aspects are also included while designing an impact study;
- impact diagrams prepared by the people (different groups affected by the intervention) showing all the impact points and the linkages which could result as a result of the intervention. These include economic, social and other factors (both positive and negative). Figure 22 is an impact map prepared by the villagers.
- productivity and income mapping is done during intensive discussions with the community. During the group discussions itself the community members show the information on the map (either their field or the house is indicated). If there is any discrepancy other members are able to

point out. This process continues in the village even after the first meeting is over and those who are not able to participate in the first meetings come to the office of the village institution and are able to give the information on the map in a simple manner. They are able to aggregate this information rapidly and are able to do a cost-benefit analysis. The data gets collected, aggregated, analysed and used at the spot by the people themselves;

- equity mapping is done for assessing the impact of an intervention on the poor. Several questions are asked: what is happening to the poor as a result of this intervention? Is the impact positive or negative? What are the impact points? The poor sections of the community are encouraged to indicate answers to these questions. It has been our experience that a number of complex issues on which it is difficult to get responses from the people e.g. the issue of how certain castes are trying to corner all the benefits of the programme can easily be diagrammed and people do not feel threatened to respond on these issues while diagramming. Whether a particular intervention in the village has led to increased employment or income, improved access to common property resources, improved their social standing due to being a part of the village institution. Similar questions also relate to the negative consequences of an intervention. This helps in reinforcing discussions to focus on the equity aspects of any choice or the decision the community takes; and,
- this information is shared with all village community members. This presentation enables villagers to understand the viability aspects which are difficult to be discussed and understood. Maps and diagrams enable discussion on issues like 'Can we undertake a soil and water conservation programme on credit next year as the programme has proved to be a viable activity in the current year'. The people who have lost out also point out how much they have lost and why. Discussions on issues like why certain people gained more and certain people gained less through a process of manual

discriminant analysis leads to change in strategic options for different groups in the community and enables the village institution to take a decision on how to support them in future. A continuous framework for analysis emerges through this process. This framework can also be used for finding out the bottlenecks during the implementation of the programmes. These issues are discussed in greater detail in the section on Participatory Mapping.

• **Farmers as facilitators**

As a part of experience sharing with the extension volunteers many volunteers have participated in a number of participatory appraisal exercises together and with the AKRSP team. They have been also formally exposed to PRAP methods during this process. They were then asked to conduct certain PRAP exercises independently of outsiders in groups in a new village (not their own) which had shown interest in the approach and had approached AKRSP for collaboration. The all villager team conducted these exercises, further innovated on certain methods, developed a village team in the process and is confident of undertaking this exercise independently of AKRSP team. These teams are doing these exercises in a number of villages involving mapping, transect diagramming, interviewing, group discussions, prioritisation and preparation of a village natural resources management plan. It is observed that they enjoy the process and are able to carry out most of the exercises with the community. During the process they further innovate strengthening the argument that PRAP is a creative process for the villagers. They also retain the equity orientation when they are on their own.

• **Farmers as presenters**

Farmers made a presentation of the plan to a team of district officials in Surendranagar district in Gujarat. They presented a long term village natural resources management plan to the officials using the maps prepared by them earlier and made a number of on the spot and extempore maps and diagrams to reinforce their point of view. The officials then split in transect teams with villagers and villagers

showed them a number of problems and solutions proposed by them in context of the plan. Finally there was a discussion on certain doubts raised by the government officials. The villagers answered most of the points raised and the village plan was approved by the government team in principle. There are a number of such instances where the villagers have been able to present their plan to outsiders in an effective manner.

• **Participatory mapping-types and applications**

Types:

- Resource maps;
- Watershed maps;
- Thematic maps;
- Social maps;
- Base line maps; and,
- Monitoring/Impact maps.

