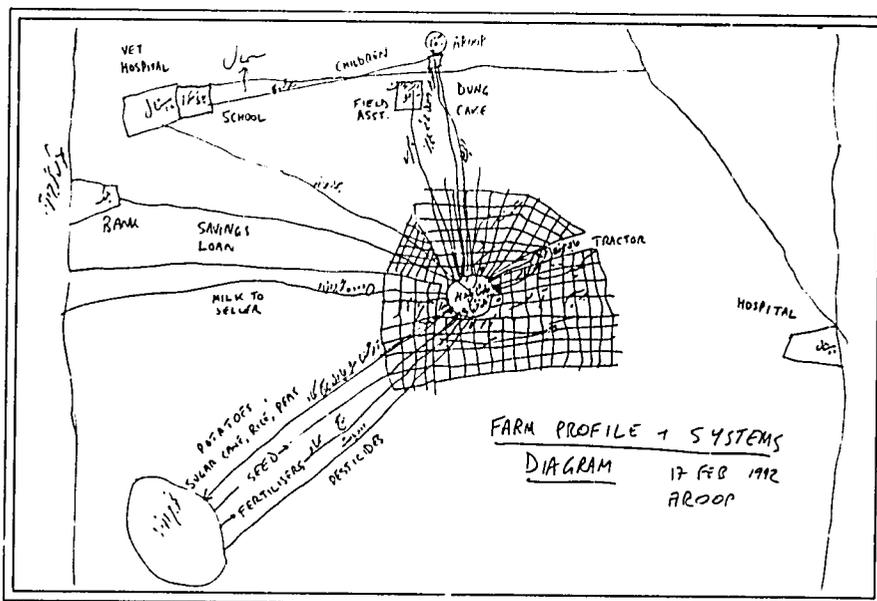


PARTICIPATORY RURAL APPRAISAL FOR FARMER PARTICIPATORY RESEARCH IN PUNJAB, PAKISTAN



June 1992



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PARTICIPATORY RURAL APPRAISAL
FOR
FARMER PARTICIPATORY RESEARCH
IN PUNJAB, PAKISTAN

Report of a Training Workshop
Pakistan-Swiss Potato Development Project
Gujranwala, Punjab Province, Pakistan

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Sustainable Agriculture Programme
International Institute for Environment and Development
London, United Kingdom

June 1992

"In spite of all these problems I grow potatoes, and I will continue to grow them."
- Mohammed Malik (Farmer)

"He is brave enough to take the risk" said another farmer.

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GLOSSARY AND ABBREVIATIONS

ADBP	Agricultural Development Bank of Pakistan
AJandK	Azad Jammu and Kashmir
FPR	farmer participatory research
FYM	farmyard manure
IIED	International Institute for Environment and Development
NA	Northern Areas
NWFP	North West Frontier Province
PRA	Participatory Rural Appraisal
PSPDP	Pakistan-Swiss Potato Development Project
SSI	semi-structured Interviewing
UBL	United Bank Limited
<i>arti</i>	commission agent
<i>beopari</i>	tradesmen
<i>bradri</i>	tribe or caste
<i>charpai</i>	string bed
<i>dera</i>	collection of buildings in fields where livestock are housed
<i>desi</i>	local
<i>haveli</i>	large house
<i>kanal</i>	unit of area; 20 kanals equals about 1 hectare
<i>katcha</i>	bad condition
<i>kharij</i>	summer season
<i>lambardar</i>	landlord
<i>Mohalla(h)</i>	sub-castes or sub-communities
<i>pucca</i>	good condition
<i>rabi</i>	winter season

1. INTRODUCTION

This report presents the initial outcome of a field-based training workshop in Participatory Rural Appraisal (PRA), organised by the Pak-Swiss Potato Development Project (PSPDP). The first section is an overview of the training workshop and its main objectives. It describes several methodological innovations that occurred and highlights key lessons from the fieldwork. Section 1 ends with a preliminary evaluation and suggestions for follow-up activities. This is followed by three profiles of Aroop, written by the participants as a compilation of diagrams from the fieldwork with descriptions of the process for each diagram. Each profile discusses the main problems and possible solutions as identified by using the full range of PRA methods.

Objectives of the Workshop

The PSPDP aims to increase and stabilize potato yields, giving special attention to small resource-poor growers who are faced with high production costs and fluctuating prices. To achieve this on a sustainable basis, it focuses on developing the local capacity to:

- generate and transfer technology;
- develop an indigenous system of seed supply for farmers;
- enhance the capacity of growers for market production.

In principle it is problem-oriented and works on-farm with growers, while developing methodologies that help link clients with existing services and encourages them to drive research and development of potato-based systems.

In line with its overall objectives, a PRA workshop was organised to:

- train project staff (federal and provincial) in PRA methods;
- instill an awareness of the utility of PRA and an inclination to use it appropriately;
- develop a descriptive report on the needs, problems and opportunities for participatory research and development with farmers in the area.

During the preparation for the workshop, the first objective was clearly indicated as being of greater importance than a report on Aroop. The workshop was therefore not seen as a research activity but as a training of PRA skills.

Furthermore, PSPDP has recently started a new phase of decentralisation towards collaboration with the provincial Agricultural Research Councils of Sindh, Punjab, NWFP, Baluchistan, NA and AJ and K. The PRA workshop was seen as a good opportunity to strengthen the federal-provincial contacts and strengthen the participatory basis for the new phase.

One of the representative pilot areas for the Punjab, the town of Aroop (see Figure 1) was chosen for the fieldwork as the area is a known pocket of small potato growers. Aroop is recognised to be a complex area with many vested power interests, requiring extra support to start up the planned programme work and therefore likely to benefit from any fieldwork carried out by the participants.

The Training Process

The PRA training took place in three stages over a two week period (see below). Phase 1 was the introductory workshop, during which the basic elements of systems thinking and the PRA approach and methods were presented and practised. Appendix B provides details of the preliminary workshop, which ended with preparation by the sub-groups for the fieldwork. Aroop was arbitrarily divided into three sections, one for each sub-group of 10-12 participants. It was hoped this would help simplify the fieldwork, by offsetting the difficulty of working in a large town and limit overlap of the sub-groups.

The second phase was the fieldwork. Each of the three sub-groups spent two days exploring Aroop and understanding the overall agricultural system in general. Following a rest day and day of analysis and writing, the next two field days in Aroop focused on farmers' constraints and their responses to problems. The teams aimed to distinguish between non-potato growers, small potato growers and large potato growers. However this proved difficult, mainly due to the size of Aroop and limited time.

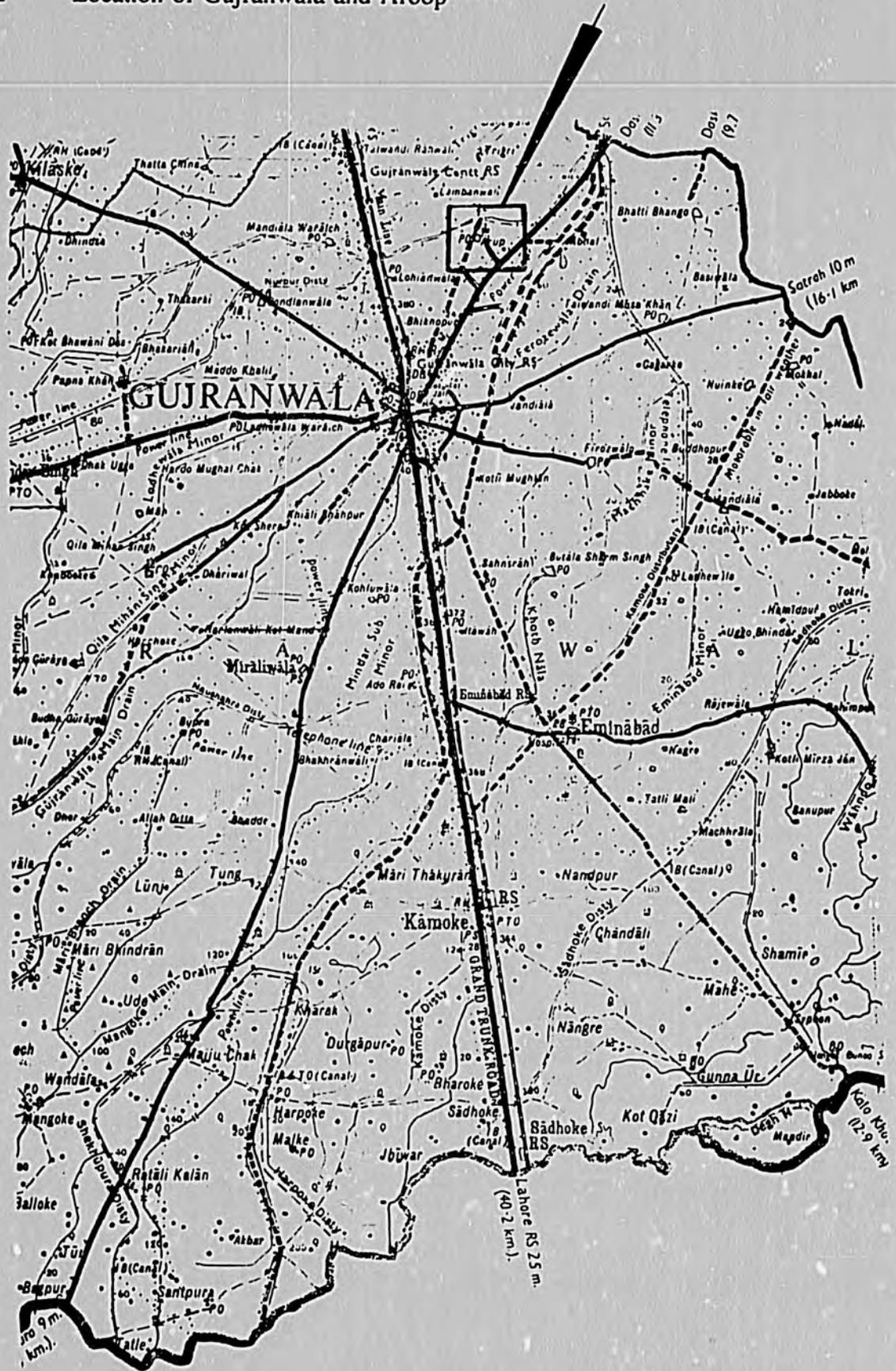
The final phase of the workshop was writing up the fieldwork process and analyzing the information to understand its relevance for PSPDP's research agenda. Although the three groups went through different processes of analysis, three similar sets of problems and farmers' responses to these were identified. The results are a mix of actual and assumed or speculated responses, showing the value of PRA in a research context. The workshop ended with a planning exercise, in which the participants made proposals for PRA fieldwork based on existing problems or issues of interests (see Appendix C).

The profiles written up by the three sub-groups are short descriptions of how the information in each diagram and interview was generated, with the diagram. In the profiles, each sub-group presents a summary of the key problems and researchable options.

Profile A provides a more descriptive introduction to Aroop. They encountered few potato growers therefore describe local agricultural systems in general. Profile B attempts to focus on different groups of potato-growers while Profile C develops a sequence of methods leading to a typology of potato growers in Hayatpura, a sub-community in Aroop.

PHASE 1	February 8-11	Workshop
PHASE 2	February 12-17	Fieldwork in Aroop
PHASE 3	February 18-20	Analysis and evaluation

Figure 1 Location of Gujranwala and Aroop



2. RESEARCH OPTIONS FRAMEWORK: THE NICHE OF PRA AT PSPDP

Research Options

During the last stage of the workshop, the three sub-groups discussed the problems identified, farmers' responses to these and possible research and policy options. These were disaggregated according to the differing conditions for small, middle and large potato growers. Although all the research opportunities do not fall within the mandate of PSPDP, most are relevant for further investigations in Aroop. Clearly more fieldwork is needed to check initial suggestions before specific research is planned. The problems analysis and suggestions from the sub-groups relate to the following:

- potato production
- fertilisers
- pest and disease treatment
- water and irrigation
- labour
- landholding and soils
- credit and loans
- marketing
- social and economic issues.

PRA Applications in PSPDP Research Process

Following the training workshop, a small group of PSPDP and IIED staff reflected about the possible application of PRA in different phases of the research activities. The phases identified were:

- **diagnostic survey**
 1. getting to know the area and its problems
 2. identification of and familiarization with partner farmers/communities
- **planning** of research activities (with identification of alternative solutions and interventions)
- **implementation** of the research programme
 1. management of trials by farmers
 2. data collection
 3. monitoring of trials
- **evaluation.**

The applicability of eleven PRA methods was discussed for each phase, in all of which PRA seems to have particular value (see Figure 2). Although not all methods are relevant for each phase and much is concentrated in the diagnostic stage, diagrams done early on will be valuable references during the planning and evaluation phases. Although we focused on using the methods in the field with farmers, many of the methods can also be used by PSPDP staff in the office during planning or discussion sessions.

Figure 2 Overview of PRA applications in research phases of PSPDP

	DIAGNOSTIC SURVEY	PLANNING OF RESEARCH ACTIVITIES	IMPLEMENTATION OF RESEARCH ACTIVITIES	EVALUATION OF TRIALS
Participatory Mapping	G ¹ , S ²	R ³		S
Transect Walks	G	R	S	S
Seasonal Calendars	G, S	R	S	S, R
Matrix Scoring	G, S	S		S, R
Wealth Ranking	G	R		S, R
Venn Diagrams	G, S	R		S, R
Flow Diagrams (incl. systems)	G, S	S	S	S, R
Farm Profiles	G, S	S	S	S
Pie Charts	G, S	S	S	S, R
Local Practices and Beliefs	G, S	R, S		S
Historical Applications	G, S	R, G		

- 1 G for general information
- 2 S for specific information from partner farmers
- 3 R for reference, from diagrams of earlier phases

Diagnostic Survey

All the PRA methods will be valuable in the initial stages of work in a new research site.

1. Participatory mapping

- of the pilot area, with possible mapping of problem areas (eg waterlogging, problem soils)
- of village/fields showing who has land where.

2. Transect walks

- to ensure all parts of the site are visited by researchers
- to understand the area and, after identifying partner farmers, to recheck the location of their farms.

3. Seasonal calendars

- to understand local seasonal patterns, in general, and identify stress periods of: crops, labour (demand and supply), rainfall and temperature, crop pests and diseases, income and expenditure, (livestock)
- to be carried out again by partner farmers to understand their specific circumstances.

4. Matrix scoring

- to understand options and preferences of: crops, income sources, soils, seed sources, fertilisers used, varieties planted, etc
- to prioritise problems in the area and of partner farmers
- particularly relevant to repeat with partner farmers are: crops and varieties, marketing options, fertilisers used and soils.

5. Wealth ranking

- to understand overall groups of well-being
- to identify partner farmers from especially the resource poorer farmers.

6. Venn diagrams

- to understand the general linkages existing in the pilot area that will facilitate and hamper trials and other support activities
- to compare what types of linkages partner farmers have with formal and informal organisations, and possibly even to select partner farmers according to different types of links.

7. Flow diagrams (systems, networks, decision trees)

- generally for the pilot area of: income and expenditure flows, input and output flows, market and trading links
- specifically to understand blockages in the flows and to investigate these problems with network diagrams (of the range and sequence of options people have access to for solving a problems)
- to repeat with partner farmers to understand the specific links and problems they face and which could influence their trial management.

8. *Farm profiles*

- initially with randomly encountered farmers to get a rough picture of the type of farms in the pilot area and specific on-farm problems
- specifically with the partner farmers to understand their farms and problems.

9. *Pie charts*

- to understand the distribution of landholdings, distribution of different crops, ethnic composition, income sources, expenditure needs, use of agricultural produce, labour use for different operations, etc
- with the partner farmers specifically to understand crop distribution over different seasons, income sources and expenditure needs, use of produce.

10. *Local practices and beliefs*

- to be asked as part of the general survey to possibly identify sources of problems and solutions
- to be investigated with the partner farmers to understand their specific management practices.

11. *Historical applications of methods*

- changes in land use (historical transects), management practices (historical seasonal calendars/crop rotations), input use (historical systems diagrams), income sources (using pie diagrams), crop biographies to understand when and from where crops/varieties were introduced
- repeat with farmers to understand the history of the farm and changes in cropping patterns (pie diagrams, maps) and input use.

Planning of Research Activities

The diagrams made and interviews held in the diagnostic phase will be valuable resources during the planning phase, which is to date, mainly an office activity. To support the planning and encourage more participatory planning, specific methods can be used with farmers. This does not exclude the option of using certain methods, such as flow diagrams and Venn diagrams, by PSPDP staff during planning sessions in the office.

1. *Maps and transects*

- referred to for determining key problem areas and possible solutions.

2. *Seasonal calendars*

- used as the basis for the operational plan to identify labour/financial constraints of both farmers and researchers.

3. *Matrix scoring*

- done by farmers to investigate trial preferences of farmers (eg fertiliser use, varieties, management practices).

4. *Wealth ranking*

- used to link trials with farmers from particular groups.

5. *Venn diagrams*

- used to identify sources of inputs and strength and weakness of possible partner organisations.

6. *Flow diagrams (systems, networks, decision trees)*

- decision trees to be made by farmers to help anticipate problems in the implementation.

7. *Farm profiles*

- to be done by farmers to decide where to plant or change management practices.

8. *Pie charts*

- to be done by farmers to determine the anticipated work for each operation, and if necessary adapt the trial.

9. *Local practices and beliefs*

- to be used and investigated further to understand likely management practices.

10. *Historical applications of methods*

- used to determine best likely trials, learning from unsuccessful efforts made in the past by others in the pilot area.

Implementation of Research Activities

Fewer methods seem specifically suited to the implementation stage, as this depends less on analysis and site descriptions. Certain methods can be used to monitor the trials, while some can be included to collect further qualitative data.

1. *Transect walks*

- can be the basis of field visits to visually compare fields at different stages of the trial and general field conditions.

2. *Seasonal calendars*

- to be made by the farmer of the operations during the trial, as a type of self-administered monitoring tool and which could be collected as research data.

3. *Flow diagrams (systems, networks, decision trees)*

- problem and solutions diagrams can be drawn by the farmer during data collection and monitoring trips to understand what problems occurred and how he/she dealt with them.

4. *Farm profiles*

- drawn by the farmer to show actual stand as compared to planned stand, and also to help pinpoint problem areas on the farm.

5. *Pie charts*

- drawn by the farmer to indicate the actual labour intensity of operations.

Evaluation of Trials

Many of the methods can be used again by the partner farmers to indicate the actual situation after the trials. The most valuable use of these new diagrams and information is in comparison with those diagrams completed in during the diagnostic survey to help understand the actual impact of the trials.

1. Mapping

- drawn by farmers to show locations of good and bad trials and crop stands.

2. Transects

- to be the basis of a farmer-to-farmer exchange of results during an evaluation field day.

3. Seasonal calendars

- to use the actual calendar of labour input/timing of operations and compare with the planned calendar of events.

4. Matrix scoring

- done by farmers on market preferences, seed sources, varietal or management preferences to understand if their situation/opinions have changed.

5. Wealth ranking

- to assess the impact of the trial on farmers (see if contributes to well-being) and to relate the outcome of different trials with different groups of farmers.

6. Venn diagrams

- to see if opinions of and links with formal and informal organisations have changed as a result of farmers' involvement with PSPDP trials.

7. Flow diagrams (systems, networks, decision trees)

- a flow diagram of inputs/outputs, income, trade flows etc to be drawn of the actual situation to see what changes have occurred and as a basis for discussing the occurrence of blocks and how these were solved.

8. Farm profiles

- drawn by farmer to identify changes on farm over the season/year, and for comparing results with the control plot and with other farmers.

9. Pie charts

- drawn by farmer on crops distribution, income sources/expenditure needs, labour inputs in agricultural operations and compared with farmers not involved in the trial to assess the impact of the trial, and to compare with previously done pie diagrams.

10. Local practices and beliefs

- probing about this is part of the control to understand what practices they have applied during the trials.

3. LESSONS FOR PARTICIPATORY RESEARCH: INNOVATIONS AND GROUP DYNAMICS

During all field-based training exercises, many initial lessons from the workshop are consolidated during the fieldwork. The context shifts from learning in a classroom setting as individuals to teamwork and interaction with villagers in the field. To do justice to the impact of the Gujranwala PRA training, here are some short descriptions of key learning moments as experienced by the three teams. These show how the learning process intensifies during the fieldwork, making it a crucial component of PRA training.

Breaking the Ice

The most difficult time for PRA investigators is arriving in the field and getting started. Everyone is nervous and unsure where to begin. It is important to start actively with some good diagramming sessions, otherwise the danger is that the team will stick to straightforward interviewing. This was in fact what partly happened, with the cold and the rain forcing us to work inside, and due to the confusion about where the sub-groups were to work. On subsequent days this was remedied but the initial resistance is always difficult to overcome.

Remember the Team Contract

Before setting out for the field, each field team discussed a range of potential problems they might come across in the field as part of the *Problem Solving Exercise* (see Appendix B: Training Notes). These were problems relating to working as a group, and difficulties of involving farmers in the analysis. The exercise led to the development of agreed codes of conduct, the team contracts. These 'rules' helped to guide the teams through small crises as members asked each other to "*Remember rule 9!*" or simply "*Team contract*". An example of one of the team contracts is:

1. Learn to unlearn.
2. Have a sense of humour.
3. Be flexible.
4. Be patient.
5. Be punctual.
6. Be active.
7. Be nice and friendly.
8. Keep a low profile.
9. Take our commonsense to the field.

Going Back for More

On the third field day, one sub-group met at 2 pm for lunch after being in the field since 9 am. After the group review of the morning's findings (to 3.30pm), they had to decide whether to return to Gujranwala (there was still much to discuss and analyse) or go back to the field for another hour or so. Although most wanted to return, all agreed to make an effort and return

Breaking the ice: participatory resource mapping involves all those present



Systems diagram by large potato farmer



to the field. The next two hours produced very informative interviews focusing around two systems diagrams, a decision tree, seed sources flows and seed cycle multiplication flows. It was a very pleasant and productive time to be in field, with farmers able to spare the time as the day's work was mostly over. The impact of making this effort was clearer the next day when the team did not hesitate to continue working. Lesson: if in doubt, go back for more - a lot might yet happen.

Field Contingencies

No matter how much planning takes place, things still go wrong in the field. In one group, the first two days included the following:

- the loss of a team member for several worrying hours;
- a vehicle getting stuck in irrigated field;
- heavy rain forcing a bias towards village, the wealthy and on the less muddy tracks;
- insufficient instructions to drivers - 5 bright red vehicles arrived very visibly at the same place in the village.

Such events cannot be avoided but are an integral part of any fieldwork and serve to emphasize important lessons such as the need for a cohesive team, going on foot rather than by car and examining the type of biases that creep into the fieldwork.

The Value of Visualisation

Several people and one sub-group particularly had difficulty encouraging farmers to be the drawers and the analysts, but instead were satisfied with SSI and then making diagrams directly into their notebooks. Some considered it was "primitive" to use materials and draw on ground, and the muddy conditions did not make it easier. Because of this they were not using a valuable probing tool, losing information and bypassing illiterates. There are several ways to overcome this (also see *Learning from Each Other*):

- dividing the groups to include one person aware of the need to use diagrams;
- before starting an interview, agreeing not to take out paper and pen but to try to use other material;
- encourage the informant to use material, set an example by collecting stones or a certain type of leaf;
- when pen and paper is really needed, reminding each other about "*who holds the stick*";
- on the diagrams, putting the name of farmers who did the drawing (as *analysts or drawers*) and names of PRA team members (as *facilitators*) to stress the different roles.

Learning from Each Other: Exhibitions of Diagrams

At the end of field day three, an exhibition of all the diagrams drawn till then was held to share experiences and increase the energy for the fieldwork and to illustrate that systems diagrams could be drawn entirely by farmers. Team members who had facilitated a farmer-drawn exercise explained the diagrams and the process, answering questions from others. The PRA

Transect walk by PRA team to visit a farmer's fields and dera



Working with women during a mapping exercise of Aroop



team members who had been sceptical about some methods were convinced by their colleagues and by seeing that it was all possible in Aroop also. The team members had taken over the role of the facilitators.

Visiting Farmers' Fields

The PRA training was new to professionals and farmers alike because of the emphasis on visiting farmers fields. Despite the proximity of Gujranwala and the good road network, the majority of landholdings are far from roads, with the larger landowners nearer to the roads. Through the use of *Transect Walks*, the teams deliberately set out to walk across all sectors of the village. This ensured they visited the periphery of the village, including an area beyond the canal. Even though it was cold and muddy, the team crossed the canal by walking through the water. The effort was made worthwhile by meeting with sceptical farmers who said "*Your project has never worked with us before*", who soon warmed to the participatory analysis.

Children and More Children

What do you do when, just as the farmers you are talking with start with a diagram, and a huge group of children descend on the team? This situation occurred regularly in Aroop and several strategies were developed to overcome this problem of youthful saboteurs. We quickly learnt where the schools were and, therefore, where not to hold an interview. In some cases however, we were able to work with the children as informants, translators, scribes. Where groups of children could not be avoided, we would split into smaller groups - one working with the children and the other with the adults. The teams also got good at suggesting reasons why the children should move on. For example: "*Aren't you hungry? Shouldn't you go home to eat?*" worked well. But sometimes the chaos became so unmanageable that we simply had to give up the interview.

Working with Women

As there were three women in each sub-group, the sub-groups initially decided to have a women's group. As it is culturally inappropriate for men to work with women alone in the Punjab, there was initial reluctance for the men to work with women, even with a women team member. During the fieldwork it indeed proved difficult for men to talk with women but increasingly easy for them to be present during an interview with women, sometimes even with the men asking questions directly about a diagram that was being drawn.

Patience Rewarded

In the classroom the PRA methods may seem easy and quick, but this is not always the case in the field. The PRA team members increasingly appreciated the need to take time to start an interview in a relaxed way. When there was much resistance to start a diagram, and many farmers had never picked up a pen before, most team members did not push the informant further. However, patience was rewarded in one sub-group, when the PRA team member

Wealth ranking exercise to understand different types of farming households



Pile sorting exercise to rank potato growers



diverted the tense informant's attention by talking about general things. After two hours she was relaxed enough to pick up the pen and draw a systems diagram on paper, explaining as she drew.

Mixing Disciplines

Although writing reports and structured thinking is a strength of most researchers, their work usually involves less interaction with rural people and they generally continue to work within their specific discipline. The final options for action they develop are often placed within a narrow, commodity-specific context. During the fieldwork in Aroop, the presence of a number of social scientists contributed greatly to a wide perspective on the problems of different types of farmers. This provided essential information when assessing the possibility for different types of farmers to respond to different suggested solutions.

Typology of Farmers

It soon became clear to the teams that there were a wide range of types of farmers and potato growers in Aroop. Clearly farmers of different wealth or access to resources would treat problems in a different way, and so it was one objective of the PRA to use a sequence of methods to produce a typology of farmers.

This began with the first participatory exercises, in which resource mapping led to social and field mapping with men and women, from which it was possible to collect a list of names of farmers who were growing potatoes. This list was used in the wealth rankings by pile sorting with men and women. These produced a typology of potato growers of Hayatpura that comprised:

- Large growers;
- Medium growers, who were sometime large, with a frequency of years in 10 they were large;
- Small growers;
- Non-growers, but sometimes small, with a frequency of years in 10;
- Non-growers.

The main criteria for dividing were: size of potato holding, frequency of cultivation in ten years, wealth class, vehicle and tractor ownership, family member working away, contract farming, livestock ownership. These 6 classes of farmer types were then used as the basis for selecting farmers for the systems diagram analyses.

Note: the names of the farmers falling into the different wealth classes have not been included in this report. Such confidential information could be misused by non-research or developmental agencies.

Seasonal calendar of labour quantity and labour intensity



Matrix scoring of potato varieties and parallel discussion on potato cultivation



Systems Diagrams

Systems diagrams drawn by farmers were an innovation of this PRA work and were used to discuss decisions made on the farm and the options open to farmers. Following participatory field mapping, potato holding ranking and wealth rankings were used to select informants from 6 very different classes of potato growers. The process that worked best is described below.

- i) Ask farmers to draw their farm fields and to name what is growing. The product is a form of map, which may not be to scale but that is not important.
- ii) Ask about a specific part, for example: *"How many animals do you have, where are they located?"* Farmer draws in *dera*.
- iii) Then *"What happens to manure?"* Answer: applied to land and used as dung cakes, and this is put on diagram. *"Where do they go? Could you draw a line from animals to where used?"* Adding arrows has mostly had to be done by outsiders.
- iv) Then start exploring other components and flows - fertilisers, pesticides, seeds, fodder and straw, water, money, seeds credit, vaccination, advice, markets.
- v) It is important to remember to let analysts choose symbols. Do not take the pen to help and draw symbols as suggestions. When this happens, it maintains dependency of the farmer to outsiders, rather than encourage analysis by the farmers.
- vi) Discuss the flows and constraints in the flows. Ask *"How does this differ for different farmers?"*
- vii) When problems are listed, then discuss farmers' responses and adaptations to these problems. For several farmers this could be done as a matrix with them.

With the range of systems diagrams produced for each type of farmer, this enabled the teams to ensure the research strategy will be targeted towards their different needs and capacities.

Sequences of Methods

Good interviewing during PRA responds to the opportunities of each situation by starting with one method and developing into a sequence of methods. In Aroop, one successful sequence to understand constraints experienced by different farmers started with a farm profile drawn by the informant. The PRA team members probed further and the farm sketch developed into a systems diagram for that farm, showing flows of inputs and outputs from a farm. This then led to discussion on different organisations that the farmer had contact with and to a Venn diagram in which organisational problems became clear.

During the field work, certain methods proved to lead smoothly into other methods. Below are some thoughts on sequencing PRA methods.

- Maps and transects can be used interchangeably to start off the fieldwork. Both provide overviews of the area and are good ways to start building rapport with the farmers/villagers. When done early in the fieldwork, systems diagrams provide many openings for further discussion and can quickly help focus on problem areas and local responses to these.
- Once the partner farmers have been identified, a farm profile would be one of the better methods to start with. This allows the farmer to talk about something he/she knows well

Sequencing methods: from a farming system diagram to problem analysis



Problem ranking: an innovation in the field using rice straw pieces



and encourages them to realise the PSPDP staff want to learn from them. Depending on the topics touched on, many of the methods can follow from this:

- seasonal calendars, if mention is made of events/changes during the year;
 - matrix scoring, if a range of comparable things is mentioned;
 - historical applications of methods, if reference is made to the past or future situation.
- One sequence that worked well in Aroop was moving from a farm profile to a systems diagram for that farm. This then led to discussion on different organisations and to a Venn diagram. Systems diagrams were also excellent to discuss decisions made on the farm and the options open to them.
 - The sequence of maps leading eventually to the names for the pile sorting and wealth rankings showed increasing accuracy. As one team member put it *"My feeling is that if we had gone to the fourth map, then that would have been even more accurate"* (Nasrullah Jan).

Methodological Innovations

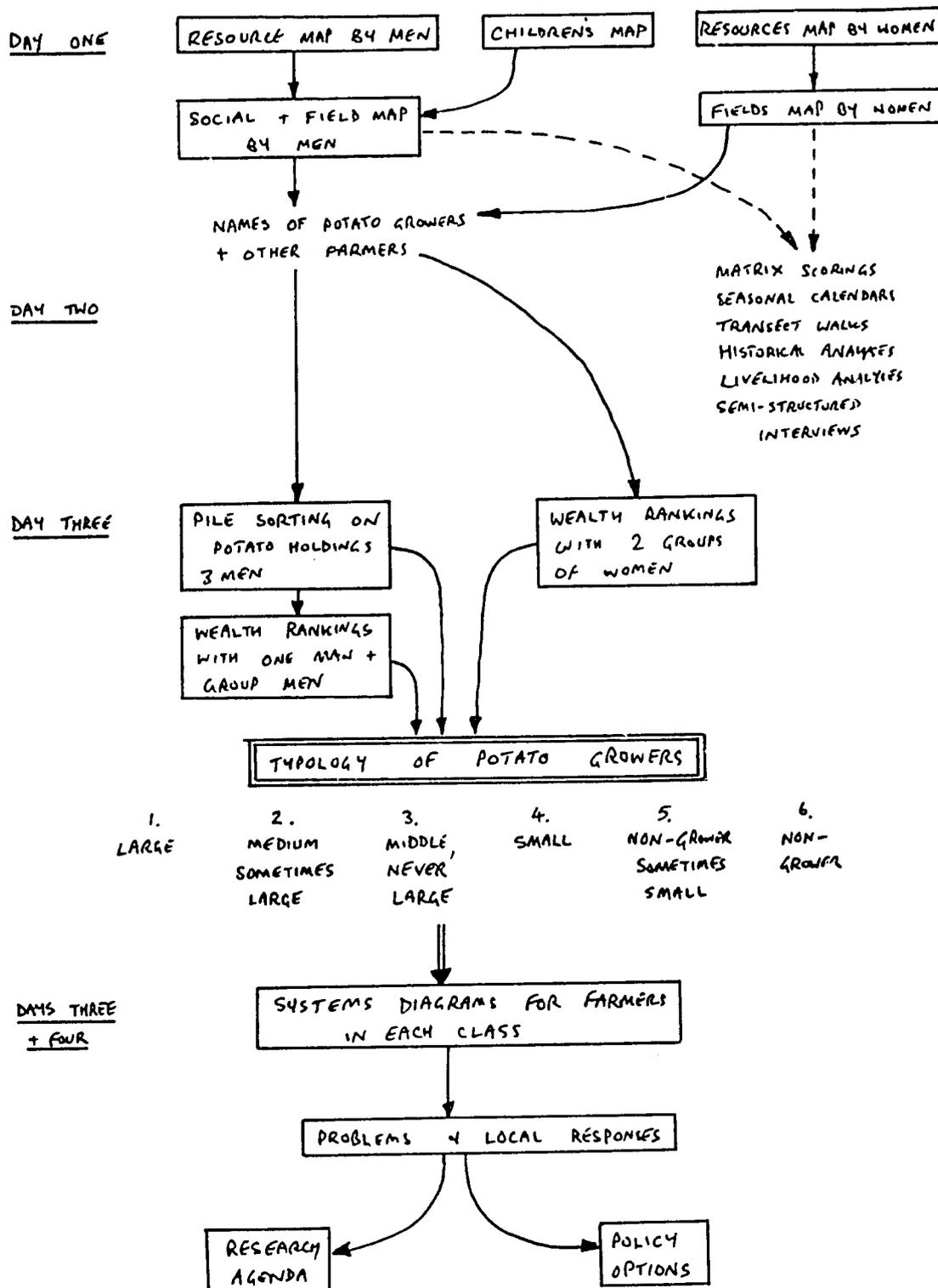
The fieldwork led to the development of many new uses of existing diagramming techniques and entirely new versions. Most of these demonstrated farmers' understanding of systems and interactions on their farms. The innovations included:

- potato holding ranking cross-checked with wealth ranking; land holding ranking, cross-checked with proportion of land to potatoes;
- treatment sequence (by farmers)
- seed sources flow diagrams (by farmers)
- decision tree for autumn potato cultivation (by farmers)
- cycle seed multiplication (by farmers)
- problems and solutions impact (by farmers)
- circular seasonal calendars (by farmers)
- field map combined with social map (by farmers)
- process matrix (by farmers)
- crop rotation map
- process problems (by farmers).

Policy Barriers to Agricultural Development

A range of PRA methods was used to explore the local perceptions of barriers and opportunities for agricultural development. Although this was a study partly to establish a research agenda, it was clear that the policy context was critical for farmers and their efforts. PRA visualisation methods could be used more explicitly as an input into policy formulation (see Figure 3 below).

Figure 3 Sequence of PRA methods used for developing typology of potato growers



4. EVALUATION OF THE PRA FOR FPR WORKSHOP

At the end of the workshop, the participants were asked to evaluate the training. Together with these responses, discussions between the facilitators and PSPDP staff form the basis of the final evaluating comments below. The evaluation is based on the extent to which the original objectives were reached (see *Introduction*). In retrospect, we agreed that these objectives were too ambitious for a 12 day workshop. Furthermore, mixing the training and research objectives confused both the participants and organisers, especially during the final days when pressure to produce a descriptive report rose. This detracted from the main training purpose.

Overall, however, the workshop proceeded smoothly and was appreciated by the participants and the organisers. It is considered an excellent starting point for Phase 3 of PSPDP, bringing provincial and federal people together, encouraging teamwork and establishing a common view on working with farmers.

Learning about PRA

The first objective concerns imparting skills on PRA methods and process, while encouraging an appropriate attitude for its use. Although the group was very diverse in language skills, educational level and experience, most participants left with an idea of the range of possibilities of PRA and the key aspects it embodies. One of the questions put to the participants was the single most important lesson of the training for them. About half the answers indicated an attitudinal lesson:

"Let the farmer take the lead and the pen."

"Learn to listen to others patiently."

"Learned to unlearn". (indicated several times)

"How to work in a group and face the problems of the farmer."

"I was amazed at how receptive the people were".

The other half suggested a particular applicability of PRA for their work:

"SSI alone does not give complete or comprehensive information. PRA techniques help elicit detailed information."

"Easy understanding of farmers' problems."

"Can involve the farmers in a better way for on-farm activities."

"How to approach a new area/village."

These lessons indicate a recognition of the value of PRA and is an encouraging sign. However,

specific follow-up is required to incorporate PRA into PSPDP's normal research procedure and to ensure that the quality of future use of PRA remains high (see **Chapter 5: Suggested Follow-up**).

Appropriate Attitude

The key aspects of an attitude conducive to good PRA are continual probing, conscious 'handing over of the stick' (letting villagers do the diagrams) and an open willingness to learn from villagers. The need to let villagers do the actual diagramming without prompting them became increasingly clear to the participants. There was an overall move away from straightforward interviewing to diagramming, and to letting the farmers do it themselves. Nevertheless, the value of diagrams as ways into discussion is not appreciated fully and they are seen as ends in themselves. Probing each diagram, or continuing to ask 'why?' requires further training efforts (see **Suggested Follow-up**).

Generally there was a clear awareness that PRA is about learning from the villagers, with continual reminding by the participants of each other, that we were exploring local perceptions and not to ask leading questions.

The PRA Process

The key to the PRA process lies in the flexible application of (sequences of) methods and in innovation. Many participants remained unclear about the range of possible uses of specific methods, as they focused on the technicalities of using the methods for the first time. Further clarification on the range of applications of each method for PSPDP is needed and first ideas have been included above (see **Chapter 2: Research Framework Options**). Most participants were so involved in the basics of each method that many opportunities for using particular methods to probe further were lost. Better and more creative use of material other than paper and pen, in order to include illiterate villagers, also needs more encouragement.

To have more time to absorb lessons from both the PRA process and the substance and to plan the next day, it is suggested to limit the fieldwork to half a day, thus achieving a better balance between fieldwork and analysis. The focus would be on producing fewer diagrams and more on thorough probing around each diagram.

PRA Methods

In the field, three main difficulties with most methods arose:

- getting started on a diagram with a villager;
- lack of clarity on the specific objectives and relative merits of each method;
- realising the diagrams are probing tools, a means to better discussion, rather than an end in themselves.

During their assessment of the usefulness of methods, participants most often mentioned 'all methods', followed by systems diagrams. Next most useful were matrices, with farm profiles,

wealth ranking, problem/solution diagrams, and local practices and beliefs sharing fourth place. Most considered there to be no "least useful method" and said utility depends on the research topic. Systems diagrams, mapping, network diagrams and venn diagrams were considered least useful by 2 participants each.

The two methods that definitely needed more explanation and practice were systems diagrams and Venn diagrams. Matrices were mentioned by 5 people, and mapping and transects by 3 each as difficult. Apart from this participants indicated a wide spread of useful, less useful and unclear methods.

Semi-structured interviewing was much used, after some initial confusion about its status as a specific technique or as the basis for other techniques. Probing, and triangulation after judging the quality of information, will need more practice, as do the actual introductions by the field workers of themselves to the villagers. Local materials were used well during the mapping, matrix scoring and seasonal calendars. Transects were generally not well documented, partly due to lack of preparation to determine and allocate responsibility for different topics before setting out. The importance of including an "eye-opener" method needs to be emphasised again. Historical/future applications were only covered well in one group. Discussion within PSPDP about the relevance of the past and possible futures would help to improve this (see **Suggested Follow-up**). Wealth ranking is a potentially powerful tool for PSPDP to identify different farmer groups and assess the impact on farmers, but was least used and clearly needs more explanation and practice.

Making it a Habit: Institutionalising PRA in PSPDP

The second objective was definitely seen as unrealistic given the short duration of the training. Now that PSPDP staff have been exposed to the range of methods, several stages of follow-up are required to make PRA routine. For those participants with more experience in community development, the usefulness of PRA seemed clearer as expressed in discussions and in the proposed action plans (see **Appendix C**). The PSPDP research staff will need to clarify the relevance of each PRA method, and the incorporation of PRA methods in daily working practice will need to be strongly encouraged by management (see **Suggested Follow-up**). PSPDP management will need to play an active role to help the participants overcome the initial lack of confidence in applying PRA.

Descriptive Report of Aroop

The workshop was too short to allow for a descriptive written report to be completed as indicated in the third objective, but the diagrams form a basis for a comprehensive report on farming in Aroop. By merging the information from the three sub-groups, a good overview of Aroop will be available to plan the next stage of PSPDP's work in the area.

Logistics

All arrangements were considered fine although the limited space and noisiness at the hotel

made group discussions difficult at times. The actual field site proved difficult particularly due to the size of the town. The artificial division into three sub-sections did not help to focus the fieldwork as expected. To limit any unnecessarily difficulties in a training course, it is recommended to focus the fieldwork around several small villages.



5. SUGGESTED FOLLOW-UP

From the evaluation notes and suggestions for application of PRA in PSPDP's research cycle, it is clear that PRA has had a successful start in Gujranwala. However, to ensure that PRA develops as an institutional strategy for farmers' participatory research on potatoes, it is incumbent upon all PSPDP staff to follow-up these first efforts. Although follow-up should primarily be encouraged by PSPDP's management, all those who were involved in the training course are able to proceed with their individual action plans (see Appendix C).

Processing Information on Aroop

There are two obvious tasks to pursue to ensure the information from Aroop is processed to serve PSPDP and the farmers in Aroop. First, the existing ideas for further research from the sub-groups can be developed into a research framework for different farmers from the Aroop area (see **Research Options Framework**). Any remaining uncertainties will need to be checked in extra field visits to the different sections of Aroop.

The second task is to gather the information from the different profiles and write an overall profile on Aroop. The most obvious procedure is to identify those topics on which information exists and join information from the diagrams under each heading.

PRA Presentations

The researchers that participated in Gujranwala would benefit from positive incentives to apply PRA in their work. What seems of particular importance is to instill concrete ideas of the use of PRA in the research cycle such as is suggested in the research options framework in Chapter 2. Research staff should be encouraged to continue appreciating that effective use of PRA is not determined by the application of the entire 'toolbox of techniques', but by an appropriate attitude.

An immediate possibility is to organise one-day sessions in which PSPDP staff present their use of PRA methods. In an invitation to the Gujranwala participants, they can be asked to apply a PRA method or sequence of methods to investigate a specific topic and to write this up. This would encourage them to use one or more PRA methods in their own research context and without facilitators. During the workshop, the documented field experiences would be presented and serve as a basis for discussion, using questions such as:

Who 'held the stick'?

What material was used to make the diagram?

What questions were used to probe the diagram?

What problems did you encounter, what successes?

Once the diagrams are presented and the process and substance discussed (in small groups to encourage discussion), alternative or further probing questions for that diagram could then be brainstormed by the group. In this way, the application of each PRA method is used as a learning experience and each participant has an opportunity to present and comment.

After this, sub-groups could then clarify the applicability of PRA methods for PSPDP by reflecting on the presentations. After identifying PSPDP's phases of research, they could proceed to link each phase to particular methods, brainstorming on possible focused use of each method and on sequences.

Refresher Workshops

In Chapter 4 the learning impact of the training is discussed in detail. Existing weaknesses could form the basis of *Refresher PRA Workshops*, such as role-plays about explaining the methods to villagers. Another example is using the methods to explore historical changes. A workshop on historical applications could start with a buzz session on why knowing the past is or is not relevant for PSPDP. Other themes for the refresher workshops could be:

- wealth ranking
- flow diagrams
- venn diagrams
- multidisciplinary team work
- new applications of methods.

Implementation of Action Plans

The action plans (see Appendix C) that were produced during the training provide concrete ideas where PSPDP can move ahead to institutionalise PRA in each province. Some of the action plans will need to be refined before they can be acted on but planning their implementation is possible without further delay.

During the fieldwork, a careful balance between fieldwork and analysis should be sought. Unlike the PRA training, the main purpose of the action plans is for research, so the information collected must be accurate, cross checked and fully processed in recommendations for research.

Publishing Pressure on Professionals

Another strategy to encourage research staff to make PRA a routine is to link this to the need for research staff to publish research findings. As PSPDP research staff must publish several papers each year, they could be encouraged to publish research findings based on PRA experiences¹. For this PSPDP staff can also be encouraged to use a single PRA method, not necessarily the full toolbox. The findings from one matrix or one systems diagram are already worthwhile to document.

¹ The *RRA Notes* (Sustainable Agriculture Programme, IIED, 3 Endsleigh St, London WC1H 0DD, United Kingdom) is one forum where practitioners of RRA and PRA are able to share their experiences.

Institutionalising Participatory Methods

Institutionalising PRA is a slow process, extending beyond a two-week field-based training. The workshop in Gujranwala served to start the process, instilling in the minds of PSPDP staff practical ways to conduct on-farm research that is participatory and reflects the needs of different types of potato farmers. The methods are easy to learn, but further encouraging of appropriate attitudes and incorporating it into the existing research cycle will be necessary if PRA is to become second nature. The key to embedding a PRA approach in PSPDP's research work lies in follow-up to this first introduction.

6. PROFILE A OF AROOP

by

Abdul Hamid Tariq
Najibullah Khan
Allah Wadhayo
Ajmal Malik
Khairuddin Tonio
Misbahud Din
Rubina Akhtar
Farzana Bari
Mehreen Hosain
Mohammed Iqrar Khan
Urs Zanoni
Richard Edwards



Contents of Profile

Diagrams, Process and Key Findings

- History, maps and transect of Aroop (nos 1-4)
- Changes and trends (nos 5-9)
- Links, contacts and institutions (nos 10-18)
- Social structure and wealth (nos 19-23)
- Education and health situation
- Temperature and rainfall (no 24)
- Input availability: irrigation, credit and labour (nos 25-33)
- Marketing (nos 34-35)
- Income, expenditure and livelihood (nos 36-41)
- Landholding and tenancy (nos 42-43)
- Cropping pattern, pest and diseases (nos 44-47)
- Soils (nos 48-49)
- Livestock (nos 50-51)
- Potato-specific information (nos 52-54)
- Problems and solutions (nos 55-64)
- Farm profiles (nos 65-75)
- Sequence of Venn diagram to flow diagram and systems analysis

HISTORY, MAPS AND TRANSECTS OF AROOP

The village now known as Aroop dates back to a pre-Indus civilisation. It is said that the old village was destroyed by floods and a new village rebuilt over the remains. The old walls of the village are still seen in the old portion (mound). Because the village was rebuilt on remains, it is said that trees could not grow. The villagers still unearth artifacts such as pieces of pottery when they dig in the village.

The village was named 'Aroopa', but it is unclear when this happened. Some say it was named after Rupra Singh a Sikh prince, around 1830-40. Aroopa was the capital of the Rupra state. At some stage a dike was constructed around the village to protect against flooding.

Villagers associate a series of positive events with the Ayub Era (1957-67). This includes the introduction of schools, roads, electricity etc. The 1960's were also associated with a marked increase in the use of tubewells (with associated agricultural changes) and the growing of potatoes on a widespread scale. In 1968 a water tank was built. Another event was the election of Chowdhri Anwar Bhinder as a Speaker in the West Pakistan Assembly. He was able to bring about a number of developmental changes for the village through his influence.

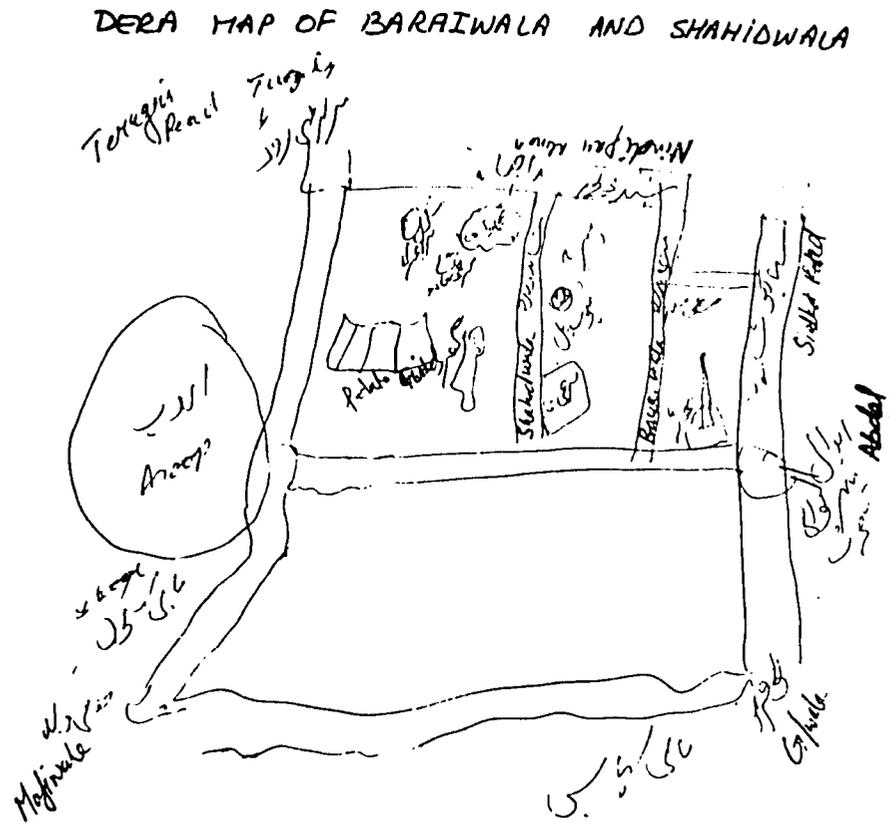
The years after the Ayub era are associated with spiralling inflation and conditions worsening for the farmers. As they put it: *"We have been nanga-bhukka (naked/hungry) for the past many years"*.

Historical events in Aroop as identified by informants

	Pre-Indus civilization remains.
1830-40	The settlement becomes Rupra Capital and is named Aroop
1926	Canal built
1947	Partition
1958	Ayub Era: land consolidation, electricity, schools
1960	Ch. Anwar Bhinder becomes speaker of W. Pakistan Assembly
	Road network increased
	Telephone connection
	Tubewells powered
	Potato mostly likely introduced
	Village profile appears in the Pakistan Times
	Tractor introduced
1965	Potato becomes a common crop
	War with India
	Increase in prices
1968	Water tank constructed
1971-date	Depression
1989?	Drain constructed

1. Dera Map of Baraiwala and Shahidwala

First, we entered the village in sub groups from the Abdal side. We met a farmer and his son. We introduced ourselves and started talking with the farmer and his son. With the help of his son, the farmer agreed to draw a local map of his *dera* and another close *dera*'s. The farmer and his son were shy to draw. But after I encouraged him he started, drawing the local map of his *dera* and surroundings on paper.



عمران دست لکھی
گورنمنٹ ہائی اسکول ایبوال
(Drawn by Student)

2. Village Map

Drawn by: Zafar Iqbal Cheema, potato grower

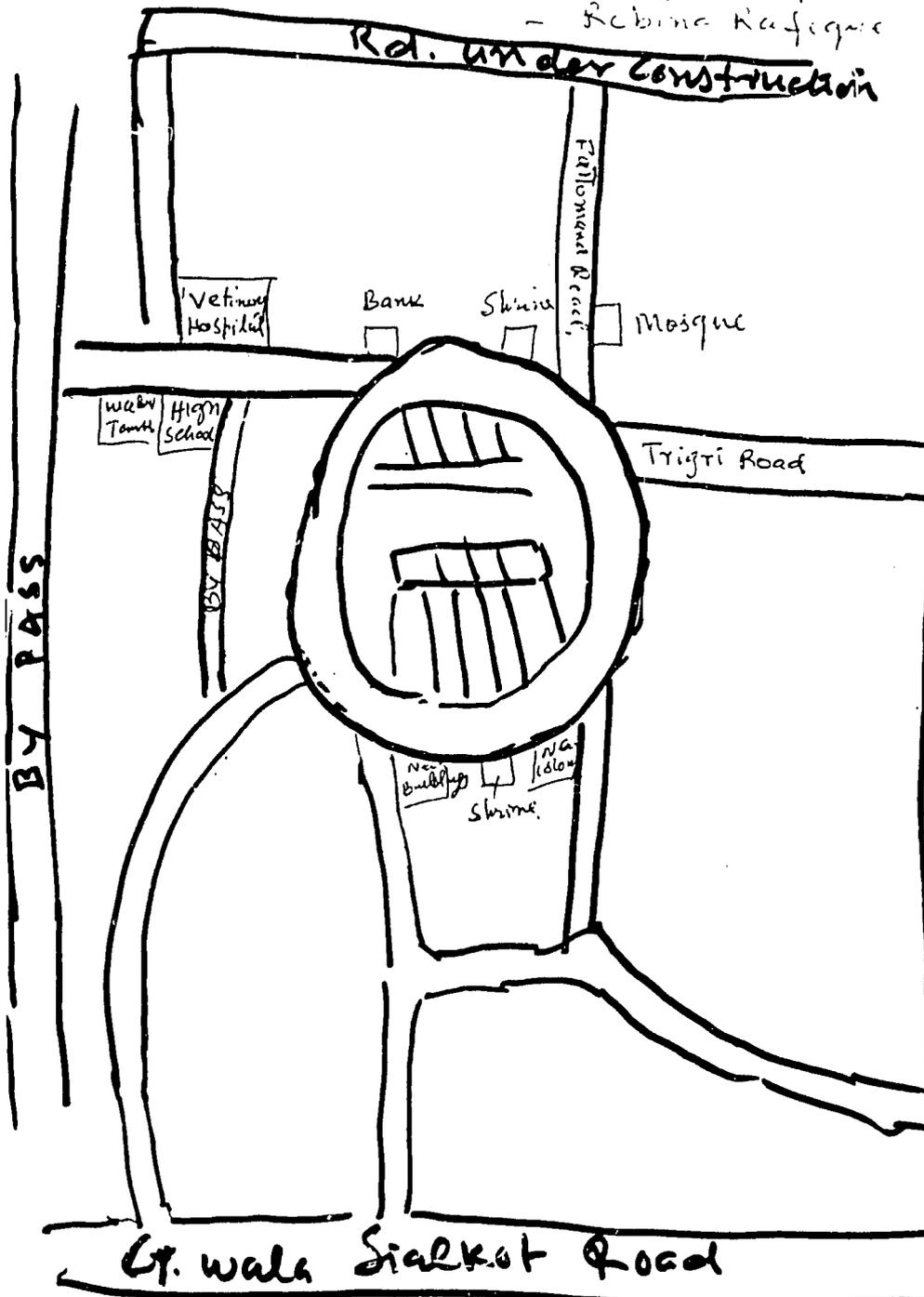
Facilitators: Allah Wadhayo, A.H. Tariq and Rubina Akhtar

Process:

A potato grower, Mr. Mohammed Mansha came across to the PRA team during our transect walk. One of the team members introduced the team to him and explained the purpose of the visit. He took the team to his tubewell site. Some other growers also gathered there. After some discussion a grower Zafar Iqbal Cheema drew the village map.

VILLAGE AROOP

DRAWN BY GROWER -- Zafar Iqbal Cheema
 Facilitators = PRA TEAM
 - Allah Wadhayo
 - A.H. TARIQ
 - Rubina Akhtar



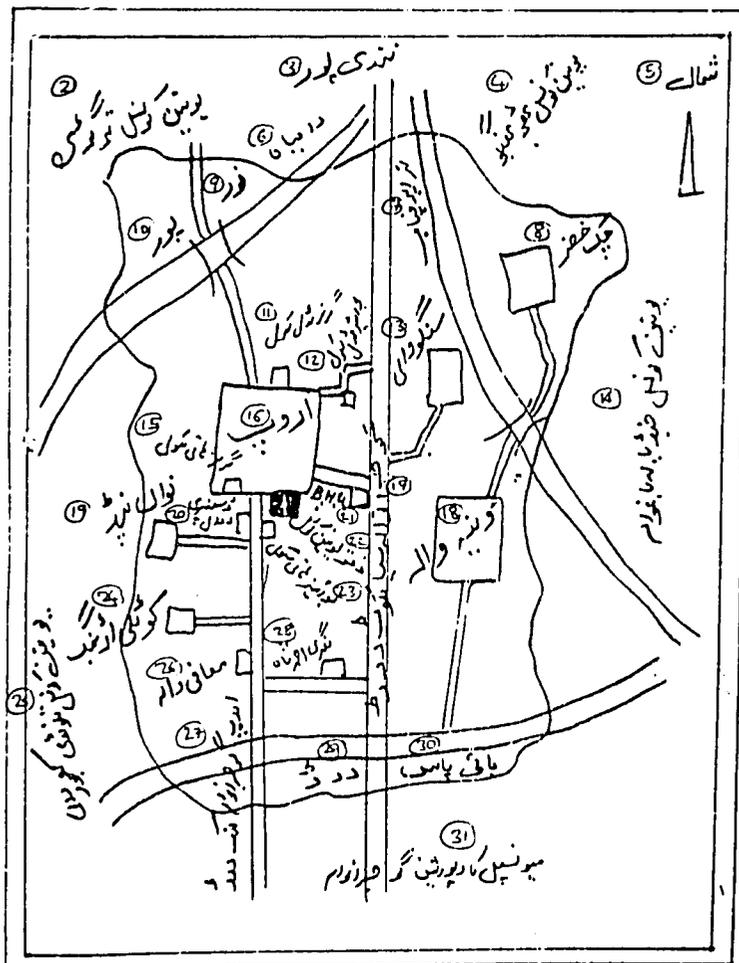
Key

- | | |
|---------------------------------------|---|
| 1. MAP - Union Council Aroop | 17. Gujranwala - Sialkot Road |
| 2. Triggri Union Council | 18. Waniawallah (Place name) |
| 3. Nandipur (Place name) | 19. Nawan Pind (Place name) |
| 4. Union Council Bhatti Bhango | 20. Dispensary - Rural Health Centre |
| 5. North | 21. BHU |
| 6. Rajbah - Canal | 22. Union Council Office |
| 7. Canal - Upper Chenab | 23. Boys High School |
| 8. Chak Khizar (Place name) | 24. Kotli Arbang (Place name) |
| 9/10. Noorpur | 25. Union Council Talwandi Khajoorwaali |
| 11. Girls Middle School | 26. Mafiwalla (Place name) |
| 12. Boys Middle School | 27. Aroop - Gujranwala Link Road |
| 13. Sangowzali (Place name) | 28. Nagri Ahmad Shah (Place name) |
| 14. Union Council Jandiala Baghwallah | 29/30. By-pass Road |
| 15. Girls High School | 31. Municipal Corporation Gujranwala |
| 16. Aroop | 32. Inayatullah Bhatti (Secretary, Union Council) |

17/02/92

AROOP VILLAGE MAP: COLLECTED FROM THE OFFICE OF THE UNION COUNCIL (RECORD ON FILES)

نقشہ یونین کونسل اروپ



32
 مناب الہیہ
 1989ء
 انجمن ترقی برہنہ کونسل
 لاہور

3. Aroop Village Transect

13/2/92

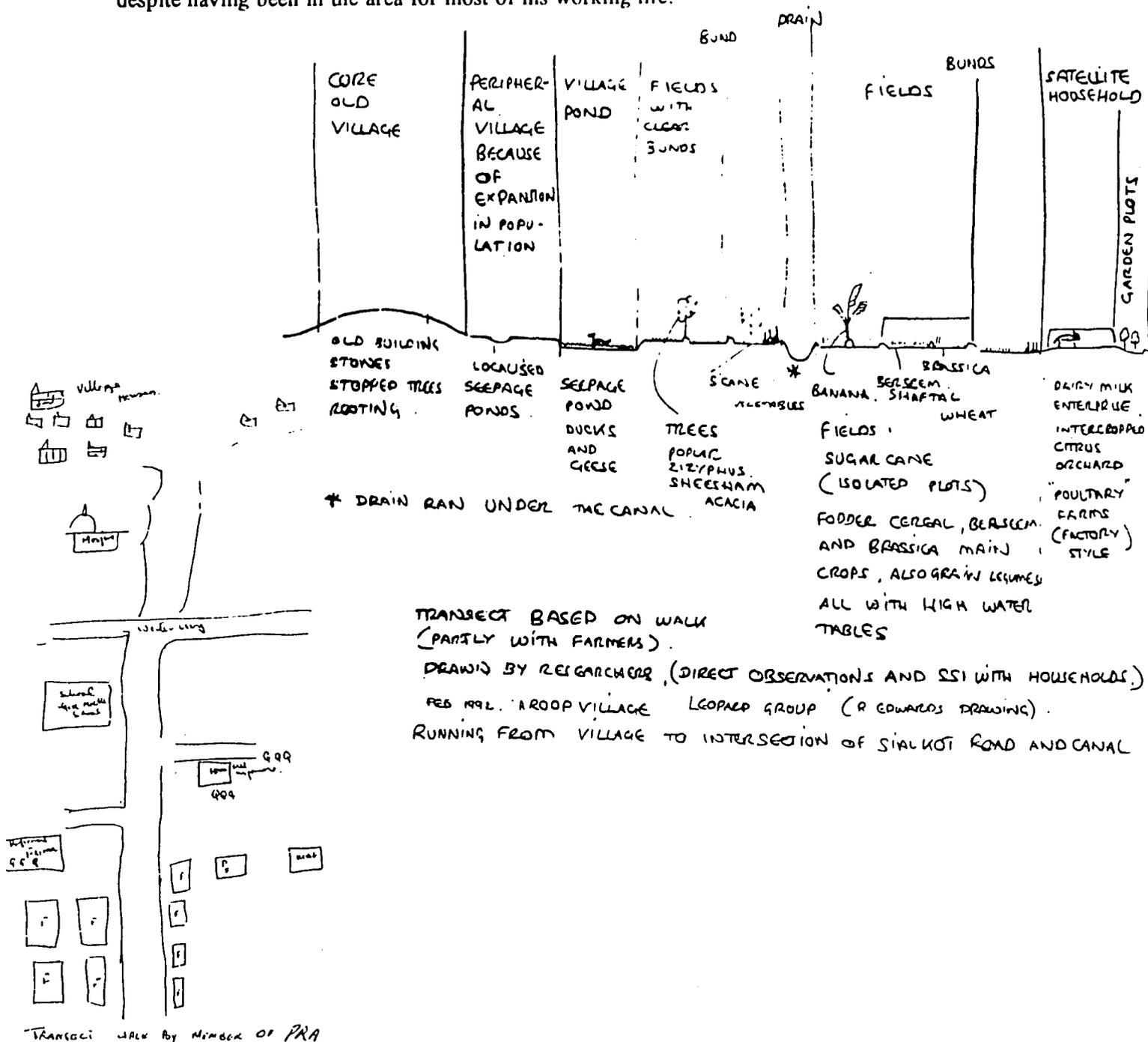
Location: Aroop to intersection of main canal and Sialkot road

Who involved: Ajmal, Rubina, Mehreen, Allah Wadhayo, Richard, Najeeb, Tariq

Process:

The map was drawn by one person based on feedback from the group prior to the drawing, with comments on the diagram as it was drawn. The group walked along the route taking notes based on direct observation. This was backed up by more detailed meetings with farmers met on the way in their households. Some participants observation exercises were also carried out-cutting fodder and chopping feed for cattle. The walk took all morning and involved chance interaction with farmers.

It was fun and illuminating. One PRA team member fully involved in agriculture saw a local adaptation to a scythe (a net to collect the cut fodder and deposit it in a pile at the end of each cut) for the first time despite having been in the area for most of his working life.

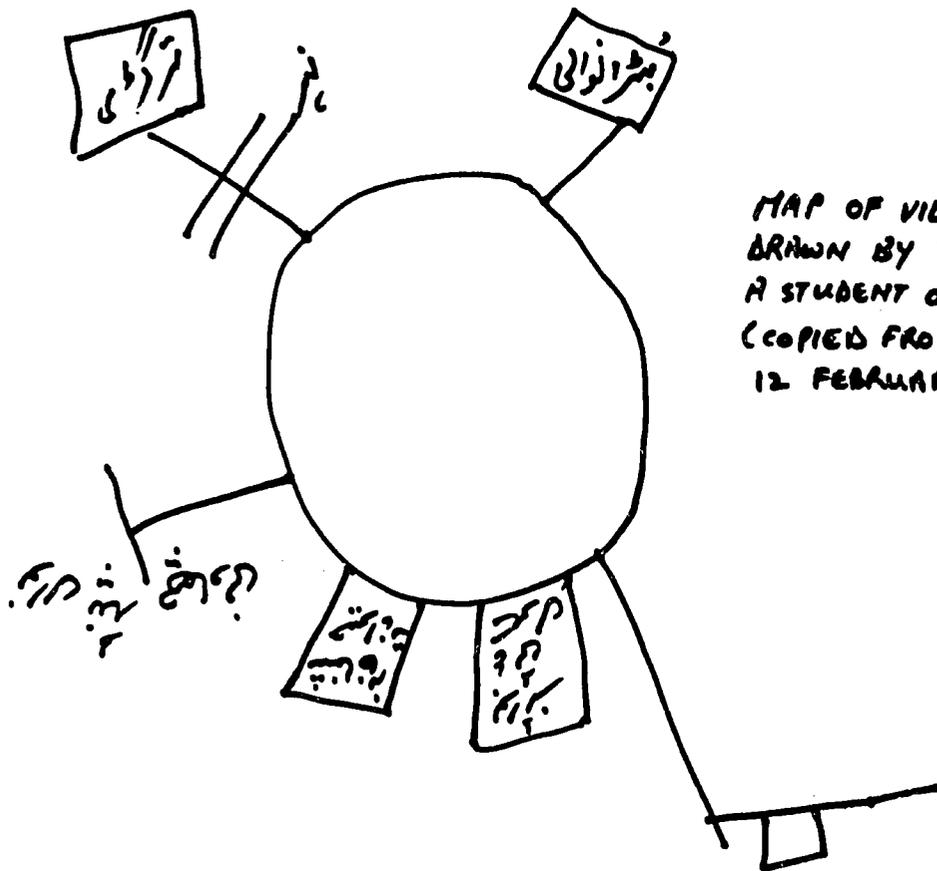


4. Three Village Maps

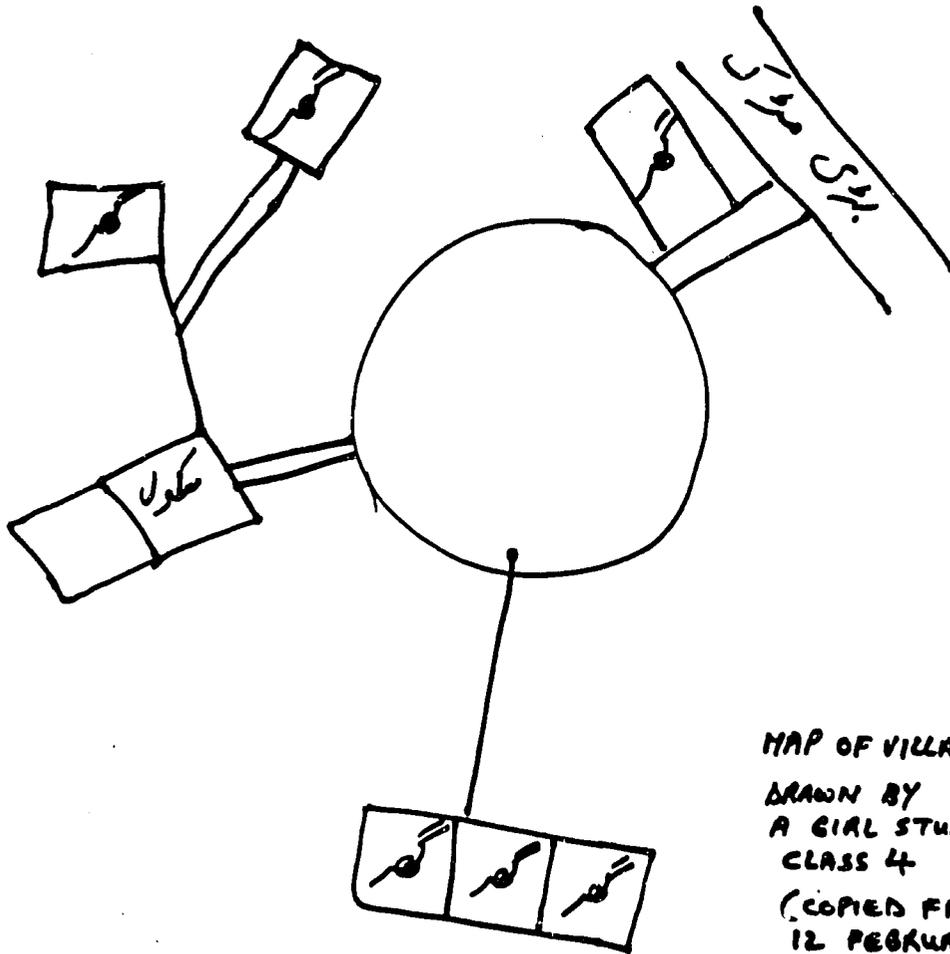
Drawn by: School students

Process:

While the PRA team was getting a group of villagers to draw a village map, a number of children gathered. To distract and physically remove them from the group, two team-members took the children aside and asked them to draw a map. The children were initially very shy, but soon larger numbers gathered and they gained confidence. To get them involved (as they were reluctant) the team members started a map on the ground with chalk. This started the children off and they participated actively. Girls were initially 'shyer' than boys - but equally, if not more enthusiastic, once started.

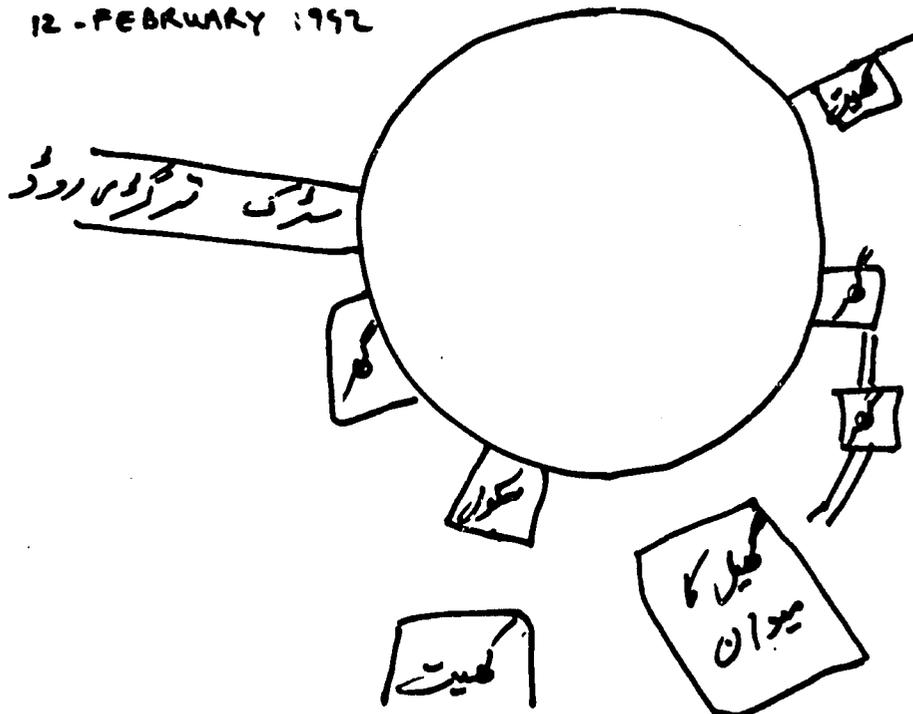


MAP OF VILLAGE ARUP,
DRAWN BY 'GHULAM ALI'
A STUDENT OF CLASS 6
(COPIED FROM THE GROUND)
12 FEBRUARY 1992



MAP OF VILLAGE ARUP
 DRAWN BY 'TANZEELA'
 A GIRL STUDENT OF
 CLASS 4
 (COPIED FROM THE GROUND)
 12 FEBRUARY 1992

MAP OF VILLAGE ARUP
 DRAWN BY 'LUBNA'
 A GIRL STUDENT OF CLASS 6
 (COPIED FROM THE GROUND)
 12 - FEBRUARY 1992



CHANGES AND TRENDS

Trends and changes in Aroop

Decrease

Land holding size
Main crop, wheat
Trees
Fuelwood
Income
Saving from Agriculture
Farm(labour) employment
Persian wheel use
Diesel engine use (**)
Bullock use

Increase

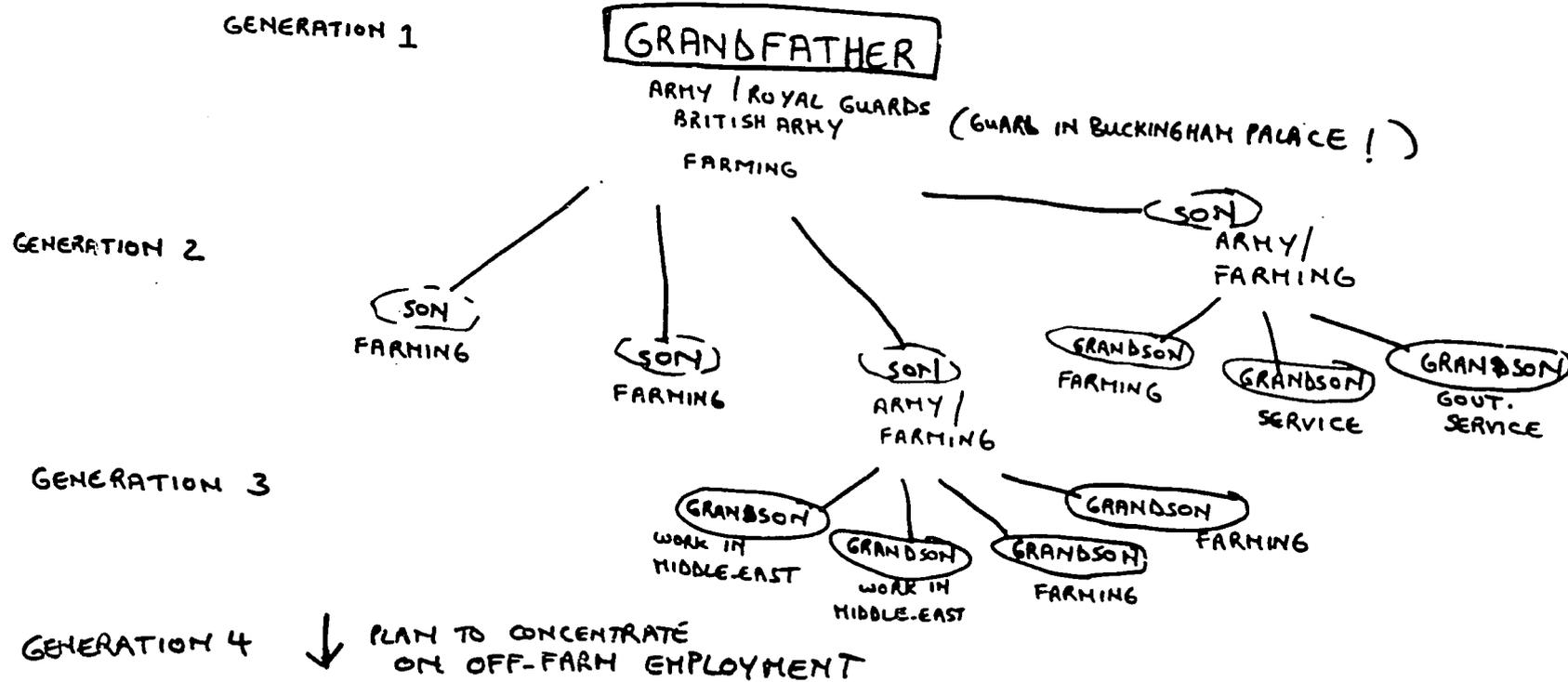
Population: 1947-4000; 1992-14000
Village size: 1992-3600 acres
Yield
Communication: roads/telephone/transport
Women off-farm employment
Schools: Lower, Middle, High
Female education
Electricity (*)
Mechanisation
Tubewells run on electricity (*)
Irrigation
Variety of crops (*)
Fodder
Salinity/water logging
Fertilizer use
Pesticide use
Manure as fuel
Off-farm employment trends
Unemployment
Crime
Addiction
Gratification/Bribery
Adulteration
Prices
Expenditure
Dairy cattle
Poultry

* Decreases again in recent year

** Increases again in recent years

CHANGE IN LIVELIHOOD SYSTEMS

CONSTRUCTED FROM SSE ON FAMILY HISTORY
FACILITATORS: RUBINA AKHTAR & MEHREEN HOSSAIN



5. Series of Time Lines of Trends in Aroop 1947-1992

13/2/92

Source: Information collected during transect where from farmer Sadiq and group of farmers present.
 Drawn by: PRA member

Process:

During a transect walk we met a young man with a donkey. One member of the PRA team informed him about the purpose of the visit, and asked him for an interview. Then his father and brothers approached. They took the team to the sitting room. We had an opportunity to talk to the oldest member of the family who has a good memory of the history. He was an ex-army man. The diagrams were drawn by the team members with the help of the grower.

Time Line on changes in Education

	1947	1950	1960	1970	1980	1990	1992
Govt Sch. Boys	Primary	Middle or High level					
Govt. Sch. Girls				Primary	Middle	High	
Private nursey						Primary	
%age of Boys joining to sch.	2-3	25	30	35	40	50	80
%age of Girls joining to school	-	-	-	25	40	50	80

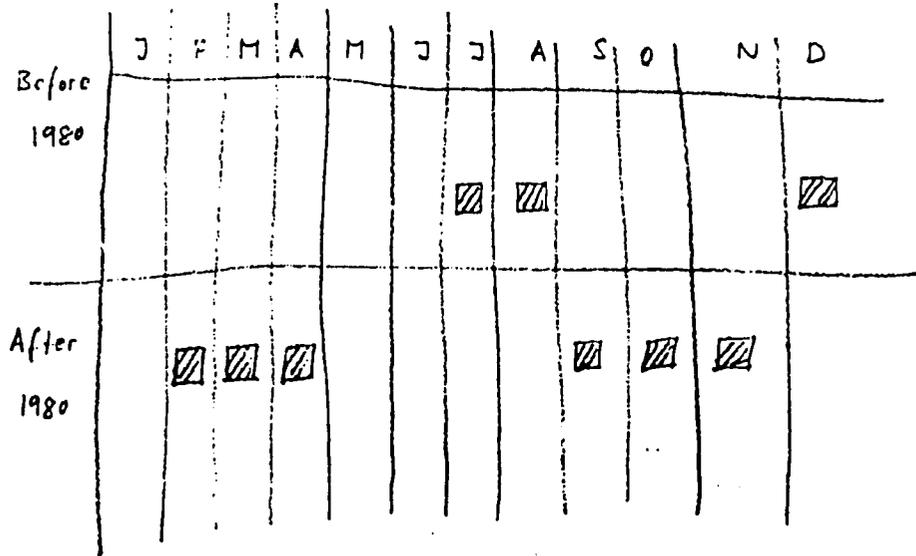
A. N. TAVIL

Mr. Sadiq &

Informant = Farmer Sadiq &
 Group of Farmers
 (PRA Members: J. walk)

Aroop
 13/2/92

Months with highest rainfall before and after 1980.



Source: Information collected during transect walk from farmer Sadiq + group of farmers present. Diagram drawn by PRA member (Aroop, 13/2/92).

TIME LINE ON CHANGES IN

IRRIGATION SOURCES

	1947	1952-53	1960	1970	1980	1990	1992
persian wells		Diesel Tube wells	Diesel electric Tube wells	Diesel + electric Tube wells	Electric Tube wells increased	ET wells	
% land irrigated by canal							25%
% land irrigated by Tube wells							75%

Source: Information collected during a transect walk from farmers + group of farmers present. Diagram prepared by PRA member (Aroop 13/2/92)

A.H. Tahir

TIME LINE ON CHANGES

IN MECHANIZATION

1947	1950	1960	1970	1980	1990	1992
Bullock power	Bullock → continued		Tractor	T. increased	T. increased	→ increased
Bullock drawn implements	Bullock drawn implements →	Continued	Tractor drawn implement	T.D.G. increased	T.D.Gm increased. Harvester Reaper	→ increased.

Source: Information collected during trained walk from farmer Sahaj & Group of farmers present.
 Diagram drawn by PRA member
 (Asoop 13/12/92)

TIME LINE ON CHANGES IN

IN FYM & FERTILIZER USE

<u>FYM:</u> <u>FERTILIZER</u>	1947	1950	1960	1970	1980	1990
FYM	□	□	□	□	□	□
CHEMICAL FERTILIZERS			□	□	□	□

Source: Information collected during trained walk from farmer Sahaj & Group of farmer present.
 Diagram Drawn by PRA member
 (Asoop, 13/12/92)

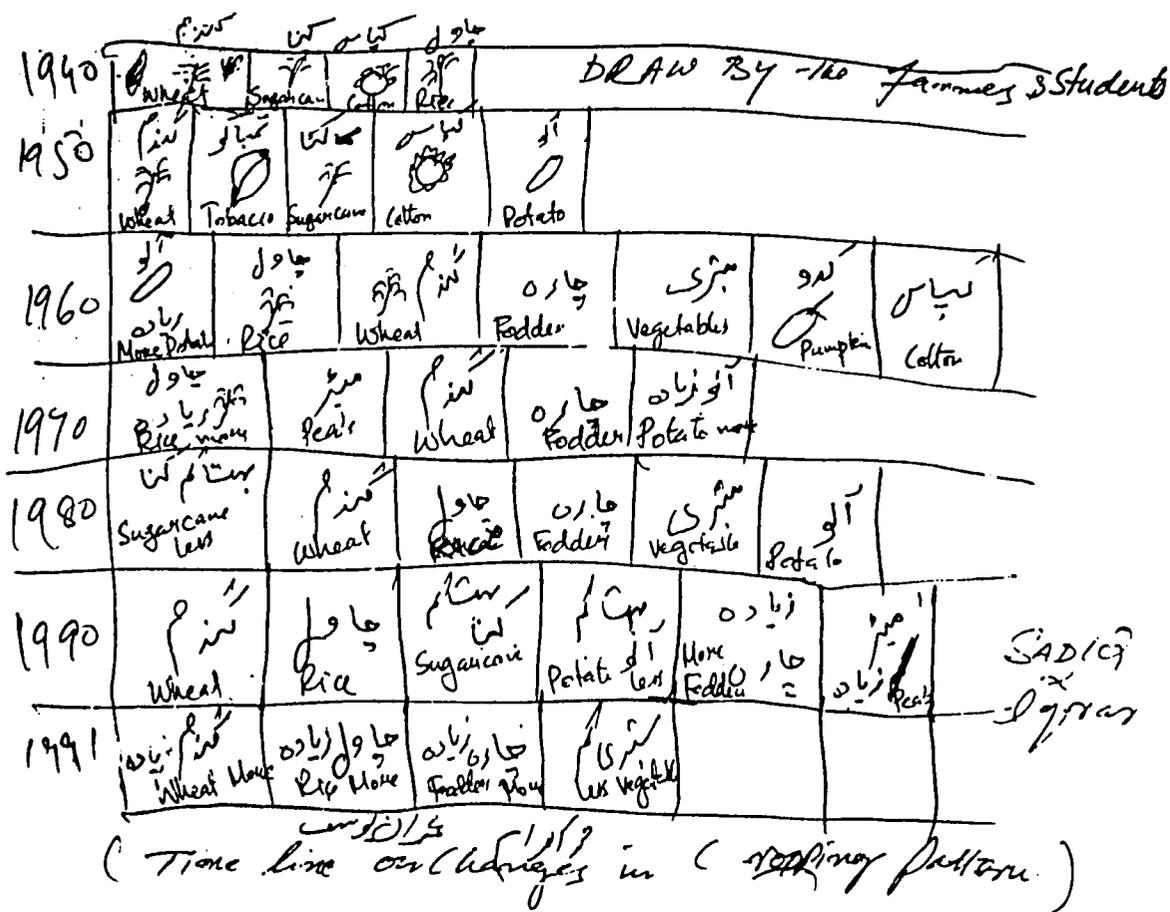
A.H. Tawil

6. Time Line of Changes in Cropping Pattern

Drawn by A. Yousaf and M. Akram.

Process:

First of all we introduced ourselves and told them we came from different places of the country to learn about the methods and techniques to use in villages. We sat on the ground. I told them: "Please draw a map on the ground or on paper". First he was rude but I tried to encourage him with tricks which were presented in the lecture, to convince them of the benefit of the map. This time line was drawn by Anwar Yousaf, student of tenth Class with the help of farmer Mohammed Akram.



7. Historical Transect of Crops

Drawn by: Zafar Iqbal Cheema, a farmer

Facilitators: A. H. Tariq, Allah Wadhayo, Rubina Akhtar

Process:

A grower Mr. Mansha came across the PRA team during the transect walk. He took the PRA team to his tubewell site. Some other grower also gathered there. After some discussion one of the growers Mr. Zafar Iqbal Cheema drew the historical transect with the assistance of another grower Mr. Fukar-ud-Din Cheema.

HISTORICAL TRANSECT OF THE FARM CROPS

YEAR	CROPS GROWN						
1947	wheat	Sugar Cane	Borseam clover mustard millet/peas	Common Vegetable	Chick peas	Mustard	Cotton
1950	wheat	Sugar Cane	-do-	-do-	-do-	-do-	-do-
1960	wheat	Sugar Cane	-do-	-do-	-do-	mustard Potato peas	-do-
1970	wheat	Sugar Cane + Rice	-do-	-do-	-do-	Potato + peas	Cotton
1980	wheat	-do-	-do-	-do-	Fodder crops	-do-	Rice
1990	wheat	-do-	-do-	-do-	-do-	-do-	Rice
1992	wheat	-do-	-do-	-do-	-do-	-do-	Rice

Name of Farmer

Zafar Iqbal Cheema

Facilitator

A. H. TARIQ

Allah Wadhayo

Rubina Rafiq

Drawn by

Farmer

copied by

PRA Team members

Village Assoc

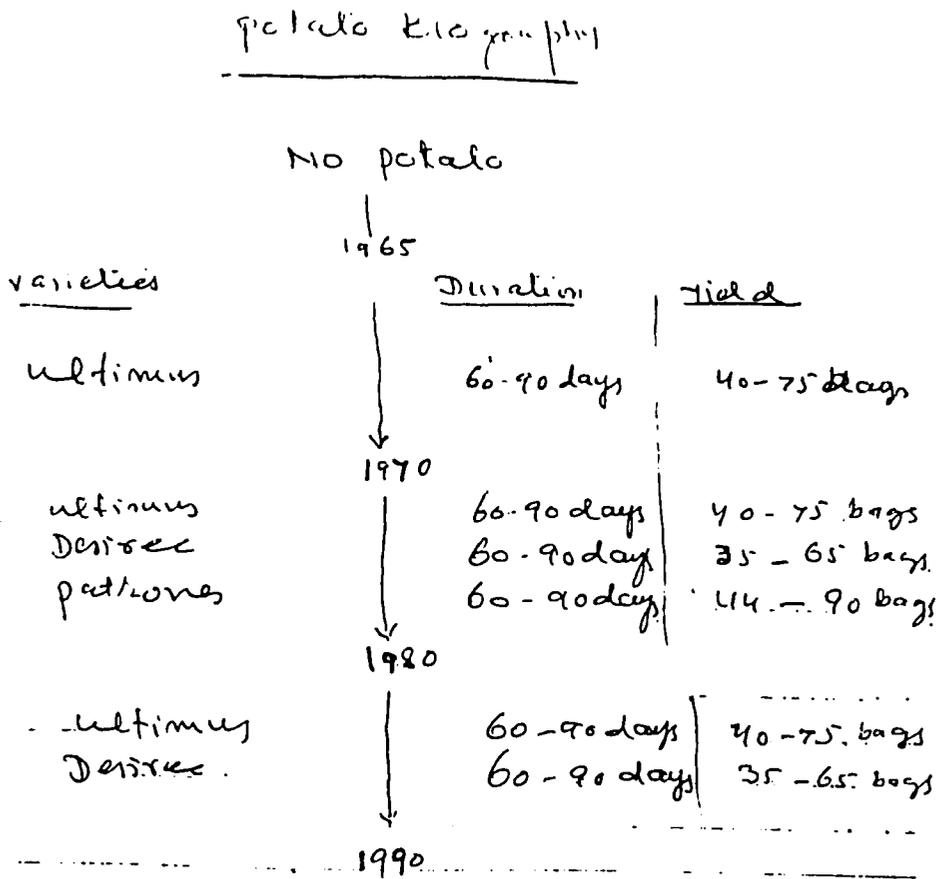
Date 16/2/92

8. Potato Biography 13/2/92

Source: Information collected during transect walk from farmer Anayat Ullah Mehr and other farmers
 Drawn by: PRA member

Process:

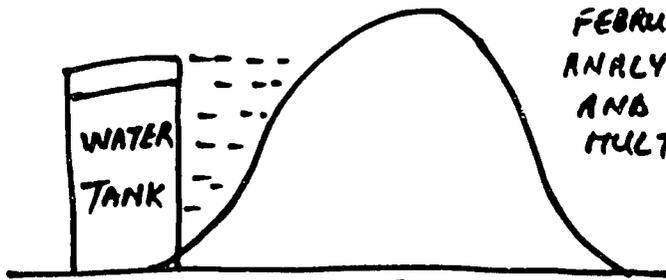
The PRA Team reached a farm *dera* and met a group of farmers. The purpose of the visit of the team was explained to the growers. The team was also introduced. After some discussion a potato grower Mr. Anayat Ullah Mehr explained the potato biography of his farm and village. One of the members of the PRA team drew the diagram.



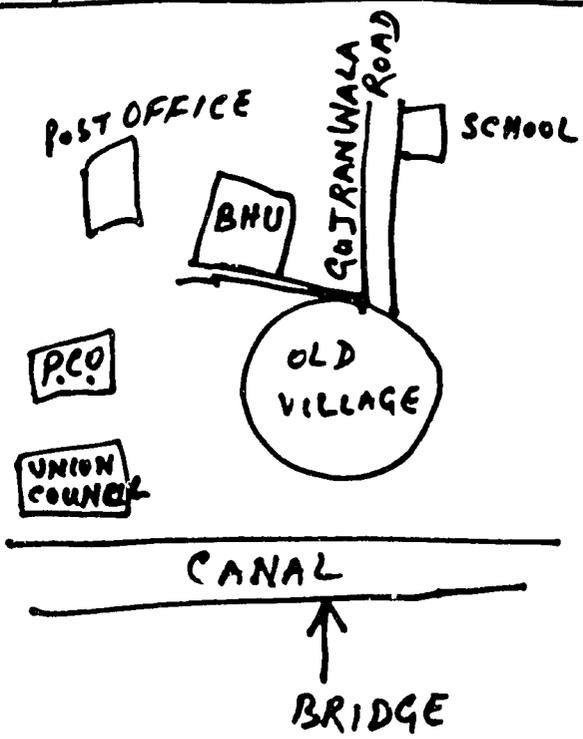
Source = Information collected during
 Transect walk from farmer Anayat Ullah
 Mehr & Group of farmers present
 Diagram Drawn by PRA member
 (A. 2005 13/12/92)

9. Water Shortage Analysis

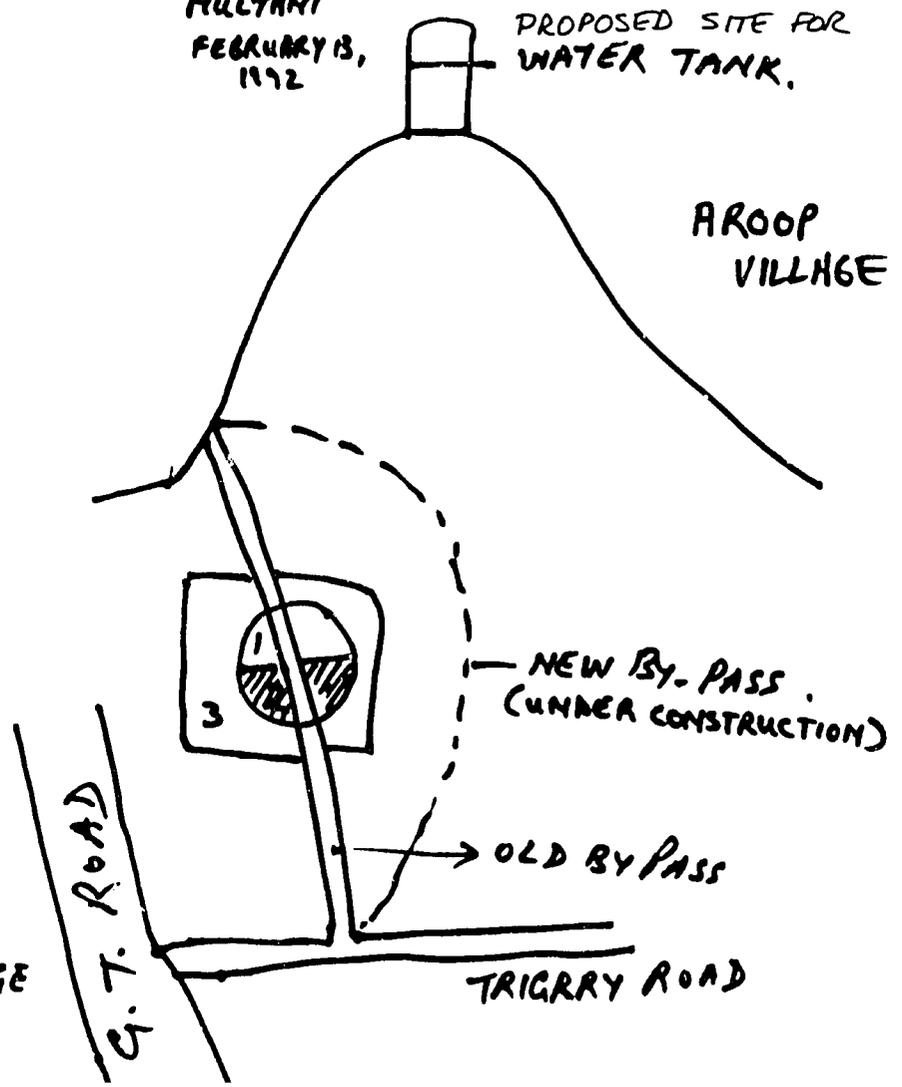
During discussions with a group of farmers one of them was asked to mention the problems of the village. While discussing the problems he was asked to draw a village map which he did very quickly - indicating major landmarks including a water tank. This tank is at a level which is too low to supply the whole village with water. A second map indicated the proposed change in position of the tank as well as social divisions and changes in the physical boundaries of the village and a new by-pass.



FEBRUARY 13 - 1992
ANALYSIS OF WATER SHORTAGE PROBLEM
AND VILLAGE MAPPING BY MONA. SAEED
MULTANI



ANALYSIS OF
CHANGES IN VILLAGE
AND PROPOSED
FUTURE CHANGES
BY MONA. SAEED
MULTANI
FEBRUARY 13,
1992



- 1. BHINDER FAMILY
- 2. CHEEMA FAMILY
- 3. EXPENSION OF OLD VILLAGE

LINKS, CONTACTS AND INSTITUTIONS

List of links and contacts (Institutions) identified by informants from Aroop

- Commission agents (arti)
- Seed Dealer
- Beopari
- Private household
- Banks
- Shopkeeper
- Agric. Extension
- WAPDA
- Irrigation Dept.
- Patwari
- Numberdar
- Gardener
- Tehsildar
- Politican Ch. Anwar
- Clan Head
- Mosque
- Neighbour/relatives
- Vets
- Schools/teachers
- Police station
- Office
- Union Council
- Cold Storage
- Traditional, medical practitioners
- Pirs (Ghulam Farid)
- Kanoongo

Changes in Political Influence

In 1960, Ch. Anwar Bhinder became the speaker of the West Pakistan Assembly. The impact of this was increased road network and prominence of village telephone services.

Political influence within the village leads to:

- heterogenous infrastructural development in different sectors of the village in favour of those closely associated with the leading clan;
- divisions on local level;
- unequal distribution of resources i.e. access to resource depends on close links with political people;
- exploitation of people by political figures.

The local response to these problems is that people try to become closer to persons with political influence.

10. Venn Diagram of Institutions Interacting with Household

16/2/92

Location: Farm outside village centre

Analysis by: two women from small farm households

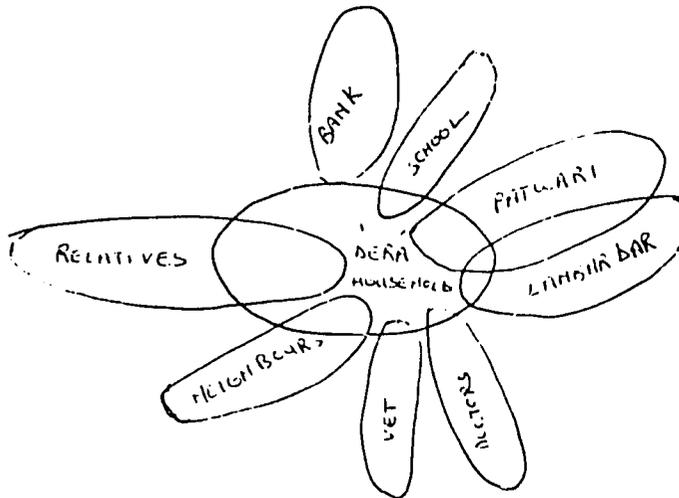
Facilitator: Mehreen Hosain

Materials: using cut-outs

Process:

A discussion was initiated with a woman on her role in agriculture and the problems the household was facing. An attempt to make a flow diagram on the problems was not successful - partly because there was a group of men nearby and she was unwilling to sit on the ground. During further discussions another woman joined the group - an attempt was made to ask the women about institutions they interacted with. It took a while to explain the exercise to the women - with some 'leading' by the team member ("What do you do when your crop gets sick?").

The institutions the women were most emphatic about were 'family and neighbours' - after which the *lambardar* and *patwari* were mentioned as next in importance.



[EIJAZ CHEEMA]
[DERA. (C)]

AROOP VILLAGE NEAR BUIRANWALA
FEB 16th 92

LOCATION FARM JUST OUTSIDE VILLAGE CENTRE

FACILITATOR MEHREEN HOSAIN

ANALYSTS TWO WOMEN FROM SMALL FARM HOUSEHOLDS

VENN DIAGRAM OF INSTITUTIONS INTERACTING WITH HOUSEHOLD
(constructed using cutouts)

11. Venn Diagram and Visit Frequency

16/2/92

Drawn by: Ch. Eijaz Cheema

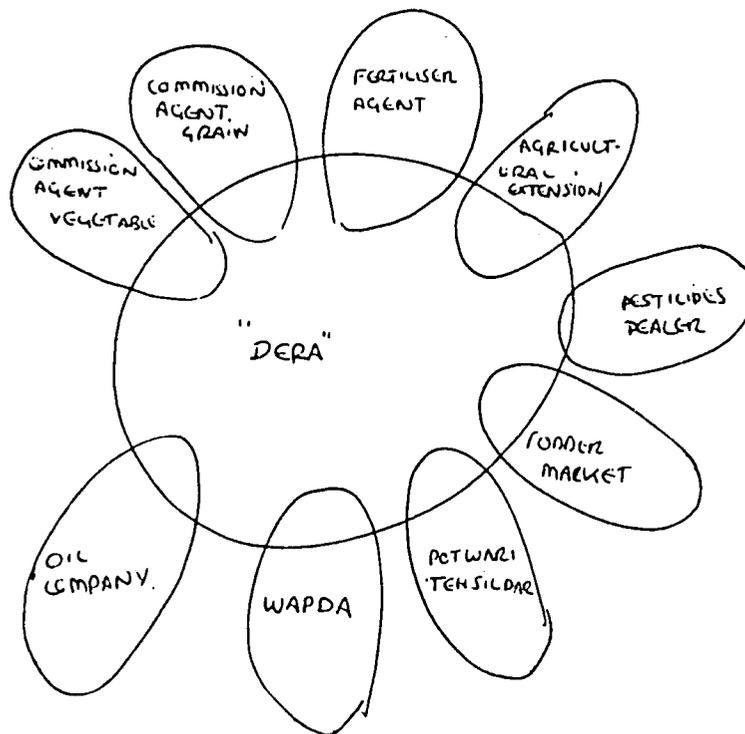
Facilitators: Najibullah Khan, Richard Edwards

Process:

The interviewers four in number while walking through the village went to the *dera* of Ch. Eijaz Cheema. There we also met other farmers who share the farm and are from the same tribe. First of all the team members introduced the team and explained the objectives of the visit. The farmer showed his pleasure to receive the team at his farm. The team also included a female member who interviewed the ladies of the farm family.