• **Resource maps**

These maps indicate majority of the natural resources in the village including the land and water resources, local land use classifications and catchment and command area of each resource. It also shows the quality or status of each resource and the likely users of each resource. People also indicate quantitative data regarding use of these resources. The following types of resource maps are prepared by the villagers:

- inventory of the natural resources in the village with local land use classification systems. These are important for further discussions for deciding the priorities by various groups in the village and deciding the transect groups for further exploration;
- resources showing the existing status of the resource e.g. a tank which gets breached during a rainy season, heavily eroded areas in the village, degraded forest areas, a dried up community well, waterlogged area, salinity affected area etc. These are shown through colours, sticks, leaves and other symbols on the ground and the paper. This helps in identifying the problem resources, encouraging further discussion and

focusing discussions on a particular problem;

- maps showing the utilisation of various resources in the village e.g. Aquifer Map showing the extent of dried and active wells, canal command area map showing the extent of utilisation etc.;
- maps showing the uplands, midlands and the lowlands in the village which has an undulating area with slopes along with their characteristics;
- maps showing the quantum of resources e.g. area of the degraded land, command area of a small irrigation project, catchment area of a percolation tank, number of trees on the common land etc.; and,
- maps showing the users of various resources i.e. a community well, common forest land, rivulet or a nalla, lowlands, drinking water village pond etc.

These maps help in identifying and inventorying various types of resources in the village and their characteristics in the initial stages of the development process itself. This process of mapping ensures that all kinds of diversities are taken into account during further discussions with the villagers. These maps lead to focussed specific discussions and lead to a sound basis for trying out other methods in a more effective and focussed manner. It ensures that more people participate effectively in the discussions using a common framework for further discussions. This also ensures that a check list is available for reference after solutions are generated at a later stage to ensure that resources indicated earlier are not missed out.

• **Watershed maps**

These maps are prepared by the extension volunteers from the village who are given the responsibility by the village institution for providing support services to the members for the watershed management programme. The maps prepared by the volunteers (see Figure 23) include the following aspects:

- all major runoff flows in the village;

- delineation of the watershed showing the delineated boundaries);
- drainage outlets in the village;
- main nallas and the watercourse;
- all land resources in the village (private lands with names of farmers and local land use classifications; common lands with local names);
- delineation of the drainage outlet groups in the village; and,
- all locally tried out soil and water conservation techniques and physical soil and water conservation structures and methods.

This is done through a process involving the following steps:

- going to all the high points in the village and delineating the entire micro watershed including landmarks like major nallas and rivulets, highest tree in the village, highest hillock in the village and roads which act as watershed boundaries in a number of cases;
- choosing different watercourses, having transect walks along the watercourses, meeting the farmers on the way, having discussions with the farmers on these resources in relation with the watercourse and runoff flows. This enables collection of qualitative and quantitative information on these watercourses and the drainage outlets;
- drainage outlet groups which have a common drainage outlet are also identified through discussion with the outlet groups and mapping is done jointly with them; and,
- aggregate of the watercourse transect maps and the information collected from each outlet to develop an aggregate watershed map (on paper).

These maps are used for decision making among the outlet group members and in the village meetings to enable them to develop a common watershed identity. This enables ready access to a framework which could be used at all stages; problem identification generating alternatives/options, prioritisation of the alternatives identified, appraisal, technology generation and adaptation,

financial analysis, implementation monitoring and impact study and evaluation.

This process is followed by inventorying all existing soil and water conservation practices and treatments carried out by the farmers, finding out which of these treatments have worked and in which conditions. Based on these maps discussions are held with each farmer and a treatment plan is evolved. This incorporates traditional technologies which have already worked and have been tested in the village and new treatments evolved as a result of discussion with the villagers. This leads to preparation of a treatment plan for the watershed. The map shows treatments for each type of land showing the type of structure required, specifications of the structures required, common property structures requiring community action etc., using symbols and legends for each type of structure.

These then become the framework and base line maps for further discussion and group meetings. They also help in monitoring progress during the implementation of the watershed programme, and are subsequently used for conflict resolution between outlet groups and also used for resolving conflicts related to common property structures. They are subsequently used for assessing the impact of the programme. It has been also used to introduce accountability systems where payments made to members are depicted in the map, read out aloud to make the system more open and transparent to the members. It helps in raising difficult issues and enables discussion on issues requiring community and peer pressure on people not co-operating with the group.