The farmer Ch. Eijaz Ahmed was asked during the discussions to explain his institutional linkages in the form of a diagram. Being a literate man, he responded in a nice way by placing pieces of papers (with the name of an institution on each piece) on the ground and thus completed the diagram showing the extent of links in each case. Before starting the work on the diagram, the farmer was briefed on how to do it. In the beginning, it was a bit difficult for him but then quickly he took up things correctly.

The farm spread over an area of 50 acres with a few *deras* (work places) on the front. A few bullocks were also seen at the farm. The overall look of the farm was poor and untidy. Wheat and berseem crops were seen in the field.



COPIED FROM CUT PAPER LAID OUT ON THE FLOOR.

VENN DIAGRAM

LEOPARD GROUP 3, FEB 16th 92, ARDOP NR GURANWALA

CHOWDARY EIJAZ CHEEMA, ACTIVIST/ARTIST

FACILITATOR NAJIBULLAH KHAN PSPDP.

RICHARD EDWARDS.

12. Venn Diagram of a Poor Farmer's Contacts

Facilitator: M.A. Malik

Informant: Farmer (Eijaz Cheema's elder brother)

Process:

We met the farmer at his *dera*, and encouraged the PRA team to spend some time with him, as he had lot of problems!

'Whom do you contact when you have problems?'

"Poor farmers don't have any person to refer to!"

'Why not? What about the Agricultural Department?'

"No, they are very distant from the poor farmer".

'How far from you - association/contact wise?'

The venn diagram followed: he placed Agricultural Department circle far away from himself.

'Who buys your crop?'

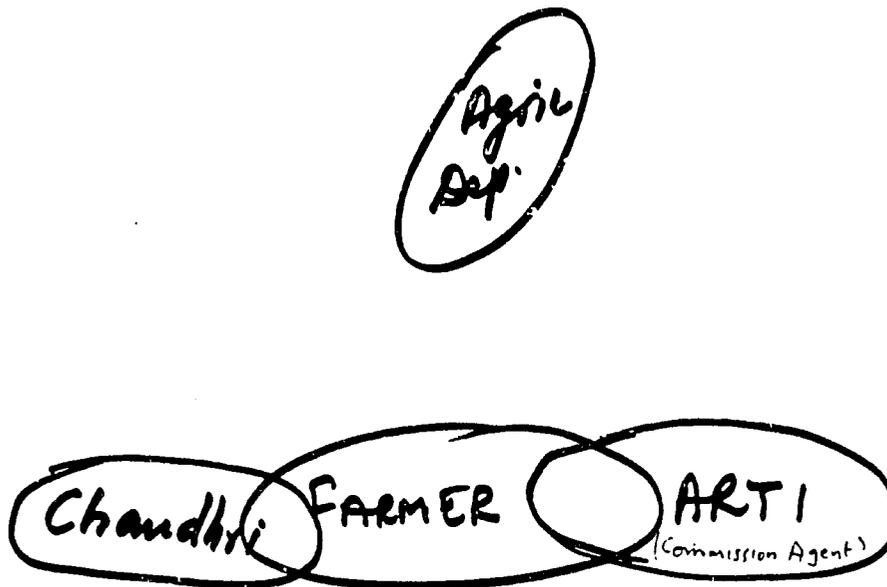
"Arti -(Commission agent) - he is my closest contact"

'Why?'

"He is able to give me a loan against standing crop"

'What about fertilizer and other farm inputs?'

"I just buy it from the shop - I pay the shopkeeper and he gives me the materials - I have no connection with him - When we have problems and want to seek help we ask 'Chaudhri' Sahib for assistance. We pay and Chaudhri does the talking and makes contact - no one wants to talk to poor farmer' - I don't know who else is our contact".



Arsof Village.

Facilitator : M.A. Malik

Informant : Farmer. (Eijaz Cheema elder brother)

16.2.1992

13. Venn Diagram of Mr. Ghulam Ghous Farm and Dera 16/2/92

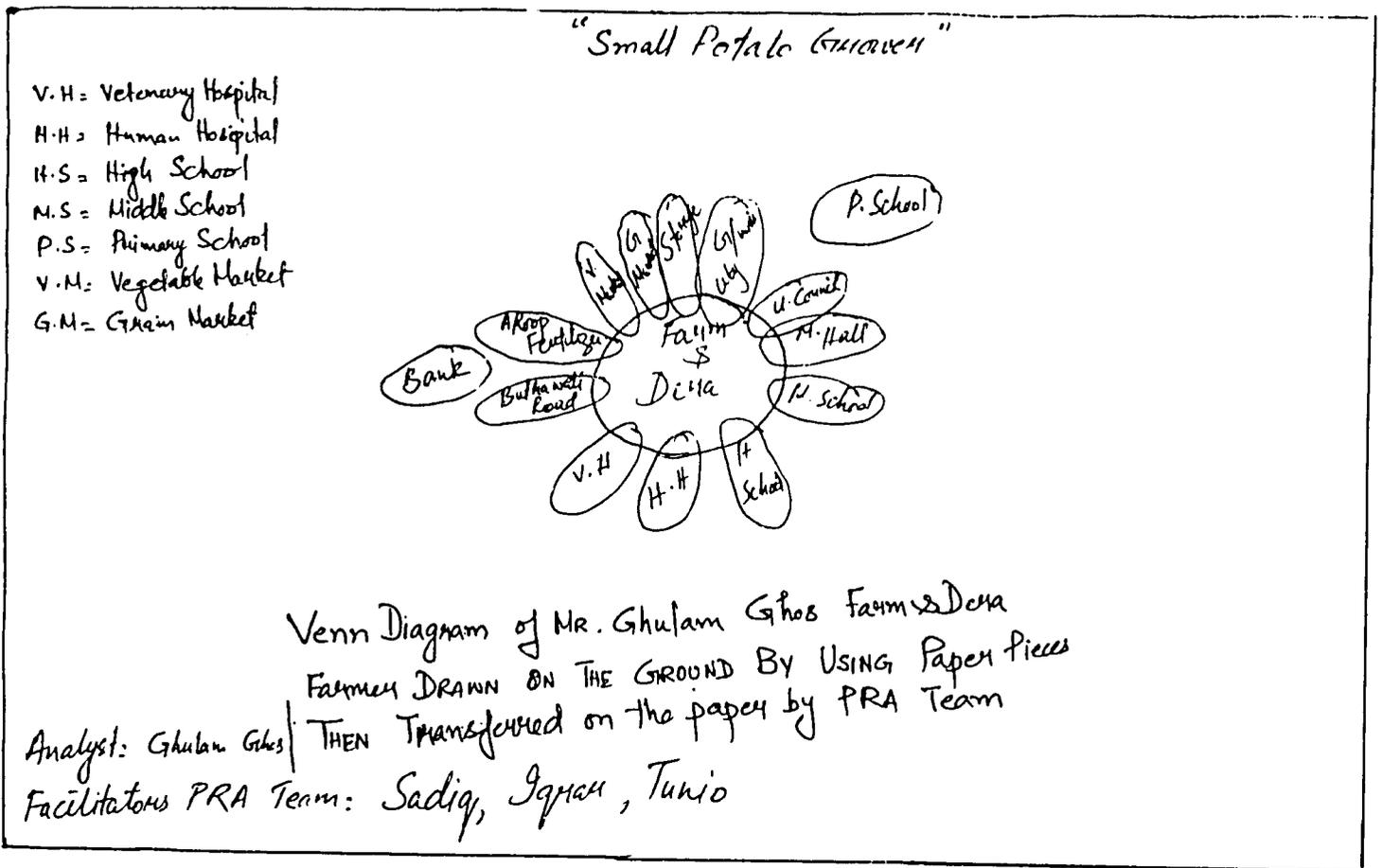
Drawn by: Ghulam Ghous

Facilitators: Sadiq, Iqar, Tonio

Materials: paper pieces

Process:

First we went to the farmer's farm. We introduced ourselves and asked about the crops he was growing and about the institutions which were related to his farm and *dera*. The farmer used paper circles (pieces) to show the relationship and involvement of other agencies. Then we transferred it on to paper. He was shy to write, so we used the Venn diagram paper pieces.

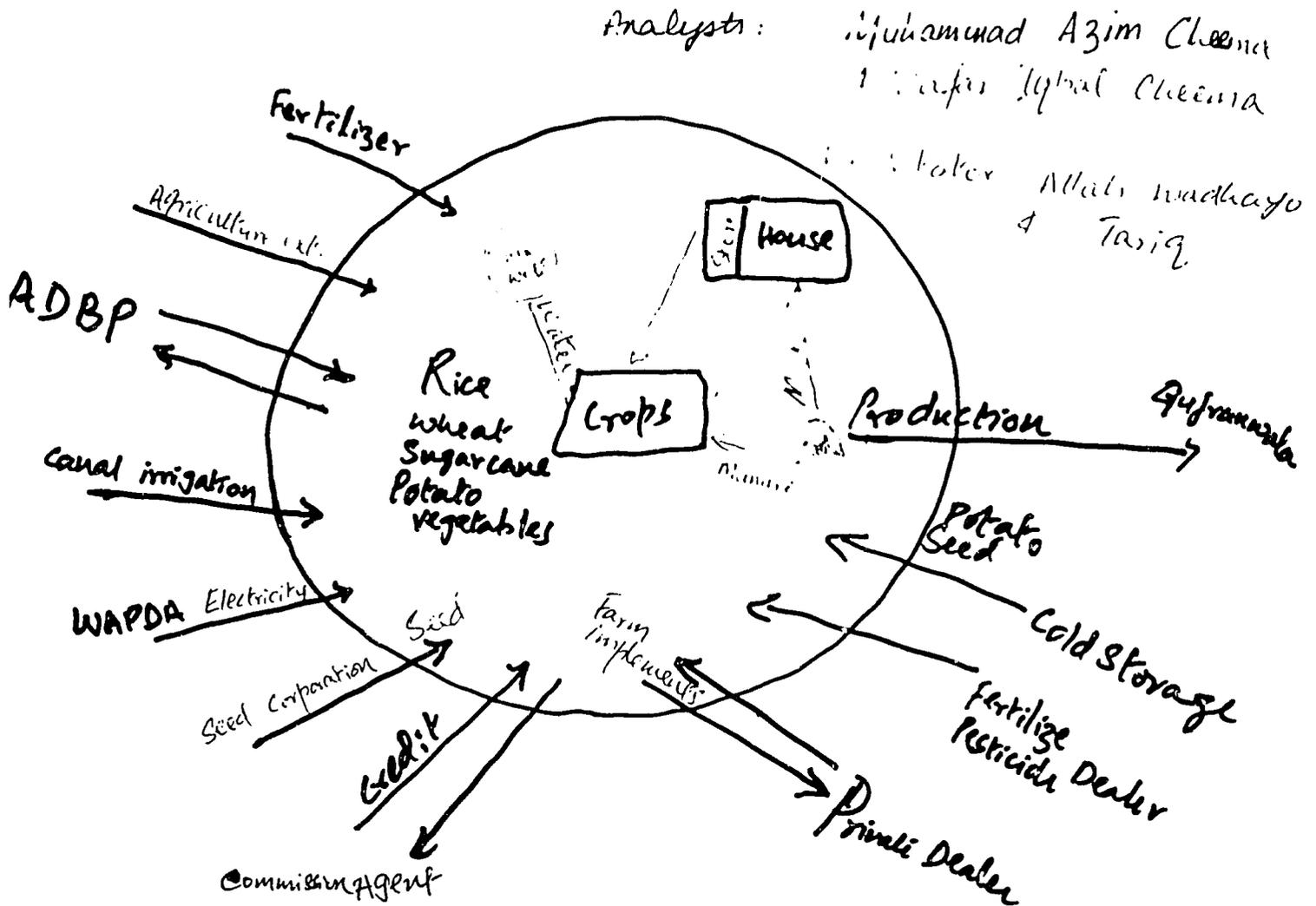


15. Flow Diagram of a Potato Grower

Analyst: Mohammed Azim Cheema and Zafar Iqbal Cheema
 Facilitators: Allah Wadhayo and Tariq

Process:

A potato grower, Mr. Mansha, came across the PRA Team during the transect walk. He took the PRA team to his tubewell site. Some other growers also gathered there. After some discussion, one grower Mr. Mohammed Azim Cheema drew the flow diagram on the chart paper and he was assisted by another grower, Mr. Zafar Iqbal Cheema.



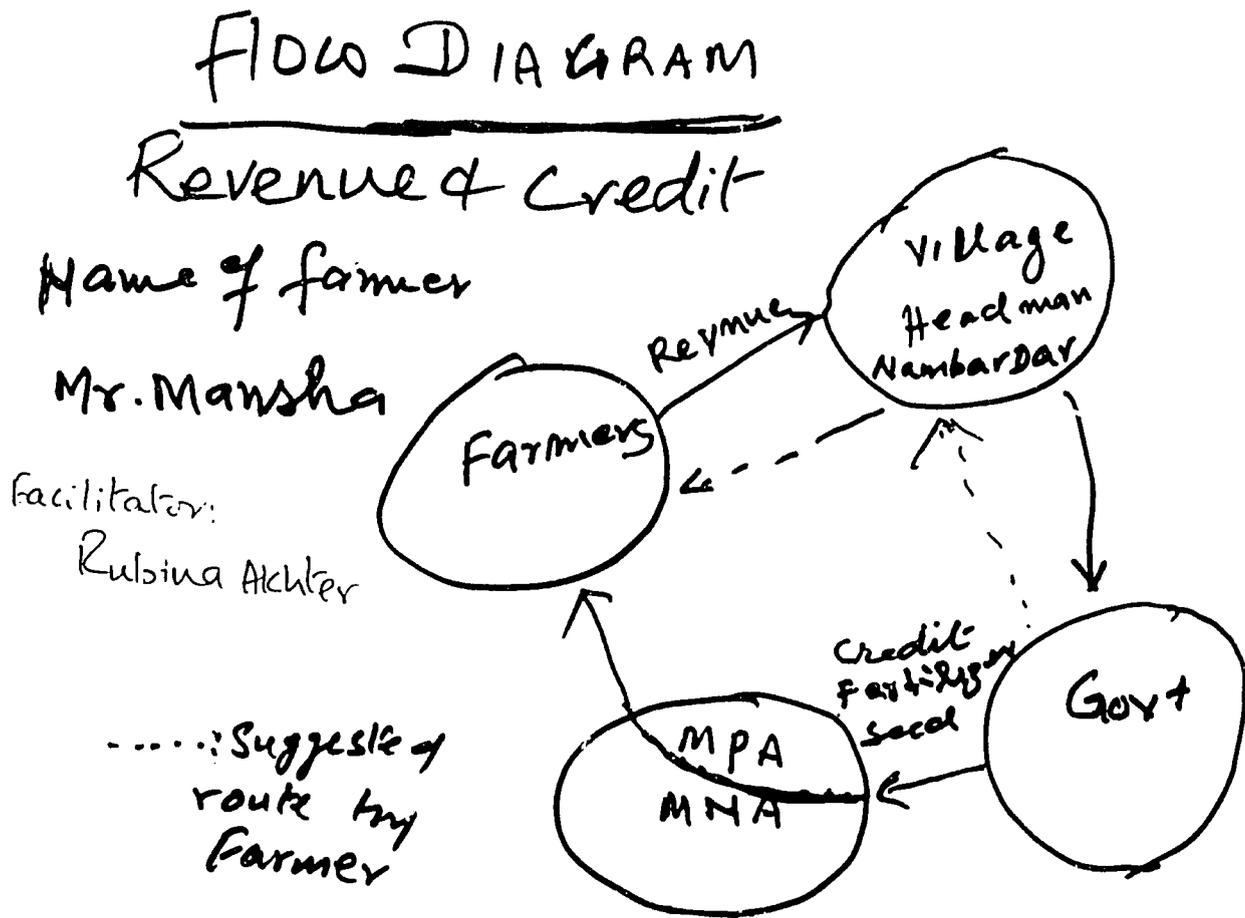
16. Flow Diagram of Revenue and Credit

16/2/92

Drawn by: Mr Mansha
Facilitator: Rubina Akhtar

Process:

A farmer, Mr. Mansha, was asked to show the interaction of different agents in the village. He used a stick to draw circles connections between circles to show linkages. Farmer's comments: "If the revenue is collected through the village headman, the facilities provided by the government should also be through him."



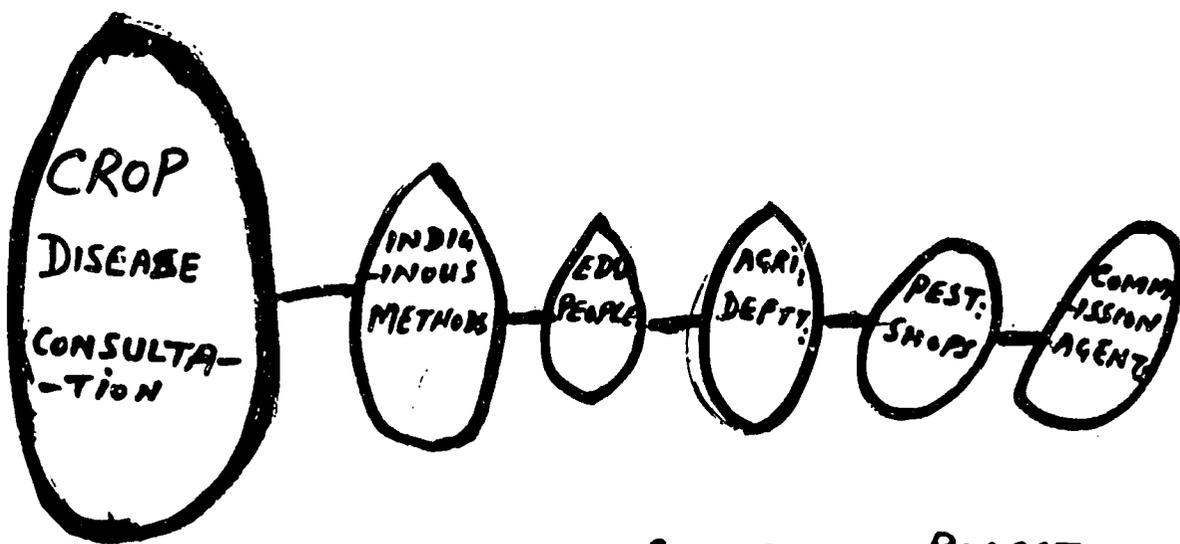
SOURCE :- Drawn by the farmer on the ground and copied by the PRA member (Aroop, 16/2/92)

17. Action Sequence for Crop Diseases

Source: Mr. Riasat, a small farmer

Facilitators: Farzana, Misbahud Din

SERIES OF STEPS TAKEN BY THE FARMERS
IN CASE OF CROP DISEASE.



SOURCE:- MR. RIASAT
(A SMALL FARMER)

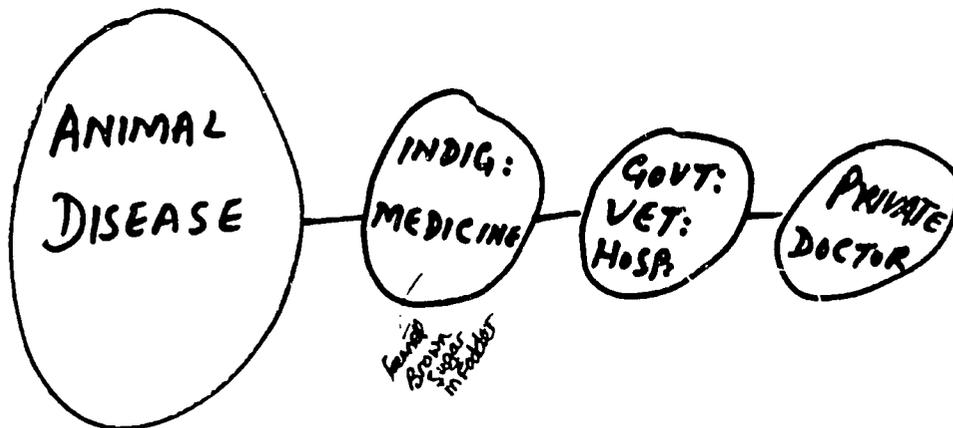
18. Action Sequence for Crop and Animal Diseases

Drawn by: group of small farmers
Facilitators: Farzana, Misbahud Din

Process:

The small farmer, Mr. Riasat was asked what he would do when his animals or crops become sick. By probing, a network of persons to contact was subsequently developed. The facilitators copied the network on paper because the farmer was illiterate.

SERIES OF STEPS TAKEN BY THE FARMERS IN CASE OF ANIMAL DISEASE. TREATMENT SEQUENCE



SOURCE:- GROUP OF SMALL FARMERS.

SOCIAL STRUCTURE AND WEALTH

Factors which determine the social structure within Aroop

Caste system
 Land ownership
 Wealth
 Political position
 Working class

Indicators of wealth identified by informants in Aroop

- Landholding
- Number of male earning members
- Kind of transport used (car, jeep etc.)
- Farm machinery ownership
- Off-farm business, poultry farm, milk supply, no. of cattle, diesel agent etc.
- Household goods (TV, Radio, Refrigerator)
- Government job status
- Political status of the family
- Money spent on social events (marriage, engagement, etc.)
- Level of education
- Type of schooling
- Type of house construction
- Clothing
- Source of water supply
- Size of family
- Celebration of various occasions and number of invited people.

Social Structure

From individual and group interviews in Aroop (12, 13 and 17/2/92)

Caste System

Bhinder family

Cheema family

Other castes in the village: Aman, Aracem, Rajput, Jatt, Christian, Meragi

Status Classes

very rich	- 15% people
rich	- 25% "
middle	- 25% "
poor	- 15% "
very poor	- 20% "

Classification of land owners

Big farmers = 100-150 acres

Medium farmers = 60-75 acres

Small farmers = 25 acres

Very small farmers = 1-10 acres

Labour Class: They don't have any landholdings. They work on daily wages while their women work in the houses of big farmers.

Other Classes: contract growers, share cropping, landless tenants.

Problems associated with social structures:

- unequal access to resources
- high expenditure due to traditional celebrations
- cattle theft causes increased costs
- caste system has implications for social status and restricts lower caste's mobility.

Local responses to these problems are:

- gratification and briberies
- more children sent to school
- claiming livestock at night and providing guards at night.

Research options are:

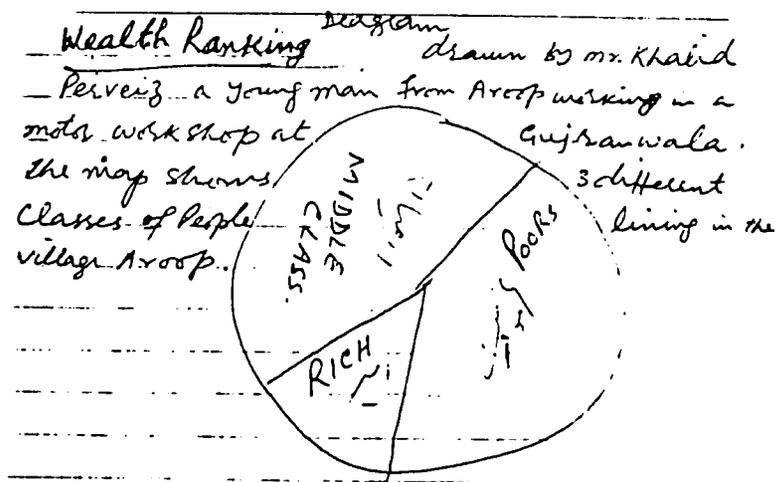
- examine ways for equal access of all to resources
- examine ways to bring expenses down to reasonable levels
- examine ways of farm protection.

19. Wealth Ranking Pie Diagram

Drawn by: Mr. Khalid Pervez a young man from Aroop working in a motor workshop at Gujranwala.
Facilitator: Najibullah Khan

Process:

The interviewers visited the Union Council Office at Aroop. After a brief introduction with the Secretary of the Union Council, the team members went to the court yard where a few people from the village gathered. First a farmer from village Butranwali, who came there just by chance to visit the office of Agricultural Extension, was interviewed. Then two young men from Aroop were interviewed. They were Mr. Khalid Pervez and Tariq Ayaz. They were interviewed regarding wealth ranking in the village. They drew a diagram on the paper to show different classes of people in percentages as they exist. The diagram shows 3 different classes of people living in the village Aroop. They also mentioned wealth ranking indicators.



RICH :- * LAND HOLDING (40 ACRES OR MORE)

- * BEAUTIFUL HOUSE
- * HOUSEHOLD GOODS TV, RADIO, REFRIGERATOR
- * OFF-FARM BUSINESS (TRANSPORT, FACTORY)
- * DRESS.
- * SOCIAL STATUS

MIDDLE CLASS

- * ORDINARY BUSINESS
- * OWN HOUSE.
- * A FAMILY MEMBER WORKING ABROAD
- * Good Food.
- * SELF DETERMINATION/SELF RELIANCE

POOR CLASS :-

- * WORKING ON DAILY WAGES.
- * LIVING HAND TO MOUTH.
- * TAKING LOANS TO MEET HIS DAILY LIFE REQUIREMENTS (FROM FRIENDS/RELATIVES)
- * PRIVATE/INFORMAL LOANS @ 10% INTEREST FROM LOCAL MONEY LENDERS.

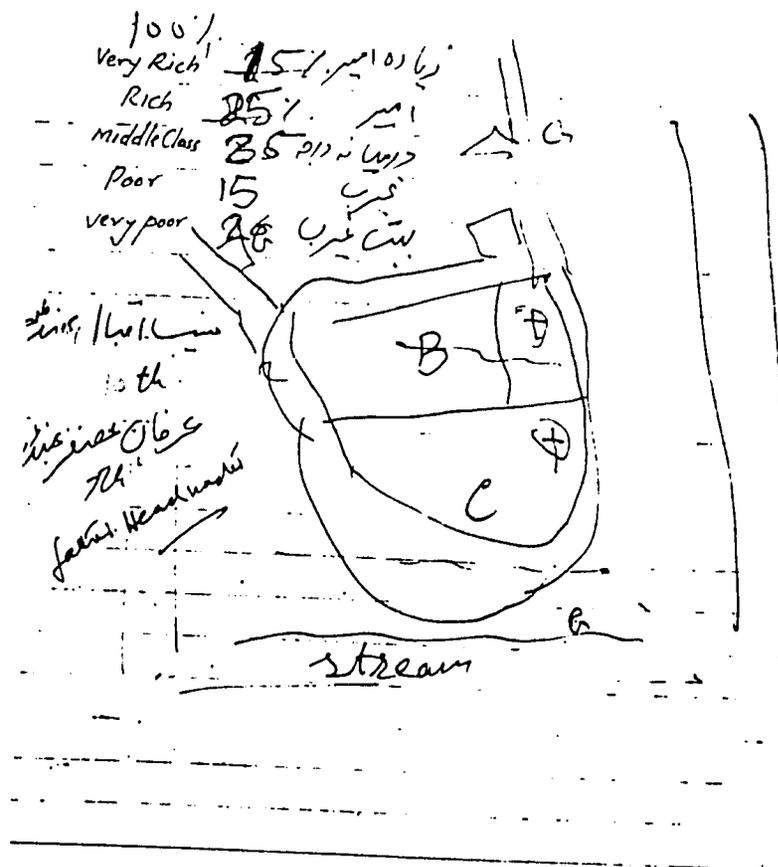
ACTIVIST : FARMER . FACILITATOR PRA TEEM

21. Wealth Group Distribution Map

Process:

The map and wealth group distribution has been made by two youths, one attending tenth class and the second one seventh class. The boys first divided the village in two groups: the Bhinder (B) and the Cheemas (C). These two main groups of people are considered to be the wealthy people of the village. The percentage of very rich to poor was assessed by the boys, taking into consideration the clothing, mode of transport, type of food consumed and schools (whether private or government) attended by the children of the population. Finally the boys said they simply know who is rich and who is poor because they have been living in the village since their birth.

WEALTH GROUP DISTRIBUTION MAP.
VILLAGE: ARUP - PUNJAB (PAKISTAN)



DRAWN BY: Munib Bhinder 10th Class Student
and Irfan Asghar Bhinder 7th Class Student

12.2.1992

Index: B: Bhinder families
C: Cheemas families
+ : Christians families.

Indicators of wealth: clothing, mode of transport, type of food consumed
Schools attended by children, people simply know it

22. Wealth Classification

Analyst: M. Akram Ullah

Facilitators: Sadiq, Iqrar, Tonio

Process:

The PRA team met with M. Akram, a small potato grower and discussed about wealth resources to understand the difference between rich and medium members of the community. He made a map on the soil and erased it one or two times and then came up with a good idea. He used stones and a stick to draw the map and used one stone for rich and five stones for medium and three stones for poor and six stones for very poor. He indicated each class as percentages. We copied the original on to paper.

<u>Class</u>	<u>WEALTH CLASSIFICATION</u>	
	<u>Criteria</u>	<u>Percentage</u>
Rich	Land owner 25 Acres (one Marla) Live stock (20 cattle)	10%
medium	Landless	50%
Poor	Interest 10%	30%
very poor	No source of income	10%

(Source: Mohd Akram
Small Potato Farmer)

Copied from the journal

ANALYST: Mohd Akram Ullah
FACILITATORS: Sadiq, Iqrar, Tonio
PRA team

23. Wealth Classification

Analyst: Ghulam Ghous

Facilitators: Sadiq, Iqrar, Tonio

Process:

The PRA team talked to the farmer Ghulam Ghous, a small potato grower. He made the map on the soil with a stick. Sometimes he was confused about the criteria to differentiate between poor and very poor due to our unclear questions: "How many cattle do poor or very poor farmers have in their houses"? After that he told us that person has no land, works for other farmers and they have no cattle in their house, he is very poor man.

<u>Wealth Classification</u>		
<u>Class</u>	<u>Criteria</u>	<u>Number & %</u>
Rich	Land owner 25 Acre (one Murabba) Livestock (40)	30%
Medium	Land owner 12 Acre Livestock (15)	50%
Poor	6 Acre Livestock (6)	10%
Very poor	No Land No Livestock Labour	10%

Analyst: Ghulam Ghous
Facilitator PRA Team: Sadiq, Iqrar, Tonio

(Copied from the ground)

EDUCATION AND HEALTH SITUATION

Time Line of Changes in Education

1947	Govt. school boys	Primary level
1950	Govt. school boys	Middle, High level
1970	Govt. school girls	Primary level
1980	Govt. school girls	Middle level
1990	Govt. school girls	High level
1990	Private Nursery	Primary level

List of Education Facilities Available in Aroop

High school for boys
 High school for girls
 Middle school (boys and girls)
 Primary school for boys and girls
Madrissa
 Mosque
 Private school
 Tenth class (40 students)

Problems associated with education are:

- high cost of education;
- low standard of education;
- physical punishment.

Local response to these problems are:

- higher income groups send their children to private schools;
- children drop out of school.

Medical Services Available in Aroop

- Dispensary
- MBBS Doctor (male/female). However, some informants mentioned that doctors are available. others said that there is none.
- Midwives
- Child vaccination centre
- Family planning facility
- Medical store

Problems associated with the medical services are:

- no medical staff available in the village;
- basic health units are not well equipped.

Local responses to these problems are:

- *desi* (local) treatments;
- patients go to Gujranwala.

Drinking Water Supply Sources in Aroop

- central water supply tank through tubewell to a part of the village (regular cleaning of tank is required)
- private overhead tanks and electric motors
- hand pumps

The main problem associated with drinking water is that water from tank is not available to residences on higher grounds.

The local response to this is the use of hand (or electrical) pumped water.

TEMPERATURE AND RAINFALL

As illuminated by the different farmers and farmers' groups the average temperature is generally less than 20°C in winter while during spring it ranges from 20-30°C. During summer it always above 30°C. There are some changes in severity of temperature during the winter months.

According to one educated grower, the rainfall pattern during different months has changed for the last 10 years. Previously the main rainy season used to be during July and August in summer and December in winter. At present major rainfall in summer is during the months of September, October and November while February, March and April during winter and spring. There is a decreasing trend of rainfall for the last 5 years.

Problems associated with climate:

- planting and harvest is affected because rainfall pattern has changed;
- disease incidence has increased, especially in potato.

Local response to these problems are:

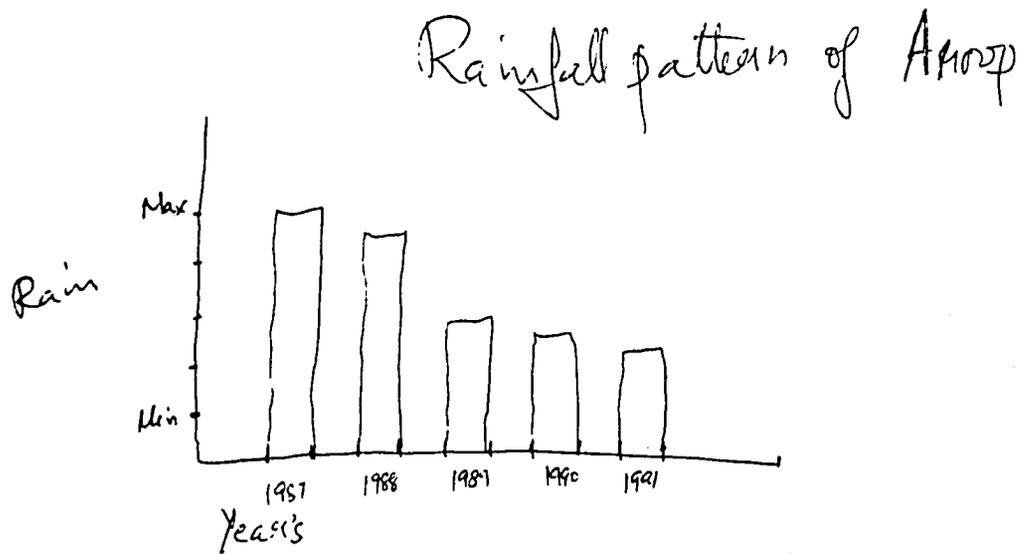
- delay of planting and harvesting;
- other crops are planted.

24. Recent Climatic Patterns

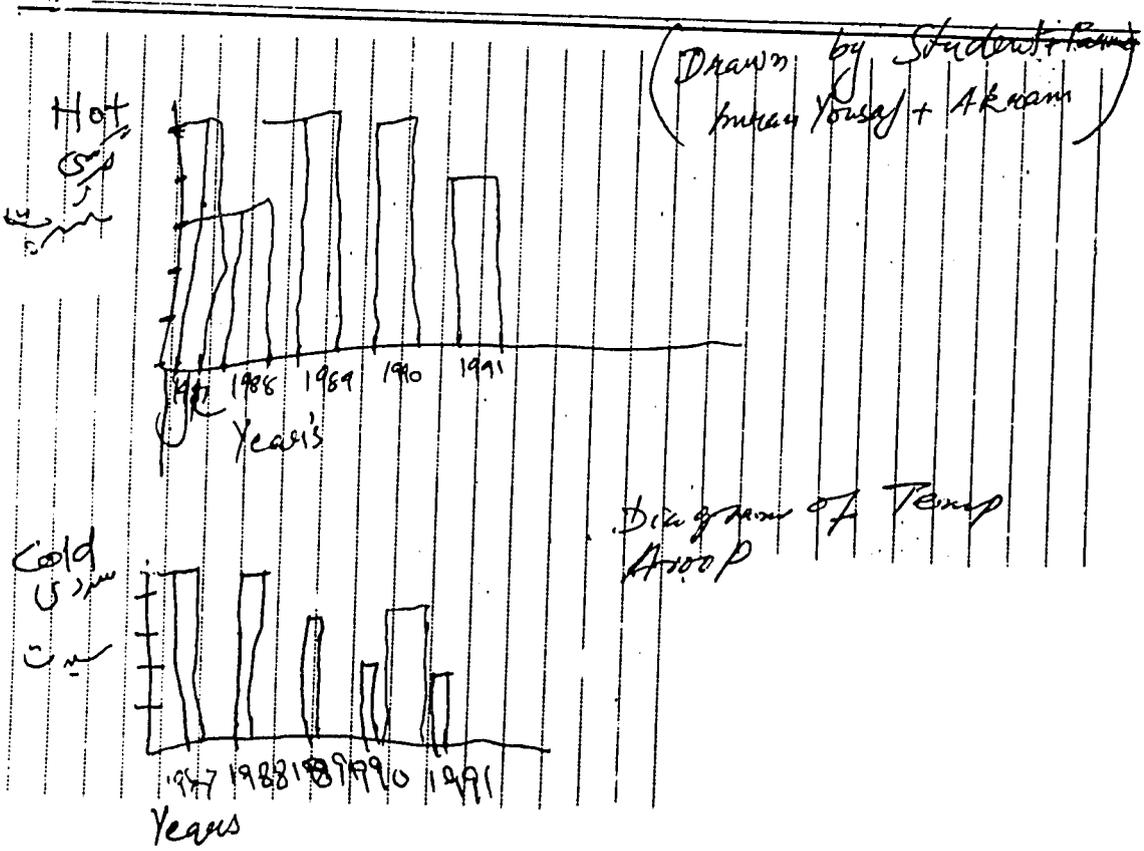
Drawn by: Imran Yousaf

Process:

The PRA members met with a group of farmers - a boy studying in class ten was asked to draw the yearly rainfall pattern on a piece of paper. He started drawing by asking the farmers how much rain fell in 1991. Then he noted the past year and so on. We faced the problem that the farmers had limited memory and were unable to tell exactly how much rain there was - they simply indicated either the maximum or the minimum. The same procedure was adopted for recording the temperature.



عمران یوسف کلاس دہم بی
 گورنمنٹ ہائی اسکول ابوال
 (Drawn by Student)



	J Jan	F Feb	M Mar	A Apr	M May	J Jun	J Jul	A Aug	S Sep	O Oct	N Nov	D Dec
Hot	3	5	2	3	4	5	6	7	8	9	10	11
Cold	2	5	4	5	0	0	5	5	5	5	5	0
	3	3	5	5	5	2	4	5	5	5	5	5

Cold

Hot

Seasonal Cycles
of Arsoop

Drawn by farmer and student
(Imran Yousaf and M. Akram)

INPUT AVAILABILITY: IRRIGATION, CREDIT AND LABOUR

List of Inputs Available in Aroop

- Seed
- Fertilizer
- Water for irrigation
- Pesticides: Spray service available; and aerial spraying service
- Labour
- Farm Machinery
- F.Y.M. (farm yard manure)

Problems associated with inputs in general:

- Imported potato seed not available.
- High cost of quality seed, infected seed.
- Fertilizers not available in time for planting.
- High cost of fertilizer.
- Unequal distribution of canal water.
- Low level of water in canal because of cleaning.
- Waterlogging in some areas.
- Only two channels for the whole village; not all fields irrigated by canal water.
- Drain not functioning properly; salinity in some area.
- Katcha water channels and drains need constant cleaning.
- High cost of installing tubewells.
- High electricity bills and load shedding.
- Inputs (fertilizer and pesticides are adulterated. No pesticides dealer in the village.
- Spray (by govt.dept.) not in correct quantity or dose.
- Farm machinery not available as and when required.

Local solutions to these problems are:

- Use of local seed.
- Shift to other selected crop.
- Going back to using diesel pump.
- Share water and electricity.
- Renting machinery instead of purchase,.
- Fertilizer application as and when available.

Research options are:

- Ensure the availability of imported potato seed.
- Disease free seed.
- Price of imported potato seed should be reduced.
- Ensure the availability of fertilizers at times when it is needed most.
- Controlled price for fertilizer.
- More channels from the canal should be dug.
- Provide farm machinery at low price. Encourage the farmers to organise into corporations.
- Price of fertilizer should be reduced. More farms for seed production.
- All quality seeds should be subsidized. Seed shop should be in every village.

Irrigation Facilities in Aroop

25% land irrigated
from canal

75% land irrigated
from: persian wheel
electric tubewells
diesel tubewells

Irrigation

As elucidated by different farmers and farmers' groups, the tubewells are the main source of irrigation water in major area, i.e. 75% is irrigated through tubewells and the remaining 25% is irrigated by canal water. The tubewells are mainly run by electric motors and diesel engines. During most of the year these sources are supplemented with rain water as Aroop is in a high rainfall area. The amount of pumped water is reduced during the summer and winter rainy months, and hence the expenses are less during these months. The canal water is better for irrigation purposes compared to tubewell water as it has less salt concentration and is also less expensive. Related problems are waterlogging and salinity.

Problems associated with irrigation:

- High electricity bills
- Unfair distribution of canal water
- Only 2 channels for the whole village, only part of the fields are irrigated by canal water
- Salinity in some areas
- Drain does not function properly
- Low level of water in canal because of cleaning
- Waterlogging in some areas
- Katcha water channels and drains need constant cleaning

25. System Diagram

17/2/92

Location: Aroop field

Drawn by: Ghulam Ghous, a small potato farmer

Facilitators: Sadiq, Iqbal, Tonio

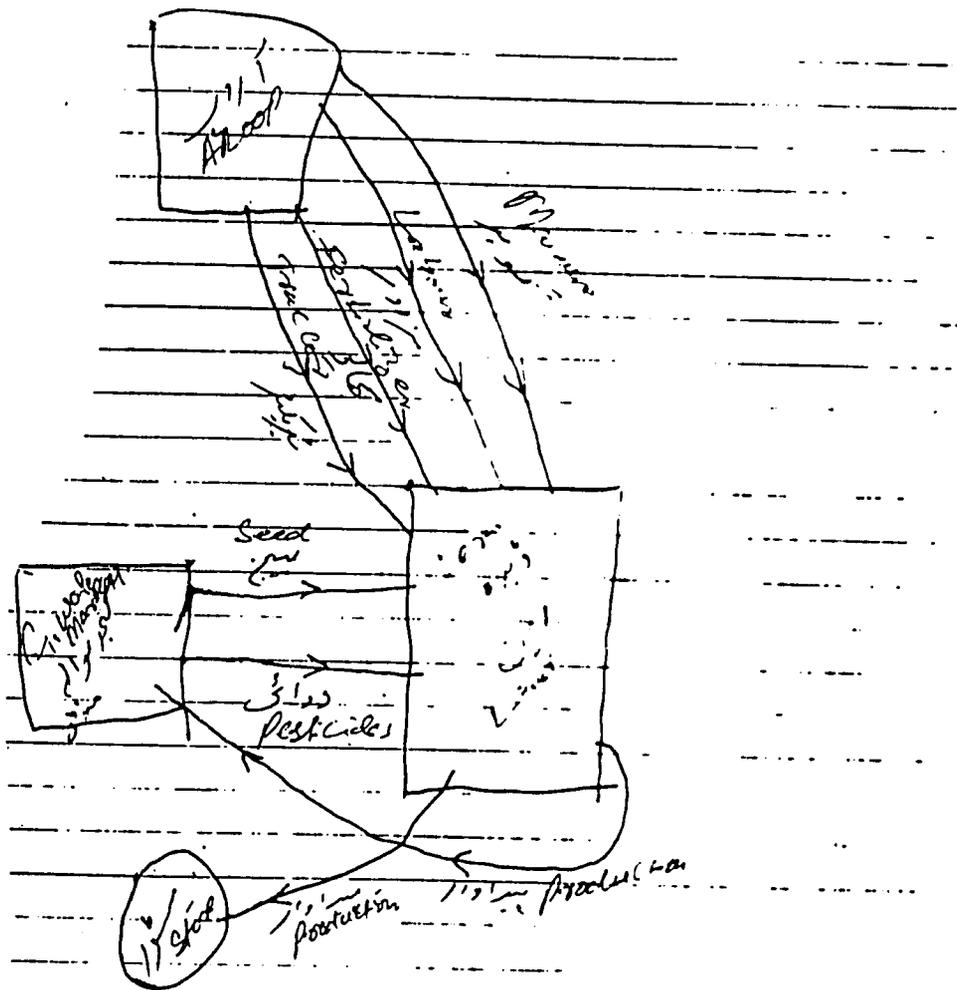
Materials: Ballpoint and paper

Process:

The PRA team members talked about which type of inputs he was using in his field and any related items.

Key findings:

He takes his production of potato crop to the cold storage to grow for next crop.



Ghulam Ghous
 Small Potato Farmer, K... ..

(System diagram)
 Analyst: DRAWN BY FARM.
 Facilitators: Sadiq, Iqbal, T...

LEOPARDS

SYSTEM DIAGRAM

Grower = Haji Ishtaq Ahmed
 Village = Butsanwali
 Farm size = 3 Acres

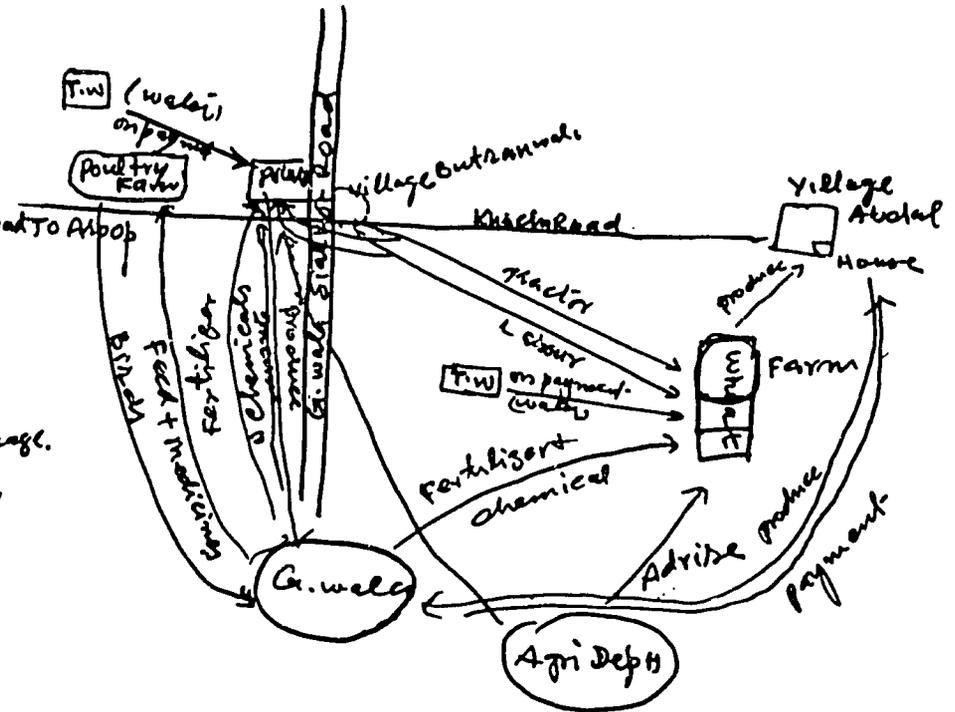
Facilities

Mr. Allah wadhayo
 Rabina Akhtar
 A.H. Tariq

Date 17.2.92

Drawn by the farmers
 on the paper in local language.
 Copied by the PRA Team
 member in English

[potable grower]



26. Inputs Availability for Potato Farming

13/2/92

Location: Aroop, *dera* Shahid Wala, East Sialkot Road

Who involved: Ghulam Ghous, a small potato farmer

Recorded by: Iqrar

Facilitators: Sadiq, Iqrar, Tonio

Process:

Semi structured interviews based on charts, diagrams and general discussions.

Key findings:

The farmer owns 4 acres of potato land. His problems are:

- Non-availability of DAP fertiliser and over priced
- Credit facilities
- Fertiliser and pesticide adulteration
- Electricity.

27. Inputs Availability for Farming

17/2/92

Location: Aroop, East Sialkot road.

Who involved: Akramullah, a small potato growing farmer

Recorded by: Iqrar

Facilitators: Sadiq, Iqrar, Tonio

Process:

Semi structured interviews based on charts, diagram, and general discussion.

Key findings:

The farmer has 10 acres of potato land on contract. Problems encountered are:

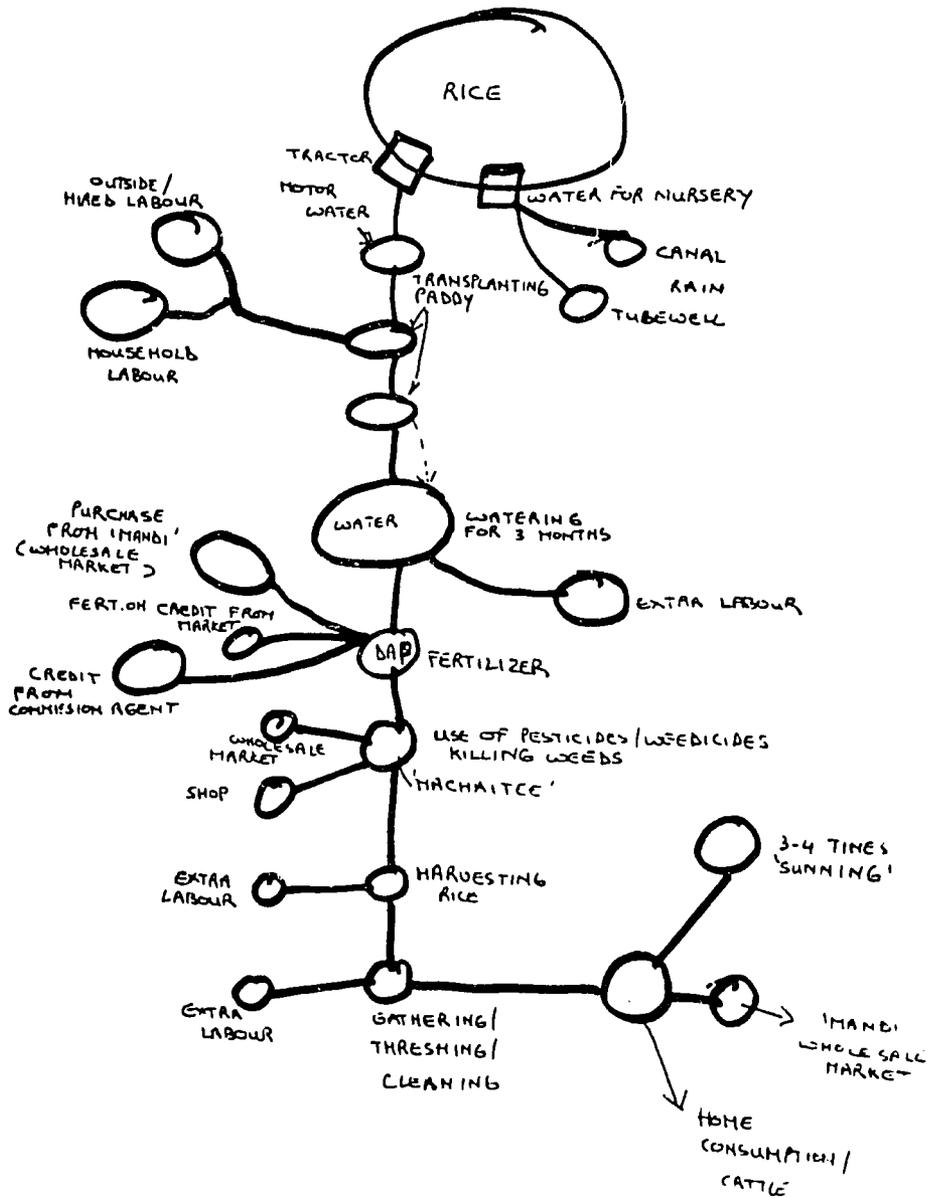
- Quality of seed
- Non-availability of DAP and Urea fertiliser at the time of sowing and it is overpriced
- Credit facilities - poor
- Labour (not available in summer)
- Fertiliser and pesticide adulteration
- Transportation limitations.

28. Flow Diagram of Rice Production and Marketing

Process:

Farmers were asked to show the flow of inputs and steps in production of rice. The facilitators drew the first circle representing rice on flip chart paper. Then the farmers were asked which inputs were needed first (in this case a tractor for ploughing and water from the nursery). By probing, the flow diagram was developed further. The facilitator had to write down the names of the inputs since the farmers were illiterate. Consequently, they could not visualize their efforts made.

FLOW DIAGRAM OF RICE PRODUCTION / MARKETING



Farmer Name: Keyasat + Fatmata

VILLAGE ARDOF

DATE 16.2.92

FACILITATORS OF FARZANA
 ① MISBAH
 ③ ZAMANI

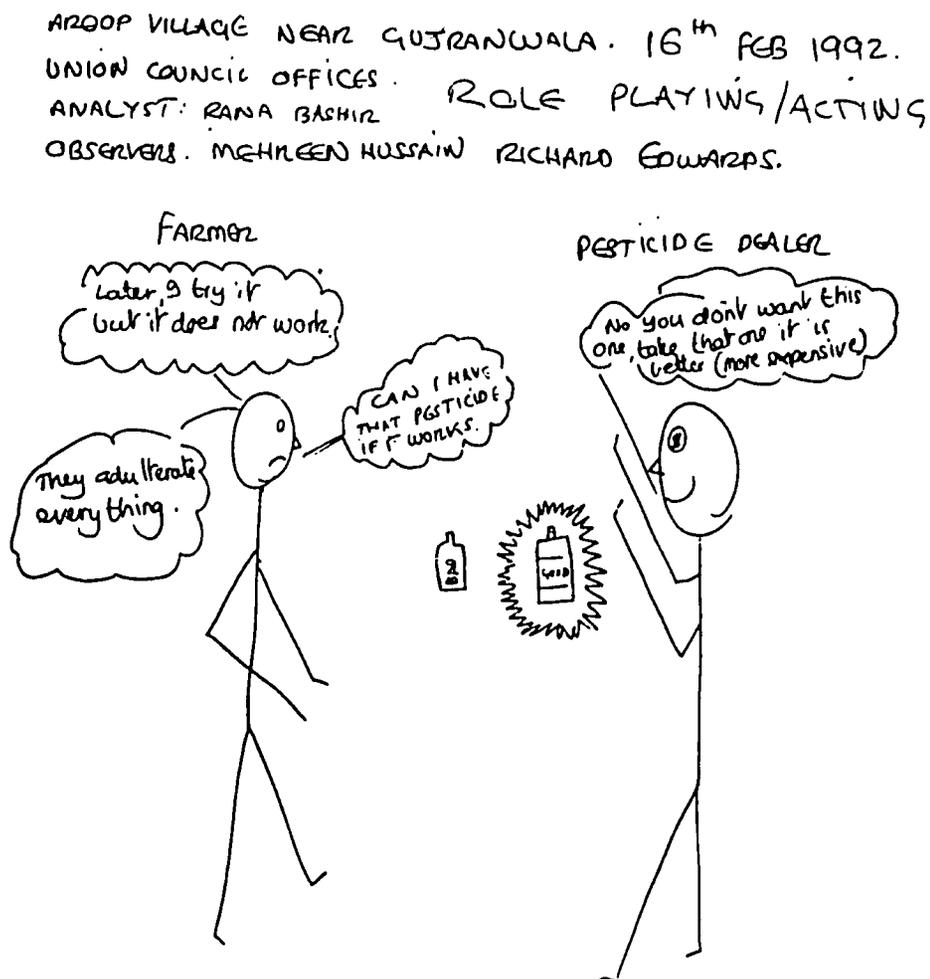
29. Role playing about Adulteration of Chemicals

Analyst: Rana Bashir

Observers: Mehreen Hosain, Richard Edwards.

Process:

The farmer acted out the roles using chalk as a pesticide bottle and then threw it away in disgust as he explained how dealers adulterate the chemicals. This happened spontaneously as a consequence of discussions around a problem flow diagram.



The farmer acted out the roles using chalk as a pesticide bottle and then threw it away in disgust as he explained how dealers adulterate the chemicals.

This happened spontaneously as a consequence of discussions around a problem flow diagram

SUBJECT PESTICIDE ADULTERATION

30. System Diagram

17/2/92

Location: Aroop field

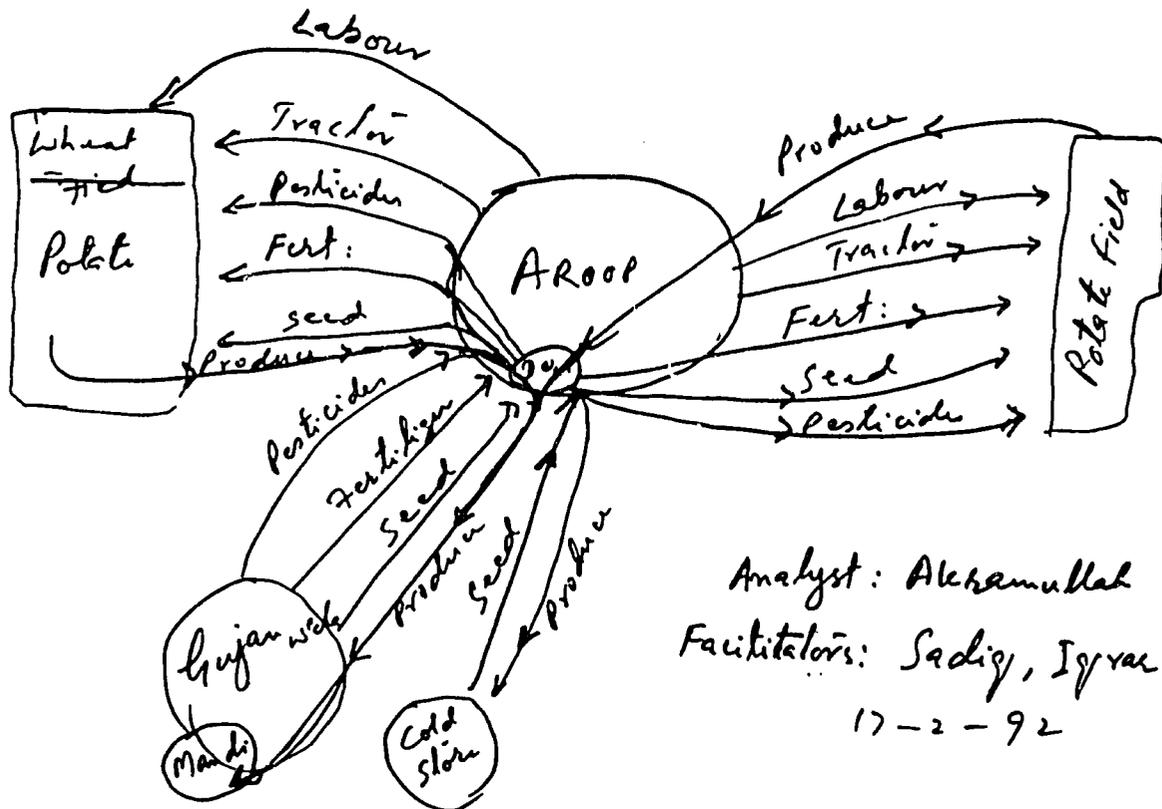
Drawn by: Akramullah, a small potato growing farmer

Copied and facilitated by: Sadiq, Iqrar, Tonio

Materials: Paper and markers

Process:

The PRA team members went to the farmer's home, but he was not present and they were told that he would come back within half an hour. So they waited for him. After his arrival they introduced themselves and accompanied him to his field. Then on the road they gave him the sheet and markers to draw a map from where he brings inputs and where his output goes. After some hesitation he drew it. Then they copied it on a small sheet of paper.



31. Flow Diagram of Credit Sources

16/2/92

Location: Aroop, near the farm of the informer

Drawn by: a group of farmers

Copied by: Farzana from the flip chart

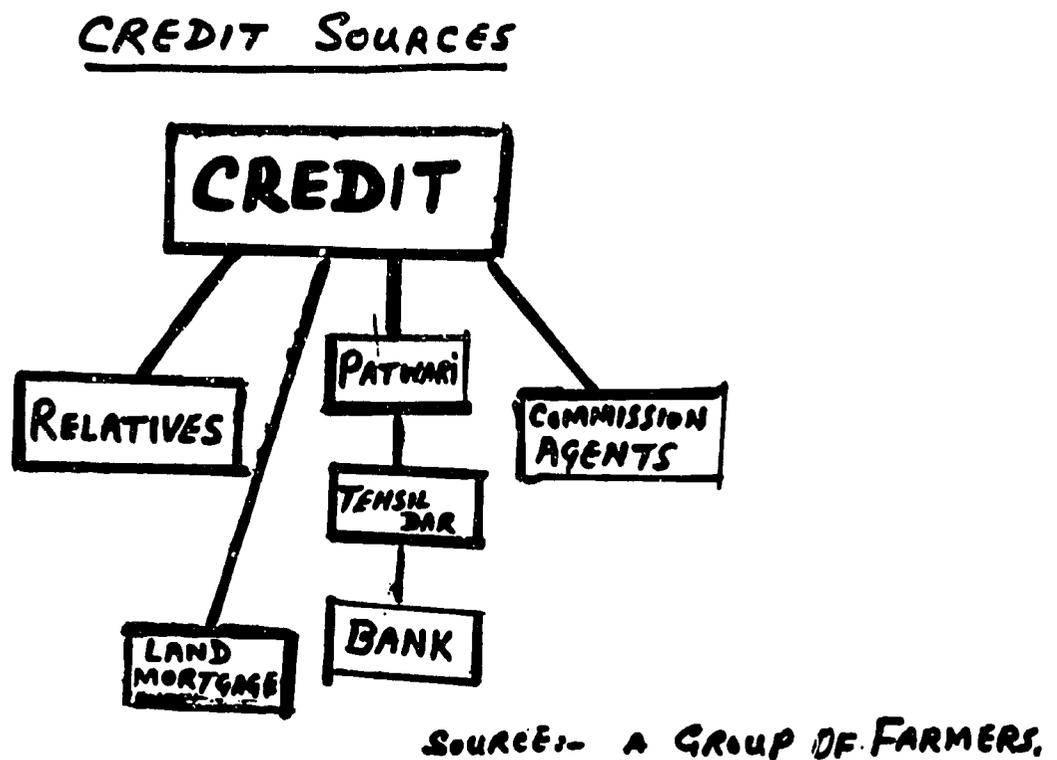
Material: Marker and flip chart paper

Process:

We asked a group of farmers about their problems. We asked them about credit facilities and they drew this flow diagram for us.

Key findings:

Farmers have difficulties to secure credit from the bank and have resorted to other money such as commission agents and relatives. Land mortgage is obtained from rich people (private lenders) using land titles as security. First relatives are asked then formal credits are obtained.



32. Loan Process and Use of Credit

Farmers from Aroop have access to formal and informal sources of credit. To get a loan from the bank is a lengthy and difficult process (see diagram below). Therefore, most farmers first use informal sources of credit such as relatives, commission agents and shopkeepers. Only landholders can get loans from bank because they have land titles to guarantee the loans. There is a branch of UBL in Aroop and ADBP in Gujranwala. Loans are sometimes spent for other reasons than investment.

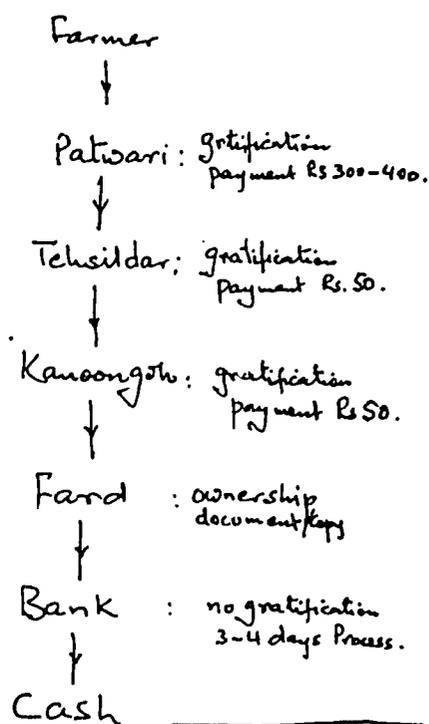
Problems encountered are:

- Indebtedness
- Access to formal credit is lengthy and difficult for some people
- High interest rates.

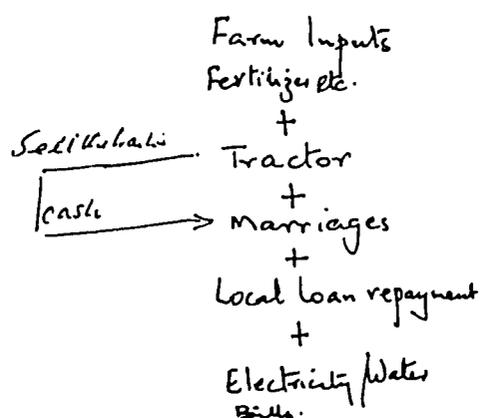
Local responses include:

- Informal credit rather than formal credits (from commission agents, shopkeepers)
- Gratification and bribery to obtain loans
- Farmers sell land and/or livestock.

Process to obtain bank loan



Loan Spent on:



Mughlanwala Dera - Aroop
17.2.1992

Informant: Farmer, Rehmat Ali
Facilitator: Ajmal Malik
Group: Leopards.

33. Labour

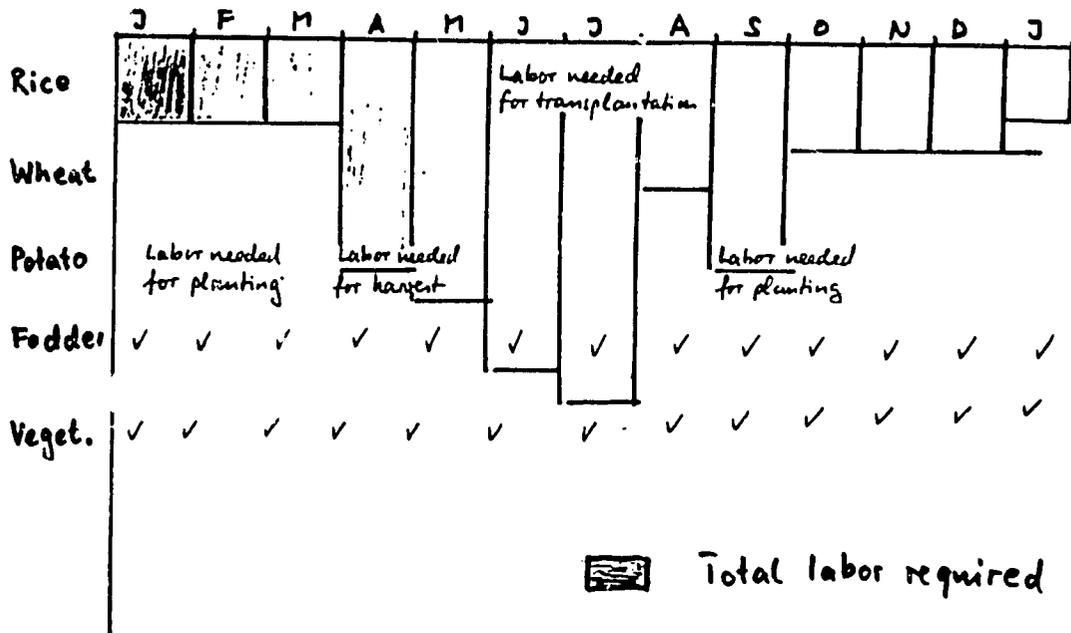
Labour peaks occur in June/July because of transplanting rice. Women do not participate in transplanting. However, they pick vegetables and cut fodder. School boys and girls help transplanting rice and harvesting wheat during their vacation.

There are different types of labour:

- wage
- family
- mutual exchange (Maangi)
- child
- bonded.

The main problem is a seasonal labour shortage. The local solution is that farmers shift to other crops (e.g. fodder) which require less labour and attention.

Labour required for different crops and total labour



Source: Group of farmers (Aroop, 12/2/92)

MARKETING

Farmers sell potato directly to the market or on farm (see produce disposal strategy). Some potato is put in cold storage. Those farmers who got loans from commission agents are bound to sell through the same commission agent. He will charge them a commission of 6.25%. Those farmers who have no loans have to pay a commission of only 3%.

Costs of transporting potatoes from Deska to the Gujranwala market are:

Transportation	Rs.6/bag
Octroi	Rs.2/bag
District tax	Rs.2.5/bag
Gunny bag	Rs.15/bag
Commission charges	3%/6.25%

Some crops are sold to the government through commission agents (Arti) and traders (Beopari). The farmer does not get the price fixed by the government because these middleman are involved. For instance, he receives only Rs.120/40 kg of wheat instead of the fixed rate of Rs.160/40 kg. The government agency for rice and wheat is PASCO, for potato it is AMSL. Some farmers prefer to sell to the commission agent because he has better connections to transport companies and distant markets (Karachi).

Problems are:

- Lack of information about prices of the produce
- Lack of proper transport facilities to market
- Too many middlemen involved in marketing
- Fluctuating prices
- AMSL is only buying from small growers and only graded potatoes.
- Government announces producer price after harvest
- Lack of proper packing material.

Local responses are:

- Sell part of produce quietly to other commission agent
- Opportunistic potato growing
- Farmers continue gambling through storage or continued production.

Research options include:

- Examine ways of propagation of price information/trends
- Examine alternative marketing channels
- Examine consumption habits
- Examine export and processing opportunities.
- Examine ways for small growers to get organized
- Examine ways of improving institutional links
- Examine proper post harvest handling (grading, storage, transport).

34. Flow of Potatoes From Summer and Autumn Crops

Drawn by: Allah Ditta, clerk of commission agent, Mohammed Ibrahim and M. Ismail.
 Copied by: Mr. Tonio, Mr. Sadiq
 Facilitators: Tariq, A. Wadhayo, Zanoni
 Material: Flip chart paper and pen

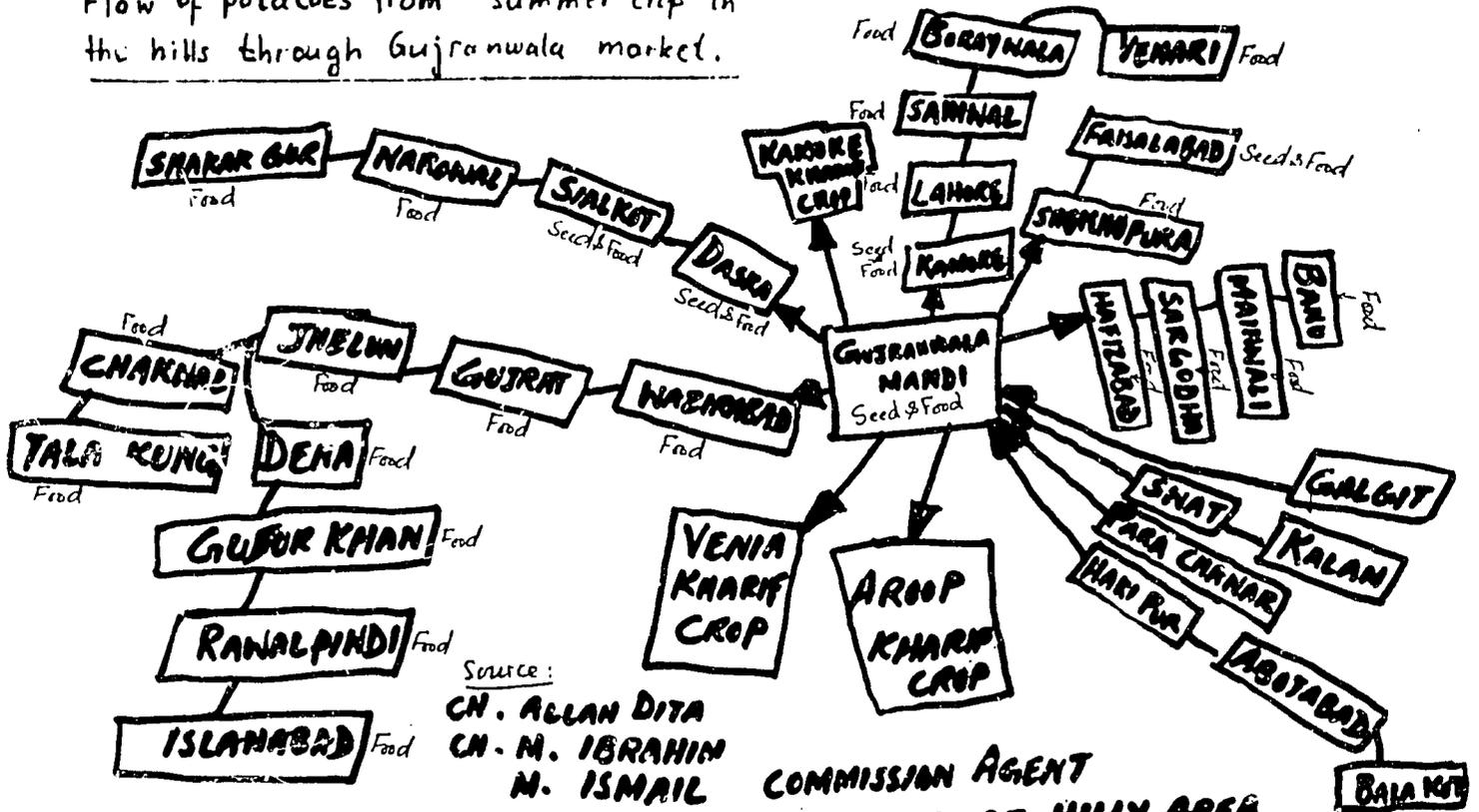
Process:

Informant was asked to show potato flow from and to the wholesale market in Gujranwala for the autumn produce and summer produce. He was also asked to show whether red skinned or white skinned potatoes flow through the system and for which purpose the potatoes were used. No problems were encountered.

Key findings:

Gujranwala is a major potato whole sale market. Potatoes flow from local production areas e.g. Aroop, Taska and more distant areas e.g. Faisalabad, Chiniot to Gujranwala. Even though important potato production areas lie close to major markets such as Lahore, Faisalabad and Karachi, potatoes are shipped to those markets. White potatoes are mainly produced in Sialkot, Daska and Aroop and only sold to Hyderabad, Sukkur, Karachi, Quetta and Mianwali. Potatoes are mainly sold as ration potatoes in major consumption centres, and as ration and seed potatoes in potato production areas. Potatoes are also cold stored in Gujranwala (seed for autumn crop or for consumption later in the season).

Flow of potatoes from summer crop in the hills through Gujranwala market.



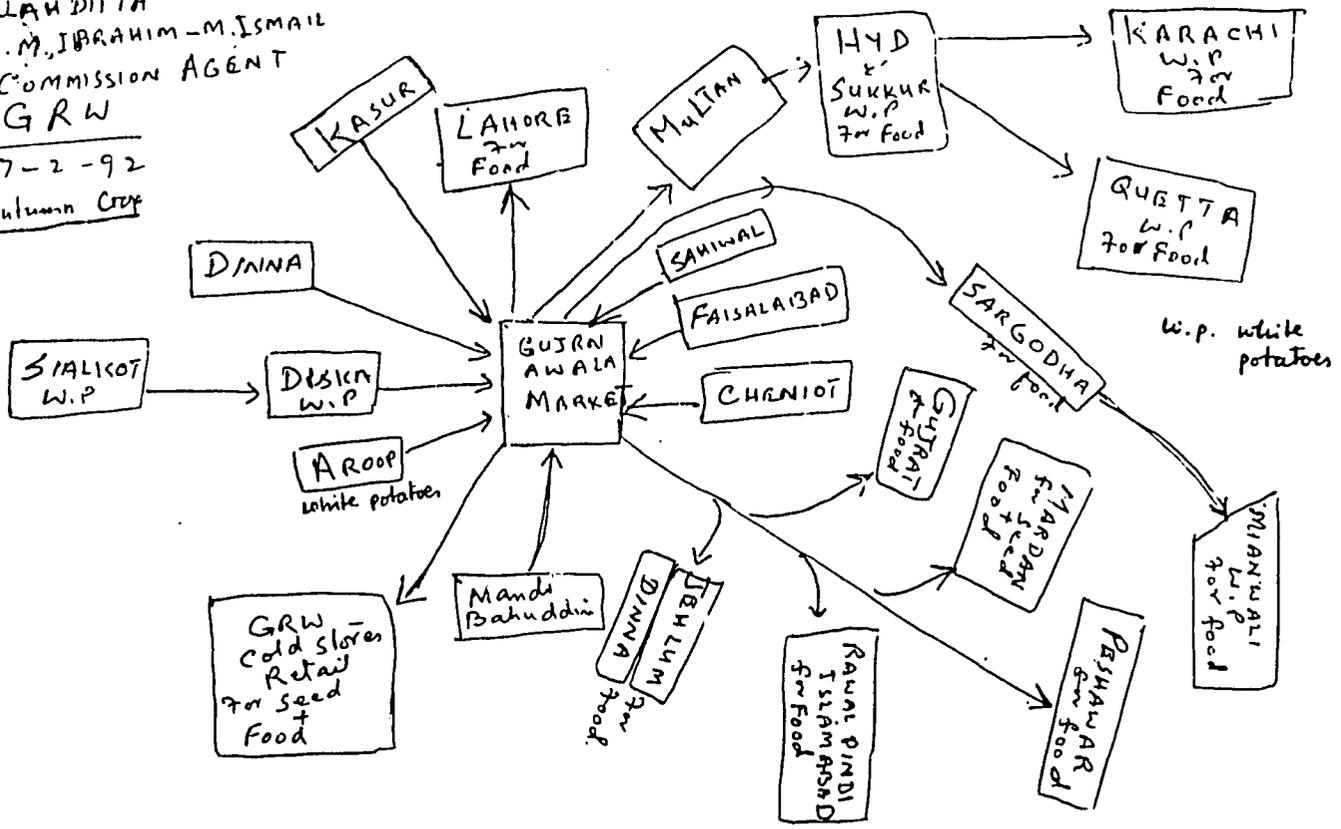
Source:
 CN. ALLAN DITA
 CN. M. IBRAHIM
 M. ISMAIL COMMISSION AGENT

KHARIF POTATO CROP OF HILLY AREA
 ALL RED POTATO'S

COPIED BY: IQRAR & SADIQ

Flow of potatoes from the autumn crop through Gujranwala market

Source:
ALLAH DITTA
CH. M. IBRAHIM - M. ISMAIL
COMMISSION AGENT
GRW
17-2-92
Autumn Crop



35. Produce Disposal Strategy of Potato Grower

Grower: Kafayat Ullah Wahla

Location: Fruit and vegetable market Gujranwala

Materials: Marker and paper

Facilitators: Mr. Urs, A.H. Tariq, Mr. A.Wadhayo

Process:

During a visit to the fruit and vegetable market, the team met the office man of the one of the commission agent. The team members were introduced to him and the purpose of the visit was explained. A meeting was held with him to discuss potato marketing. During the meeting some of the growers were also involved. One of the grower was very enthusiastic. He was offered pen and paper to draw the produce disposal strategy and drew the diagram.

Key findings:

The growers are trying to sell a major portion of their produce on farm to potato traders to save the expenditure of transportation, district taxes, octroi charges and commission of commission agent in the market.

PRODUCE DISPOSAL STRATEGY
OF POTATO GROWER

Grower = Kafayatullah wahla
Village = Wahla

Facilitator

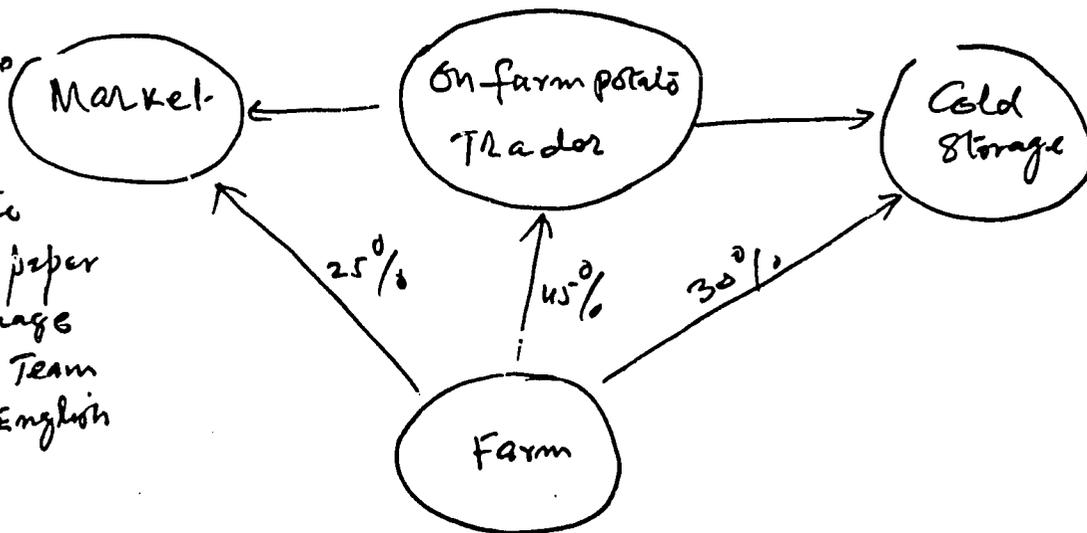
- Urs

- Allah Wadhayo

- Tariq

Date = 17/2/92

Drawn by the grower on the paper in local language copied by DRA Team member in English



INCOME, EXPENDITURE AND LIVELIHOOD

Livelihood strategies

The main sources of income for people in Aroop are from farm and off farm activities. Farm income comes from:

- wheat, rice, fodder, sugar cane, vegetables
- milk, poultry
- farmyard manure.

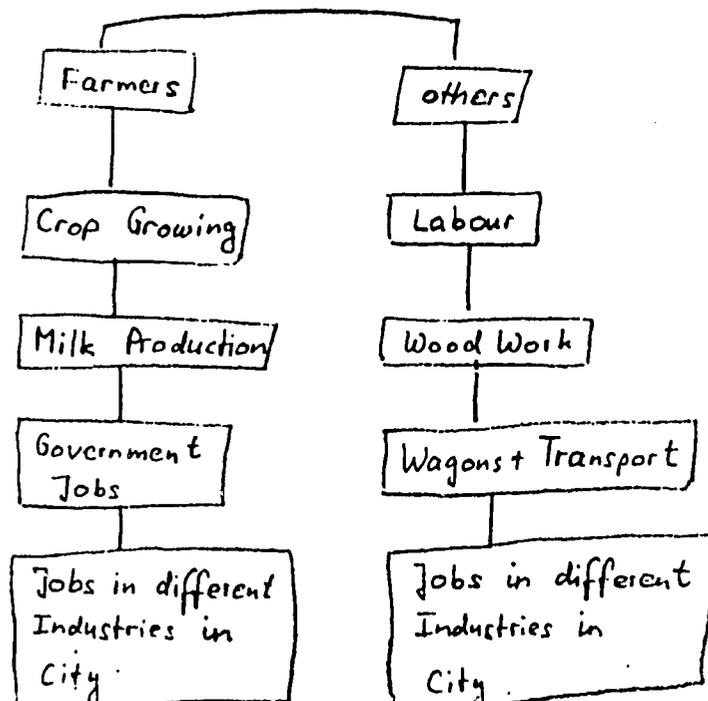
Off-farm income from (also see chart on women's livelihood strategy):

- tailor markets, govt. jobs, shops, transportation business;
- remittances
- labour
- handicrafts
- woodwork.

The main expenditures related to farming are for seed, fertilizers, pesticides, labour, taxes, electricity and water.

The main expenditures related to social activities are for education, engagements, marriages, funerals, clothes, food, child birth.

Livelihood Strategy of Farmers + Others



Source: information collected during transect walk from farmer Sadiq + group of farmers present
Diagram drawn by PRA member
(Aroop, 13/2/92)

A.T. 11

Costs of production for wheat

Seed	Rs.150/maund
Fertilizer DAP	Rs.450/acre
Ploughing w/ tractor	Rs.500/acre
Fungicides	Rs.120/acre
Irrigation	Rs.600/acre
<hr/>	
Total expenses	Rs.1820/acre
Income	Rs.2700/acre
<hr/>	
Profit	Rs.880/acre

Costs and income of different crops (Rs.)

	<u>Costs</u>	<u>Income</u>
Wheat	1500 ² /acre	3500/acre
Berseem	400/acre	5000/acre
Rice	1000/acre	4000/acre

(Source: Farmer/teacher: Mueen-ud-Din Cheema)

Problems are:

- unavailability of jobs to supplement farm income;
- crop prices not increasing while input prices are increasing;
- no savings from farm income;
- costs of inputs are high (fertilizer, electricity etc.);
- social pressures to spend more on customs and traditions.

Local responses include:

- less inputs used;
- combine farming with off-farm activities;
- savings through home production (clothes, spinning etc);
- sale of adulterated milk by Gujar family;
- less consumption of food or poor quality of food.

² Excluding cost for harvesting and threshing.

36. Expenditure and Profit/acre (Revenue and family labour not included)

16/2/92

Drawn by: Hidayatullah, 14 acres

Facilitators: Allah Wadhayo, Tariq, Kubina Akhtar

Process:

The bar chart was prepared by a farmer who was a Patwari before. He was asked to draw his expenditure and income on a paper. He opted to do it in the form of single bars showing expenditure on the lower half with stripes, and upper empty bar showing a profile of income.

Key findings:

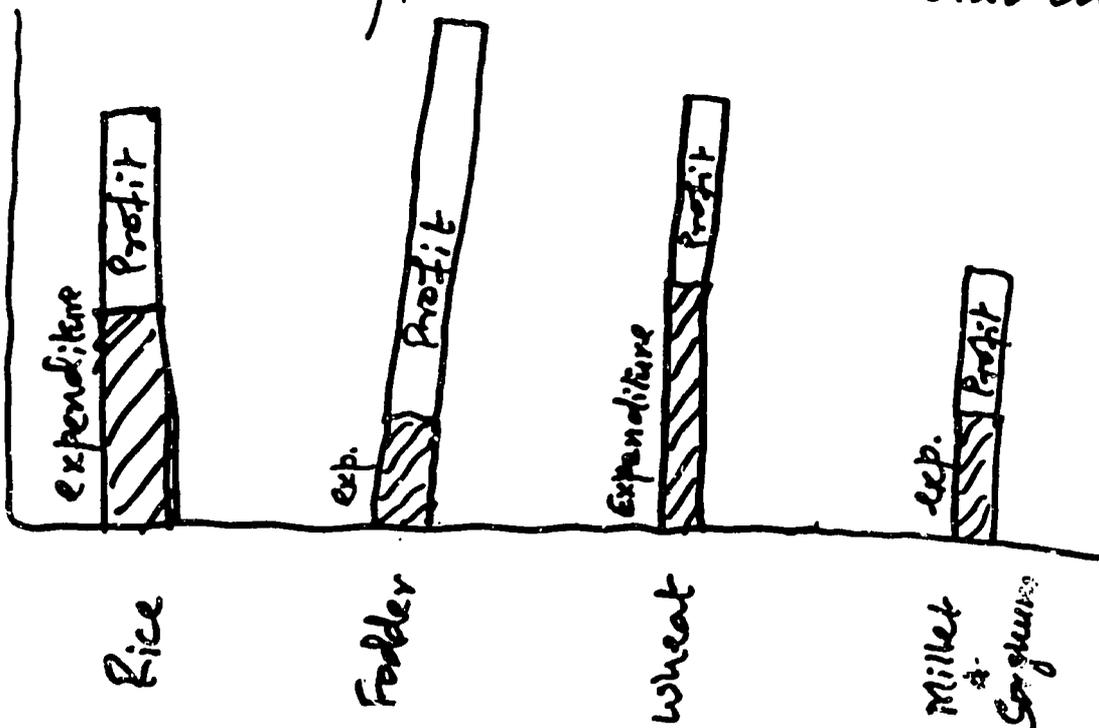
Rice and wheat require higher expenditures than fodder and millet/sorghum. Fodder is a highly profitable crop in this village.

Prepared by Hidayatullah

16.2.92

Total Land : 14 Acres

Expenditure / Profit (Revenue + Family Labour) not included
per Acre



37. Expenditure and Profit Levels for Different Crops

16/2/92

Analyst: Reyasat, a farmer

Process:

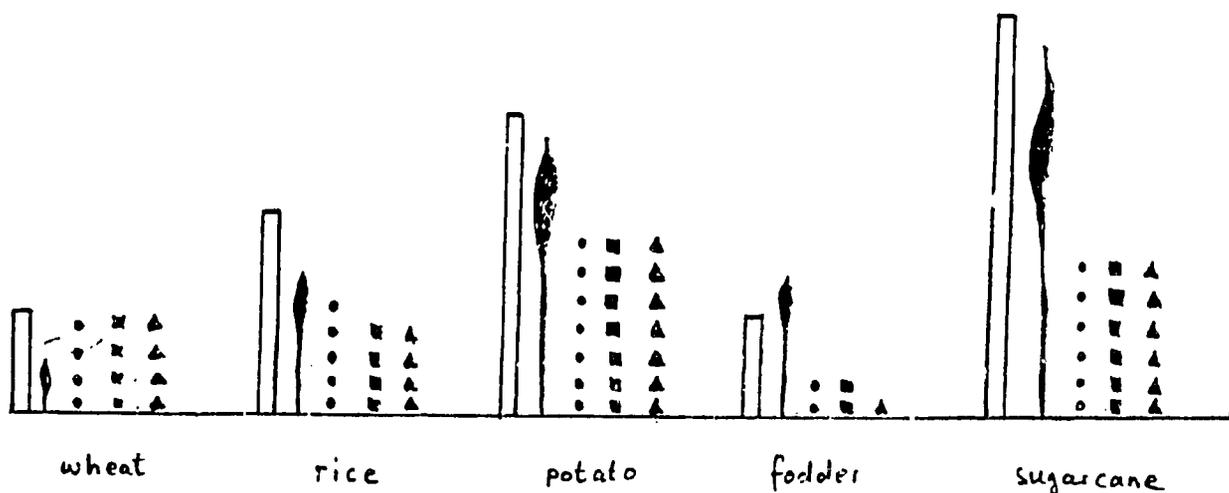
Farmers were asked to compare wheat, rice, potato, fodder and sugar cane in terms of total expenditure, profit, labour requirement, cost of seed, and total expenditure for fertilizer. The facilitators encouraged the farmers to use different materials such as rice straw, green oats, and stems to represent the relative importance of each criteria selected.

Key findings:

Potato and sugar cane are high cost crops but are also more profitable than other crops. These two crops require high inputs of labour, seed and fertilizer.

Relative expenditure, profit, labour, cost of seed, and expenditure for fertilizer for different crops.

- ▭ expenditure (material used: straw)
- ◊ profit (material used: green oats)
- labour (material used: stems)
- ■ ■ ■ cost of seed "
- ▲ ▲ ▲ ▲ expenditure for fertilizer "



Facilitator - for 30 min
- material used

Source: Information collected from farmer Reyasat. Copied from ground.
(Aroop, 16/2/92)

38. Bar Diagram showing Expenditure and Income of Three Crops

Analyst: Ghulam Ghous, a small grower

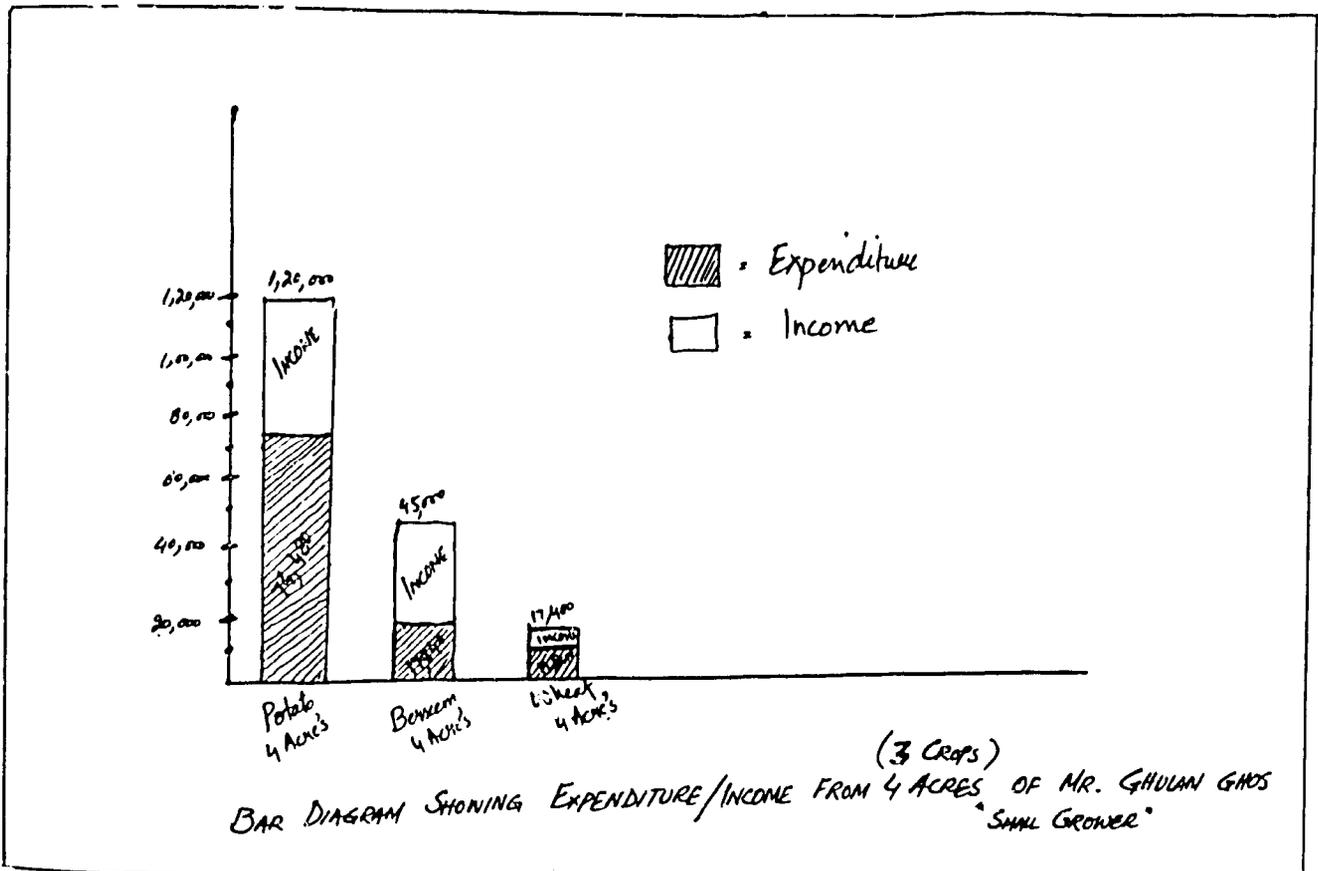
Facilitators: Sadiq, Iqar, Tonio

Process:

First of all the PRA team went to the village and met with the small potato grower, Mr. Ghulam Ghous. He has 4 acres each of 3 crops. We introduced ourselves and asked questions about the expenditure/income to grow potato, berseem and wheat. He started to talk but we encouraged him to draw on the ground. With the help of sticks he gave us details excellently. Then we drew it on the paper because he was shy to write with pen.

Key findings:

Potato is costly to produce, as compared to berseem and wheat. Income levels from potatoes and berseem are similar.



Analyst: Ghulam Ghous

Facilitators: PRA Team, Sadiq, Iqar, Tonio

39. Systems Diagram on Women's Livelihood Strategies

Location: A house of a female farmer in Aroop village.

Drawn by: Farzana Bari (on the basis of information given by the woman informant)

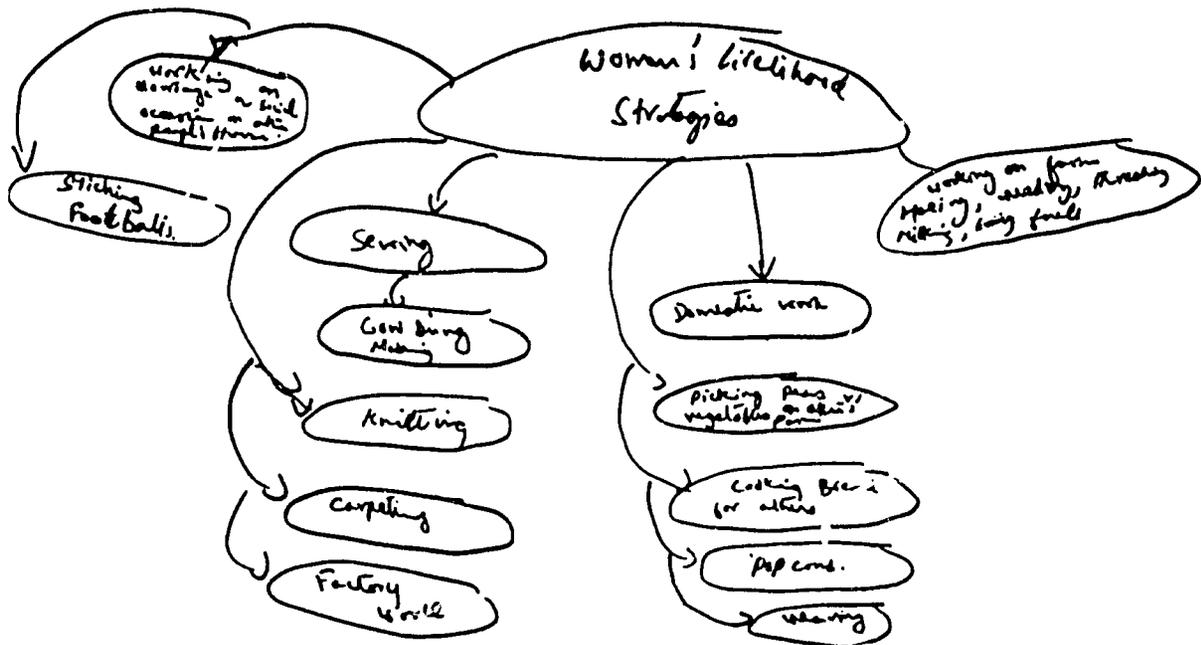
Process:

Women were asked about the economic activities. After mentioning two main activities, farming and domestic work, they could not tell more. I probed and they came up with a number of activities in which women are involved.

Key findings:

Women are contributing significantly to household economy.

Women's Livelihood Strategies



40. Daily Routine

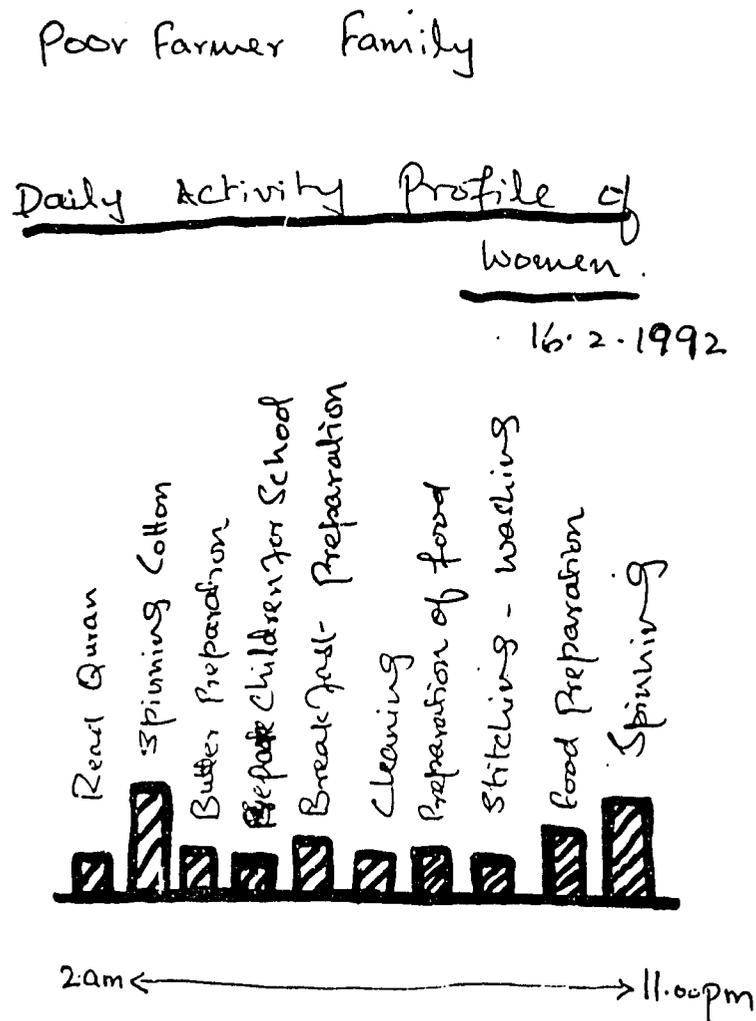
Facilitator: Rubina Akhtar

Process:

Daily routine activities were described by the women belonging to a poor farming family who contribute to the income of family by spinning cotton yarn. Drawn by PRA member on the paper. The woman was not interested in drawing the activities, as she was busy preparing the fuel wood.

Key findings:

Women have a long working day.



41. Livelihood of Small Potato Grower

13/2/92 and 17/2/92

Location: Aroop, Shahidwala *dera* East side Sialkot Road

Recorded by: Iqrar

Facilitators: Sadiq, Iqrar, Tonio

Process:

Semi structured interview based around diagram and general discussion.