• **Thematic maps**

These are prepared depending on the purpose. They relate to a particular aspect of the problem or to illustrate the diversities in a village in relation to a particular problem or a solution. The maps which are prepared frequently are - crop maps, pest incidence map, weed map, input usage map, soil moisture map, credit sources map, command area map, Aquifer map, livelihood map etc. These maps are frequently used for focusing

extension efforts by village extensionists and enabling development of specific and adaptive solutions within the village. These maps and the analysis based on that helps in ensuring that a range of solutions are offered to the villagers to account for diversity in ownership of resources, nature of resources, access to inputs and technical solutions possible. These have been used for evolving specific technical guidelines for extension and enabling discussion on innovations and experimentation. They are also useful for deciding the nature, size and number of experimentations required for a dryland farming extension programme. Examples of such maps are given in Figures 24-27.

Figure 23. Watershed status and treatment map for Pangham village, Bharuch District. Prepared by extension volunteers and aggregated from outlet maps

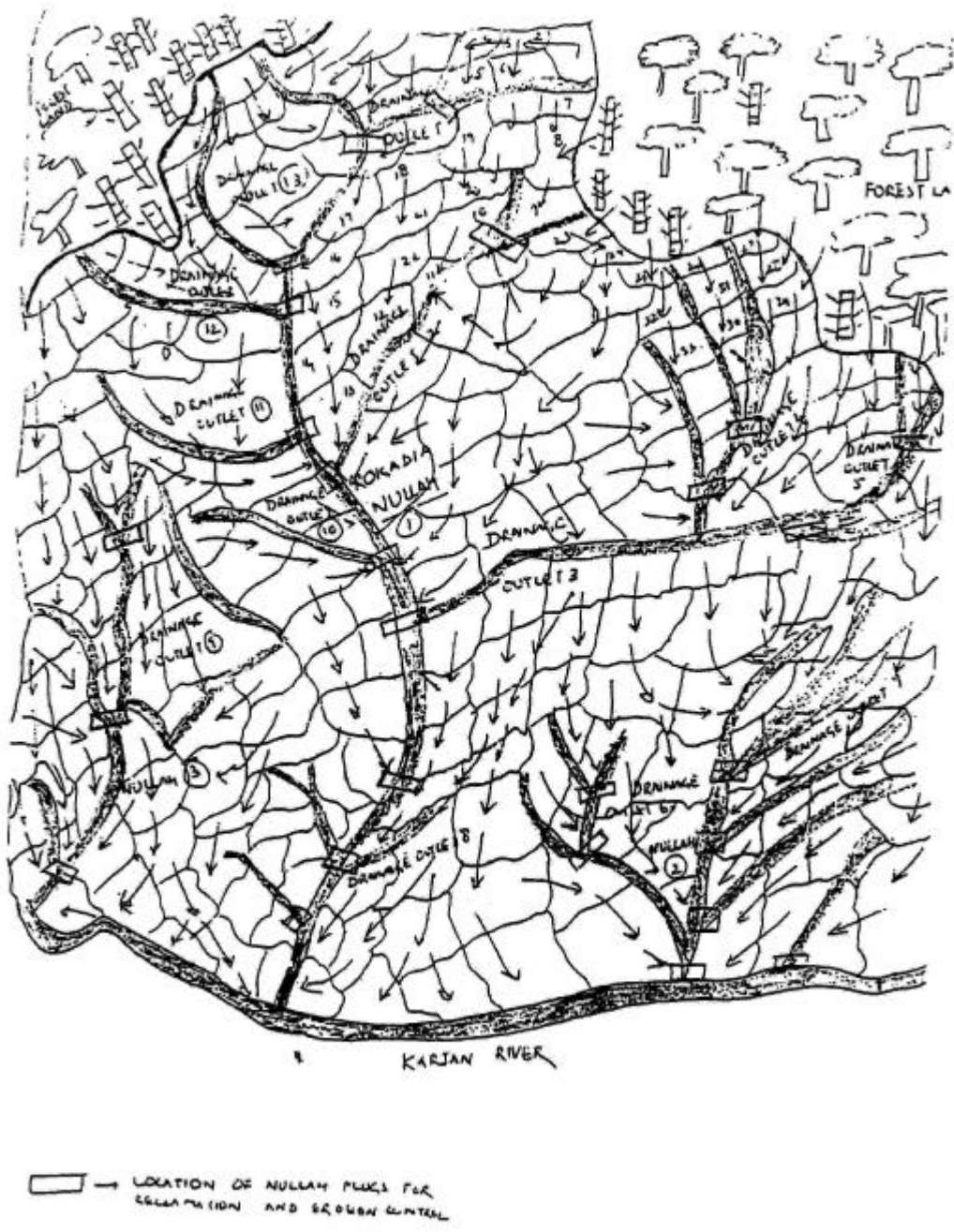
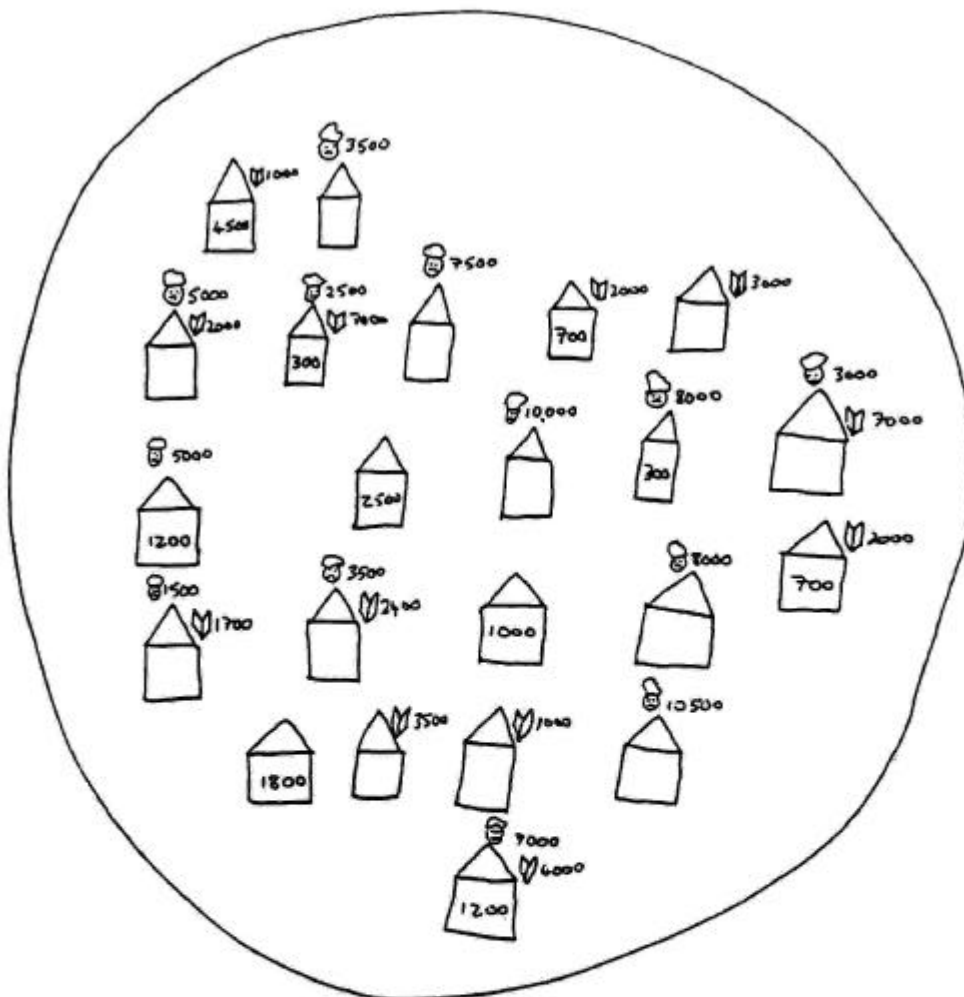