Key findings:

Who involved: Ghulam Ghous

- Five buffaloes
- 2 goat kids
- one employee for buffaloes.

Who involved: Akramullah

- Land on contract
- One buffalo
- Selling fodder in market
- One cart (own)

LANDHOLDING AND TENANCY**42. Landholding**

16/2/92

Location: Aroop

Recorded by: Iqrar

Facilitators: Sadiq, Tonio, Iqrar

Process:

By interview and general discussion. First the PRA team went to Aroop where we met with small potato growers (at Shahidwala *dera*). We introduced ourselves then talked with the farmers about landholdings. First they were shy to give us information but we sat on the ground of the potato field, then he gave us information.

Key findings:

Who: Mr. Akramullah, a potato grower

Akramullah is a tenant without any land of his own. He has 2 acres of potato on the east side of the village and 10 acres on the west side of the village on payment. He sold his 2 kanals due to failure of the potato crop.

Who: Mr. Ghulam Ghous, a small potato grower

The farmer has 10 acre (6 acres of his own, 3 acres from other farmers and one acre from his father on payment. He sold his 2 buffalo (Rs.27,000) to invest in the potato crop.

43. Pie Diagram of Farmer Classes In Aroop

12/2/92

Drawn by: Rahmat Ali, Ghulam Rasool and Ch. Ghulam Qadir

Process:

We gathered farmers in the *dera* of Ch. Anwar Bhinder and started a discussion. We went onto general agricultural practices and asked what the size of landholding was. A PRA member drew a circle and asked what portion of the circle was with the larger landholders. Conceptually, it was difficult for the farmers to adapt to the 'Pie' chart. They gave bigger landholders the larger portion of the pie. We explained to them that it was not the size of land we wanted to know but the number of people for each class.

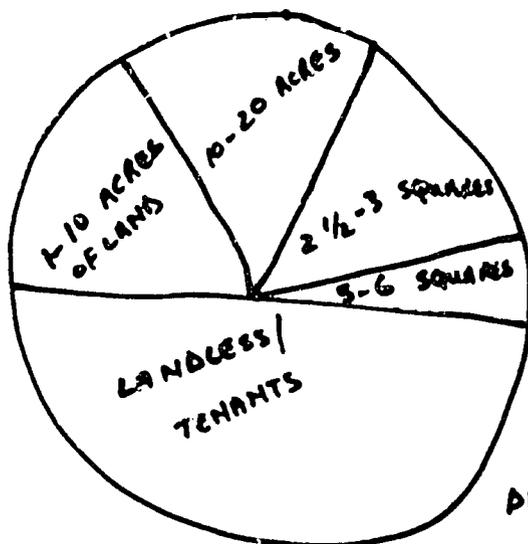


DIAGRAM OF FARMER
CLASSES IN VILLAGE
ARUP

12 FEBRUARY 1992

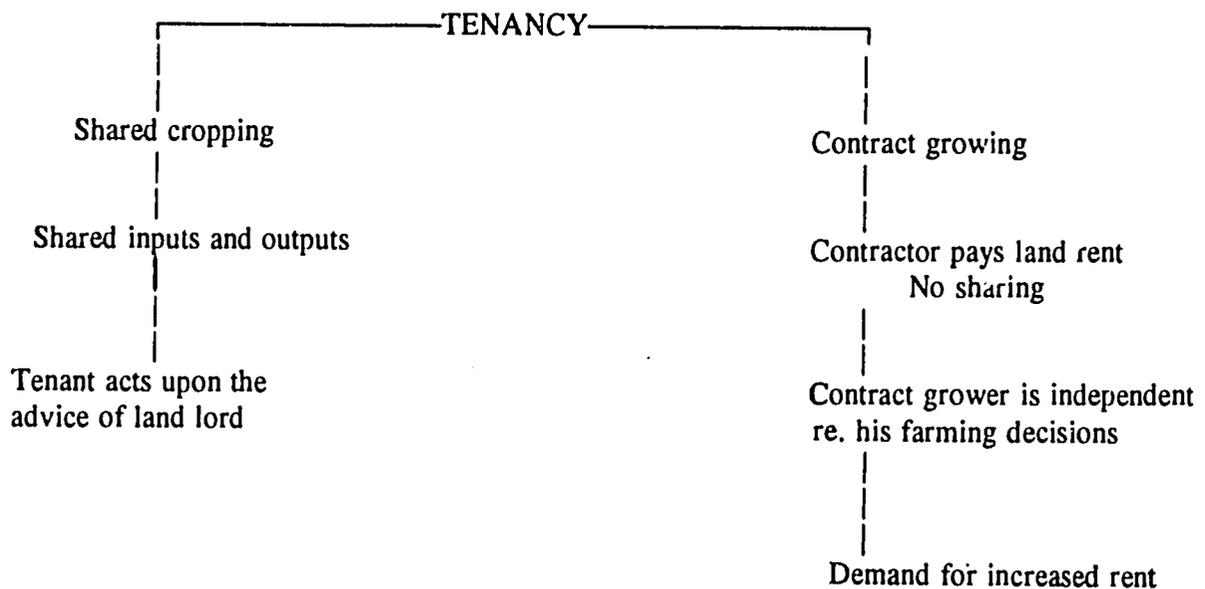
DRAWN BY 'RAHMAT ALI,
GHULAM RASOOL & CH. GHULAM
QADIR' - FARMERS OF
VILLAGE ARUP.

COPIED FROM THE GROUP

TENANCY

Two types of tenancy system exist in the area i.e. shared cropping and contract growing. In the case of shared cropping, the expenditure and produce is shared naturally between the land owner and the farmer. In the case of contract growing, the land owner gives the land on lease to the contract farmer for a certain period of time. In this case the contract grower is fully independent to plan the farming business, while with shared cropping system the grower has to act upon the advice of land owner.

TWO DIFFERENT FORMS OF TENANCY IDENTIFIED IN AROOP



Problem associated with landholdings are:

- land disputes;
- women are not given a share in property;
- land fragmentation;
- contract growers cannot get loans (no land titles);
- land rents are increasing;
- contractors do not make enough money to pay the rent;
- contracts are not always renewed.

Local responses to these problems are:

- people go for off-farm jobs;
- selling/buying land;
- higher intensity of crop production (up to 4 crops/year);
- more family labour is used to cut costs of production.

CROPPING PATTERN

Trends in Cropping Rotation

In 1947

- Wheat, sugar cane, pulses and millet
- Pattern changed with the availability of tube-well water which enable farmers to bring more area under cultivation.
- Later on rice and fodder became important.
- Potato, peas and other vegetables gained importance.

Present crops

Rice, wheat, fodder crops (berseem, clover), oat, mustard, maize, sorghum and Bajra, sugar cane, potato, peas, garlic and other vegetables.

Cropping Pattern

The major crops grown in the village are rice, wheat, fodder (berseem, Persian clover, maize, sorghum, oat, bajra and mustard) sugar cane, potato, peas, garlic and other vegetables. At partition, the main crops grown were wheat, sugar cane, gram, pulses, millet and old mustard. After that, with provision of irrigation facilities, oil engines and electric tubewell, the cropping pattern changed. Rice and fodder crops became the major crops. As rice is an export item, farmers get comparatively better prices. Due to low initial cost and more remuneration from fodder the major area is brought under these crops, especially in winter. The potato crop is grown with the expectation of very high net returns. Vegetables are grown only by the small growers. Due to high net return throughout year along with home consumption, the main cropping pattern every year is as explained below by a small grower:

- Wheat-sorghum/millet (fodder)-Sorghum + Maize(fodder)-wheat
- Berseem-rice-berseem
- Wheat-rice-wheat
- Sugar cane-wheat-maize
- Potato-melons-maize+millet(fodder)

Main cropping rotations

Wheat - millet (fodder) - maize (fodder) - wheat

Berseem - rice - berseem

Wheat - rice - wheat

Sugar cane - wheat - maize

Potato - melons - maize + millet (fodder)

MATRIX RANKINGS

	Pulses	Fruits Vegetable	Peas	Potato	Field	Wheat	Rice
Profit	00000	0000	000	00000	000	0000	0000
Expenditure	0000	000	00	0	0000	00000	000
Climate	0	000	000	00000	00000	00000	00000
Marketability	0	0	0000	0000	000	00000	00000
Soil fertility	0000	00000	00000	00000	00000	0000	00000
Seasonality	000	0000	0	0	00000	0	0
Fertility	0	0	0	0	00000	0000	000
Insecticide	0	00	0	0000	000	0	00000

Potato Crop

Regarding the potato crop, the various farmers/farmers' groups explained that three varieties of potato i.e. Ultimus, Desiree and Patroness are grown. All three varieties are ready for early harvesting/marketing after 60 days, and for full maturity of the crops, 90 days are required. In case of early harvested crop, the yield range is 35-44 bags and for a mature crop it is 65-90 bags (100 kg each) per acre.

*Potato
variety**Yield/acre in bags (105-110 kg)*

Variety grown	Early potato (60 days)	Main crop (90 days)
Ultimus	40 bags	75 bags
Desiree	35 "	65-90 "
Patroness	44 "	90 "

Problems associated with cropping pattern and rotations are:

- different crops compete for labour, e.g. in autumn: potato planting vs. rice harvest, in spring: potato harvest vs. wheat harvest and vegetable planting;
- *keeri* insects (termites) in heavy soils affect cereal crops;
- *rohi* type soils are not suitable for potatoes.

Local responses to these problems are:

- using machines for planting and harvest;
- choice of correct plot to grow suitable crop e.g. *mera* soils for potato, *chamb* soils for rice.

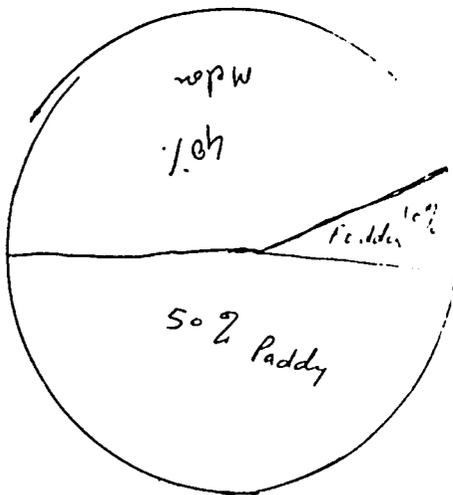
44. Pie Diagram of Land Utilisation By Potato Grower

Analyst: Ghulam Ghous

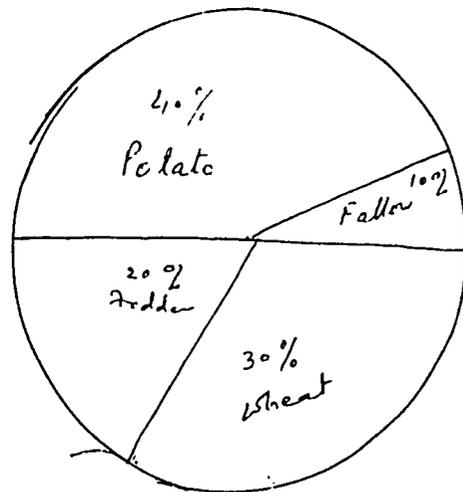
Facilitators: Sadiq, Iqrar, Tonio

Process:

The farmer prepared the circles on the ground with the help of a stick. He divided the fields season-wise for the year 1991-92. Then the pie charts were transferred on paper. The total land holding is 10 acre.



KHARIF 1991



RABI. 1991-92

Analyst: Ghulam Ghous FARMER
 Facilitator PRA-Team: Sadiq, Iqrar, Tonio. *Copied from ground*

PIE DIAGRAM OF LAND UTILIZATION OF MR GHULAM GHOUS CHEEMA
 (FARMER)

45. Seasonal Cropping Pattern Calender Village Aroop

Process:

This information was collected from a *dera* situated on the western side of the canal. There were four farmers, all from the Bhinder tribe. All were landholders. Mr. Inayat Mohammed was the main informant. They told us about the cropping patterns being practised on the western side. They were interviewed and did not draw the diagram themselves. They explained in their own local monthly calendar and it was transformed into English calendar by the facilitators.

Key findings:

The cropping patterns followed by them are:

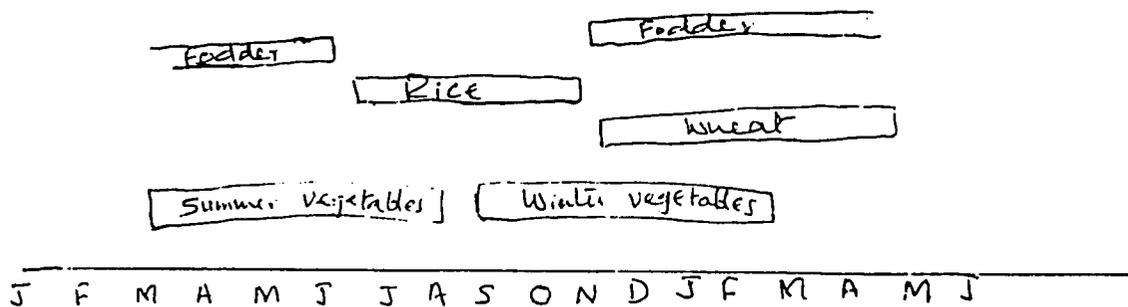
1. Wheat - Sorghum/Millet (fodder) - Sorghum/Maize (fodder) - wheat
2. Berseem - Rice - Berseem
3. Wheat - Rice - Wheat
4. Sugar cane - Wheat - Maize.

The farmers have milch buffaloes and their milk production is indicated in the form of a curve in the same seasonal calendar, which shows that milk production is directly related to the berseem curve. The lowest milk production was obtained in the months May - September. According to them, the low milk yield is due to fodder shortage, the hot and dry season, mosquitoes and flies.

46. Cropping Pattern (Women)

A group of women were describing their role in vegetable growing. The interviewer questioned them about vegetable crops and drew the diagram herself.

Cropping Pattern drawn by Team member



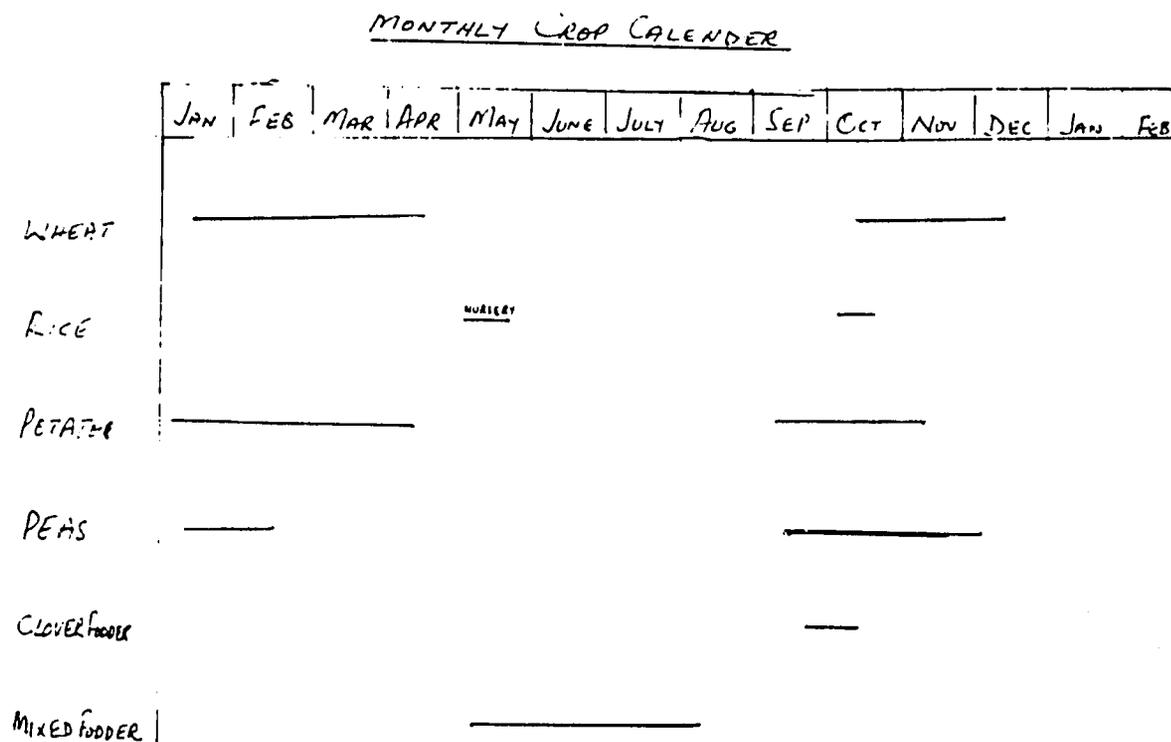
47. Seasonal Crop Calendar

12/2/92

Analysts: two farmers

Process:

The diagram has been drawn during semi-structured interviews with two farmers. At times the farmers seemed unsure of what they were saying. The reason for this became known at the end of the interview: the farmers and the PRA team members had not understood each other as far as the names of the months were concerned. The farmers were using local (farming) names while the PRA team was using Christian calendar months.



Drawing: Analyst-PRA
 Info. Source: 2 Farmers.
 12.2.1992

PESTS AND DISEASES

As reported by different potato growers, late blight is the most serious disease in spring during the last few years. It was reported that, after rain, the crop is destroyed by this disease within a few days. Many of the growers seemed unaware about distinctions between disease and insect or pest problems. Some disease/insect problems in rice during August and September were also reported but there was no clear idea of the specific disease or insect. Some growers complained about army worm/caterpillars/aphids on potato, and borer, bacani (root rot), and hopper rust on wheat during February.

Main Crop Pests and Diseases in Aroop

Potato

Aphids, cutworm and late blight in spring
Sometimes armyworm during autumn and spring

Rice

Rice borer, root rot, hopper

Wheat

Rust during February

Berseem

Some insect/disease

Pests and Diseases

Problems:

- Farmers face difficulties in identifying pests/diseases, describing only the symptoms.
- Farmers do not know what chemicals to use.
- Pesticides are adulterated and thus do not work properly.
- Dealers recommend expensive pesticides only available with them.

Local responses:

- Local treatment such as use of kerosene oil.
- Farmers go to extension service/pesticide dealers.
- Farmer grow disease resistant varieties of wheat.

Research options:

- On-farm research for on-farm trials
- Development of resistant varieties.
- Cultural practice to reduce severity of pests and diseases.
- Study on rotation to control soil-borne diseases.
- Soil and seed treatment research.

SOILS

Soil Classification

13/2/92

- i) Loam and sandy loam 90%
- ii) Clay loam and clay 10%

(Source: Information collected during transect walk from farmer Sadiq and other farmers)

Type of Soil and Land Use

<u>Soil type</u>	<u>Land use</u>
Sandy loam (maira)	Potato, Vegetables (peas, carrots, garlic)
Clay loam (rohi)	Melon, Fodder Wheat, Rice, Sugar cane, Fodder

Soil Type and Land Use

Location: Aroop East Sialkot Road, 17/2/92

Recorded by: Iqrar

Facilitator: Sadiq, Iqrar, Tonio

Process:

Semi structured interviews based on charts, diagram and general discussion

Key findings:

Who: Akramullah (small potato grower)

- Land on contract
- 10 acres clay (sandy) soil (canal irrigation, not good drainage).
- 6-7 kanal potato
- 2 acres wheat
- 2 kanals fodder
- 10 acres, "mera" land-sandy, tubewell irrigation
- 2 acres, clayey soil-canal irrigation, not good drainage

Who: Ghulam Ghous (small potato grower)

- owner of 8 acres land
- 2 acres on contract from his father
- soil type-sandy loam, good drainage
- 4 acres potato
- 3 acres wheat
- 2 acres fodder
- 1 acre fallow.

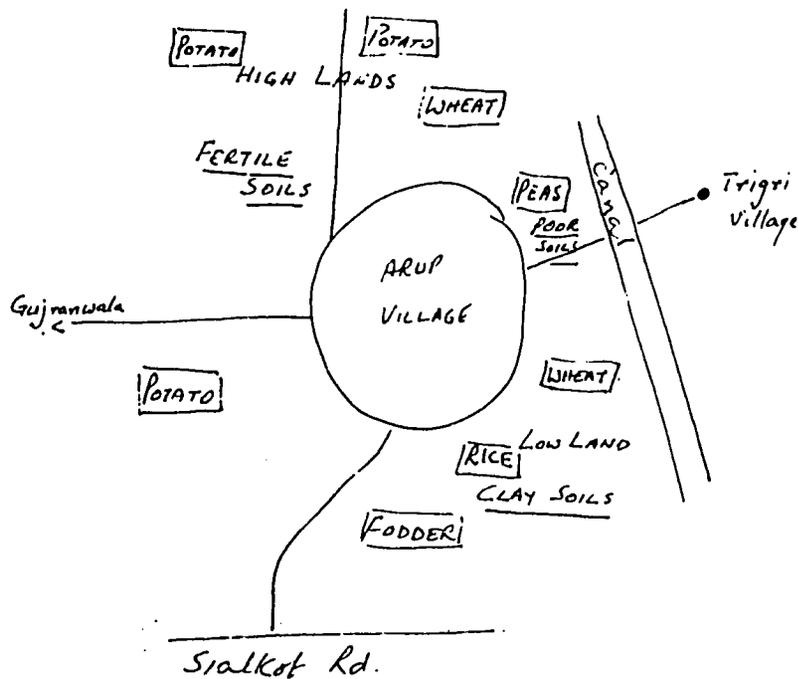
48. Soil Distribution and Crops

Process:

The map has been prepared with the help of semi-structured interview with three farmers involved in mixed farming. According to the farmers the fertile soils were the ones where drainage was good and potatoes could be grown. In areas where drainage was less, the soils were not good for crops other than rice and fodder. The farmers were able to identify approximate locations of crop areas and soil distribution (good/poor).

SOILS DISTRIBUTION AND CROPS.

Drawing : Analyst - PRA
SOURCE : 3 Farmers doing
info. Mixed farming.
12.2.1992



16/2/92

49. Problem Spatial Distribution Map

Location: Aroop Union Council Offices

Analysts: Sarfraz and other farmers (varying wealth)

Facilitators: Mehreen Hosain, Richard Edwards

Process and Key findings:

After a problem-solving exercise had been completed, farmers were asked if there were any further problems they wished to discuss. At first they said *no* and walked away. While the team was preparing to walk away, the whole group of farmers came back and threw the problem back at the team. '*We have increasing salinity problems in our village - tell us what we can do to solve them*'. From the following discussion it appeared that the problem was significant and one for which they could not find a solution. The team member asked the group to indicate areas of salinity on the map - so a farmer drew a map on the ground indicating areas of salinity and water logging. The farmers had few ways of coping with the problem except to plant rice which was better adapted to these conditions. Inability of saline soil to absorb water also led to an increase in pests.

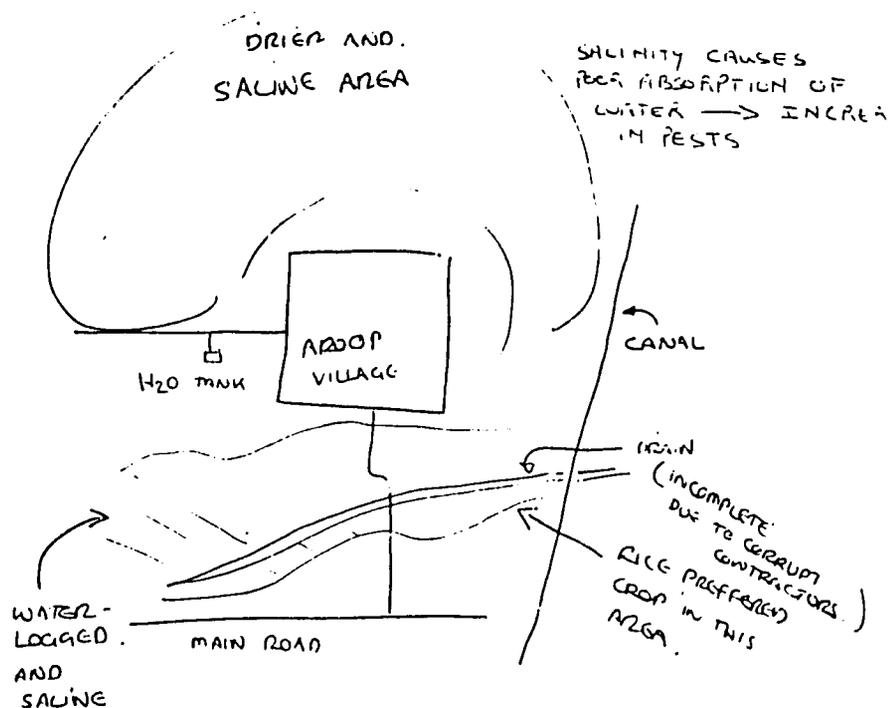
AROOP VILLAGE NEAR GUJRANWALA.

LOCATION UNION COUNCIL OFFICES.

FACILITATORS: RICHARD EDWARDS, MEHREEN HOSSAIN

ANALYSTS: SARFAZ AND AN ASSORTED NUMBER OF FARMERS OF VARYING WEALTH COMING AND GOING.

PROBLEM SPATIAL DISTRIBUTION MAP (COPIED FROM THE GROUND)



TIME CHANGE

DOUBLED WHEN TUBEWELLS CAME SINCE

MEDIUM USED = CHALK.

LIVESTOCK

General information

Buffalo: High yields during Feb-May; Oct-Dec.
 Poor yield during July-Sept.
 Prone to diseases during July and Aug.

Cows: High yields during Mar-July
 Requires more care

Milking: Twice a day/morning, evening

Yields: Buffalo: 20 kg/day; Cow: 50 kg/day

Marketing milk: To private households at 6 Rs/kg

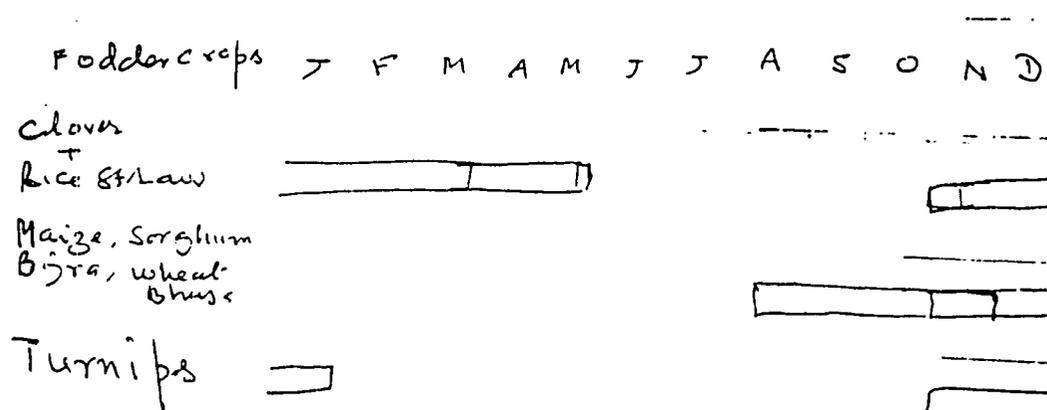
Disease: Foot and Mouth.

Cure: Local treatment, otherwise to veterinarian services

By-products of livestock production: farm yard manure. During summer prices are high (yields low). During summer outdoor grazing is necessary. Total families dealing specifically in livestock: 200 (Gujar). Each household has 10-100 heads of cattle. Fodder available from own fields. In winter: rice straw + shaftal (Sengi) and in summer: millet + maize + wheat straw. The more cattle one has, the more difficult it is to manage them and therefore milk yield is less. With less cattle, management is better and milk production is greater.

FODDER SUPPLY

(PERIOD OF DIFFERENT CROPS)



Problems associated with livestock are:

- increased number of cattle is more difficult to manage
- high yield breeds are less adapted to local conditions
- local breeds have low milk yield
- diseases
- theft of cattle.

Local responses to these problems are:

- keeping fewer cattle at the farm
- continue to keep local breeds
- using high yield breeds
- adulteration of milk (diluting)
- local treatment with traditional remedies
- chain animals during the night
- stay guard at night.

Consequences are:

- less milk production
- less productive livestock
- cost increase to farmer
- ill health
- death
- high expenses to farmer during treatment
- low productivity
- major financial loss to farmer
- reduced number of cattle
- discouragement of farmers regarding livestock keeping
- violence/insecurity.

Research options:

- optimum management practices
- examine better adapted breeds
- examine improved fodder management for increased milk production
- examine causes of diseases and preventive measures
- examine availability of veterinary treatment at low costs
- examine security systems.

50. Livestock

13/2/92 and 17/2/92

Location: Aroop, East Sialkot Road

Recorded by: Iqrar

Facilitators: Sadiq, Iqrar, Tonio

Process:

Semi-structured interviews based on charts, diagram and general discussion

Key findings:

Who: Akramullah, small potato grower

- one buffalo for milk for own consumption.
- one horse for selling fodder in market.

Who: Ghulam Ghous (small potato grower)

- 5 buffaloes
- 2 goat kids
- vaccination by veterinarian
- milk - used for own consumption and sales.

Poultry (from poultry farmer)

- Day-old chicks obtained from Lahore.
- No. of layers: 3500-4000
- Production: 2520 eggs per day
- Income: Summer Rs.400 per 360 eggs
Winter Rs.600 per 360 eggs
- One buyer who comes to farm and collects all the produce daily.
- Prepares own feed.
- Veterinary services available from Gakhar town.

51. Milk Production

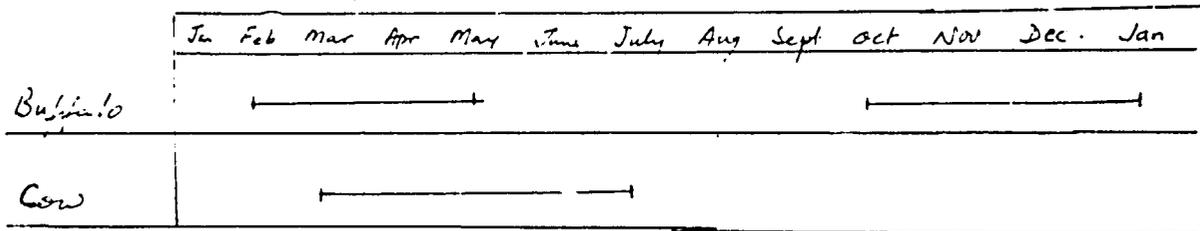
13/2/92

Analysts: Two dairy farmers

Process:

The bar-chart has been drawn through semi-structured interview of two Gujars. One of them owns 15 buffaloes and the other owns 22 buffaloes and three cows.

MILK PRODUCTION. High Yield periods.



High yield in Buffalo means: 20kg of milk per day.
 High yield for Cow means: 50kg of milk per day.

Diagram: Analyst. PLA
 Info. Source: 2 dairy farmers
 13.2.1992

POTATO-SPECIFIC INFORMATION*List of Information about Potato Management/Production Collected in Aroop*

Experience of Government of Pakistan
Reliability of crop seed quality
Duration of crop
Yield
Market price
Market demand
Profit
Storage strategy

Problems associated with potato production are:

- high rainfall and poor soil drainage delay harvest which leads to more weeds
- high initial costs for resource-poor farmers
- crop needs more attention than other crop
- labour shortage at planting and harvest
- non-availability of imported seed on poor seed quality
- price fluctuations
- diseases
- hold on market by commission agents.

Local responses to these problems are:

- farmers purchase fertilizer and seed on loan from commission agents
- they use cheaper local seed
- they stop growing potatoes
- they store potatoes in cold storage to wait for price increase
- hire planter and digger
- earlier harvest to get higher price.

Research Options:

- to examine other seed supply systems (e.g. government seed farms)
- to examine ways of getting loans from others than commission agents.

52. Interviews with Potato Growers

13/2/92 and 17/2/92

Location: Aroop Shahiwala *dera*, East side, Sialkot Road, 13/2/92 and 17/2/92

Recorded by: Iqrar

Facilitator: Sadiq, Iqrar, Tonio

Process:

Interviewed, discussion and noted by sub-group.

Key findings:

Who: Ghulam Ghous

- 25 years of potato growing experience
- 4 acres of potato grown
- 8 bags of seed from Cheema
- storage
- indigenous technology
- crop rotation
- manure (FYM), pesticides and fertilizer used
- hoeing, weeding, earthing up
- well informed (marketing)

Who : Akramullah

- 20 years of potato growing experience
- 10 acres of potato crop
- autumn and spring potato crop
- storage
- planter and digger used.
- uses: pesticide, manure (FYM), fertilizer
- hoeing, weeding, earthing up
- imported and local seed (potato)

53. Potato Storage Strategy of Potato Growers

17/2/92

Grower: Kafayat Ullah Wahla

Location: Fruit and Vegetable Market Gujranwala

Materials: Marker and paper

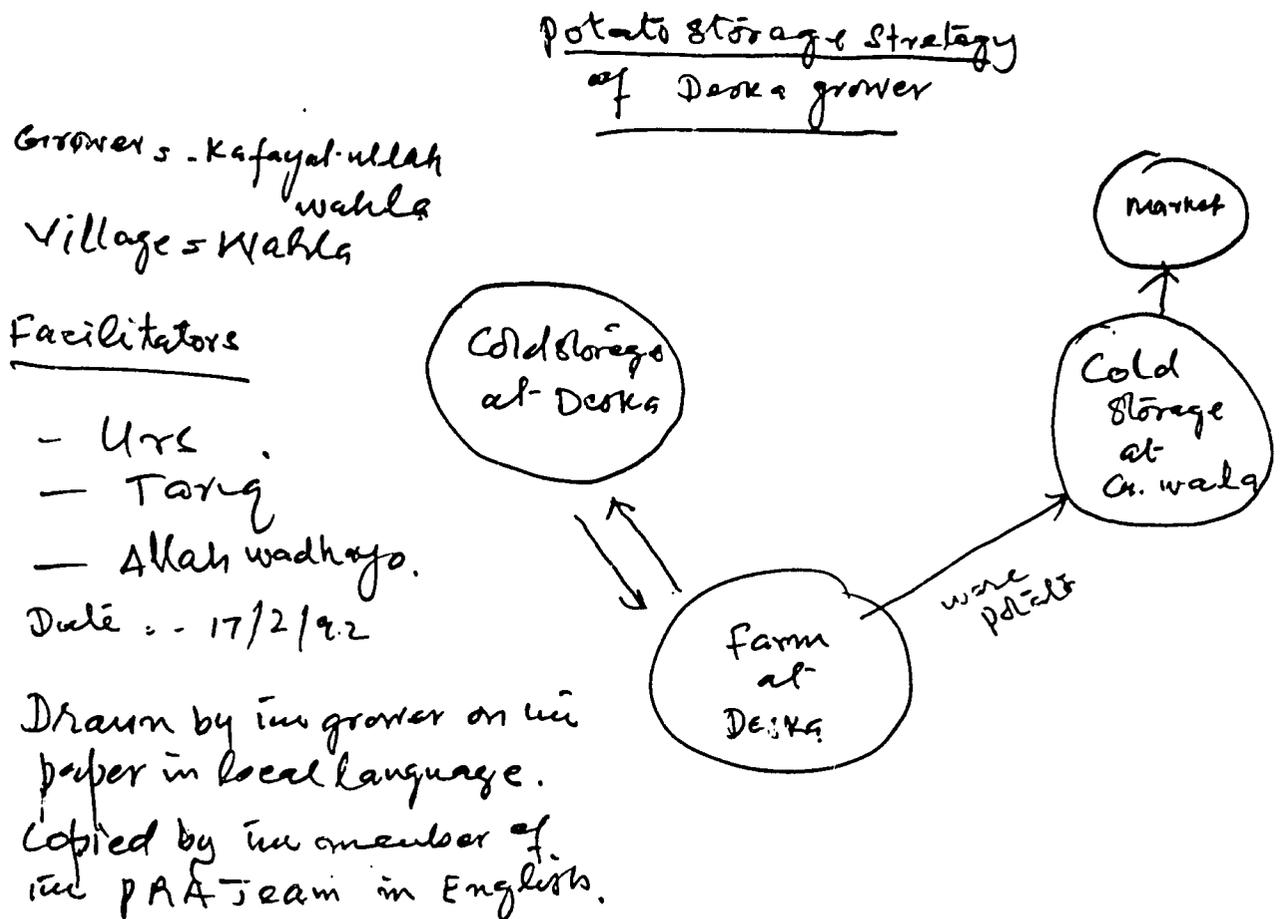
Facilitators: A. Wadhayo, Zanoni, AH Tariq

Process:

During the PRA team's visit to the Gujranwala fruit and vegetable market, the team members met the assistant of one of the Commission Agents. At the same time one potato grower, who was visiting the market, introduced himself and was involved in the discussion with the assistance of the Commission Agent. He explained his potato storage strategy and drew it on the paper with a marker.

Key findings:

The grower from Daska who is far from the main market, stores his ware potato in the city cold storage for easy marketing later on, and his seed potatoes at Daska cold storage for easy availability for planting in the next autumn crop.



5. Seed Potato Supply System

17/2/92

Grower: Haji Mohammed Yaqoob, 22.5 acres

Location: Butranwali village

Facilitator: Mr. A. Wadhayo, Rubina Akhtar, A.H. Tariq

Materials: paper and pen

Process:

Manzoor, a partner of the small grower Mr. Ishtiaq, guided us to another potato grower, Haji Mohammed Yaqoob. The team members were introduced to him and the purpose of the visit was explained. After some discussion the grower drew the seed potato supply diagram.

Key findings:

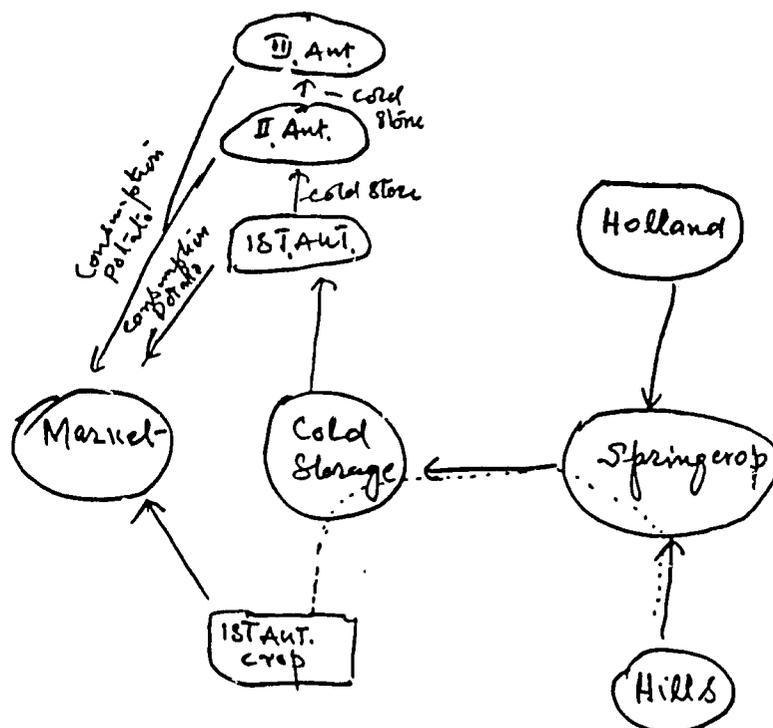
The grower is using one batch of imported seed for 3 autumn crops, while the hill seed is only used for raising one autumn crop. The farmer is using his entire land for potato growing. He was asked to show the factors involved in making this decision. He started drawing squares with a chalk on the ground. The squares were of different sizes, according to his perception.

POTATO SEED SUPPLY SYSTEM

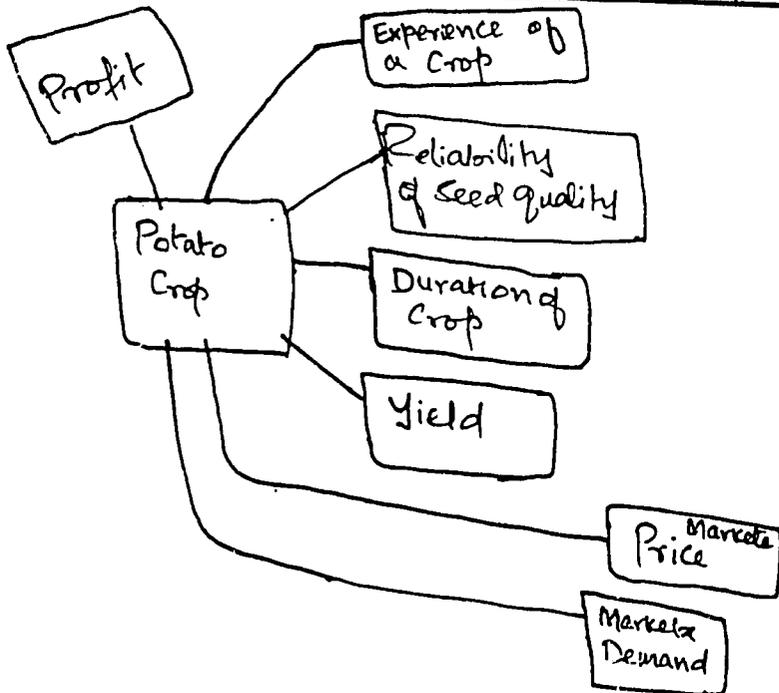
Grower :- Haji Mohammed Yaqoob
 village = Butranwali
 farm size = 22 1/2 Acres
Facilitator = A.H. Tariq
 Rubina Akhtar
 Allah Wadhayo
 Date = 17.2.92

Drawn by the farmer
 on the paper in local
 language. Copied by the
 member of the YARA
 Team in English.

[potato grower]



Decision Making Factors for Potato Crop



Analyst : Muhammad Rafiq
 Facilitator : Allah wadhayo, Tasir
 & Rubina Akter
 Location : Buttranwali, 17/2/92
 Copied by : Rubina Akter

(Made on the ground with a chalk
 Analyst drew squares refused to draw circles)

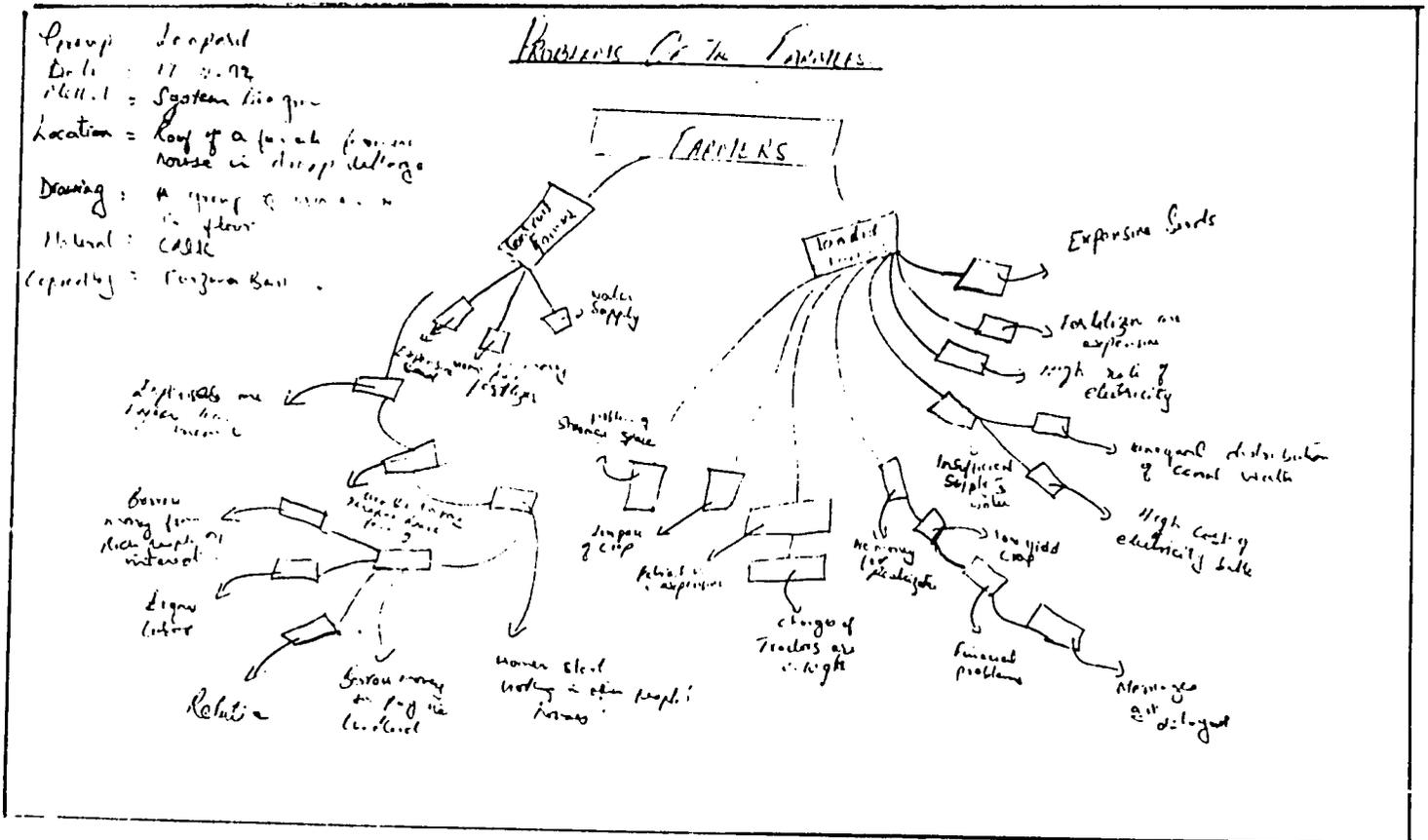
PROBLEMS AND SOLUTIONS

55. Problems Tree

Process:

We went to see Shareefan Bibi but she had left for another village to see her daughters. I asked her daughter if she could spare sometime. She agreed and invited me in the house. She took me on the roof. While we were talking, slowly about six more women come on her roof from other houses. On my suggestion she started writing on the floor with chalk.

The key informants was inclined to make separate boxes for each problem even it was interlinked with the main one. I suggested to make extensions of the box in which she has already started a main problem, e.g. credit or water supply.



56. Flow Diagram of Reasons for Indebtedness

16/2/92

Location: Union Council Offices, Aroop near Gujranwala

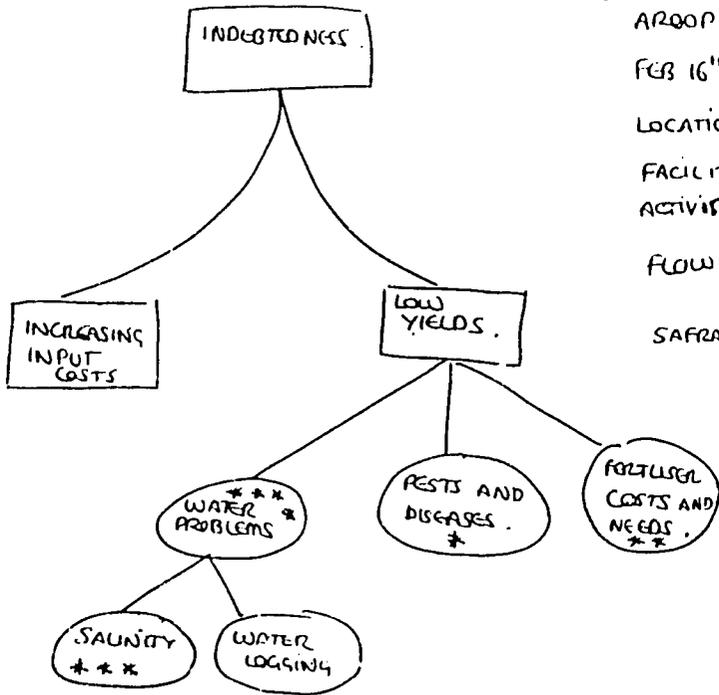
Facilitator: R. Edwards, M. Hosain

Analyst: Sarfraz and other

Process:

A general discussion was initiated with a farmer. It was put to him that indebtedness had been mentioned as a problem in the village - what did he think were the causes of this. The farmer mentioned low yields and input costs. Further questioning on the causes of low yields led to a flow diagram. The initial conversation had been started with a farmer who had rented out his land. During the process some other farmers joined in and brought out new reasons. After they mentioned pests as a major cause of low yields, we asked which crops had pest problems. These crops were drawn on cards of the farmers (after a team member had drawn one crop on a card). These were ranked for those with most pest problems etc. Next they were asked to rank crops to be dealt with through research for economic impact.

It was difficult to get the farmers to understand the flow diagram concept (though ranking was very easily picked up). The activists were wealthier members of the community. One was not farming directly (had rented his land) while the other was fully involved in agriculture.



AROOP VILLAGE NEAR GUJRANWALA.
FEB 16th 92.

LOCATION AROOP UNION COUNCIL OFFICES.
FACILITATORS RICHARD EDWARDS, MEHREEN HUSSAIN.
ACTIVISTS SARFAZ + RANA BASHIR

FLOW DIAGRAM: CAUSES BEHIND INDEBTEDNESS.

SAFAZ: RENTS HIS LAND OUT AND IS NOT DIRECTLY INVOLVED IN AGRICULTURE.

* = RANKING IN IMPORTANCE

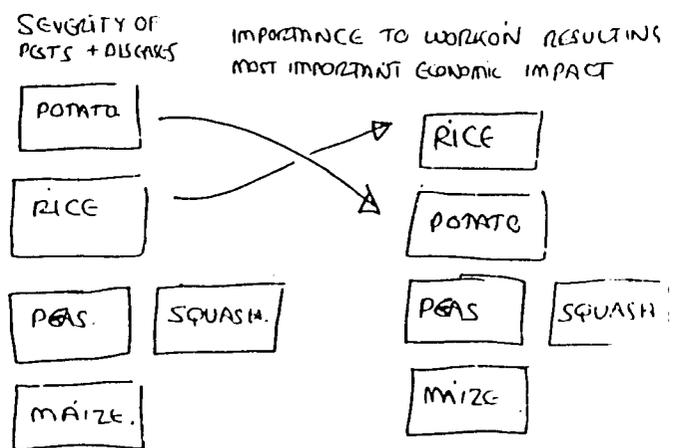
* MOST IMPORTANT → **** LEAST IMPORTANT

SYMBOL FOR WATERLOGGING (WAVES) TRANSLATED.

AROOP VILLAGE NEAR GUJRANWALA
FEB 16th 92.

LOCATION AROOP UNION COUNCIL OFFICES.
FACILITATORS RICHARD EDWARDS MEHREEN HUSSAIN
ACTIVIST SARFAZ AND RANA BASHIR (BOTH LARGER CROPPERS)

CROPS TO BE WORKED ON BASED ON PROBLEM
FLOW DIAGRAM ON INDEBTEDNESS. PESTS AND DISEASES WERE
MENTIONED AS A MAJOR CONCERN; CHALLENGED REGARDING WHICH
CROP WAS MOST IMPORTANT THE FOLLOWING PICTURE EMERGED
(DRAWN BESIDE THE PROBLEM FLOW DIAGRAM USING PICTURES DRAWN
BY FARMERS ON PIECES OF PAPER)



57. Problems of a Non Potato-Growing Farmer

Location: Aroop vehicle stand (near the school)

Farmer: Mohammed Hussain, mixed farming (non potato grower)

Facilitator: Misbahud Din

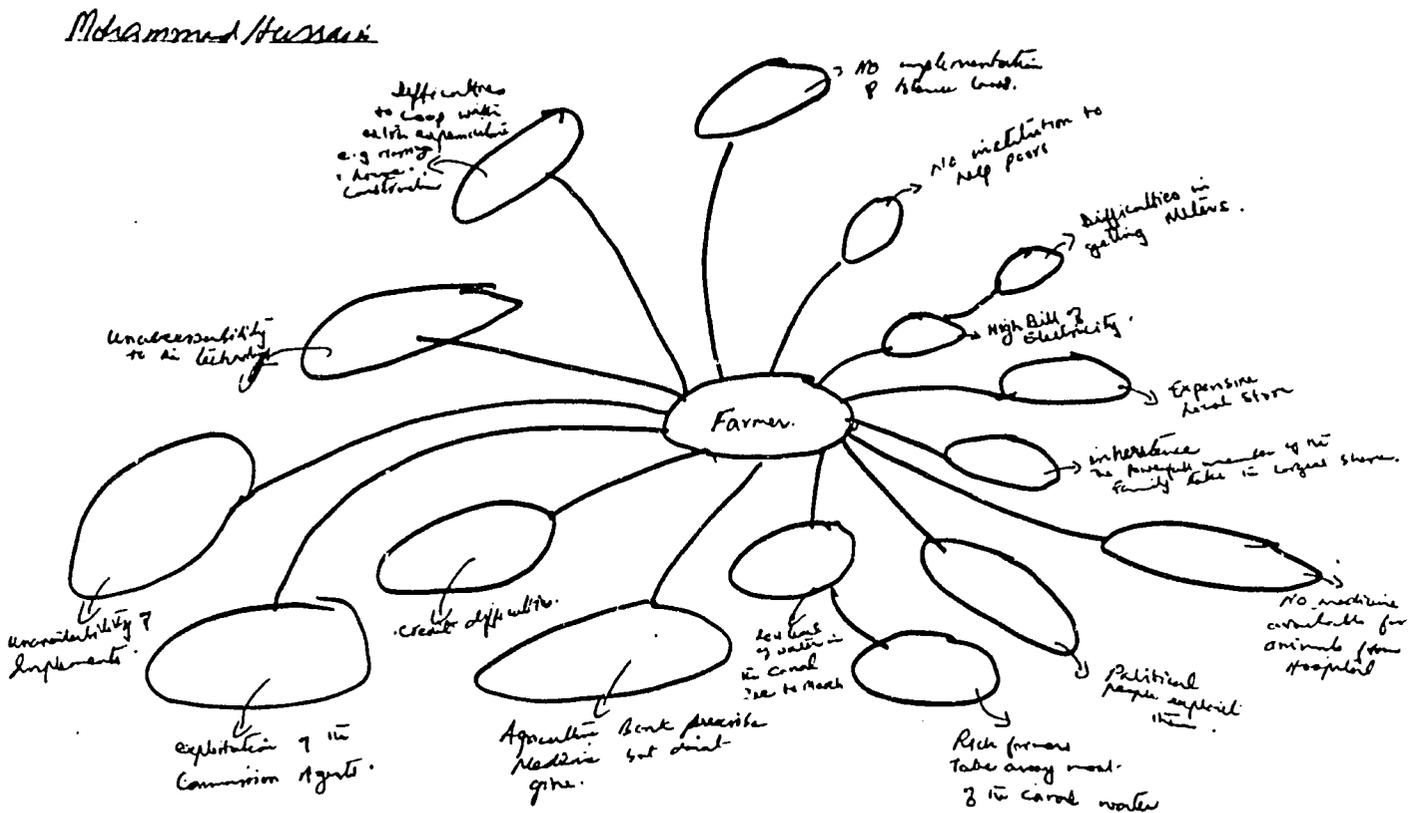
Material used: Pen and a sheet of paper

Process:

I introduced myself to the farmer I had met. Then I asked him about his most burning problems. He told me that, although he had the legal right to get land and other inheritance from parents, his uncle upset things and did not give him the ownership of his legitimate land. After this discussion I asked him if he had other problems relating to farming. In this way I persuaded him to explain things. When he stopped the work, I questioned again and kept him busy. He made the sketch. I faced a language problem and it was difficult to let him know what I wanted to know.

Key findings:

Money - political influence in the society and inheritance etc.

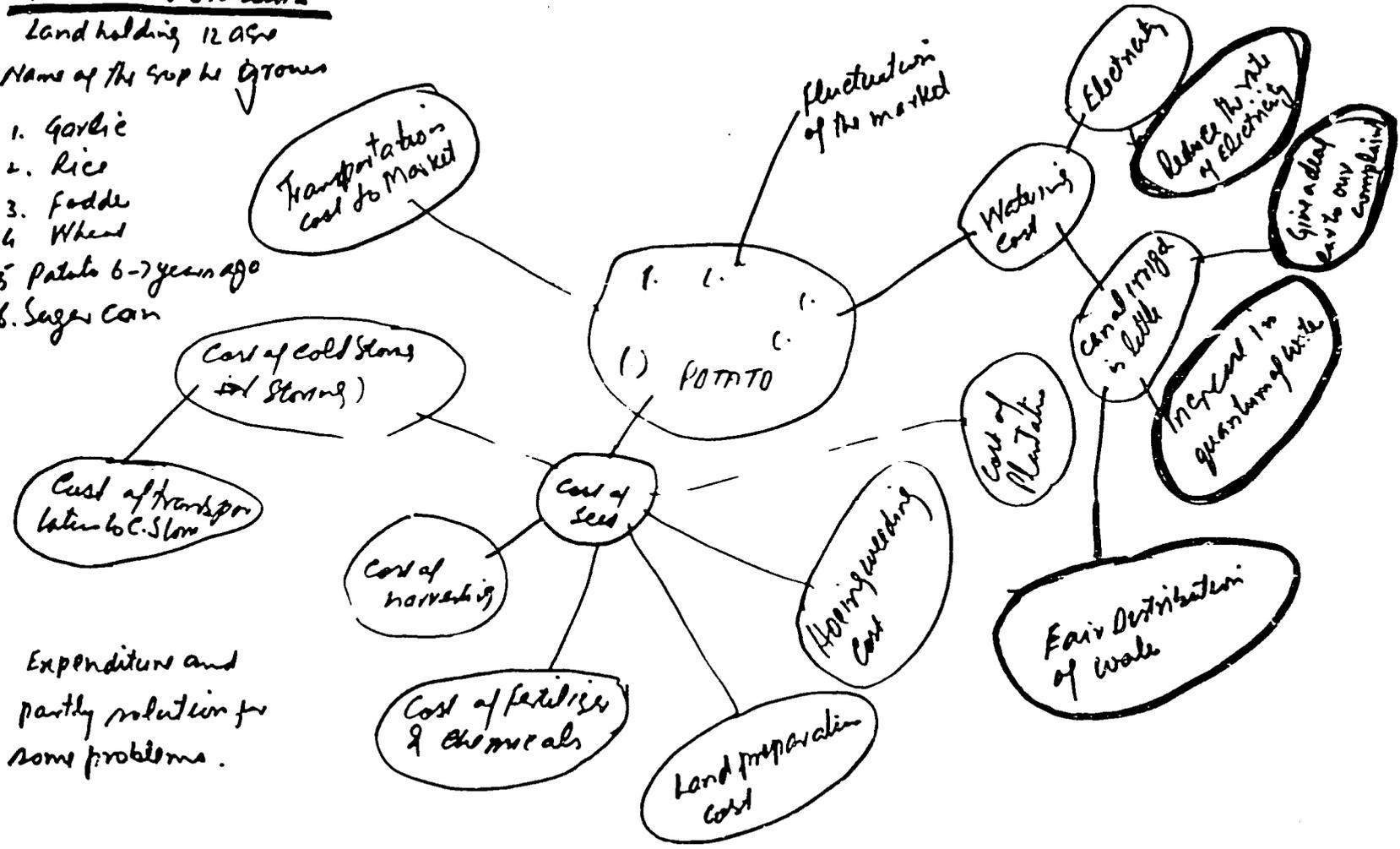


Mohammad Hussain

Land holding 12 acres

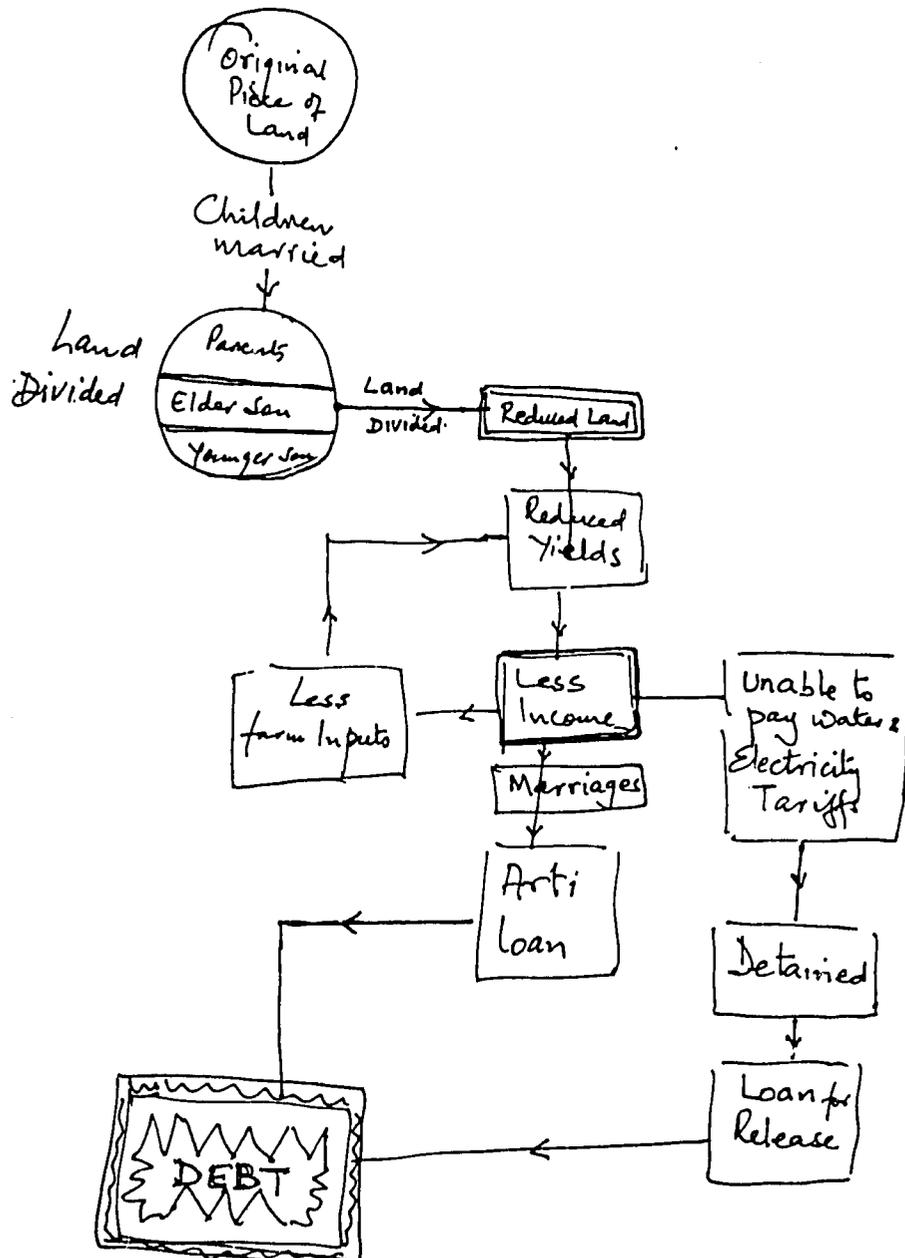
Name of the crop he grows

1. Garlic
2. Rice
3. Fodder
4. Wheat
5. Potato 6-7 years ago
6. Sugar cane



Expenditure and partly solution for some problems.

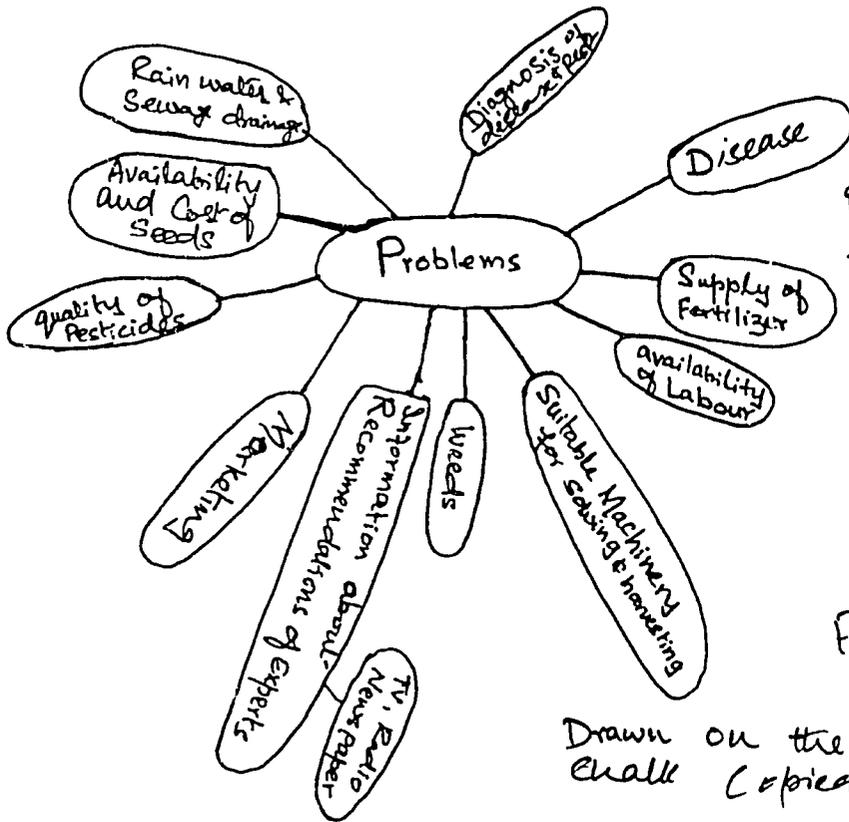
CONSTRUCTED BY AJMAL. BASED ON SSI.



58. Problems and Solutions of Potato Grower

Process:

The farmers, Muhammad Yaqoob, was happy and satisfied with his crop, but the occasional problems he faces he showed on the ground. He started with a circle and drew different types of problems around it.

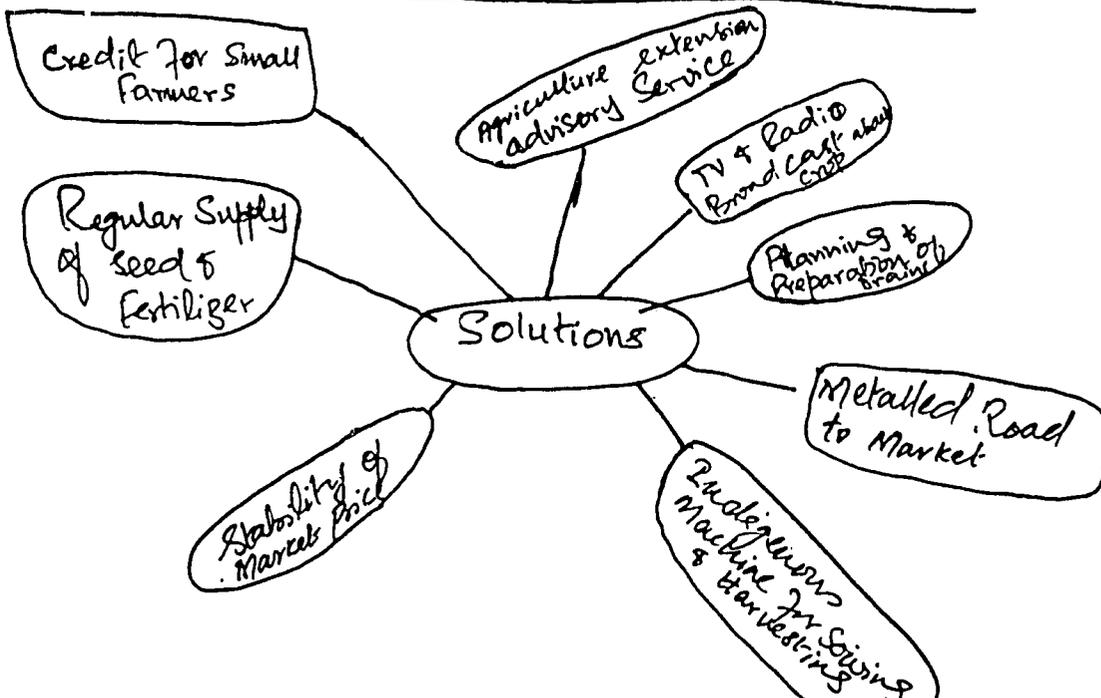


Problems of Potato growing

Analyst: Muhammad Yaqoob
 Facilitator: Allah wadhayo,
 Tariq, Rubina

Drawn on the ground with a
 Chalk Copied by Rubina Akhtri

Solutions Suggested by farmer



17.2.92
 Butranwali

59. System Diagram of Problems

17/2/92

Location: Aroop, fields, east side of Sialkot Road

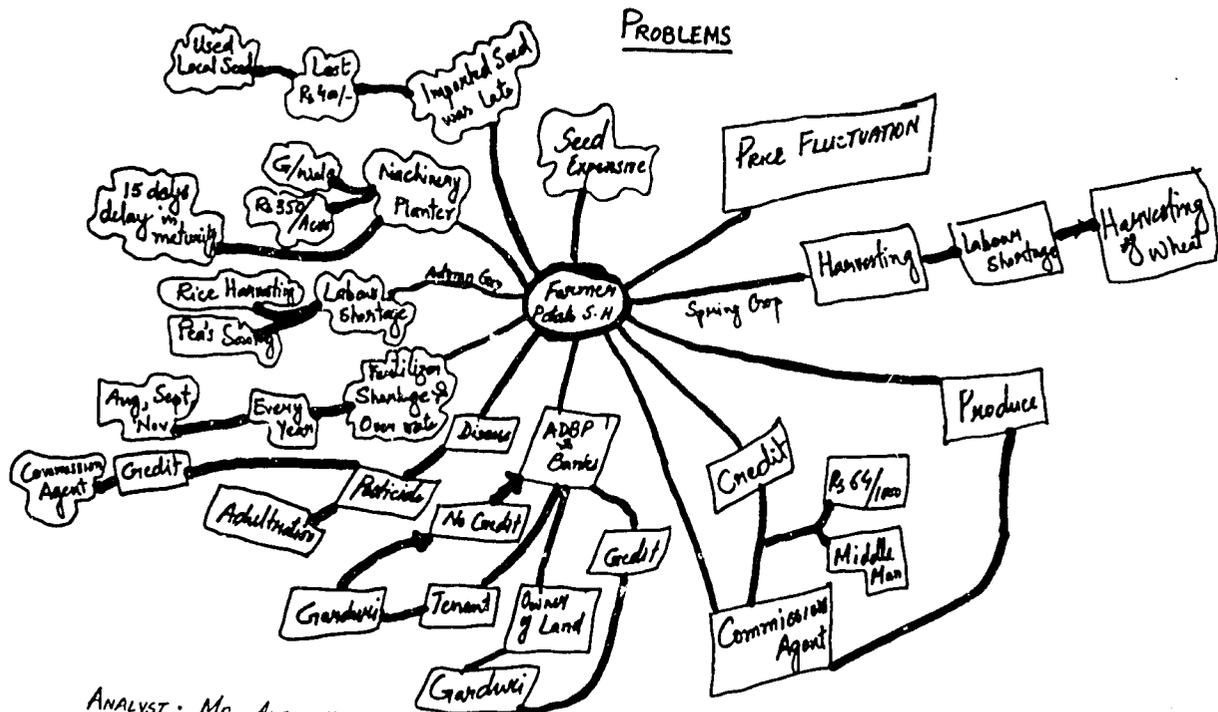
Drawn by: Akramullah, a small potato grower

Facilitators: Sadiq, Iqrar, Tonio

Materials: Stick and small pieces of papers

Process:

A PRA team member asked him about the problems facing him in potato farming. He was trying to tell us verbally but we then gave him one stick and said "Please draw the map on the ground". After hesitating, he drew the lines and placed the coloured pieces of paper on it. Then we copied it on to paper.



ANALYST: MR AKRAM ULLAH
"SMALL POTATO GROWER"

FACILITATORS: SADIQ, IQRAR, TONIO

DATE: 17-2-1992

60. Problems Diagram of Small Potato Growers

17/2/92

Location: Aroop, east Sialkot Road

Who: Ghulam Ghous

Facilitators: Sadiq, Iqar, Tonio

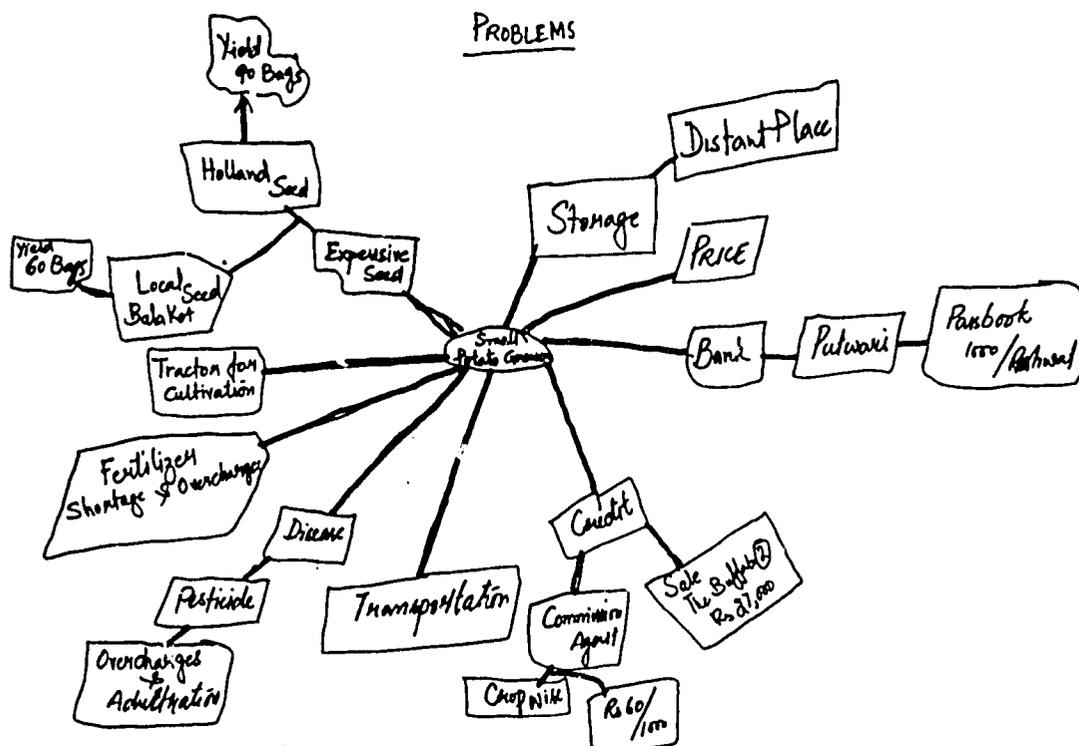
Materials: Stick and coloured paper

Process:

The PRA team asked about what type of problems he had when he grows a potato crop. In the beginning he told us "I have many problems". We asked him about the major problems in his mind. He made the diagrams on the ground. He used the stick and made the circle on the ground for different institutions. We used the coloured paper to describe the different institutions.

Key findings:

He has been a professional potato grower for thirty years. His father was also a potato grower. He grows both Autumn and Spring crops of potato. But this year he didn't grow the spring crop.



ANALYST: MR GHULAM GHOS
"SMALL POTATO GROWER"
FACILITATORS: SADIQ, IQAR, TONIO

Date: 17-2-1992

61. Solutions and Alternatives Diagram

17/2/92

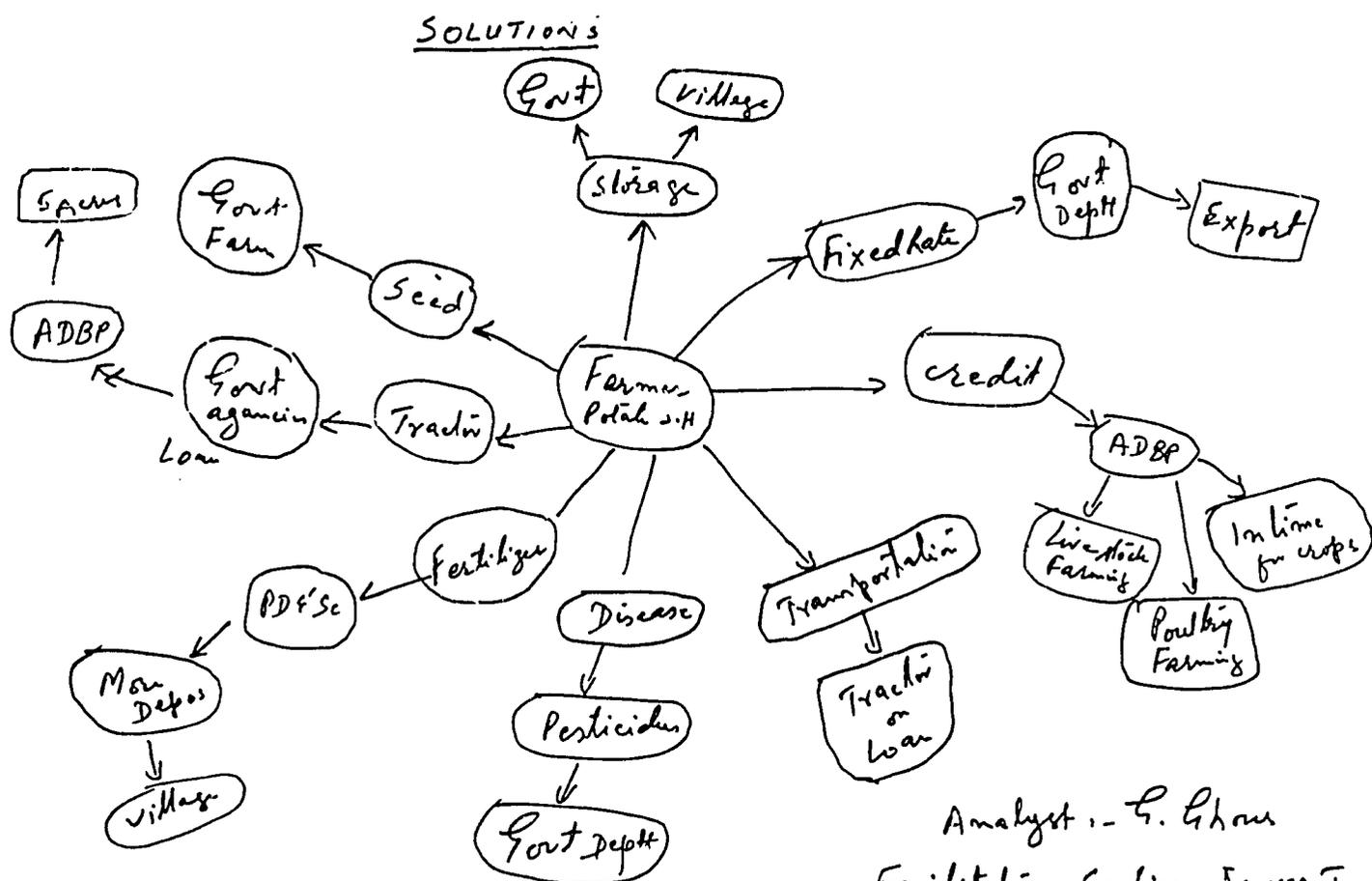
Location: Aroop, east side Sialkot Road
 Who: Ghulam Ghous, a small potato grower
 Facilitators: Sadiq, Iqrar, Tonio
 Materials: Sticks and pieces of papers

Process:

The team members talked about his solutions. He drew the diagram and told us the institution which can solve problems according to his wishes and those of different farmers. The team members asked the farmer to draw a map just as he had made for the problems. He used the sticks and pieces of papers on the ground.

Key findings:

"Without the help of institutions, we cannot change our life. We were born in poor families and our life cannot be changed."



Analyst :- G. Ghous
 Facilitators: Sadiq, Iqrar, Tonio
 Date: 17-2-92

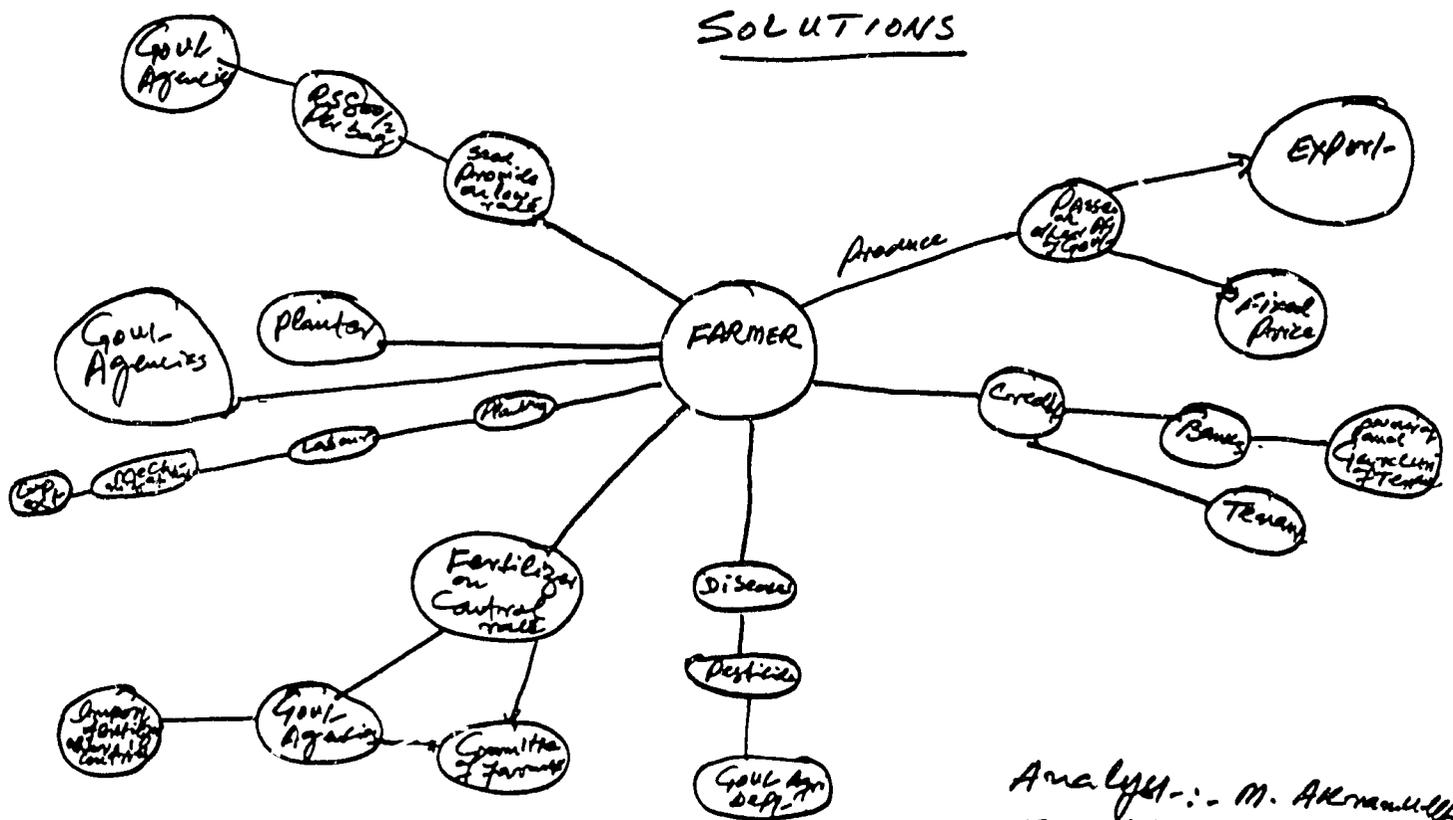
62. System Diagram of Solutions

17/2/92

Location: Aroop field, east side Sialkot Road
 Drawn by: Akramullah, a small potato grower
 Facilitators: Sadiq, Iqram, Tonio
 Materials: sticks and small pieces of papers

Process:

A PRA team member asked him about the solutions of his problem which he thinks, will improve potato production. He drew the lines on the ground and named the solutions in the local language. He placed the pieces of different coloured papers on the ground.



Analyst:- M. Akramullah
 Facilitators: Sadiq, Iqram, Tonio
 Date 17-2-92

63. Flow Diagram of Problems Related to Potato Production

17/2/92

Location: Aroop (east side),

Drawn by: Farmer/teacher, who grew potatoes 2-3 years ago

Facilitator: U. Zanoni

Material: flip chart paper and pen

Process:

The farmer was asked to show problems related to potato production. He disrupted a discussion with another, less educated farmer. Since he spoke English I took him aside and started a separate interview. It was no problem to have him draw and write because the informant was well educated.

Key findings:

Seven major problems were identified by the informant: water use, adulterated fertilizers, price fluctuations, rent of machinery, diseases and expensive and adulterated pesticides, and education or information of farmers (see chart).

Flow diagram of problems related to potato production

Source: Farmer/Teacher Musen-ul-Din
Chisani (Aroop, 17/2/92)
12 acres farm

64. Systems Diagram

17/2/92

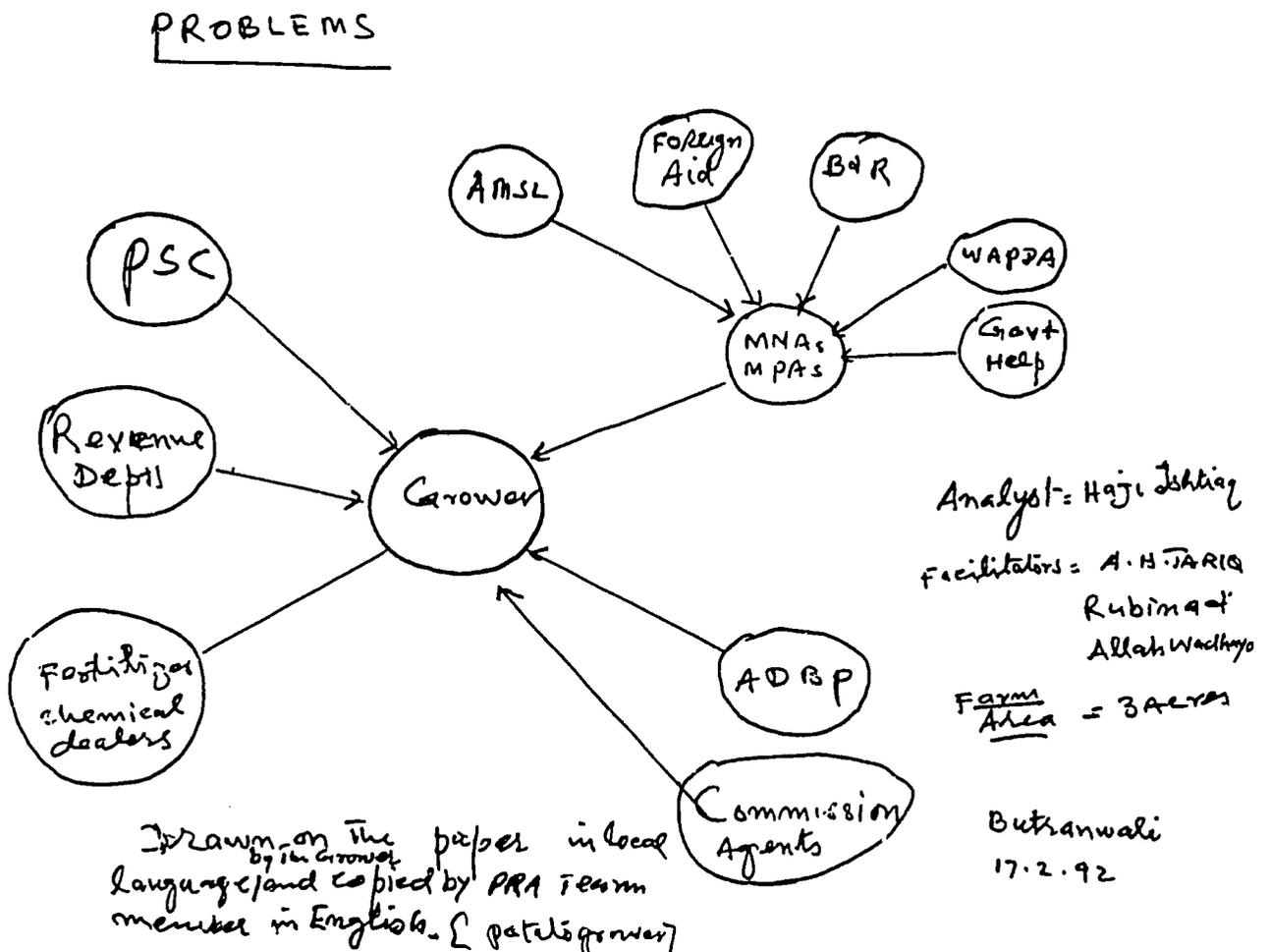
Location: Butranwali
 Analyst: Haji Ishtiaq Ahmad
 Facilitators: A. H. Tariq, Rubina Akhtar, Allah Wadhayo
 Materials: pen and paper

Process:

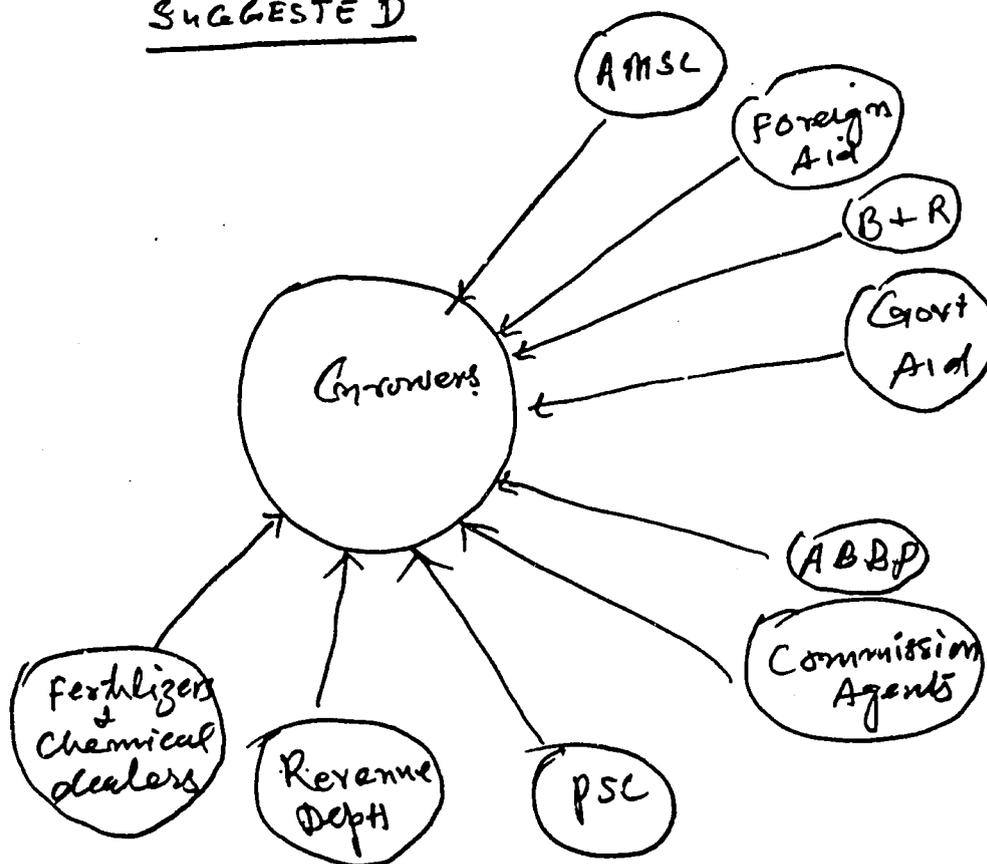
During the transect walk, the PRA team members came across a small potato grower (3 acres), Mr. Ishtiaq Ahmad. The team members introduced themselves to him and explained the purpose of the visit. The grower took the team members to a nearby shop. Some other growers also gathered there. After some discussion he drew his problems and solutions diagrams.

Key findings:

The most important finding was that all the facilities provided by the different organisations to the growers are channelled through the politicians. In the solutions, the grower suggested to change this system and facilities should be provided to the growers directly.



SOLUTIONS
SUGGESTED



Butranweli

17.2.92

ANALYST: Haji Akhtaq

Facilitator: A.H. Tanq

Allah wadhogo

+ Robina Akhtar

Farm Area = 3 Acres

Drawn on impaper in local

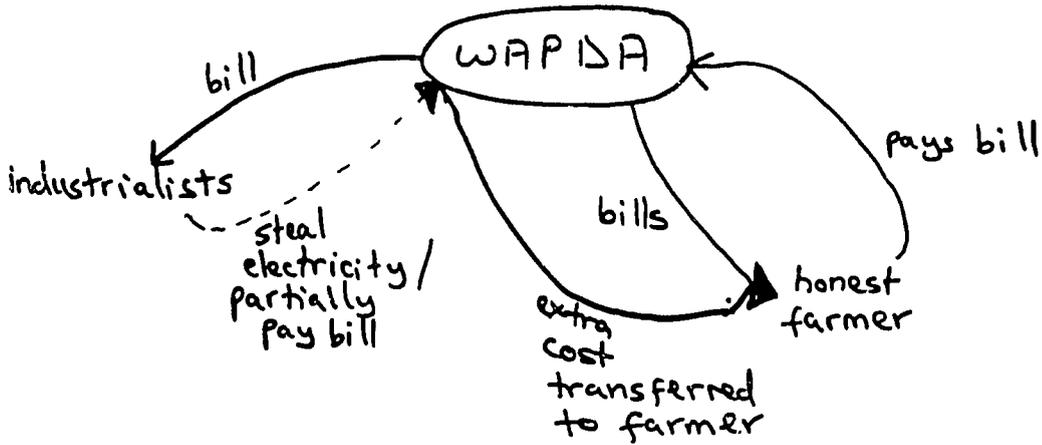
Language by grower and

Copied by the PRA Team

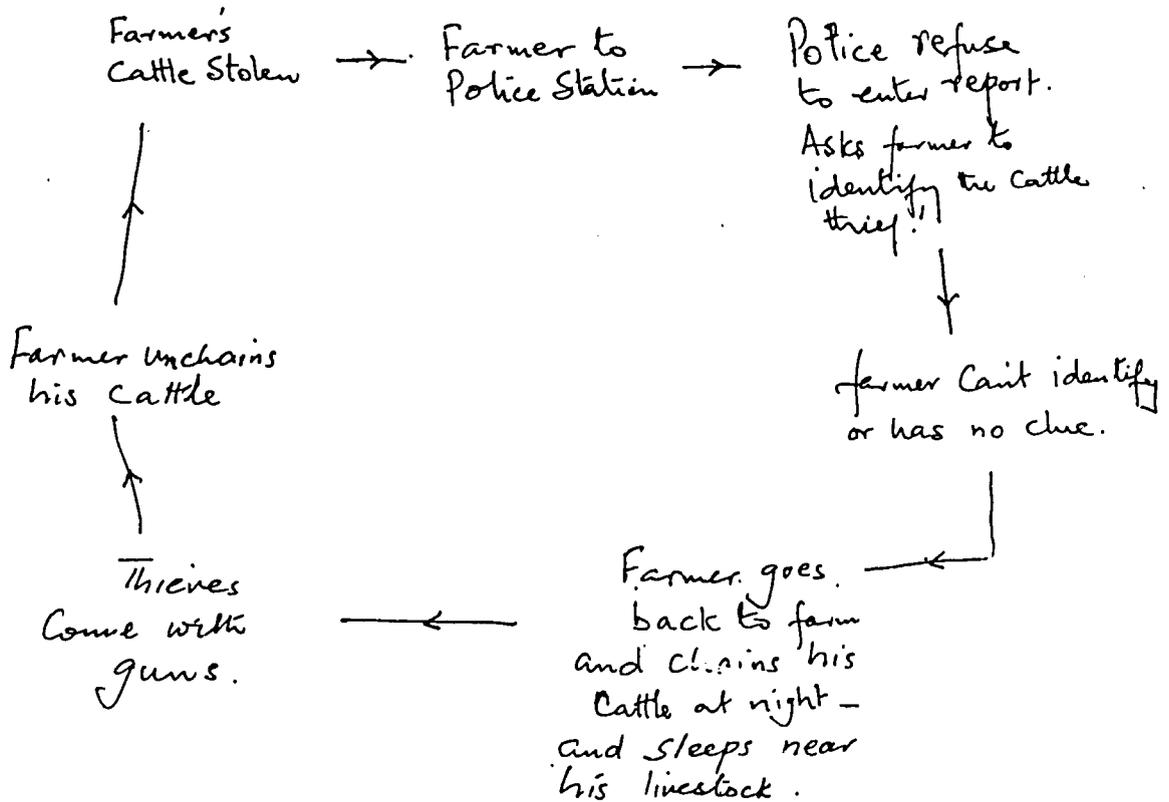
members in English

1 October 1992

ELECTRICITY PRICES (CAUSES OF PROBLEM)
 SMALL FARMER GHULAM RASUL - CONSTRUCTED FROM
 FARMER ANALYSIS OF
 PROBLEM



ACTION SEQUENCE (plus PROBLEMS) FOLLOWING THEFT OF CATTLE



FARM PROFILES

65. Farm Map Drawn by Gujar Woman

13/2/92

Process:

During a transect walk, the interviewers met a woman outside her home. Then other ladies also joined them. Meanwhile another team member came there and asked the interviewer whether the woman could draw a farm map on the ground, which the woman did quickly and very easily.

FARM MAP DRAWN BY GUJAR WOMAN
(COPIED FROM GROUND)
FEBRUARY 13, 1992 (TRANSECT WALK)
(MEHREEN)

GUJAR HOUSE	JAU (BARLEY)	WHEAT	SHTALLA SHAFTAL (FODDER)	SHTALLA SHAFTAL (FODDER)	WHEAT
SUGAR-CANE	CHANA GRAM (CHICKPEA)	MASAR (LENTIL)	SHTALLA SHAFTAL FODDER TUBE- WELL	WHEAT	WHEAT
SUGAR-CANE	ORANGE ORCHARD (YOUNG)	HOUSE / 'DERA'	WHEAT	SUGAR-CANE	WHEAT

66. Series of Farm Profiles

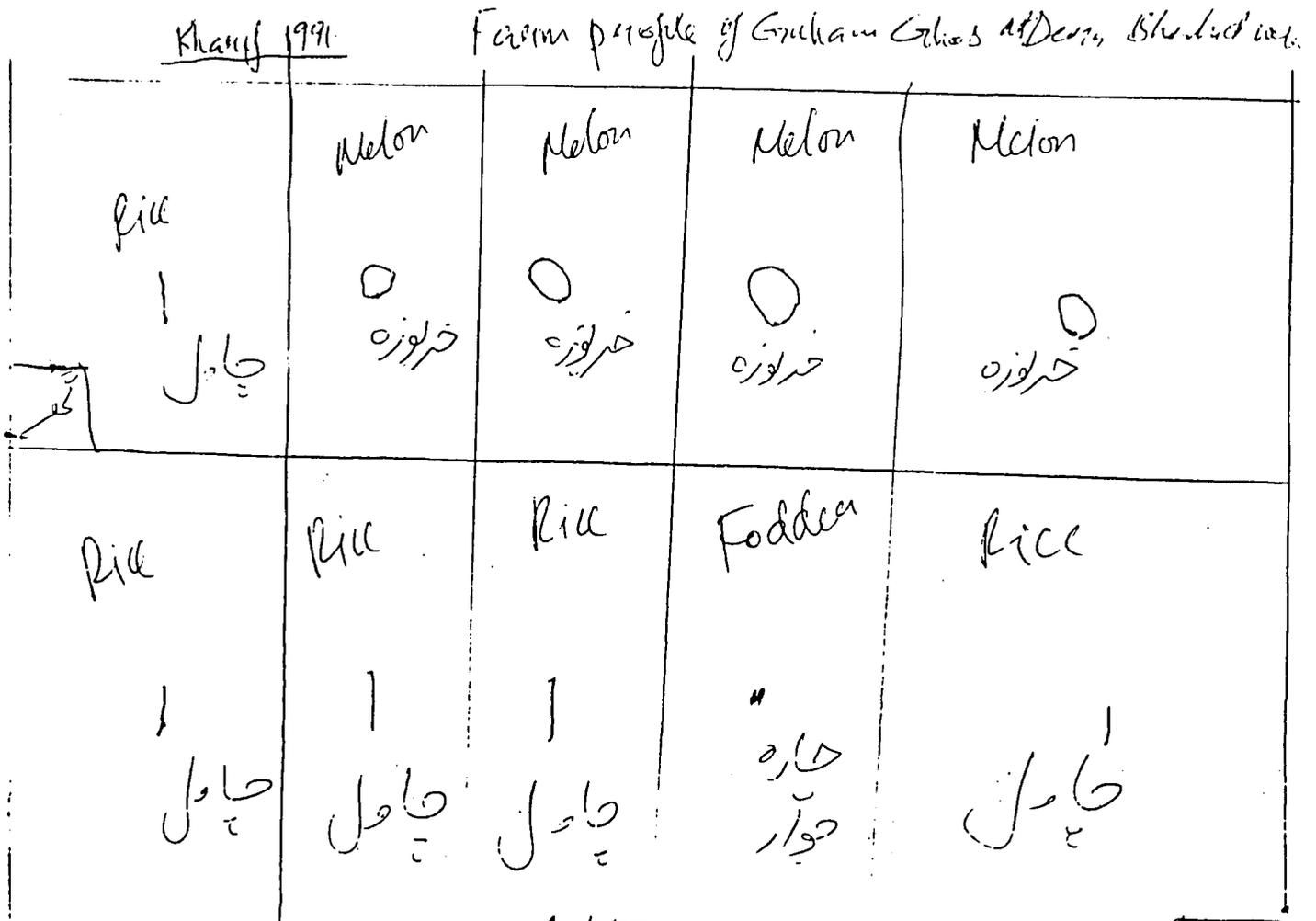
Analyst: Ghulam Ghous

Location: Dera Shahid Wala

Facilitators: Sadiq, Iqrar, Tonio

Process:

The PRA team went to the house of Mr. Ghous. After introductions, we asked him about his land and what crops he has currently in the field. With the help of a stick he divided his land on the ground. Then we gave him some different coloured papers telling him that he point out with one colour, the potato fields, with another for wheat, and for berseem. The fallow piece was left as such and he also marked his house as a box. Then we asked him to draw the same on paper which he did.