Figure 27. Social map showing credit sources and quantum of credit outstanding for 22 credit group members



LEGEND

-  CREDIT TAKEN FROM OTHER VILLAGERS OR RELATIVES
-  MONEY LENDER AS SOURCE OF CREDIT
-  BANKS AS A SOURCE OF CREDIT

AGGREGATE INFORMATION

- NO. FARMERS = 22
- FARMERS TAKING CREDIT FROM FRIENDS, RELATIVES ETC = 10 (Rs 14,200)
- FARMERS TAKING CREDIT FROM MONEY LENDERS = 13 (Rs 75,000)
- FARMERS TAKING CREDIT FROM BANKS = 12 (Rs 36,600)

Figure 26. Cropping pattern map for Madargadh village. December 1989

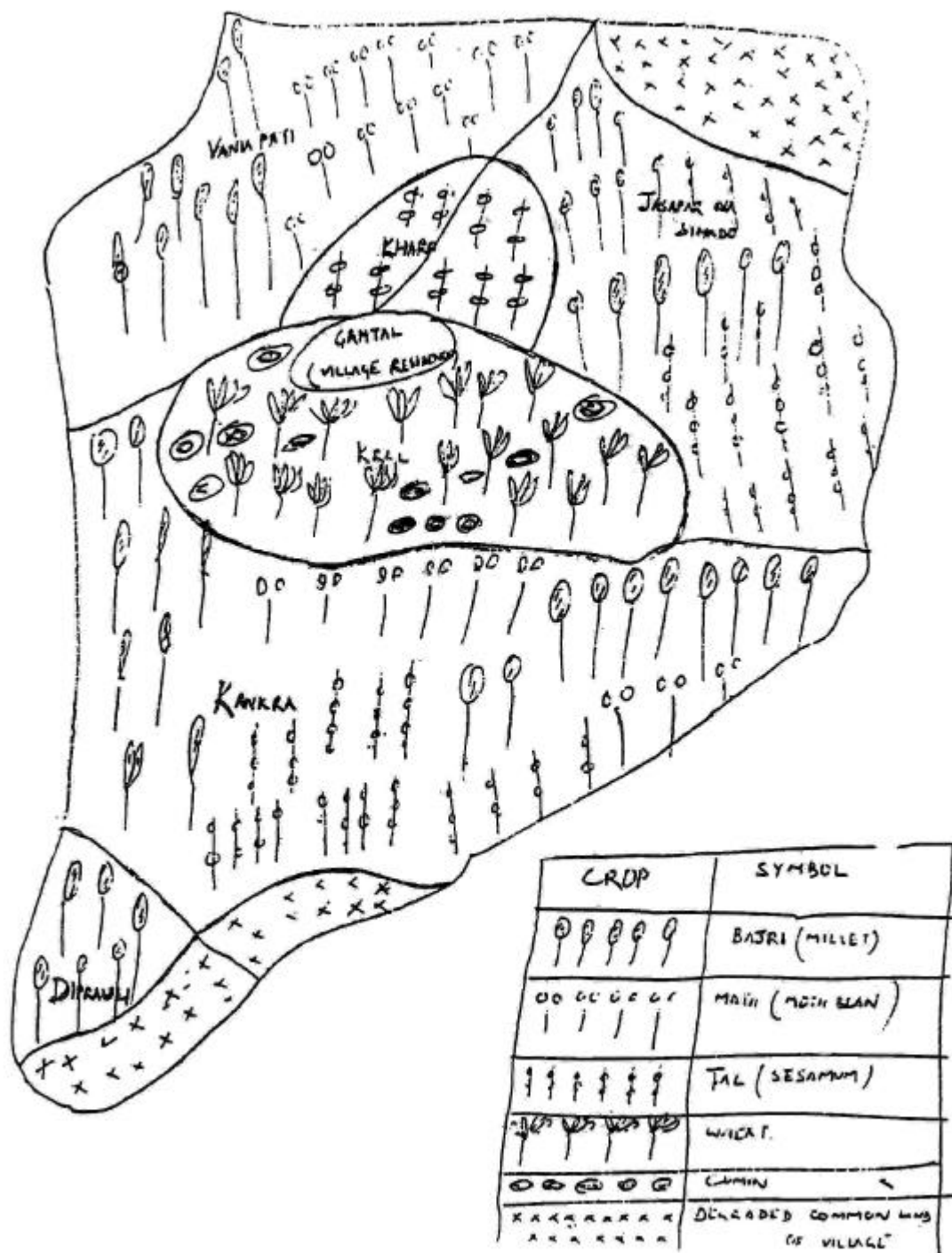


Figure 25. Aquifer map showing impact area of percolation tank. Kansala village, Surendranagar District. November 1990. A1 – A11 are aquifers identified by farmers. Original map shows names of all well owners