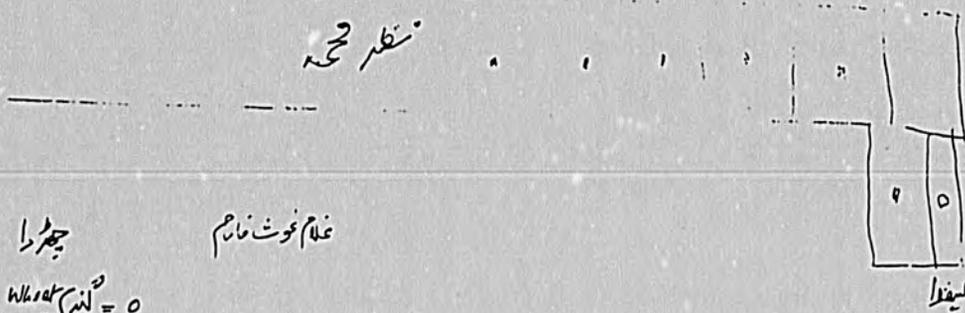


PRA Team: Sadiq, Iqrar, Tonio

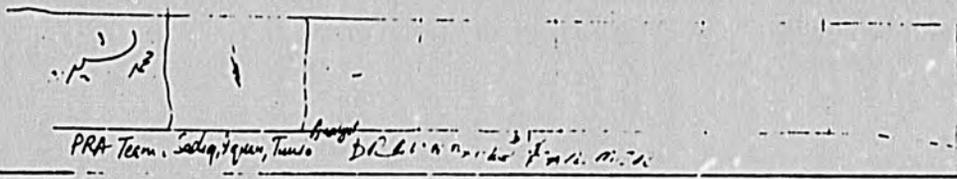
Analyst: **DRAWN BY THE FARMER**

رهن

نظر صحیح



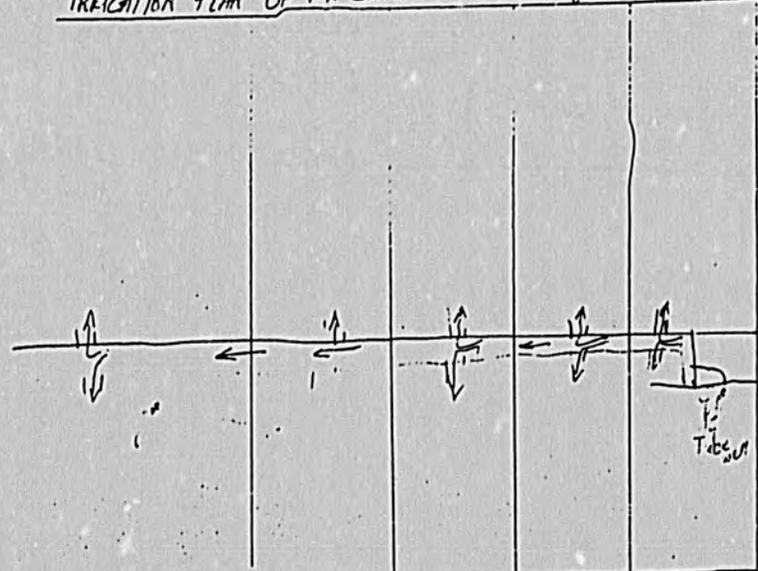
چھوڑا
 غلام خوش نام
 Wheat = 0
 Fodder = 0
 Fallow = 0
 ۱۹۹۱-۹۲



Farm profile of Mr Ghulam Ghos of Dist: Shalidwara
 ۱۹۹۱-۹۲

Facilitator PRATEM: Sadig, Jagan, Tunio
 DRAWN BY: Mr. FARMER

IRRIGATION PLAN OF Mr. Ghulam Ghos Farm of Dist: Shalidwara



PRATEM: Sadig, Jagan, Tunio Analyst
 DRAWN BY: Mr. FARMER

67, Farm Profiles of Present, Past and Future

16/2/92

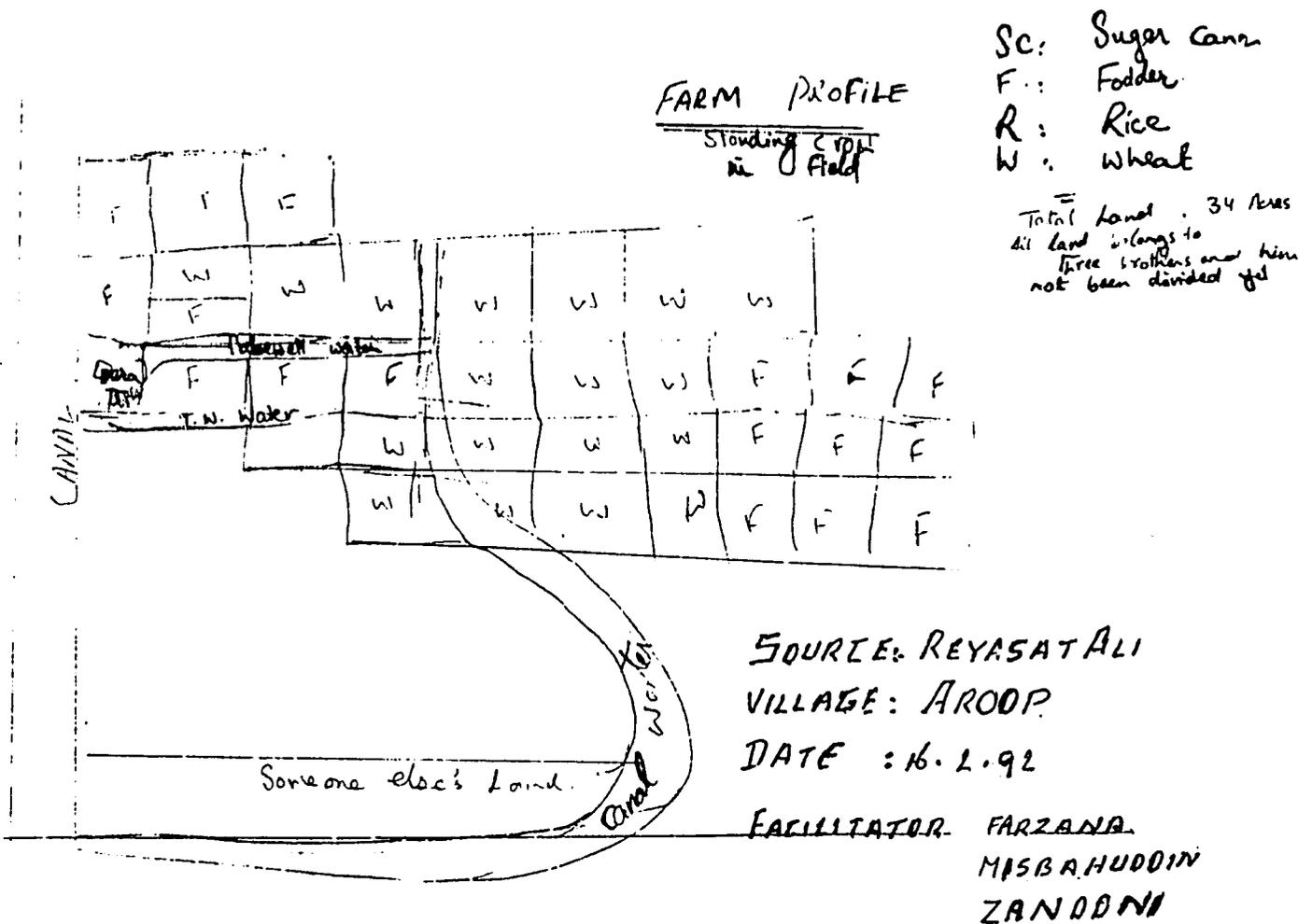
Village: Aroop

Source: Reyasat Ali

Facilitators: Farzana, Misbahud Din, Zaroni

Process:

The farmer was asked to draw a map of his farm. He drew the different plots on the ground also showing his tubewell and the irrigation land. Then he was asked to show for each plot which crop was currently being grown (Rabi season). He was encouraged to use straw to represent wheat, fresh leaves to represent fodder, and sugar cane to represent sugar cane. Then he was asked to show which crop will be grown in each plot during the next season (Kharif season). In the third step, the farmer was asked to show in which plot he grew potatoes five years ago (historical plot use).



68. Farm Profile

16/2/92

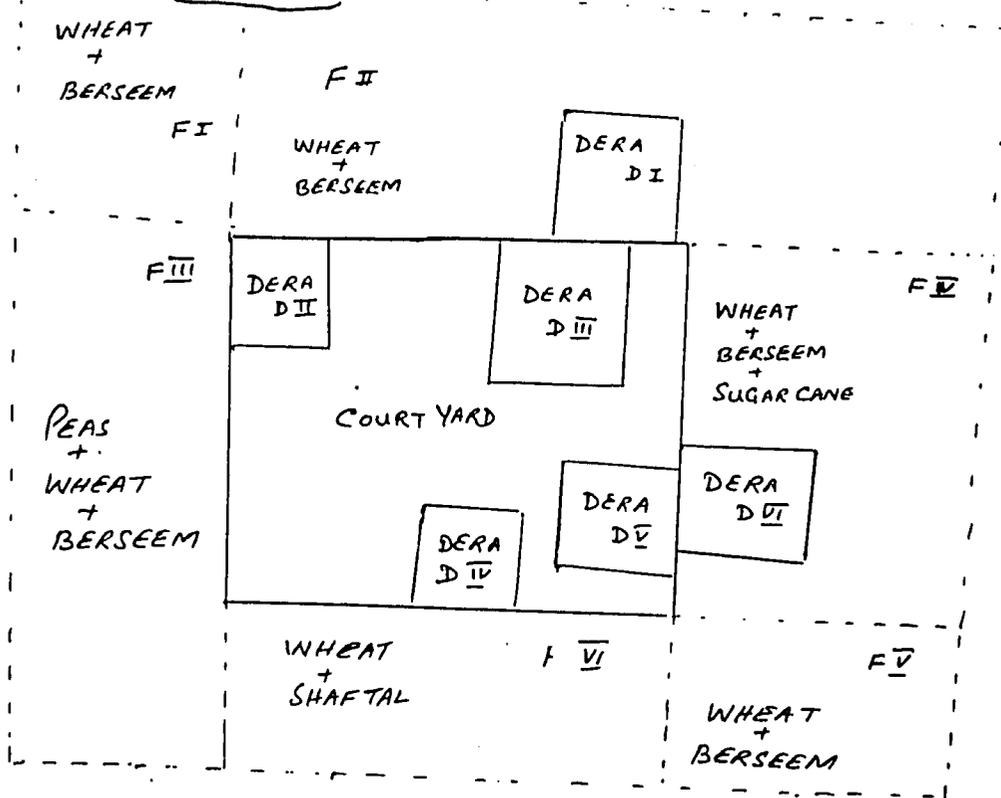
Location: Aroop
 Activist: Ch. Eijaz Cheema
 Facilitator: Najibullah Khan

Process:

After finishing work on a venn diagram, the farmer was asked to draw a farm profile diagram on the ground. He was a bit confused in the beginning on how to start and where to start with the boundaries of the farm but once he started drawing the lines, it became easy for him to locate various structures at the farm. He also showed various fields mentioning which crops are presently growing there.

FARM PROFILE

ACTWIST/ARTIST CH. EIJAZ CHEEMA AROOP NR GUJRANWALA FEB 16, 1992
 FACILITATOR NAJIB ULLAH KHAN. (PSPDP)



— = DERA BOUNDARY
 ---- = FIELD BOUNDARY.
 D = DERA
 F = FIELD

FARM OWNERS/SHARERS

- F I D I = CH. M. SHAFI
- F III D II = CH. ZAFAR AHMED.
- F II D III = CH. RIAZ AHMED.
- F VI D IV = CH. RIASAT ALI.
- F IV D V = CH. MANSHA.
- F V D VI = CH. GHULAM MOHD.

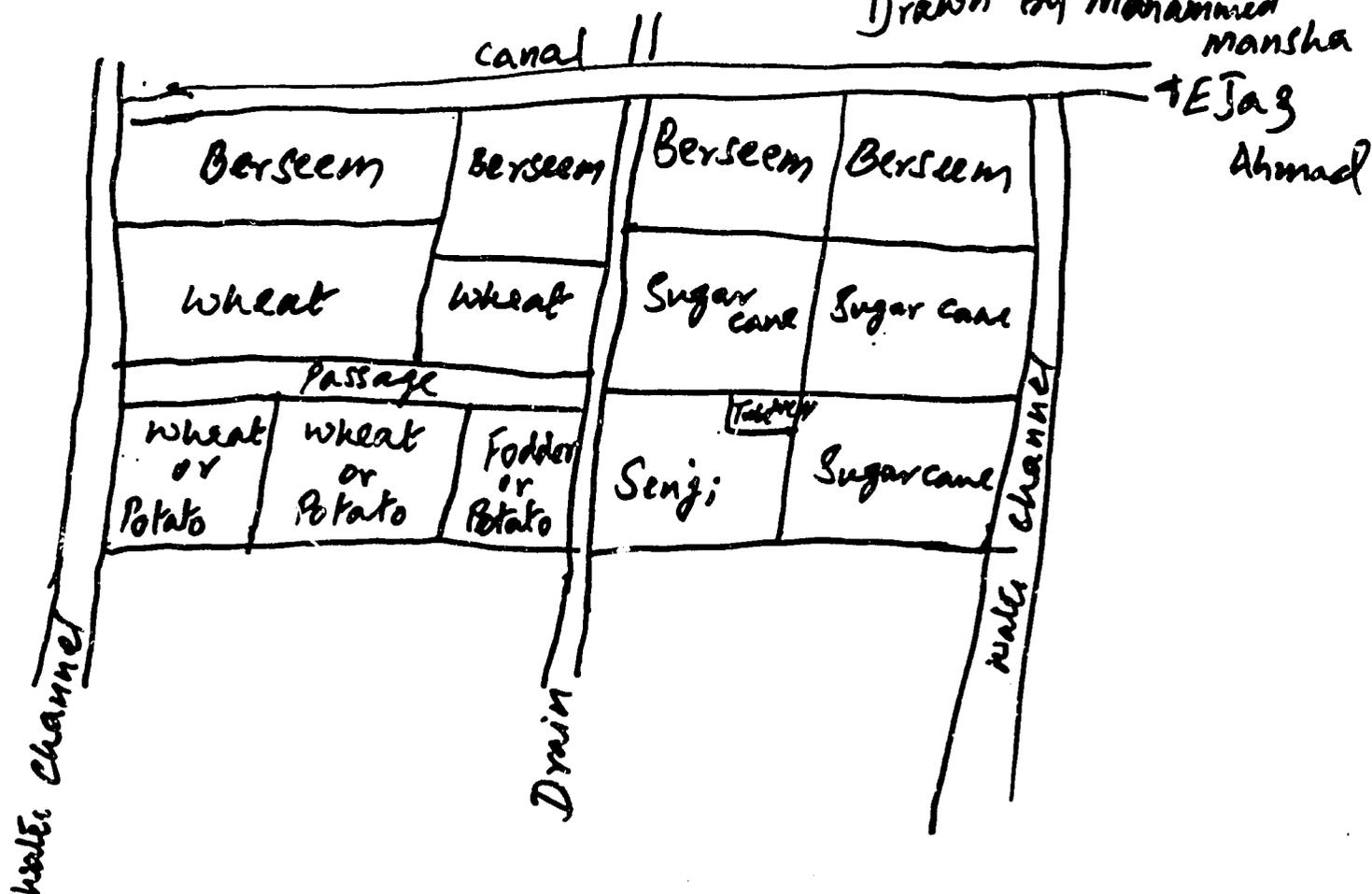
69. Cropping Map

Analysts: Mohammed Mansha and Eijaz Ahmed
 Facilitators: Tariq, Allah Wadhayo, Rubina Akhtar

Process:

A small farmer tried to grow potato for some years but shifted to other crops because of loss due to low market rates. He drew the map on the ground with a stick to show the cropping profile.

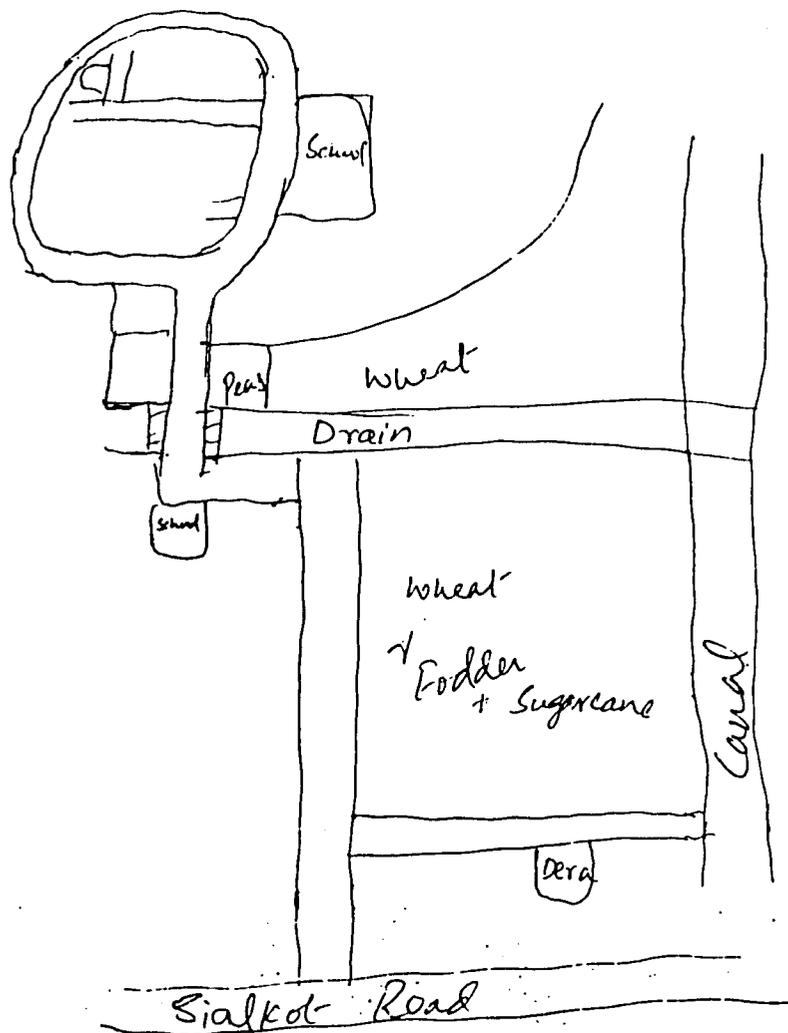
Facilitator: Tariq & Rubina
 - Allah wadhayo AKHTAR
 Drawn by Mohammed Mansha



79. Residence Map with Village Surroundings

Process:

The PRA team was standing outside the house with the ladies when a girl joined with her brother. When we asked the girl to draw a farm map, she felt very shy and did not respond but asked her brother to answer the questions. He replied to the questions. The girl refused to draw any diagram as she had never used a pen to write.



Drawn by Faiz Rasul Cheema

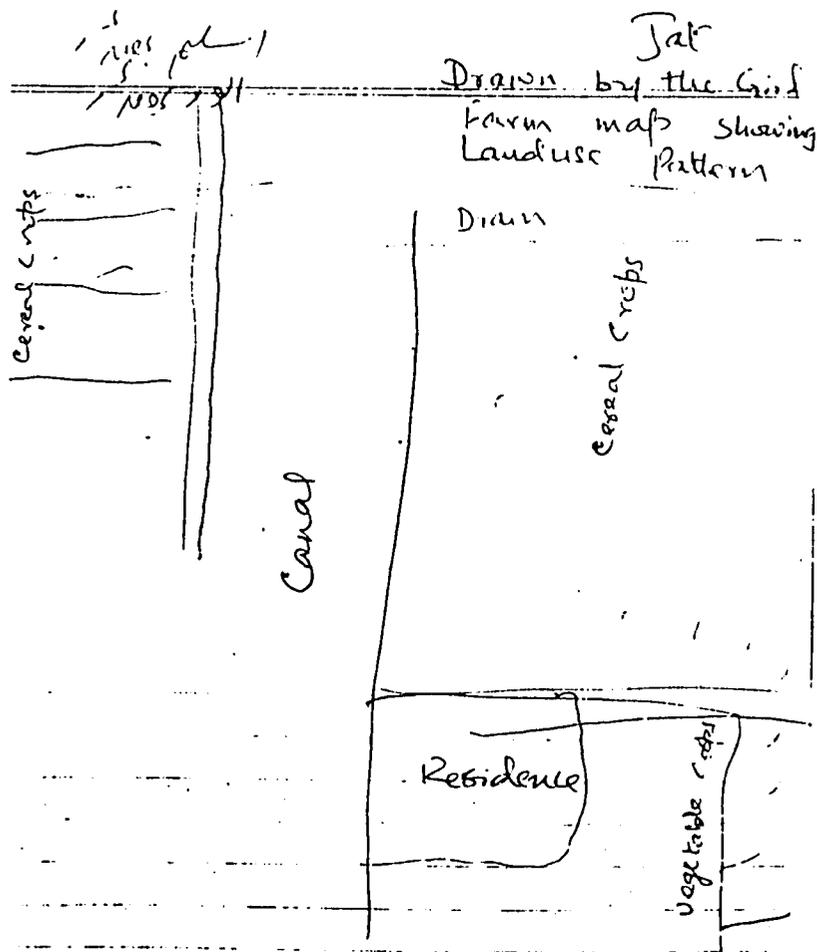
Beri wala Dera - Aroop

Residence map with village surroundings
(Transect walk)

71. Farm Diagram

Process:

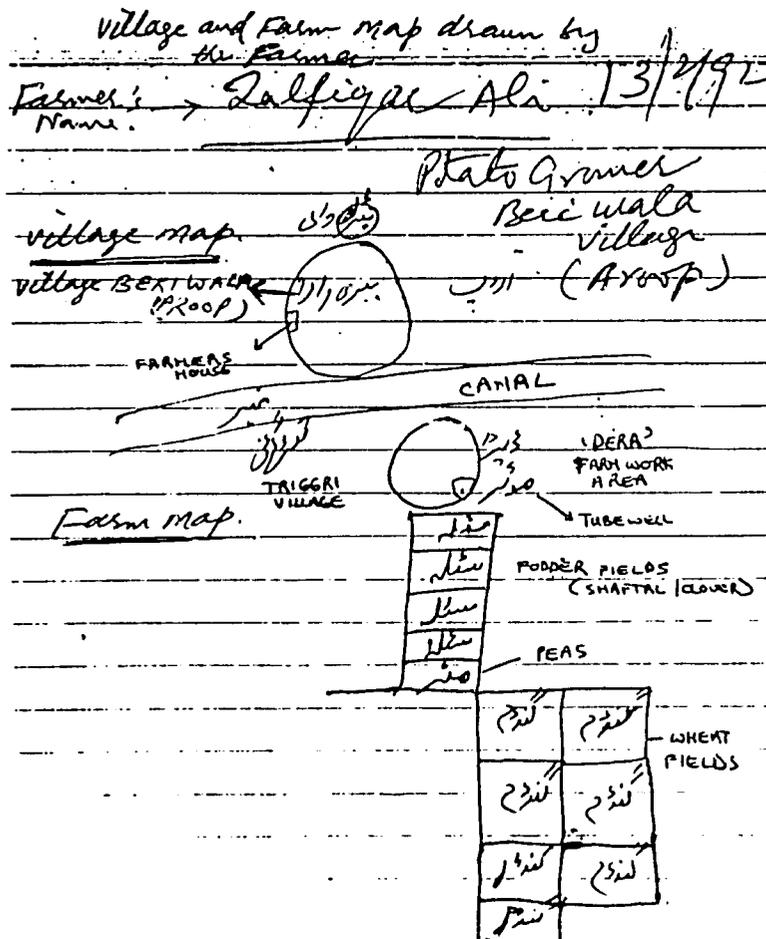
While discussing the family land use patterns with a group of women, a girl was asked to draw a farm diagram. She started with great enthusiasm but as her role in agriculture was limited her knowledge was patchy. She soon lost interest in the process.



72. Village and Farm Map

Process:

After entering the village Beriwala, a *dera* was visited where a farmer was seen cutting fodder with a machine. After the introductions the group members initiated a discussion. A young potato grower joined the group discussions on his farming system. On questioning about the location of his farm and house he was asked to draw a map. He had no problem in drawing a map of his farm.



73. Layout of Potato Fields

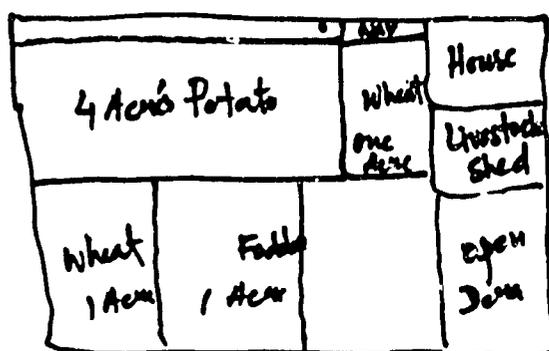
Analyst: Mr. Ghous

Facilitators: Sadiq and Iqram

Process:

We talked to a small potato grower who has 4 acres of land under cultivation of potato. He has been growing potatoes for the last ten years. We made the profile of his field on the spot. He gave the information about his field and made the layout.

LAYOUT OF Potato Field of Mr. Ghous



1 ACRE PATRONÈS

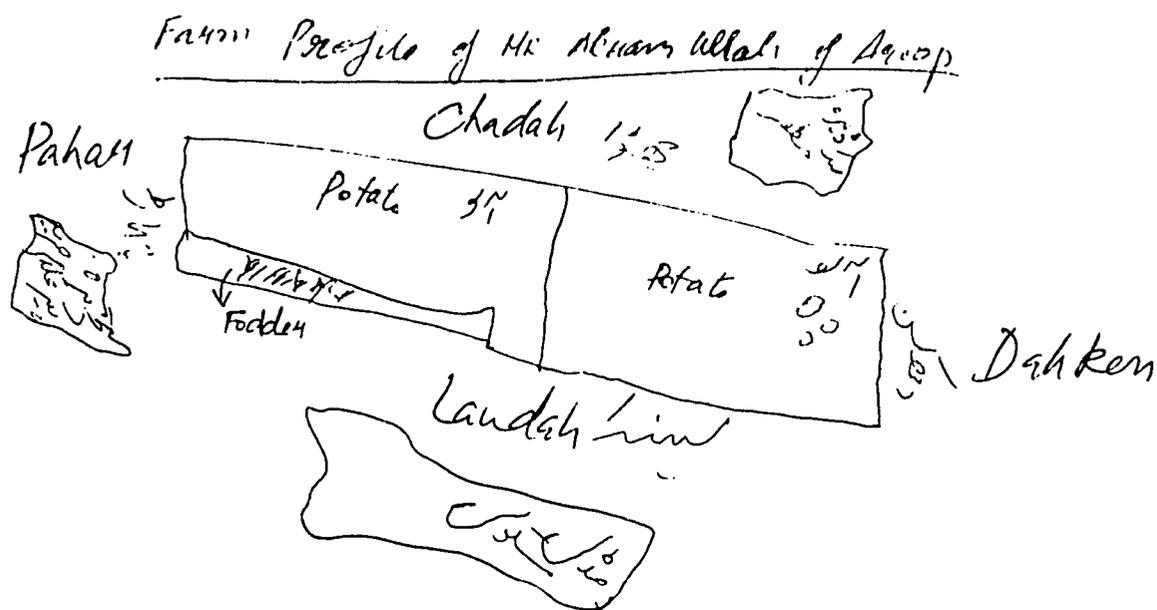
3 ACRES DESIREE

74. Farm profile of Mr. Akram, small potato grower

Facilitators: Sadiq, Iqrar, Tonio

Process:

First we went to the village. We were looking for a small potato grower, and went to his house. We walked to his potato field. He was telling us about his 2 acre farm and we encouraged him to draw farm profiles on the ground or on the paper. He used the local names of directions (Pahar, Chardah, Lendah, Dakhen).



(Local Names of Directions)

(Informer: Mohammed Akram, small potato grower
 DR. Akram, the farmer

Analyst: Farmer

Facilitator: PRA Team: Sadiq, Iqrar, Tonio

75. Farm Profile of Ch. Rehmat Gujar

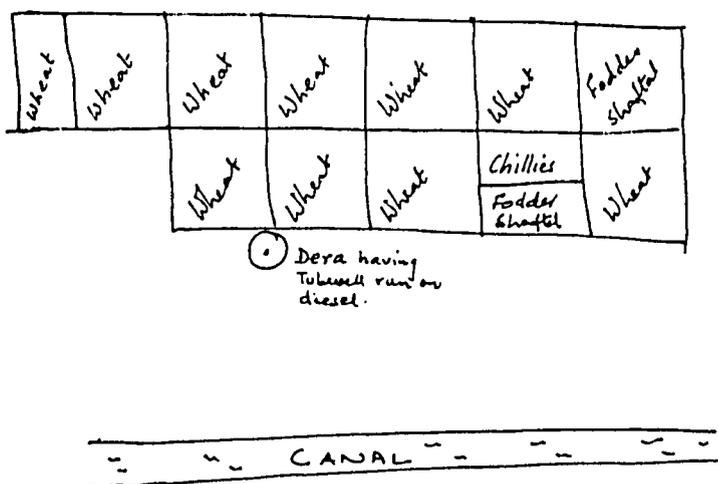
Analyst: Ch. Rehmat Gujar, Butranwali

Facilitator: Najibullah Khan

Process:

The farmer, Ch. Rehmat Gujar, met the PRA team at the Union Council where he had come for some information and guidance from the field assistant of the Agriculture Extension Office. Since the field assistant was not available, the farmer had some time for the PRA team. When asked what information he was looking for from the field assistant, the farmer said that his wheat crop was getting diseased and was hoping to get some advice on how to cure it. This prompted the PRA member to enquire if all the fields were affected. When the farmer said no, he was asked to show which of his fields were affected. The facilitator then drew a square representing the affected field. The farmer then developed it further to show the field layout. Each square represented one acre of field. His total land holding was 11½ acres. A piece of green leaf represented wheat, while pieces of chalk in different colours represented fodder and chillies. He was also asked to show where his house was located compared to his fields. When asked if his fields were irrigated or not, the farmer drew the canal location and that of the tubewell.

Leopard Group. Feb. 16, 1992.
 ARBOP VILLAGE.
 Farmer: Ch. Rehmat Gujar
 Belonging to Village Butranwali
 Facilitator: Najibullah Khan PSPDP.



A FARM PROFILE

SEQUENCE OF VENN DIAGRAM TO FLOW DIAGRAM AND SYSTEMS ANALYSIS

Location: Towards the boundary of Aroop and Trigari just beyond the canal. *Dera* of Ghulam Rasool.
 Drawn by: Ghulam Rasool and some others linked to the household (details given for each diagram).
 Farmers involved are active in agriculture (primarily fodder) and appearing poor.

Copied by: PRA team.

Facilitators: R. Edwards, Ms. M. Hosain, N. Khan, A. Malik.

Materials: Cow dung fuel pancakes, leaves, stones, chalk and wheat straw.

Process:

After some frustrating attempts to get facilitators to step back and allow farmers to display their initiative and visual skills, we decided to take more care when first making contact with villagers. It was decided to:

- not rush into questions
- not show pens and paper
- use ice breakers
- start visual diagrams with/by farmers when the correct opening arose
- use probing helpers in the dialogue.

We walked along the main road and "spotted" a *dera* off the road which we approached through the fields. On the way some farmers cutting fodder said the *dera* we were heading to, was a farming household so we carried on. On reaching the *dera*, there were two farmers cutting fodder (using a special scythe with a locally adopted net attached to deposit the fodder in a pile at the end of each swathe). We approached the farmers, introduced ourselves, said where we came from and asked if it was OK to talk to them.

The farmers were pleased we had come but there was a formal air about the meeting. Two of us asked the farmer if he would show us how to use the scythe - this we did, cutting the fodder for 5-10 minutes and finished by discussing the merits of a wooden handled compared with a metal handled scythe and exaggerated our exhaustion to show an appreciation of the hardness of the work. This was an excellent "icebreaker".

Meanwhile the farmer had arranged that 2 *charpais* should be brought into the centre of the *dera* for us all to sit on. As had often been happening, we were seated with little room in front of us to use for diagramming. We had allocated the "protocol" task to one team member. He went over the issues carefully and explained who we were, where we came from and why we wanted to talk to farmers. Then we asked the farmers whether it was worthwhile leaving research stations and talking to them. After many smiles and much laughter, the farmers said this was an excellent and obvious thing to do.

This was followed by asking if they know about the PSPDP project and other research departments. (By now 4 people had gathered with more showing an interest but still in the fields; the women carried on moving fuel pancakes but were starting to take an interest and smile). The main person - the head of the household - said his women folk had been visited by a PRA member a few days earlier and that he knew about some government departments. Here the discussion opened up into a debate about contact with institutions. This was an ideal opener for diagrams. Everybody was smiling, people were relaxed, no pen or paper were in sight and it was sunny!

One of us suggested we should do a Venn diagram to show contact by the household with outsiders. The concept of a Venn diagram was carefully explained. To our horror, one team member reached for the pen and paper in his bag but was averted by appropriate gestures without disrupting the relaxed

atmosphere. One of us went over and picked up some dung fuel pancakes and suggested we use these to represent institutions. This caused much laughter amongst the farmers and the PRA members but was taken up by the farmer. In no time, after careful explanation about overlap etc. a Venn diagram was prepared. This led to many more visual presentations. The final Venn diagram is shown in Diagram 1.

Probing based on the diagram led to more diagrams - in particular asking: *why, what, what if, and how would you like this to be changed or improved and why*. The Venn diagram led to a marketing flow diagram by asking what the actual nature of the contact was between the institutions. "Pancakes" were laid out and linked by straw (Diagram 2). Once a diagram was finished we asked what problems the farmer has, using the diagram to probe. For example, concern was expressed by the farmers that they do not get the producer price because the various marketing steps take their cuts. Having brainstormed problems it was possible to ask: *"Would you like this improved or changed?"*. The farmer laid out more pancakes. Again when challenged, the farmers suggested another change - yet another set of interlinked pancakes was laid out. The farmer felt he could get more income from his rice and wheats. At this point 6 people were actively involved (not including the PRA team), discussing and arranging the pancakes and straws. The PRA team asked for explanations and probed issues. The farmers were smiling, laughing and changing and presenting the picture themselves with material they were familiar with. With pens and paper during the previous days this had been less so.

At this point, a key probe led to a farm profile (Diagram 3) and then a nutrient flow system (Diagram 4). The probe was a challenge about which crop was better and how costs could be cut. The farmer mapped out where his crops were using stones, bits of chalk and mud lines. When asking what inputs went into fields, first the map was rubbed out and items representing fields, house, manure, money etc were laid out. Lines drawn in the soil and pieces of straw were used by the farmers to show the linkages between system components. After asking farmers about the crops that have the best economic return, the farmers explained with a diagram the factors they must consider when choosing a crop (Diagram 5).

Farmers used chalk, stones and leaves to represent different aspects but these were not consistently different for different aspects. The farmers themselves knew exactly what each object represented. But the PRA team needed to take quick notes and transfer the maps to the notebook otherwise the diagrams would be lost. Further information was generated from the diagrams as semi-structured discussions and it was important to write this down. The PRA team tended not to do this as the diagram was seen as the end in itself rather than a means to the end.

A relaxed atmosphere, use of ice breakers, patience, careful introductions and explanations followed by opportunistic use of "windows" to introduce diagrams linked to challenges and probing were the necessary ingredients that made the sequence successful. It became apparent that there was a learning curve by the farmers on how best to show their ideas visually. The farmers were increasingly confident that they could do this while the PRA team also became more confident to not force them to use of pen and paper.

While "drawing" out improved marketing flows using dung fuel pancakes, the farmer picked out a pancake that broke in half. This pancake represented a government department. A PRA member remarked that it was broken and a whole one should be selected. The farmer replied: *"but that is what the government is like - broken and in tatters"*. Everybody was convulsed in laughter for some time.

Refraining from interfering meant all farmers started to suggest changes to the diagrams and felt very much at ease. No one seemed to be worried how long we spent with them. There was a clear difference in spontaneity when using familiar visual aids compared to without; ideas just seemed to flow one into the other. With pen and paper they seemed less at ease.

The diagrams lost part of their value when information arising out of the discussions was not documented. A similar discipline would be needed with gathering information and its documentation and management as had been developed with the diagrams. Failure to be strict as a PRA team (including flexibility for individuals to respond to openings leading to more information) did lead to some lost openings to get more information about certain issues. This was especially a problem when the individuals dispersed into separate discussions, drawing farmers away from a group dialogue, and when the information was not recorded from these individual sessions.

The session was concluded by the team undertaking what we called a *household transect* or *stroll* (see Diagram 6). We split into two groups and asked the farmers to show us around their *dera*. We noted buildings, trees etc and asked about what we saw using the "six helpers" to probe. This proved to be a good exercise and we picked up some interesting points. For example, the use of fruit and timber trees, the importance of cattle theft, use of artificial insemination and the problems arising from exogenous breeds which were not adapted to conditions though were higher yielding. Farmers said the new cows were like us, liking city offices and conditions in order to perform!

This sequence was part of a training exercise and because of this there was a tendency to dwell more on using the methods than the substance. It proved instructive, we learnt to give farmers enough freedom to articulate their ideas as well as the need to use ice breakers and go through the protocol rather than rushing in and bombarding the farmers with questions.

Key findings:

Key areas of concern picked up were:

- the dramatic impact of increased electricity costs to run tubewells and the impact of rising costs on increasing indebtedness,
- the exacerbation of all problems as a consequence of dwindling landholding sizes. Limited off-farm employment opportunities necessitated excessive land divisions and increased household costs;
- farmers response to this was to stop using the tubewell and change cropping strategies to minimise inputs costs (for example using less fertilizer in the cropping system and focusing on fodder production).
- farmers were exploring the use of improved technology for income generation but were acutely aware of the need not to increase actual input costs. Timber production, fruit tree use and improved milking cows are examples of this;
- farmers consider ways to reduce the inputs for crops to reduce costs;
- farmers felt they did not get the actual producer price and this could be improved by minimising marketing channels.

Diagram 1 Venn Diagram of Institutional Linkages

Drawn by: Noor Ghani, a small mixed farming (non potato grower)

Materials: Cow dung fuel pancakes

Process:

After introductions, the discussion between the PRA team and farmers focused on the farmer's knowledge of research and government departments. This was felt to be an ideal opener for drawing an institutional Venn diagram and the farmer was asked if he could show us. The concept of a Venn diagram was explained to the farmers. The concept was further illustrated to the farmers by moving away from the *charpais* and picking up some circular cow dung fuel pancakes and doing a mock Venn diagram. Care was taken to explain this to the farmers and in no time the farmer was arranging the "pancakes" with comments from other farmers.

VENN DIAGRAM . AROOP VILLAGE

COPIED BY NAJIBULLAH KHAN.

DRAWN BY GHULAM RASOOL. NOOR GHANI + OTHERS.

FACILITATORS: MEHREEN HUSSAIN. NAJIBULLAH KHAN

RICHARD EDWARDS. AJMAL MAJID.

DATE 17/02/92

MATERIAL: COW DUNG FUEL PANCAKES

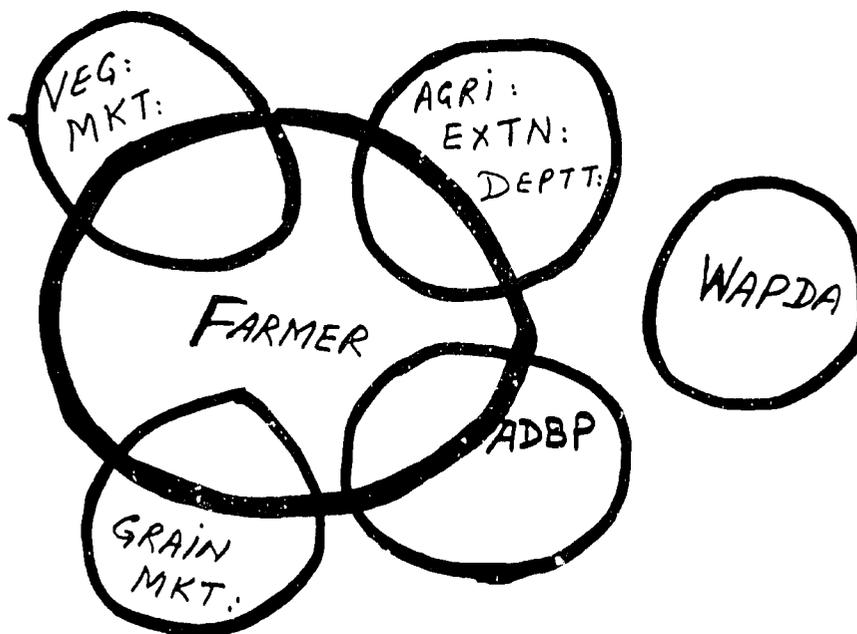


Diagram 2 Marketing System Flow Diagram

Drawn by: Noor Ghani, Ghulam Rasool, Rehmat Ali
 Materials: Cow dung fuel cakes and wheat straw

Process:

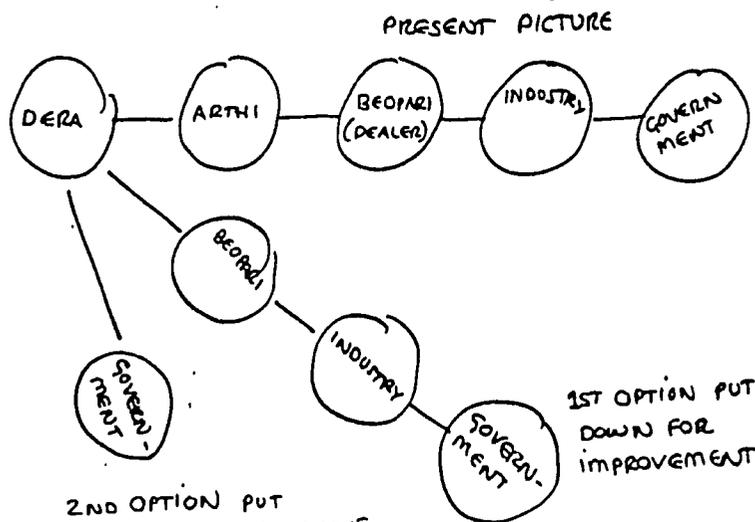
The conversation led from the Venn diagram to the topic of producer prices. The farmers said they never got the producer price declared by the government. When asked why they said "because there are too many people in between the farmer and government who fix the price". A dry dung cake was placed by the PRA member to prompt the farmers. The farmer automatically picked up another piece of dung cake and placed it next to the first, and another one in line to represent commission agent, next for wholesaler then factory owner and finally the government department. When asked to show any improvements he would like to incorporate, the farmer used pieces of straw to show the movement of produce which would benefit him most, in particular to get the price closest to the announced producer price.

Key finding:

The farmer never gets the producer price fixed by the government as a consequence of too many marketing steps.

MARKETING FLOW DIAGRAM (RICE AND WHEAT).
 DRAWN BY GHULAM RASOOL + OTHERS (GROUP OF SMALL FARMERS)
 COPIED BY R. EDWARDS / A MALIK.
 FACILITATORS: M. HUSAIN, N. KHAN, A. MALIK, R. EDWARDS.
 LOCATION: DERA BELONGING TO GHULAM RASOOL NEAR ARSOOP BOUNDARY TO TRIGAZI
 MATERIAL USED: COW DUNG FUEL PANCAKES AND WHEAT STRAW.
 DATE 17/2/92.

COSTS: 120/40kg → 130 → 140 → 160 → 160.



2ND OPTION PUT DOWN FOR IMPROVEMENT
 SUGGESTED WAY TO ENABLE FARMER TO OBTAIN PRODUCER PRICE.

KEY PROBLEM: FARMER DOES NOT GET THE

Diagram 3 Farm Profile

Drawn by: Noor Ghani, Ghulam Rasool, Rehmat Ali

Materials: Chalk pieces, leaves, stones, wheat straw and lines drawn in the soil

Process:

After discussing the systems flow diagram with the group of 3 farmers, all from the same farm, we discussed the farm profile and they drew the profile on the ground. They used local material lying around and explained the different crops being grown on their farm. They also explained their preference for certain crops over the others due to more profitability.

Key findings:

Fodder (berseem) has become a more important crop and replaced other crops due to lower cost of production and more income.

Mughlanwala Dera - Aroop. 17.2.92
 Informants: 3 farmers. (Ghulam Rasool, Noor Ghani, Rehmat Ali)
 Facilitators: Najibullah Khan, A. Malik, M. Elvén, R. Edwards
 Group: Leopards.

FARM PROFILE

Fodder	Fodder	Wheat
Fodder	Fodder	Fodder
Water melon	Pear	Melon

Farm Size: 9 acres - (1 acre fields)

Why more fodder less wheat?
 'less inputs, less labour, good return!'

COPIED BY NAJIBULLAH KHAN FROM THE GROUND.

DRAWN BY GHULAM RASOOL AND OTHERS.

MATERIAL USED - CHALK PIECES, LEAVES LINES IN THE SOIL

Diagram 4 Systems Flow Diagram

Drawn by: Noor Ghani, Ghulam Rasool, Rehmat Ali

Process:

After discussing the farm profile with Mr. Noor Ghani, we talked about the flow of nutrients and other inputs to the farm. They drew the flow diagram on the ground with straw, pieces of chalk, leaves, stones etc. Farmers discussed amongst themselves while drawing the diagram, at the same time explaining it to the team members and answering further probing questions.

Key findings:

Two serious problems are the high cost of electricity consumed and the high cost of fertilizer, and thus its low use in the system.

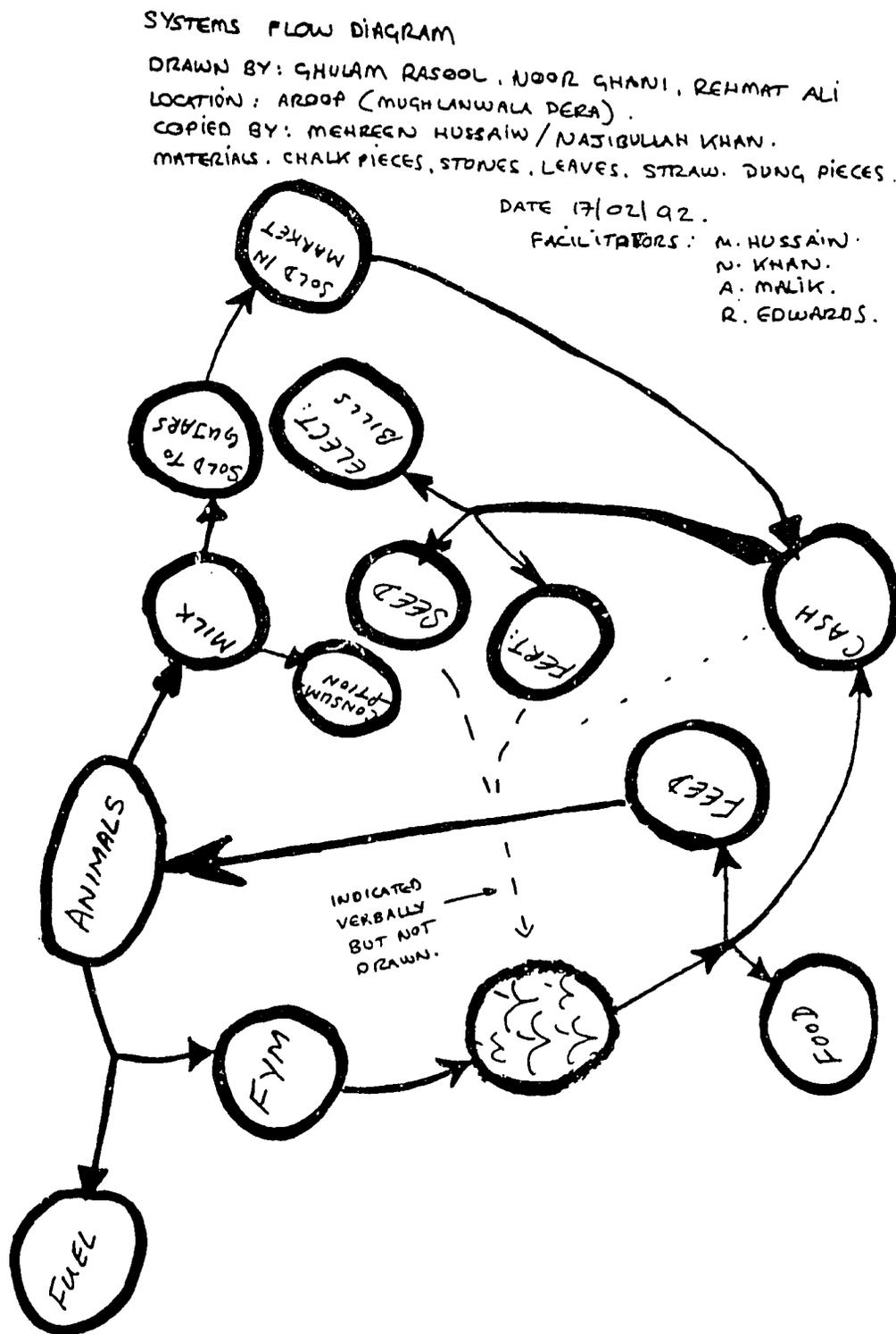


Diagram 5 Decision Flow Diagram of Crop Choice

Drawn by: Noor Ghani, Ghulam Rasool, Rehmat Ali

Process:

While discussing why the farmers did not grow potatoes, we asked them about all the factors determining whether they grew a crop or not. Using a mixture of chalk pieces, dung, leaves, mud and stones they outlined the various factors.

DECISION MAKING FLOW DIAGRAM : CROP CHOICE

DRAWN BY: GHULAM RASOOL, RAHMAT ALI, NOOR GHANI

COPIED BY: MEHREEN HUSSAIN.

FACILITATORS : N. KHAN, M. HUSSAIN, A. MAJID, R. GOWDARS.

LOCATION : BORDER OF AIRLOOP / TRIGGRI.

FACTORS INFLUENCING CHOICE OF A PARTICULAR CROP.

MATERIAL : Dung, Leaves, chalk pieces, stones

DATE 17/2/92

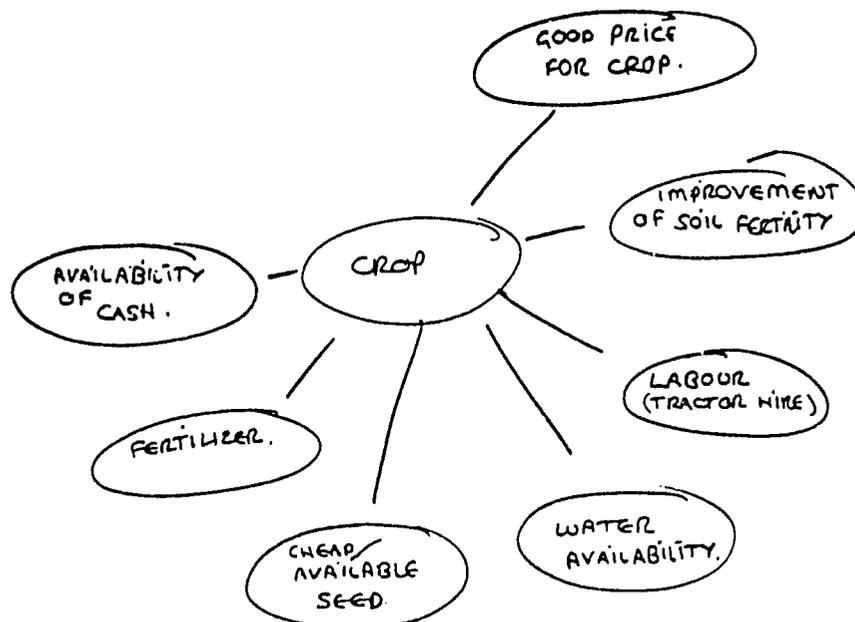


Diagram 6 Household stroll

Location: *Dera* on boarder of Aroop/Triggri, 17/2/92

Analysts: Ghulam Rasool, Rahmat Ali, small land holders

Facilitators: R. Edwards, Ajmal Malik, Najibullah Khan, Mehreen Hosain

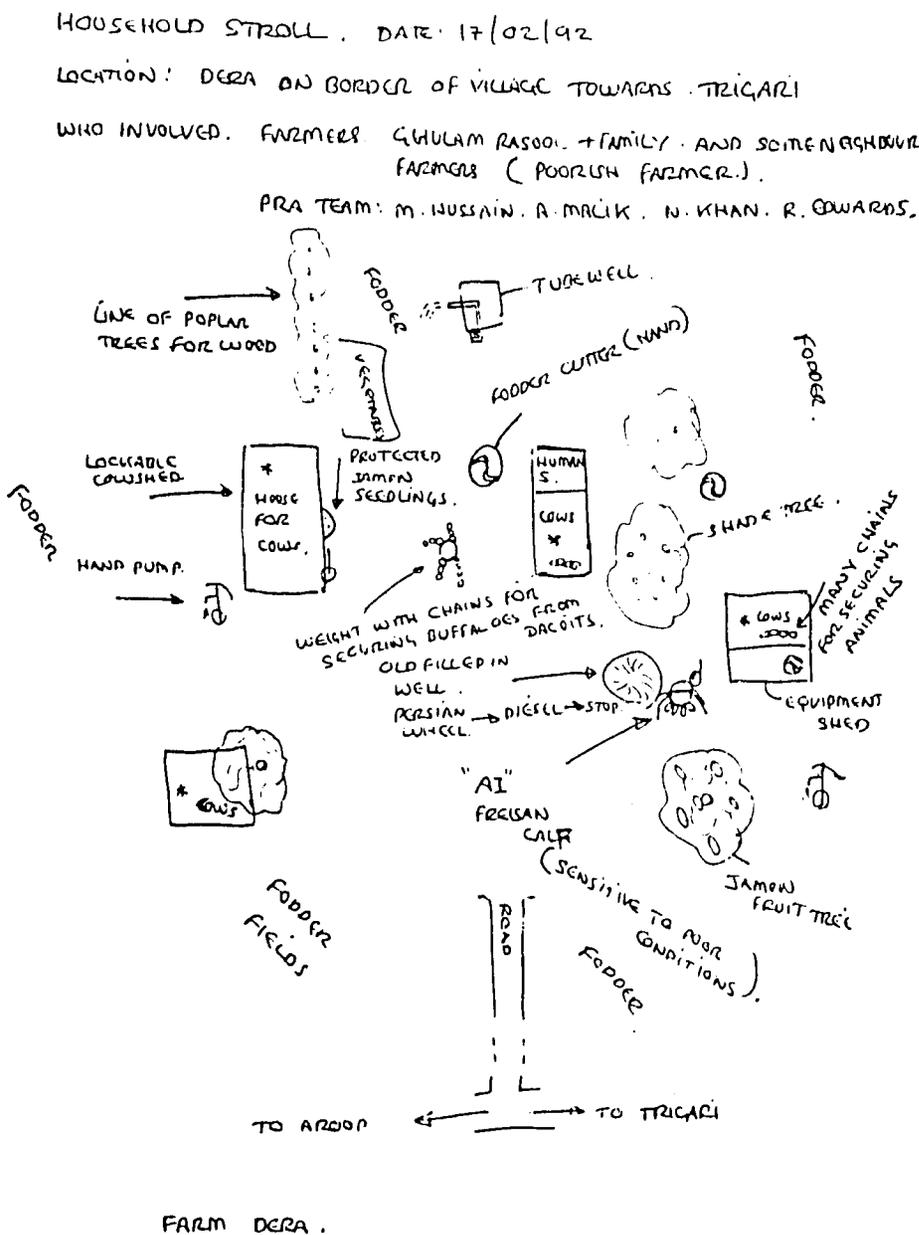
Materials: Pen and paper by PRA team from direct observations.

Process:

The session with the household was concluded by the team undertaking what we called a household transect or stroll. We split into two groups and asked the farmers show us around their *dera*. We noted buildings, trees etc and asked about what we saw using the "six helpers" to probe. This proved to be good exercise and we picked up some interesting points. The results were drawn as a household profile by the PRA team based on direct observations.

Key findings:

Problems that emerged during the discussion included diseases in the berseem crop and cattle rustling. Numerous ways of securing cattle/buffaloes were evident - chains, padlocks, weights and lockable cow sheds. The *dera* had to be guarded throughout the night because of this. Other new information came to light - use of fruit trees and utilisation of artificial insemination for cow milking improvement. The importance of cattle theft was dramatically brought home by the number of chains and locks.



7. PROFILE B OF AROOP

by

Dr. Ashraf Sahibzada
Muhammad Habib
Hamidullah Jan
Khalid Bajwa
Shaukat Ali Arain
Rashida Dohad
Mahreb Qasmi
Maliha Khan
Javed Anwar Chaudry
Mukhtar Ahmed
Richard Eberlin
Irene Guijt



Contents of Profile

Diagrams, Process and Key Findings

- An introduction to Aroop and its surroundings (nos 1-6)
- Social organisation and differentiation (nos 7-16)
- Income and expenditure (nos 17-23)
- Land and labour (nos 24-27)
- Cropping patterns and preferences (nos 28-44)
- Livestock issues (nos 45-48)
- Farming systems in Aroop (nos 49-58)
- Problems and possible solutions (nos 59-65)

Analysis of problems and options for research, extension and policy

Flow diagrams of analysis about:

- potato-related problems
- fertilizer and diesel constraints
- irrigation and other input related problems
- other plant diseases
- landholding and soil quality problems
- extension problems
- national market and credit constraints
- institutional problems
- social problems

AN INTRODUCTION TO AROOP AND ITS SURROUNDINGS

1. Village Map

12/2/92

Facilitators: Khalid Bajwa, Ashraf Sahibzada

Copied by: Khalid Bajwa

Material: Piece of bricks, clover, wheat grains, match sticks, pieces of paper, marker, pencils, match box, coin, chalks

Process:

It was a rainy day. Our group gathered at the *haveli* of Ch. Anwar Bhinder. After a while the group departed towards its allocated part of the village. We were amazed to see that the village selected, Aroop, was more of a suburban town than a village.

It had already started raining and our key informant lead us to another *haveli* where some people were sitting. We introduced ourselves and requested them to map their village. We found it a bit difficult at the start but were able to make the farmers understand what to do. Two or three farmers started the map but soon the process was overtaken by young students who finally completed the map. During the exercise the people discovered the use of different material lying around for making the map. Students used symbols to represent different kinds of things.

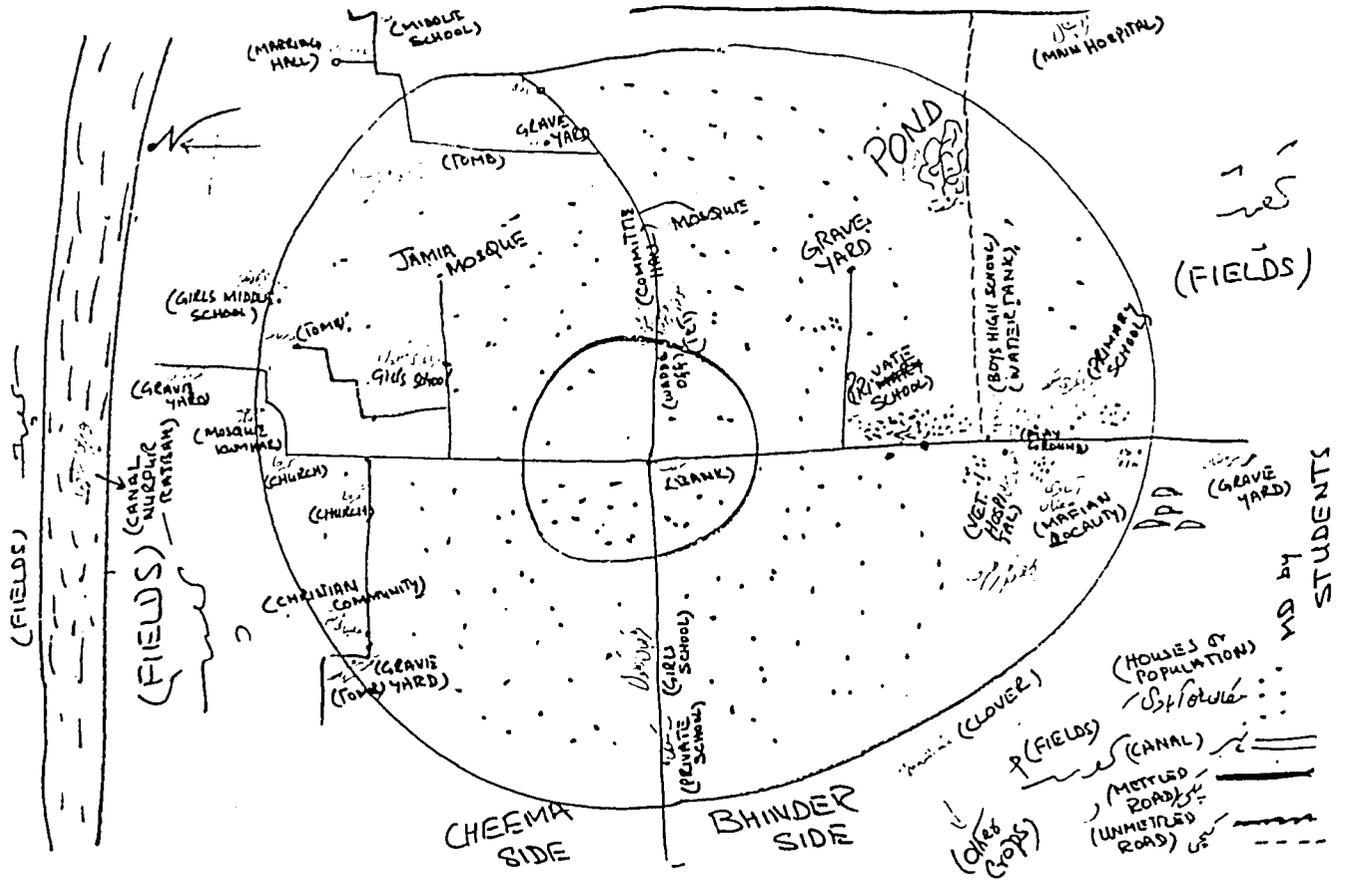
We got saboteurs right from the beginning but as we progressed their number increased. One of our team member, Ashraf Sahibzada, took the children with him and started to build up the map of the village with them. It was a bit of relief. The children finished their map much earlier and converged again towards us. As we were working in a verandah, we covered one side with a cord. With the finishing of school time, the rush increased. We used elders to keep the saboteurs at bay. It worked at times effectively but at others did not.

Many changes were made during mapping. The map was copied on the paper by the students themselves. It took about 3 hours to complete the map.

Key findings:

The village, Aroop, is roughly divided into two halves on the basis of *bradri*. Cheema *bradri* resides in the northern part of the village whereas Bhinder *bradri* resides in the southern part. Other *bradris* are also present and they are scattered in both halves of the village.

- There are about 100 to 150 christian households.
- The village has mosques, tombs and churches.
- Two metalled roads dissect the village into four parts.
- The village has primary, middle and high schools for boys and girls in public sector.
- The village has private schools
- There is a bank, public call office, WAPDA office, committee hall, union council office, marriage hall, vet. hospital and police station.
- On the north side of village a small canal, Rajbah Nurpur, runs through, distributing water to the fields.
- Fields are all around the village
- Near the village mostly fodder is grown
- There is a pond in the south-east of the vil' age, where drain water flows in.



2. Town Map of Aroop

12/2/92

Who involved: Yousaf Bhinder Rizwan Bhinder, Iftikhar Malik, Anwar Butt

Drawn by: Yousaf Bhinder

Copied by: Muhammad Habib

Facilitators: Richard Eberlin, Muhammad Habib, M.Ashraf Sahibzada, Khalid Bajwa, Marheb Qasmi, Shaukat Ali Arain, Muhammad Mukhtar

Material: Chalk, bricks, chopped fodder

Process:

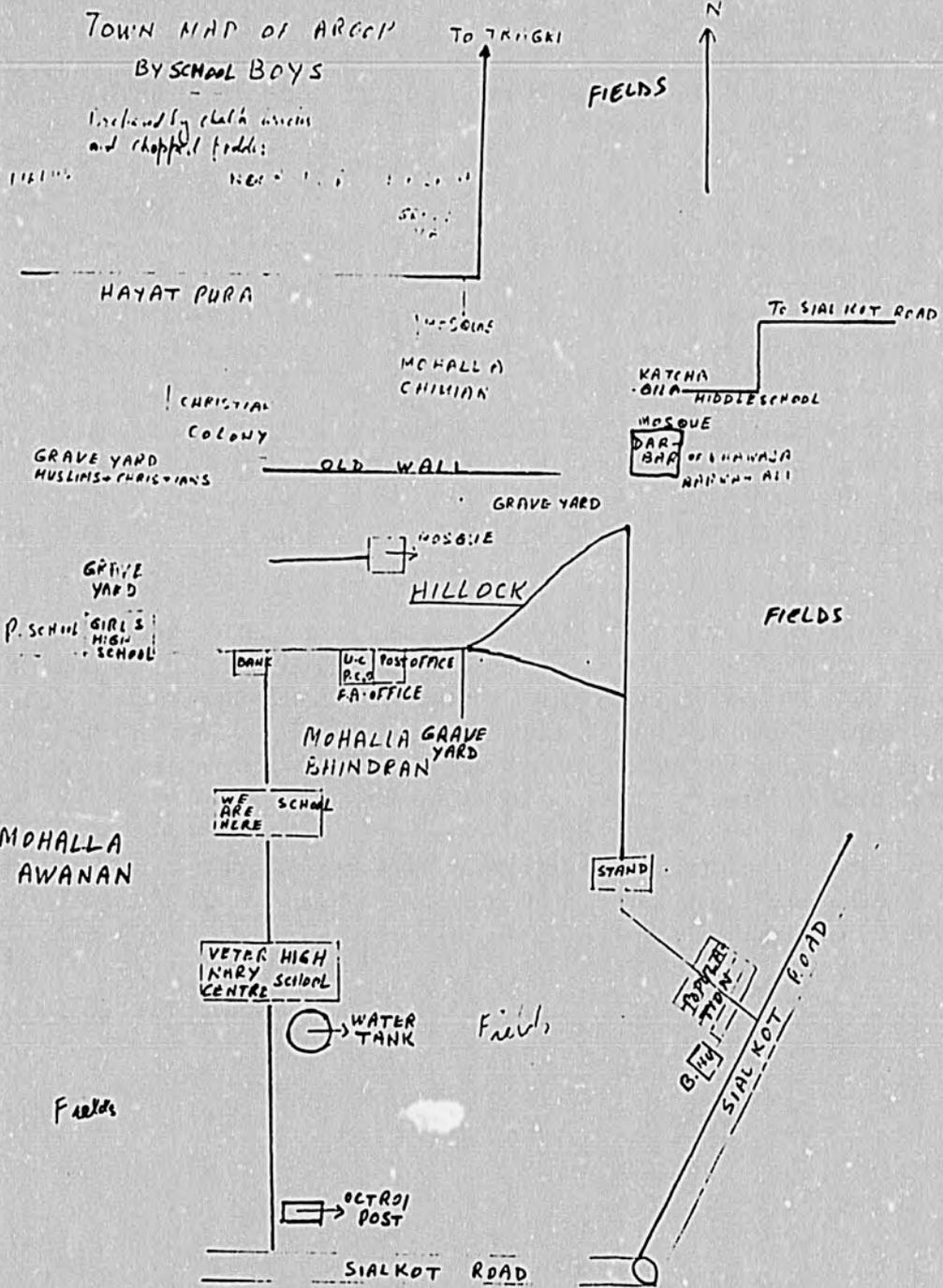
The map was prepared in a house in front of a school on the southern side by school boys. Material used for preparing the map was chalk to show different locations, bricks to show schools, bank, union council office etc. whereas chopped fodder was used to show the fields. The school boys were explained the method of mapping and they started drawing the map. It took 1 ¼ hours to complete the map.

One boy was drawing the map and consulting the others before showing the points. They used bricks to show any school, bank or union council office. They started the map from Sialkot Gujranwala road and showed many things on the map. On the upper side of the map, they showed north. They showed many government as well as private schools in the village. There are many mosques as well as graveyards.

Key findings:

There is a very old wall in the village, the history of which is not known to anybody. In the middle of village there is a heap of earth, the houses built on that are saved if there is flood. The village is divided into various *mohallahs* according to subcastes/communities residing there, such as Mohallah Bhindran, Mohallah Awanan, Mohallah Chimian, Christian colony etc. The village also has some populations outside village but in the jurisdiction of the same village e.g. Mafiwala, Nawan Pind, Hayatpura etc. They also showed fields just by putting the chopped fodder.

The village is very big and may said to be a town. It has many schools, mosques, government offices, water supply, telephone (PCO) union council, graveyard, and also a darhar of Khawaja Barkat Ali. Most of the farmers have small landholdings.



3. Town Map of Aroop

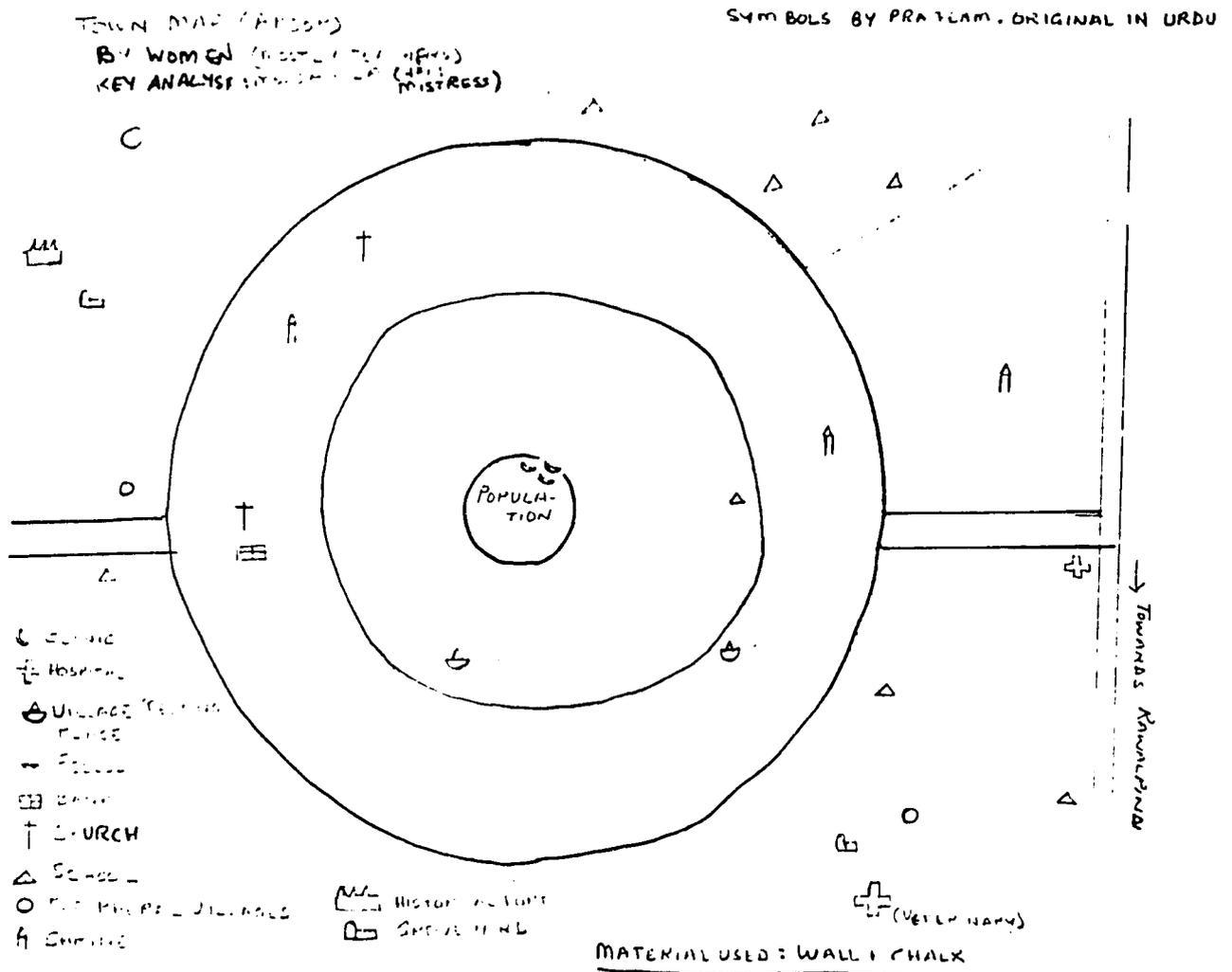
Who involved: 2-3 teachers (primary & secondary), 2-3 housewives (non-farming), some students
 Drawn by: Ms. Jamila, headmistress of several schools
 Facilitators: Marheb Qasmi, Rashida Dohad, Maliha Khan, Irene Guijt
 Materials: Wall and chalk

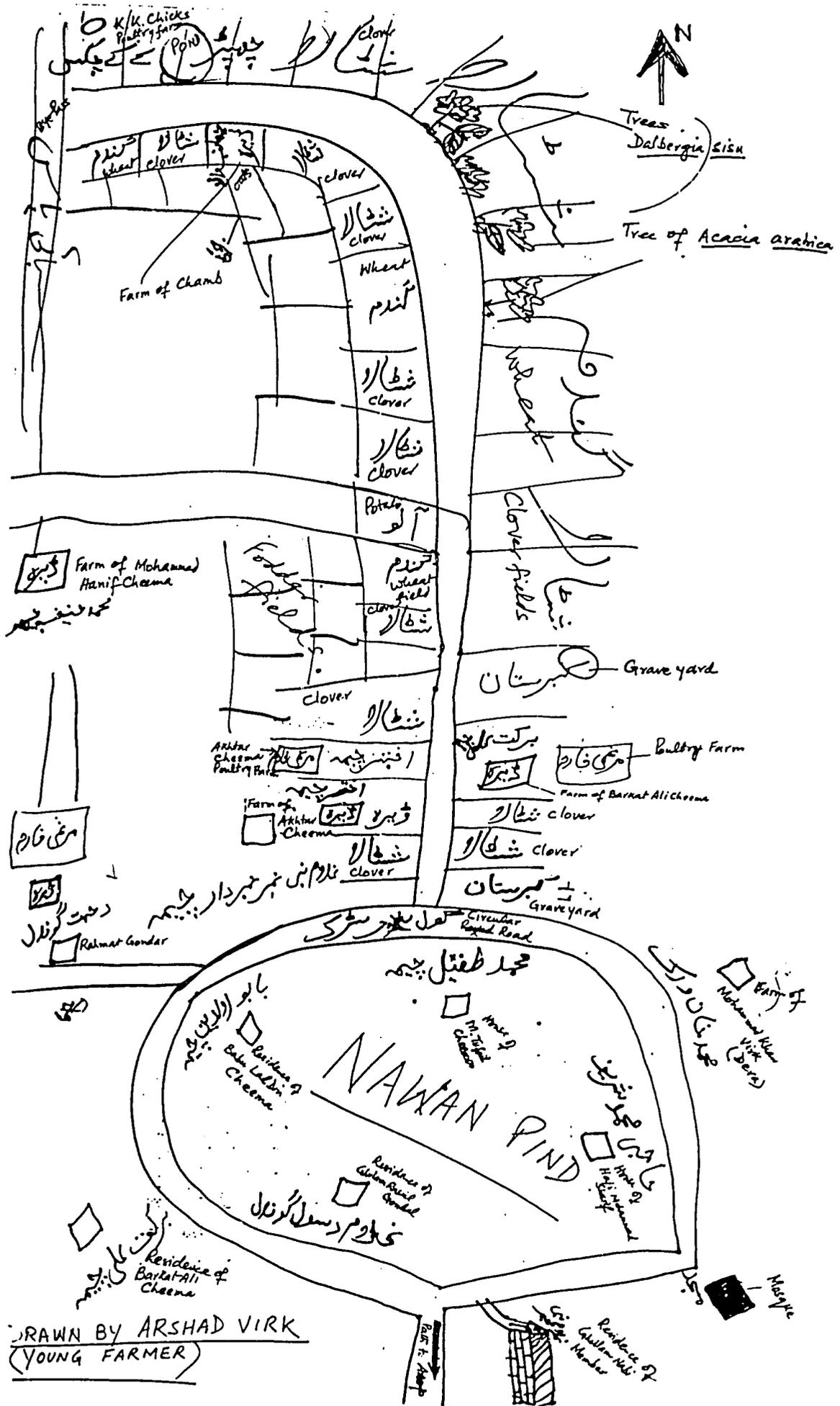
Process:

This map was drawn on a wall in the house of a local landowner (small/medium) of Aroop. All analysts were non-farming women, mostly teachers. The whole process took about an hour. Since the women were not involved in agricultural work the map does not focus on this subject at all. All analysts were literate and tried hard to impress the PRA team with their literacy and existed on writing names of all key places (in detail) on the map. To simplify the map the PRA team has omitted excessive details by replacing lengthy descriptions with symbols. They have nevertheless been careful not to tamper with the substance of the map.

Key findings:

Aroop is a very large village, almost a town. Social services - schools (for boys and girls), clinics, hospitals - are available in this town, which is quite a deviation from most viliaiges (of a smaller size) of Pakistan. Aroop's proximity to a large town (Gujranwala) is also responsible for the relatively better standard of living of this town.





4. Transect Walk

13/2/92

Facilitators: Marheb Qasmi, M. Habib, A.Sahibzada, Shaukat Ali Arain
 Drawn by: Muhammad Habib and Marheb Qasmi

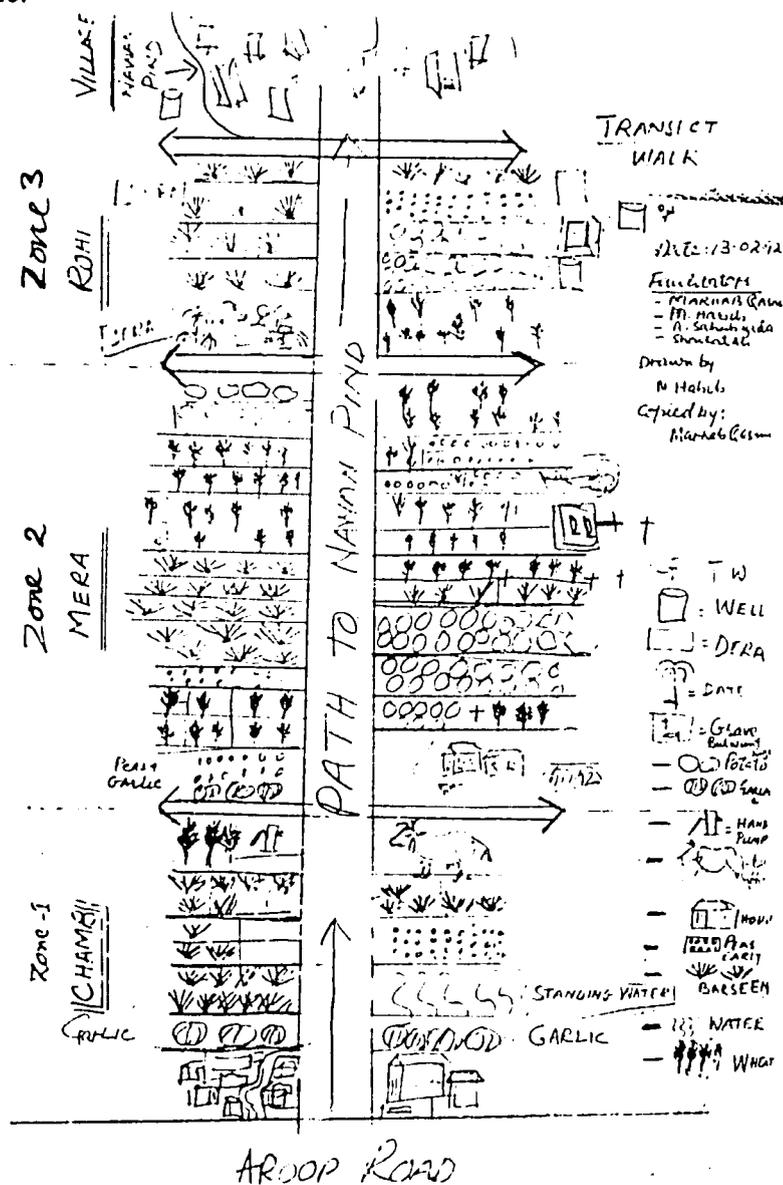
Process:

We started from Aroop, Gujranwala road. At the beginning there were houses on both sides of the route. The residents were mostly non-agriculturists, such as weavers. Adjacent to the houses, garlic had been sown by the residents. We walked to Nawan Pind and recorded much information on the way, i.e. crops sown, trees, *deras*, tubewells, graves of Balwant Singh and his wife. The crops sown on a greater area were berseem fodder and wheat. Potato (autumn, spring) as well as an early crop of pea were also sown but on small scales.

Soil types were also categorized which we met during transect walk. The soil types were chamb, loam (Mera) and Rohi. In the way the farmers were interviewed about their preferences about soils. They preferred loam soils much. Next to this was Rohi land while chamb was least preferred. The walk took about 45-50 minutes to complete.

Key findings:

Three types of soil were found on the way. Loam *mera* soil was most preferred while *chamb* soil was preferred least. Mostly wheat and berseem fodder crops were grown on a larger area with potatoes and peas on a smaller scale.



5. Transect Walk

13/2/92

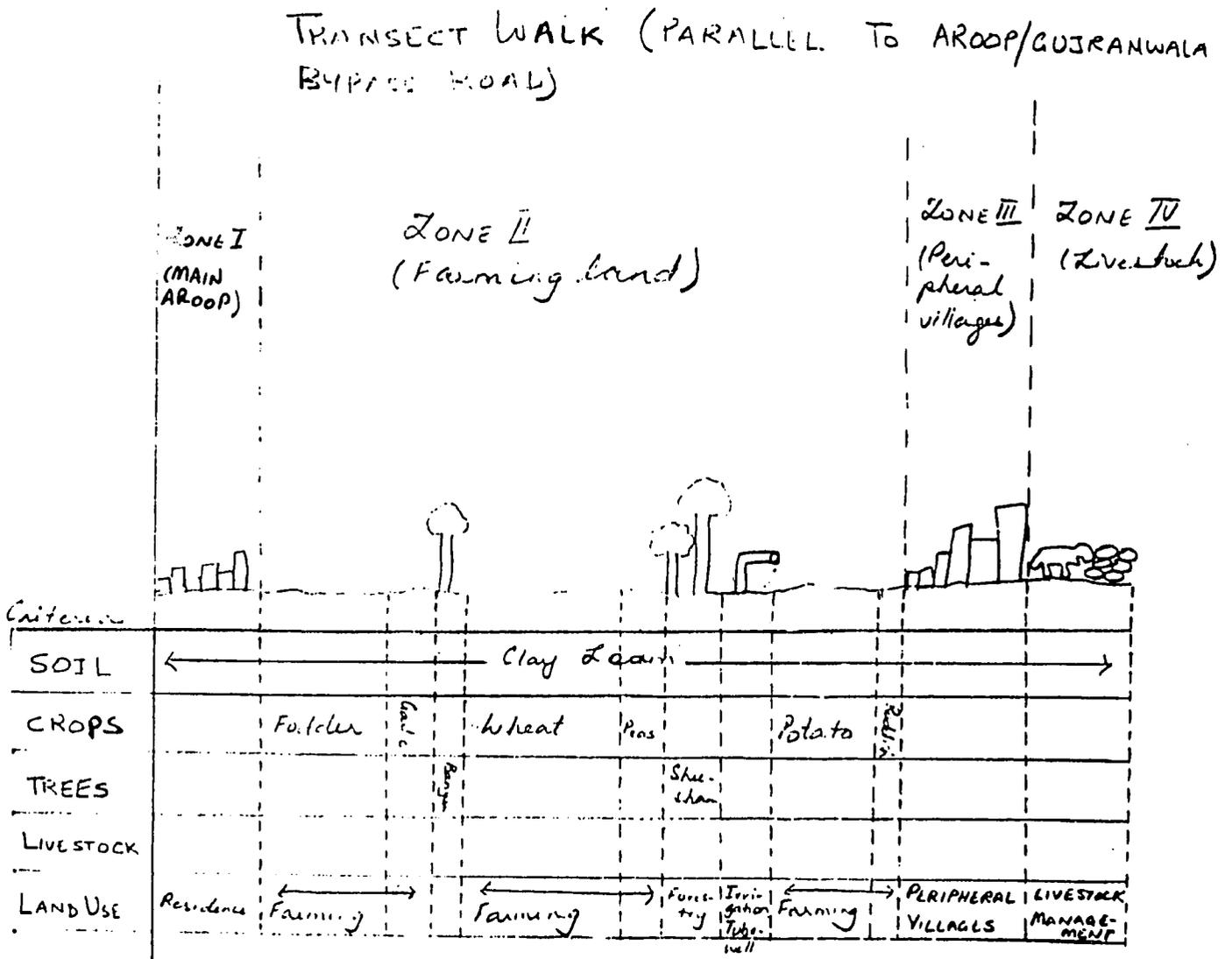
Who involved: Rashida Dohad, Irene Guijt, Khalid Bajwa, M. Mukhtar
 Drawn by: Rashida Dohad

Process:

The transect walk was done by the PRA team on a cold, windy day. It had rained the previous day, making the walk more "challenging", that is muddy and messy. The slippery and uneven terrain forced the team to look down instead of "around" most of the time. The walk was very useful in giving first-hand information to the PRA team. It also helped in orienting us to the village environs we had been talking about. The walk took about six hours.

Key findings:

While the PRA team had heard of different soil types in this village, the area covered by us was almost entirely clay loam.



6. Transect of Aroop town (Gujranwala)

13/2/92

Who involved: Javed Anwar, Maliha Khan, Hamidullah Jan, Richi Eberlin

Process:

The transect started in the middle of the village and an out going small street was taken. At the edge of the village a group of people standing there was interviewed (SSI) and also some visual techniques (ranking etc.) were applied. The people were asked if any would have time to accompany us to their fields, however none had time to come with us. Therefore, the walk continued alone and people working in the field were interviewed using different techniques. Weather conditions didn't allow for extensive use of visual techniques, therefore mostly SSI and notebook was used. We found that the absence of a local person (farmer) accompanying us was a problem, in the sense that many comments or observations done by us during the walk remained of a speculative nature.

Key findings:

Along the main road are different shops etc. The houses are of different standards and a graveyard could also be found inside the built-up area. It was probably once at the edge of the village. In the inner circle mostly farmers and/or land owners live, whereas the outer circle people who work in the service (Artisan, traders, labours etc.) sector live. In this sector the village was limited by a huge pond which was created by excavating clay for construction. Nowadays it is filled with sewage water and rain. Also solid household waste and sweepings are dumped into the pond. A hand pump was found in the *dera* just at the edge of the pond, but according to the people the water was not used for drinking purposes as they had tapped water of better quality.

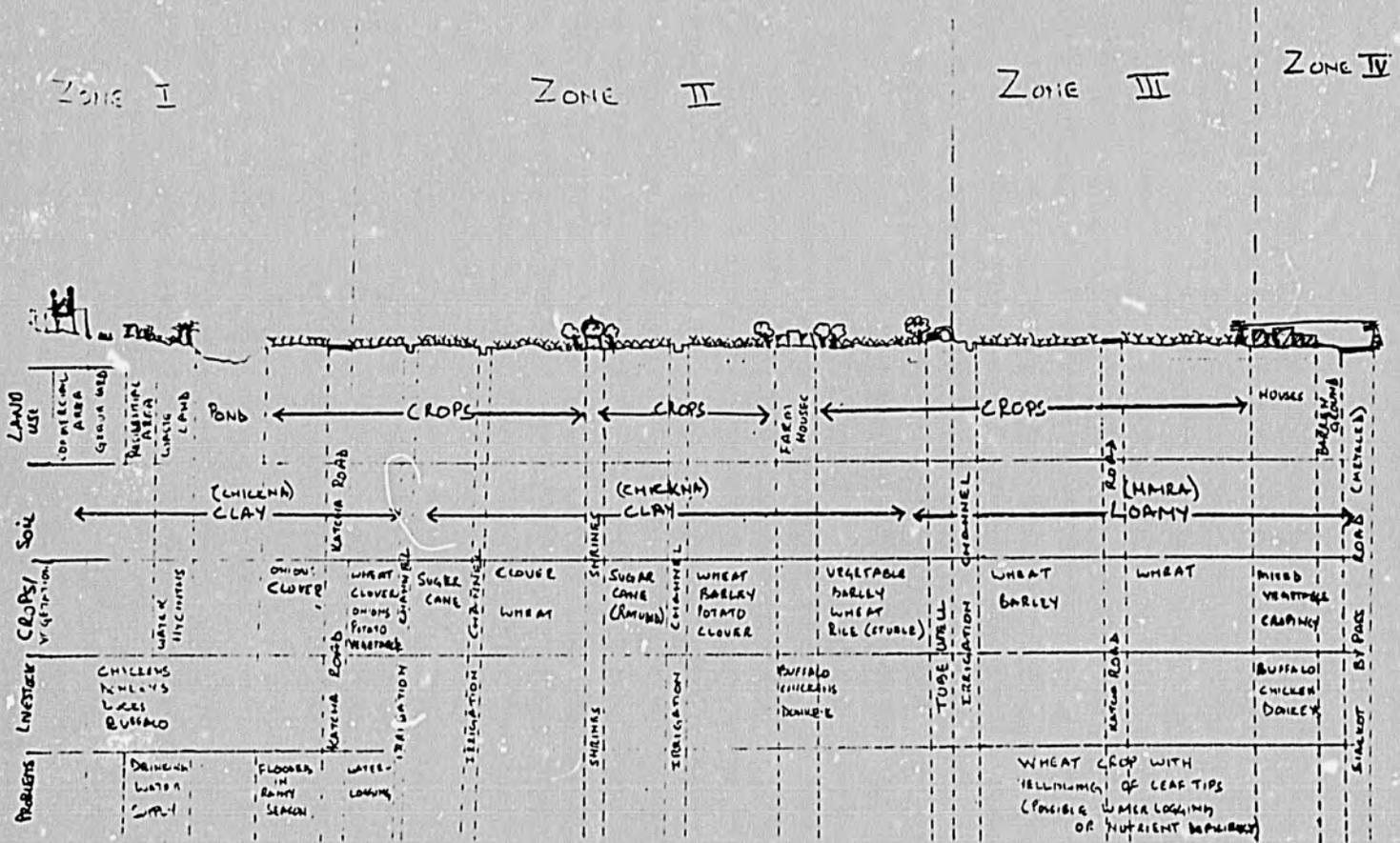
After the pond, fields with vegetables and fodder crops could be found. Some fields near the pond were under water and a farmer cutting fodder nearby explained that his fields were regularly flooded during the rainy seasons and therefore only rice was grown on them (the pond has obviously no outlet/drainage). Fodder crops dominated the picture on the first leg of the journey, only a few vegetables, potato or onion field could be observed. After a certain distance wheat and barley became the predominant crop in our sight and only by coming nearer to the Sialkot bypass road, some houses could be found again, and vegetables and potatoes were the main crops. A few *deras* were scattered in the landscape.

The typical sequence of land use found can be described as:

- dwelling (village or *dera*) with different livestock (cow, buffalo, goats, chickens etc.) tethered or roaming around
- fields with vegetables (garden type and whole plots), fodder crops, potatoes, wheat, barley, sugar cane.

Few fields were found to be fallow i.e. no crop was sown on them, they all had rice stubble on them. Therefore, the question remains speculative if they are in real fallow (intentionally) or they could not be planted because of late harvest or non-suitability for other crops.

TRANSECT WALK OF AROOP TOWN (GUJRANWALA, PAKISTAN)



SOCIAL ORGANISATION AND DIFFERENTIATION

7. Wealth Ranking of Mohallah Bhindra Taraf

17/2/92

Who involved: Miss Ayesha Bajwa (student), Mrs. Shaqula Shafique (housewife), Mrs. Rana Nazir (small farmer)

Facilitator: Ms Maliha Khan

Material used: Chart, paper, cards

Process:

I extended the household of Chaudary Riaz Bajwa and introduced myself. Men sat in the *baitakh*, while I sat in the court yard with the women. The wife was later joined by her two school-going daughters and a neighbour. At first I had no success in trying to get the women to cooperate in a wealth ranking exercise, they kept saying that they did not know enough about their Mohallah as it was not considered proper for women to go to other people's houses a lot. Then the eldest daughters of the household came back from school (she was in class 10 and must have been around 16-17 years old). She was very interested in us personally, though she refused to do a wealth ranking quoting some reason.

I then pretended to lose my patience and I refused to answer any of their personal questions. I told them that I was attending a "course" in Gujranwala and right now I was doing a "practical" exercises and that the teachers of the course were very strict foreigners, who would fail me if I didn't have some thing to show them when I get back. They immediately were very sympathetic and the daughter (Ayesha Bajwa) offered to do the wealth ranking. She knew the names of all the households living in the Mohallah. She said the names out loud and I wrote them out on cards as all the people present were literate.

Ayesha then put all the cards into piles. She was very quick about it and did not hesitate at all. After she finished, I numbered the cards in each file according to the groups. Then Shakeela Shafiq, a neighbour looked out the files and change 4-5 cards, including Ayesha's own household, changing them from the middle group to the high group. After she finished, I numbered the cards again. Then Rana Nazir, who had been sitting with the man walked in to call me. He observed what we were doing and said *No, no, there should be another category* and picked up 4 of the cards in the richest group and said that these are the richest and the rest were less rich than these. These took 20 minutes (excluding 15 minutes preliminary ice breaking).

Key findings:

This was a comparatively very well-off Mohallah and at first the informants said that everybody was rich. The criteria chosen for the discussion of the richest group shows that it was a well off community. Even the lowest group have some sources of cash income and are relatively well-off. The richest were those people who had several bread-earners in the family and had many different sources of income, usually off-farm and business oriented. Only two people were included in the rich category who mainly depended on on-farm income and they were very large land owners.

Tip: If everything else fails to get the informant's interest or cooperation, appeal to them on a personal basis and ask them if they would do it for you.

WEALTH RANKING OF MOHALLA TARAF BHIMBRAN AZOOP, GUJRANWALA.

HEAD OF HOUSEHOLD	(OUT OF 3 GROUPS)		(OUT OF 4 GROUPS)
	INFORMANT #1	INFORMANT #2	INFORMANT #3*
A	1	1	1
B	3	3	4
C	3	3	4
D	3	3	4
E	3	3	4
F	3	3	4
G	3	3	4
H	3	3	4
I	2	3	4
J	2	2	3
K	2	2	3
L	2	3	4
M	1	1	1
N	2	1	2
O	1	1	2
P	1	1	2
Q	2	1	1
R	1	1	1
S	1	2	2
T	2	2	3
U	1	1	3
V	1	1	2
W	1	1	1

* He added another group 1 to the previous groups, making it the richest one without giving a criteria for doing so.

GROUP 1 (Rich)	GROUP 2 (Middle)	GROUP 3 (Poor)
<ul style="list-style-type: none"> • A lot of land • A big business • Big and well built house • member of HH in the middle East. • own a car • HH member in Govt service • HH members are well educated. • own TV, refrigerator and sometimes V.C.R. 	<ul style="list-style-type: none"> • Medium size businesses • a small amount of land • someone not migrated to city for job • Steady source of income. though it just meets their needs and they don't have a large amount of savings 	<ul style="list-style-type: none"> • depend on labour for income • have no sons • own no land • have no businesses of their own. • have no dependable or steady source of income.

Analysts: #1 Ayesha Bajwa
 #2 Shalkeela shafiq
 #3 Rana Nazir

Material: charts, cards

Facilitator: Malika Khan.

NB. The original wealth ranking includes the names of the household heads. However to ensure confidentiality of information these have been coded for this publication.

8. Wealth Ranking of "Nai" (Barber) Community of Aroop

Who involved: Noor Din (Nai)

Facilitators: Khalid Bajwa, Maliha Khan

Material used: Chart, paper, cards

Process:

The exercise followed a group discussion with 5 elderly men on the history of the village. The analyst, Noor Din, got bored with the discussion and wandered off inside the *baitakh*. Two of the four member RRA team followed him and tried to initiate a wealth ranking exercise.

The analyst is a *nai* by profession as well as occupational group. Therefore the team assumed that he would make a good informant for wealth ranking, as in a Pakistani rural community, the "nai" or barbers play a very important social role, and therefore usually has a wealth of information about the community members. Unfortunately, our assumptions did not turn out as expected. Either Noor Din really did not have sufficient information on the households, as he insisted, or he was reluctant to give that sort of information.

The RRA team tried to narrow the focus, from the entire Mohallah to the 25 households that the barber serviced, but he still insisted that he did not know them well enough to do any sort of ranking. However, he volunteered to rank the 5 members households of his occupational group, the "Nais".

He took 5 cards, gave each household a little *Salma Sitaray Wala*, *Daig walay* etc. (the embroidery people, the large pot people - referring to these family that owns a local catering business etc.). He then put the cards in a row according to the relative wealth of each household. He went through the row and related all the criteria according to which he has ranked the households. He also divided the households into 3 groups saying: "There are those that eat meat, those that eat 'dal' (lentils) and those that have to be satisfied with chillies".

Key findings:

There can be many criteria through which wealth can be ranked. These can include eating habits, clothes, houses, symbols of wealth (electric appliances) and income sources. Land did not play any role as this was the ranking of an occupational group that do not own land.

	HOUSEHOLD NUMBER	CRITERIA
Group I	HOUSEHOLD # 1	<ul style="list-style-type: none"> Eats meat quite often has a big embroidered garments business. wears the best clothes has many members helping in business own a T.V. and refrigerator.
	HOUSEHOLD # 2.	<ul style="list-style-type: none"> Eats meat quite often has a big catering business wear good clothes has 3 members helping in business Own a T.V.
Group II	HOUSEHOLD # 3.	<ul style="list-style-type: none"> Eats mostly "dal" (lentils) sometimes meat. has many sons helping earn money. wears clean clothes has a nice house. only has a tape recorder
	HOUSEHOLD # 4.	<ul style="list-style-type: none"> Eats "dal", sometimes meat has one son who helps support family house is quite small clothes not that good doesn't own any electric appliances.
Group III	HOUSEHOLD # 5	<ul style="list-style-type: none"> Eats "roti" (bread) with "mirch" (chillies) mostly, sometimes "dal" and seldom meat Father has died and there are no sons do not own their own house depend on others for support.

Analyst: Noor Din (Nai)

Material used:

Chart paper cards

Facilitator: MALIHA KHAN
KHALID BAJWA

Group I:

"و گوشت کھاتے ہیں"
Those that eat meat.

Group II:

"دال کھاتے ہیں"
Those that eat lentils.

Group III:

"3 گروہ کے ساتھ گزارتے ہیں"
The ones that have to do with chillies.

9. Social Sub-group Distribution Map of Aroop Town (combined with small farmers location map)

Who involved: Iqbal Javaid Qazi (teacher, small farmer), (Mrs) Begum Qazi (small farmer, female), Abdur Rehman (small contract farmer, potato growing), some other students (names unknown)

Drawn by: Mrs. Qazi/Abdur Rehman/a student

Copied by: Maliha Khan

Facilitators: Hamidullah Jan, Richard Eberlin, Javed Anwar, Maliha Khan

Material used: Chart paper and markers

Process:

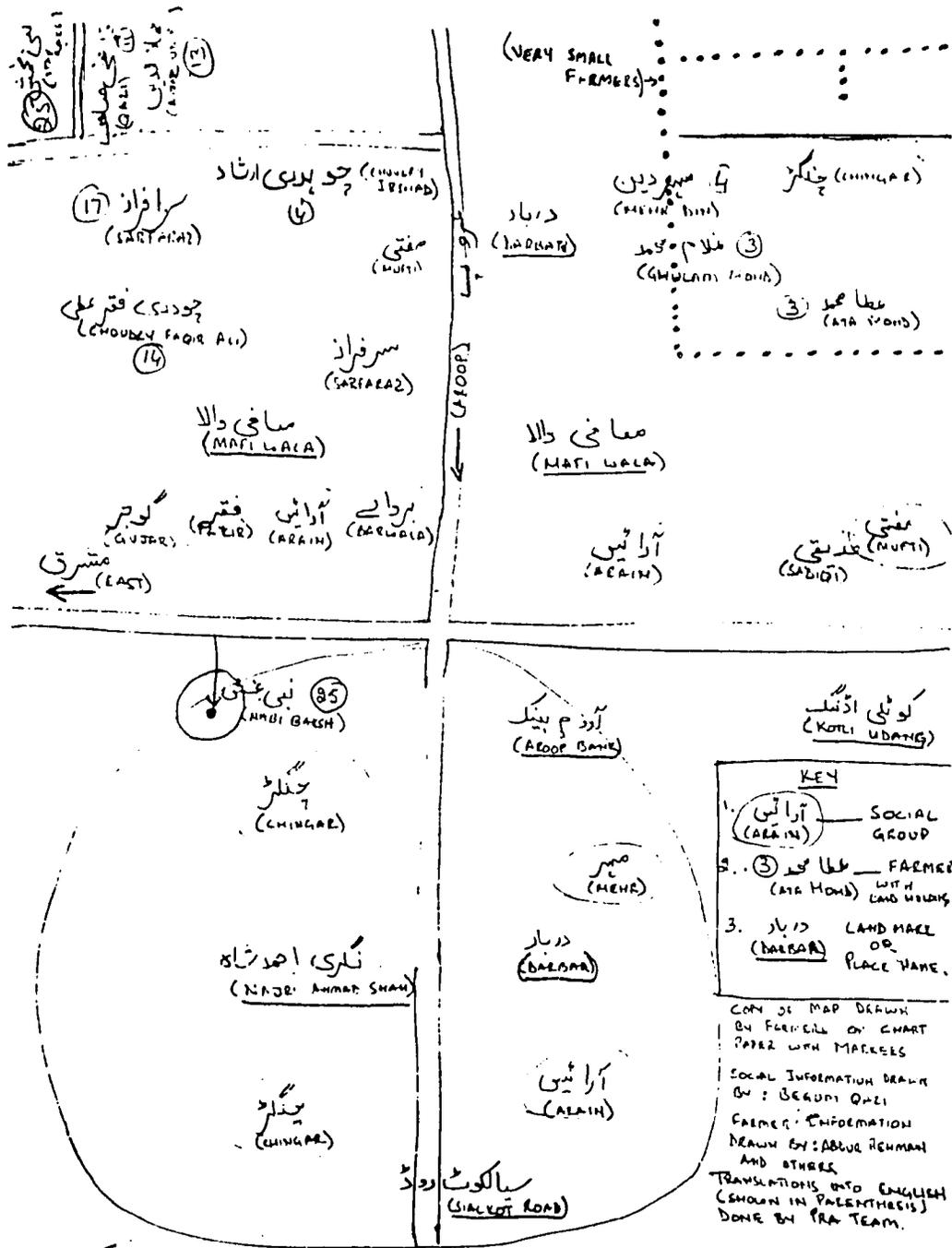
This map was drawn in Mrs. Qazi's courtyard in Mafiwala and took about one hour to draw. It followed after a farm profile map of Mrs. Qazi's and Abdur Rehman's farm. The participants were all already involved in the previous exercise so it was easily initiated.

The exercise started out as an attempt to do a Venn diagram of social institutions. The explanation on the part of the facilitators was inadequate as the participants immediately proceeded to draw a very nice social map of the village, putting in social sub-groups. We learnt that if you don't explain what you want properly, you are liable to get something totally different!

The social mapping exercise was mainly done by Mrs. Qazi who was drawing, with inputs by the others present. After a while, she got tired and handed over to a student standing there who could read and write. He completed the map. The focus of the map was changed by the facilitators' prompting, to locating all the farmers in Mafiwala village. The participants attempted to locate all the farmers in Aroop but soon gave up and concentrated on a locality of which they had information.

Key findings:

There are nine sub-castes spread over Aroop area in addition to the two main social division of Cheema and Bhinder. The small farmers are spread over the Mafiwala area, with a large concentration in the south-western corner of the village. These are extremely small landowners who also engage in contract farming.



SOCIAL SUB GROUP DISTRIBUTION MAP OF AROOP TOWN
 WITH NAMES AND LANDHOLDINGS OF SMALL FARMERS
 IN PERIPHERAL VILLAGE OF MAFIWALA 7.2/7.3
 (GUJRANWALA, PAKISTAN)

10. Venn Diagram

16/2/92

Drawn by: Ghulam Sabir of Mafiwala, a small grower

Copied by: Muhammad Habib

Facilitators: Richard Eberlin, Rashida Dohad, M. Habib, Hamidullah Jan.

Materials: Paper, cut circles

Process:

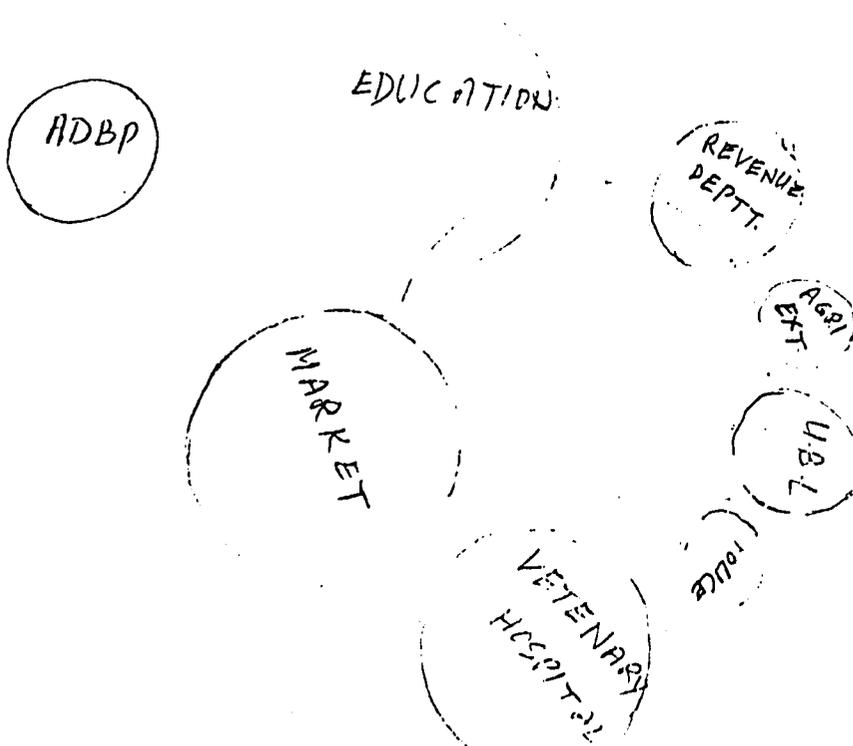
The farmer was asked to explain the government departments with whom he has dealings. He was explained the procedure of placing circles. The interview took place, sitting in his house.

He first put a big circle in the middle. He explained that he has contact with Education Department as their three children are school-going. They also have relations with Revenue Department when they sell or purchase land. They have least contact with Agricultural Extension as the field assistant does not pay occasional visits. He has much contact with United Bank Ltd. as he gets loans from that bank and also deposits his savings there. They also have relations with the Police Department for getting driving as well as ammunition licences. Also they get passports through the police. They take their cattle to the veterinary hospital for treatment and also for artificial insemination. They have great concern with the market as they sell their commodities there and also get commodities for daily use such as seed, fertilizers, pesticides, pulses, meat, sugar, brown sugar and gur etc. They have least contact with ADBP as they never get loans due to the high rate of interest.

Key findings:

They have contact with every government department except ADBP as they get high rate of interest.

_____ VENN DIAGRAM
 _____ PREPARED BY GHULAM SABIR OF MOAFI WALA



11. Venn Diagram

16/2/92

Who involved: Din Muhammad, Wasimuddin Haider, Muhammad Arif, Saifuddin, Zahid Hussain

Drawn by: Din Muhammad, a small potato grower

Facilitators: Richard Eberlin, M. Habib, Rashida Dohad, Hamidullah Jan

Materials: Round cut pieces of paper, pen

Process:

The information was obtained when sitting in a house of Mafiwala. The farmers were asked to show different government departments with whom they have some relations. If they have least contact then they used a small circle and put it a bit further away, just to show least contact.

Key findings:

The farmers said that they have relations with Agriculture Department, United Bank Limited and the veterinary hospital for seed and instructions, for loans and for the treatment of their cattle respectively. They have least contact with Education, the post office and the police for getting their children educated, posts as well as money orders and for getting driving licences, passports etc, respectively. They have no contact with the Services Cooperatives, employment exchange and Health Department as these have taken away their money, could not give employment to their children and health department never come for vaccination, respectively.

People get benefits from agriculture, UBL and the veterinary hospital. They have least concern with Education, Post Office and the Police while they do not get benefits from Employment Exchange, Health Department or Services Cooperatives.

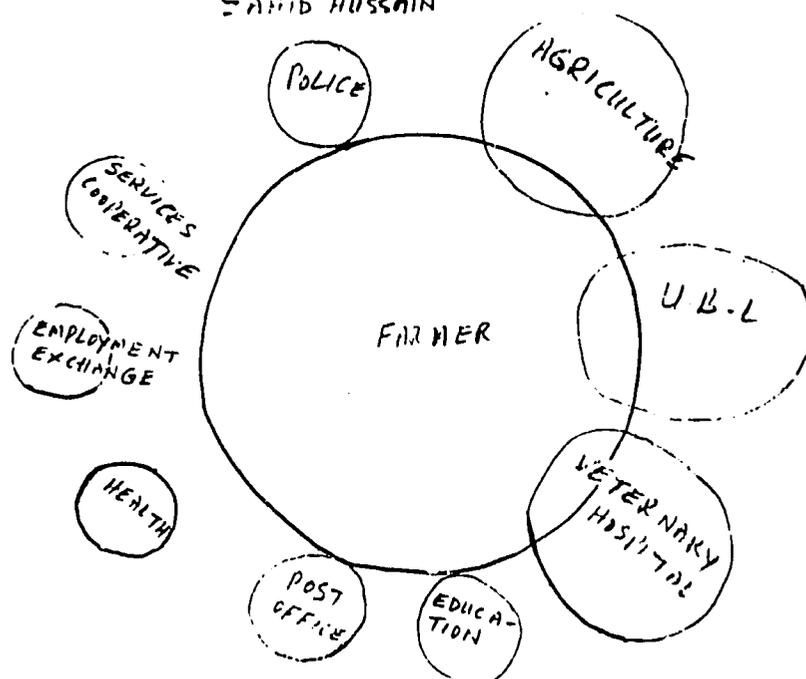
VENN DIAGRAM...

16-2-92

Analysts

COPIED BY
MUHAMMAD HABIB

DIN MUHAMMAD OF MAFIWALA, ARER.
WASIM-UD-DIN HAIDER
MUHAMMAD ARIF
SAIF-UD-DIN
ZAHID HUSSAIN



12. Venn Diagram

16/2/92

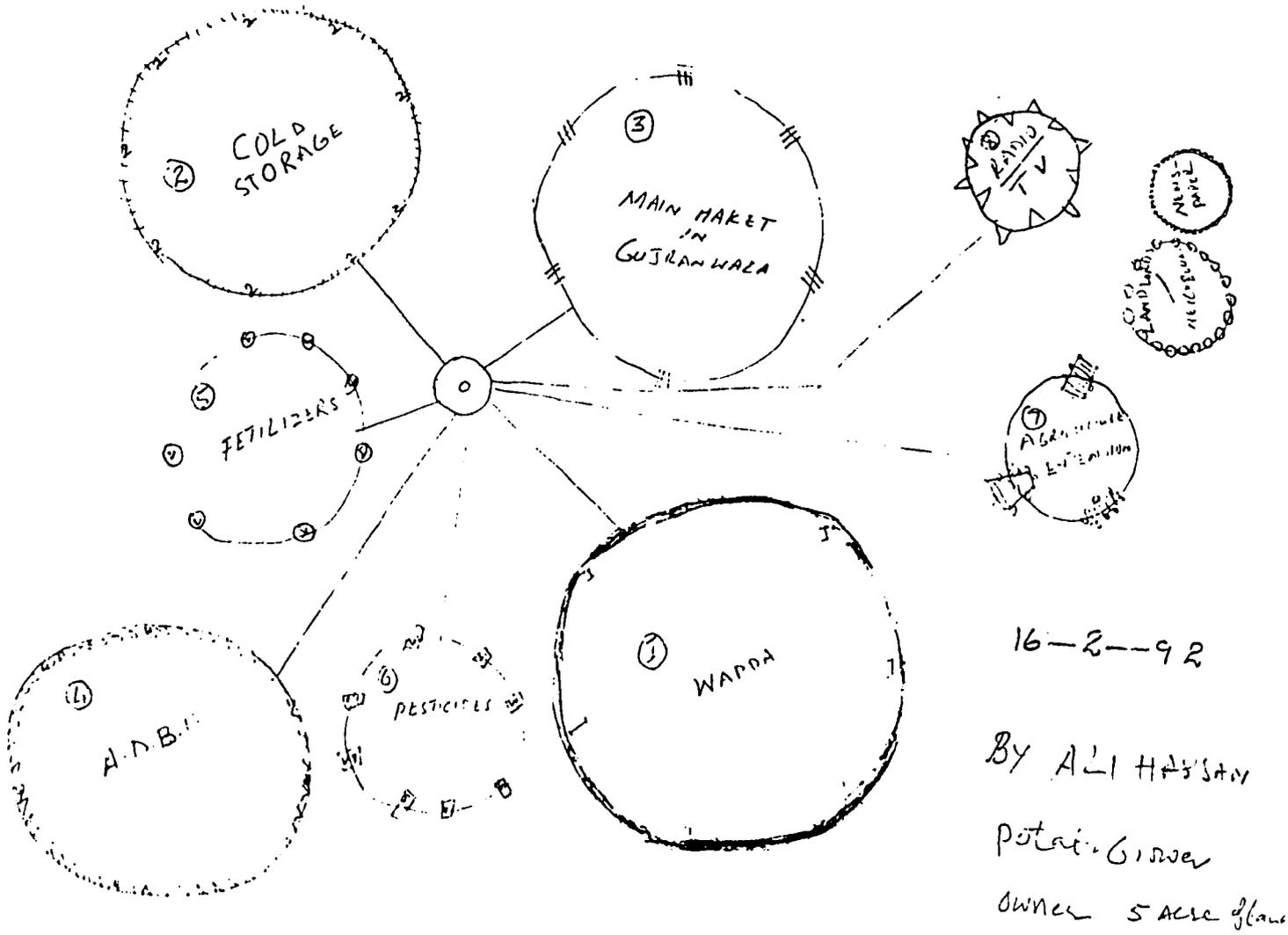
Drawn by: Ali Hassan, owner of 5 acre potato grower (Aroop)
 Facilitators: Javed Anwar, Mukhtar Ahmed, Marheb Qasmi, Irene Guijt
 Materials: Potato, grass, fodder cutting.

Process:

Ali Hassan farmer was contacted for discussing farming at his farm. He was asked to draw a venn diagram but he did not understand at first. He was given some guideline, then he understood and started the diagram using the material: potatoes, fodder cuttings and grass.

Key findings:

He is a potato grower, owning 5 acre land and has been farming since 35 years. He told that he purchased imported seed from Jaffer Brothers for spring crop. For the autumn crop he used his own seed from the last spring crop. The informer purchased seed from Jaffer Brother Ltd. for spring crop, fertilizer and pesticide from the Commission Agent. He sold the produce in the market through the Commission Agents. He kept his seed in cold store. He got electricity from Wapda. He got the information from Agricultural Extension worker, Radio, T.V. and neighbour farmer.



16-2-92

BY ALI HASSAN
 potato grower
 owner 5 acre of land

Facilitators:

(J.A. M.O. J.C.M.M)

13. Venn Diagram

17/2/92

Who involved: Nazeer Ahmed Rana, Mohammad Yousaf, Riaz Ahmed

Drawn by: Nazeer Ahmed Rana, a small potato grower.

Facilitators: Khalid Bajwa, Ashraf Sahibzada, Maliha Khan and Shaukat Ali

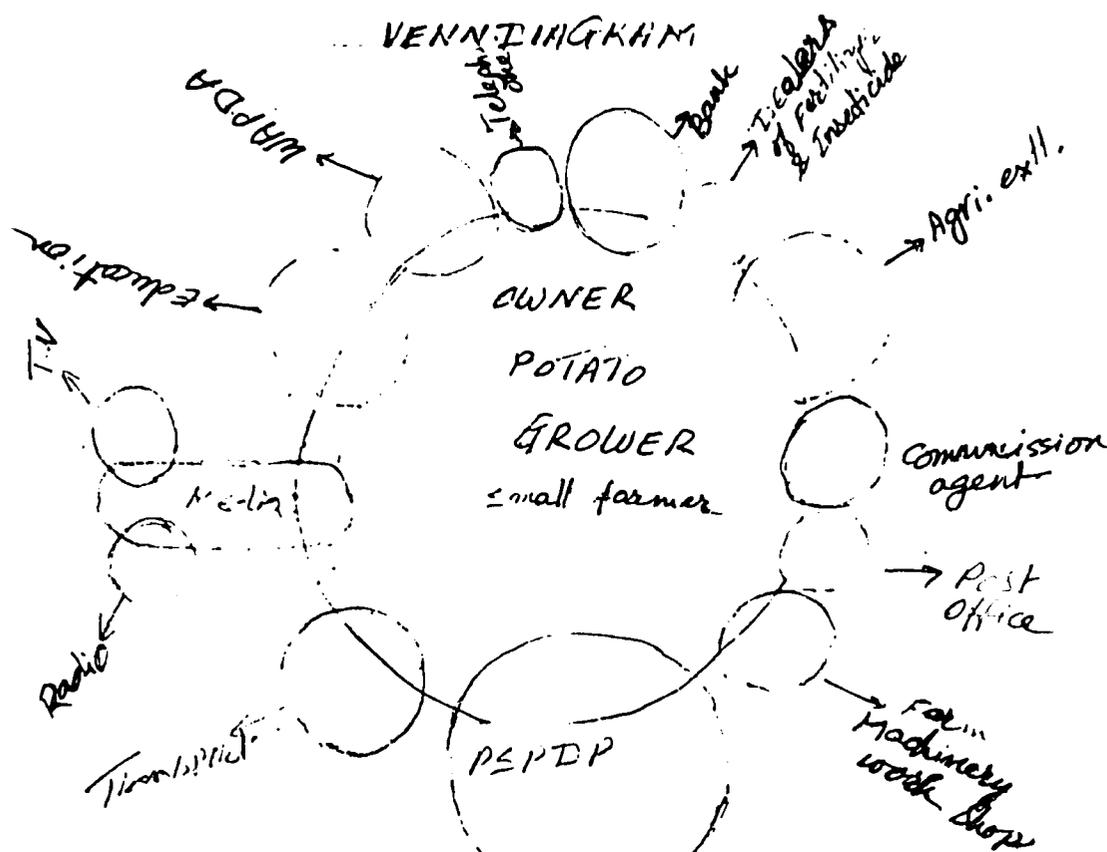
Materials: Markers, drawing sheets and piece of paper.

Process:

We explained the farmer about the purpose of the diagram. The farmer made the diagram in his house.

Key findings:

The PSPDP department played a large role in the Venn diagram because it provides more technology to the farmer.



Analyst: - Nazeer Ahmed Rana

Facilitators: - Shaukat Ali, Maliha Khan
with veg. specialist

14. Daily Routine

16/2/92

Analyst: Ghulam Sabir, a small potato grower

Facilitators: R. Eberlin, M. Habib, R. Dohad, H. Jan

Process:

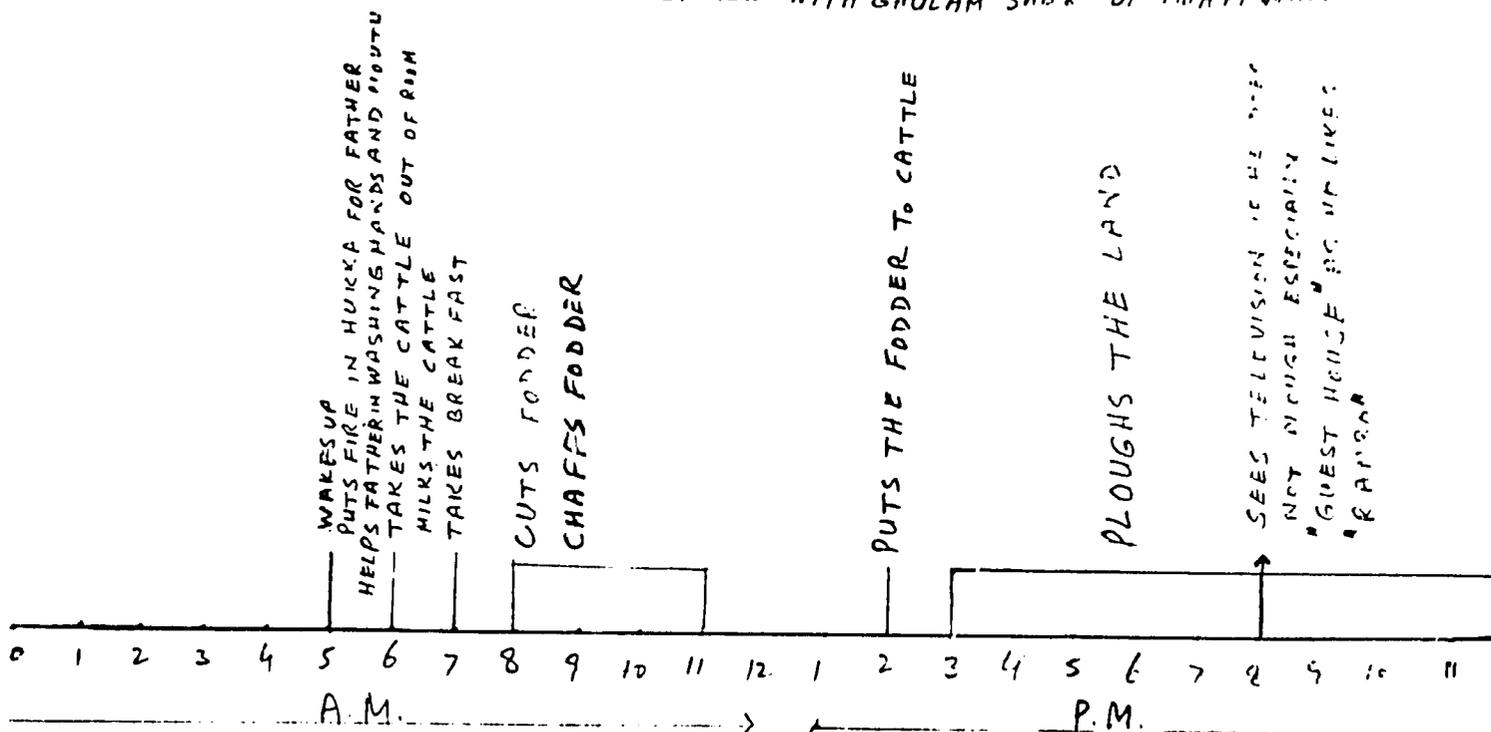
The information was collected in a semi structured interview with the grower when sitting in his house. He was asked to explain the daily works he carries out starting from early in the morning till midnight.

Key findings:

He explained that he wakes up at 5 a.m. The first thing he does is, puts fire in *hukka* for his father. Then he helps his father to wash his mouth and hands, as he is old. At 6 a.m. he takes his cattle out of the room and then he milks the milch cattle. He takes his breakfast at 7 a.m. From 8 a.m. to 11 a.m. he cuts fodder for his cattle and chaffs it. At 2 p.m. he puts the fodder to his cattle. From 3 p.m. to 8 p.m. he ploughs the lands with a tractor. After ploughing, he watches television from 8 p.m. to 9 p.m. and then again starts ploughing. He looks after his old father and tries to earn as much money as he could for the betterment of his family.

DAILY ROUTINE

AN INTERVIEW WITH GHULAM SABIR OF MUAFI WALI



15. Mobility Map

16/2/92

Drawn by: Surriya Bibi (small land holder 6 acre, potato grower group)

Facilitator: Marheb Qasmi, Irene Guijt

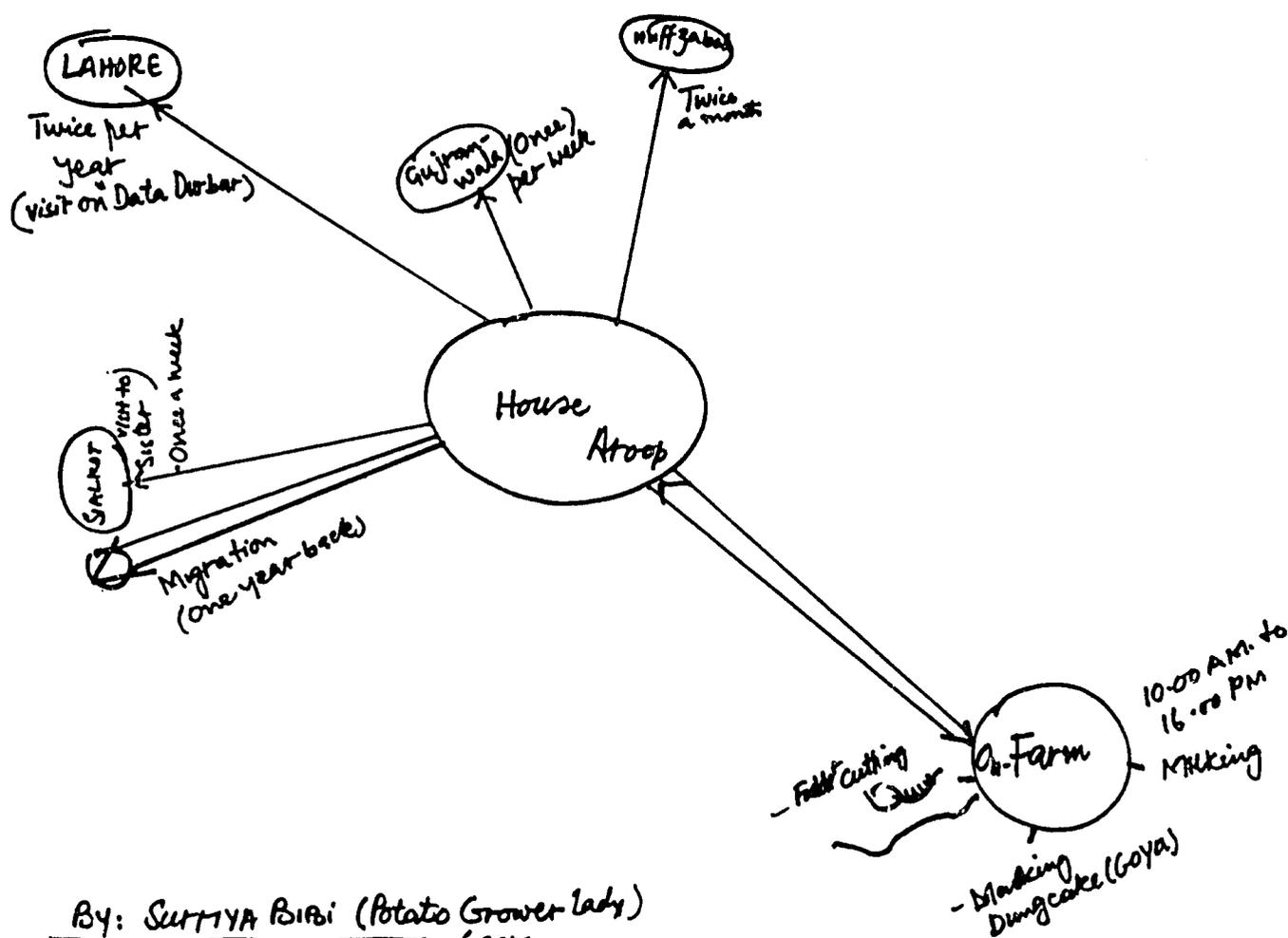
Material: Sheet, stones, chewed cane

Process:

This mobility map was done in front of Ashraf Rajput's house. It took about 15 minutes. He is a small potato grower with 6 acres of land. There was some discussion before a decision was taken for the method. No extraordinary problem was faced by RRA team. The lady was comfortable with the Urdu language too. She works on the farm from 10:00 to 16:00 mostly busy collecting/cutting fodder for livestock and making dung cake to be used as fuel.

Key findings:

Surriya Bibi's mobility is very limited (from house to farm) but she has travelled to Sialkot, Lahore and Gujranwala (three big cities of Pakistan).



By: SURRIYA BIBI (Potato Grower lady)
6 acre
on = 16-02-92

16. Daily Routine of Farming Women

16/2/92

Who involved: 2 housewives/farming women

Facilitator: Rashida Dohad

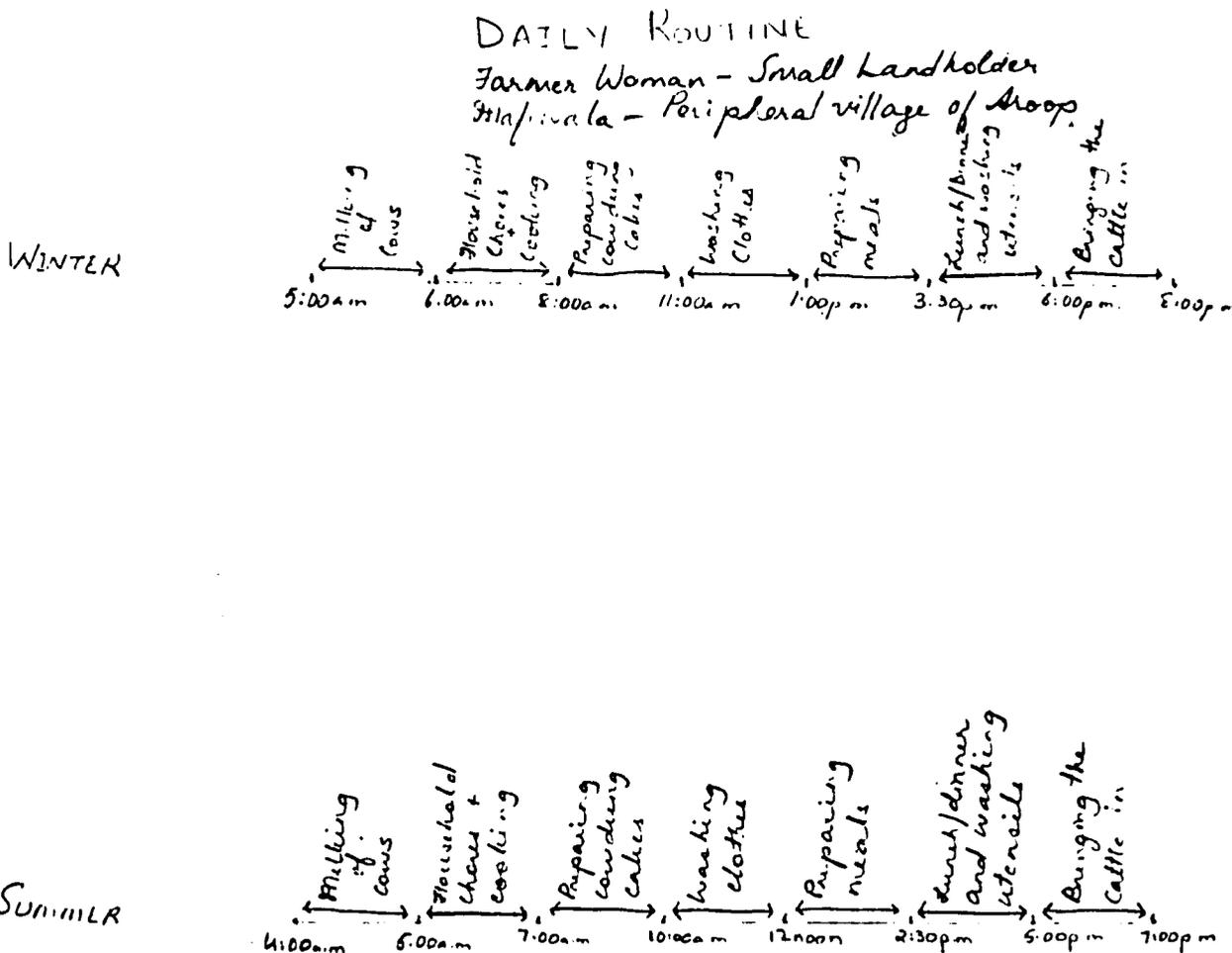
Materials: Ground and twigs

Process:

This diagram was done by two women belonging to a small landholding family. The women had limited understanding of Urdu and the facilitator did not know much Punjabi leading to slight communications problem. The ladies had done a daily routine for the present season (winter), a little probing resulted in a separate summer daily routine which starts an hour earlier than the winter routine.

Key findings:

The women were only involved in livestock management. They were not involved in any field work.



INCOME AND EXPENDITURE**17. Pie Diagram Showing Contribution of Crops to Household Income**

13/2/92

Who involved: Rizwan

Facilitators: Khalid Bajwa, Javed Anwar, Mohammed Habib

Materials: Chart paper and pencil

Process:

The respondent was a young student. We interviewed him in a *haveli* situated in the centre of the village. We explained to him what we wanted to know and about the technique. He understood easily and drew the diagram with great ease.

Key findings:

Rice, fodder, potato, peas and wheat are major contributing crops.



18. Seasonal Diagram Showing Income and Expenditure of a Household

13/2/92

Who involVed: Rizwan

Facilitators: Khalid Bajwa, Javed Anwar, Mohammed Habib

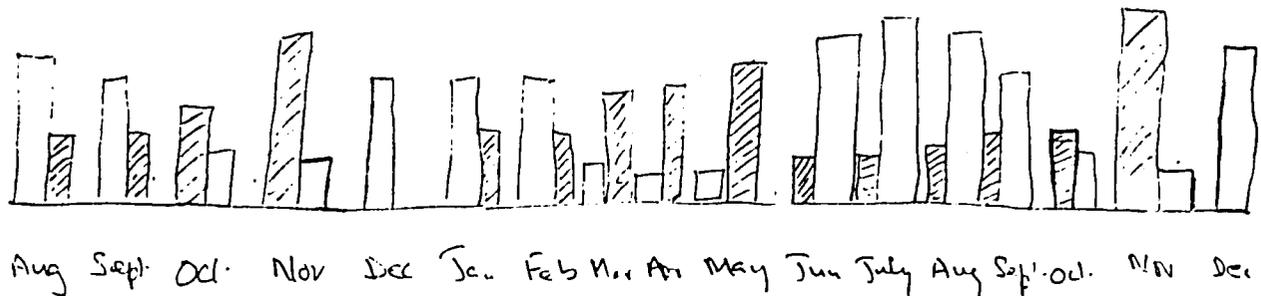
Materials: Chart paper and pencil

Process:

Rizwan is a young student. We explained the concept of the diagram to him, which he readily understood and drew this diagram for us. He was articulate and did not erase while making diagram. It took half an hour to complete the diagram.

Key findings:

The highest income is after the time of harvesting of rice and wheat in November and May respectively. The family has a permanent flow of income from a private school it owns.

Income Exp 

19. Seasonal Calendar of Income and Expenditure

Drawn by: Facilitators' with farmers information

Farmer: Rana Nazir

Facilitators: Hamidullah Jan, Richi Eberlin

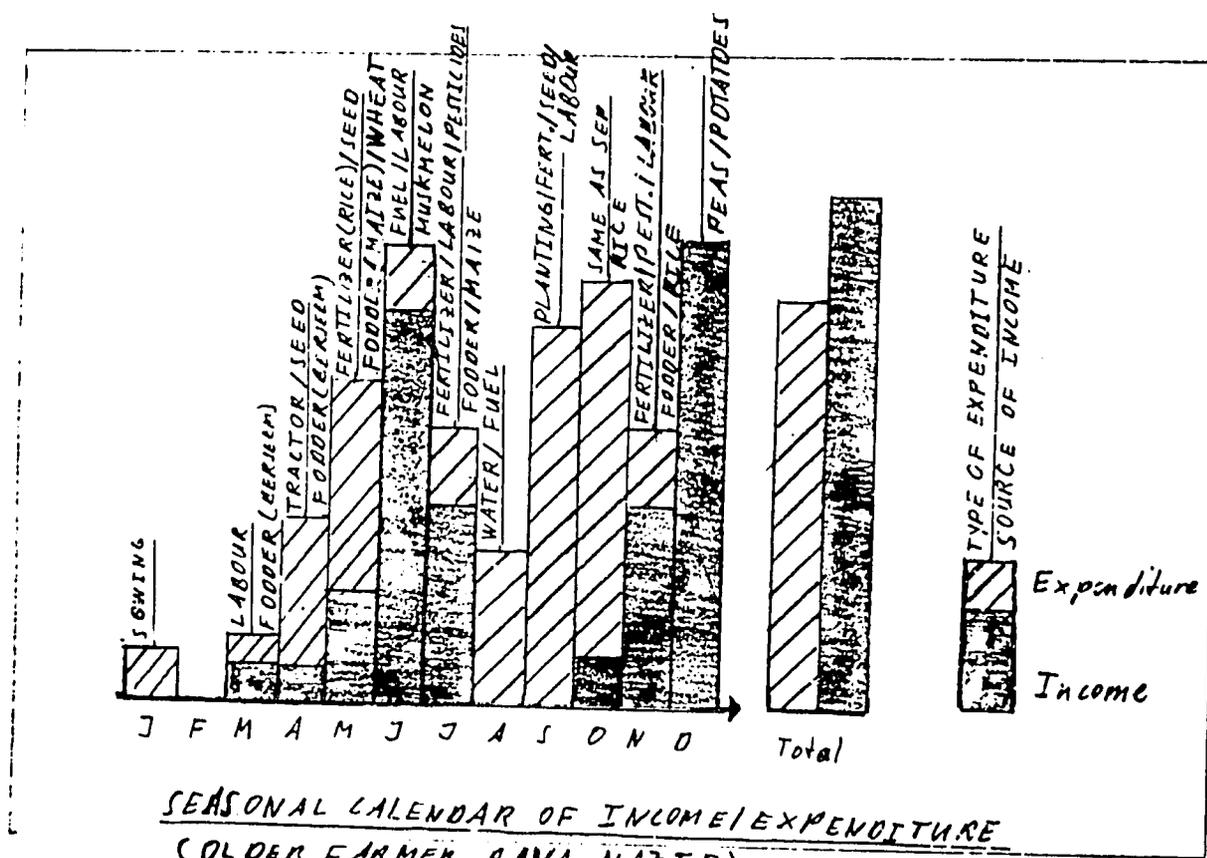
Material: Pen and notebook

Process:

The diagram was obtained by first asking for the month with most income and then the least income and then in between, and the same for expenditures. It took about half to 3/4 of an hour to get all the information. Due to the meteorological situation (rain), the diagram was done inside a room and pen + notebook was used. The length of a pen was used to indicate the relation between the different months. After finishing we observed that the expenditures (relative area) exceeded the income. The farmer was then asked to give a total assessment of income/expenditure.

Key findings:

Vegetables (muskmelon, peas) and potatoes give the most income, whereas fodder crops like maize, berseem etc. provide some income during the remaining time. Highest expenses occur at the beginning of the season whereas logically the income comes with the harvest of the respective crop. This indicates the need for short term seasonal loans for purchase of inputs.



Drawn by PRA-Team using the length of a pen as reference to indicate relative proportion to the other months.

20. Bar Chart of Incremental Income Flowing into Different Types of Households

13/2/92

Who involved: Ghulam Sabir Bhinder, Altaf Hussain, Shah Muhammad, Abbas

Facilitators: Khalid Bajwa, Rashida Dohad, Mukhtar Ahmed, Irene Guijt

Material: Rice straw, cut fodder

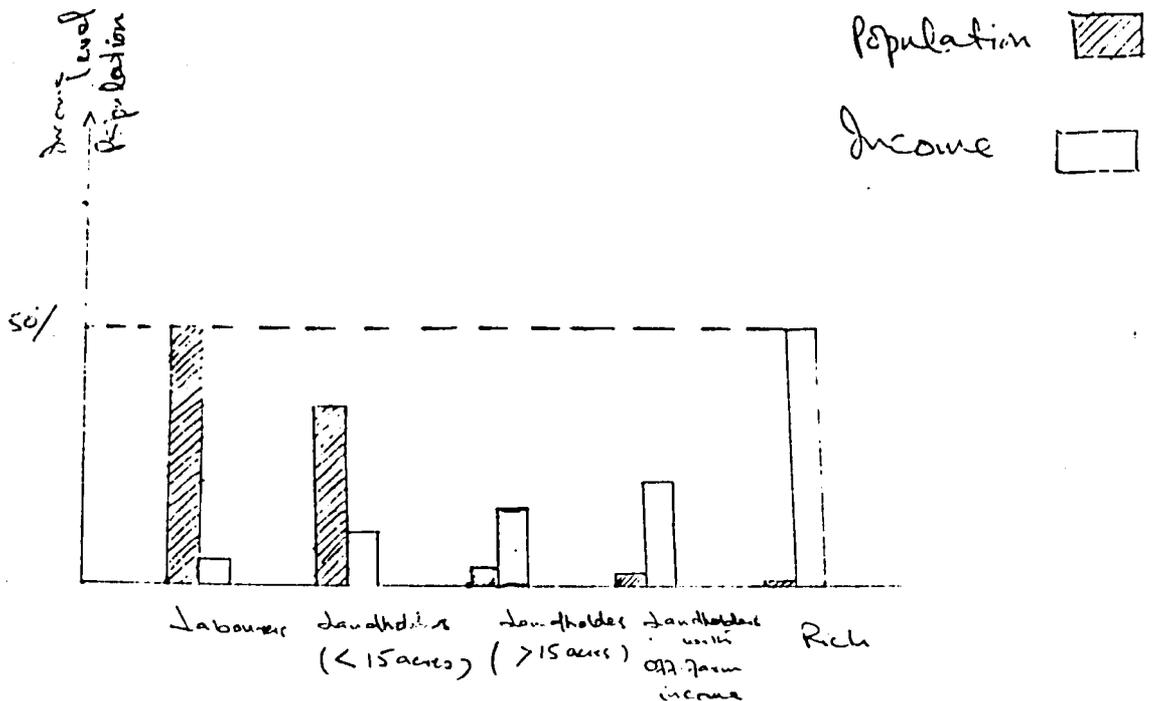
Process:

We made pie diagrams in a *dera* outside the village during the transect walk. Two or three people came in and joined the process. This diagram was completed at the end. By this time farmers were fully involved and taking part in the process and discussion. It took about 30 minutes to complete the diagram. Changes were made in the diagram during the exercise.

Key findings:

The rich household are those whose members have gone abroad for employment. There are few medium farmers and many farmers are landless and have contract land for cultivation. All landless growers belong to the category of the farmers who cultivate less than 15 acres. 50% of the population do not farm but provide labour in different places. Income distribution is heavily skewed in favour of rich classes.

Incremental Income Flowing into different categories of Households



21. Mobility Map on Source of Income for Residents of Mafiwala
(peripheral settlement of Aroop)

16/2/92

Analysts: Vaseemuddin (farmer and property dealer), Arif (farmer), Deen Mohammad (farmer), Jamaluddin (out-migrant), Iqbal (out migrant), Shahid Hussain (out migrant), Hamid (services in Mafiwala), Hafiz M Arif (Masjid Imam), Saifuddin (out migrant), Kashifuddin (student).

Drawn by: Residents (see diagram) on big sheet of paper

Facilitators: Hamidullah Jan, Rashida Dohad, M. Habib, R. Eberlin

Materials: Big sheet of paper, marker

Process:

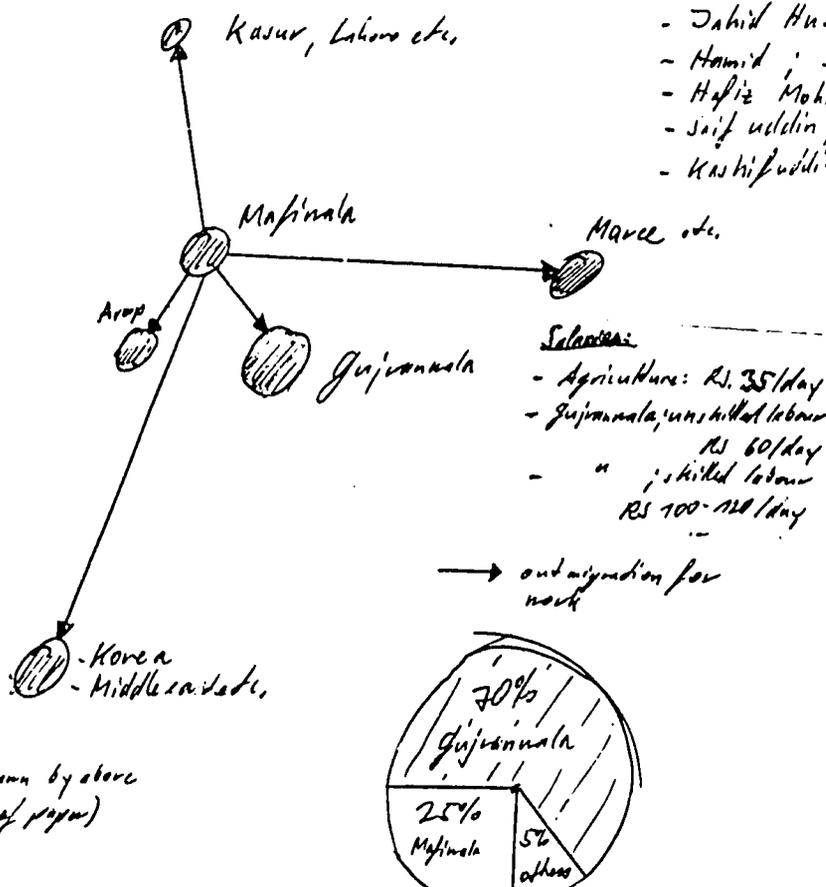
The present residents (farmers, migrants etc.) were asked to draw the locations of their work on a big sheet of paper. Then they were asked to indicate the percentage of people working in the different places. The diagram took about half an hour to make.

Key findings:

70% of the residents in Mafiwala work in Gujranwala, 25% in Migliwala itself, (agriculture and services) and the remaining 5% in other cities, like Kasur, Lahore (industry), Muree (tourism) or even go to other countries (Korea, Middle east). The salaries in agriculture are very low as compared to daily wages paid for unskilled labour in Gujranwala.

Mobility Map on Sources of Income for Mafiwala (peripheral village of Aroop)

- Analysts:
- Vaseemuddin; Farmer + Property dealer
 - Arif; Farmer
 - Deen Mohd; Farmer
 - Jamaluddin; Out migrant
 - Iqbal; "
 - Shahid Hussain; "
 - Hamid; Services (Mafiwala)
 - Hafiz Mohd Arif; Masjid Imam
 - Saif uddin; Out migrant
 - Kashifuddin; Student (Tehri)



(from map drawn by above on big sheet of paper)

22. Credit Availability Chart

17/2/92

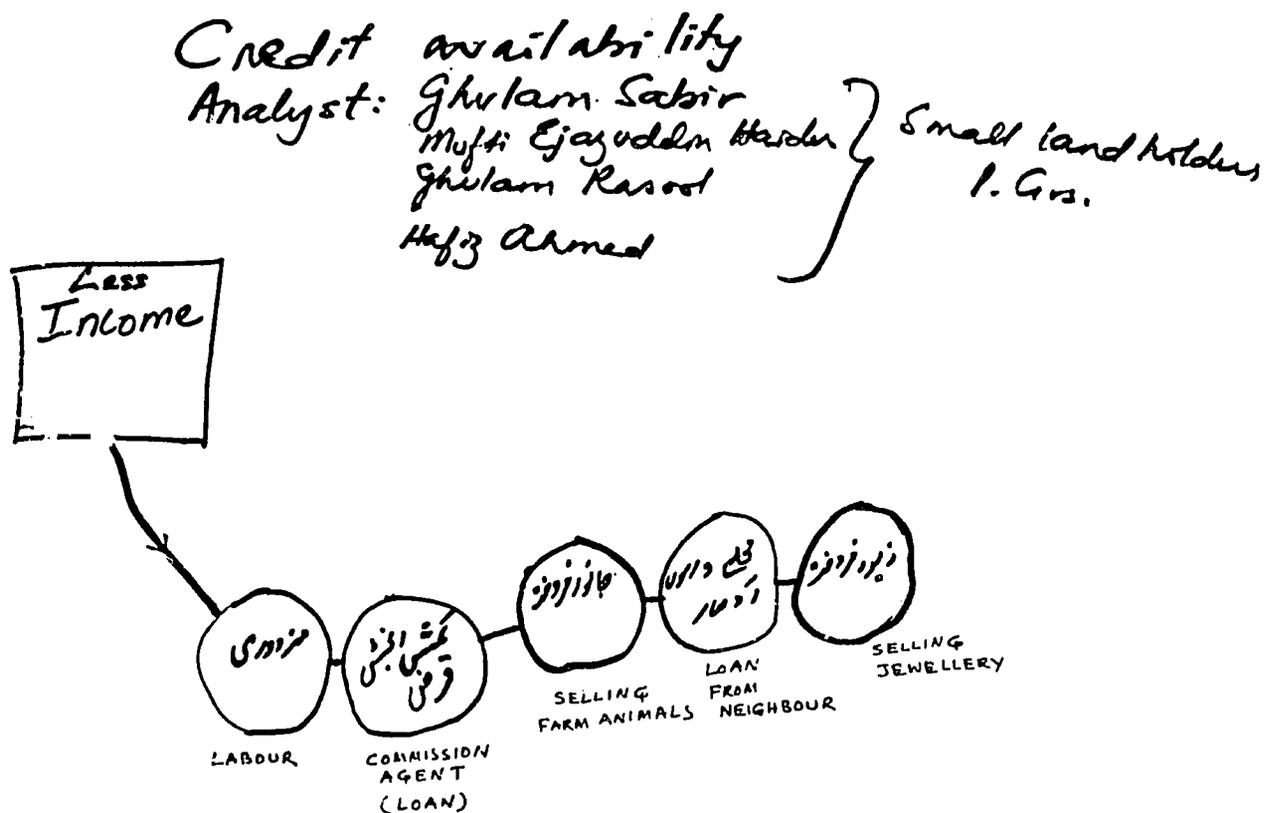
Drawn by: Ghulam Sabir, Mufti Ejazuddin Haider, Ghulam Rasool, Hafiz Ahmad
 Facilitators: Ms. Rashida Dohad, M. Habib, Hamidullah Jan, Richard Eberlin.
 Materials: Paper sheet, marker

Process:

The chart was prepared in the house by placing the sheet on the floor. The drawer was simply asked to draw a map to indicate from where they get loans to meet their requirements. He started drawing the sources. He was asked to put circles and write the sources. He drew the map himself in consultation with colleagues.

Key findings:

He indicated that first of all he will try to do paid labour to meet the expenditure. Then he will go to the commission agent, sell his animals, will lend money from his neighbours and at the end the will sell jewellery to meet the expenditure. Low income farmers have to borrow money but they have to pay interest in addition to actual money borrowed.



23. Matrix Scoring of Credit Sources

17/2/92

Drawn by: Inayat Baig (7 acres, potato grower).

Facilitators: Javed Anwar, Marheb Qasmi, Mukhtar Ahmed and Irene Guijt

Materials: Rice straw pieces, marker and paper

Process:

This diagram was made in the yard of a home after a discussion on farmers' problems and solutions. We started with one young man but the final diagram was completed by an old man. We asked which type of agencies give credit in the village. The young man wrote 2 criteria and wrote the score, with a maximum 15. The old man was asked to join and we started again with rice straw, a maximum of 25 pieces per box. Through probing we got other criteria. Then the old man needed to feed his animals. We asked him one last question on overall preference and got 2 new criteria. We thanked him and he left.

It was difficult to get clear criteria. He was mixing criteria with the reasons for getting credit. It was the last exercise of a series and the informant was impatient after being there for many hours. We praised their efforts during the exercise to encourage them to continue.

Key findings:

There are 3 sources of credit: ADBP, Commission Agents and anybody else who has cash. Four criteria were mentioned. The informant preferred ADBP mentioning two new criteria: long duration of loan and remaining free to sell their produce anywhere, plus the low interest rate. But he said that he did not take credit from ADBP because he says they only give it to influential people and the process is lengthy.

CRITERIA	PREFERENCE OF CREDIT		
	ADBP	Commission Agents	Land Lords/ others
1 Low Interest Rate	25	20	10
2 Readily Available	5	20	25
3 High Chance (Probability)	5	25	20
4 Influence ^{Required}	5	20	25

By: Inayat Baig

LAND AND LABOUR

Problem: Shortage of land in Aroop

This problem is due to an increase in population, division of landholdings within family and construction on agricultural land. All this leads to limited availability of suitable land for potato growing. The causes for limited suitable land for potato are:

- soil type (clay soil)
- soil quality (hard pan)
- poor drainage
- environmental pollution from a steel mill.

The soil quality type of soil and poor drainage leads to water logging and salinity, leading to limited suitable land for potato. We are not sure if salinity problem does exist in Aroop area. The environmental pollution from a steel mill leads to shortage of suitable land for potato as well as other crops nearby.

Consequences and responses:

A. Non-potato growers

Due to limited suitable land available for potato, non-potato farmers have no opportunity for growing potatoes in future which leads to less income possibilities. The responses of this group are to grow crops like rice, sugar cane, wheat, maize fodder, berseem fodder, oat fodder and barley fodder which are adapted to their soil conditions.

B. Landless potato growers

Due to less land available for potato growing, the opportunity for potato is decreasing which leads to less potential income. The same reason causes an increase in land rents and ultimately high cost of production of potatoes. Their responses to this problem are growing of other suitable crops and looking for other suitable land to rent. If these two responses fail to cover their needs they quit farming and look for another source of income.

C. Small potato growers

Due to the problem of limited potato suitable land, the opportunity for growing potatoes is decreasing and they are suffering from loss of potential income. They try to grow other suitable crops and improve the land by applying farm yard manure. However, they also use buffalo/cow dung for fuel by making cakes, which is also a source of income. In addition to this, they look for other land to rent and grow potatoes. Some look for other jobs and do part-time farming but some work full-time in the city and rent the land to others. If the losses of income are unbearable, they may sell the land, leave farming and do non-agricultural jobs.

D. Large potato growers

Due to the problem of limited land for potatoes, the opportunity of potato cultivation for large potato growers is decreasing and eventually they face the loss of potential income. In response, they grow other suitable crops and try to improve land by applying farm yard manure and green manuring with Dhaucha also called Jantar.

Activities to be undertaken

1. Agricultural research and extension cooperation need to evaluate and promote salinity-tolerant potato varieties.
2. Research and extension cooperation needed to evaluate and promote alternative adapted high income crops in the area.
3. Research and extension need to cooperate in evaluating and promoting crops like rice, dhancha, calocasia, special grass for fodder, kenaf, jute, eucalyptus for water-logged areas and crops like sugarbeet, radish, turnips, barley, rice, raya, and tharamera for saline areas subject to pH of the soil. Some of these crops can be used to improve or rehabilitate the soil.
4. Agricultural extension should promote field drainage and green manuring by farmers.
5. The policy makers should concentrate on family planning and try to find solutions for division of landholdings.
6. The government should increase activities on land rehabilitation and drainage like SCARP projects by WAPDA.
7. Policy makers should make a law to fix a ceiling for land rent for different qualities of land.
8. There should be a law for appropriate land use.
9. A law is needed to control environmental pollution.

Problem: Weak Agricultural Extension Service

The causes for the weakness of the agricultural extension can be found in the general weakness of the linked institutions like education and research. Extension itself has the problem of the non-availability of funds, mobility, manpower, knowledge. This leads to a general weakness of the extension system which leads to less information on the right use of inputs and production practices being made available to the farmers.

Consequences

The use of non-balanced dose of fertilizer leads to less yield whereas the use of wrong dose or even the wrong chemical itself can lead to less yield or even to a health hazard for the population. The same is also true for knowledge on general production practices.

Responses

The farmer tries to respond to this by discussing with his/her neighbours or he gets it from the traders where he buys the products or via the included product information. Literate farmers may also consult relevant literature, books, journal etc.

Action needed

The institutions in general have to be strengthened by providing funds etc. and specially the mentioned points for the extension.

24. Matrix of Types of Soil (from Aroop to Nawan Pind)

13/2/92

Drawn by: Shafqut Bhinder, Akber Cheema, both small potato grower

Facilitators: Marheb Qasmi, Ashraf Sahibzada, Shaukat Arain and Mohammad Habib

Materials: Stones, green leaves of different crops

Process:

This matrix was done in front of Shafqut's house on the ground, very near to his farms. The criteria were chosen by the farmers and process took about 20 to 30 minutes. The ranking of the criteria was also done by the farmers. No significant problems were faced by the PRA team during the process.

Key findings:

There are three main categories of soil. On the basis of criteria chosen by farmers *Mera* was ranked as first whereas *Rohi* and *Chamb* were second and third respectively.

Types of Soil
FROM AROOP TO NAWAN-PIND

CRITERIA	(Zone 1) CHAMB	(Zone-2) MERA (LOPP)	Zone-3 ROHI
<u>1</u> MORE FERTILITY	8	10	9
<u>2</u> MORE PRICE <small>appropriate soil level</small>	8	10	8
<u>3</u> BETTER DRAINAGE	10	10	9
<u>4</u> MORE CROPS (More choice) <small>il. ub. (see vol)</small>	8	10 <small>more vol. plant, veg.</small>	9
<u>5</u> MORE YIELD	8	10	9
<u>6</u> LESS DISEASES	10	8	9
<u>7</u> LESS USE OF FERTILIZER	10	9	9
<u>8</u> LESS REQUIREMENT OF WATER	9	8	10

By: SHAFQUT Bhinder
AKBER CHIMA

Copied by: Marheb Qasmi

25. Pair-wise Ranking of Land Purchase Preference for Different Types of Land

13/2/92

Drawn by: Akbar Cheema, Shafqat Bhinder and Mohammad Khan Virk (small potato growers)

Facilitators: Ashraf Sahibzada, Khalid Bajwa, Marheeb Qasmi

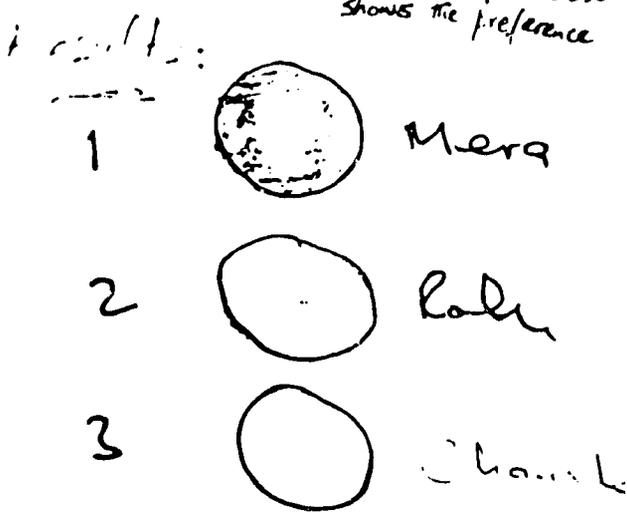
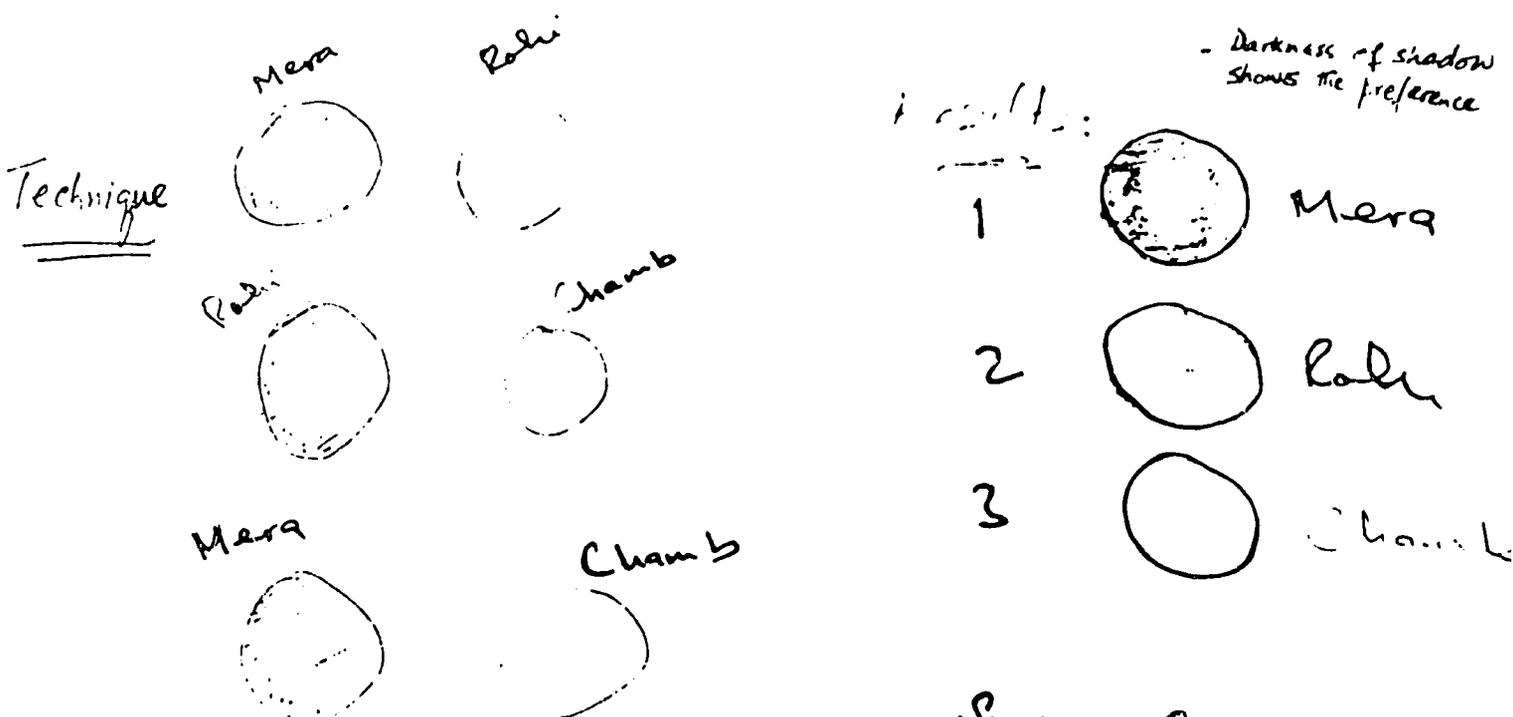
Material: Sticks

Process:

Pair-wise ranking was done on the lawn of veterinary hospital. The material was chosen by the farmers. The question was put to the farmers. "If they have Rs.100,000/- in hand to purchase land to which type of land they will give preference?". The comparison was done by the technique of pair-wise ranking.

Key findings:

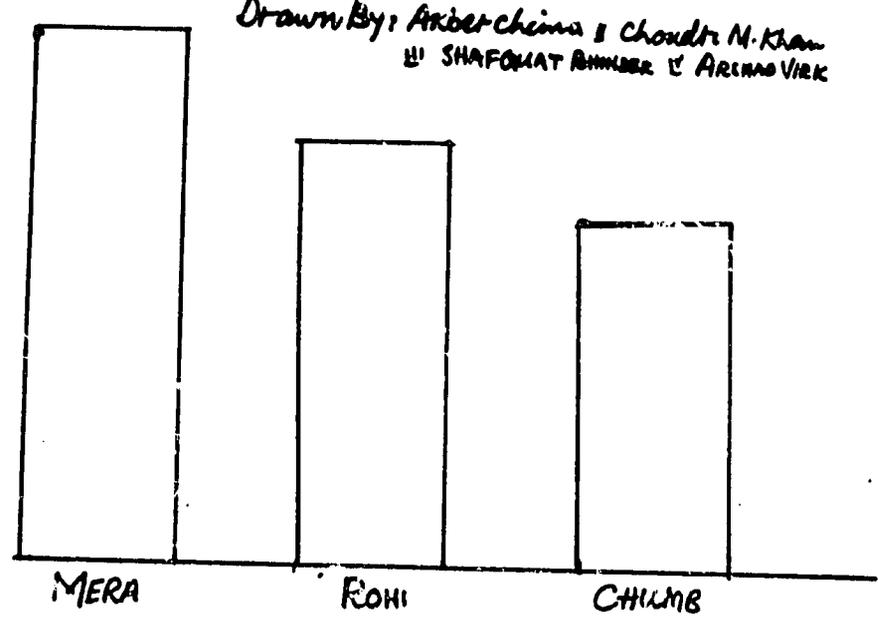
Among all the three types of land available in Aroop, *Mera* was ranked on top, whereas *Rohi* remains second and *Chamb* on the third place.



SCALE OF PREFERENCES
Purchase of Land

Date : 13.02.98

Drawn By: Akbar Cheema & Choudhri N. Khan
!!! SHAFQAT BHINDER & AHMED VIRK



26. Labour Mobility Map

16/2/92

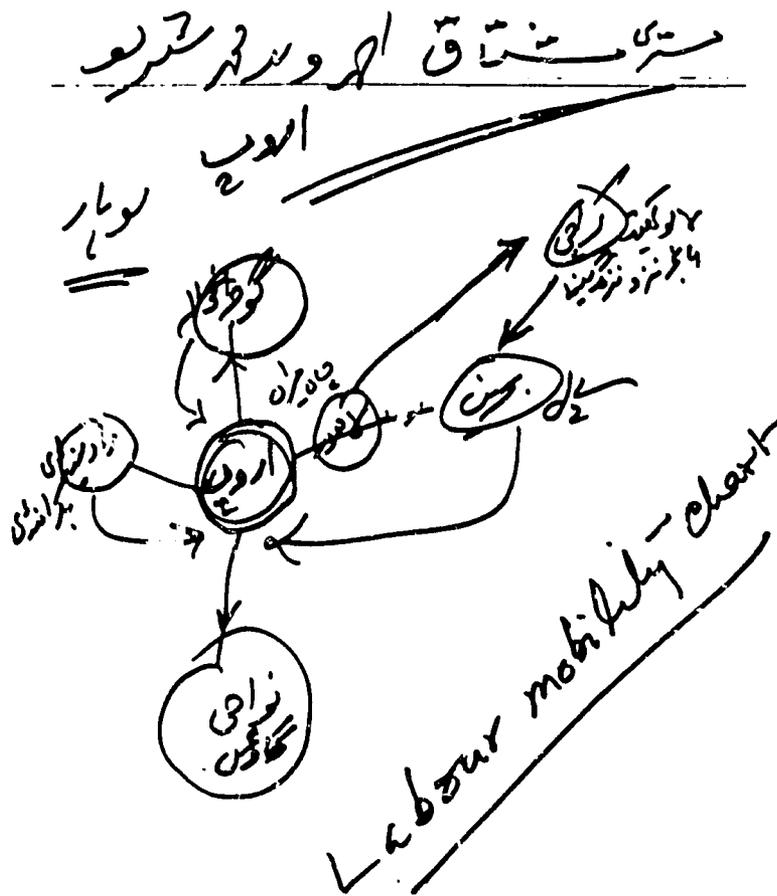
Drawn by: Mushtaq Ahmad, son of M. Sharif, ironsmith, and non-agriculturist
 Facilitators: Ashraf Sahibzada, Khalid Bajwa
 Material: chalk and small stones

Process:

The exercise was done on the roadside on the ground. Use of small stones was selected by Mushtaq and chalk provided by facilitators. The exercise took about 10 minutes.

Key findings:

The person was a skilled labourer and travelled to 3 big cities in Pakistan and once to Bahrain in connection with a job. These days he is working in the neighbouring villages to earn his livelihood.



27. Seasonal Labour Calendar (Desi months)

17/2/92

Drawn by: Mohammad Tufail Cheema, small non-potato grower, Nawan Pind, (Aroop)
Facilitators: Khalid Bajwa, Ashraf Sahibzada, Maliha Khan and Shaukat Ali

Process:

We broke the ice by narrating local quotes about local months. "Asuj pala jam ghaya te Katak wadda ho" "Maghar faoan charian te Posh laraee ho" "Magh waseele pe gae te Phagan suah ho". We explained the farmer about the purpose of our visit and the exercise. The farmer chose *desi* (local) months. The farmer made the diagram with the help of grains of wheat (the available material on a short notice). The calendar was made in a farmer's house in Nawan Pind. A hen and chicks tried to sabotage the calendar but we managed to control them.

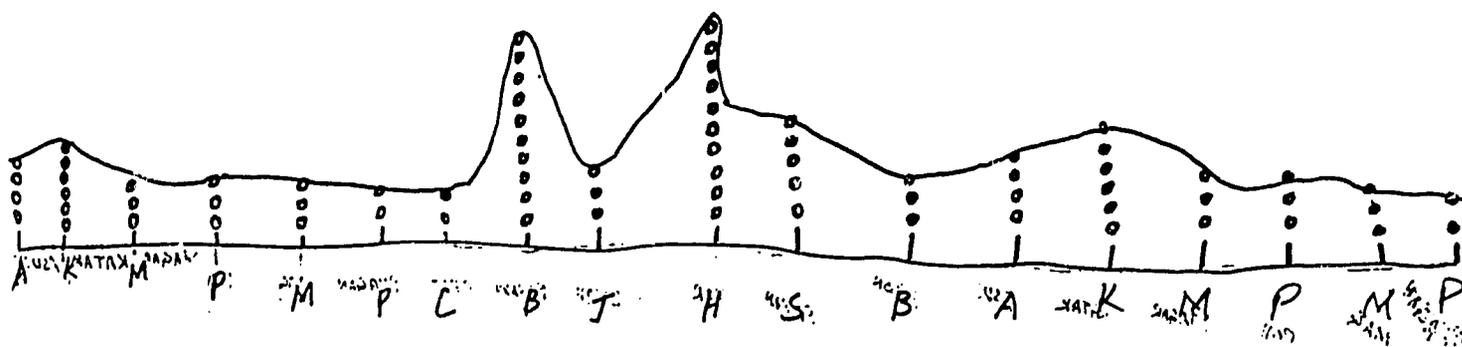
Key findings:

Two months (Besakh and Harr) are peak seasons whereas Katak and Sawan come at second and third respectively.

LABOUR SEASONAL CALENDAR (DESI MONTHS)

Drawn by:

M. Tufail Cheema
Small Grower (non-potato)
Nawan Pind (Aroop)



CROPPING PATTERNS AND PREFERENCES

28. Seasonal Calendar of Rainfall

13/2/92

Who involved: Khushi Masih (small potato-growing landholder with 10 acres) and another small landholder

Facilitators: Rashida Dohad, Mr. M. Mukhtar, Mr. Khalid Bajwa, Ms. Irene Guijt

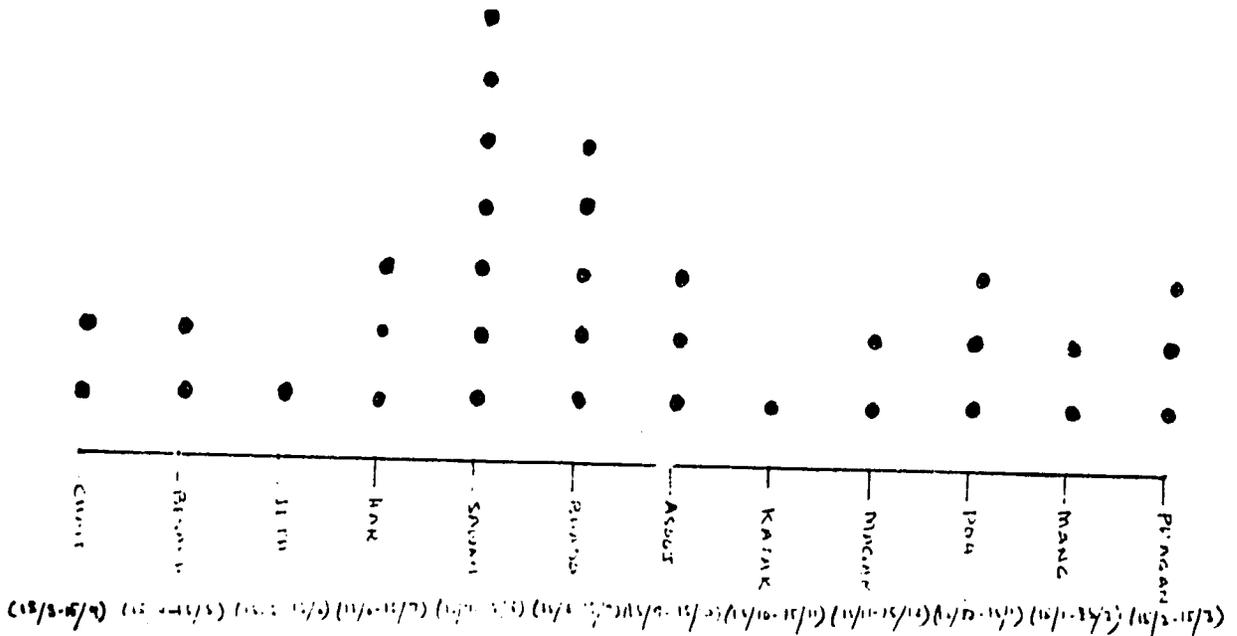
Materials: Ground and pebbles

Process:

This calendar was done on a very cold, windy day in the middle of a small road between fields in Aroop. It had rained the previous day making the road slippery and messy. Material was difficult to find since there was standing water all around us. The strong wind did not help matters. The farmer started the calendar in European months but soon got so confused that we had to scrap the whole thing and start all over again with local months. We had started probing the rainfall pattern through SSI but found that using this technique encouraged the farmer to give more attention to details and helped him in focusing on each month separately. The whole exercise took about 20 minutes.

Key findings:

It rains the most during July-August and least in second half May-first half June and second-half October-first half November.



SEASONAL CALENDER FOR RAINFALL. ANALYST = KHUSHI MASIH (SMALL LANDHOLDER - ON CONTACT)
 MATERIAL USED: PEBBLES
 NOTE: FARMER USED LOCAL CALENDAR. APPROXIMATE CORRELATING EUROPEAN DATES PUT BY PRA TEAM

29. Seasonal Chart of Changes in Rainfall Pattern

16/2/92

Who involved: Mufti Tamizuddin medium potato grower and banker, Perween Fatima, (house wife), Naseem Fatima, (housewife), Saifuddin, (student), Deen Mohammad, (small farmer)

Facilitators: Rashida Dohad, Mohammad Habib, Hamidullah Jan, Richard Eberlin

Materials: Paper sheet, marker.

Process:

The diagram was made by the group themselves on paper sheet. They were all educated except one farmer Deen Mohammad who helped more in recalling the information. The group was first asked to give information on any potato diseases. They said that blight disease has been more important in recent years. They were asked for the reason and causes of the problem. They replied that this may be due to the changes in rainfall pattern. Then we asked "*Why don't you show on the paper sheet how the rainfall pattern has changed?*". Then they discussed between themselves and one person started drawing the chart after having decided about the amount of rainfall they received during previous (15 years ago) and recent years. The women took an active part in recalling the data and stressed some changes which were confirmed by the illiterate old farmer. This group of farmers/informants belonged to the settlement Mafiwala in Aroop.

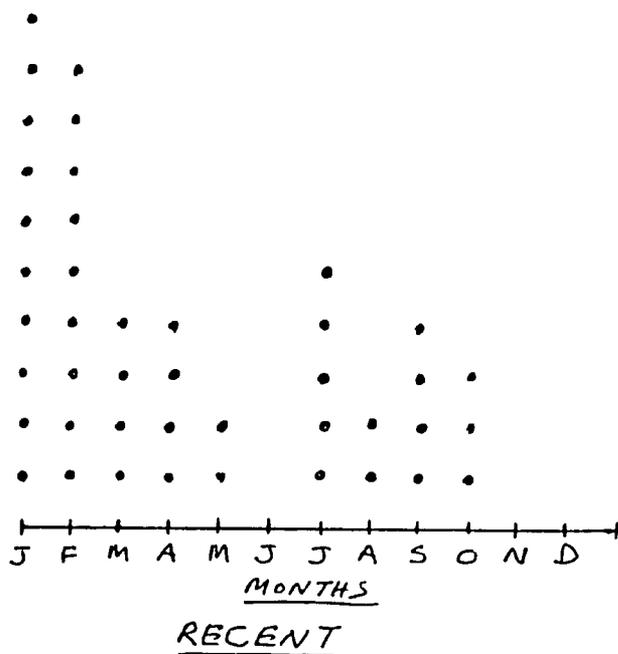
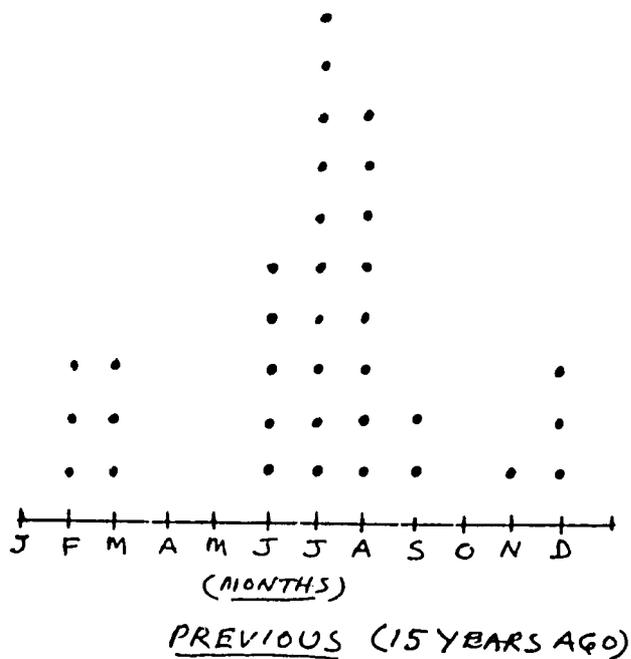
Key findings:

The seasonal calendars on rainfall pattern indicate that they received highest rainfall in July followed by August during the previous years, whereas in recent years they received more rainfall during the month of January and February followed by March and April. The pattern in recent years coincides with cropping season of spring potatoes. The high amount of rainfall during the months January to April provides high humidity which is required for the development of late blight disease of potato. The farmers are correct to say that the late blight disease of potato has been severe and damaging during the recent years as compared to the previous 15 years ago. Their view that this may be due to changes in rainfall pattern seems to be very much correct.

During the previous years, they had little rains during both the spring and autumn potato growing season. So due to less humidity there were little or no chances for the development of late blight at that time.

*When a bird "chepu" sings often then it rains.
When a sparrow takes bath in dry sand then it rains.*

ON
SEASONAL CHART / CHANGES IN RAINFALL PATTERN
AT MAFI WALA, AROOP, GUJRANWALA.



ANALYSTS

- Mufti Tanniguddin Farmer
- Bauwal.
- Parween Fatima House
- Wife
- Naseem Fatima "
- Saifuldin Student
- Deen Mohammad Farmer

Date: 16 Feb. 1992.

30. Crop Rotation Squares

12/2/92

Drawn by: Rana Bashir Ahmed, medium potato grower

Facilitators: Javed Anwar, Hamidullah Jan, Mohammed Habib, Mukhtar Ahmed and Shaukat Ali

Material used: Pen and paper

Process:

We entered the yard of a house surrounded by a compound wall and introduced ourselves to the farmer explaining the purpose of our visit. During discussion we asked him to draw map of his field and write crops which are being grown on his field.

Key findings:

He grows six different kinds of crops. The most important crops are rice, wheat and potatoes. Important crop rotations are:

- Rice - wheat
- Rice - potato
- Maize - potato

RANA BASHIR AHMAD
TRIAL FARMER
LAND HOLDING: 17 ACRES

GHALLAH BINDER, AROOP (EACH SQUARE REPRESENT 1 ACRE)

12-2-92

CROP ROTATION SQUARES (7.6)

RICE PEAS	RICE PEAS	RICE EGYPTIAN CLOVER	RICE WHEAT
RICE POTATO	RICE PEAS	RICE EGYPTIAN CLOVER	RICE EGYPTIAN CLOVER
MAIZE (FODDER) POTATO	MAIZE (FODDER) POTATO	RICE POTATO	RICE POTATO
RICE WHEAT	RICE WHEAT	RICE WHEAT	RICE WHEAT
			RICE WHEAT

- 1- KHARIF (SUMMER)
2- RABI (WINTER)

32. Seasonal Calender for Crops and Labour (with women, small land holding)

12/2/92

Analysts: Rehana Bibi, Khurshid Bibi, Rahmet

Facilitators: Marheb Qasmi, Rashida Dohad, Maliha Khan, Irene Guijt

Process:

This calendar was done in Khurshid Bibi and Rehana Bibi's house and took 30 minutes. All informants were actively involved and there was some discussion before a decision was taken on crop production for each month. The problem faced by PRA team was that the women were more comfortable with the local calendar (called *desi Bikrami*). They were not ignorant of the European calendar month. Use of the local months helped the PRA team to better understand the local thinking process and subsequent use by the team in later exercises helped to accelerate the rapport building process. Since various techniques had been tried out by PRA team with this set of informants, we had to wind up our whole exercise when the old lady had to cook the food for evening meal.

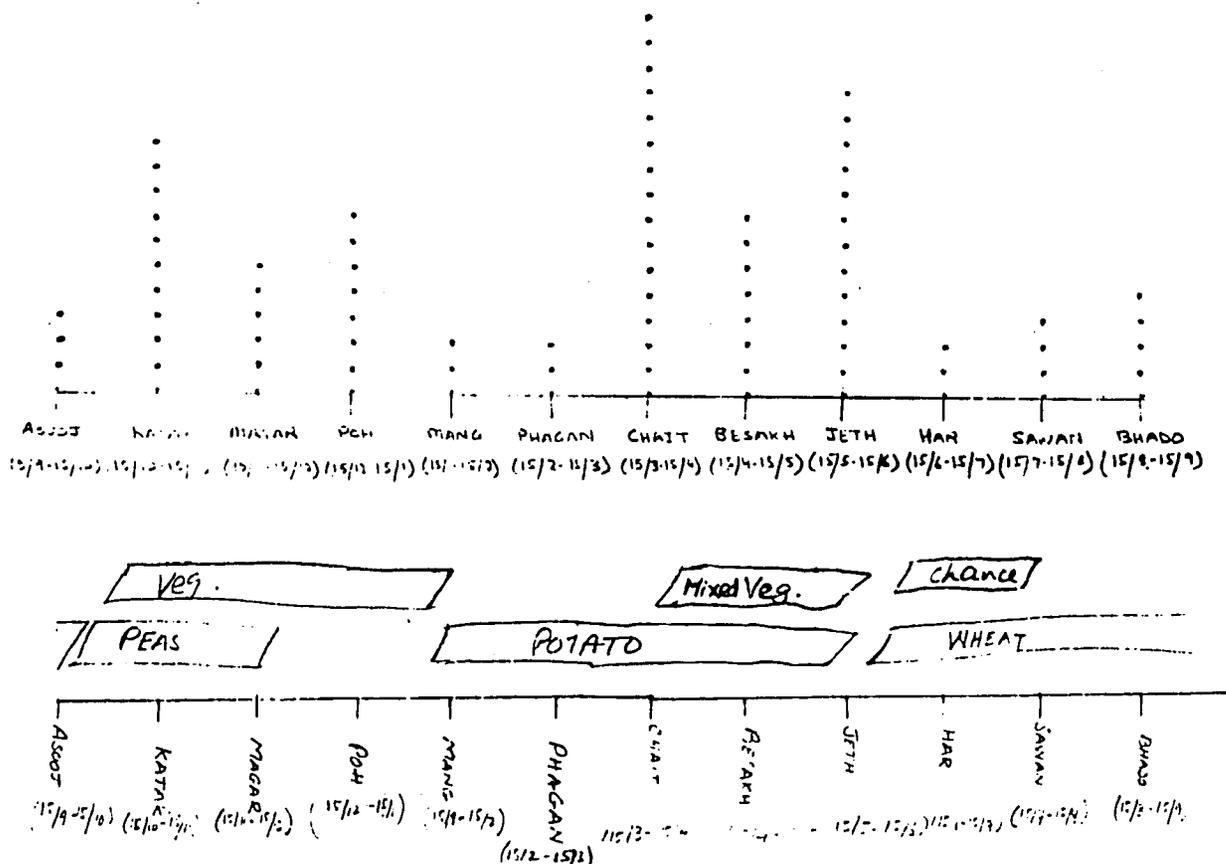
Key findings:

Farmers (women) used *desi* calendar. They were growing more potatoes and wheat. Women of poor farmer household do agricultural work, more help during the harvesting/digging seasons.

SEASONAL CALENDER - LABOUR (FARMING WOMEN)

MAKING MATERIAL: PEAS

NOTE: WOMEN USED LOCAL CALENDER MONTHS. PRA TEAM HAS PUT APPROXIMATE CORRESPONDING EUROPEAN MONTHS IN BRACKETS



SEASONAL CALENDER FOR CROPS (WITH WOMEN)

- LAND HOLDER = KHURSHID BIBI & DAUGHTER
- MATERIAL USED: POTATO, PEAS, WHEAT, CHINESE

33. Seasonal Crop Calendar

12/2/92

Drawn by: Nazir (small farmer-potato grower), Anwar (small farmer-non-potato grower), Iftikhar (school boy).

Facilitators: M. Ashraf Sahibzada, M. Habib

Material: Chalks, stones, leaves of berseem

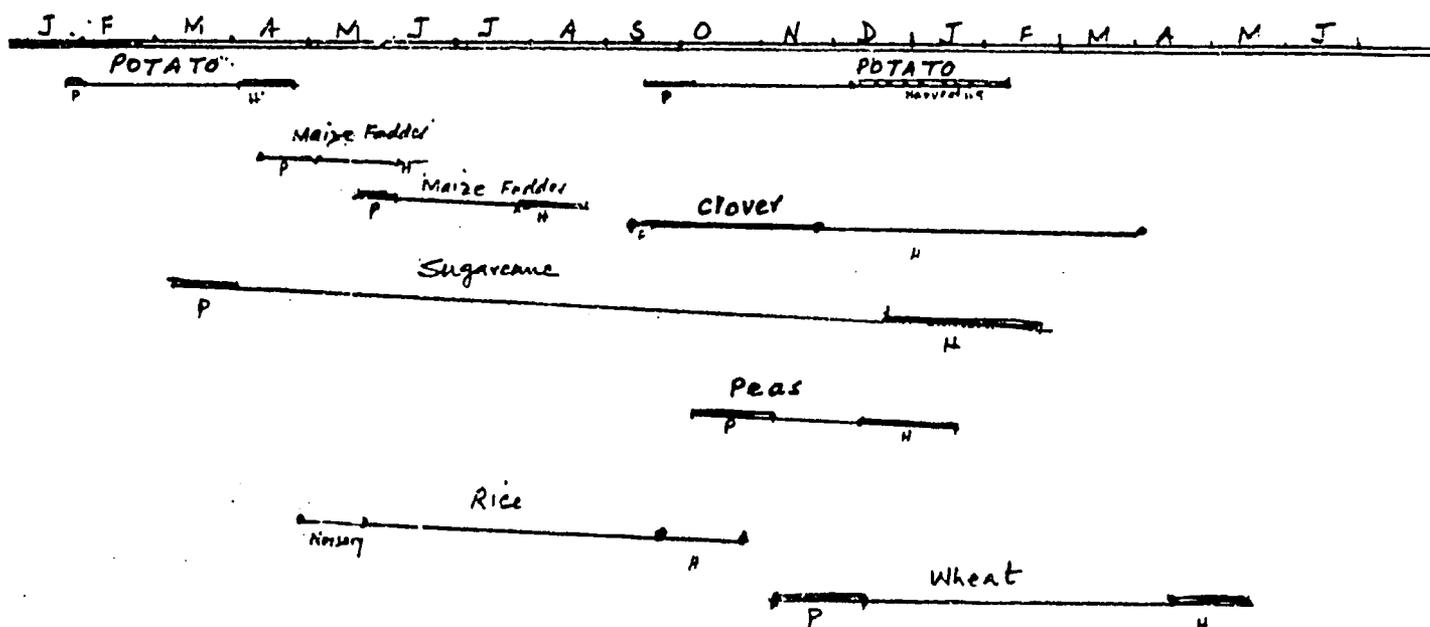
Process:

The exercise was carried out on the lawn of a big house of a farmer in front of a boy's school. The English calendar was chosen by the farmers. The farmers selected stones and leaves of berseem to differentiate the planting and harvesting seasons. A calendar of crops grown by the farmers was drawn. The process took 15-20 minutes. The school boy in the last moments of the exercise joined the farmers.

Key findings:

Two crops of potato, two crops of maize (fodder) and one crop each of peas, rice, sugar cane. Clover and wheat are grown in a year. Peas followed by potato are the short duration crops whereas sugar cane, wheat and rice have longer duration. Within a year they have many crops which fit into the seasonal pattern and in any area the following crop depend to some extent on the proceeding crop. It is easy from the calendar to understand the prevailing cropping pattern of the village.

SEASONAL CROP CALENDAR



Drawn by - Mr. Nazir
 - Mr. Anwar
 - Mr. Iflikhar

34. Seasonal Crop Calendar

13/2/92

Who involved: Nayar Ahmed Bhinder, Masood Ahmed Bhinder, small potato growers

Facilitators: M. Ashraf Sahibzada, Hamidullah Jan, Shaukat Ali Arain, Maliha Khan

Materials: Drawing sheets, markers

Process:

We explained the exercise to the farmer who drew the map on drawing paper with the help of other small potato grower.

Key findings:

Potato spring crop grow in Jan. and harvesting in mid of April. Potato autumn crop sown in mid Sept. and harvest in mid week of February.

Berseem: sowing in first week of Sept. and last cutting mid May.

Wheat: sowing in first week of November and harvesting in mid May.

Maize fodder: sowing in first week of April and harvesting in mid June.

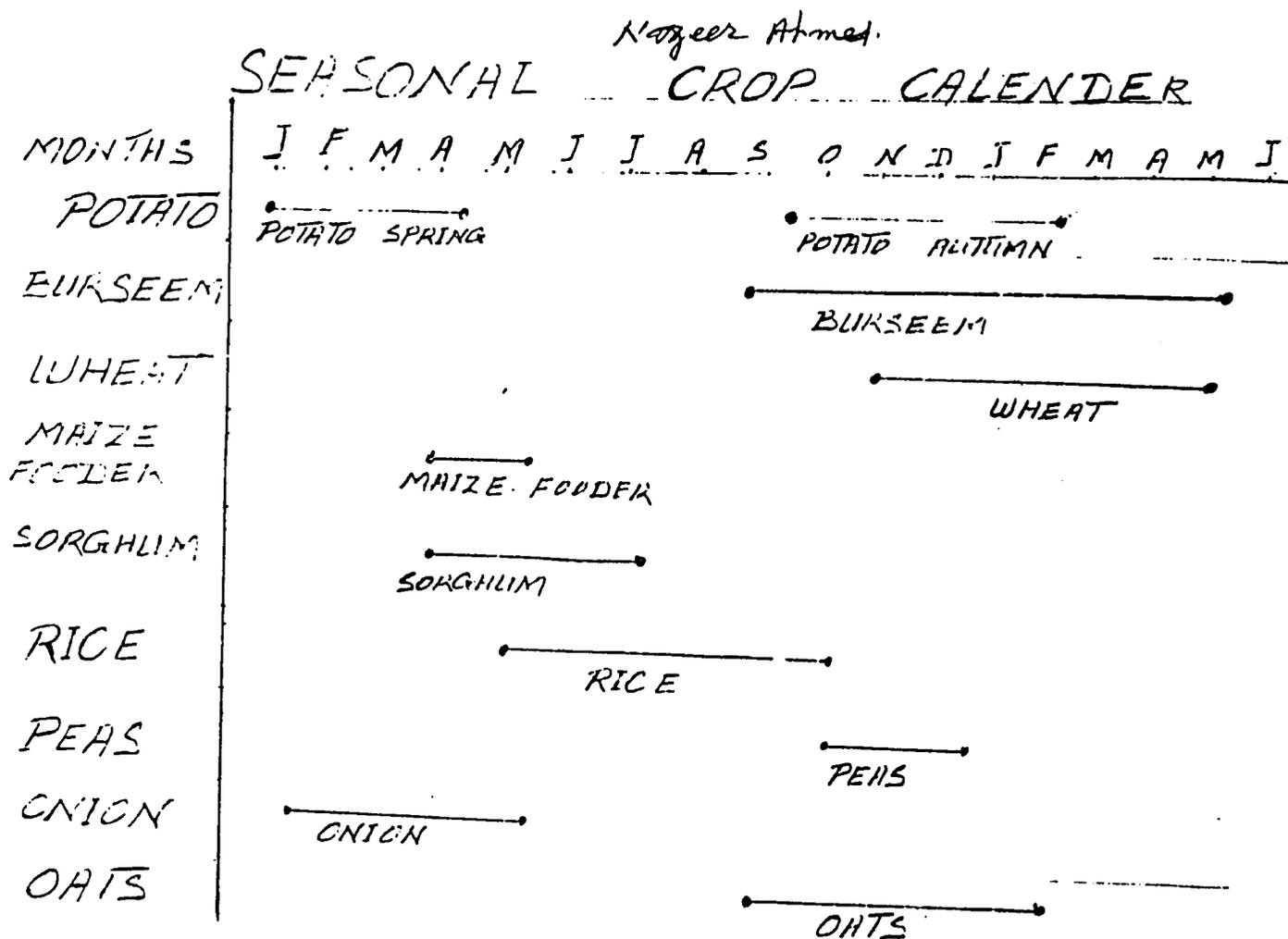
Sorghum: sowing in first week of April and harvesting in mid July.

Rice: Arising in nursery in the month of May and transplanting in the month of June and harvesting in last week of November.

Peas: seed sown in mid October and last picking in last week of January.

Onions: nursery grown in the month of Dec. and transplanting in first week of Jan. and harvesting in mid May.

Oats: seed sown in first week of September and harvesting in mid February.



35. Crops Seasonal Calendar, Aroop

13/2/92

Who involved: Mohammad Riaz, large farmer but non-potato grower

Facilitators: Maliha Khan, Javed Anwar, Hamidullah Jan, Richard Eberlin

Materials: Paper and marker

Process:

The farmers were busy harvesting the fodder in the field when we came across them during the transect walk. We asked them to tell us about the cropping pattern for an 18 month calendar. One of them agreed to give us time and the others were busy but took active part in giving information. No changes were observed during the chart-making. The discussion was done in the field on the eastern side of Aroop town.

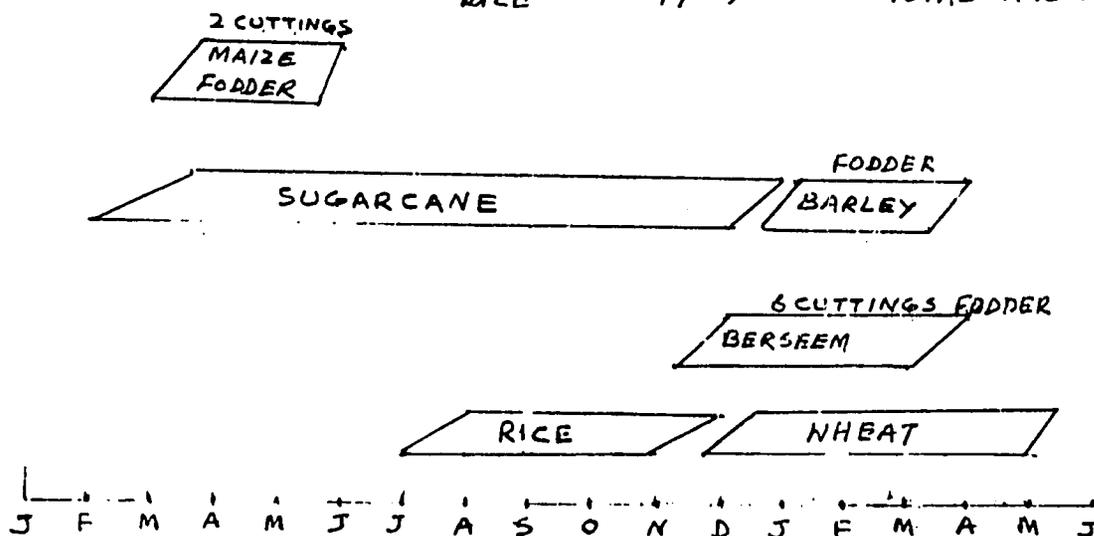
Key findings:

The seasonal calendar for crops indicate that the sugar cane is a long duration crop planted in February and harvested in December while maize and barley are fodder crops covering the land for a short season. They plant maize as a late spring fodder and barley as early spring fodder. Another fodder crop, berseem, is planted in November and after six cuttings it ends in March. Rice is planted in July and harvested in November when they plant wheat on the same field with residual moisture and which is then harvested in April-May.

CROPS SEASONAL CALENDAR (AN INTERVIEW WITH FARMER)
ARUP, GUJRANWALA

CROP	AREA
BERSEEM	16 ACRES
BARLEY	2 "
WHEAT	5 "
SUGARCANE	2 "
RICE	17 "

FARMER: M. RIAZ
(NON-POTATO)
TOTAL LAND = 25 ACRES.



37. Crops Calendar (Desi months)

13/2/92

Who involved: Malik Muhammad Boota, potato grower, (owning 6 acres of land)

Facilitators: Muhammad Habib, M. Ashraf Sahibzada, Marheb Qasmi, Shaukat Ali Arain

Material: Paper, pencil

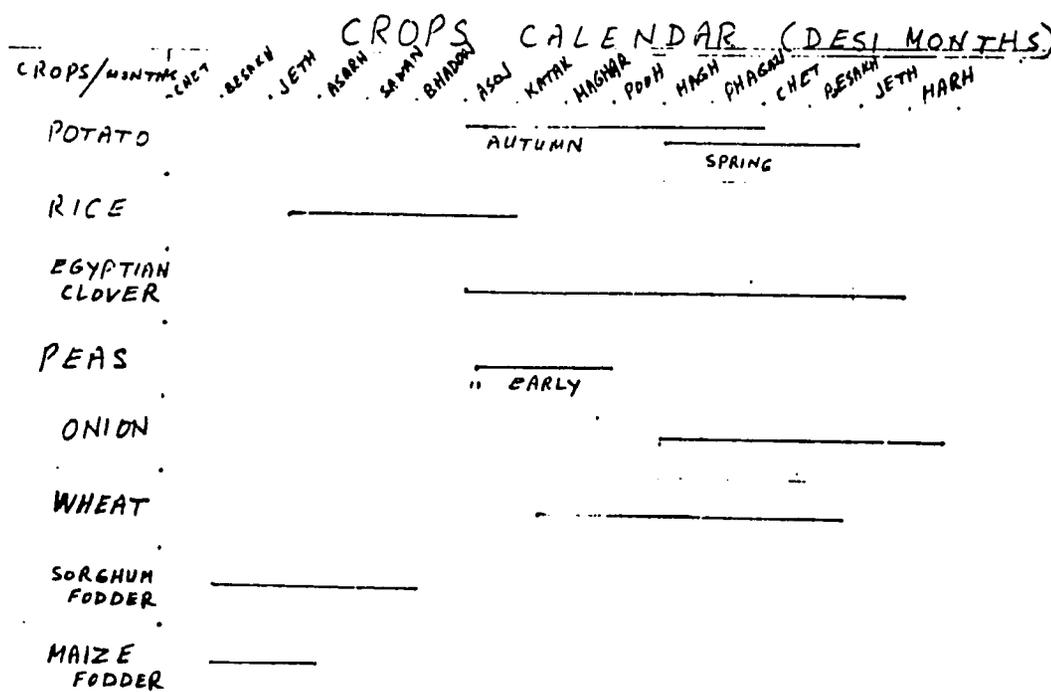
Process:

We visited the farm of Malik Muhammad Boota of Nawan Pind. He had just come from cutting the fodder. He was asked to give information about crops. He agreed and gave the information.

Key findings:

The farmer was illiterate and the soil was wet due to rains so the information could not be recorded by him on the ground. So we got the information in a semi-structured interview. He grows potato, rice, egyptian clover, peas, onion, wheat, sorghum for fodder and maize fodder. According to him potato crop (autumn) is sown in Asooj and is harvested until the end of Phagan. Spring crop of potato is sown in Magh and is harvested in Besakh. Rice crop is sown in the middle of Jeth and harvested to the end of Asooj. Egyptian clover is sown in the beginning of Asooj and it continues to the end of Jeth. Early peas are sown in the second week of Asooj and goes to the end of Maghar. Onion is sown in Magh and harvested in Har. Wheat crop is sown in the middle of Katak and harvested to the end of Besakh. Sorghum for fodder is sown in Besakh and harvested to the end of Sawan while maize crop (fodder) is sown in the beginning of Besakh and is harvested to the end of Jeth.