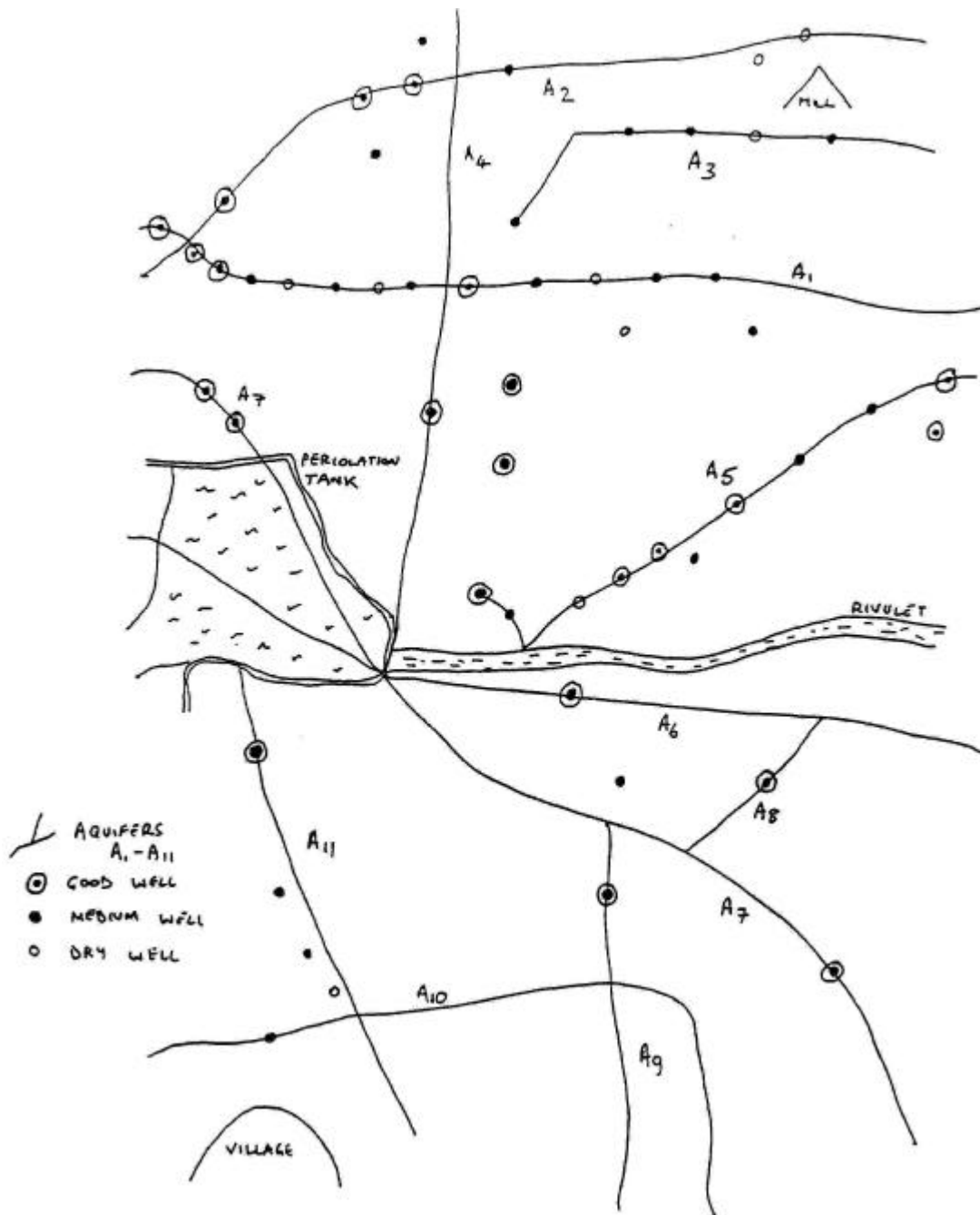