The farmer is illiterate but well aware of cropping seasons and getting enough income.



INTERVIEW WITH MALIK MUHAMMAD BOOTA

DRAWN BY PRA TEAM AS THE SOIL WAS WET.

(SEMI STRUCTURED INTERVIEW)

38. Crop Distribution in Aroop for Sowni (summer) and Hari (winter) Seasons

13/2/92

Who involved: Altaf Hussain Bhinder (medium - 25 acres - land holder, potato grower), Shah Mohammad (small - 8 acres - land holder, potato grower), Ghulam Sabir Bhinder (small - 15 acres - land holder, potato grower)

Facilitators: M. Mukhtar, Rashida Dohad, Khalid Bajwa, Irene Guijt

Material: Cut fodder and rice straw

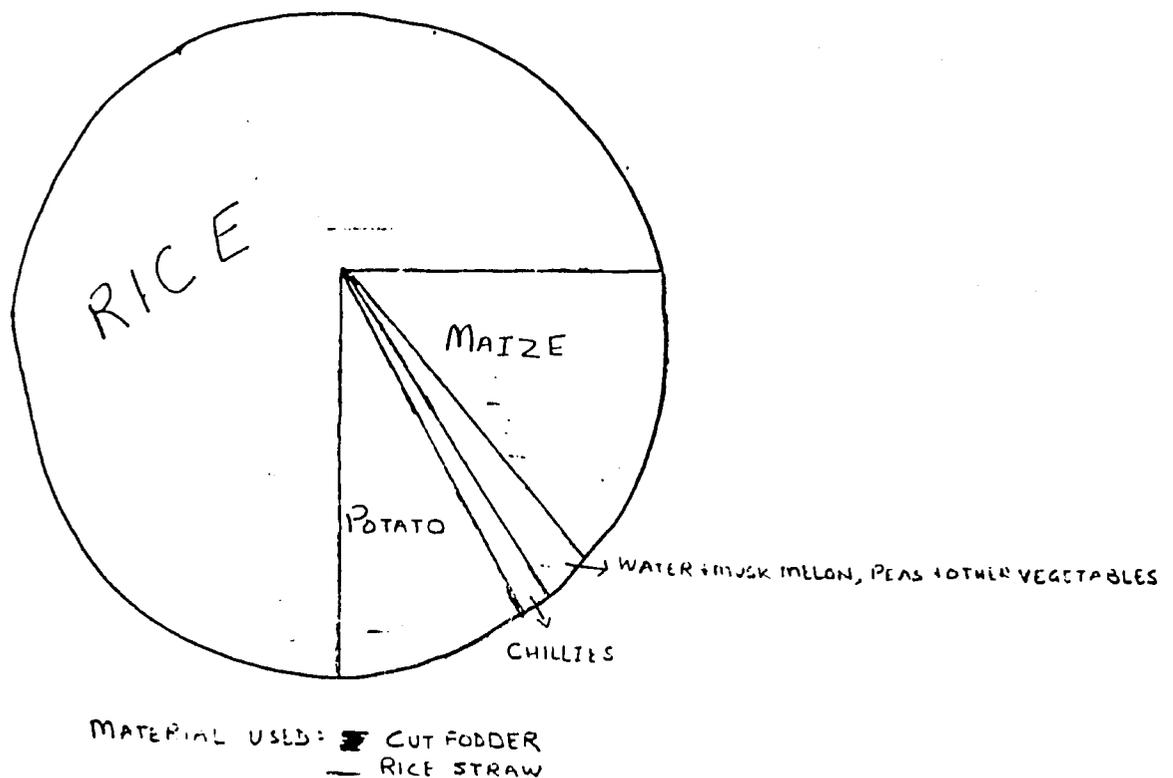
Process:

Once the concept of a pie chart was explained by the PRA team and cut fodder was put in a pie shape on the ground, the remaining process was a piece of cake. The farmers were intelligent and interested. At one point, when a member of a PRA team misinterpreted the information given by the farmer, he immediately corrected the PRA member. This showed the keenness and attention with which the farmers were doing the exercise. After the first pie chart on summer crops was completed, the farmers decided to do another one on winter crops. Our material (cut fodder) for the pie had by this time disintegrated into a rectangle. The farmer started making portions of the rectangle according to the area under cultivation of a particular crop. The PRA team decided to be flexible and let the "pie" chart be done in a rectangle shape.

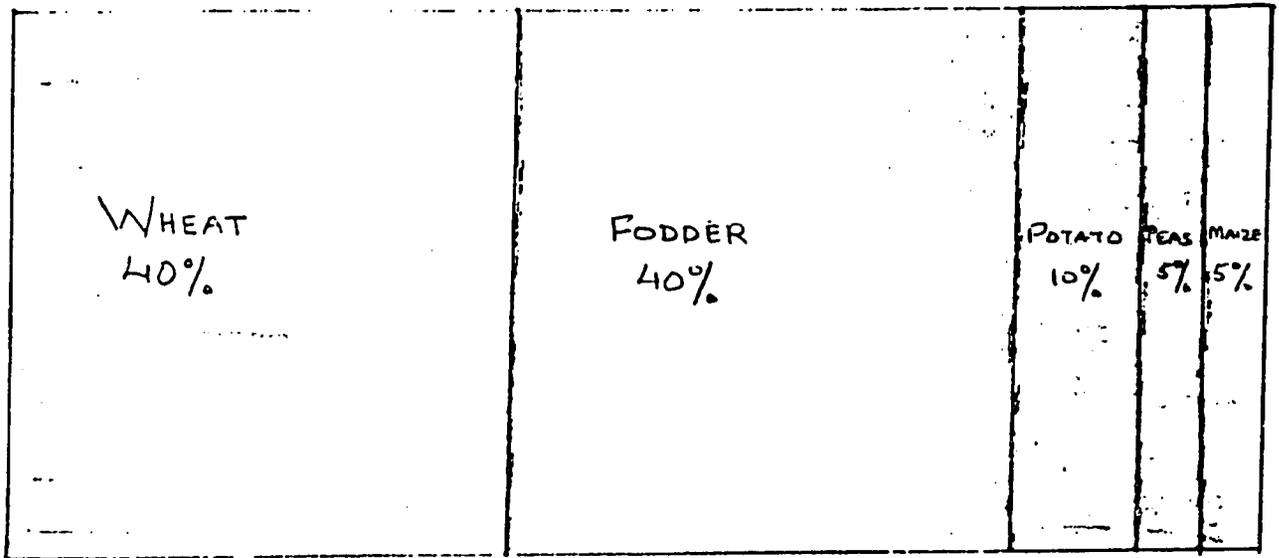
Key findings:

One of the analysts, Ghulam Sabir Bhinder, was a disillusioned police officer. He had quit police service due to rampant corruption and misuse of authority by the police department he had been associated with. He had turned to farming his family lands after his resignation from the police service.

PIE DIAGRAM SHOWING CROP DISTRIBUTION (BY AREA) OF AROOP FOR SOWNI (SEASON)
ANALYSTS: ALTAH HUSSAIN + SHAH MOHAMMED (FARMERS)



DISTRIBUTION DIAGRAM SHOWING CROP DISTRIBUTION (BY AREA) OF AROOP FOR HARI (SEASON)
 ANALYSTS: GHULAM SABIR SHINDER, ALTAH HUSSAIN & SHAM MOHAMMED (FARMERS)



MATERIAL USED:  CUT FODDER
 RICE STRAW

39. Crop Preference Matrix by Weighing Criteria

13/2/92

Drawn by: Nazir Rana, Akram Bhinder, Rehmat Cheema, all small potato growers

Facilitators: Ashraf Sahibzada and M. Habib

Material: Chalk and coloured cards

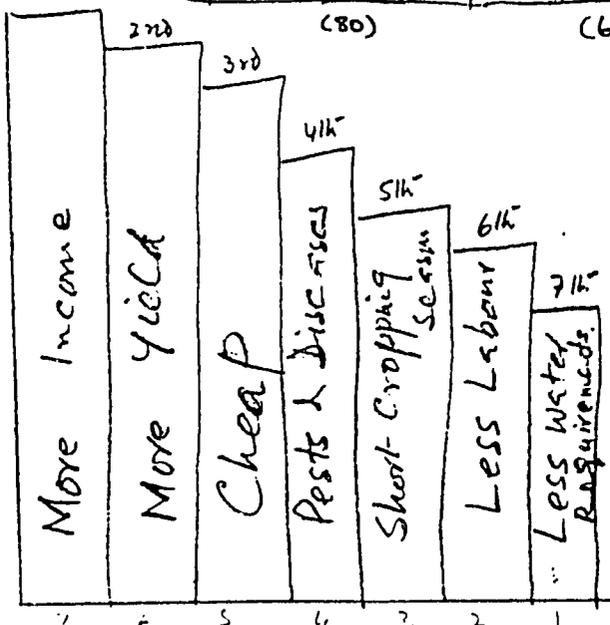
Process:

The exercise was done at a *dera* of a farmer. The matrix was drawn on the ground and the criteria were chosen by the farmers. The process took 25-30 minutes. The ranking of criteria was also done by the farmers which took 5 minutes.

Key findings:

Peas and potatoes are ranked at the top as preferred by the farmers based on the weight of different criteria. Potato and peas have great competition, whereas rice and wheat come on the same level. Among seven criteria, income and yield come on the top with lower irrigation needs as the least important.

CRITERIA	Potato	Rice	Wheat	Peas
More Yield 6	24	18	6	12
Cheap 5	5	15	20	15
Short-Cropping season 3	9	6	3	12
Less Disease 4	4	8	16	12
Less Labour 2	6	2	8	6
Less Irrigation 1	2	1	4	3
More Income 7	28	14	7	21
1st	(80)	(64)	(64)	(81)



CROP PREFERENCE MATRIX

By weighing Criteria

Drawn by:
Mr. Nazir
Mr. Akram
Mr. Rehmat

40. Pair-wise Ranking of Crop Preference in Same Season

13/2/92

Drawn by: Nazir Rana and Akram Bhinder

Facilitators: Ashraf Sahibzada, Shaukat Ali, Khalid Bajwa

Material: White paper and pencil

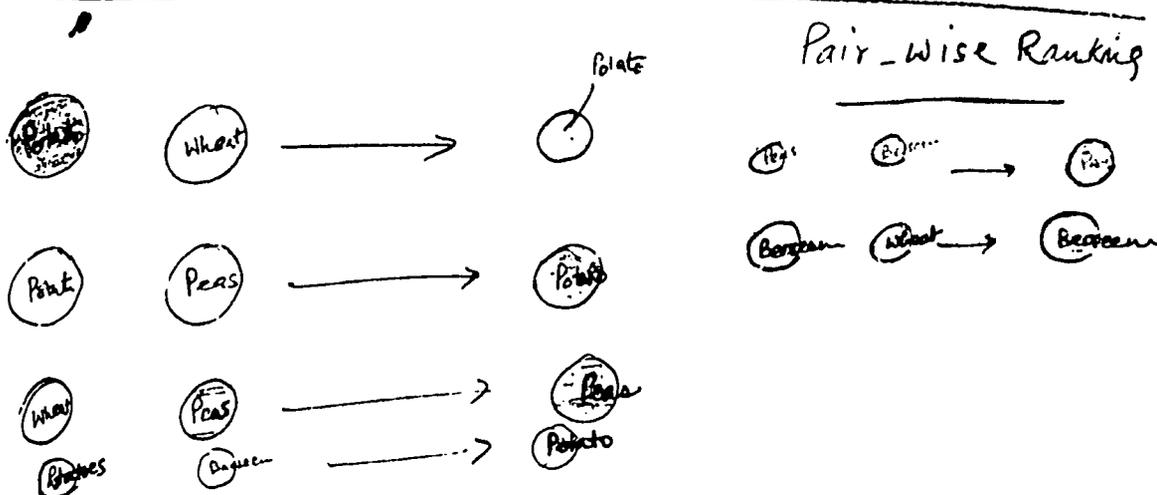
Process:

Pair-wise ranking was done by the farmers. The material was chosen by the farmers and facilitators unanimously.

Key findings:

Potato is ranked first, followed by peas, berseem and wheat.

CROP PREFERENCE IN SAME CROPPING SEASON



Results

- 1 Potato
- 2 Peas
- 3 Berseem
- 4 Wheat

Drawn by:

Nazir Rana
Akram Bhinder

41. Crop Biography of Potato Varieties

16/2/92

Analyst: Ali Hassaan, 5 acre potato grower

Facilitators: Marheb Qasmi, Javed Anwar, Mohammed Ali

Key findings:

- Ultimas:** Since 1960's
 First seed from Balakot
 Produces 70 bags per acre
 Uses less fertiliser and has less disease incidence
 Seen first on neighbour's farm
- Desiree:** Since 1970's
 Saw when visiting neighbours' fields. After asking where it came from, found out that Agriculture Department, from which they then asked seed.
 First produced 80/90 bags per acre, now increased to 120 bags/acre with use of fertilizers.
 If source of seed is from abroad, good yield; if local seed less yield. Local seed has many more diseases.
- Chitta**
 (white) Started in 1980.
 Produces 120 bags/acre. During cultivation and harvesting, found white potatoes mixed with other varieties in his own field. He then went to the market and asked the Commission agents to get him these white varieties.

Now he prefers the Desiree (imported seed) because it gives good yields and is more suitable to the soil and climate.

In the early days his potatoes had few diseases, but now, with the application of fertilizers, the potatoes had many diseases. Diseases in humans have also gone up. He uses DAP, nitrogen and phosphate but no farmyard manure.

42. Matrix on Potato Varieties in Aroop

13/2/92

Who involved: Amanullah, small potato grower 4 acres and Abdur Rashid, small potato grower 3 acres
 Facilitators: Javed Anwar, Maliha Khan, Richard Eberlin
 Material: Paper sheet, rice grains, wheat grains, marker

Process:

On a transect walk in Bindran Mohallah, Aroop, two farmers were asked about potato varieties they grow and why they like these. They grow only two varieties: Desiree and Balakot. Balakot is not a variety name but they get the seed from Balakot and did not know the name of the variety. Then they were asked about the criteria; "Which do you like most and why?" Both of them were involved and the criteria as size, colour, yield, early emergence and taste for which they prefer one above another were defined. The variety names and criteria listing were written on the paper sheet with a marker after they had decided on them. They brought rice grains and put heaps for each variety and criteria. At this time, the wind started blowing and all the rice grain heaps were disturbed and mixed. Then they thought that wheat grains might be more heavy to be blown away by wind.

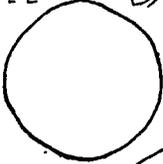
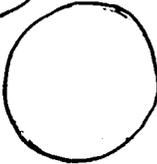
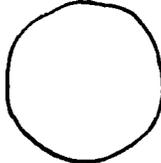
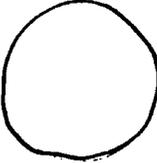
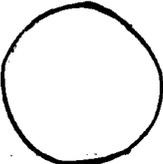
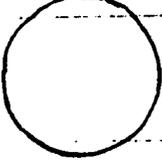
So they started new small and large heaps of wheat grains for those variety. They put a large heap for the variety preferred more, regarding each criteria. In the middle they discussed some minor changes. Then they were asked to show overall preference for the variety they like most.

Key findings:

The matrix on two potato varieties indicate that the variety Desiree is most liked regarding over-all preference, and for each of the criteria like size of potatoes, colour, yield, early emergence, and taste.

AMANULLAH } MOHALLAH BHINDEK (CIRCLES REPRESENT SIZE OF HEAP OF WHEAT)
 ABDUR RASHID } AROOP 13-2-92

MATRIX IN POTATO VARIETIES (3:1)

CRITERIA	DESIREE دیسیرے	BALAKOT (ULTIMUS) الٹیمس
SIZE سائز		
COLOUR رنگ		
YIELD پیداوار		
EARLY EMERGENCE جلدی نکلنا		
TASTE ذائقہ		
OVERALL PREFERENCE		

43. Pie Diagram of Number of Potato Growers, Nawan Pind

16/2/92

Drawn by: Ghulam Nabi Cheema, Namberdar, (large farmer 730 acres) and Barkat Cheema, (small farmer, potato grower)

Facilitators: Ashraf Sahibzada, Khalid Bajwa, Maliha Khan, Shaukat Ali

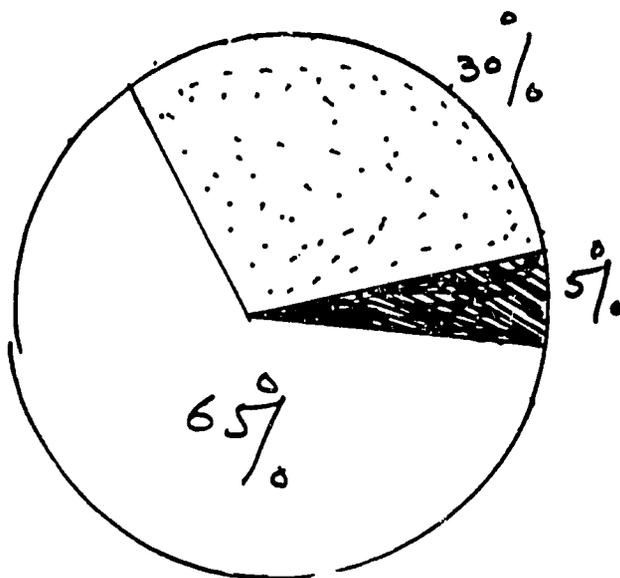
Material: Stick

Process:

The exercise was done at the *dera* of a small potato growing farmer. The Numberdar of the village also came there and joined us at the start of the exercise. The stick was held by the Numberdar who drew the pie diagram on the ground. The process took only 3-5 minutes.

Key findings:

Only 5% of the total inhabitants are potato growers, whereas 30% are not growing potatoes. The remaining 65% of the inhabitants are not directly involved in agriculture.

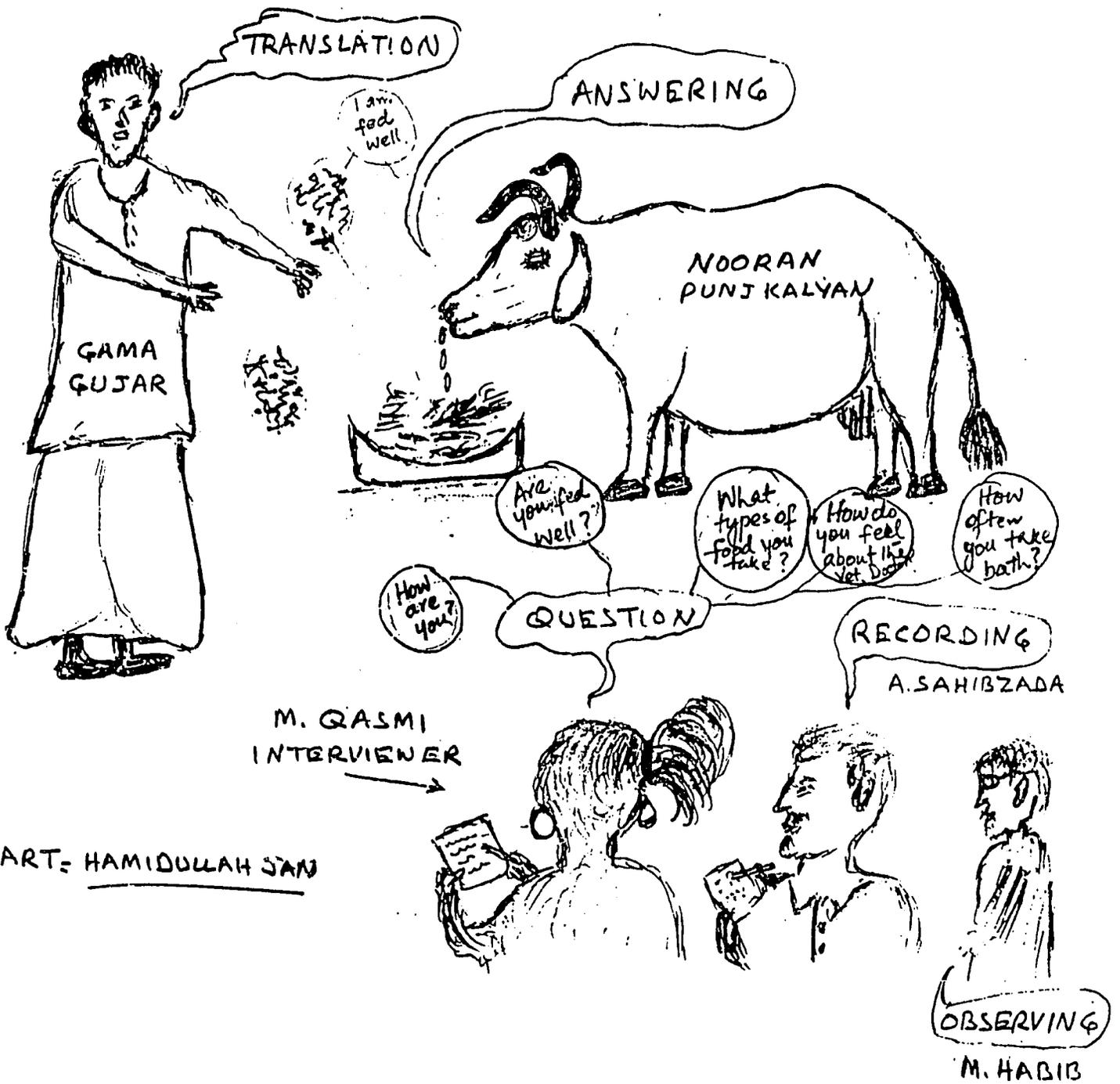


30% = Non-Potato
Growers

5% = Potato
Growers

65% = Others
(Not involved
in crop
production)

AN INTERVIEW WITH NOORAN



45. Fodder Availability to Milk Animals (Desi seasonal calendar)

13/2/92

Drawn by: Gama Gujar, Rehmat Gujar and Ghani Malik (small tenants keeping 15 buffaloes)

Facilitators: Ashraf Sahibzada, Marheb Qasmi, M. Habib, Shaukat Arain

Material: Chalk of different colours

Process:

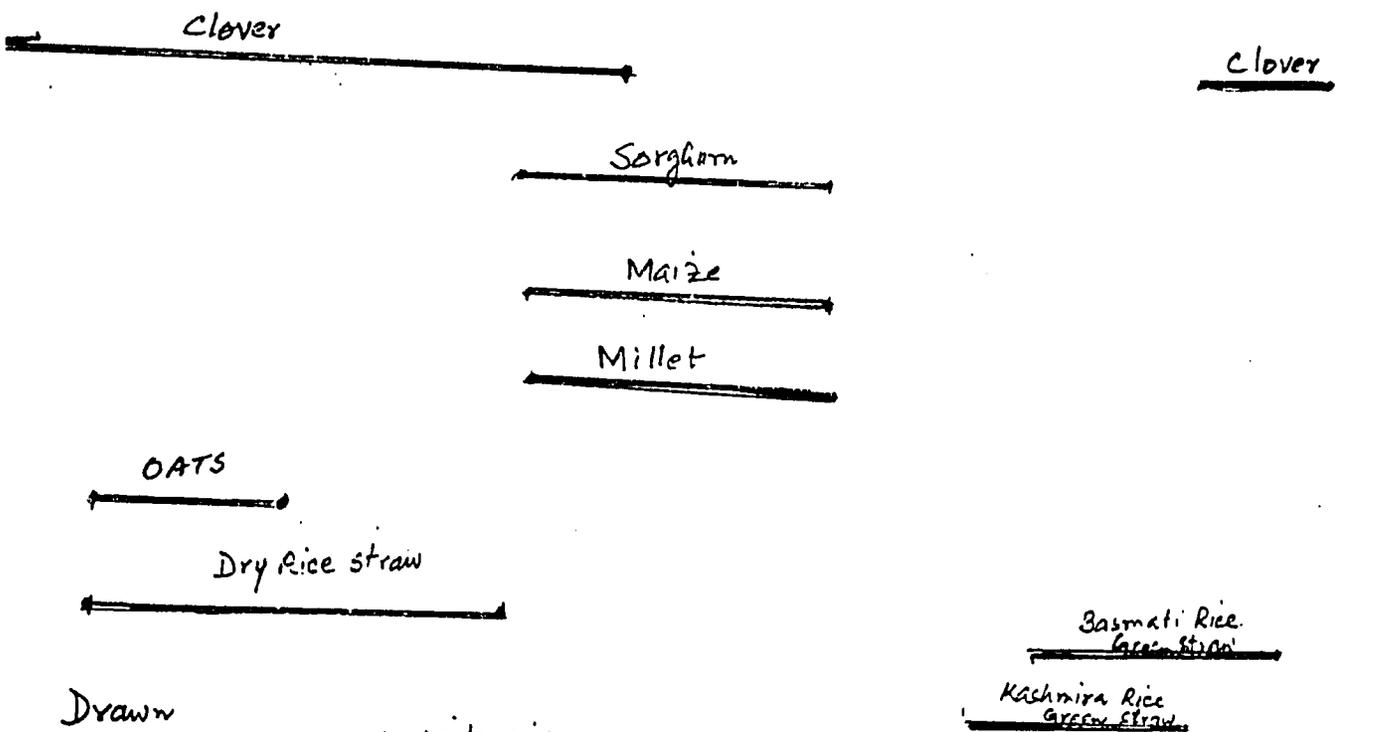
The exercise was done in a *dera* of one farmer. The material and *desi* calendar were selected by the farmers and calendar drawn on the ground. Three farmers did this exercise in 20-25 minutes.

Key findings:

There are a number of different types of fodder available in a year. Clover remains available for the longest duration, followed by dry rice straw. Sorghum, maize and millet remain available for 3 months (Jeth, Harr and Sawan). No green fodder is available in one month (Bhadoon).

FODDER AVAILABILITY TO NOORAN
(DESI CALENDAR) PUNJ KALIAN (BUFF) F.O.E.

PÖH, MAG, PHAGAN, CHET, BISAKH, JETH, HARR, SAWAN, BHADOON, ASUT, KATAK, MAGHAR



Drawn based on semi-structured interview of Ghaman Gujar, Ghani Malik and Rehmat Ali Gujar

46. Fodder Preference Matrix

13/2/92

Drawn by: Gama Gujar, Rehnat, Malik Boota

Facilitators: Ashraf Sahibzada, M. Habib, Marheb Qasmi, Shaukat Ali

Material: Stones, dung cakes, dry rice straw and green berseem

Process:

The exercise was carried out in a *dera* on the ground. The material was selected by the farmers themselves. The criteria were suggested by the farmers. The ranking of the criteria was also done by the farmers. The process took half an hour because they had thorough discussions before reaching consensus.

Key findings:

Berseem (clover) is preferred to maize fodder. The criteria were ranked as: more income on the top followed by more yield, cheap, less disease incidence, short cropping season, less labour and less water requirement respectively.

Fodder Preference Matrix

	Maize (Fodder)	Berseem (Clover)
More Yield 6 6	0	12 0 0
Cheap 5 5	0	10 0 0
Cropping season short 3 6	0 0	3 0
Less Diseases 4 4	0	2 0 0
Less Labour 2 2	0	4 0 0
Less water Required 2 2	0 0	1 0
More income 7 7	0	14 0 0
	32	52

47. Effect of Fodder on Milk Yield

13/2/92

Drawn by: Gama Gujar and his mother, tenant of small land, non-potato grower
 Facilitators: Ashraf Sahibzada, Shaukat Ali, Marheb Qasmi, M. Habib
 Material: Chalk, small stones

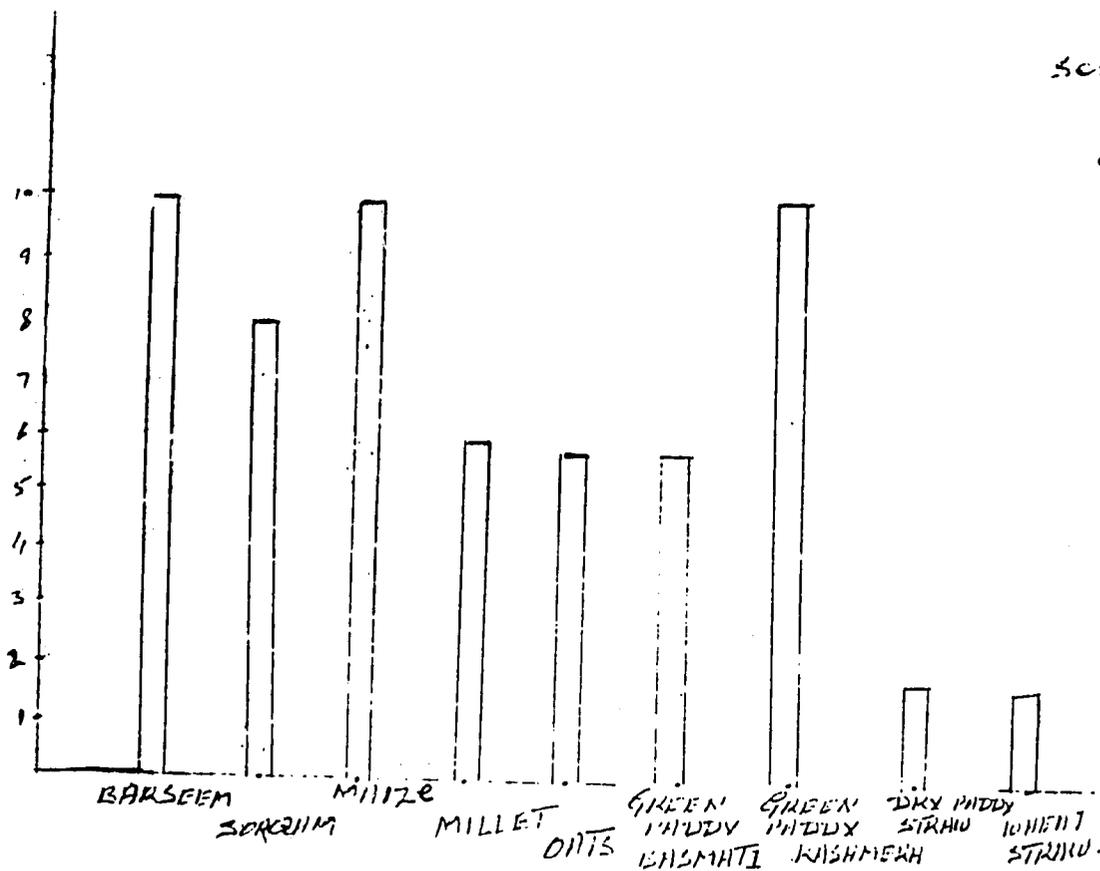
Process:

The exercise was done at the *dera* of a farmer on the ground. The material was selected by the farmer. The process took 10-15 minutes. The maximum production was suggested to be 10 litres of milk by the facilitators. There was no significant problem faced in carrying out the exercise.

Key findings:

Berseem, maize and green rice straw (of variety Kashmiri) have the same effect on milk production by which maximum milk is obtained. The least production of milk is gotten from dry paddy and wheat straw.

EFFECT OF FODDER ON MILK YIELD IN LITRES



48. Action Sequence Diagram Showing Action (after stealing of a buffalo)

16/2/92

Drawn by: M. Yousaf, farmer

Facilitators: Khalid Bajwa, Ashraf Sahibzada

Material: copy, pencil

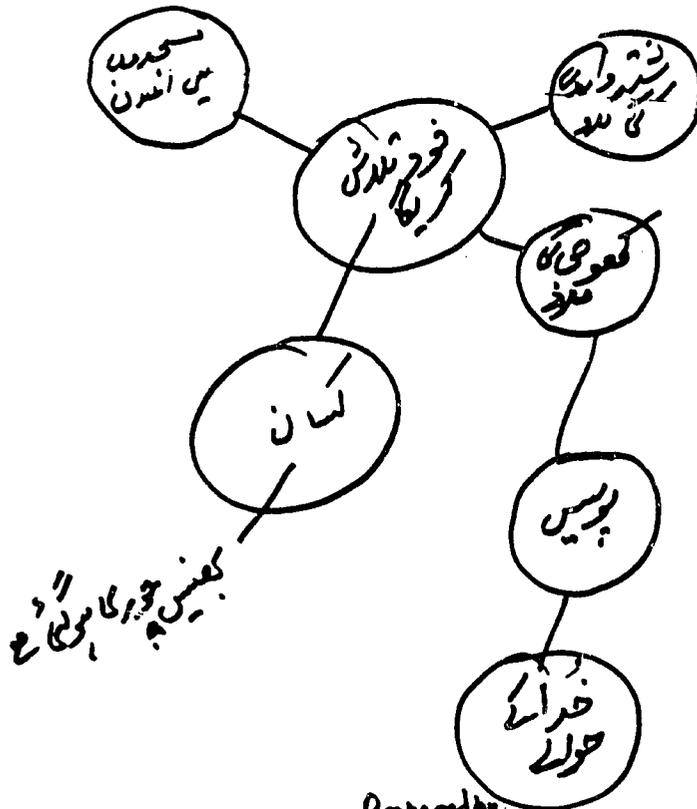
Process:

We explained to him the purpose of the exercise and posed him the question: "What would you do if your buffalo has been stolen?"

Key findings:

He has got number of options. He will try to find it himself by using:

- Mosques loudspeaker to announce the disappearance of his buffalo;
- Will follow the tracks of the buffalo with the help of a tracker. In case he fails, then he will report it to the police.



Prepared by
M. Yousaf
S/O Bhinder
M. Arshad Bhinder

FARMING SYSTEMS IN AROOP

49. Farm map of Mohammad Riaz (25 acres)

13/2/92

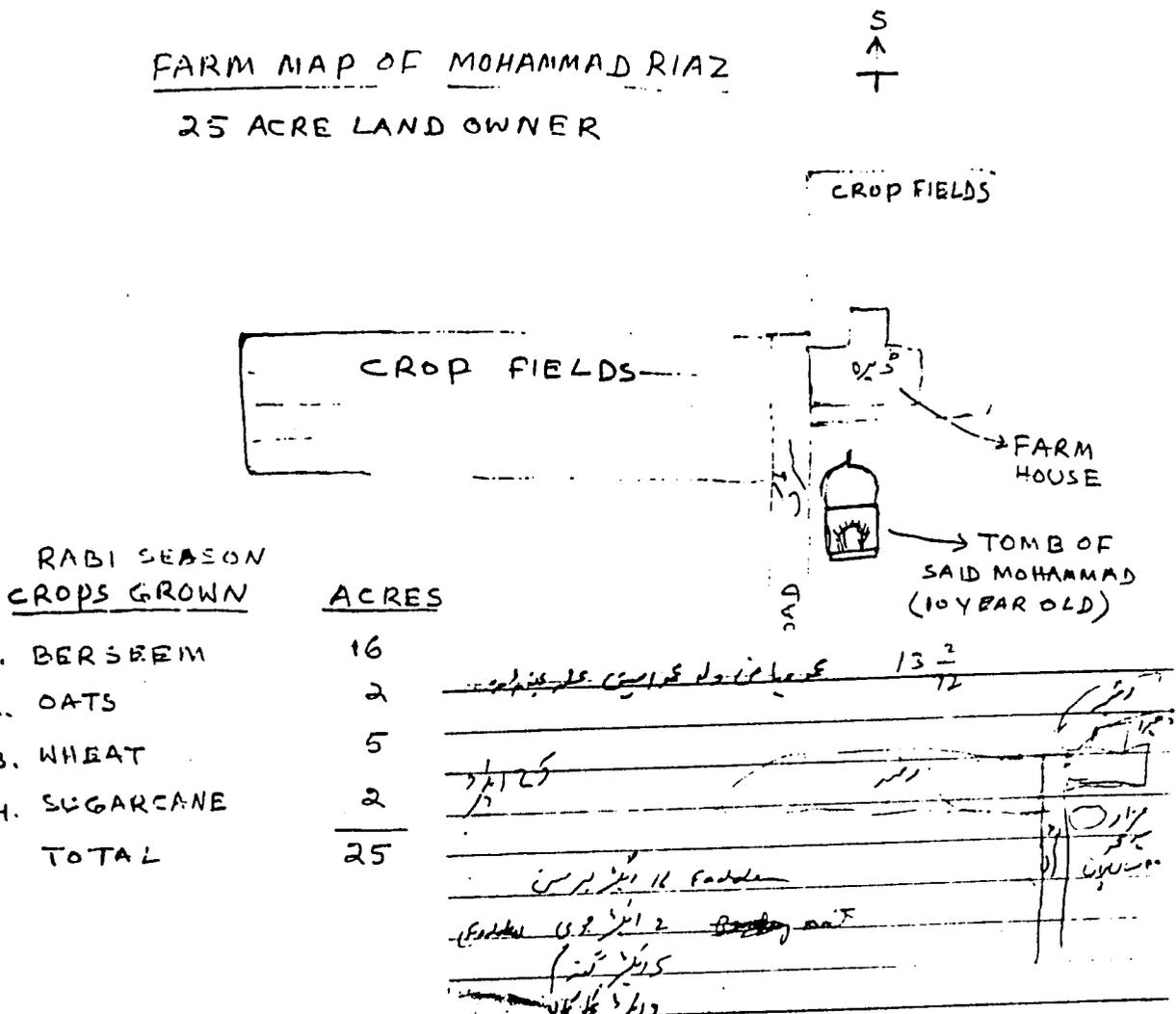
Drawn by the farmer into the notebook of one of the facilitator
 Facilitators: Javed Anwar, Hamidullah Jan, Maliha Khan, Richi Eberlin
 Materials: Pen and notebook

Process:

This diagram was done during the transect walk. Due to the meteorological condition and location (in the middle of a fodder field being cut), the farmer was asked to draw his farm into the notebook. The text was added afterwards by the facilitator (Javed) by using SSI.

Key findings:

The fields are around the house, and are easily accessible. The main crop during the rabi (winter) season is berseem (fodder) on 16 acres. Wheat for home consumption and oats for green fodder are also grown in this season. The sugarcane is a one year duration crop. The summer (Kharif) crops can be found on the seasonal calendar of the same farmer.



50. Composite Farm Profiles of 2 Farmers

13/2/92

Who involved: Begum Mumtaz Jehan Qazi, small potato farmer, Iqbal Javed Qazi, Abdur Rehman (small contract potato grower), two other tenant farmers

Facilitators: Maliha Khan, Javed Anwar, Hamidullah Jan, Richard Eberlin

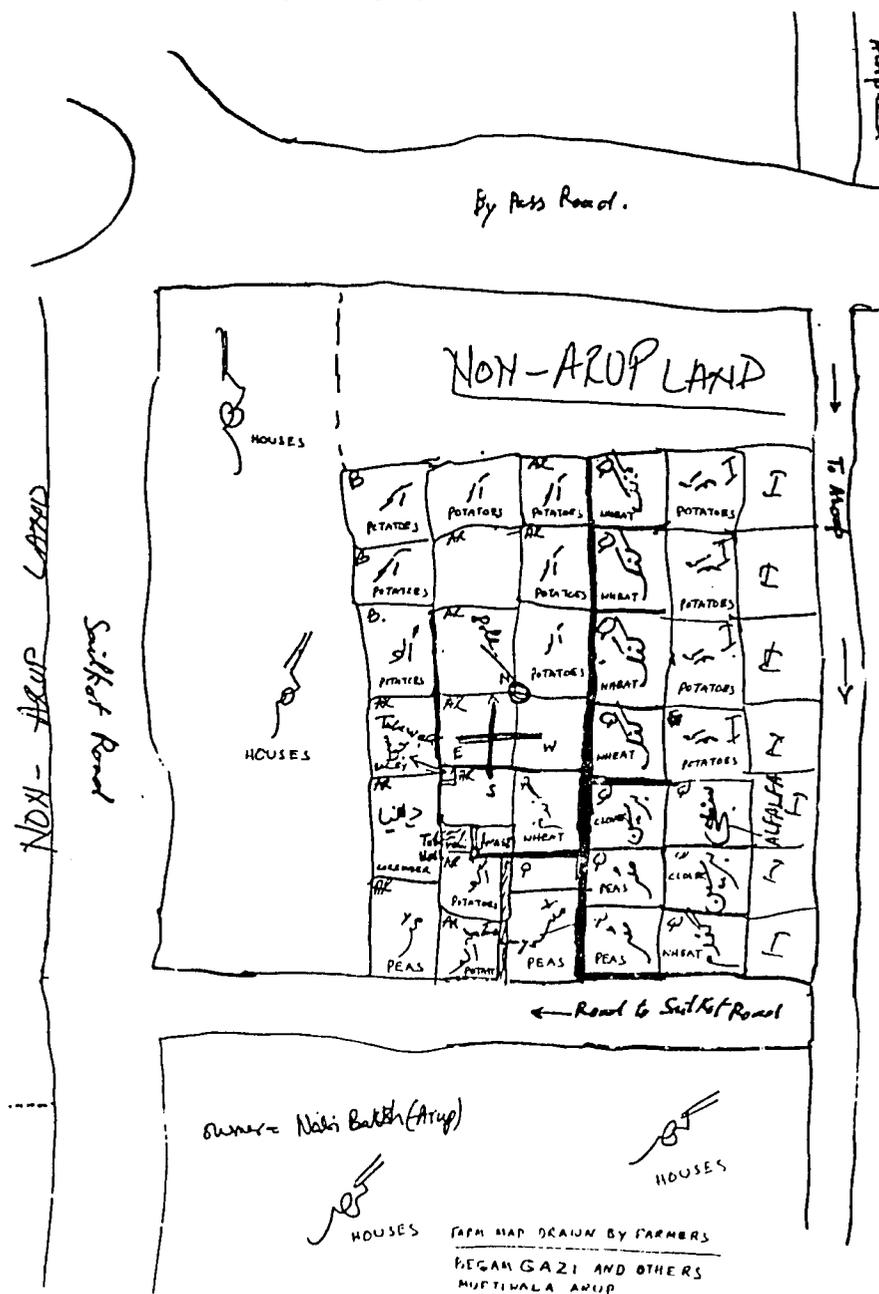
Materials: chart, paper and coloured markers

Process:

The initiation process was relatively very easy. There was a period of rapport building and ice breaking which lasted 10-15 minutes. After that, the RkA team requested Mrs Qazi (who is an educated immigrant, elderly, and has been managing her 11 acres of land that her father had left her, since 1969 when her husband died) to draw her farm profile on the chart paper provided. She initiated the drawing, which her son completed. After the profile was complete, one of her neighbouring farmers was also there. he was also very interested in the exercise, so the team asked him to add his farm to the map also. They also consulted each other and put in the land of the third neighbouring farmer.

Key findings:

The map identified the major crops that were planted by the two participating farmers. It also help delineate the borders of Aroop town. The farmers were at the edge of Aroop and the analyst marked out where the adjacent land was belonging to people of Aroop and where it belonged to others.



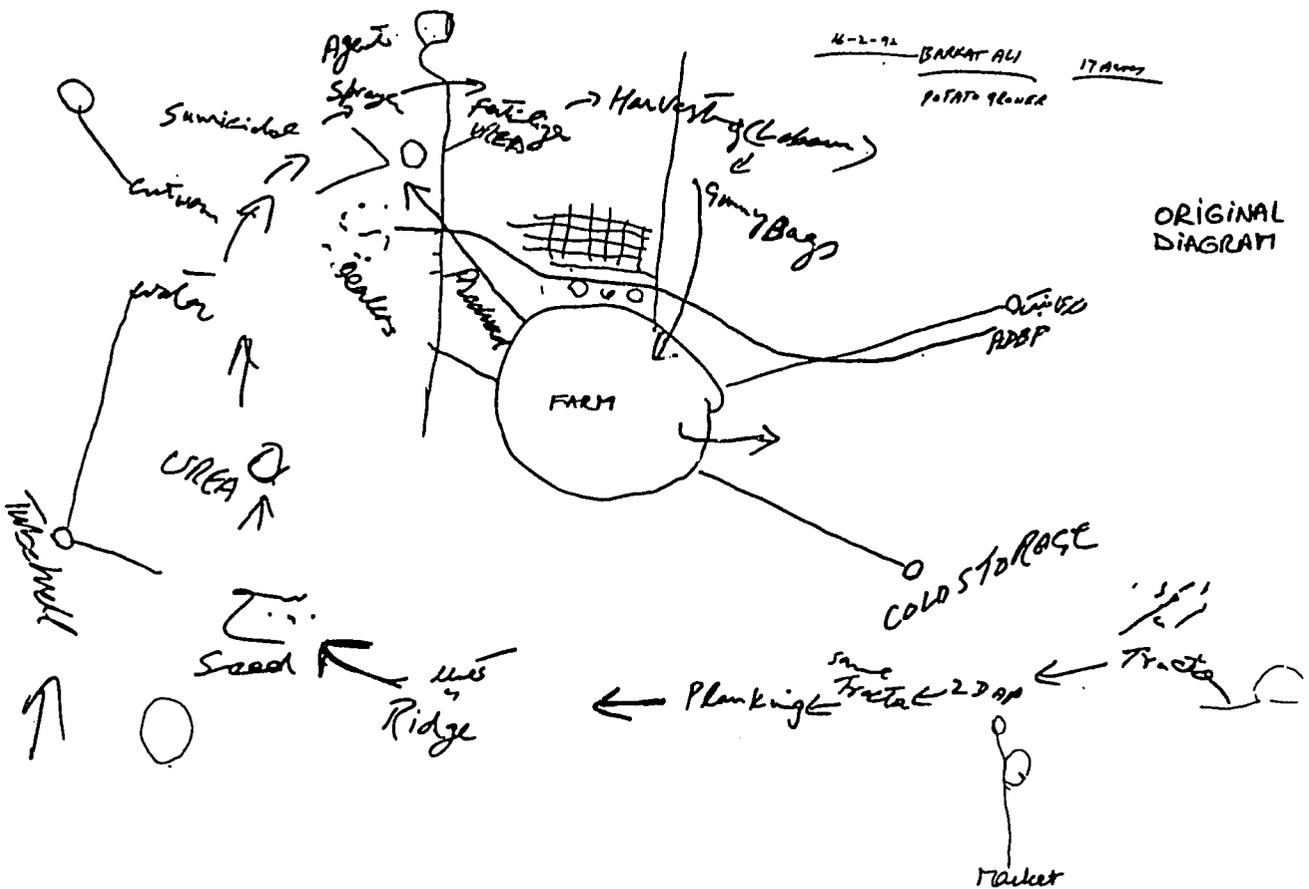
51. Flow Chart

16/2/92

Drawn by: Barkat Ali, potato grower (medium) tenant/contractor
 Facilitators: Javed Anwar, Marheb Qasmi, Mukhtar Ahmed and Irene Guijt
 Material: Marker, paper, cutting of fodder, cut piece of potato stem

Process:

Mr. Barkat Ali, a potato-growing farmer has seven acres of leased land. We introduced ourselves and explained the aim of interview. He was asked about his farming, and said he had been farming for 12 to 15 years. Before this he was a farm labourer. He was asked to explain about his farm. He informed that he hired the tractor from his neighbour and prepared his land by ploughing and planting. He got the seed from Bank/commission agent by paying the total cost of potatoes seed. He further told us that he advanced Rs.100 to 200 as a deposit. After 3 to 4 month he got the seed. He also got other inputs from Commission Agents and from the market. He used 2 bags of DAP and 2 of urea, two of potash for potatoes. He worked alone in his field, but he also used hired labour at busy periods. Then he was asked to draw the diagram of input and outputs for his farm.



53. Farm Profile

17/2/92

Drawn by: Ali Mohammad (small land holder, potato grower)

Facilitators: Rashida Dohad, Hamidullah Jan, M. Habib, Richard Eberlin

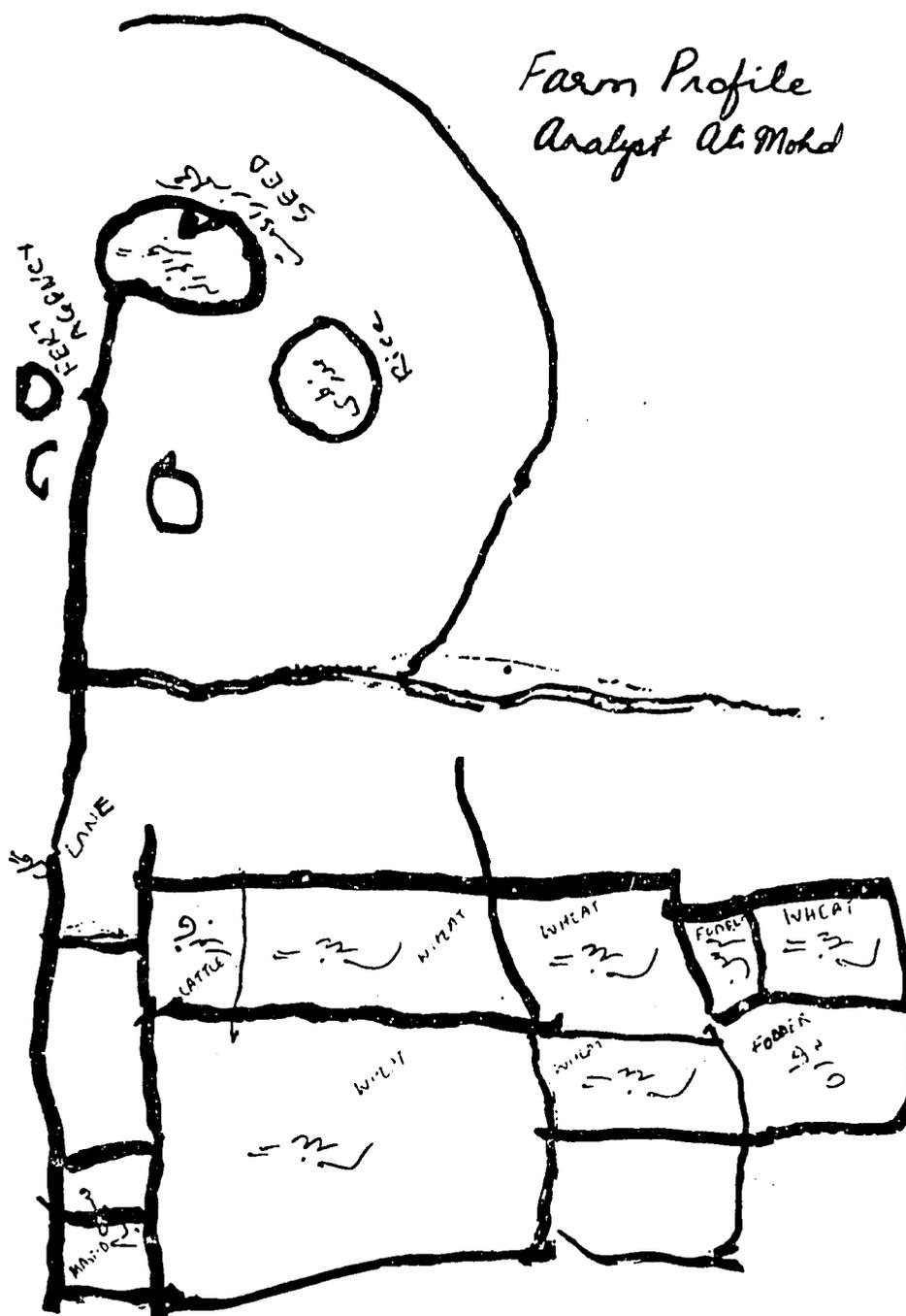
Materials: Chart paper and markers

Process:

The exercise was conducted in the court yard of a small landowner's house. The farmer was comfortable with the marker and paper and keen to use proper scales. Using paper posed a problem when the farmer reached the edge of the paper and needed to add the 'market' but did not have any space to do so. Once the concept was explained by the PRA team, little probing was needed for the farmer to complete the profile.

Key findings:

We think that mobility/access to seeds/fertilizer/market may be a problem since these are available in Gujranwala and not in Mafiwala. It also indicates that extension work by the Agricultural Dept. is weak.



54. Farm Profile Sequence into System Diagram

17/2/92

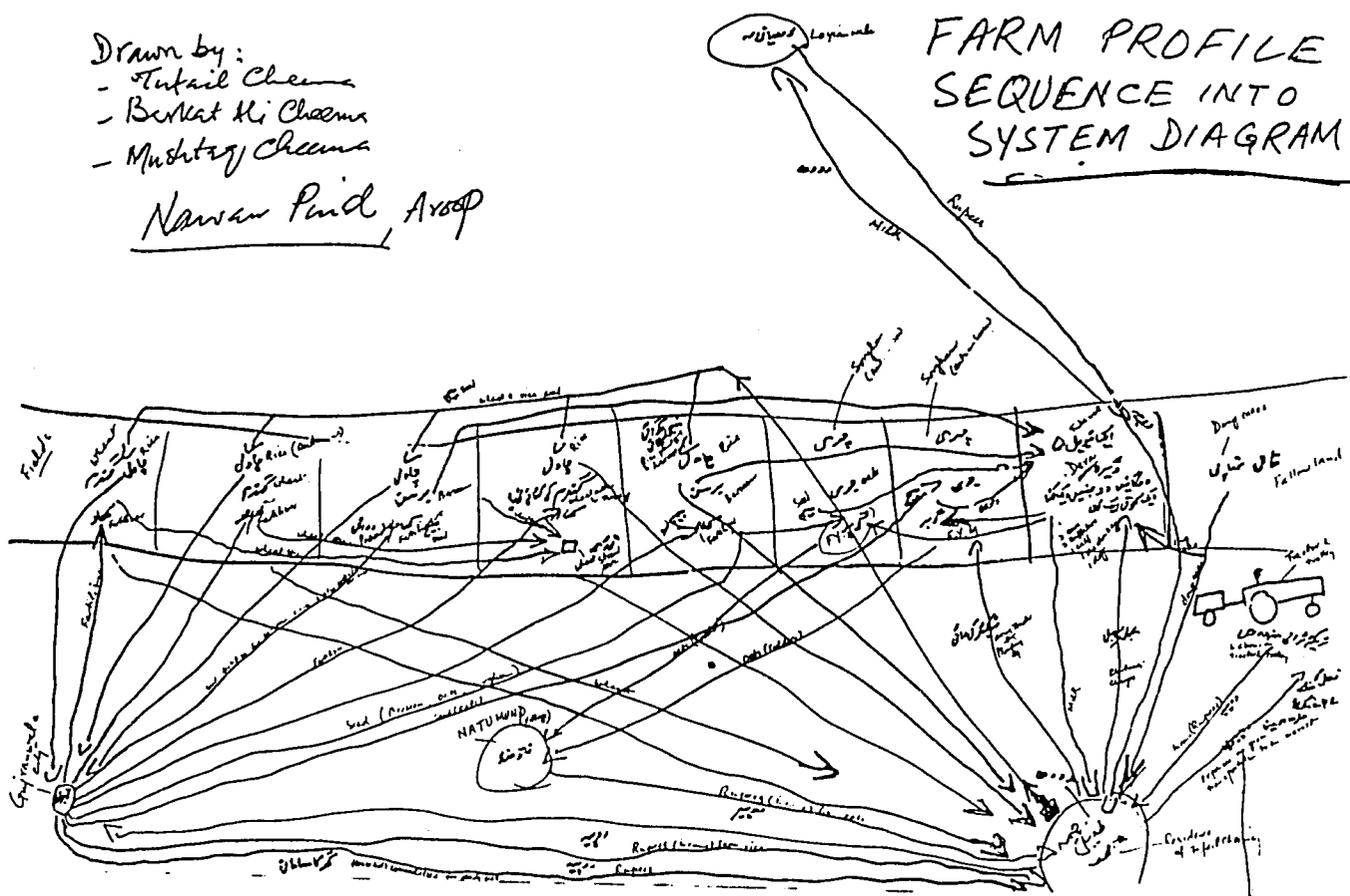
Drawn by: Tufail Cheema, Barkat Ali Cheema, Mushtaq Cheema
 Facilitators: Ashraf Sahibzada, Khalid Bajwa, Maliha Khan, Shaukat Ali
 Material: Drawing sheet, markers, card

Process:

The farm profile sequence into system diagram was drawn by three farmers on the farm of Mr. Tufail Cheema and small farmer (non-potato grower). One day before, the meeting with farmers was set by the facilitators. The purpose and procedure were told to the farmers. The farmers chose to use marker and the drawing sheet and discarded the idea of using cards or stones etc. The diagram was initiated by one farmer, later on three others also joined in the exercise. The farm profile for both seasons was drawn by Mr. Tufail, the owner of the farm. The on-farm and off-farm income through various means and the flow of expenditures through different inputs and needs were drawn in detail by the farmers. The exercise was done on Tufail Cheema's *dera*. The process took about two hours. The farmer put a wrong arrow only once which he later changed, as guided by young Mushtaq Cheema.

Key findings:

The farmer has a crop cum livestock farming system. He works very hard to make ends meet. He manages to grow dates, berseem and wheat in winter/spring and rice/sorghum in the autumn season. His main income comes from his small dairy farm, oats and rice. During his off-farm time he has to do some labour to load soil on tractor trollies. All the inputs (seed, fertilizer and pesticide) and household commodities for his daily use come from Gujranwala.



55. Systems Diagram of a Contract Farmer (potato grower)

17/2/92

Drawn by: Mohammad Yousaf Rahmani: tenant, poor grower, 15 acres

Facilitators: Javed Anwar and Irene Guijt

Materials: Flip chart and marker

Process:

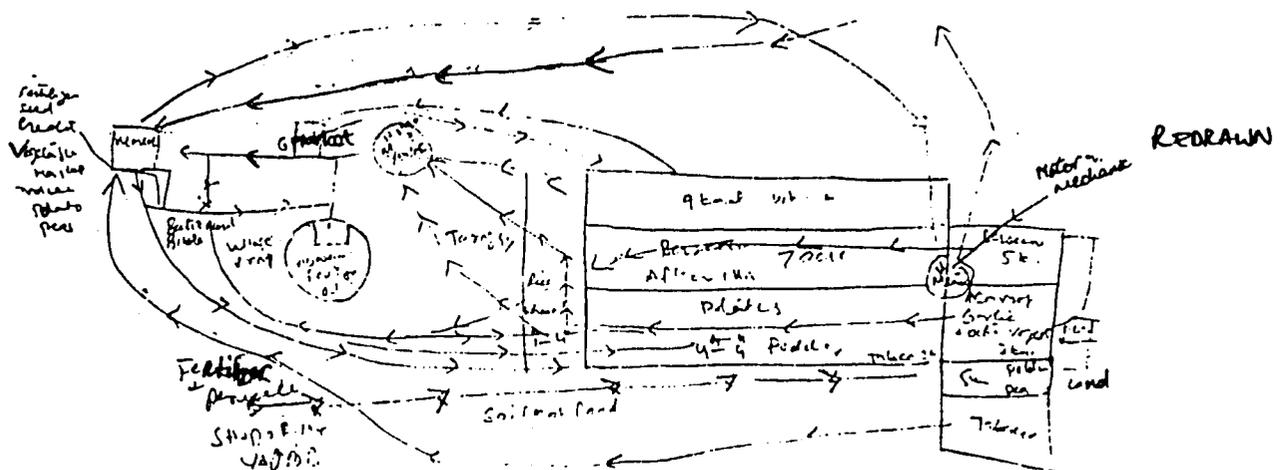
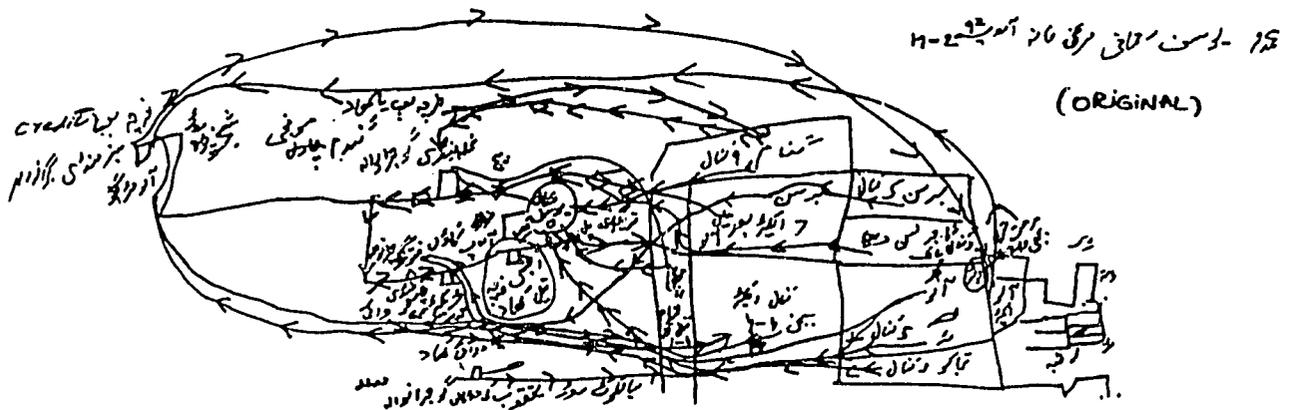
We arrived in the yard of the house after arranging a focus group meeting of contract farmers who grow potatoes. We arrived and soon 5 farmers came. They were a mix of farmers so we split the group into potato growers and non-potato growers.

We talked with one of the potato growers. We asked him to draw a sketch of his farm. He was a literate farmer and wrote in the names of all the parts while he was drawing. After he had finished the sketch of all his fields we asked him what he did with the produce. After he had shown this with lines and arrows, we asked him what he needed to produce his crops. He showed the inputs also with lines and arrows.

He started in a corner of the flip chart so the diagram became very crowded on only one part of the paper. He was not able to change this because he used paper and pen. He did not use symbols so the diagram needed translation for others to understand. He sometimes made corrections and because it was pen, this made it more crowded. The farmer had been interviewed by other PRA members. Maybe this helped him to have no hesitation in starting. We had to demonstrate how to link the different parts of the diagram and also how to draw an arrow. We sometimes had to change his arrows after asking which way the flow went. We then continued with a problems chart (see Diagram 63).

Key findings:

There are three different markets, one in the village and two in the Gujranwala city (vegetable market and grain market). The farmer gets credit from these markets and they are bound to sell their produce to the same commission agent from whom they purchased the inputs on credit. The electrician seems to be an important person in the system for his agriculture farm.



56. System Diagram of Non-potato Grower

17.2.92

Who involved: M. Anwar, non-potatoes grower

Facilitators: Marheb Qasmi, Javed Anwar, Mukhtar Ahmed, Irene Guijt

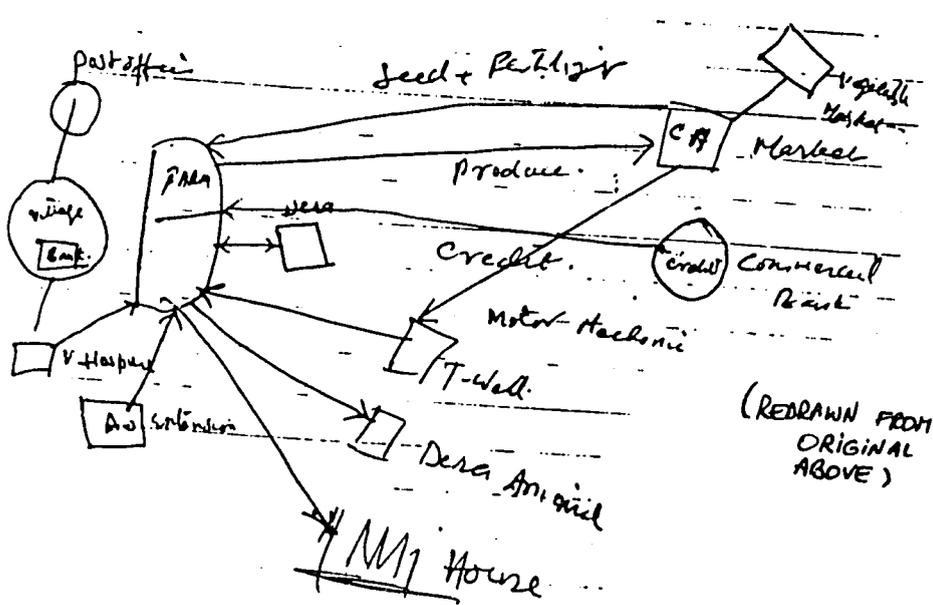
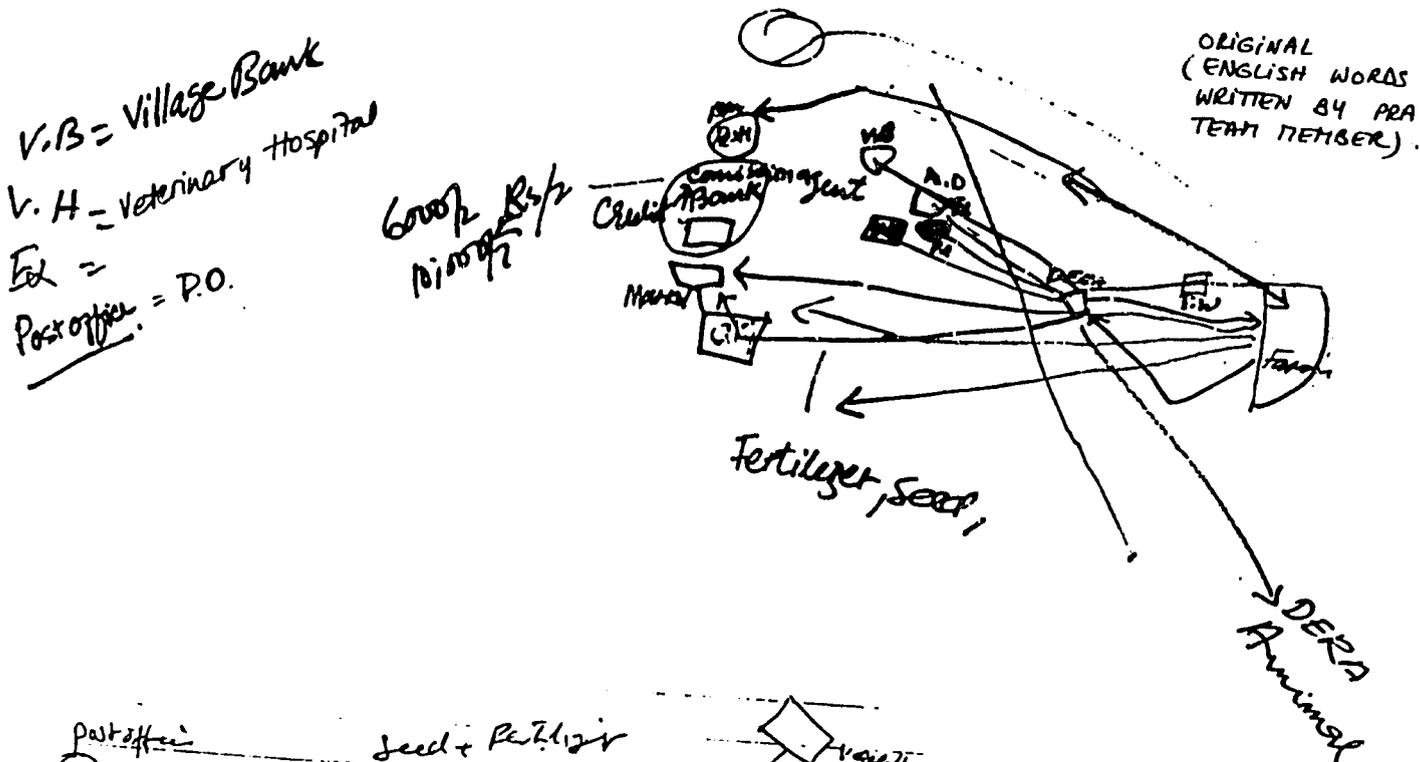
Material used: Wheat grain, rice straw piece, stone and pieces of wood

Process:

When we reached the yard of the house, the farmers were sitting in the yard, both potato growers and non-potato growers. The informants were divided into groups of potato growers and non-potato growers. The farmers were asked whether they were owners of land or tenants. The farmer named Mr. Muhammad Anwar was owner of 6 acres of land. He was asked about his farming and drew the diagram which he found difficult. We helped him, by demonstrating. Then it was clearer in his mind and he drew the diagram.

Key findings:

Inputs such as fertilizer, seed, pesticide, fuel etc. are purchased from the market in Gujranwala through commission agents. The output is produce of wheat, rice etc which is brought to market for selling. The food is wheat, milk and vegetables which are collected from the field for home use.



57. Systems Diagram

17/2/92

Who involved: Ghulam Nabi, owner of 6 acre land, non-potato grower

Facilitators: Marheb Qasmi, Mukhtar Ahmed, Javed Anwar and Irene Guijt

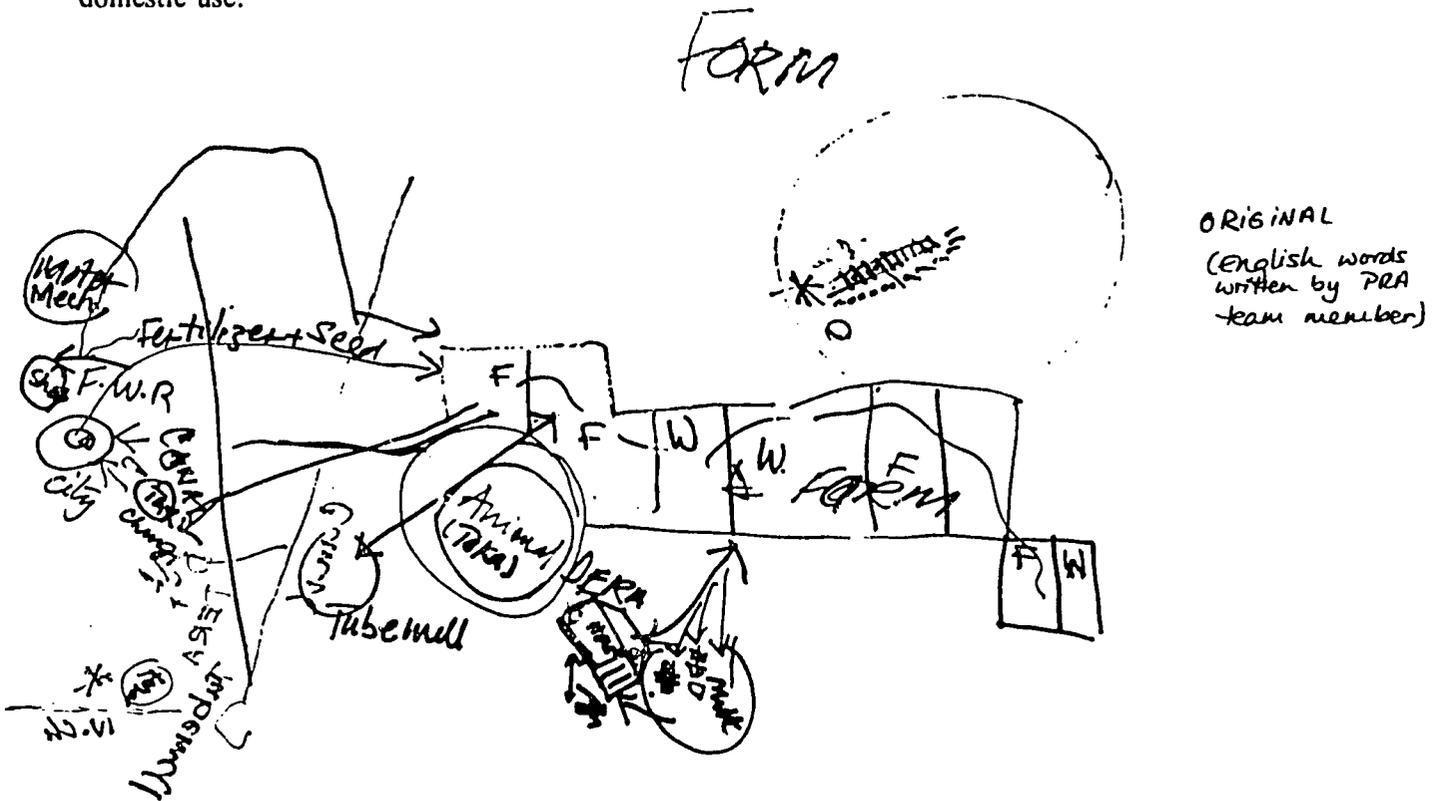
Materials: Berseem fodder cuttings, rice straw cutting, stone and wood piece

Process:

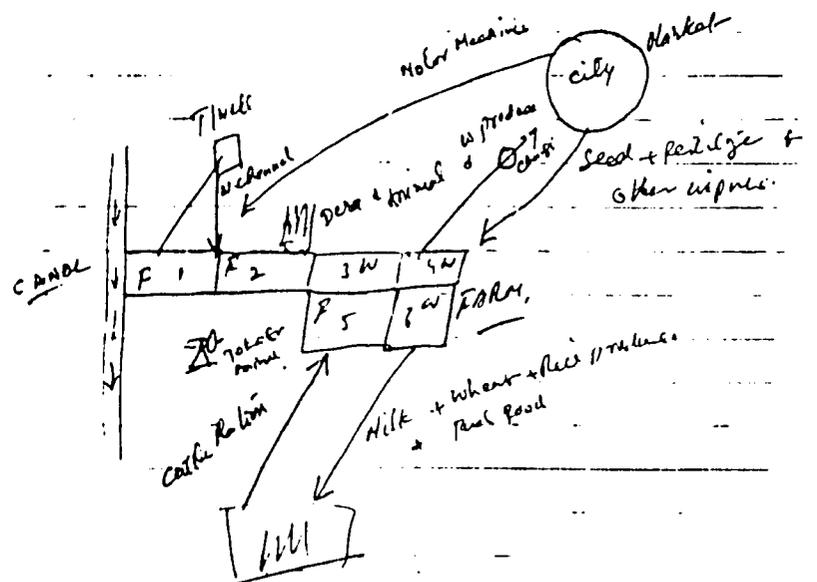
This diagram was made in the yard of the house. First, the farmer was asked about his farm. He informed us that he is a owner of 6 acres of land. First, he did not understand what the we wanted, but later on he understood the idea. The informant drew the system diagram of his farm.

Key findings:

The informant gets the seed fertilizer and other input from the market through the Commission Agents and sell his produce in the market. Food such as milk, wheat produce, vegetable, and fodder is also for domestic use.



REDRAWN FROM ORIGINAL FOR LATER ANALYSIS



58. Systems Diagram

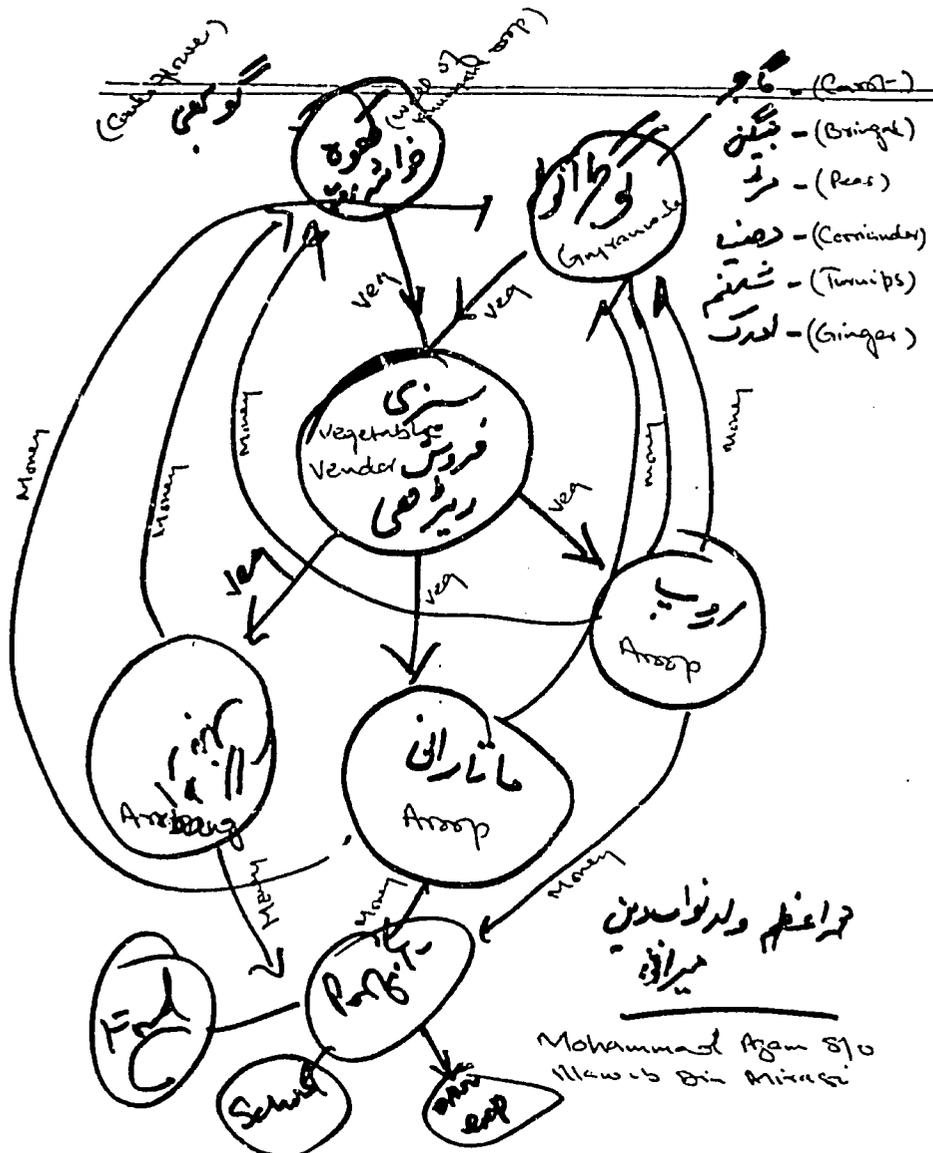
Drawn by: Mohammed Azam, son of Nawab Din Miragi
 Facilitators: Ashraf Sahibzada, Khalid Bajwa, Shaukat, Mukhtar
 Materials: different vegetables

Process:

The PRA team contacted a vegetable vendor. We explained the purpose of our visit to the villager and requested him to explain to us the system in which he was operating. After some efforts, he understood and explained the different flows. It took about half an hour.

Key findings:

He brought vegetables from Gujranwala city and a nearby area called 'well of Khuwasha roop'. He sold these vegetables in three adjoining localities of Aroop, Mata Rani and Arrbaug. A part of the money he earned would be spent on the purchase of vegetables the next morning. The profits were spent on food, schooling of children and other household expenditures. The profit was around Rs.50/- to Rs.60/- a day.



*PROBLEMS AND POSSIBLE SOLUTIONS***59. Process Diagram (listing problems at each stage)**

17/2/92

Who involved: Ali Mohammad, Ali Nawaz, Mufti Ejazuddin Haider, Ghulam Sabir, Ghulam Rasool, Hafiz Ahined, (all small to medium land holder, potato growers)

Facilitators: Rashida Dohad, Hamidullah Jan, M. Habib, Richard Eberlin

Material: Chart paper and markers

Process:

The diagram was made in Mafiwala (peripheral village of Aroop), and took about 2 hours. This diagram was drawn by Ali Mohammad and Ali Nawaz in the courtyard of Mr. Najeeuddin's house. Since this diagram followed the diagram of an individual farm profile made by Ali Mohammad, not much explanation or initiation was required. The PRA team had asked the farmer to draw each stage of growing wheat and (later) potato. The details and method of drawing used by the farmer was most endearing. For instance, the first stage is wheat production was ploughing. The farmer drew the lines exactly as he ploughs his field. Initially the process generated a lot of interest but midway the key informant lost interest and had to be gently persuaded to continue. At one point the farmers did not agree with a diagram for a certain stage of production. The diagram had to be redrawn, and the earlier position scratched off. After all the stages were drawn, the PRA team asked the farmers to list problems at each stage of production. Using this technique encouraged attention to details.

Key findings:

The farmers listed about 40 problems during the entire production process. This diagram easily led to a diagram on key problems and the farmers responses to them (see Diagram 60).

60. Flow Diagram on Problems and Solutions of Small Farmers

17/2/92

Who involved: Ghulam Sabir, Ali Nawaz, Ali Mohammad, Abdur Rehman, Mufti Ejazuddin Haider, Gnulam Rasool, Hafiz Ahmad (all small potato growers)
 Facilitators: Rashida Dohad, Richard Eberlin, Hamidullah Jan, Mohammad Habib
 Materials: Paper sheet, marker

Process:

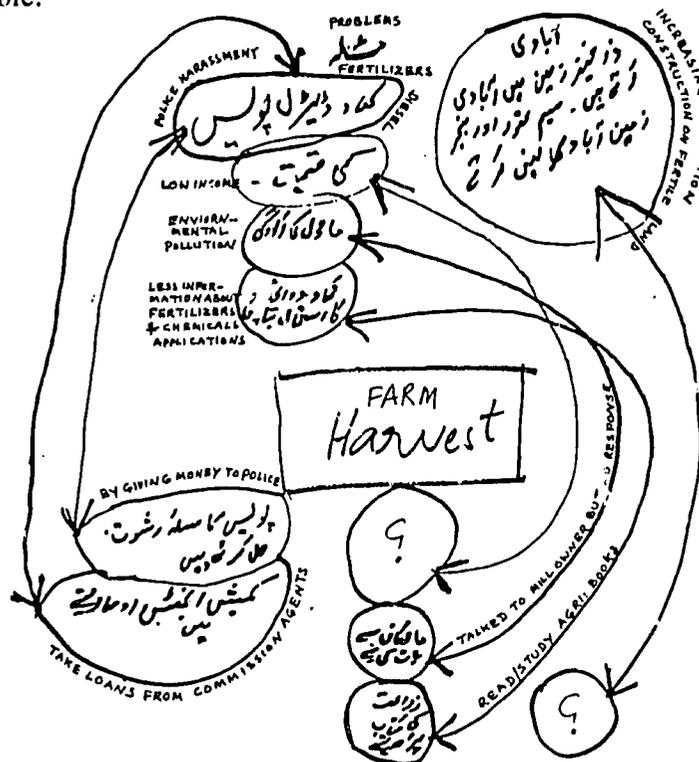
The respondents were small farmers of a settlement Mafiwala in Aroop area. the purpose of interview was explained to them very well. They were asked to list and indicate their most important problems on the paper sheet and also the solutions they have for these. At the start, they were not clear about the diagram. But by explaining that they can put a circle on the sheet for each problem related to their farming, they started naming important problems. One of them started writing after making a joint decision on a problem to be the big issue. In the same way they discussed all major problems and solutions for them. At the end we asked the farmer to draw the diagram. There were no changes made during the drawing which took about half an hour to complete. They included the problem on population increase later on.

Key findings:

The flow diagram on problems and solutions of a group of small potato growers indicate that their most important problem is shortage and high cost of fertilizers and diesel oil, and police harassment during transportation of goods to and from the city. The next important problems they are facing, are low income, environmental pollution from a steel mill, and non-awareness about the use and application of fertilizers as well as chemicals. At the end, the problem on increase in population and construction work on fertile lands is becoming more and more important.

As regards the solutions for the above problems, these farmers try to solve the problem of police harassment by giving money to them and they get loans from the Commission Agent (middle man) to face the high cost of fertilizers and diesel. To solve the problem of low income, they don't know what to do. Regarding the hot and contaminated water that comes from a steel mill into their field and damages their crops, they talked to the owner of the mill but there was no response.

To get information on the use and application of fertilizers and chemicals, they read or study agriculture booklets if possible.



PROBLEMS +
SOLUTIONS

Analyst:
 Ali Nawaz
 Ali Mohd
 Abdur Rahman
 Ghulam Sabir
 Mufti Ejazuddin Haider
 Ghulam Rasool
 Hafiz Ahmad

63. Ranking of Problems

17/2/92

Drawn by: Mirza Fazal Ali and Inayat Baig

Facilitators: Marheb Qasmi, Mukhtar Ahmed, Irene Guijt

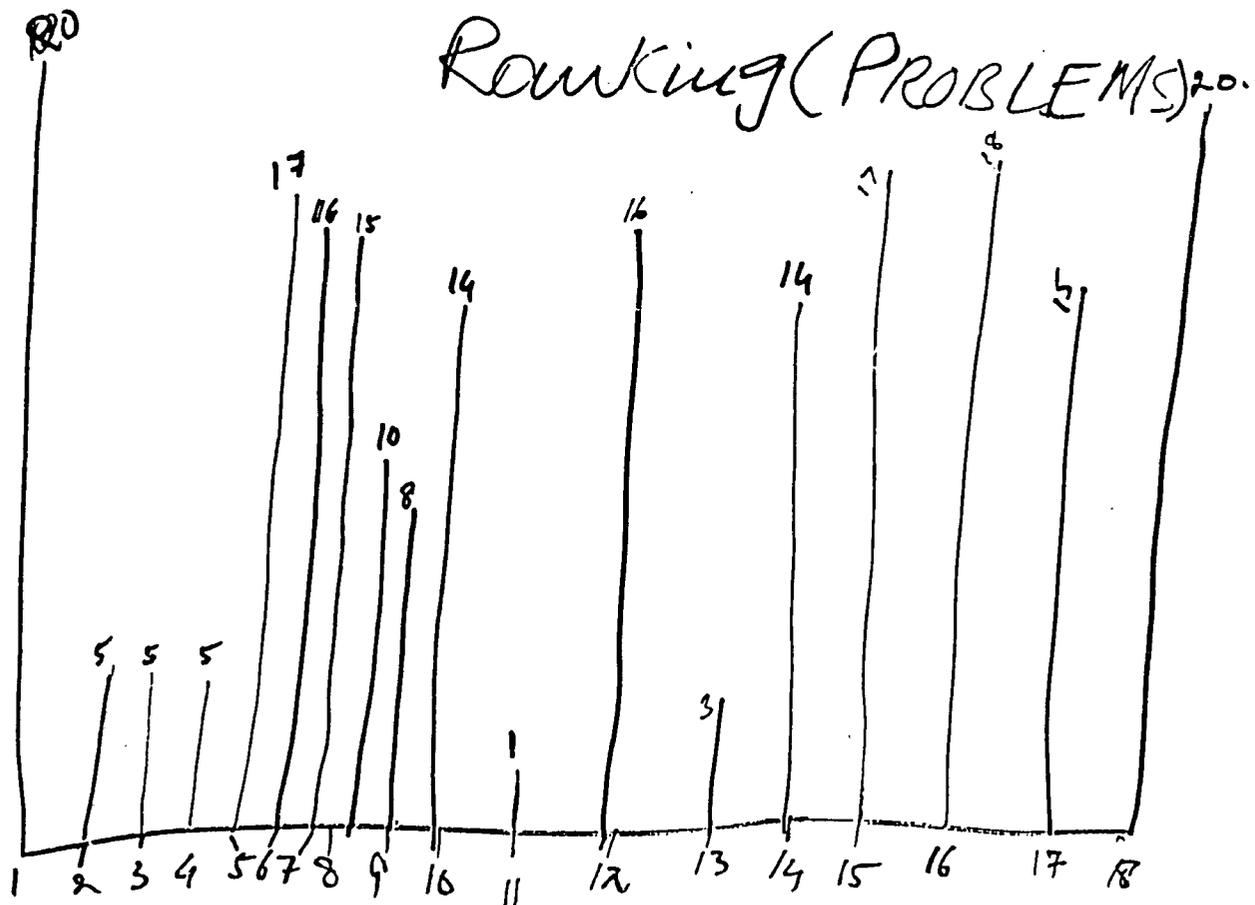
Materials: Marker, sheet, wheat straw

Process:

This ranking chart was made in the yard of a house after a long discussion with a group of non-potato growers on their problems and solution. The whole task took about half hour. The highest number of pieces of wheat straw was twenty which they put on the sheet of paper.

Key findings:

They mentioned eighteen different problems. Their major problems were high cost of fertilizer (which got 20 pieces of straws), availability of credit (twenty pieces of straws) and the third major problem was high charges of electricity bills.



(NUMBERS CORRESPOND TO PROBLEMS SEE PROBLEM CHART, PG. 225)

64. Problems Chart

17/2/92

Who involved: M. Yousaf Rahmani, Inayat Baig, Ijaz Ahmad Bhinder, Ghulam Nabi and Anwar (small potato growers, owner/tenant)

Drawn by: Muhammad Yousaf Rahmani (tenant 15 acres, potato grower)

Facilitators: Javed Anwar, Irene Guijt, Mukhtar Ahmed and Marheb Qasmi

Material: Marker, paper and pieces of rice straw

Process:

We arrived in the yard of the house of Mohallah Bhinder after arranging a group meeting with tenants who grow potatoes. Soon after our arrival farmers came in. We divided the farmers into two groups i.e. potato growers and non-potato growers. After completion of the system diagram we asked them to show existing problems on the chart. The farmer was literate and he wrote the problems on a paper. After listing them, we asked him to rank the problems, using a maximum of 20 pieces of rice straw as most important. After starting this they stopped doing it and simply said a number. At the end we read out the final ranking to check with them.

Key findings:

Seventeen problems were enlisted by the farmer with the help of fellow farmers. The five most important problems identified were 3, 4, 6, 9 and 17. The list of the problems is given below:

1. Poor quality fertilizer
2. Poor quality insecticide
3. Loan availability with ADBP
4. Load shedding
5. Salinity in soil
6. Excessive rains/poor drainage
7. High cost of electricity
8. Income less than expenditure (loan from Commission agents who charge double interest rate)
9. Commission agent don't make payments on time. They give only after many reminders.
10. Double octroi charges charged by contractors
11. Pay road tax but nobody repairs it
12. Wrong preparation of culverts (too high)
13. Non availability of medicines from the government hospital
14. Non availability of medicines from the government veterinarian hospital
15. When purchase seed potato, price of 50 kg of seed up by Rs.1500/- and when sell, it goes down
16. In the 1960's the price of the fertilizer was low, now it is high
17. Non availability of fertilizers on time.

65. Flow Diagram of Problems and Solutions

17/2/92

Drawn by: Barkat Ali Cheema, M. Tufail Cheema, M. Mushtaq, Nazir Butt
 Facilitators: Ashraf Sahibzada, Khalid Bajwa, Maliha Khan, Shaukat Ali
 Materials: Drawing sheet and markers

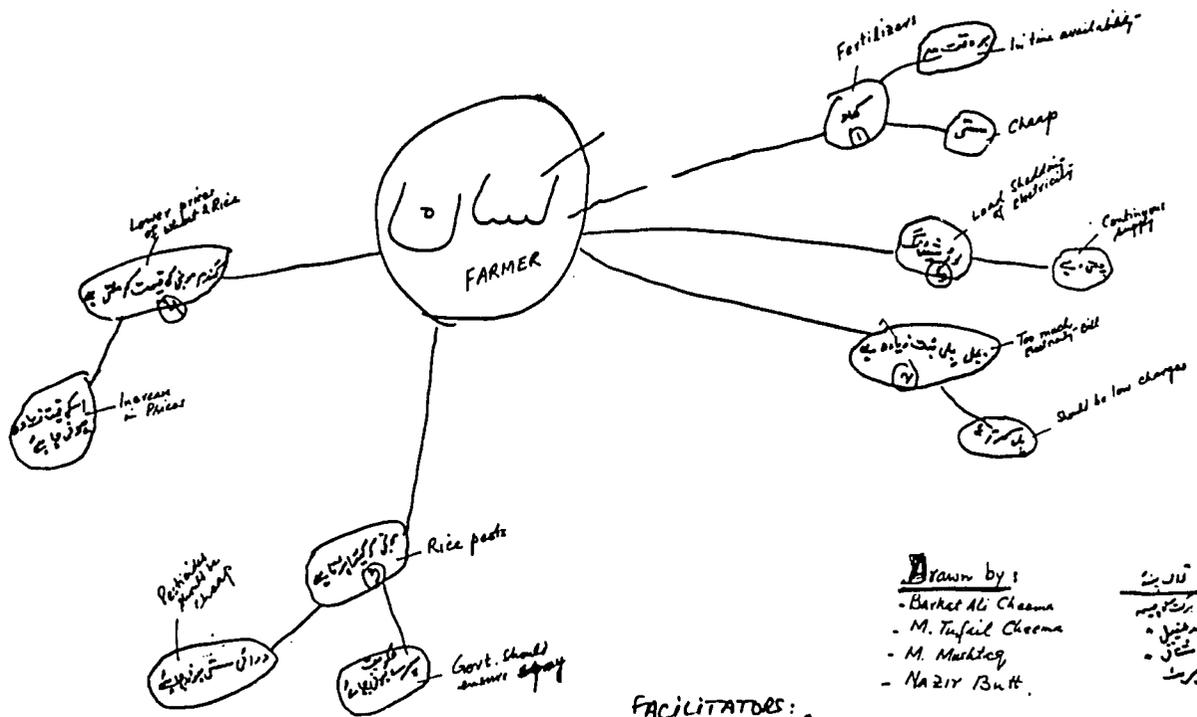
Process:

The diagram was drawn by a group of small farmers who do not grow potatoes in Nawan Pind. Some of the farmers were already involved in drawing the system diagram so very little effort was required to bring them to draw this flow diagram. Before writing each problem, they thoroughly discussed and reached the consensus. The whole process took about half an hour. The exercise was done at the farm of Mr. Tufail Cheema and all the farmers and facilitators were sitting on ground over dried rice straw. The problems ranking was also done by the farmers.

Key findings:

Five problems and their solutions were drawn. Costs of fertilizer followed by high electricity charges and rice pests were the main problems. The farmers stressed that the government of Pakistan should take appropriate steps to minimise the burden on farmers by providing them with cheap fertilizer, reducing the electricity charges and spraying the paddy crops through aerial spray.

Flow Diagram (Problems & Solutions)



Drawn by:
 - Barkat Ali Cheema
 - M. Tufail Cheema
 - M. Mushtaq
 - Nazir Butt

تاریخ:
 ۱۷/۲/۹۲

FACILITATORS:
 Sahibzada
 Bajwa
 Arain
 Maliha Khan

POTATO RELATED PROBLEMS

CAUSES	PROBLEM	CONSEQUENCES	S' L	FARMERS' RESPONSES	BEST ACTION'
<ul style="list-style-type: none"> • Potato diseases • Poor storage quality • Mishandling of seed potatoes 	PAKISTANI SEED POTATOES NOT GOOD	<ul style="list-style-type: none"> • Low yield • Introduction of diseases • Lower profit • Complete crop failure (sometimes) • High degeneration rate 	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓✓ ✓✓ ✓✓ 	<ul style="list-style-type: none"> • Planting less • Not planting at all • Seek credit to purchase imported seed 	<ul style="list-style-type: none"> • Identify seed potato problems in troop (Res) • Develop seed potato strategy (strengthen private and public seed sector (Pol)) • Train farmers to produce own seed (Ext) • Cold store management (Ext)
<ul style="list-style-type: none"> • Potato diseases (scabs and bliz.) • Low quality seed • Seed age (immature and very old) • Climatic conditions • Soil conditions (waterlogging, salinity) • Seeds placed too deep • Soil moisture level 	GERMINATION PROBLEMS WITH PAKISTANI SEED	<ul style="list-style-type: none"> • Low yield • Less profit • Indebtedness 	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓ - 	<ul style="list-style-type: none"> • Purchase imported seed • Plant less 	<ul style="list-style-type: none"> • Train farmers (Ext) • On-farm demonstration and research (Res/Ext) • Improve drainage (Pol/Ext)
<ul style="list-style-type: none"> • Poor crop management • Is intentional as supplementary food/fodder source • Inadequate control management (chemical/physical) • Non-availability of labour • Carelessness or lack of awareness. 	MANY WEEDS IN POTATO FIELDS	<ul style="list-style-type: none"> • Less yield • More pests and diseases • Poor quality of produce • Difficult for other crop management operations • Negative effects on subsequent crops • Lose interest in agriculture <p>(Fewer consequences for large growers who have more resources for additional labour/chemicals)</p>	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓✓ ✓✓ ✓✓ ✓ - 	<ul style="list-style-type: none"> • Indebtedness • More labour input • Leave weeds 	<ul style="list-style-type: none"> • Train farmers how to control weeds (Ext) • Identify weeds and methods of control (Res/Ext) • Farmers' awareness raising about benefits of weed control (Ext) • Intercropping
<ul style="list-style-type: none"> • High cost of electricity • Price fixing by cold store owners 	HIGH COST OF COLD STORAGE	<ul style="list-style-type: none"> • High cost of seed • Indebtedness • Less area under potato production 	<ul style="list-style-type: none"> ✓✓ ✓ - ✓✓ 	<ul style="list-style-type: none"> • Seek credit • Payment through commodities (potatoes) 	<ul style="list-style-type: none"> • Reduce costs of electricity (Pol) • Increase efficiency of seed use (small size) (Res)
<ul style="list-style-type: none"> • Fungal/bacterial • Diseased seed or soil • No crop rotation 	SCAB	<ul style="list-style-type: none"> • Low yield • Less profit • Soil contamination 	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓✓ 	<ul style="list-style-type: none"> • Purchase more expensive Hunza seed or PSC-certified seed • Seek credit to pay for this 	<ul style="list-style-type: none"> • Strengthen local seed certified schemes (Pol) • Train farmers (Ext) • Crop rotation • Disease resistant varieties (Res) • Strict plant quarantine (Pol)
<ul style="list-style-type: none"> • Fungal diseases • Climatic conditions • Spread of diseases • Change in rainfall (increase) 	LATE BLIGHT	<ul style="list-style-type: none"> • Lower yield • Low profit • Complete crop failure • Quality reduction (tuber rotting) 	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓✓ ✓✓ 	<ul style="list-style-type: none"> • More use of fungicides and pesticides • Seek credit to pay for this • Plant less • Don't plant 	<ul style="list-style-type: none"> • Develop resistant varieties (Res) • Develop control measures and train farmers (Res/Ext) • Ensure availability of fungicide (Pol)
<ul style="list-style-type: none"> • Introduction of imported and diseased seed • No crop rotation • Lack of knowledge about seed management • Climate 	MORE DISEASES IN PAKISTANI SEED POTATOES	<ul style="list-style-type: none"> • Low yield • Less income • Indebtedness 	<ul style="list-style-type: none"> ✓✓ ✓✓ ✓ - 	<ul style="list-style-type: none"> • Plant less • Don't plant • Purchase imported seed 	<ul style="list-style-type: none"> • Identify diseases and control measures (Res) • Train farmers (Ext) • Formulate and implement seed strategy (Pol/Ext) • Strict quarantine measures (Pol)

FERTILIZER AND DIESEL CONSTRAINTS

CAUSES	PROBLEM	CONSEQUENCES	FARMERS' RESPONSES	BEST ACTION
<ul style="list-style-type: none"> • Credit limitations • Shortage of supply • Unavailable locally • Stocking • Transportation problems 	FERTILIZER NOT AVAILABLE ON TIME	<ul style="list-style-type: none"> • Skipped or delayed application • Poor crop stand • Less resistance to pests and diseases • Low production • Low income 	<ul style="list-style-type: none"> • Purchase well ahead of time • Arrange from neighbouring farmers • Use less • Use more farmyard manure • Don't use at all 	<ul style="list-style-type: none"> • Simple and short credit process • Provision at village level • Increase national fertiliser production • Research and extension about crop rotation, farmyard manure, and green manuring
<ul style="list-style-type: none"> • High demand and little supply • Stocking which leads to black marketing • Not available locally, so travel to/from Gujranwala plus tax • High price 	HIGH COST OF FERTILIZER AND OF GETTING IT	<ul style="list-style-type: none"> • Lower application • Lower production • Less resistance to pests and diseases (Sometimes, more resistance) • Lower profits • Indebtedness 	<ul style="list-style-type: none"> • Use less • Don't use • Use farmyard manure • Get credit to pay • Seek other income generation 	<ul style="list-style-type: none"> • Credit for small farmer • Use available fertiliser optimally • Increase national fertiliser production • Improve fertiliser delivery • Research about crop rotation • Research about organic fertiliser options (FYM, green manuring) but this is more for larger farmers as they feel less need to use as fodder
<ul style="list-style-type: none"> • To make money • Limited supply • Farmers demand specific fertilizer • Lack of government control • Corruption 	ADULTERATION OF FERTILIZER	<ul style="list-style-type: none"> • Poor crop • Affects soil condition • Financial loss • Less resistance to pests and diseases • Lower production • Lower income 	<ul style="list-style-type: none"> • Purchase from reputed dealer • Consult extension worker • More use of farmyard manure and green manuring • Consult neighbour farmer 	<ul style="list-style-type: none"> • Government to encourage cooperative farmer societies • Keep heavy check on adulteration • Increase supply, especially in peak periods.
<ul style="list-style-type: none"> • Stocking • Limited supply • High demand • Corrupt government officials • Lack of government control 	BLACK MARKETING OF FERTILIZER (LEADING TO HIGH PRICES)	<ul style="list-style-type: none"> • Lower application • Poor crop • Less resistance to pests and diseases • Lower productivity • Lower income • Poverty 	<ul style="list-style-type: none"> • Use less • Don't use • Get credit to pay • Seek extra income generation activities 	<ul style="list-style-type: none"> • Price control committee • Stringent government control • Improve supply of fertilizer
<ul style="list-style-type: none"> • 80% comes from import • High government taxes 	HIGH COST OF DIESEL	<ul style="list-style-type: none"> • Higher charges for tractor (hire) • Poor land preparation • Late sowing • Poor crop stand • Lower yield • Lower income 	<ul style="list-style-type: none"> • Use tractor less • Seek credit • Seek other income generation activities 	<ul style="list-style-type: none"> • More oil exploration in country • Less import duty • Alternative power sources • (Oil refinery)

CAUSES	PROBLEMS	CONSEQUENCES	FARMERS' RESPONSES	BEST ACTION
<ul style="list-style-type: none"> Less generation of electricity Bad management of WAPDA 	LOAD SHEDDING (AFFECTS TUBEWELL FUNCTIONING)	<ul style="list-style-type: none"> Sub-optimal irrigation Disruption of daily routine Difficult to control level of water in potato fields 	<ul style="list-style-type: none"> Reorganise daily routine Buy diesel engine (large farmers) 	<ul style="list-style-type: none"> Improve management WAPDA (Pol) Investigate and efficient use of water (Res)
<ul style="list-style-type: none"> High demand of electricity Field policy 	HIGH TARIFF FOR USE OF TUBEWELL	<ul style="list-style-type: none"> Squeeze for more cash 	<ul style="list-style-type: none"> Embargy of linemen and meter readers Stealing electricity 	<ul style="list-style-type: none"> Generate more electricity Improve soil moisture management
<ul style="list-style-type: none"> High wages for mechanics High price of spare parts 	EXPENSIVE MAINTENANCE AND REPAIR OF TUBEWELL	<ul style="list-style-type: none"> Burden for farmer's pocket Erratic use of tubewell (raining) 	<ul style="list-style-type: none"> Seek additional source of income to pay Delay repair of tubewell 	<ul style="list-style-type: none"> Try crops other than potato for drought tolerance Save water (if there is any) for potato crop
<ul style="list-style-type: none"> Fiscal policy ill-planned and fragmented 	NO SUBSIDY ON INSTALLATION OF TUBEWELL	<ul style="list-style-type: none"> Few tubewells installed Water supply affected (L, N, T) Yields reduced (L, N, T) Indebtedness 	<ul style="list-style-type: none"> Seek credit facilities Share burden of installation with richer farmers Don't install tubewells 	<ul style="list-style-type: none"> Provision of soft loans Formation of tubewell cooperatives
<ul style="list-style-type: none"> Low wages in agricultural sector Pull to city jobs (Gujranwala closeby) 	SHORTAGE OF LABOUR	<ul style="list-style-type: none"> Inadequate labour, esp. for weeding High cost of labour Discourages labour-intensive crops More mechanization 	<ul style="list-style-type: none"> Accept consequences Intensive use of family labour (esp small farmers) Buy machines (esp large farmers) 	<ul style="list-style-type: none"> To innovate further cheap technology options (Res) Provision of credit to buy machines (Pol) Produce more machines to rent out (Pol)
<ul style="list-style-type: none"> Use of trucks/lorries High fuel costs 	HIGH CHARGES FOR TRANSPORT OF CROP	<ul style="list-style-type: none"> Prices on closer markets lower Less prof. 	<ul style="list-style-type: none"> Selling on nearby profits (small farmer) 	
?	POTATO SACKING EXPENSIVE AND BAD QUALITY	<ul style="list-style-type: none"> Increased market cost of potatoes 	<ul style="list-style-type: none"> Buy second-hand bags 	<ul style="list-style-type: none"> Replace jute bags with bags of cheap material (Res)

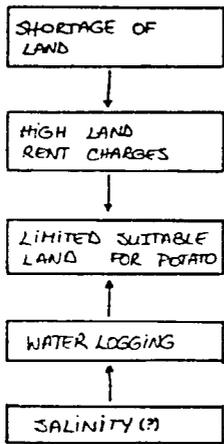
OTHER PLANT DISEASES

<ul style="list-style-type: none"> Lepidopterous and sucking pests Other pests Unknown? 	RICE PESTS	<ul style="list-style-type: none"> Lower yield? Unknown 	<ul style="list-style-type: none"> Use of pesticides Seek credit to pay for input 	<ul style="list-style-type: none"> Identify pests and appropriate control (Res) Resistant varieties breeding and introduction (Res) Train farmers (Ext) Aerial spray (Pol) Increase availability of pesticides (Pol)
<ul style="list-style-type: none"> Unknown; Pathogen? Physiological disorder variety characteristics 	YELLOWING OF LOWER LEAVES OF WHEAT (?)	Unknown	Unknown	<ul style="list-style-type: none"> Further investigation (Res)

CAUSES

- Population increases
- Division of landholding (fragmentation)
- Construction on agricultural land
- Type of soil and location of soil
- Soil quality (kardipar)
- Poor drainage
- Environmental pollution (from steel mill)

PROBLEMS



CONSEQUENCES FOR AND RESPONSES OF DIFFERENT FARMERS

NON-POTATO GROWERS (small and large)

- No opportunity for growing potatoes
- Less income opportunity

RESPONSES

- Growing of other adapted crops
(rice, sugarcane, wheat (for cash and home use), maize, berseem, barley, oats (for fodder))

LANDLESS POTATO GROWERS

- Decreasing opportunity for growing potatoes
- Loss of potential income
- Pay high rents for potato land
- Increased cost of production

RESPONSES

- Growing of other adapted crops
- Look for other areas to rent
- Find other sources of income and/or leave farming.