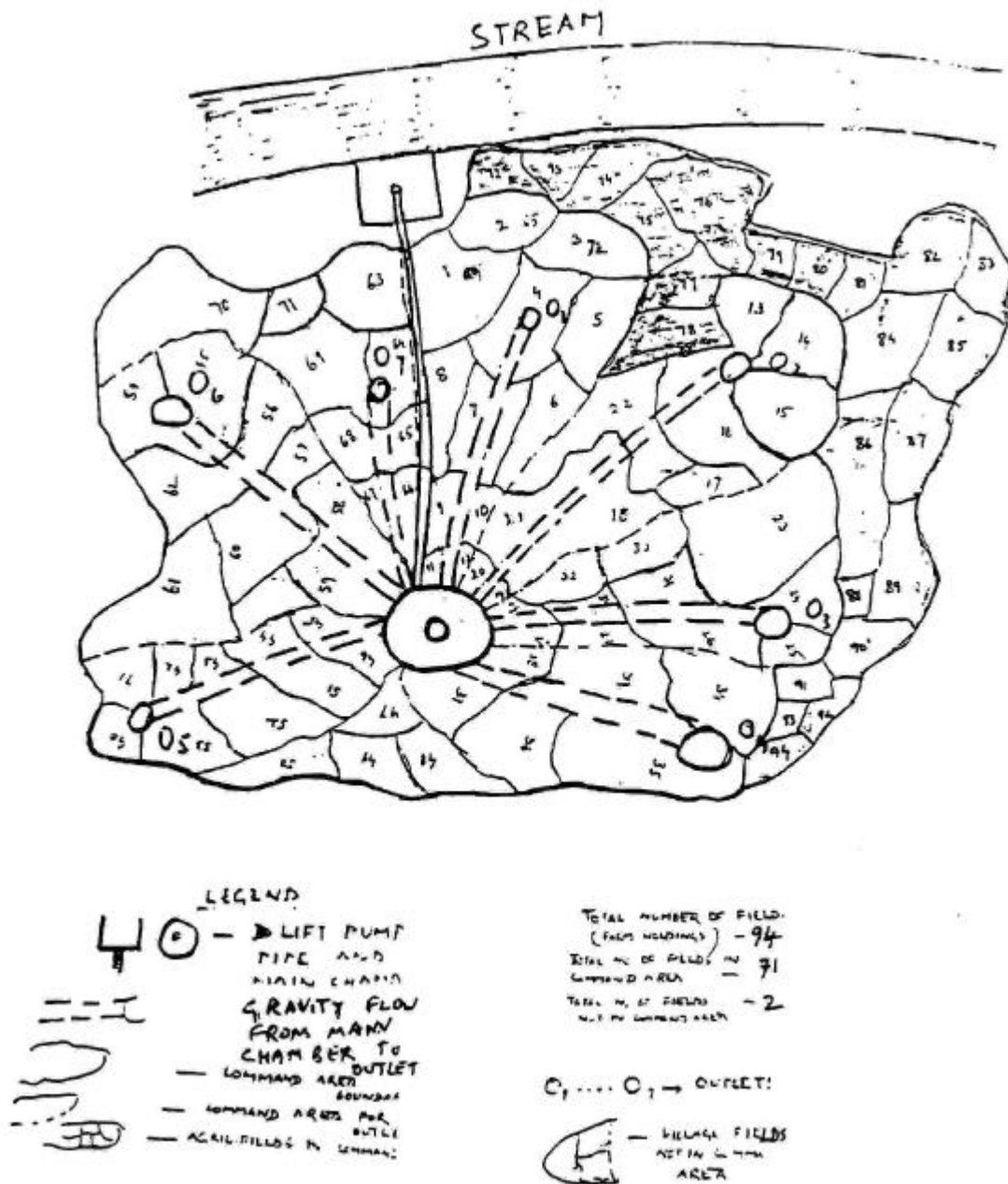


Figure 24. Proposed command area of a lift irrigation scheme proposed by farmers for their village in Bharuch District. Original map prepared by farmers contains names of all land holders (numbered on this version)



• **Social maps**

In heterogeneous societies with a number of caste, social and economic groups it is important to know the stratification of the communities both in terms of resources and their access and distribution. These have

implications on the solutions and their likely applicability in a stratified situation. These maps show the distribution of households in terms of different caste and social groups in the village. The social map is then extrapolated with other resource and thematic maps and the problem identified can be correlated with the social aspects. This also is linked with ownership of assets and developing wealth grouping for the village.

This helps in doing an analysis of how each solution identified by the community affects different social groups and particularly the poor. After more experience with this kind of analysis people can extrapolate social maps with other maps to understand the social implications of their existing endowments and the solutions identified by the community. These maps are effective in ensuring the equity orientation of the programme and the community. It is an important mechanism by which social or equity analysis becomes an integral part of the appraisal process of the community.

• **Monitoring/impact maps**

These are prepared by the villagers at the various stages of the projects identified by the community - appraisal, implementation and management, monitoring and evaluation.

Some of these maps are prepared by the community before the project starts. These base line maps mostly show the existing productivity of resources being developed. Often these are expressed in terms of symbols or the extent of utilisation of natural resources. These could be access of these resources to the poor, availability of fuel wood to women and the poor and existing productivity of the marginal lands belonging to the poor farmers. These are shown with symbols representing the degree of access and the productivity. Grains of a particular crop are used for 100 kg units of production and stuck to the map to show production and the productivity figures. Net incomes are also shown in multiples of Rs100. The access to a CPR is also discussed in a small group when each individual in a group indicates the type of products and the extent of its availability from the CPR. This is done on a map which serves as a common framework for discussion and recording of the information is done in the village itself. Those who are unable to attend the initial meetings are contacted individually again so that they can record their observations individually when they have time.

In this manner the responses of most participants of the programme gets collected over a period of time. This information is then aggregated in the form of a map and then

presented by the farmers who have been, involved in data collection to other farmers in a meeting where the information collected is cross checked and verified before finalisation. Similar process is initiated after some of the activities initiated and an impact map is generated at that stage. It is possible to do impact studies, aggregate, process and analyse data rapidly in the village itself with the people and use it for subsequent appraisal and planning process by the community. One can have a very high sample size and still be able to do the exercise in less time and with more reliable results compared to other conventional methods of measuring impact.

To measure the impact of finer aspects like erosion, moisture retention etc. impact analysis through the diagramming of the field is encouraged. This helps in assessing the impact on aspects like moisture retention, erosion control and the corresponding increase in productivity. These maps also help in technology generation, adaptation and evaluation for watershed and dryland farming extension programme. Impact study through mapping is being also tried out in areas of credit, biogas, forestry and water resource development programmes.

Participation of the local people in designing the impact studies can be considerably enhanced by making people draw an impact diagram. This impact diagram helps people in mapping various benefits possible and which have occurred from an intervention. This mapping is encouraged to be undertaken by different social and economic sections of the village community. These variables after discussion in a village meeting are then finalised and included in an impact study.

The base line and the impact maps are available to the village community for analysis and reference. The main findings are presented in the village meetings. The main findings are presented in the village meetings. This has enabled people to understand the linkages between investments and benefits. This process also helps the farmers and the community to do economic analysis both jointly as well as individually. This process is extremely helpful for the illiterate people to understand the concept of economic viability. Each group in the community is able to do its

own analysis separately. It could be then aggregated for the whole village. Advantages of undertaking action on community basis become clearer and no longer remain abstract through this process. Some examples of the kinds of things that communities can do through this process are as follows: - reduced cost of fertiliser through group action, increased prices of output (through pooled marketing), decreased cost of plant protection (through community action). All these linkages between community action and their economic implications become more clear through this process of preparing maps, their analysis and presentation. It becomes a simple way of economic analysis which could be adopted by any inhabitant of the village irrespective of whether he is an illiterate or inarticulate.

• **The advantages of participatory mapping**

- Maps have been effective in breaking barriers to communication. They have been used by people who are not articulate. It is an alternative means of communication;
- Maps have been used by the villagers and the extension volunteers for making a resource inventory and identification of specific solutions and analysis. They are useful for deciding transect and planning of various development programmes;
- Maps are a useful mechanism for conflict resolution;
- Maps help participatory decision making in group meetings;
- Maps focus analysis of impact studies;
- Maps are effective in focusing extension;
- Maps enable generating a common framework for discussion in community or group meetings facilitating programme implementation, management and monitoring;
- Maps help in finding about farmer innovations related with that problem or a particular aspect of resource use. It helps in finding innovative solutions already found out by the people and the solutions

which people generate as a result of analysis. It helps in preparing an inventory of local innovations and solutions;

- Maps encourage people to walk and observe things which is normally not done either by the villagers or the outsiders; and,
- Maps enable observations of phenomena by large sections of people which have been relatively unobserved till now.

- **Parmesh Shah, Girish Bharadwaj and Ranjit Ambastha**, Aga Khan Rural Support Programme (AKRSP), Choice Premises, Swastik Cross Roads, Navrangpura, Ahmedabad 380 009, Gujarat, India.