SMALL POTATO GROWING OWNERS

- Fewer opportunities for growing potatoes
- Loss of potential income

RESPONSES

- Grow other adapted crops
- Try to improve land (FYM or other organic manure) but conflicts with use of FYM for field
- Look for other area to rent
- Look for other jobs - do part-time farming only (30%)
- Look for other jobs (100%) and rent out land
- Sell land and leave farming

LARGE POTATO GROWING OWNER

- Fewer opportunities for growing potatoes
- Loss of potential income

RESPONSES

- Grow other adapted crops
- Try to improve the land (FYM)
- Jantar (Banaba) green manure

BEST ACTION

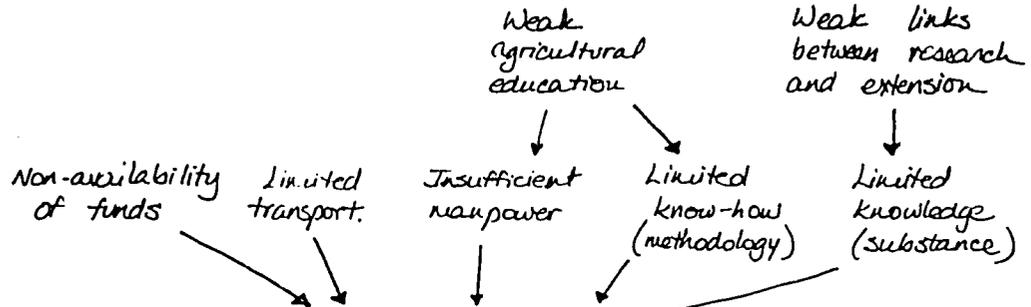
RESEARCH AND EXTENSION

- Salinity tolerant potato varieties
- Alternative adapted high income crops
- Against waterlogging, plant: Dhancha rice, Callosia special grass, kenaf, eucalyptus, jute
- Against salinity: sugarbeet, radish, turnip, barley, rice, Raaya, Tharanna
- Promote field drainage by farmers (Ext. only)
- Promote green manuring crops (Ext. only)

POLICY

- Family planning
- Solution legally for fragmentation of landholdings ????
- Land rehabilitation
- Drainage "SCALE" - WAPDA
Law to fix ceiling for land rent for different land qualities
- Law for appropriate land use "Master Plan"
- Law for control of environmental pollution

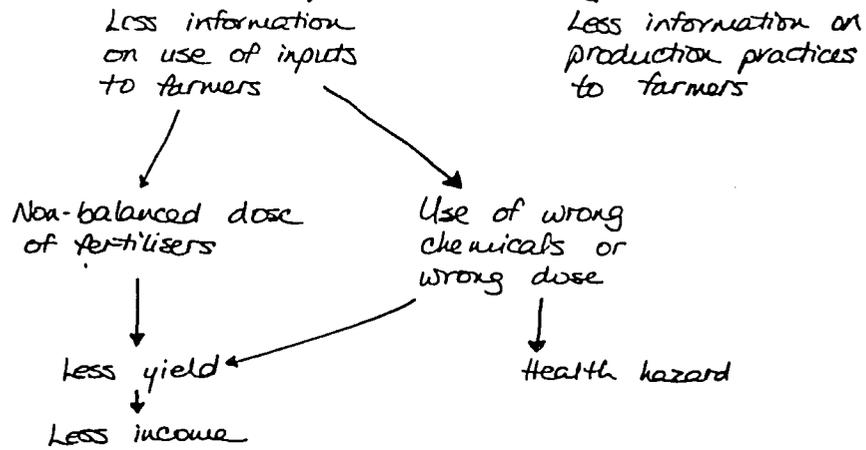
CAUSES



PROBLEMS



CONSEQUENCES



RESPONSES

- Farmers get information from alternative sources
 - radio (6-6.30 pm)
 - other farmers
 - traders / product information
 - literature
 - PSPDP

BEST ACTION

- Institution building
- Remove financial constraints
- Encourage extension service to use PRA in building contact and identifying research needs
- Investigate how PSPDP could work better through existing extension service and possibly train them on weak points

NATIONAL MARKET AND CREDIT CONSTRAINTS

CAUSES	PROBLEMS	CONSEQUENCES	FARMERS' RESPONSES	BEST ACTION
<ul style="list-style-type: none"> Market mechanics Inproper implementation of govt. policies 	<p>INSTABILITY OF PRICES FOR POTATO</p> <p>↓</p> <p>LOW PRICES OF WHEAT AND RICE</p>	<ul style="list-style-type: none"> Low return (L,N,T) Restricts future plan (S,N,T) Affects future purchasing power for inputs (S,T) Indebtedness (S,N,T) Strengthens commission agent (S,N,T) Weakens farmers' bargaining power position (S,N,T) Leads to further fluctuation in prices (L,N,T) Lower standard of living (S,N,T) Mental frustration (L,N,T) 	<ul style="list-style-type: none"> Credit Seek other sources of income Don't grow potatoes Sell livestock and family jewellery Violence in household 	<ul style="list-style-type: none"> AMSL should take timely action for potato procurement Extension based on market-led research Government to develop export markets.
<ul style="list-style-type: none"> Complicated banking procedures Intimidation Collateral needed (stringent) Lack of information on banking services High interest/mark-up rates Bad marketing by banks Insufficient out-reach of ADBP to small farmers 	<p>ACCESS TO FORMAL BANKING SYSTEM</p> <p>↓</p> <p>DIFFICULT TO GET LOAN FROM ADBP FOR SMALL AND HANDLESS FARMERS</p>	<ul style="list-style-type: none"> Do not get credit Affect timely purchase of inputs Resort to informal credit Sale of livestock and family jewellery Increased workload as seek other jobs Reduced yield Affects standard of living Reduction in household assets (All for S,N,T) 	<ul style="list-style-type: none"> Patronage Resort to informal credit sources Borrow from friends/relatives/neighbours Sale of livestock and jewellery Additional sources of income 	<ul style="list-style-type: none"> Simplify banking procedure Provide information on banking to farmers Formation of credit cooperatives Improve ADBP extension services and out-reach
<ul style="list-style-type: none"> Weakness of farmer's position Strong position of Commission agents No alternatives for farmers Weak market system Corruption No government control 	<p>LATE PAYMENT BY COMMISSION AGENT</p> <p>↓</p> <p>ARBITRARY FIXING OF RATES OF RETURN BY COMMISSION AGENTS</p> <p>↓</p> <p>HIGH INTEREST RATES OF INFORMAL LOANS</p> <p>↓</p> <p>CORRUPTED AND GREEDY MIDDLEMEN</p>	<ul style="list-style-type: none"> Indebtedness of small farmer (S,L,N,T) Vicious cycle of informal credit (S,L,N,T) Sale of livestock (S,N,T) Reduction in household assets (S,N,T) Reduction in income/profit (gets less rate for produce has to go to same commission agent (S,L,N,T) Restricted marketing options → less bargaining power (S,L,N,T) Increase in labour as seek other jobs (S,N,T) Mental frustration and stress (S,L,N,T) Lower standard of living (S,L,N,T) Less opportunities for development for family members (S,L,N,T) 	<ul style="list-style-type: none"> Resort to borrowing from friends, etc Sale of household assets Reduction in household expenditures Additional sources of income Violence in and out of home 	<ul style="list-style-type: none"> Improve present market system Establish alternative marketing/credit system Form cooperatives Remove the middlemen Increase awareness of alternatives in farmers

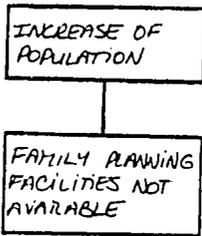
CAUSES	PROBLEMS	CONSEQUENCES	FARMERS' RESPONSES	BEST ACTION
<ul style="list-style-type: none"> • Lack of government funds • Corrupt representatives of government • Weak political system • Bad government system 	<p>POOR INFRASTRUCTURE</p> <p>SHORTAGE OF APPROACH ROADS TO FARMS</p> <p>WRONG PREPARATION OF CULVERTS</p>	<ul style="list-style-type: none"> • Difficult access to markets (L,N,T) • Less opportunity to develop (L,N,T) • Lower standard of living (L,N,T) • Poor health standard (S,L,N,T) • Deforestation (S,N,T) • Inadequate communication (L) • High mortality rate (S,N,T) • Have to pay more for private services (S,L,N,T) 	<ul style="list-style-type: none"> • Private initiatives (in some cases) • Helplessness • Appeal to Union Councillor, (doesn't work well) 	<ul style="list-style-type: none"> • Introduction of self help schemes • Political awareness-raising of people to elect better reps. • NSO formation
<ul style="list-style-type: none"> • Inefficient system of governance 	<p>PAY ROAD TAX BUT NO REPAIRS CARRIED OUT</p> <p>GOVERNMENT NOT KEEPING THEIR WORD (OF SPRAYING CROPS)</p>	<ul style="list-style-type: none"> • Bad roads (S,L,N,T) • Inaccessibility to markets (S,L,N,T) • Low profit/income (S,L,N,T) • Spread of pests & diseases (S,L,N,T) • Low yield / crop loss (S,N,T) • wear and tear of tractor and trolley (L) • Increase in input cost (S,L,N,T) 	<ul style="list-style-type: none"> • Spray themselves • Seek credit 	<ul style="list-style-type: none"> • Pressure on Council for MPA / MAM • Self-improvement for roads • Better agricultural extension
<ul style="list-style-type: none"> • Maladministration • Weak position of farmer • Misuse of accountable power • Corruption • Disintegration of moral values and social system 	<p>POLICE HARASSEMENT IN CITY</p> <p>HARASSEMENT BY MUNICIPAL DEPT.</p> <p>OCTROI POST CHARGE MORE (RECEIPTS SHOW LESS)</p>	<ul style="list-style-type: none"> • Increased expenses (need to bribe) • Mental aggravation • Less income to farmer • Sense of helplessness and frustration (all S,L,N,T) 	<ul style="list-style-type: none"> • Bribe • Resort to patronage • Put up with it 	<ul style="list-style-type: none"> • Form marketing cooperatives • Increase accountability for administrators and contractors • Raise civic awareness

SOCIAL PROBLEMS

CAUSES

- Lack of awareness
- High infant mortality rate
- Lack of decision-making power of women
- Lack of government support
- Social and religious sanctions against birth control.

PROBLEMS



CONSEQUENCES

- Booming population
- Pressure on existing resources
- More children to provide for
- Residential encroachment on agricultural land
- Lower agricultural production
- High female/infant mortality
- Less saving
- Fewer development opportunities for household members
- Pressure on infrastructure/facilities
- Increase in household tensions
- Increasing unemployment
- Deterioration of health, esp. women, children
- Reinforces cycle of poverty

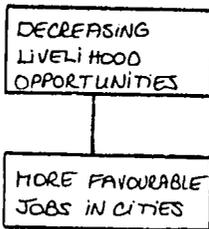
FARMERS' RESPONSES

- Seek additional sources of income
- Seek formal and informal credit
- Reduce household expenditure
- Use traditional birth control methods
- Use privately available contraceptives

BEST ACTION

- Strengthen family planning extension work (Sonaad Nso)
- Raise public awareness
- Focus on male motivation programmes
- Serious implementation of existing government policies
- Neutralize religious and fundamental groups
- Use local notables for propagation of family planning

- Sale of land to professor's colony
- Population pressure
- Low paying, labour intensive agricultural work in group
- Proximity of city
- Rapid urbanization
- Better working environments in city
- Higher status of city jobs



- High cost of labour
- Agricultural labour shortage
- Mechanization of agriculture
- Can lead to lower productivity
- Loss of rural traditions due to daily/seasonal or permanent out-migrants
- Less emphasis given to agro-based livelihood

(not completed)

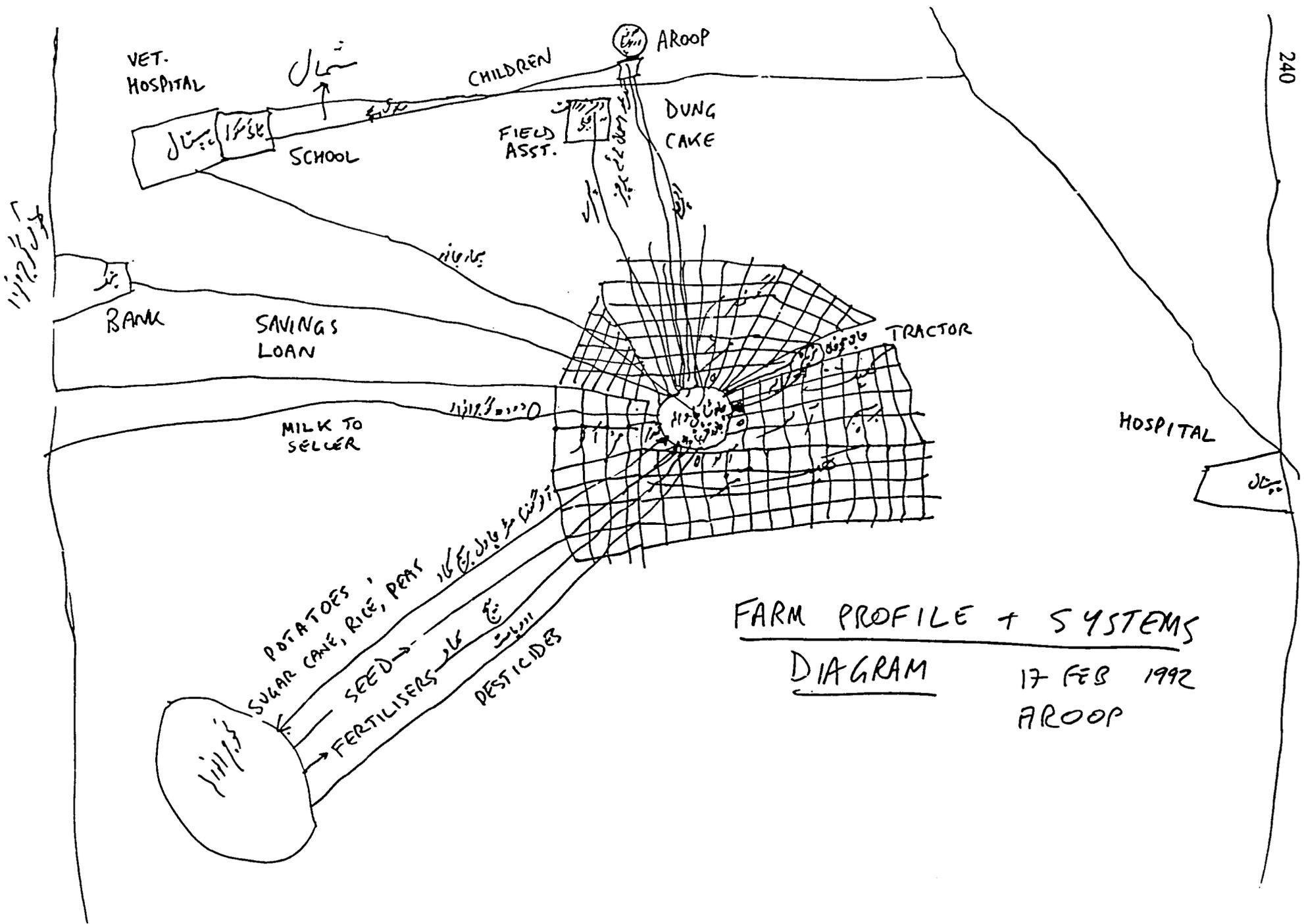
(not completed)

8. PROFILE C OF AROOP

by

Dr Nasrullah Jan Malik
M. Masud Mahmood
Mohammed Asghar
Khaliquz Zaman
Jaffar Shah
Safdar Hussain
Mohammed Sadiq
Abdul Ghani Balouch
Humaira Malik
Afshan Mohsin
Farhana Faruqi
Ahmad Masood Khan
Jules Pretty





FARM PROFILE + SYSTEMS

DIAGRAM

17 FEB 1992
AROOP

Contents of Profile

Diagrams and Process

- Participatory maps (nos 1-6)
- Transect (7)
- Pie diagrams (8-9)
- Historical profile (10)
- Seasonal Calendars (11-16)
- Histogram (17)
- Matrix Scorings and Decision Trees (18-23)
- Venn diagrams (24-25)
- Loans situation - non visual (26)
- Wealth rankings (27-29)
- Systems Diagrams and Flow Diagrams (30-41)
- Decision Tree (42)

Analysis of problems and options for research or policy

- Flow diagrams (43-68)

1. Participatory Maps of Hayatpura, Aroop Village

12/2/92

Location: Aroop Village

Drawn by: Mr. Rizwan

Copied by: M. Asghar and Jaffar Shah

Facilitators: Jaffar Shah, M. Asghar, Jules Pretty

Materials: Sticks, Berseem plants and other crops

Process:

After walking through the village, we met a group of farmers and, after introductions and explanation of why we were in the village, asked them to draw a map of the village on the ground. The drawing was started by Mr. Rizwan who is a BA student. He started job with the help of a stick. The first attempt was rejected by the group and the drawer, as the proportions were wrong. They began again, and the second attempt was more accurate. He indicated fields with the help of berseem plants and houses by squares and rectangles drawn on the floor. When all this was being done in the open, the rain started pouring. The farmers suggested we move to the community centre where the job could be done without any interruption. All of us agreed to the proposal.

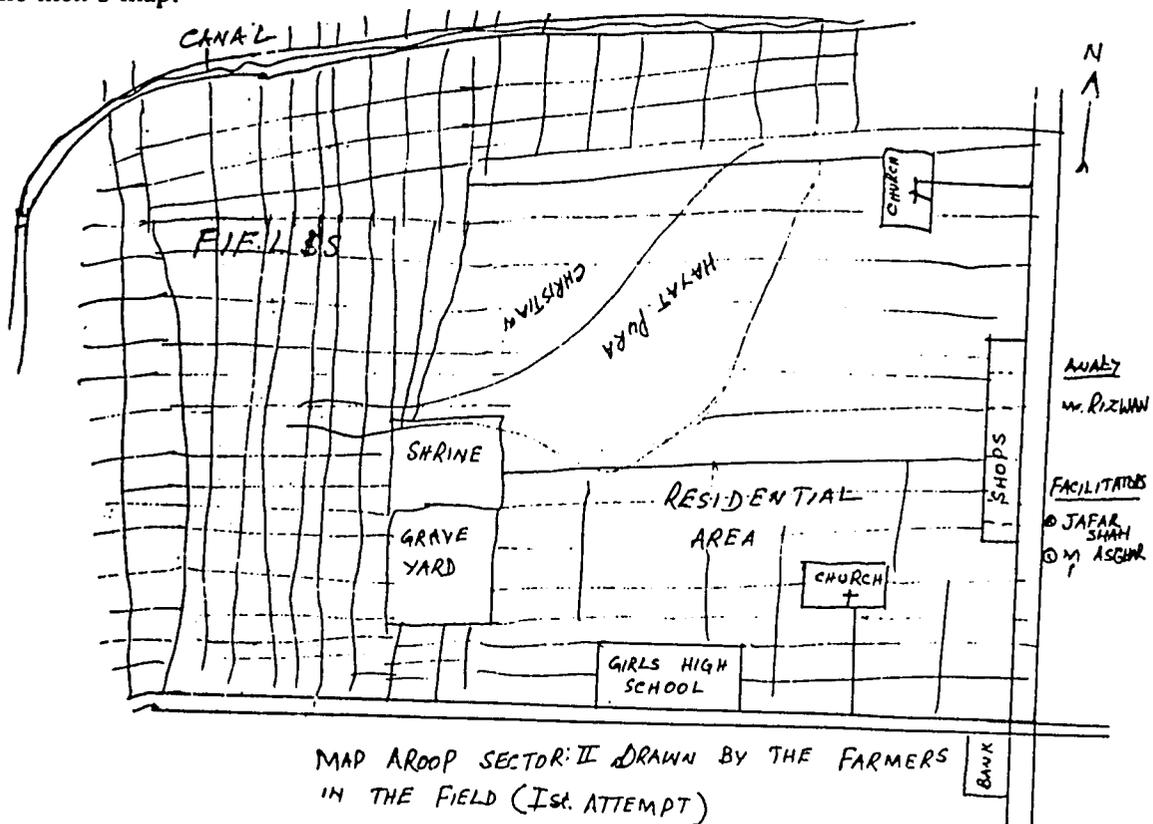
Key findings:

During the very first attempt on mapping it was found that sector II of Aroop village had a Girl's High School, Churches, Shrine, Graveyard, Shops, residences and fields. A big segment of the locality was called Hayatpura and most of the Christians lived in that locality.

Comments:

Punjabi language was used during the process and we presented ourselves as a segment of their community. It was assured that the study would of a great use to their village growers in particular and potato growers of the country in general.

At the same time as the men's map was being drawn, two of the team worked with a group of children on their mental map. This served to involve them productively, as well as ensure they did not interfere with the men's map.



2. Participatory Map of Hayatpura (Aroop village)

Location: In the premises of Union Council

Drawn by: Rizwan, Sardar, Riaz

Copied by: Ahmed Masood

Type of farmer: Mixture (non potato growers and growers); all male

Facilitators: Dr. Nasrullah, M. Asghar, Ahmed Masood, Khaliq Khattak, Malik Masood.

Materials: Chalks of different colours, cards of different colours, orange barks, pieces of bricks, berseem stalks and sarsoon plants and other crops.

Process:

Mr. Rizwan started to draw the map on the floor of Union Council Centre who was later joined by Mr. Sardar and Mr. Riaz. He first drew the main roads with chalk and then residential area, including the houses of both Muslims and Christians. Gradually he drew all the things inside the village e.g. Bank, Mosques, churches and Shrines using different symbols. Lastly he drew the fields where they cultivate the crops using the symbols of crops with berseem plants. Pieces of yellow card were laid on fields with potatoes, and these were folded to indicate where a winter and spring crop was cultivated. During drawing of the map a great number of people came there and rushed towards the map and started to give different opinions to the drawer.

Key findings:

Almost all kinds of facilities e.g. Mosques, Churches, transport, schools, Bank and other shops of daily use were present. The names of potato growers together with their landholding sizes were easily gathered from the map. Having been in the village only half a day, we already had many details of location of growers, names, range of crops cultivated. This helped in planning for the transect walks.



3. Participatory Village Map: Women's Perceptions

19/2/92

Location: Aroop Hayatpura, fields near residential area

Drawn by: Dilshaad - A young Muslim woman

Copied by: Farhana

Type of farmer: Mochi - an occupational group. Also in agricultural labour

Facilitators: Farhana, Humera, Afshan

Materials: Stick, chalk, clover leaves, thorn bushes

Process:

It was our first day in the field. Heavy showers of rain made it difficult for us to persuade women (villagers) come to an open space to draw the map. Finally we succeeded in persuading an old Muslim woman of an occupational group to provide us with information regarding her village. By that time women of surrounding houses had gathered into small groups, chatting in the lane next to the open space we were sitting. I requested the old woman to ask some Christian women to come as we were also interested in knowing about them. After about five minutes she came back with quite a big group of women (8 to 10) both Muslim and Christian. However, the minute they reached us most women started accusing us of tricking them into coming so that we could take their photographs. We then had to tell them that 'we' are also sisters and daughters of Pakistani men (sic) to understand their worry, respect our cultural norms especially regarding women position in the society and would not let anyone take their photographs. But apprehensive feelings and mistrust continued for quite sometime until one of the older women scolded them for being silly.

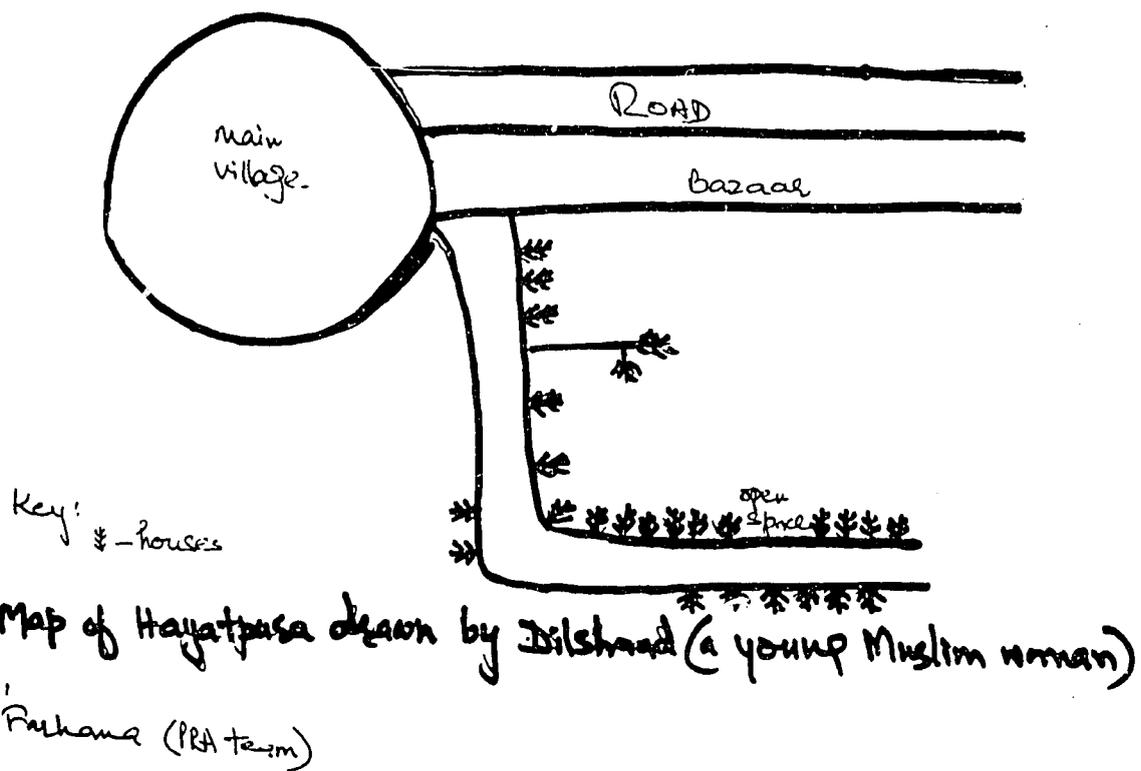
Once this problem was somewhat settled we told the women why we were there (the objectives) and asked them to draw village map. It sent them peeling with laughter. The first response was "we are illiterate we don't know how to draw a map" and second response was "Aroop is huge, we know only about our Mohallah (the neighbourhood)". Women were very shy and hesitant, some were laughing at us, making fun of us. Finally, the same old Muslim woman (the first informant) picked up a stick, without any of us suggesting it, and started drawing a huge circle for the big Shrine (with much respect and reference in her voice), then small Shrine, Mosque, and then she was indicating (pointing with her stick) houses of the two big landholders of the village (Cheema and Bhinder). When she was rudely interrupted by a young woman who started rubbing-off the map with her feet, telling the old woman to stick to the Hayatpura boundaries. This offended the old woman, who threw the stick down on the ground and screamed at the saboteur. At this point many women started drifting away. However, from within the group two young women started talking how they would like to draw the map of Hayatpura. (By this time the other two team members asked a Christian woman to draw the map slightly away from the first place). I encouraged the young women to pick up the stick and draw the map. With much giggling they started drawing the map. Then one of them went and brought a thorn bush, which she stuck in the ground as doors for each household drawn by the others woman informant (Dilshaad).

Key findings:

In the first case (old female informant) it shows that her perception of the village physical layout was strongly related with religious belief system, especially her association with Shrines. In the end case (the young female informants) the map indicates that their world view and perception of village is limited to their compounds and neighbourhood.

Tips:

We identified ourselves with them by putting ourselves in the same cultural context. "*Hayatpura is all we know of our village. I am not a daughter of this village, I am married here and don't want to put the men (kins) of my husband's family in an embarrassing position by roaming in the village*". Then she was asked to come to the open space where other women were drawing the map just across her house).



4. Women's Social map of Hayatpura

16/2/92

Location: Aroop, Hayatpura, in house.

Drawn by: Farhat (a young Jat woman) daughter of Noor Hussain Cheema.

Type of farmer: Father comes in the richest/large landholder category.

Facilitator: Farhana

Materials: Chalk, pebbles and sticks on ground, paper, marker.

Process:

The young woman was very hesitant to draw the map. Spent about twenty minutes talking her. Started explaining the objective of our visit but she immediately cut me short, saying that "I belong to a Jat family. Women in our family don't work in the fields nor do they know anything about farming so I am not interested in knowing potato farming". Then I shifted my focus on explaining - a length - the technique (social mapping) without saying what I would like her to include in it and what leave out. Emphasized that I would be coming for another couple of days and would like to orient myself with the area (Hayatpura). This encouraged the woman, who then started drawing the map with a stick but since the ground was too hard and lines not clear, I gave her chalks to use. Later she used little stones for houses. Half way through she asked if she could draw the map on the big sheet I was carrying. Two other young women joined her, supplying information which she had missed out.

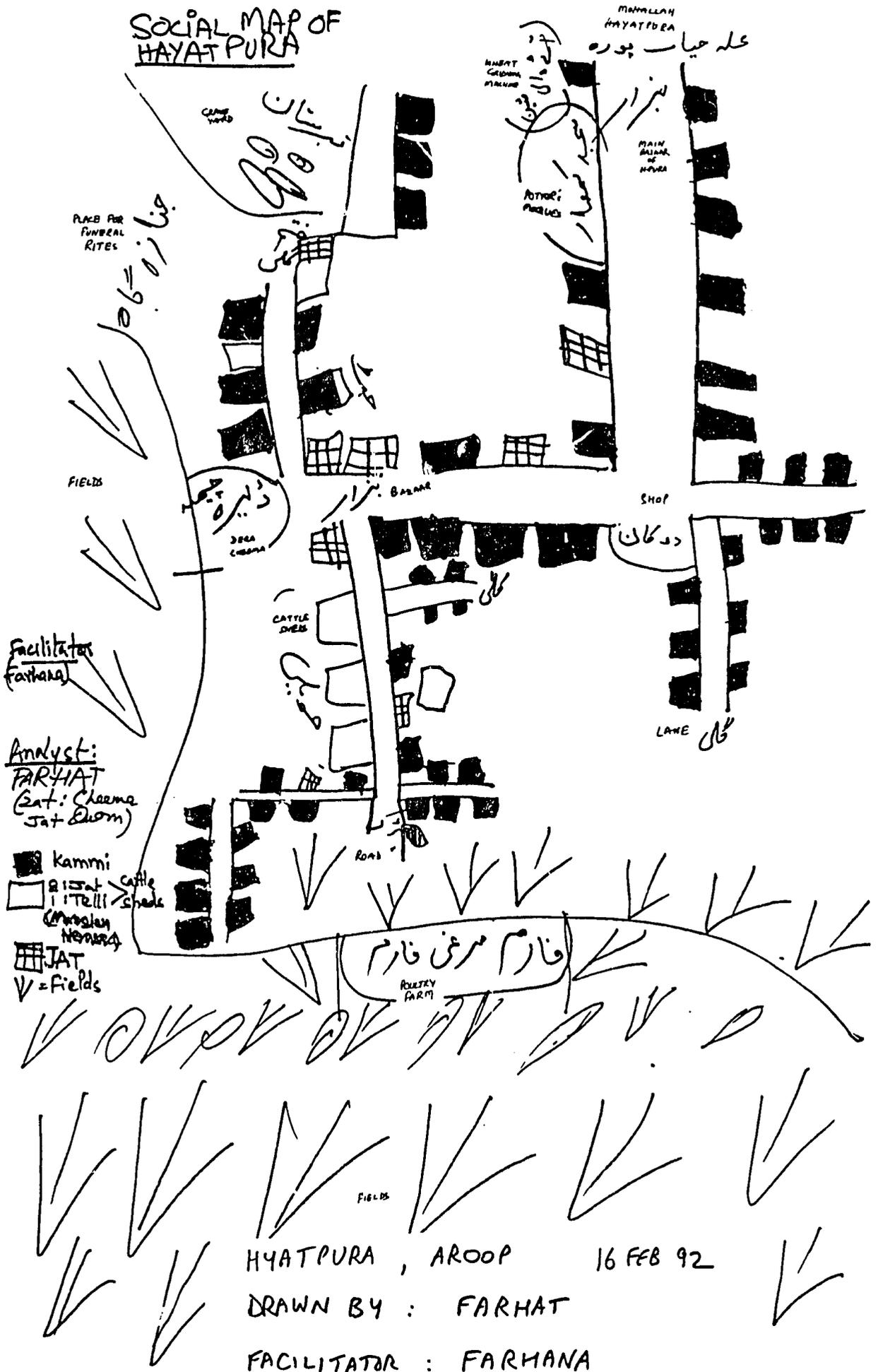
Key findings:

Originally (about 10 years back), Hayatpura was strictly a neighbourhood of Kummi (occupational groups), surrounded by agricultural fields. However, some of the Jat (landholding) families grew bigger in size (sons got married and started their families) so decided to leave Cheema Mohalla (a neighbourhood of Cheema lineage) and built houses on their agricultural fields. All the Jat women present there were highly conscious of the fact that they are now living in their "serf" neighbourhood.

Tips:

"Our old house was just across from the "Cheema mosque" and here we are living near the Kumiaran-de-maseet (mosque built and known as Pottor's mosque". I showed sympathy with the woman that they had to leave the old neighbourhood of which she appeared to be very proud of.

SOCIAL MAP OF HAYAT PURA



HYATPURA , AROOP 16 FEB 92
 DRAWN BY : FARHAT
 FACILITATOR : FARHANA

5. Mapping of fields on a transect walk

13/2/92

Location: Fields of Aroop (Hayatpura)

Drawn by: Afshan

Copied by: Ahmad Masood

Facilitator: Ahmad Masood, Afshan, Safdar

Materials: Pen and note book

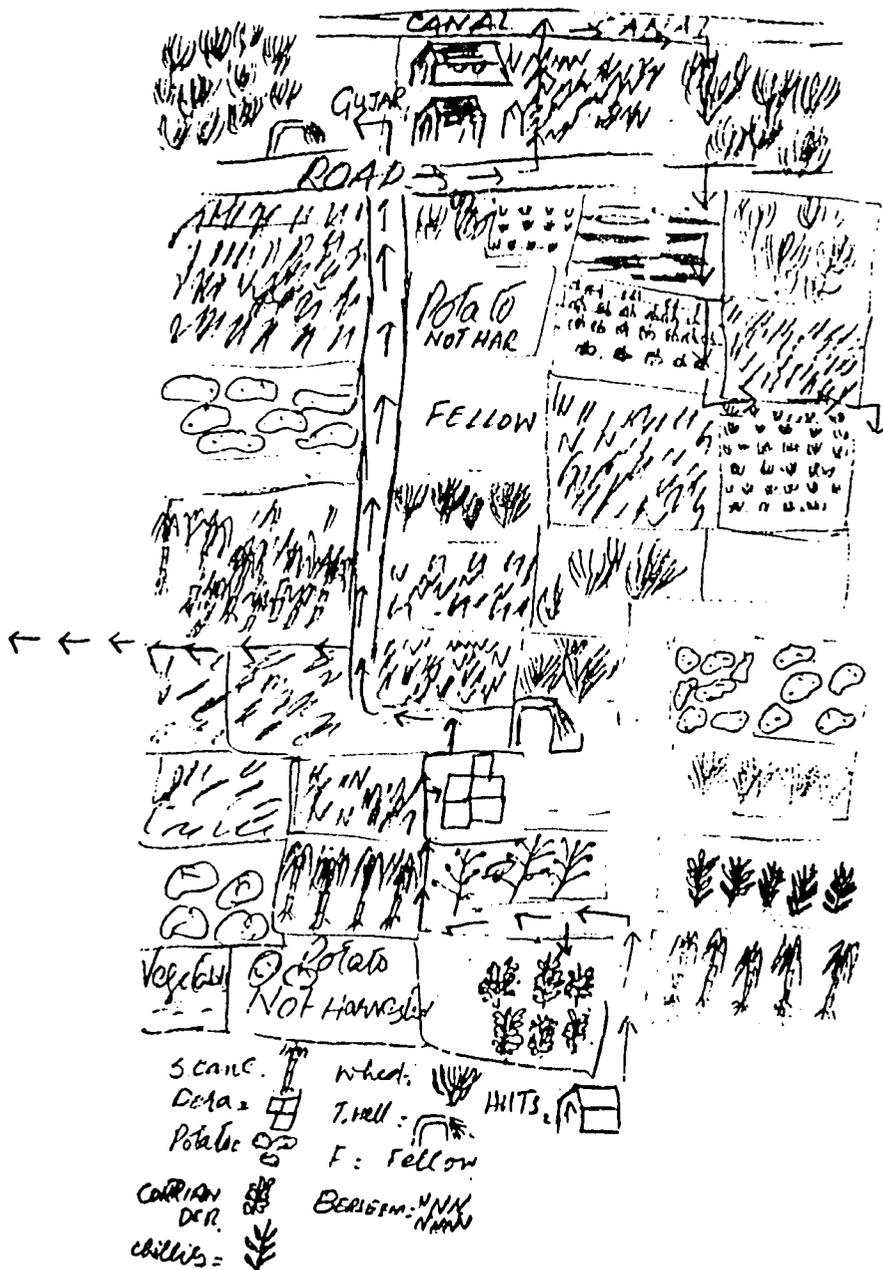
Process:

This map was drawn in the note book when we were walking through the fields of different crops, and later copied on large white paper.

Key findings:

More areas of wheat and berseem crops were under cultivation. Less was under spring potato crop. Not yet harvested were some fields of autumn crop of potato. There is little area under sugar cane and vegetables. Tubewell irrigation is also in process beside the canal irrigation.

MAPPING OF FIELDS ON A TRANSECT WALK



6. Maps by Women

12/2/92

Location: Aroop, Hayatpura, open space outside residential area

Drawn by: Hameeda Bibi, Perveen

Copied by: Humera Malik

Facilitator: Afshan, Humera, Farhana

Materials: Cards, markers, flowers, stones, chinks, sticks

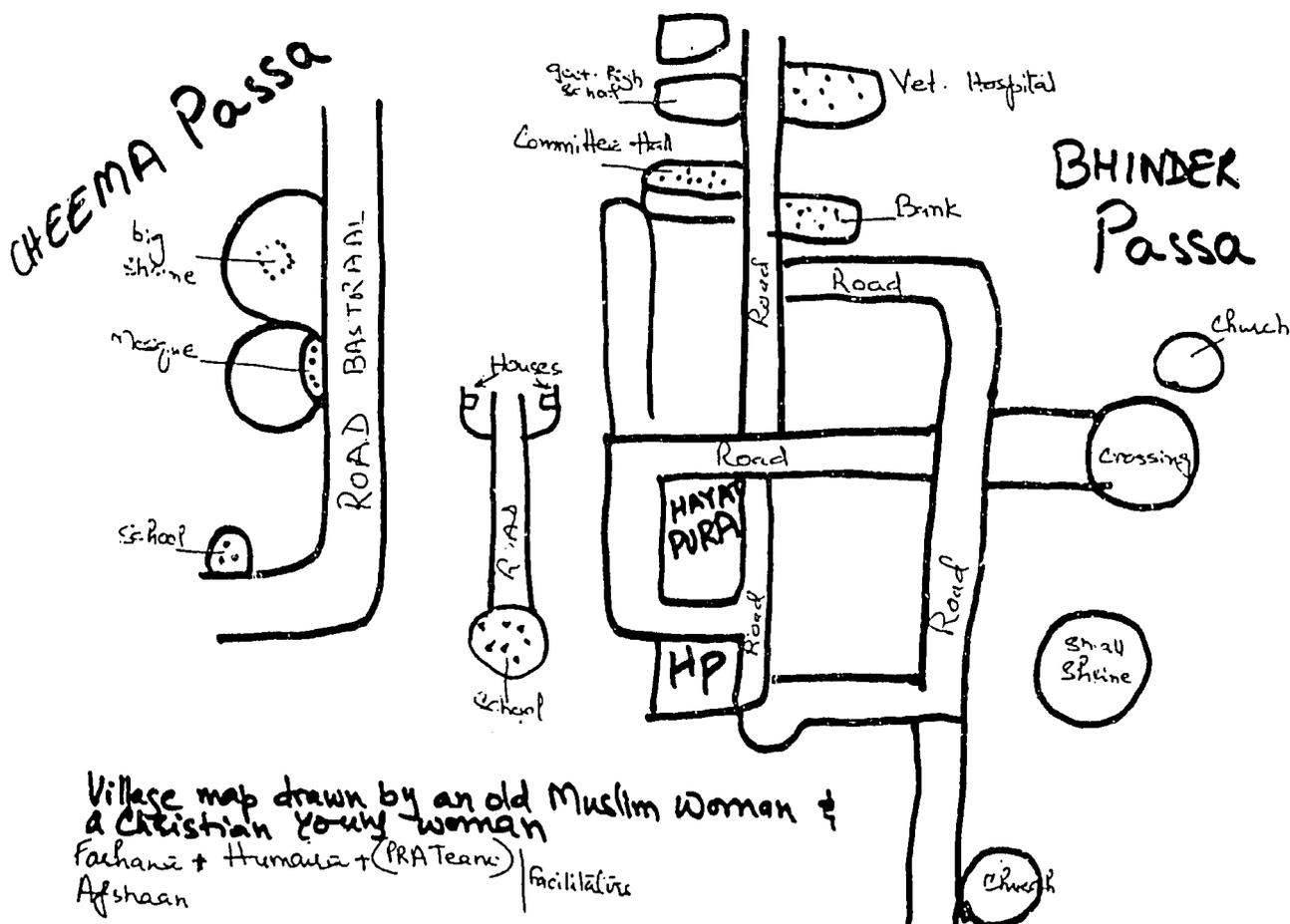
Process:

This map was drawn by an old lady though in the end a Christian young girl jumped in and added some more things like church and houses where Christians are living, which were not drawn by that old lady. This old lady in fact was the one who first of all took the initiative to draw the map and for her own self, more important places were shrines and mosques and in between road where there are few shops, that lady was sabotaged by a young girl. She was very disappointed by that action then one PRA team member by giving her a stick told her to draw her own separate map. This time she started by drawing roads because Christians were talking about roads and then divide the whole village into three sections. In the meanwhile other female got attracted by this map came around this map and started giving their own suggestion and comments. This old lady then left the place and christian girl took the stick and added other things.

Key findings:

It was observed that there is a difference between Muslim women's perception about their village and Christian women's perception of this village.

Muslims/Christians: In the process it was observed that muslim women were more concerned about Shrines and Mosques than their houses, while for Christians roads are more important may be because Church is outside the village and they are more aware of institutions situated outside the village like bank, committee hall, school buildings etc.



7. Transect walks and transect diagram 13,16,17/2/92

Process:

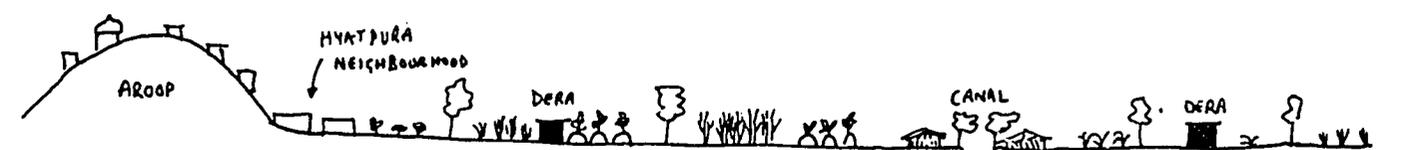
Sub-groups of the team used the transect walk method to sample all of the fields in the Hayatpura sector. Each day three sub-groups agreed a different direction and objective end-point, such as reaching the periphery of the village, or aiming for a particular *dera*. This method ensures that (1) the team meet farmers in their fields; (2) observe current practices.

Semi-structured interviews were undertaken throughout. Participatory diagramming was more successful when interviews were located in the *deras*, rather than in the fields.

Key findings:

A summary of the two main zones is contained in figure. The zone on the canal side of the village is sandy-loam soil and contains all the potato growing. On the periphery of the canal the soil is heavier - here rice is grown. All livestock are kept in *deras* in the fields. The village pattern is typically nucleated and all people live in the town except the Gujar community who live by the canal.

TRANSECT DIAGRAM - DRAWN FROM SEVERAL TRANSECT WALKS



ALL RESIDENTIAL HOUSING	LIVESTOCK DERA	GUJAR COMMUNITY	LIVESTOCK DERA
SOILS	SANDY - LOAM	CANAL	CLAY LOAM
CROPS	POTATOES , WHEAT , BERSEEM , SUGAR CANE FODDER OATS VEGETABLES - ONIONS , TOMATO , SQUASH	FREE . GRAZING	WHEAT , RICE , BERSEEM , SUGAR CANE , FODDER OATS ONION , TOMATO , SQUASH
LIVESTOCK	BUFFALO , FEW CATTLE	BUFFALO	BUFFALO , GOATS , SHEEP
TREES	FEW FUELWOOD TREES	FUELWOOD	FRUIT - GUAVA , BANANA MANGO
PROBLEMS	POOR QUALITY RURAL ROADS SOME WATERLOGGING HIGH COST ELECTRICITY FOR TUBEWELLS PESTS + DISEASES SEED AVAILABILITY + COST LABOUR SHORTAGE	ACCESS TO FODDER + LAND	ACCESS TO MARKETS WATERLOGGING ELECTRICITY PRICE PESTS + DISEASES LABOUR SHORTAGE

8. Pie Diagram of Total Area under Cultivation for Five Crops

Location: Aroop (Veterinary Hospital)

Drawn by: Afshan

Copied by: M. Asghar

Type of farmer: Small

Analysts: Master Sharif, Sadiq Masih, Ilyas Masih

Facilitator: M. Masood, A. Masood, A. Ghani, Afshan

Process:

The circle was drawn by the facilitators and it was an ice-breaker. Then they were asked to indicate relative area of different crops grown by them, by choosing relative area in the circle. Cash flow from different crops was indicated by the lines. More lines indicate more cash. The crops were identified by them. They drew lines for cash for different crops and % of total area for 5 mentioned crops.

Key findings:

Potato got the highest position both in the area and cash returns.

Wheat ranked second in terms of area, followed by maize, sugar cane and peas respectively.

Sugar cane ranked second in terms of cash return, followed by wheat, peas and maize respectively.

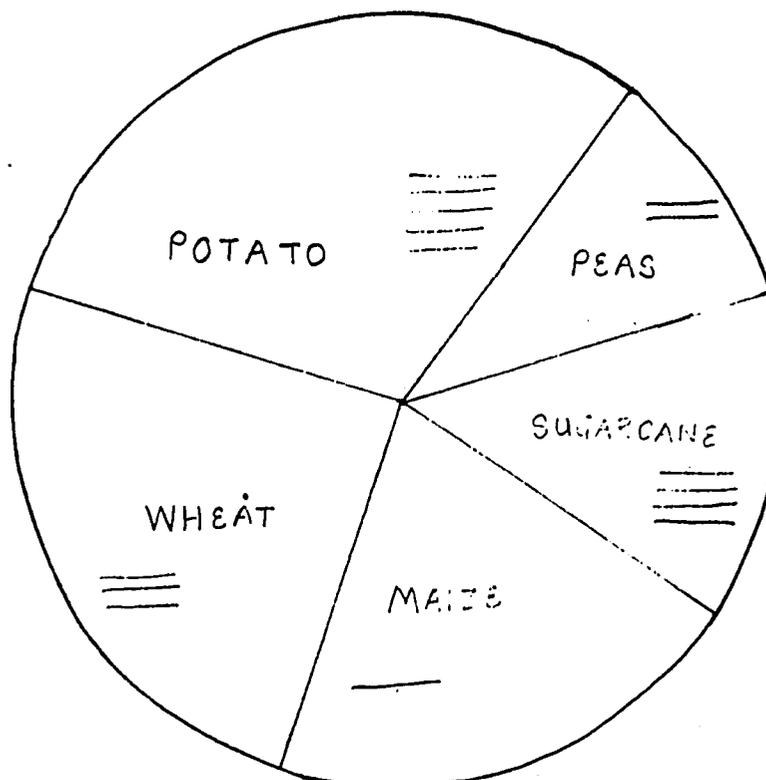
Village: AROOP

ANALYSTS:

MASTER SHARIF
SADIQ MASIH
ILYAS MASIH

FACILITATORS:

M. MASUD
AHMED. MASUD
A. GHANI
AFSHAN



- PIE DIAGRAM OF TOTAL AREA UNDER CULTIVATION FOR FIVE CROPS IDENTIFIED BY FARMERS OF PUKKA DERA
- Stripes indicating ranking of comparative cash returns by farmers

9. Cropping schemes 1991, 1992

16/2/92

Location: Farmer's field

Drawn by: M. Asghar

Type of farmer: Large, non-grower

Facilitator: M. Asghar, Dr. Nasrullah, A. Masood, K. Khattak

Materials: Paper (round) and lead pencil

Process:

We approached the farmers in his sugar cane field where the crop was being harvested. He was questioned about his cropping scheme during 1991 and 1992. When he started explaining he was given some circular paper in order to quantify his acreage on it. According to him his cropping scheme for the year 1991 was as under:

Berseem after rice:	6 acres
Sugar cane:	1 acre
Wheat after rice:	2 acres
Rice:	8 acres
Peas:	2 acres

Total cropped area: 19 acres

His planned cropping scheme for the year 1992 was as under:

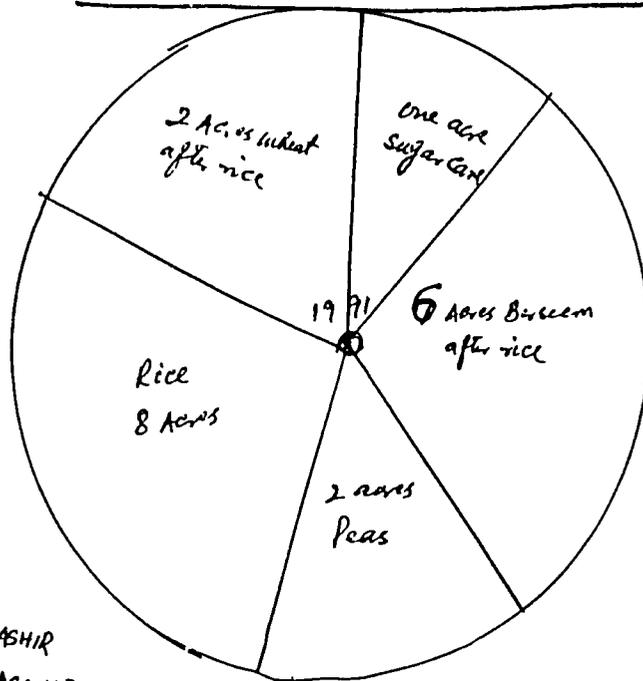
Berseem:	4 acres
Sugar cane:	3 acres
Wheat:	8 acres
Rice:	8 acres
Potato:	2 acres
Peas:	2 acres

Total cropped area: 27 acres

Key findings:

1. The farmer is planning for an intensive cropping during 1992 as compared to 1991.
2. He is more interested in wheat and sugar cane.
3. He is going for potatoes also during 1991.
4. He got a good control of weeds by plant rotation i.e. planting berseem after rice. The weeds will be eradicated by frequent cuttings of berseem.

CROPPING SCHEMES FOR 1991 AND 1992



ANALYST = CH. BASHIR
 FACILITATORS = M. ASGHAR
 DR. NASIRULLAH
 AHMAD MASOOD
 K. KHATTAK



10. Historical Profile of Crops

13/2/92

Location: Aroop (Veterinary Hospital)

Drawn by: M. Javaid, Rana Bashir

Copied by: M. Asghar

Type of farmer: Large and medium

Facilitator: Afshan, A. Ghani, M. Masood

Materials: Large size paper, marker, ruler

Process:

The farmers identified the crops themselves and drew the signs for related crop on the piece of paper with the help of a marker. Eight is the maximum number for the crops grown on the major portion of the land. They mentioned the years when they knew the situation.

Key findings:

1. Potato: More or less constant in the 80's.
2. Peas: Introduced in 1971. The cultivation increased in the three years and is constant.
3. Wheat: More in the beginning. Constant for the rest of period to 1991.
4. Sugar cane: Cultivation decreased gradually and is much less now.
5. Maize: Constant in 80's.
6. Tomato: Introduced in 1971. Cultivation increased in 1990/91.
7. Okra: Introduced in 1971. Constantly grown.
8. Melon: Mixed trend. More in the beginning and mixed in the middle.

Potato, peas, and wheat are the major crops grown in the village now.

CROPS HISTORICAL PROFILE

Farmers chose the years themselves according to their importance to them

YEAR	POTATO	PEAS	WHEAT	S. CANE	MAIZE	TOMATO	LADY FINGER	MELON		
1956	4	—	8	7	6	—	—	5		
1971	3	4	8	6	7	2	1	5		
1975	8	7	6	4	5	1	2	3	ANALYST	
									o JAVED	
									o RANA BASHIR	
1980	7	8	6	4	5	1	2	3	FACILITATORS	
									o AFSHAN	
									o M. MASOOD	
1982	7	8	6	4	5	1	2	3	o A. GHANI	
1987	8	7	6	3	5	1	2	4		
1990	7	8	6	1	5	4	2	3	Scale 1-8	
									Low # show	
									less area under	
1991	7	8	6	1	5	4	2	3	Crop	

11. Seasonal Cropping Pattern Calendar

13/2/92

Location: Aroop (Hayatpura) *dera* of Mr. Inayat Masih (Western bank of Canal)

Type of farmer: Land holder (small farmers)

Facilitator: M. Asghar, Jaffar Shah, Farhana

Materials: Paper, Pens, Rubber

Process:

The group (facilitators) approached the farmers who, after cutting fodder, were relaxing in the *dera*. There were four farmers. All of them belong to Bhindar tribe and were in the category of small farmers. The group introduced themselves and told them about the objective of the survey. Mr. Inayat Mohammed (elder one in the group of four) was the main informant and was assisted by other farmers (1 old, 2 young). They were asked about the cropping pattern being practised in the western portion of Hayatpura. They explained in their own local calendar and it was transformed into English calendar by the facilitators.

Problems: Due to heavy rain and cold, the farmers were not asked to draw the calendar on the ground.

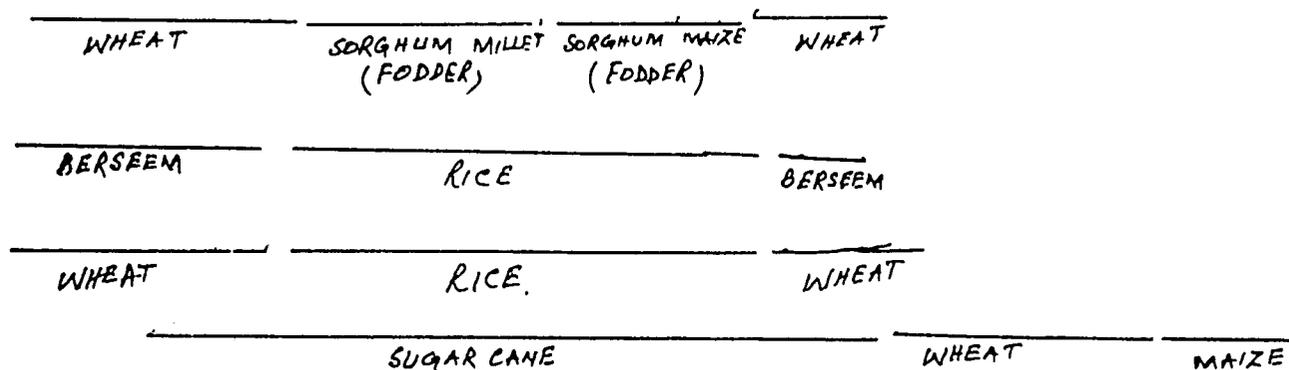
Key findings:

The cropping patterns being practised by them in that portion is as follows:

1. Wheat - sorghum/millet (fodder - sorghum/maize (fodder) - wheat.
2. Berseem - rice - berseem
3. Wheat - rice - wheat
4. Sugar cane - wheat - maize.

The farmers indicated the milk production in the form of a curve in the same calendar. It shows that: milk production is directly related to the berseem curve. The lowest milk production is obtained in the months, May-September. The low milk yield is due to fodder shortage, hot and dry weather, mosquitoes and flies.

J. F. M. A. M. J. J. A. S. O. N. D. J. F. M. A. M. J



MILK PRODUCTION

CROPPING PATTERNS

- i, Wheat - Sorghum millets - Sorghum maize - wheat
- ii, Berseem - Rice - Berseem
- iii, Wheat - Rice - wheat
- iv, Sugarcane - wheat - maize

ANALYST

* INAYAT MOHAMM.

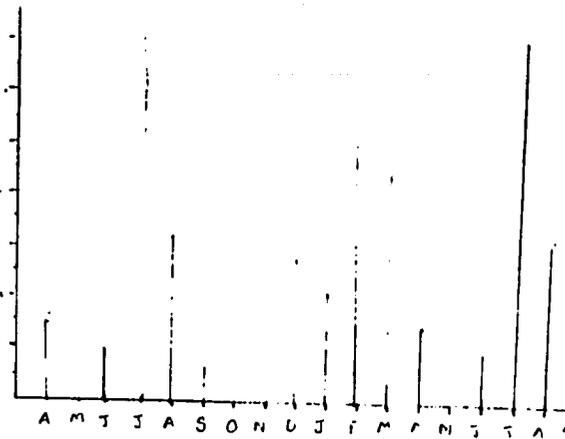
FACILITATORS

* JAFAR SHAH

* M. ASGHAR

* FARHANA

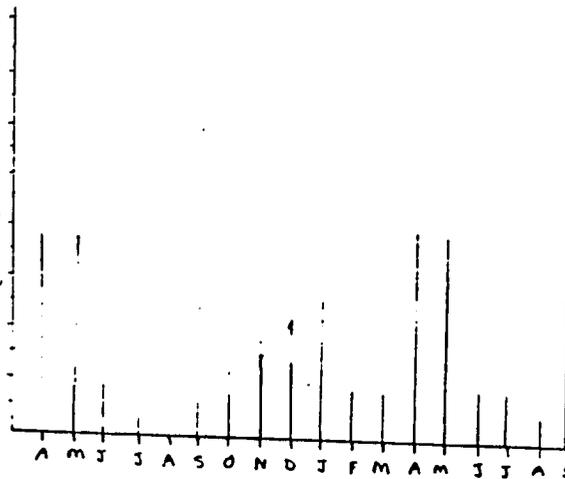
INFORMANTS
 MASTER SHARIF
 AND OTHERS
 INFORMANTS
 USED STICKS
 to show
 rainfall



Average
 rainfall in a year

INFORMANTS
 USED BRASIKA
 to show
 labour demand

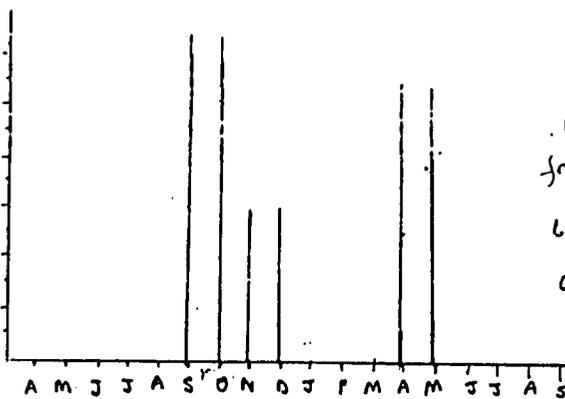
INFORMANTS
 MASTER SHARIF
 NIAMAT MASIH
 SADIQ MASIH



Comparative
 labour demand
 as identified
 by male farmers

INFORMANTS
 MADE LINES
 IN THE SOIL
 WITH A STICK

INFORMANTS
 SEEMA BIBI
 AND
 OTHERS



COMPARATIVE
 female labour demand
 in the fields
 as identified
 by females.

FACILITATORS
 MHA, MAHMOOD, ABZHAN, GILAN

12. Seasonal Calendar of Rainfall, Labour, Disease and Berseem

13/2/92

Location: On the Pucca dera of Nabi Bukhsh

Drawn by: Master Sharif, Sadiq Christian Khirat

Copied by: Ahmed Masood, Malik Masood

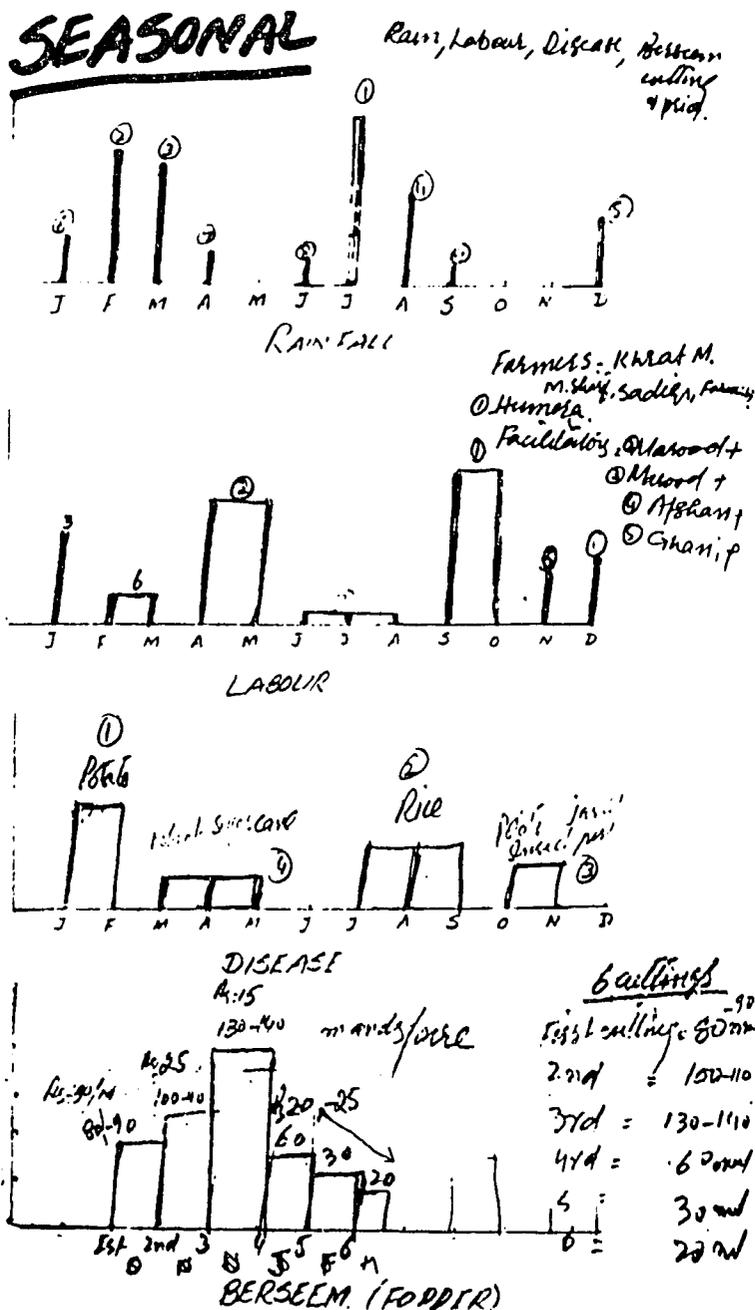
Type of farmer: Tenants

Facilitator: Malik Masood, A. Masood, A. Ghani, Afshan

Materials: Cotton sticks, berseem sticks, sarsoon stalks, many different kinds of weeds

Process:

When participants team were passing through the fields of different crops ie. wheat, berseem, potato and vegetables two farmers met and walked us to the Pucca dera for more details about seasonal calendar. There M. Sharif started to draw the rainfall pattern with cotton sticks of different size on the ground and then he used berseem stalks for labour and different kinds of weeds as a symbol for diseases. After completing the seasonal calendar we met a farmer in the field while he was cutting the fodder along with his family including ladies and men. In the whole process the problem is that people told the name of months in local language which we did not understand.



Key findings:

- Maximum rain is July and then February
- Rainy season is changing since five years
- Less rains than in previous

Labour: More labour at the time of sowing of potato in September and October - both women and men involved. Labour problems (shortage) because specific persons know the cultivation of vegetables (potato). In April and May wheat harvesting and threshing - still labour problem, as people dislike working under sun.

Diseases: More diseases in the month of January and February like late blight and aphids. In June, July and August paddy was badly attacked by collar rot in the previous year.

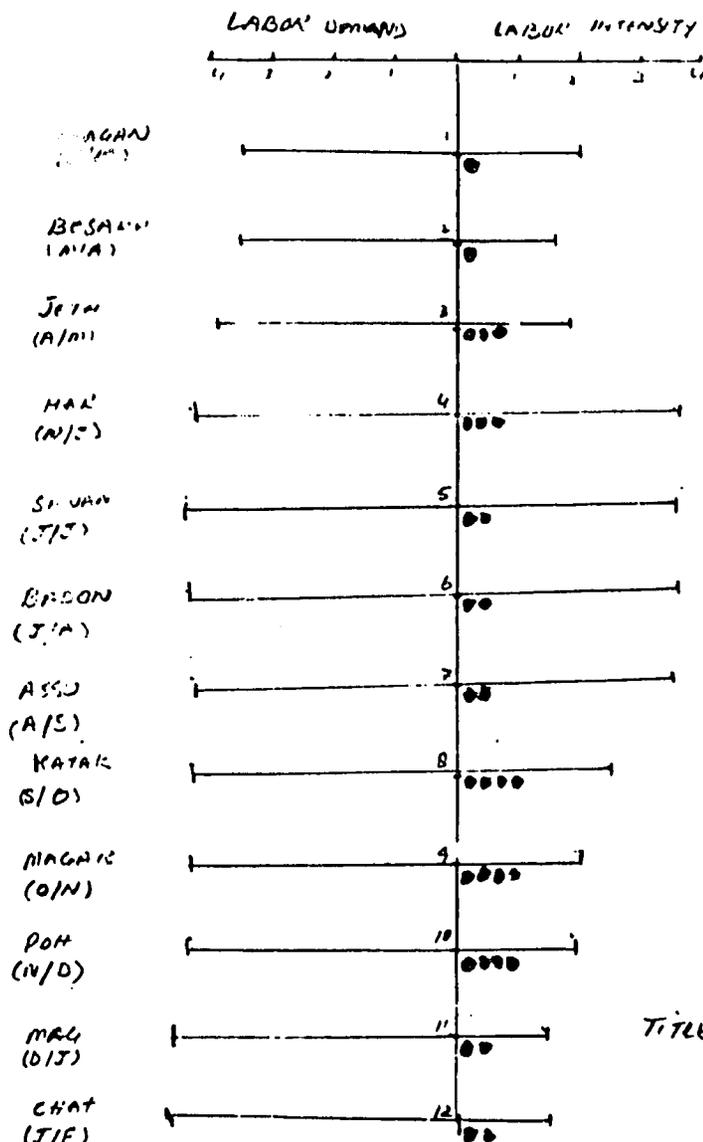
Berseem: Maximum berseem production after second cutting because of rain and more tillering. Maximum return at the first cutting Rs. 30/maund in rains season due to transport obstacle. Again maximum return after the cutting due to less production.

13. Demand for Labour - on 12 Months Calendar

Location: *Dera* of M. Ikram
 Drawn by: M. Ikram
 Type of farmer: Small
 Facilitators: Nasrullah Jan, Jules Pretty
 Materials: Sticks on ground

Process:

In the *dera* of Mohammed Ikram, we got help of two farmers explaining the labour demand across the month in a year farmers were illiterate. The facilitator put a small pile of berseem leaves each indicating a Desi month. The farmer started with the on-going month (Phagun). We gave him small sticks and he started putting stick on each month, the length of the stick showing the amount of labour needed for paddy crop. During middle of this process he realised he also grown wheat crop then he changed the length of the sticks accordingly. While doing so he then about intensity and difficulty of the work he does, eg. working in muddy field of rice or wheat harvesting in parching heat. To indicate the difficulty of work putting separate sticks for on the other side of the month line. When he finished he gave consideration to labour he hires from outside his family. He made small piles of sticks and put them along with the long stick across each month. Each small stick showing one labour hired during that month. This was a sequential development of a diagram of labour demand, difficulty in performing work and the number of labour he hires.



Key findings:

The diagram indicates the highest labour demand during harvesting, Badon Assuj due to Paddy plantation and wheat harvesting simultaneously. The facilitator did not know Desi months and the farmers did not know the Christian calendar. A nearby person who was Patwari helped identifying the months, indicate on the map.

The work is done during parching heat and muddy fields so difficulty of work also got the highest scoring on the scale. The labour demand was almost the same from Har (May/June) to Chat was due to wheat sowing and paddy harvesting, but the intensity and difficulty had lower scoring during those months. Small circles along the intensity lines show the number of farmers he had to hire each month. The highest number he has to hire is during Katak, Magar and Po due paddy harvest and in Har due to wheat sowing.

TITLE: LABOR DEMAND (L), LABOR INTENSITY AND LABOR HIRED OUTSIDE HIS FAMILY
 FARMER: MOHAMMAD IKRAM
 FACILITATOR: PRETTY, MALIK

14. Circular Seasonal Calendar of Crops (Time of sowing and harvesting)

13/2/92

Location: *Dera* of Nabi Bux

Drawn by: M. Asghar

Type of farmer: Large growers and middle growers never large

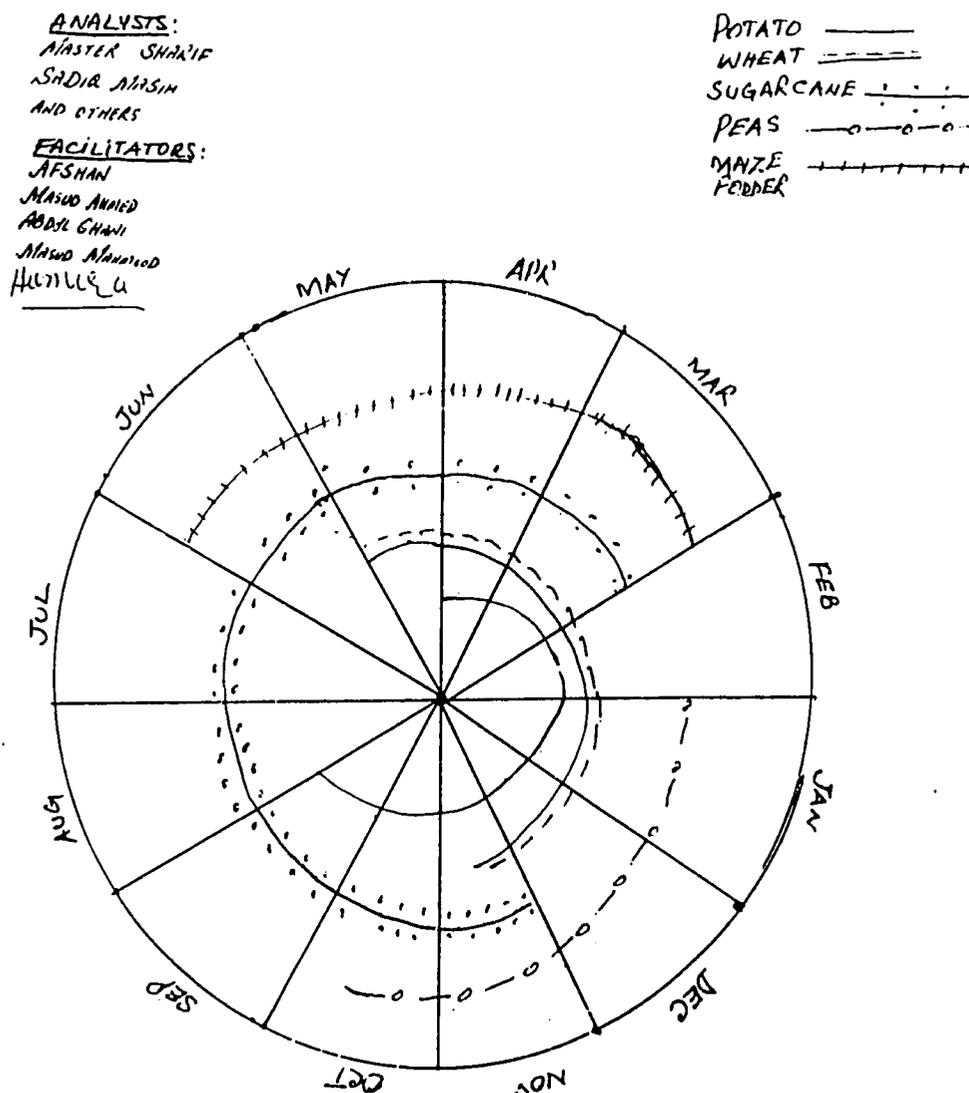
Facilitators: Afshan, Masood A, A. Ghani, Masood M, Humera

Materials: Paper and markers

Process:

On the second day of visit to village Aroop, are met a large number of farmers on the *dera* of Nabi Bux, who is the actual owner of the land comprising of 45 acres. Some of the land was rented to Mr. Sadiq Masih @ Rs.5000/acre per year. The informants were asked to give the life period of different crops being grown by them. The facilitators made a circular paper and marked the calendar months around it. The analysts also converted their local months into calendar months.

Potato According to the analysts the autumn potato crop is planted in the month of September and harvested in December/January. Simultaneously the spring crop is planted in the month of January and harvested in April. More area is cropped during the autumn season as compared to the spring season because the crop of later season is more susceptible to insect pests and diseases. **Wheat** The crop is planted in November/December and reaped in April/May. **Sugar cane** The crop is planted in March and harvested in the month of November which may sometimes extend to December. **Peas** This is also one of the main vegetable crops of the area. Its planting is done in the months of Oct/Nov and picking is completed by January. **Maize (fodder)** Maize fodder grows from March to June. Sometimes the fodder crop is harvested much earlier and a second maize fodder crop is planted on the same land immediately.



15. Seasonal Calendar

13/2/92

Location: Aroop, Hayatpura at *dera*
 Copied by: Humera
 Type of farmer: Group of small potato growers
 Facilitator: Humera Malik, Safdar Hussain
 Materials: Drawing charts, markers

Process:

We started by asking about the desi months of the year and agricultural activities during these months. First of all they list out all the months on a drawing chart, a young boy was helping them in writing the names, it was decided by the farmer to complete time cycles of their crops, that we need to write 18 months they started by invites the first month of their year and respective activities and continuity for next 17 months.

Then PRA team member asked about the credit demand by the farmer's and five fate were considered on maximum demand for credit. We asked them to write down the reason also. Similarly PRA team asked about the expenses and income and source of income. Farmers were accordingly answering these questions and at the same time also consulting other farmers sitting around them.

Key findings:

It was observed that since they were illiterate they were not taking any consideration of previous information, in other words they were not correlating their information on credit demand with expenses and income in that respective months. However, everything was going in a very natural flow and surprisingly in the end it was observed from the chart that every information was related to each other and had sequence.

SEASONAL CALENDER FOR CREDIT DEMAND, EXPENDITURE & INCOME FLOW.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	August
Order	Chait	Bas	Jaith	Hur	Sawa	Chadron	Assog	Kashak	Magar	Magar	Magar	Phaga	Chark	Bas	Jaith	Hur	Sawa	Chadron
Preceding Activities	Mowing	Insecting	Harvest of wheat	Threshing of wheat	Prep for rice	Rice	Transplant	Weeding	Weeding	Harvest of rice	Threshing of rice	Harvest of wheat	Threshing of wheat	Prep for rice	Rice	Transplant	Weeding	Weeding
① Credit Demand	-	-	-	00	0	-	-	-	00	00	00	00	00	00	00	00	00	00
Reasons				Labour for rice	Rice transplant	Labour			Sowing of wheat	Labour	Labour	Labour	Labour	Labour	Labour	Labour	Labour	Labour
② Expenses on Agriculture	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Specific Agricultural Activities	Labour	Labour	Labour	Labour	Labour	Labour	Labour	Seeds	Seeds	Labour	Labour	Labour	Labour	Labour	Labour	Labour	Labour	Labour
③ Income (Flow)	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Sources	wheat	barley	barley	barley	barley	barley	barley	Rice	Fodder	Fodder	Fodder	Fodder	Fodder	wheat	wheat	wheat	wheat	wheat

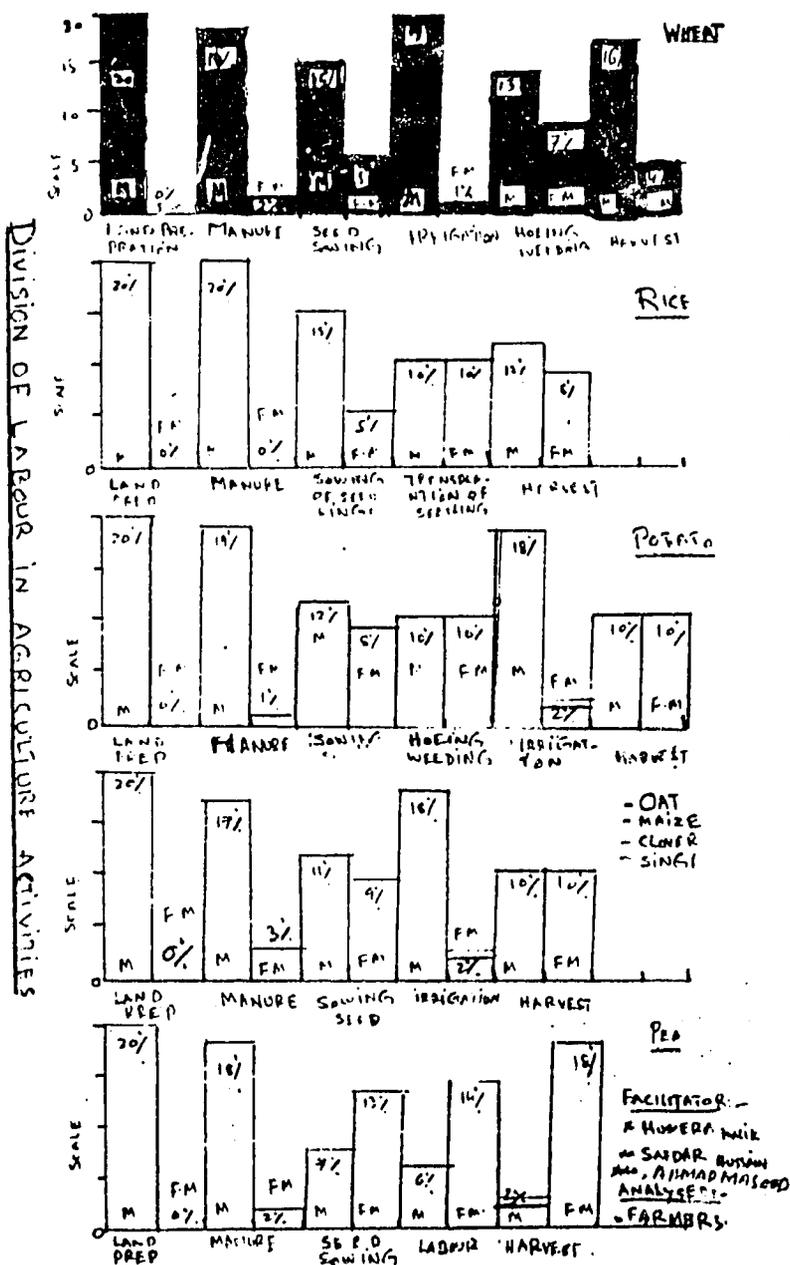
ANALYSED BY: HUMERA MALIK
SAFDAR HUSSAIN

16. Activity Profile of Divisions of Labour

Location: Aroop, Hayatpura, Committee Hall
 Drawn by: Rizwan
 Copied by: Safdar and Humera Malik
 Facilitator: Humera Malik and Ahmad Masood
 Materials: Pen and note book

Process:

To avoid the rain, the PRA team went to the committee hall along with the people who were interested to know about us and the objectives of our work. Under the protection of the verandah, half of the team was busy with the male respondents in drawing village map. One team member was busy in taking semi-structured interview, two members were ranking vegetables according to the criteria set by the farmers. The atmosphere was such that it became very easy for the informants to respond. Mr. Rizwan started drawing graphs showing division of labour according to months but this method could not work and either decided to draw Bar diagram showing division of labour for different crops.



Key findings:

In all types of crops women labour is not involved in the preparation of said, however in rest of the activities female labour is involved. In wheat more male labour is involved whereas another factor affecting division of labour is that female prefer to work in vegetable fields because in return they are able to collect vegetable for their domestic use. They are paid in kind rather than in cash. Female labour in fodder crop is affected by the above mentioned factor i.e. they are paid in kind rather than in cash.

17. Histogram of Production Costs and Income

Process:

During second day in the field we started matrix farmers' preferences for different crops. While the facilitator was busy in making matrix some farmers left the bigger group and were not happy about that matrix technique and volunteered to give detail figures for the production cost. Two facilitators started taking notes with the view that this may help to crosscheck the ranking technique. It was a semi structured interview.

Problems:

1. Sabotage: During the interview one of the farmers kept on interrupting and giving irrelevant statements. He was reminded that his working is suffering, so better he finished that and he will be interviewed later.
2. The farmers were very busy cutting fodder and feeding their animals so they could not concentrate fully.

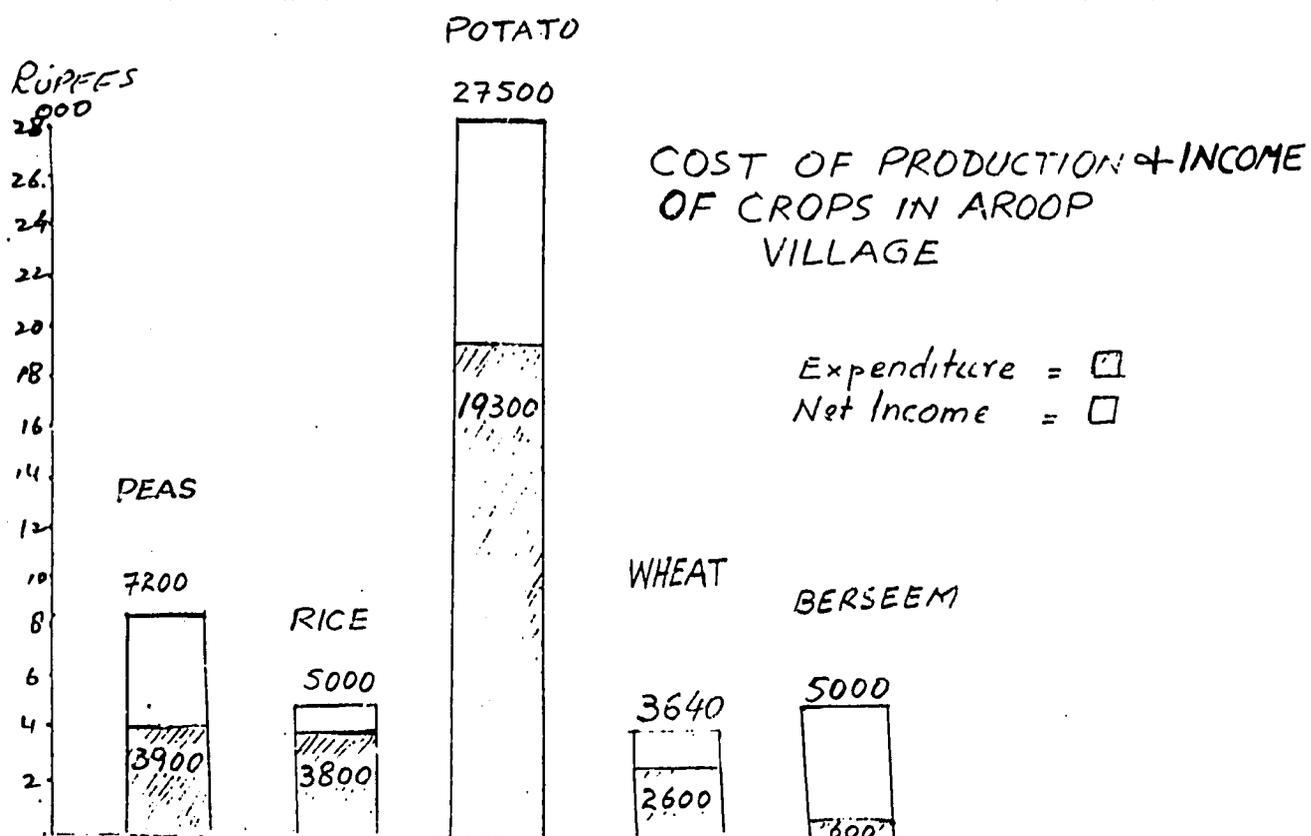
Key findings:

Potato is a high capital investment crop relative to other crops with about Rs.20,000/acre investment but also give the highest net income. Berseem has the least cost of production compared to all other crops. Peas have the least marginal return compared to the money invested.

Pie diagram shows the proportionality of the cost involved in production. Highest proportion in paddy is taken up by the irrigation and in peas berseem the seed is the most expensive input. In potatoes seed cost the most followed by the marketing costs. While in wheat land preparation takes the major piece of the pie.

COST PRODUCTION OF COMMON CROPS

Activities:	Peas	Paddy	Potato	Berseem	Wheat
1. Land prep	160	500	1500	125	1200
2. Ridge prep	250	-	-	-	-
3. Planting	150	250	600	-	-
4. Seed cost	1500	-	7200	240	150
5. Weeding	250	-	600	-	-
6. Harvesting	360	600	-	-	600
7. Fertilizer	550	550	3400	200	440
8. Octroi fee	24	55	-	-	-
9. Irrigation	-	1000	-	-	-
10. Puddling	-	125	-	-	-
11. Plant prot.	-	350	1000	-	-
12. Marketing:					
-Transport	20	200	700	-	-
-Commission	-	175	962	-	-
13. Empty gunny bags	-	-	1500	-	-
14. Unloading	24	-	575	-	-



18. Matrix Ranking of Potato Seed Sources in Aroop 13/2/92

Location: Aroop - Pucca dera

Drawn by: Sadiq Masih and others

Copied by: M. Masood

Type of farmer: Large

Facilitator: Afshan, Masood Ahmed, Abdul Ghani and M. Masood

Materials: Large size paper and marker

Process:

The facilitators asked about the seed sources of potatoes. The informant explained four different sources as shown on the matrix chart. The informants were asked about the problems of potato seed availability which he categorised into four as shown in the matrix chart.

The farmer started drawing matrix helped by the facilitator. Criteria for preference was selected by the group's consensus. There were some hesitation amongst the farmers and later on, the farmer Sadiq started the matrix ranking and it flowed smoothly as one person took initiative. Sadiq Masih start giving circle on the paper for each cell of the matrix the scale of the score were from 1-4. One being less preferred and 4 being liked the most.

Key findings:

In his version, the potato seed was easily available from all the 4 sources. There was little diseases problem in imported seed and also the one procured from the private companies. The disease incidence was higher in the seed supplied by hilly areas and local markets. On the contrary, seed supplied by hilly areas was cheaper as compared to the one supplied by the private companies and imported seed respectfully. The imported seed and the private companies seed resulted in the highest crop output as compared to the ones supplied by hilly areas and local market respectfully.

MATRIX RANKING OF POTATO SEED SOURCES IN AROOP

ANALYSTS: SADIQ MASIH AND OTHERS. FACILITATORS: AFSHAN, MASOOD AHMED, ABDUL GHANI, MASOOD MASOOD.

SEED SOURCES	IMPORTED	HILLY	LOCAL MARKET	PRIVATE COMPANY
EASY AVAILABILITY	0 0 0 0 4	0 0 0 0 4	0 0 0 0 4	0 0 0 0 4
LOW LEVEL OF DISEASE (SEED)	0 0 0 0 4	0 0 0 0 2	0 0 0 0 2	0 0 0 0 4
CHEAPNESS	0 0 0 0 2	0 0 0 0 4	0 0 0 0 4	0 0 0 0 3
YIELD	0 0 0 0 4	0 0 0 0 3	0 0 0 0 2	0 0 0 0 4
SCORE	14	13	12	15

19. Matrix Ranking of Potato Varieties

13/2/92

Location: Aroop, Veterinary Hospital

Drawn by: M. Javed and Rana Bashir

Copied by: Abdul Ghani

Type of farmer: Large and medium

Facilitator: Afshan, A. Ghani, M. Masood

Materials: Large size paper, markers and ruler

Process:

The farmers were asked about the potato varieties growing in their area, which are given in chart. Then they were asked about the criteria for selecting a particular variety, which are also shown on the chart. The farmer drew the matrix on the paper. Scale for scoring was also suggested by the farmer that small lines on the paper. One line being the lowest level of liking and five line mean maximum liking.

Key findings:

In the matrix ranking, Cardinal and Diamante varieties of potato secured the highest position. Second position was occupied by Malta and Desiree. The Ultimus variety remained at the bottom in the ranking. Almost all the varieties responded well to all the characteristics except Malta, Ultimus and Desiree. The Ultimus variety proved to be late maturing, Cardinal and Diamante were frost tolerant, whereas Malta, Ultimus and Desiree were frost susceptible.

MATRIX-RANKING-OF-POTATO-VARIETIES.

ANALYSIS BY JAVED AND BASHIR	VARIETIES CRITERIA for Scoring	MALTA	ULTIMUS	DESIREE	CARDINAL	DIA-MENT
FACILITATORS AFSHAN ABDUL GHANI M. MASOOD	MORE YIELD	== 5	== 4	== 4	== 5	== 5
	COLOUR LYKING	== 5	== 4	== 5	== 5	== 4
	TUBER SHAPE	== 5	== 4	== 5	== 5	== 5
	MARKET PRICE	== 5	== 4	== 5	== 4	== 5
	EARLY MATURITY	== 5	== 3	== 5	== 4	== 4
	STORABILITY	== 4	== 4	== 5	== 5	== 5
	FROST TOLERANCE	- 1	- 1	- 1	== 3	== 3
	SCORES	30	24	30	31	31

20. Decision tree on Early/Late Potato Crop

16/2/92

Location: Farmer's field

Drawn by: Muhammad Malik (tenant), Majeed Bindar(owner)

Type of farmer: Middle (never large)

Facilitator: M. Asghar, Dr. Masrullah, Ahmad Masood, K. Khattak, Humera and Afshan

Materials: Paper and marker

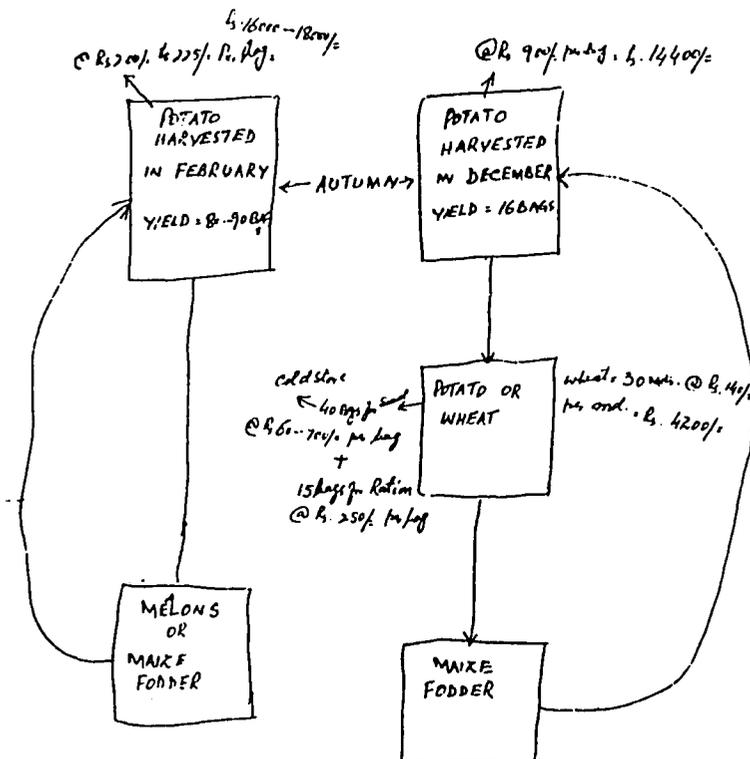
Process:

We approached the informants i.e. Muhammad Malik (Tenant) and Majeed Bhinder (owner) in their field. They were asked to give their opinion about early/late harvest of potato crop. It is a critical issue. Early harvest catches high prices but yields are low; late harvest catches high yields but low prices. When they started explaining, they were provided paper and marker to explain in the form of diagrams. They drew two fields planted under potato.

Key findings:

According to them one of the field was harvested in the month of December and the other in February. The early harvested field yielded only 16 bags but fetched a higher price of Rs.900/- per bag with a total return of Rs.14400/-. The late harvested field yielded 80-90 bags but was sold at a lower price in the market i.e. Rs.200/- to Rs.225/- per bag with a total return of Rs.16000 to Rs.18000/-. The early harvested field was vacated in the month of December and could be planted under wheat or potatoes. The wheat yield will be 30 mds. and/or potato yield will be 55 bags. After harvest of this crop he could plant maize fodder in the same before the autumn potato crop is planted. In late harvested field only one crop of melons or maize fodder could be taken during summer before planting the autumn potato in the same field. No difficulty was faced.

- Early harvested autumn potato crop will yield lesser but fetch boldly higher price in the market as compared to the late harvested crop.
- An additional crop of potato/wheat can be taken from the early harvested field which is not possible in the late harvested field.
- The farmer can obtain higher overall returns by the early harvest of potatoes.

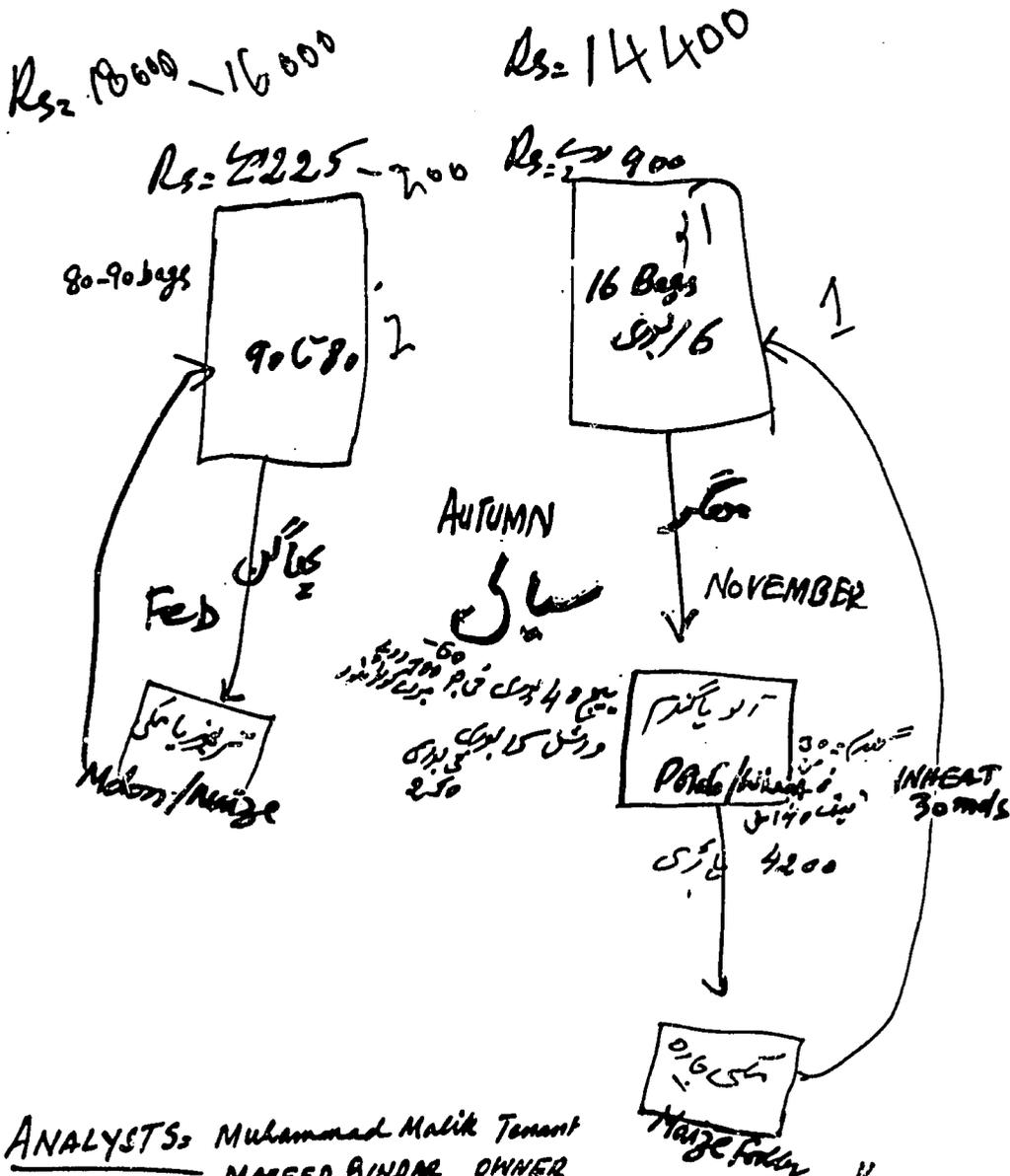


DECISION TREE

WHEN TO HARVEST AUTUMN POTATOES

DRAWN BY : MOHD. MALIK + MAJED
BINDAR

FACILITATORS : M. ASGAR, NASRUZZAH
JAN, A. MASOOD, K. KHATTAK, AFSHAN,
HUMERA MALIK



ANALYSTS: Muhammad Malik Tenant
MAJED BINDAR OWNER

FACILITATORS: M. ASGAR, Dr. Nasruzzah, Ahmed Masood, K. Khattak, Sattar
Humera & Afsan

21. Matrix Ranking for potato seed preferences and related problems

17/2/92

Location: Aroop, Hayatpura, Potato fields

Drawn by: Farhana (the farmer gave the characteristics and listed problems)

Type of farmer: Small grower (2 acres)

Facilitator: Farhana, Safdar, Jaffar

Materials: Paper sheet, markers, stones

Process:

The informant was weeding his potato fields when we approached him. Briefly explained why we were there, asked for his permission to sit and get some information from him regarding potato growing in this area. We emphasised that he could continue working if he liked or preferred. Once we got the permission to sit we told him the objectives of our visit in detail. I told him that we are interested in knowing the various problems faced by the small potato growers and what could be their possible solutions including the current strategies adopted by them to lessen the impact of different problems.

He started telling us about the 3 different seed varieties his preferences and the related problems so we decided to make a matrix. He is a tenant farmer and belongs to a poor household. First we talked to him about various problems but he would drift to seed problem again and again whereby we explained to him about matrix and asked him to select the number of stones he wanted to use as weighing scale. He kept confusing the weighing scale with number of potato sacks he gets from his fields against the quantity of potato seeds he sows. Once we explained the correct use of stones as a unit for measuring his preferences he started listing the various criteria. He also changed the scaling twice for a couple of criteria.

To know when he first grew potatoes, we used important events in the country's history. For instance, he told that his grandfather and father were also in farming before him, during "British Raj". However, it was during Ayub regime that he first grew potatoes since potato crop needs more water and it was more available after the installation of tubewells.

Key findings:

Though he prefers Desiree (red seed imported) he can't afford to buy it. There is not any institutionalised system of farmer credit/loans especially for resource poor potato growers. High degree of uncertainty is involved in potato growing as its price keeps fluctuating a lot. Furthermore, pesticide and insecticides are not easily available, those which are accessible to small growers are adulterated to the extent that if completely destroys the entire crop. Since Desiree produces high yield it means more labour needed for harvesting labour costs has gone up too.

M A T R I X - P O T A T O S E E D P R E F E R E N C E S

TYPE OF	Seed	Market	Early	Yield	Disease	Fertility	Water	Labour	Hoing	Import	Seed
POTATO/colour	Expens- ive	Rate	Harvest	Bags	Insect	use r.	Requir- ment	Requir- ed	weeding	quali- tability	main- tenance
Desiree (red)	▲▲▲	▲▲	▲▲	▲▲▲	▲▲	▲	▲▲▲	▲▲	▲	▲	▲▲
Balakot (L. red)	▲▲	▲	▲	▲▲	▲	▲▲	▲▲	▲	▲▲	▲▲	▲
Indian yellow	▲	-	-	-	▲	-	▲	▲	▲	▲	-
Score	▲▲▲ ▲▲▲	▲▲	▲▲	▲▲▲ ▲▲	▲▲	▲▲	▲▲▲	▲▲	▲▲	▲▲	▲▲
Analysed by:	M. Shafique Mehri - Tenant - @ Rs 5200/Acre.										
Facilitators:	FARHANA FARUQI SAFAR										

22. Matrix Scoring for preference of various vegetables

12/2/92

Location: Community Hall, Aroop
 Drawn by: Mohammed Sardar and Riaz
 Facilitator: M. Masood, Khattak and Afshan
 Materials: Chalk on ground, orange peel

Process:

Mohammed Sardar, a contract farmer having 4-6 acres of land which includes him in the category of middle growers who were never large. Riaz, also a contract farmer having 4-6 acres. He is included in the category of middle growers who can be or were sometime large. The matrix was drawn with chalk on concrete and the ranking was quantified with orange peel cut into small pieces.

The whole exercise took place inside a Verandah of the Community Hall because it was raining very hard. This had its advantages and disadvantages. The advantage was that we found quite a few farmers among the people gathered there. The disadvantage being that besides the farmers there were quite a crowd of school children that had gathered around us. The school children constantly sabotaged the whole process by either stepping on the small pieces of orange pieces which were used for ranking. In the beginning they were politely asked to go to their house. When that did not work, one of the facilitators asked them to collect small stones, because it was raining quite heavily even the children were reluctant to go out. Finally it was decided to ignore them and get on with the exercise.

Fortunately, when we started this technique, the farmers were already involved in the PRA techniques as one of them had earlier helped in drawing the village model with a stick on the ground. The farmers began by identifying all that they had grow on their fields. They came up with various vegetables fruits and grain crops they grew. As we were research was also focused toward a improvement of income of poorer growers in a potato based system on a sustainable basis, so it was decided to rank only vegetables.

The first problem was that the farmers identified 15 different vegetables. This was in our opinion rather a lot, so the 2 farmers graded them from 1-10. The first 6 items that they both agreed on were then selected. The farmers were very cooperative and were participating with interest. The criteria they chose were after a lot of consideration. Although the faciitators helped them in the thinking process, all the criteria were originally theirs.

The names of items i.e. six different vegetables: Potato, peas, okra, onion, carrots and pumpkin were written on round pieces of paper and put across horizontally while different criteria ranging from cash return, low seed cost, taste, easy to grow, tolerance to pest and diseases, low cost of fertility and low cost per acre were also written on pieces of paper and put vertically. The last criterium "Least cost per acre" was the one that the farmer came up with whole a he was half way through the exercise of ranking.

While the farmers was doing the ranking, the facilitators asked questions like "Why don't you compare the first the best and then the next best" which criteria in your opinion is the most important. Which made him more selective and he would wants, think and then perhaps add peels few and take from some - in this way they completed the matrix.

Key findings:

It is interesting to note that though the potatoes score the least on most of the criteria it scored the highest on 'Cash Return' and did not do badly on 'Taste' also. This may account for the fact that though the farmer is from the category of 'middle' grower who were never large they still like to risk growing a vegetable like potato which is easily prove to pest and diseases has high. Cost of seeds and fertilizer and

is difficult to grow.

An acre of potato crop would produce 100 bags of potatoes while that of peas produce 8-22 bags of peas this may be directly linked with the reason why it scored high on cash return.

The fact that the overall score shows the least relative preferred crop may be due to its high cost of production, hence more risky.

MATRIX FOR PREFERENCE OF VEGETABLES BY FARMERS OF VILLAGE AROOP.

Farmers chose their own criteria and quantified with orange peels

ANALYSTS
MOHAMMAD
SAKDAR
&
RIAZ

FACILITATORS:
M. MASUD
KHATTAK
&
AFSHAN

SELECTED VEGETABLES CRITERIA	POTATO	PEAS	OKRA	ONION	CARROT	PUMPKIN
LOW SEED COST	0 1	00 2	00 2	00 4	00 6	00 6
TASTE	00 4	00 6	00 3	0 1	00 3	00 4
EASY TO GROW	0 1	00 2	00 4	00 5	00 6	00 5
CASH RETURN	00 6	00 6	00 5	00 5	00 4	00 3
TOLERANCE TO PESTS AND DISEASES	0 1	0 1	00 2	00 3	00 5	00 6
LOW COST OF FERTILIZER	0 1	00 2	00 3	00 4	00 6	00 5
LOW COST PER ACRE	0 1	00 2	00 3	00 4	00 6	00 2
SCORE	15	21	22	26	36	31

23. Matrix Scorings of Crops and Livestock

13/2/92

Location: Aroop - Hayatpura, at *dera*
 Drawn by: Noor Mohammed and Nademullah
 Copied by: Safdar Hussain
 Type of farmer: Small, middle
 Facilitators: Allahditta, M. Ashraf and Rafiq
 Materials: Stones, sticks, rice straws, cards

Process:

One of PRA team members, after the introductions, explained the objectives of this survey. The farmers were at first reluctant to start, then the owner of the *dera* with the help of his tenant started listing out all kinds of crops and vegetables grown in their fields. The task of writing down the names of vegetables and crops on the cards was given to an educated young boy.

One PRA team member with rice straws drew the matrix diagram on the land, then to give ranking it was suggested by the PRA team to collect stones or any other material which they thought is easily available.

- Young boys collected stones;
- List of 20 different crops/vegetables/fodder was prepared by the farmers. List of vegetables were separated from crops and fodder;
- Six major crops were selected for matrix ranking, the criteria for selection was maximum land under cultivation;
- For ranking their crops, seven different criteria were set up by the farmers.
- The debate on setting up the criteria took a lot of time, because many other farmers were also actively participating in that discussion;
- The whole matrix was completed within 1½ hours;
- Using the same diagrams PRA team decided to rank different livestock;
- It was more easy for the farmers to rank the cattle;
- Farmers were listing the names of cattle and criteria for keeping their kinds of animals and a young boy was writing on the cards;
- Some stones, used before for ranking crops were used for ranking livestock;
- 4 criteria were set up for ranking by the farmers.

Problems/Difficulties:

- Difficulties in understanding the purpose of using this method for taking information.
- Perception of one criteria for one farmer was different from other, that creates certain confusions among the farmers.

Ice breakers: Jokes, general discussion about the village.

Quotes/Tips: Because of rain, it was muddy all over and our efforts to reach their *dera* after crossing the canal and patches of mud made them realize that this whole exercise is very important not only for them but also for us. We told them that our success totally depends upon their response (we came here from different parts of Pakistan to learn).

Quotes by the farmers: He knew about the potato project so he said that "I know this whole exercise is useful or beneficial for the large farmer or those having land near the roads. I know this project people supported them who offered them tea with cake etc. I don't have any trust on you either, you are working

here only because it is your work and you must be getting 10,000 rupees per month". This suspicion was overcome by the fact we had made such an effort to go to his farm.

Key findings:

Diagram A:

It is obvious from the diagram that rice crop stood first while ranking and important reasons are high income though potato crop is also a source of high income. Major difference between the two occur because rice crop straw are also used as fodder. Similarly clover is also an important fodder crop, important reason is high income and less expenditure.

Diagram A

MATRIX FOR CROPS

CRITERIA	CROPS					
	RICE	WHEAT	POTATO	PEA	CLOVER	MAIZE
RAINY SEASON	▲▲▲	▲▲	▲▲	▲▲	▲▲	▲▲
FOR FOOD	▲▲	▲▲▲	▲▲	▲▲	-	▲
FOR SALE	▲▲	▲▲	▲▲	▲▲	▲▲	▲▲
INCOME	▲▲	▲▲	▲▲	▲▲	▲▲	▲▲
FODDER	▲▲	▲▲	-	▲	▲▲	▲▲
EARLY MATURITY	▲▲	▲	▲▲	▲▲	▲▲	▲▲
EXPENDITURE	▲	▲	▲	▲	▲▲	▲▲
TOTAL	28	26	23	21	26	20

FACILITATORS: Humera Malik ■ Saifur Hussain ■ DRAWN BY FARMERS.

Diagram B:

This diagram shows that more importance is given to oxen, though nowadays oxen are not used for cultivation but considered as a symbol of status. Secondly selling price of oxen are more than other livestock. When this talk about production of buffaloes, cows and oxen they get compared and unable to rank properly.

Diagram C:

Several types of livestock are kept by the farmers of Hayatpura in a village Aroop. There includes buffaloes, cow, oxen, goats, sheep and poultry, donkey, horses. Farmers prefer cattle, as their by-products are important source of income and nutrition and they are important for traction. Horses and donkeys are very useful for transportation of produce, fodder, farmyard manure to markets and town and in the local transportation in the fields.

Gujars keep milking animals i.e. cows and buffaloes different breeds, having criteria yield of milk, butter, beef market rate. The breed of buffaloes are : *charkundi*, *ram necti* and *local (Desi)* whereas cows are of *australian*, *fresian/jersey* and *local*. A few of farmers and landlords kept these high yielding

milking breeds of buffalos and cows as a symbol of status as well. Buffalo breed *churkundi (checha watni)* is most preferred by the gujars due to high milk yield and reproduction. Rani Neeli is preferred after that breed is secured in milk, butter, expenditure and market price when there are out of milking season/old age.

Whereas local breed is preferred due to butter, beef and low in expenditure incurred. Same as the preferring are given by the other farmers. In cows, Australian breed is preferred for milk yield and reproduction rate, local breed is preferred due to second in milk yield. Then Australian breed, is preferred by farmers for high butter yield and beef market price. This also preferred due to less expensive one and daily fodder is required by the breed. Whereas Friesian or Jersey breed is preferred due to butter, beef, expenditure incurred, reproduction rate and second inexpensive one than Australian breed.

Analysed by: M. Bashir Gojar, Alla Ditta Gojar, Anayat m.

Further information through interview

Cattle are herded mainly by children, by hired help of Kammis and old women, and are milked and tended to by both mens and women as well. Gujars are full time engaged with cattle where as farmer engaged partly according to their no. of animals. Rich farmer's used to keep more animals, mostly involv. g Kammis of village to herd their cattle and are milked and tended by them. Oxen are used by the farmers for ploughing the land, transportation of produce and is counted as a symbol of status as well. Goats and Sheep play an important role in the development and food of farming community few farmer herded these animals as symbol of status and it is the trade of owners. Poultry: There are many poultry farms in this Union Council Aroop. Poultry farming is playing an important role in the development of food and income. Poultry farming is provided regular supply of chicken trade to Gujranwala city. It comes as symbol of status of big poultry trade man. Donkey and Horses: These are few in number of family used for the transportation of FYM to the field, fodder etc. where as horses are engaged by the kochwan's for transport passengers. Fodder, produce potato vegetable, from field to markets. Statistics of Livestock: As stated by the farmers and Veterinary Centre of village Aroop are as under:

	No.	Income/ animal	Expenditure
	---	-----	-----
Buffalo	10,000	5000	2000
Cow	300	3000	1500
Goat	50	1000	160
Sheep	150	1000	150
Donkey	50	1000	750
Horse	50	4500	1500
P.farms	25	50000	20000

Analysed: Muhammad Shafiq, V.I, M. Riaz, AIT, Wali M., I.A.

4. Disease affecting the cattle: FMD, HSV, NDV, ID. About 1200-1300 outdoor cases etc. treated.

Diagram B

MATRIX OF LIVESTOCKS

CRITERIA	KIND'S OF ANIMALS					
	Buffals	Cow's	Oxen	Goats	Sheeps	Poultry
INCOME						
FOODS.						
CULTIVATION				-	-	-
Symbol of Status						
Total	13	15	20	12	11	6

FACILITATORS.

* HUMERA MALIK
 ** SAFDAR HUSSAIN CHAUDHRY.

• DRAWN BY FARMERS.
 - ANALYSED.

Diagram C

MATRIX OF MILKING BREEDS

MILKING BREED	BUFFALO			COW		
	CHUR KUNDI CHECHA WATTNI	RAVI NEELI	LOCAL	AUSTRALIAN	LOCAL	PHYSERIAN JARSY
CRITERIA						
MILK						
BUTTER						
BEFF PRICE						
EXPENDITURE						
REPRODUCTION						
PREFERENCE						
SCORE	18	14	11	17	12	13

FACILITATORS:

* HUMERA MALIK
 ** SAFDAR HUSSAIN CHAUDHRY.
 ▲ PICES OF BRICKS.

ANALYSED BY: MILK MANS
 = FARMERS.

24. Venn Diagram of Institutional Links (Accessibility and importance)

17/2/92

Location: Aroop, Hayatpura, *dera*

Drawn by: Barkat Ali (Sandho - Jat)

Type of farmer: Large (cultivating 14 acres) as tenant farmer

Facilitator: Farhana, Safdar

Materials: Big sheet of paper, round coloured cards of different sizes, coloured markers, stones

Process:

We had already met him the first day in Union Council Office. He had joined the group of people who had gathered around me while was taking SSI of a Christian old man. We met him in the fields. He proposed that we go to the nearby *dera*. There we were joined by an old Christian woman, an old Jat woman (from a poor small farmer's household) and a young Jat man, owner of the *dera* (non-farmer). Since the owners did not know about our objectives, we explained them in detail. We were immediately asked to provide financial support, seeds and fertilizer. We then explained to them that our objective is not to distribute money, seeds etc but to give advice and suggest alternatives ways of farming to improve the potato productivity (seed qualities, right dosages of fertilizer etc. at appropriate time). They then immediately started telling us the problems faced by farmers and bitterly complained about the indifferent attitude and inaccessibility of government agricultural department, especially the banks (loans).

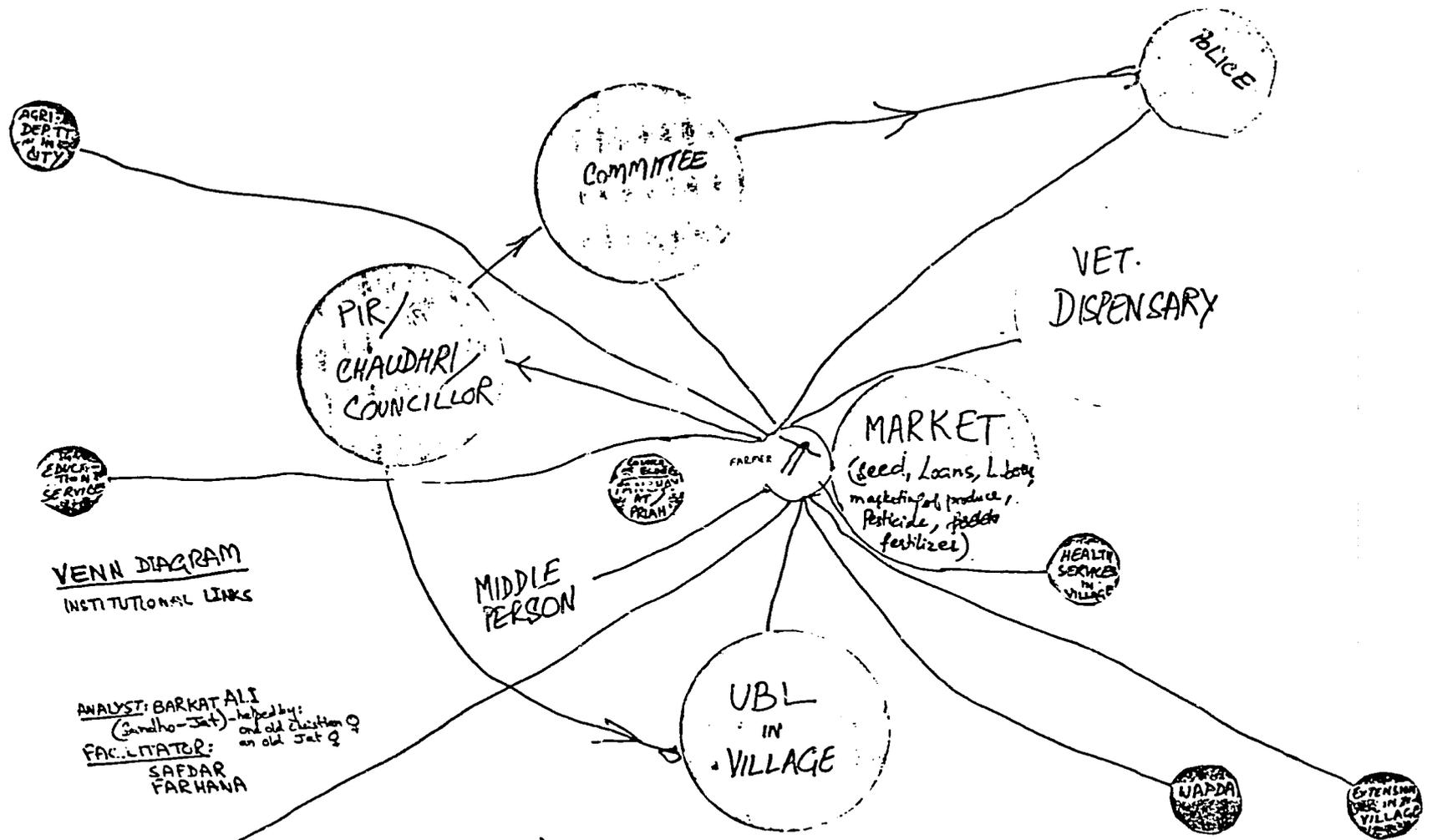
We then explained to them the purpose of drawing venn diagram, the importance of circles size and distance of each circle from the farmer. There was great confusion about distance, at which we constructed a hypothetical situation, demonstrating what we meant by the size and distance of circle from the farmer. After spending approximately half an hour on objectives and technique itself, we moved on to discuss the various problems faced by farmers, asking who they normally go to for resolution of issues/conflicts. During the discussion we made a list of various institutions which were being mentioned. At the end of the discussion which took approximately 45 minutes we produced the material and asked the farmer to pick the size for different institutions and place them wherever they liked, depending on the easy accessibility of the institution by the farmer. The young Jat man present on the occasion (owner of the *dera* who works in a Bank in Lahore) kept interrupting. Safdar then started asking him questions about his land job in Lahore etc. which effectively kept him out of the situation. Another saboteur (a school teacher) jumped in towards the end of the drawing very aggressively. However his efforts were frustrated by reacting calmly to him (he sounded very disapproving of the way teams or women and men were going around in his village).

The Venn diagram took about 10 minutes, the informant changed the distance of 2 institutions twice from the farmer on the map.

Key findings:

Most of the Government agricultural services, whether based in village or in Gujranwala are totally out of reach of the farmers. The few (eg United Bank) in the village is accessible only through either Pir or the big Chaudhri (leaders of two political factions in the village).

Throughout the analysis, we showed total ignorance regarding the political hierarchy and tension and the various departments related with the agriculture. We talked about the exploitation of working class in the cities (including ourselves in that class) and criticised our "employers" for them (farmers) to draw analogy in small context.



VENN DIAGRAM
INSTITUTIONAL LINKS

ANALYST: BARKAT ALI
(Gandho-Jat) - helped by:
and old division Q
as old Jat Q
FACILITATOR:
SAFDAR
FARHANA

VENN DIAGRAM

AROOP , 17 FEB 1972

CIRCLES PLACED + ARROWS
DRAWN BY : BARKAT ALI

FACILITATORS : SAFDAR, FARHANA

25. Venn Diagram for Institutional Interactions

17/2/1992

Location: Aroop

Drawn by: Babu Nazir Ahmed Bhinder

Facilitators: Abdul Ghani, Afshan, M. Masood, A. Masood

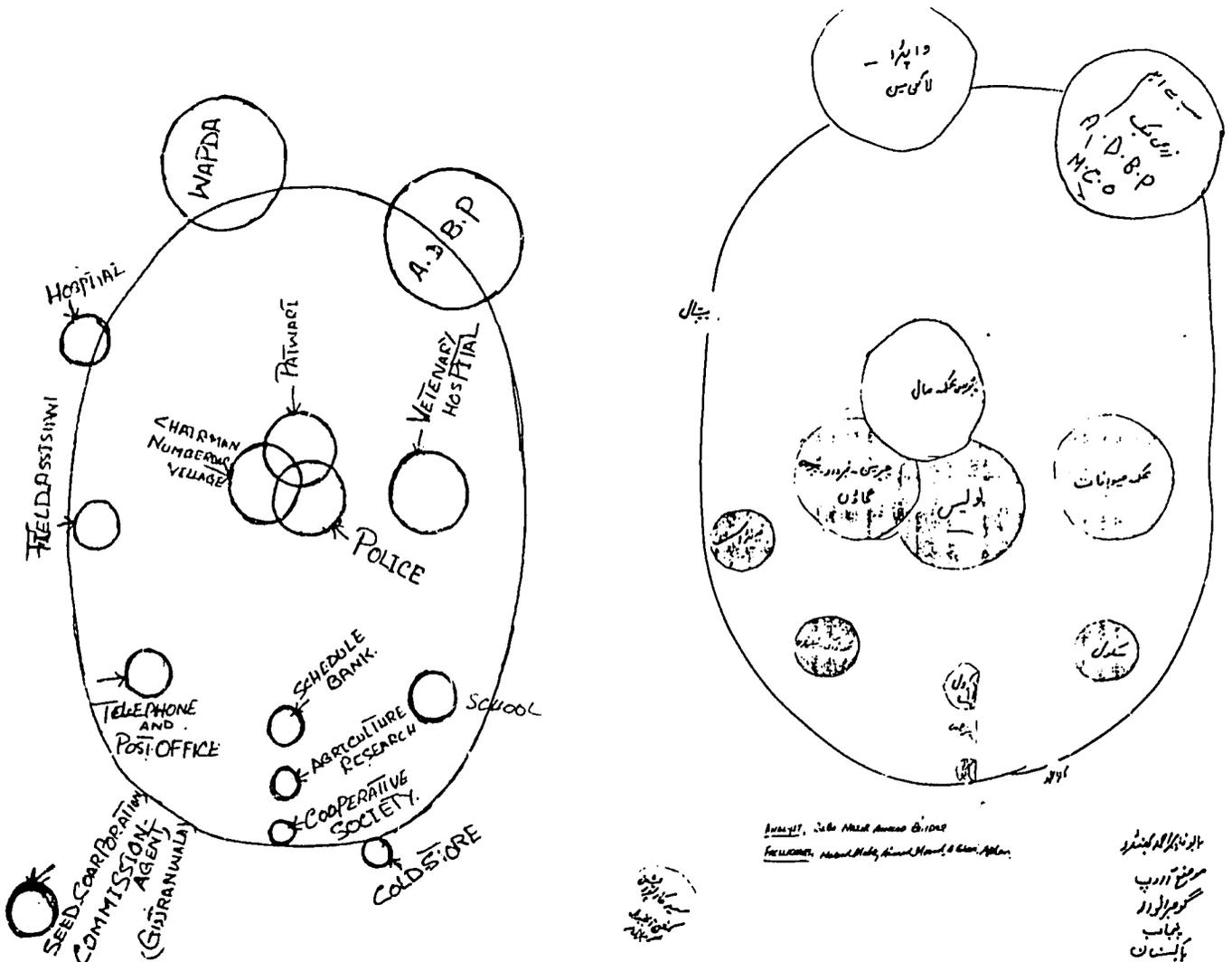
Materials: Cards of different sizes and colours, pens

Process:

We met a farmer at road side in very relaxed environment. After having semi-structured interview about potato cultivation, we handed over cards of different sizes of colour. We drew a circle showing the village, then we asked him to use cards of different sizes and make a diagram of his perception of the interaction between different institutions. He pointed out the names of different institutions within the village, and then allocated a card for each organisation.

Key findings:

In this diagram, he put the cards at a distance related to actual physical distance, and interaction between village and institution is shown by the size of the cards used, and over lapping of the surrounding. The card size showed the great importance of ADBP and WAPDA to the village. ADBP had more involvement with the village. Three cards showed their importance to the village and their overlapping indicating the interaction between, police, patwari, chairman of Union Council and Numberdar. Other institution such as the Agricultural Bank, Agricultural Research and cooperative society had smaller influence in the village. Telephone and post office, school were not as important as were veterinary hospital and field assistant. He also showed links between the commission agent of Gujranwala and Aroop villagers.



26. Loans Granted for Agriculture in Aroop

16/2/92

Location: Aroop Village

Interview by: Farhana Faruqi, Safdar, Humera

Type of farmer: Banker/land owner

Facilitator: Safdar Hussain, Humera, Afshan, Farhana

Materials: Markers, white paper, verbal information

Process:

The group approached a farmer in the village Aroop whilst the women participants interviewed women of the village. The owner of 20 acres land with dependents got loan from the Agricultural Development Bank of Pakistan for tractor about Rs.1,00,000/- in the year 1990. The cost of tractor Rs.1,65,000 at this time market price is Rs.1,85,000/-, until he had returned Rs.47,000 to the bank. This farmer grew potatoes, peas, wheat. He is quite happy about the bank loan.

Later the team approached the market United Bank Limited for a cross check interview. Established in 1968 as Dehi Bankari as mobile banking unit. The manager stated that from 1972-1980 there were about 1000 account holders and deposit in this bank was about Rs.30-40 lakhs.

From 1980-92 there is still improvement in the account holders i.e. 5000 and deposit increase about 2 to 2.4 kanals. Loans granted by the commercial bank according to the manager of UBL in every year was 100 farmers, for tractors tubewell, seed, fertiliser and insecticide pesticides etc. It is calculated that about 700 farmers were granted loans. According to the check of banker it is observed that 90% of loan granted for agricultural development were used on appropriate purpose whereas 10% loan were not utilised on agricultural purpose. Loans granted for different crops to small growers were at following rate:

1987	Rs.500/acre	wheat
	Rs.600/acre	Rice
	Rs.800/acre	Potato
	Rs.1200/acre	Sugar cane

Developmental loans were granted at rate of 12.5%. At first it was 8% from 1987 to 1991. About Rs.8,00,000 are granted to the farmer of Aroop village for the uplift of their development in agricultural sector.

Key findings:

Loan for agricultural development grants are used appropriately.

27. Wealth Rankings with Farmers to Produce a Typology of Potato Growers 16/2/92

Location: Aroop (Hayatpura)

Drawn by: Inayat Masih, Nazar Mohammed, Haji Rehmat Khan

Type of farmer: Middle

Facilitator: M. Masood, Abdul Ghani, Jules Pretty, Jaffar Shah

Materials: Paper, marker, scissor

Process:

The group (facilitators) approached one farmer Mr. Inayat Masih. After brief introduction he was asked to draw a map of land holdings in Hayatpura. He, accompanied by others, later on, completed the said map. At this stage some other farmers also came to the site, a land piece near the link road. All the 6 farmers present on the spot were asked to draw a matrix of wealth ranking in their village. They were explained about the main procedures. We used the names of potato growers obtained from the participatory mapping exercises for the first part of the ranking. We then asked if there were any farmers omitted. This increased the number to be ranked from 17 to 47. The farmers produced three piles, large, middle and small growers. We then explored movement between classes by asking "*is there anyone who moves from the middle to large class, or anyone from small to middle?*". They then created new piles, including one for non-growers who sometimes grow. The frequency of cultivation of potatoes was written on each card (eg. 2 years in 10; or 4-5 years in 10).

It was very interesting to observe that the two newcomers, belong to the rich families refused to conduct such a ranking. They told all the people living in the village are equal, economically. Their presence severely inhibited the already present farmers (poor). The two farmers (rich) left soon while the team was still standing in the field.

In the meantime another farmer Haji Rehmat Khan appeared. He is an educated young man having been abroad for quiet a long time. He told he belongs to middle class. His wife is Headmistress in the School. He was asked to make a matrix of wealth ranking. He understood very well and started himself. He was guided to use different size of papers (circular) for different class, i.e. big for rich and small for poor and so on. (This was an ice-breaker).

The other farmers, ie Inayat Masih etc, were present on the spot and were assisting him in the ranking process. The grouping (ranking) was made out of the names of the farmers got on the first day and the exercise just before it. They belonged to Hayatpura. Different size papers were put on the ground for ranking.

Key findings for potato holding ranking:

5 groups were identified, they were:

- A. Large potato growers: Having more than 6 acres of area under potato.
- B. Middle sometime large: Farmers having 4-6 acres area under potato, but in 2-4 years in ten have more than 6.
- C. Middle never large: As B
- D. Small growers: who have less than 4 acres under potato
- E. Non-growers, sometimes small: They grow potato once or twice in 10 years frequency

F. Never growing: They never grow potato. The reasons were not very clear to them. One of the farmers, Mr. Anwar Ali who is a non-grower explained the reasons, as:

- That his land is very clayey
- It needs hard work.
- Production cost is high and the risks are equally high as well.
- According to him, to grow potato continuously is a successful farming system, while breaking in the cultivation is not good system.

Interestingly the big farmers (rich) are not always large potato growers as in the case of Haji Rehmat who is a rich man but a middle potato grower.

Sadiq Masih (8) is a poor man but a large potato grower.

Bao Nazir (21) is a middle class but a large grower.

Mr Sharif is a rich man but he is a middle class grower.

Ch. Bashir (38) is a rich man but non-grower sometime small.

Nos. 41, 45, 46, 33, 34 are middle class, but non-growers out of total 47 people, the ratio is as follows:

- A. Large growers: 8
- B. Middle/sometime large: 11
- C. Middle/never large: 8
- D. Small: 3
- E. Non-growers/sometime small: 4
- F. Never growing: 13

Key findings for wealth ranking:

Land holding is the main criteria for wealth, supplemented by off-farm job opportunities, tractor, Govt. services etc. There are 5 different categories of people living in the area i.e.:

1. Rich: having more than 12 acres of land.
2. Middle class: having up to 12 acres of land.
3. Poor: who are having below 10 acres.
4. Very poor: who do not have their own land and are tenants/contractors.
5. The poorest: who do not have their own land and residential house (only one man was found in this category).

Out of 10 rich people, 3 have cars, two are abroad, one is having off-farm job and everyone has cattle.

In the middle class: 3 have cars, 4 are abroad, 2 are having off-farm professions and two have tractors.

In the poor class, one family have a tractor and two families have some people abroad.

In the very poor and poorest classes none of the above extra facilities exist.

Problems:

Influence of rich people over the poor who were ready to make a wealth ranking matrix but later on hesitated.

This exercise helped us greatly to understand:

- who grows potatoes and why;
- the changing patterns of cultivation.

It also gave us a sample frame for the following discussions and analyses, ensuring that we selected a range of farmers of different wealth status.

We have not reproduced the lists of names of farmers falling into each category or class for the sake of confidentiality. A photograph of the potato holding and wealth ranking combined is reproduced earlier in this report.

28. Wealth Ranking of Gujar Buffalo-Milk Community by Ethnic Composition 13/2/92

Location: Aroop, Hayatpura, mud and thatched roof house

Drawn by: Nazeeran and Naitaan

Facilitator: Farhana

Materials: Chalk, stones, cards

Process:

After initial introductions, I told the women (informants) that how I met the Gujars in Kashmir when I was there 2 years back - they were in transhuman migration movements going in caravans with huge herd of sheep and goats. How I was totally fascinated by the women clothes and silver jewellery. I learned from informants how and when they moved from Kashmir. I then proceeded asking them about their lineages and no. of lineages living in Hayatpura. After I got the ethnic composition I explained the objectives of my visit and pile sorting technique. There was a strong reaction to my suggestion that we divide Gujar households in Hayatpura into different categories according to their wealth. I was sharply told that those who are poor or more poor are as much member of their community as the better off ones. I then constructed a hypothetical situation of five women of my age, of different heights and asked the informants to categorise us according to one height. This helped to clear up their concepts. They started by putting to one side cards with names of most wealthy Gujars and rest they put into poor category. After I asked them to explain what they meant by wealthy and symbolic signifier of wealth for Gujars I proceeded by taking the wealthy pile and asked them if all of them had equal possessions and things they had just told me for the wealthy category. I did same for the poor category. After repeating the process third time we came up with six different economic state for Gujar community.

Key findings:

Having two wives is considered a symbol of affluence for Gujar community. "We are Jongli people we have no home of our own, we move where our cattle takes us".

By relating some of my previous experience with Gujar community in Kashmir I managed to lessen some of the initial tension. Later I asked extremely stupid (very basic!) questions regarding cattle which killed informants laughing.

No	ECONOMIC STRATA	No. OF HOUSEHOLDS BY ZAT							CHARACTERISTICS	TOTAL HOUSEHOLDS	
		WATANI	KHARIC	CHAKHAR	DAYLEE	CHAKHAR	DANWAM	TALWANA			
1	POOREST	1	2	1	1			2	No cash, heavily indebted. One buffalo living on a zamindar's (landholder's) land in exchange for services.	7	
2	POORER		1					2	No cash, indebted. 1-2 buffaloes, one horse, living on the zamindar's land	3	
3	POOR	1	2	4				1	No cash, indebted. 2-3 buffaloes, one horse, 2-3 goats.	8	
4	RICH	3		1	1				Cattle 10-15, have own mud/thatched roof house @ little cash, poultry, horse(s) and donkey (1) @ on rented land	5	
5	RICHER	2			2			4	1	Cattle: 15-20, own mud/thatched roof house on rented land, poultry, horse 1-2, donkey 1-2, cash (savings)	9
6	RICHEST		2			1		2		own pucca/semi pucca house, cattle 50-60, land 5-8 canals, Tubewell, education, two wives, politically influential	5
	TOTAL	7	7	6	4	1		11	1		37

WEALTH RANKING OF GUJJAR COMMUNITY BY ETHNIC COMPOSITION

29. Wealth Ranking by Women and Men of Hayatpura

16/2/92

Location: House of Ch. Noor Hussain (very rich) Hayatpura (Aroop)

Facilitator: Farhana Faruqi

Materials: Yellow paper cards

Process:

The wealth ranking was started with the women of the household but as it neared the lunch time some of the men also joined while the women went on to their daily chores of washing etc. Amongst the group those who were actively involved in categorising were Rashida Bibi and Abdul Rehman, he ranked himself amongst the "very poor" without any farm holdings. He carried his living by taking out sugar cane juice and selling it.

The women were just asked to name the head of houses in Hayatpura. The main constraint here was identifying the actual total number of houses falling in Hayatpura. After we walked around the whole neighbourhood it was finally decided on the boundary. The group of women started telling the names of their immediate neighbour and once they finished their block. They went on to the street across. In this way they established about 59 households. The problem here was that by this time the group had grown in numbers with lots of men.

When it came to the actual ranking, the women had lost their interest. They could not quite gain the main purpose of the ranking so they left. Fortunately by this time the men's interest had been generated. Establishing the criteria was a lengthy process. Abdul Rehman and his farmer started with the landholding each person had and their total income. As they could not read, number of acres of landholding was written along their names. At this stage they had established 5 different categories very rich, rich, middle class, poor, poorest.

During the process for ranking, the group came up with the number of buffaloes owned by them. The consensus was to begin the ranking all over again setting this as another criterion during the discussion the men decided to add few more names the women had left out. The final criteria on which the ranking was done then was "Landholding", sons abroad. Sending remittances, private business, business on contract basis, number of livestock, government employees, labourer, work in any mohalla. Once these criteria were established and written on the cards. The men asked the facilitator to read each of them out and they themselves put them into 4 different categories. The interesting thing to note here was that earlier the informants ranked themselves in the category of "poor"

After they had added to the criteria they changed the ranking to very rich, rich, poor and very poor and ranked themselves amongst the "very poor" the last category according to Abdul Rehman: *"I am very poor man. I don't own any lands. I have just bought a field of ready sugar cane for Rs.11,000. I am going to take the juice out and sell it to individuals or wholesale to a sweet shop in Aroop. Even my "press" machines are on contract", not just I break even".*

The informants ranked only 5 households as 'Very Rich', 13 as rich, 8 as poor and 35 very poor. The people in the neighbourhood mostly consists of small grower and non-growers. Mostly people involved in small business like barbers, butchers, house-carriage, tailors, village cleaners and labourers on daily contracts earning Rs.30-50/day and job migration to nearest city was identified. Only 30% households in the neighbourhood are farmers mostly on their own land and few on contract basis. The female informant "Rashida Bibi" did not want her four sons to take up farming as *"I only have 5 acres of land and if it is divided amongst my sons they will only get 1 acre each. As it is difficult for me to make ends meet they have no choice but to work, hopefully in some government office."*

This shift away from farming to other businesses is felt greatly amongst the people in Hayatpura.

ECONOMIC STRATA	ETHNIC COMPOSITION												CHARACTERISTICS	TOTAL						
	JATS LAND HOLDERS																			
	MAHARAJA	MEHARAJA	MEHARAJA	MEHARAJA	MEHARAJA	MEHARAJA	MEHARAJA													
① POOREST	Total H-H of KUMMI												14 of JATS	<ul style="list-style-type: none"> - Small land household - No regular income - No land - No house - No male King/landowner - Total income 1/20/14 	1					
② POORER	L													<ul style="list-style-type: none"> - Not dependent on sines - Small house (unfurnished) - Small income - Landless 	1					
③ POOR	1	1	1	2	2	6	5	2	2	1	1	1	1	1	1	1	1	1	<ul style="list-style-type: none"> - Small wage labour, mostly - Not dependent on sines - Small house (unfurnished) - Small income - Landless 	27
④ RICH													1	<ul style="list-style-type: none"> - Landholding (small) (1-2 ha) - Cattle (2-3) - Small house - Small income 	1					
⑤ RICHER	1	1													1	<ul style="list-style-type: none"> - Middle landholding (small) (2-3 ha) - Cattle (2-3) - Small house - Small income - Education - Kamthouses 	1			
⑥ RICHEST													3	<ul style="list-style-type: none"> - Large landholding (2-3 ha) - Cattle (2-3) - Small house - Small income - Education 	3					
TOTAL	1	1	1	1	2	2	4	8	6	2	2	3	1	10	1	1	1	1	<ul style="list-style-type: none"> - Total income 48 	48

30. Farm Profile and System Diagram

16/2/92

Location: Aroop (*dera*)

Drawn by: M. Sharif, George

Copied by: Jaffar Shah

Type of farmer: Large potato grower

Facilitator: M. Masood, Farhana, Jaffar, A. Ghani, Safdar, Jules

Materials: Paper, marker, tape

Process:

The group just dropped into the *dera* of the farmer whose name was picked up from the list of the farmers. The farmer was not present but his manager (Munshi) was there. First contact was made with another farmer who went to call the Munshi. The munshi came up, accompanied by three other farmers who had contracted the berseem fields of the owner. After introduction, he was assured that the team already had contacted the owner but in his absence the munshi was requested to talk on behalf of the owner. First he was asked to make a farm profile. He was very much reluctant in drawing himself. One of the facilitators assisted him from time to time. In the meantime another old farmer came and jumped over with coverage and told the munshi sahib that was not a difficult task. So this way munshi was encouraged too. They were guided/assisted in identifying and locating different institutions e.g. markets, *dera*, dealers etc.

They were told to identify different crops and other things by the symbols they thought related. Once the fields, *dera*, shops, crops etc. had been identified, we asked the farmers to draw lines for the flows between one part of the system to another such as seeds, manure, fertiliser, pesticides, information, veterinary services etc. Once these had been identified the discussion focused on the problems and local responses relating to these flows.

Ice-Breakers used:

- Introduction
- Reference of pre-contacts with the owner.
- Starting of drawing *dera*.

Problems:

- Hesitation of the farmer to start with beginning.
- Interruption by the group members, especially quoting leading questions and showing him the symbols.
- Taking pen from the farmer, occasionally by the team members.

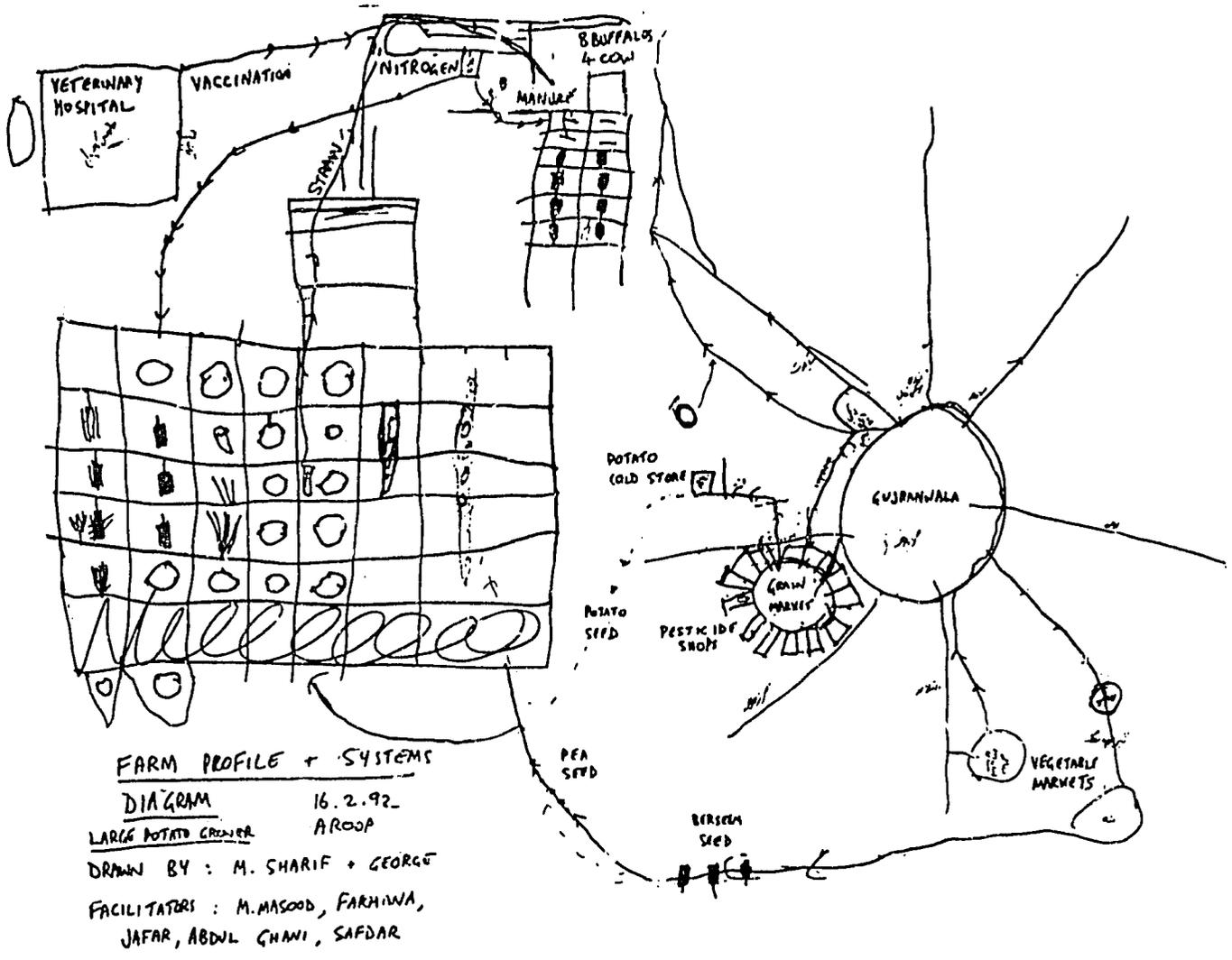
Tricks:

- Reference of contacts with the owner.
- Realizing him the importance of being big farmer.

Key findings:

The farmer has 52 acres land. Out of this 40 acres is taken on lease/contract while 12 acres is owned by him. He grows potato on part of the leased land ie 14 acres, while on his own land only berseem is grown. On 10 acres peas are cultivated. One acre is covered by cauliflower. 2 acres out of the rented and 4 acres of his own land is kept fallow. Cattle are kept in his own *dera* and nearly all of the manure is used in his own land, mostly on the parcels near to the *dera* (concentrated on the 4 acres). The farm yard manure is used in the berseem fields. Fertilizer is brought from the nearby Govt. Depot and is applied equally on all the lands. Insecticides are brought from the grain market, Gujranwala. Seed (potato) is bought from the market and kept own in the cold storage in the city. The best market is the

old one in Gujranwala (Amanullah). Pea and berseem seeds are brought from the market (Sabzimardi). The curves show the inflow of inputs from the market/s and out flow of the produce to the markets. Cash flow (returns) are shown coming from the markets to the *dera*. Veterinary hospital is shown in the maps, where experts visit the *dera* for vaccination. Straw is going to the *dera* to feed the cattle.



31. Flow Diagram of Household Energy

17/2/92

Location: Aroop, Hayatpura, Fields (potato) of Khushi Mashi (tenant farmer)

Drawn by: Sheedan Bibi (Christian woman)

Type of farmer: Agricultural labour household

Facilitator: Farhana

Materials: Paper sheet, coloured markers

Process:

The informant had brought food for her husband who was working in the fields (as a wage labour, cutting fodder). While the husband was eating (taking a break from the work) I started chatting with her (about her children), then moved on to ask who cooked the food. She had brought for her husband and from these to what she uses for the fuel/household energy. She talked for about half an hour about what fuel (cooking) she normally uses, where she gets it from, against labour or cash where does the cash come from etc.

I then told her about flow diagram explained the technique and she readily agreed to the idea. She first drew her house, then the fields (potato) we were sitting in, the nearby *dera* where she gets the dung cakes from. There was not much problem getting her started. What worked as ice-breaker was her asking me earlier and if I knew how to make dung cakes to which I replied yes (a truth!). She, then took me to the nearby *dera* and asked me to make one. I asked her for hay straw to mix in the dung and this convinced her that I was telling her the truth. The other two women sitting in the *dera* (both Christians) had a good laugh when I tried making a dung cake. After this I produced material for her to draw the flow diagram.

Key findings:

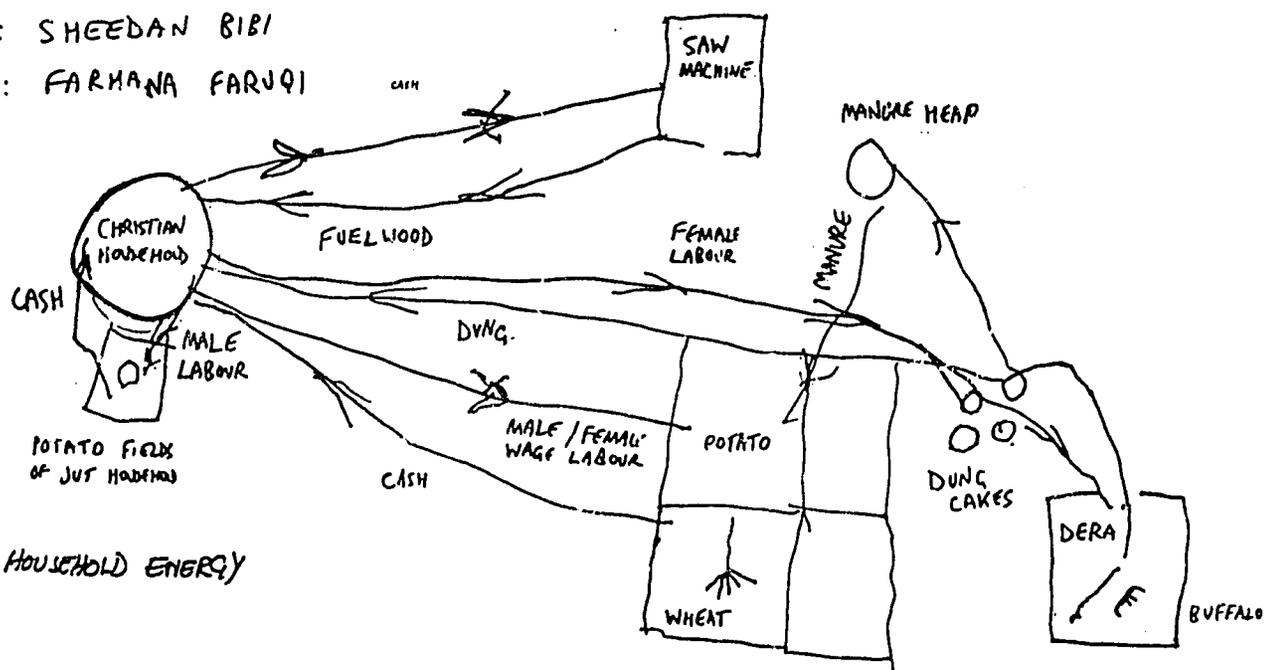
Since the respondent belonged to an agricultural wage labour household she had very clear concepts regarding cash flow and labour returns.

FLOW DIAGRAMHOUSEHOLD ENERGY FLOWS

AROOP, PUNJAB 17.2.92

DRAWN BY : SHEEDAN BIBI

FACILITATOR : FARHANA FARUQI



FLOW DIAGRAM OF HOUSEHOLD ENERGY

ANALYST: SHEEDAN BIBI
(CHRISTIAN)
FACILITATOR: FARHANA

32. Development gap and Beneficiaries gap

18/2/92

Location: Aroop, Hayatabad

Interviewer: Ch. Safdar Hussain

Copied by: Ch. Safdar Hussain

Type of farmer: Small farmers, land owner, tenants, Black Smith, Nai (Hair cutter), local transporter
Tanga, Rerha

Facilitator: Ch. Safdar Hussain, Humera Malik, Afshan Mohsin, Farhana Faruqi

Materials: Nai (hair cutter), medicinal can, marker, white paper

Process:

The facilitators approached the hair cutters' house where different types of farmer come for dressing, local medicines, hair cutting, shaving etc. We introduced ourselves to them and gave them brief information about our work.

After long discussion on the development gaps between farmers and other governmental agencies as well as private and foreign agencies with local examples, a few farmers agreed to draw diagrams. Because most of them were illiterate they were hesitating to draw. One farmer Allah Dad started making circles with markers by using can of medicine. Indication of development gaps made by farmer sitting around the Diagram paper then they painted out preference to the gap from Kisan to casts chaudhries to political influence - Govt. aid - research institutes - foreign depts. Finally banks for loans. Mentioned developmental gap are indirectly and directly related with Kisan.

Key findings:

Production valued by farmers from field is mostly food grains, sugar, vegetable, potatoes, fodder, green fodder clover, straw of wheat, rice husk and maize stalk. From livestock, mainly milk, butter, beef and poultry are produced for people. Forest grazing land is for fuel wood, energy cooking and animal fodder.

The benefits created by the Kisan are grain and vegetable market, artis. Then mills, shellers - transportation get the benefit.

Many taxes are paid by the farmer to the taxation dept., for electricity charges, union council taxes etc. Directly benefits the provincial, federal govts. to run the government industries like sugar mills, rice sheller, dairy and poultry farming. Ultimately Govts. benefitted to foreign countries and earn foreign exchange by export of quality produce produced by the farmer e.g. rice, sugar cane etc. Also aided by the federal govt. through food and agriculture organisation to developing countries.

Location: Aroop, Hayatpura

Interviewer: Ch. Safdar Hussain

Copied by: Ch. Safdar Hussain

Drawn by: Nai (Hair cutter) and Tanga man

Type of farmer: Blacksmith, small and middle class farmer Nai (Hair cutter) and Tanga man

Facilitator: Ch. Safdar Hussain, Humera, Afshan and Farhana

Materials: Markers, white paper, can of medicine

Process:

First, started by introducing myself and objectives with some jokes, to clarify the objective of training. Farmers were sitting around, discussed the problems by giving examples faced by the different categories of farmer. After the discussion, M. Nazir drew a diagram about problems faced by the group of farmers.

Key findings:

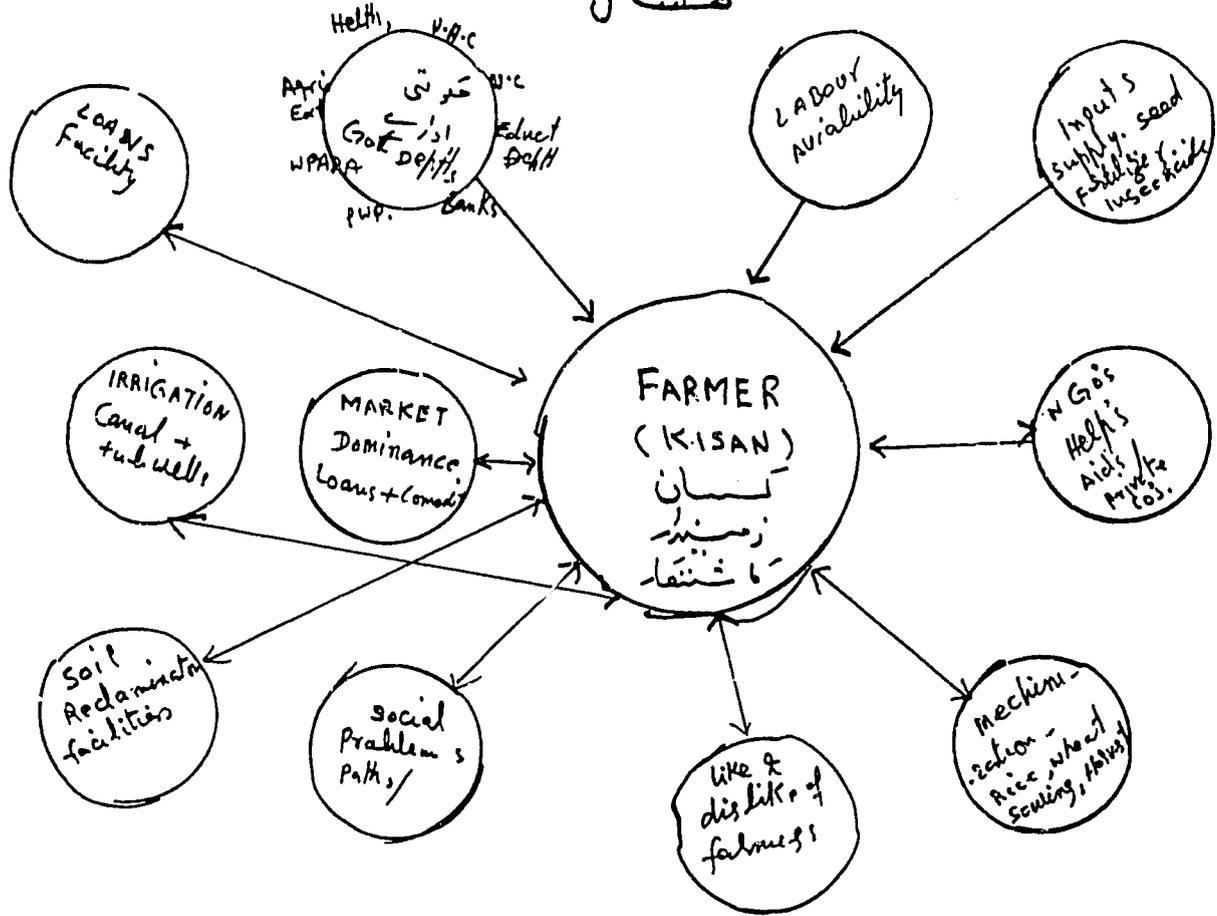
The burning problem for the farmer: overcome the middle men (arties) who charge double commission than other Arties who charge Rs.3/100. The reason they gave was that Arti gave them advance loan for cultivation of crops potato, seeds, fertilizer, pesticide, labour etc. Due to the non-availability of loan from banks to small grower they have to go to arties for loans. There is some political influence in the village by choudhries and pirs. Difficulties were quoted for the input supplies ie seeds, improved quality, fertilizer, insecticides, inequality of labour due to lower wages. Foreign aid has contact with farmers through healthy political leaders and landowners, which is not the proper way to benefit small growers.

The group of farmers suggested the following solutions for their problems:

1. Regarding grants and loans for small farmer, it should be made an easier process to get loan. Small farmers are discouraged because political influence benefited more than small potato growers.
2. In case of labour availability ordinary labour policy should be imposed by the Govt. to over the labour deficit problem at the time of harvest of crop. Labour wages should be affixed by the labour society or community of villages.
3. Services provided by the government departments should be more accessible to provide technical know how about agriculture to small farmers as compare to videra or choudharies or political influenced people.
4. For irrigation facilities it is suggested by the small growers that canal water distribution should be allotted equally to the grower according to their land holding, in spite of to allocation of irrigation water to videras or choudhries or political influenced farmers.
5. For the change of farmer attitude, it is suggested that farmers should meet together to exchange their ideas, and then family elder persons can act on decisions.
6. For the development of a small farmer, it is suggested that mechanization and implements regarding sowing rice machining, wheat drill, harvesting machines, govt. combine thresher agencies should facilitate farmers in spite of private holders i.e. tractor drivers etc.
7. The most burning problem to small farmer is the flow of loans from ADBP or cooperative societies, which go to third man, middle man or arties, who created monopoly on the small farmers.

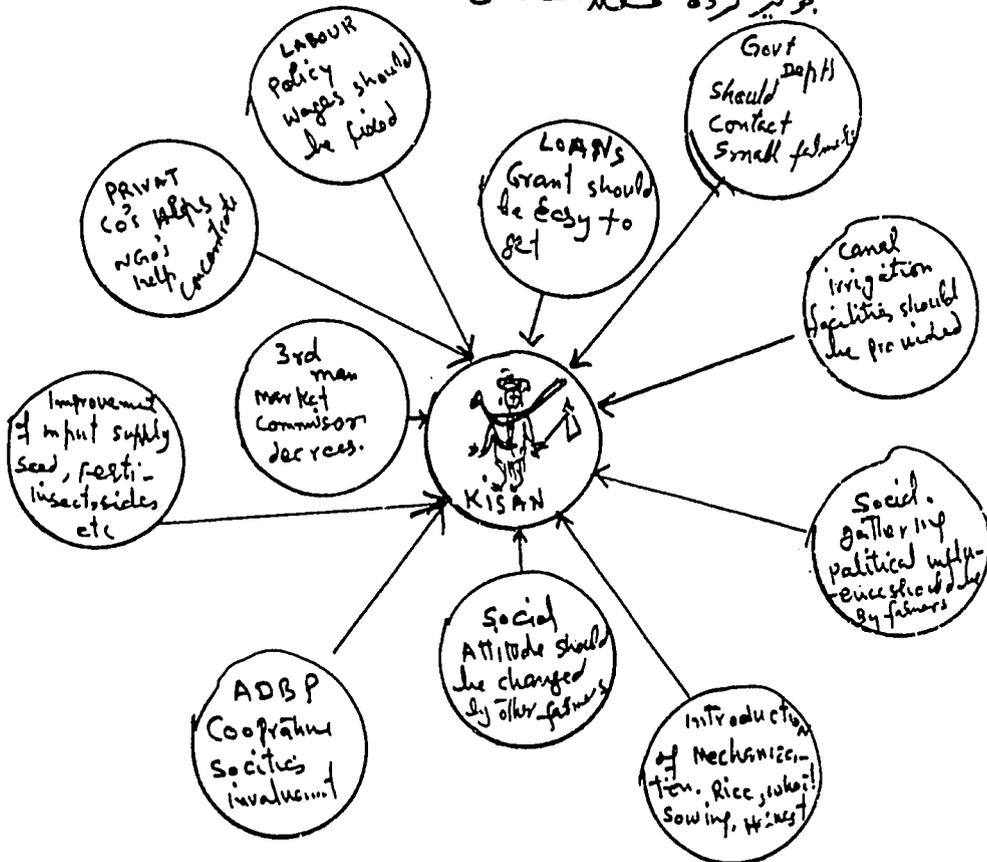
PROBLEMS

مسائل



SOLUTIONS SUGGESTED

پیش کردہ حلائے مسائل.



34. Seed Potato Cycle of Aroop

16/2/92

Location: Farmer's field

Drawn by: Muhammad Asghar, with Muhammad Malik and Majeed Bhinder

Type of farmer: Middle, never large

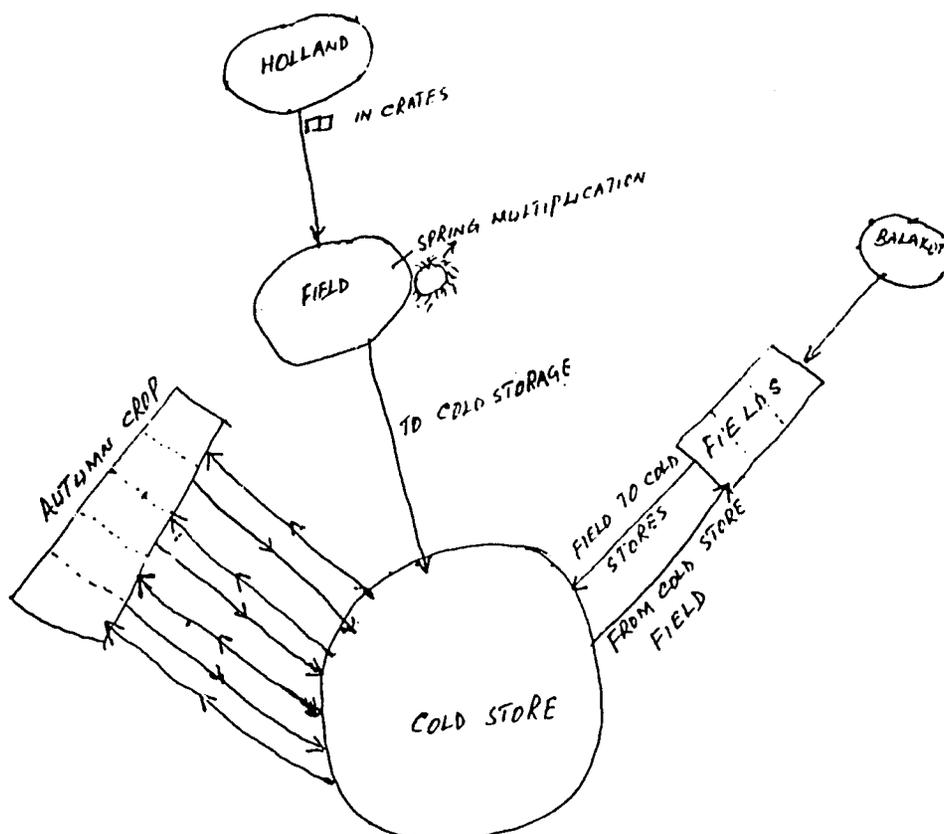
Materials: Paper and marker

Process:

The informants were approached in their fields. They were asked to explain the situation of potato seed supply. They told that there were two sources of seed potato supply to them i.e. Balakot and Holland. The Balakot seed was multiplied after arrival in spring or autumn and kept in cold store for the rest of non-growing period. This seed was planted once again and then disposed off due to deterioration of its quality/capacity of high yield. The Holland seed is planted in spring season for its multiplication. The bigger tubers are cut into 2-3 pieces which ensures the coverage of more area. This multiplied seed is kept in the cold stores till autumn. Then this seed is sown and stored in the cold stores for consecutive 4 seasons (autumn only) till its quality deteriorates. No difficulty was faced in this process.

Key findings:

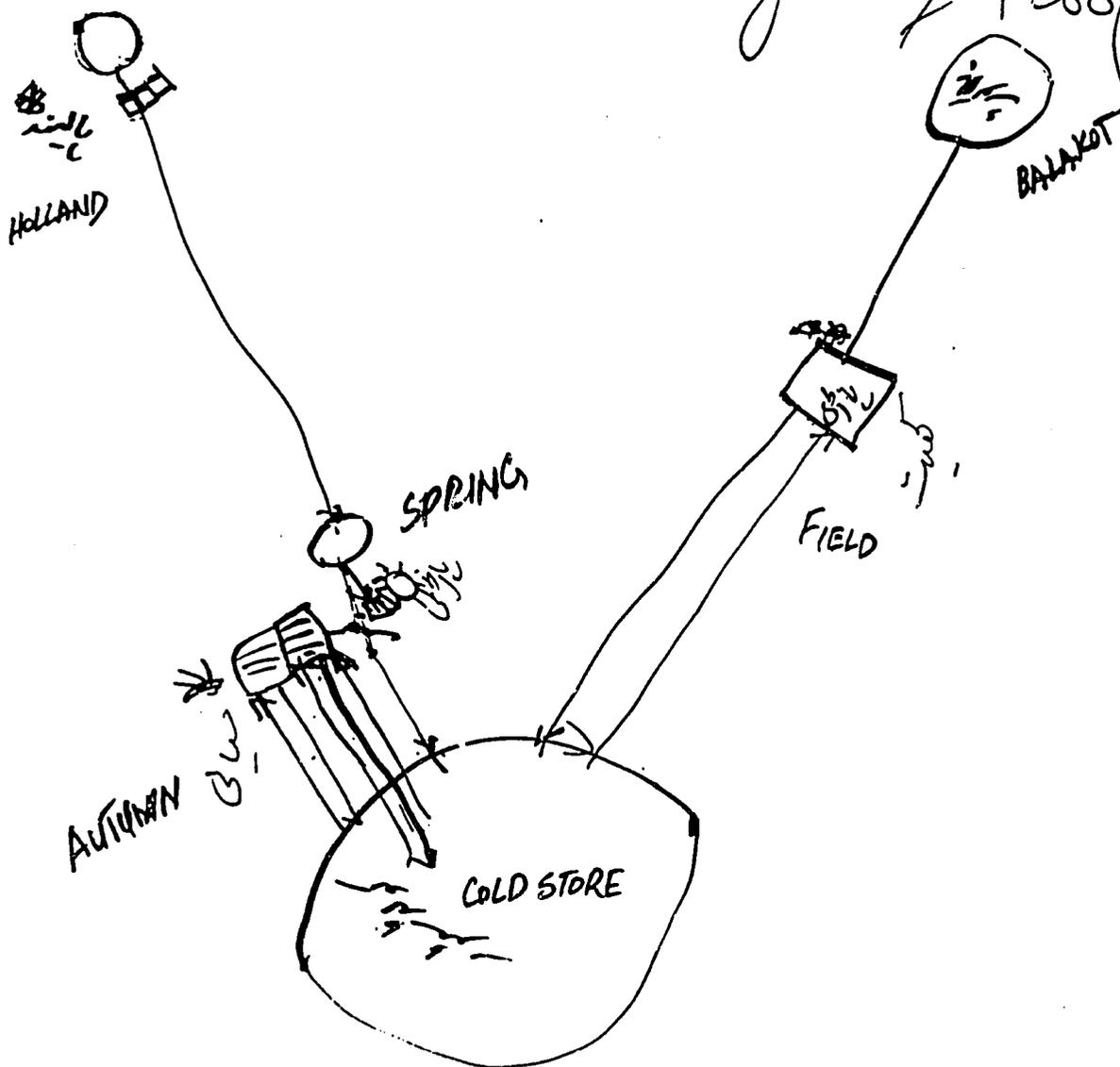
- Local seed could be planted for two seasons only whereas the imported one could be planted for consecutive five years by its production and storage.
- Lower seed rate could be used by cutting the potato tubers into 2-3 pieces.



ANALYST: MUHAMMAD MALIK (TENANT)
MAJEEB BHINDER (OWNER)

FACILITATORS: DR. NASEERULLAH, AHMAD MASOOD, K. KHATTAK
M. ASGHAR, HUMAIRA, AFSHAN

Seed Potato cycle of Aroop



ORIGINAL
DIAGRAM

SEED POTATO CYCLE

AROOP 16 FEB 1992

DRAWN BY : MOHD. MALIK
MAJED BINDAR

Humera, Afsan
Humera

FACILITATORS : M. ASGAR, NASRULLAH
JAN. A. MASOOD, HUMERA, AFSHAN

36. Problems and Policy Solutions for Potato Growers: Systems Diagram 17/2/92

Location: Fields

Drawn by: Mr. Hakim Ali

Type of farmer: Middle potato grower but never large

Facilitator: Jaffar Shah, Asghar, Safdar Hussain and Farhana

Materials: Paper and marker

Process:

While walking through the fields on a transect walk, we came across the farmer working in the field. We asked him if he could give some information about his problems and their solutions, to which he happily agreed. A piece of paper and marker were provided to him. The informant started the systems diagram from his *dera* and then indicated his fields. He also indicated Gujranwala market and his residence in the village. Presently he was growing potatoes and wheat. He also indicated a cold store near Gujranwala. According to him the potato seed was being procured from the stores which could be local or imported varieties. He indicated it with an arrow line from cold store to his fields. All of his potato produce was flowing from field to the market. He brought fertilizer from Gujranwala market. He is using his own wheat seed and brings back wheat produce for home consumption. He showed all of his problems on the diagram. The first of his problem was the high seed cost of potato. He suggested the Govt. should procure/import potato seed, keep it in their stores and distribute it directly to the growers without any intervention by the middleman.

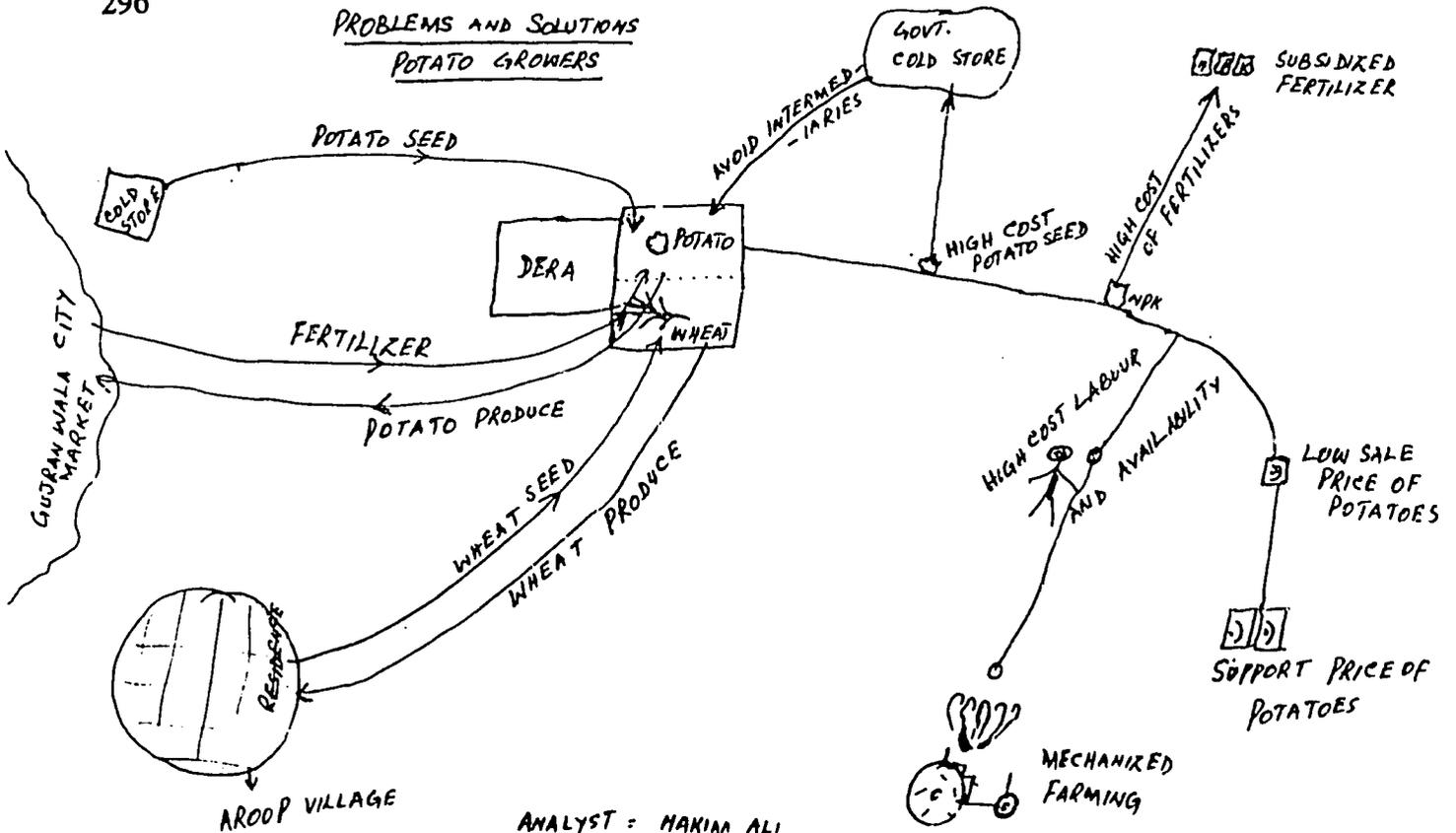
His second problem was the high cost of fertilizer which in his opinion should be subsidized by the govt. His next problem was high cost and non-availability of labour. According to him the remedy lies in the introduction of machinery for sowing/harvesting of potato crop for which the govt. should give soft loans. The last problem was of fetching low price of potato produce for which the support price of potato should be introduced whenever needed.

Key findings:

This use of systems diagram led to a detailed discussion on the policy options that could be put in place to support potato cultivation:

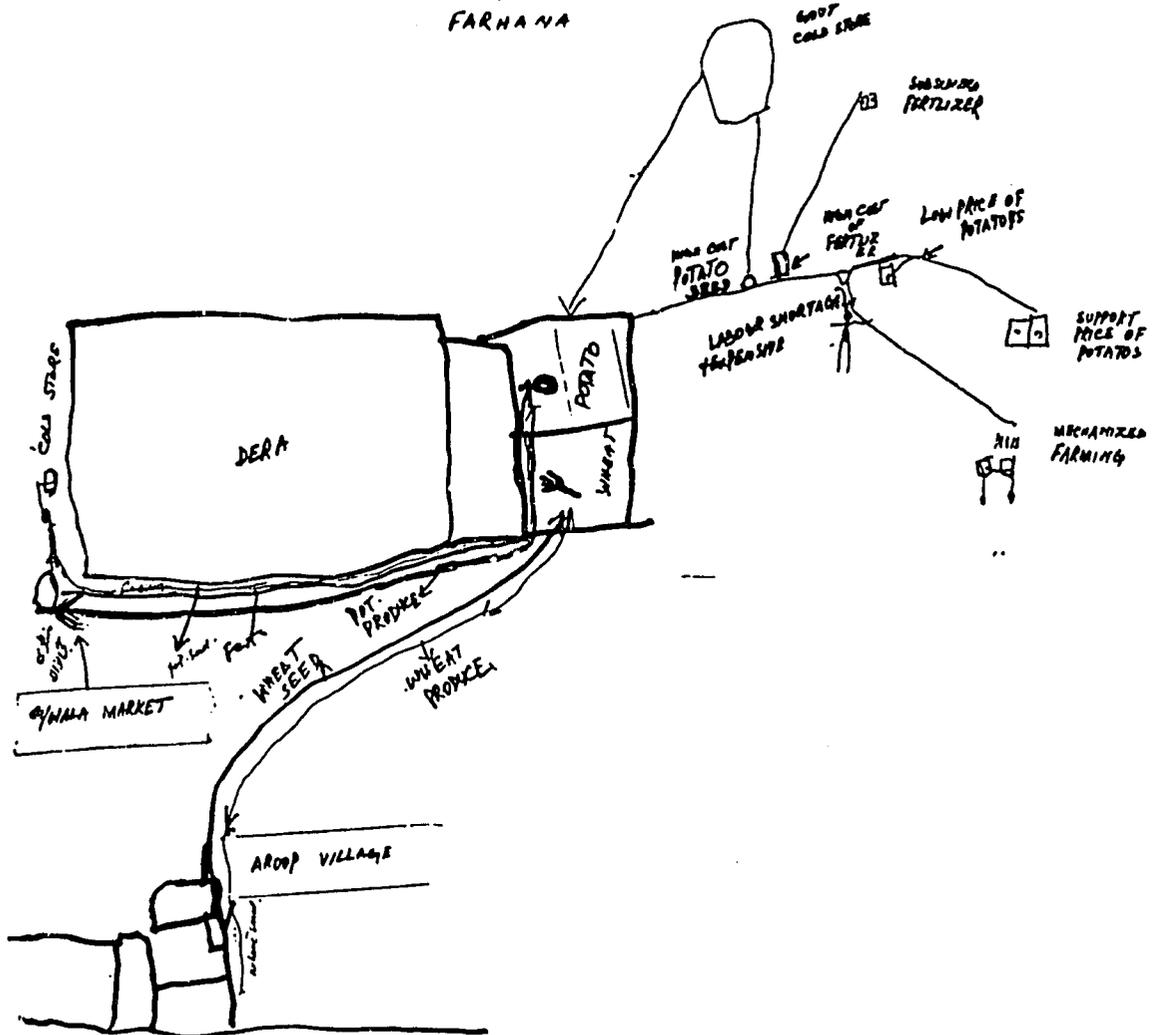
- Intermediaries should be omitted from the seed distribution.
- Subsidized price of fertilizer to be introduced.
- Soft loan should be advanced for the purchase of machinery.
- Whenever needed support price of potato to be introduced.

PROBLEMS AND SOLUTIONS
POTATO GROWERS



ANALYST : MAXIM ALI

- FACILITATORS :
- JAFAR SHAH
 - M. ASGAR
 - SAFDAR MUSSAIN
 - FARHANA



37. Systems Diagram (by Women)

16/2/92

Location: Tallianwala *dera*, Village Aroop

Drawn by: Majida Bibi

Copied by: Humera Malik

Type of farmer: Small potato growers

Analysts: Majida Bibi, Bashira Bibi, Maqbool Bibi

Materials: Pen on paper

Process:

We met these women and men sitting in a group close to their potato fields. They had freshly picked vegetables like radishes, carrots, peas, mustard in a basket in front of them. As our group approached them they greeted us with a welcoming style which immediately made us comfortable. Perhaps this was their ice-breaker for us. Then the men sat a little away from where the women had started talking. The three women started discussing their daily activities and also enquired about our purpose. After some time we asked them if they could draw their fields, they immediately refused on the pretext that they have never held a pen in their lives. The two of them pointed towards Majida Bibi saying that she has been to a school.

As they refused point blank, one of us started with semi structured interviewing. While Majida Bibi stood up and went over to what the men were doing. They had by this time had begun on their flow diagrams.

She came back and joined our group again. By this time one of us had started conversing with the children who were eating sugar cane. We offered them some dry-fruits and they in turn offered us sugarcane which we accepted. At this point when the woman joined us, she enquired why we were not going ahead with the interview. When we told them that its no point going ahead when they are not being helpful she abruptly picked our pen spread the paper in front and started drawing the potato field where we were sitting and proudly looked up and said "*Alright now, tell me what else you want me to draw*".

She drew the neighbouring fields next. Here we asked her to draw the fields that she worked in as she was employed by the people who had leased that land from its original owner. Once the fields were drawn, she was quick to make her house. She was guided in making a line across linking her house to the fields. She was holding the pen awkwardly but she seemed to like drawing with it. In fact she wanted to draw so well that on her own she picked up a pea from the basket and started to draw around it. In this way she picked up different vegetables and drew them along the line to her house. This she said was what she got paid for her labour. She also drew a coin to indicate money which she also gets inform her employers.

She drew a *dera* and made trees near it immediately afterwards - she told us "*we not only store cow dung there but under these trees also*" - she uses these as manure for the fields.

When asked about where they get the seeds for potato, she mentioned Gujranwala and it drew it a little away in one corner. There she drew the fertilizer store and drew a line pending to the fields. Then she drew a cold storage to show where they get potato seeds from and corrected the cold storage with a line all the way to potato fields she had drawn.

It can be informed that the women working in the fields supplement the income of the family by not just getting hand cash home but also by getting paid in kind, in this case vegetables for daily meals and normal amount of cash. The females working in this farm were actively involved in potato cultivation as they were aware of such places like "cold storage" and 'fertilizer store' even though it seemed they are not involved in marketing of crops etc.

38. Farm Profile and Flows: Systems Diagram

16/2/92

Location: Aroop, Pucca *dera*

Drawn by: Sultan Bibi, Rashida Bibi, Zafar Masih

Copied by: M. Masood

Type of Farmer: Small, non-potato grower

Facilitator: M. Masood, Jaffar Shah, Abdul Ghani, Jules

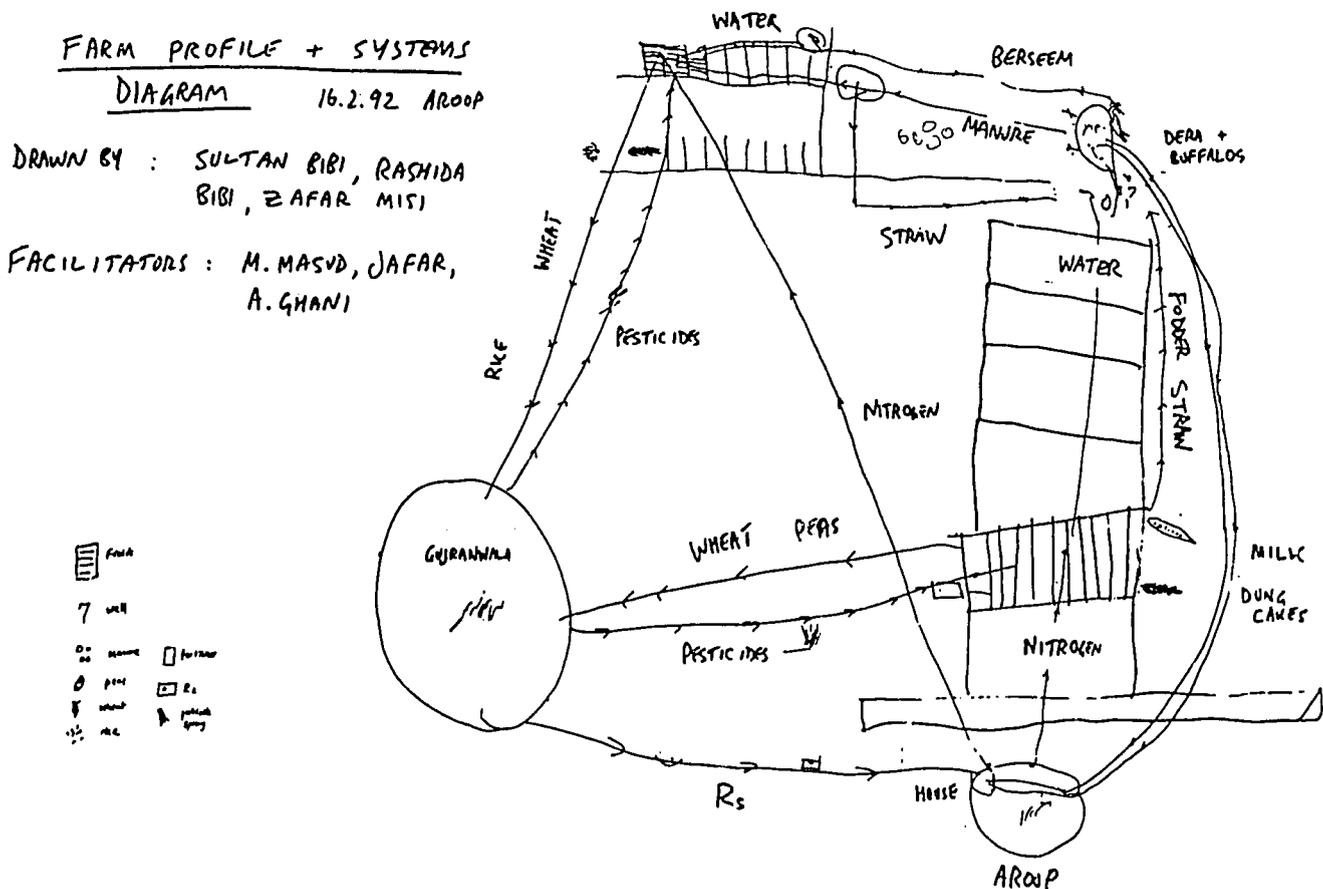
Materials: Large size paper, marker, pen

Process:

The team visited the pucca *dera* and met a young boy Mr. Zafar Masih, two women one his mother and second his neighbour were also sitting there. The facilitators introduced themselves and sat in the veranda. One facilitator asked the young boy how much cultivated land they have, he told three and half acres. Then the facilitators asked the young boy if we say that we will not visit your farm but we want to know about your farm, can you show us on a paper. First he felt hesitation and then he said-OK, I will try. The facilitators gave him a marker and a pen. He asked from which I should start, the facilitator told him to take start from the place where we were sitting. By drawing a circle he showed that place and then he felt more hesitation. After discussion with his mother, she asked him to give pen to her and then the lady made the whole flow diagram herself - she indicated the crops and others activities through different symbols and shown on the floor chart. This led to a discussion on the flows between each component of the farm, where there were problems and the local responses.

Key findings:

Her husband has three and half acres of land for cultivation which he rented from Nabi Bukhsh. Her husband was selling his produce in Gujranwala market and after selling the produce he was bringing back money to his house and also purchasing pesticide from Gujranwala market for compiling the insect pests of different crops. Her husband has two buffaloes at his *dera*. She brought all the milk to his house for home consumption. Her husband has stored straw for buffaloes at another place near *dera* and bring straw for buffaloes as shown in flow Diagram.



39. Systems Diagram: Problems and Policy Solutions

17/2/92

Location: *Dera* (Aroop)**Drawn by:** Mohammed Malik owner, Ghulam Qadir, contract grower**Facilitator:** M. Khaliqz Zaman, Humera Malik, Nasrullah Jan, M. Asghar**Materials:** Paper, markers of different colours***Process:***

The system diagram was drawn during our second meeting with the farmer and the contractor. First meeting had occurred one day before in which they explained and drew their problems related to potato seed supply.

On second day farmers immediately started drawing system diagram they were asked to do so. He was not hesitant. He initially asked the facilitator to help him show North and South direction on the paper. He had weak eyesight and complained of the difficulty he was facing. So one of the facilitators offered his glasses which luckily helped the farmer. He drew his *dera*. He perceived a cluster of *deras* belonging the group of farmer called 'Shah Taliwala' as one *dera*. Then he drew fields around their *dera*, putting crops names across the fields. Then he drew different institutions with which he is linked somehow.

Problems:

The owner dominated and contractor grower remained silent most of the time. The facilitator did not insist upon bringing in the contractor. Otherwise the owner would have been irritated and that would have been complete disaster.

Key findings:

He perceived 'Taliwala' group as one entity. He gave field information about the crops and animals of the entire Taliwala.

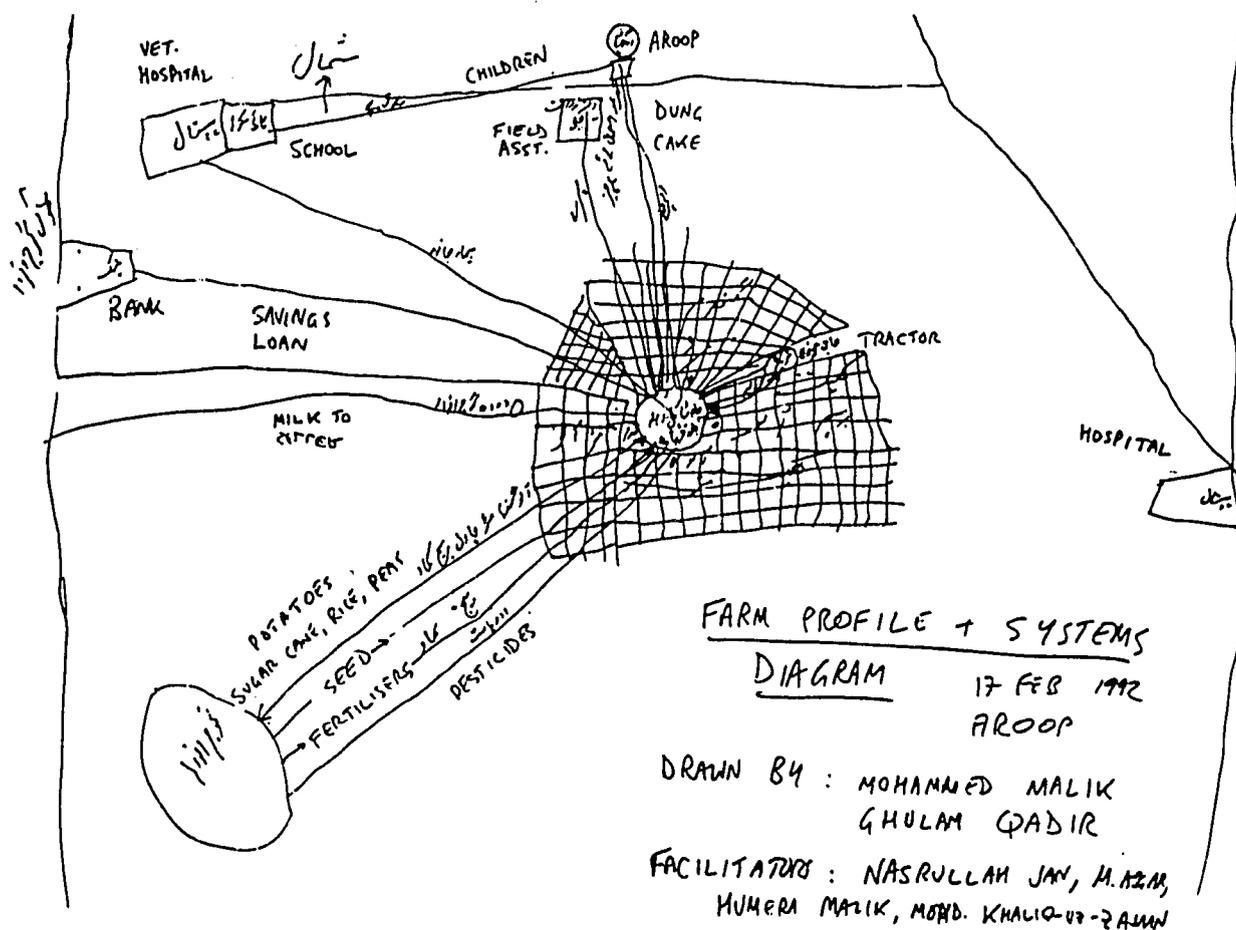
Crop grown: Potatoes, peas, wheat, berseem**Animals:** 40**Institutional Links:** Gujranwala, inputs (seed, fertiliser, pesticides - coming to *dera*. Output going to Gujranwala. He sells extra milk to a milkman, who takes it to Gujranwala.

- Bank: loans as and when needed. Deposit money
- High school: Sends his children for education
- Veterinary hospital: Gets his animals treated
- Agricultural Office: Gets advice and spray facilities
- Home in Aroop: All the farm products including vegetables, milk according to his demand goes to his home
- Civil hospital: so far no major problem of ailment and have the facility not used.

Problems: Timely availability of fertilisers. Bad effect on crop, the crop becomes weak, usually buy before season.

- Shortage of electric power supply: Crops are badly affected. Rice crop with water shortage cannot cover the whole season again.
- Adulteration in diesel oil: diesel engines are badly affected. No use of diesel engine for water supply.
- Wheat price low: Reduction in wheat area. The price of wheat showed by Rs.200 per maund.

- Fluctuating market rates of potato: low potato production. Cannot help it.
- Poor quality seed potato, planted due to high seed price: Low income. (To avoid the situation) we keep our own seed in cold storage.
- Disease attack on crop; additional expenditure. No solution.
- Increasing labour charges: Rs.300/acre additional expenditure every year. No solution.



40. Systems Diagrams for Problems, Responses and Solutions

17/2/92

Location: *Dera* of Potato Grower (Aroop)

Drawn by: M. Ismail (Father) and Hanif (Son)

Type of farmer: Potato grower

Facilitators: Nasrullah J., M. Khaliq-uz-Zaman, Jules Pretty

Materials: Paper, coloured markers

Process:

When we approached the farmer in the field he was busy harvesting turnip crop. We explained our objective and asked for information about his farming system and specifically some on potato. He brought along his son to the *dera* and the son was in grade 9. To start with we asked him to draw his *dera* first as his starting point - where were at that time. The same started following his father's directions and drew his *dera* first which was relatively big and the father asked his son that it is too big and there would not enough space to draw other thing on this paper.

After drawing his *dera* they started drawing his fields. We asked them they are free to use symbols and indicating crops in the field but they prepared to write the main crops instead which was easier for them. Then he drew incoming and outgoing material from and to his *dera*. He added different organisation and villages with whom he has some sort of connection to the diagram.

Problems:

1. Short of different coloured markers for indicating each activity and places
2. Saboteur, a person from neighbouring field, was not a potato grower continuously interrupting the process.

Solution:

1. Labelling
2. Tried to engage the saboteur by asking to draw his farm activities on a separate paper and allowed one facilitator to sit with him. He was reluctant to draw and left the place.

Key findings:

1. Connections: Gujranwala, Fertiliser, seed and pesticides come to *dera*. Also advice for specific pesticide for particular disease and pests.

Produce of the crops he grows go to Gujranwala market, except sugarcane.

2. Rahwali: He takes his sugarcane to Rahwali sugarcane Mill.
3. Veterinary hospital (Aroop): He takes his sick animal to Aroop veterinary hospital.
4. Agricultural Offices: He has no contact with agricultural officers in Aroop.
5. Aroop village: He lives in Aroop village, and takes produce from the field to his home according to his need such as vegetables, wheat, milk and dung cakes.
6. Other farm fields: He rents his tractor to other farmers on cash payment.

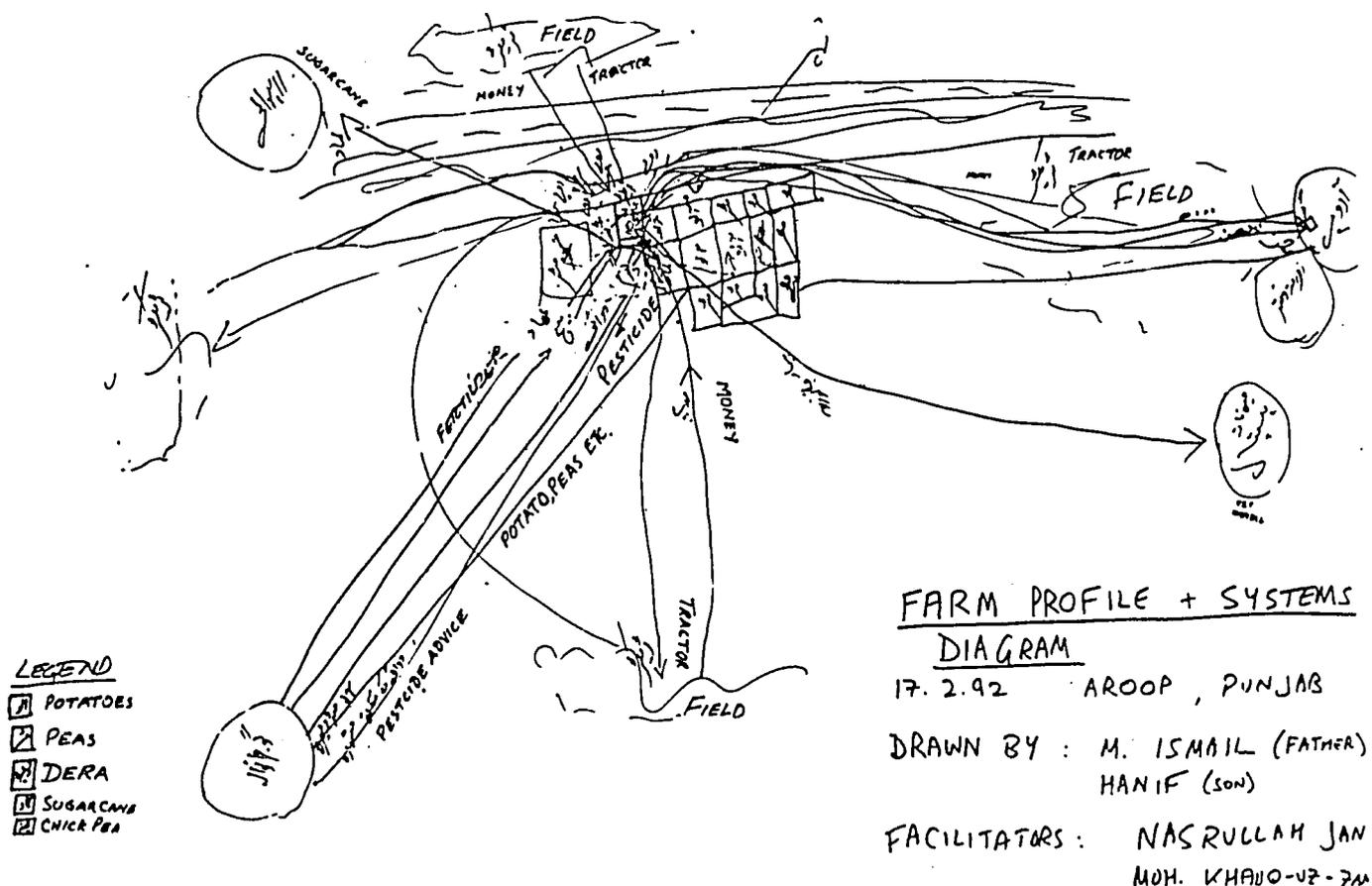
Crops (present position): wheat, peas, turnips, chick peas and potatoes

Animals: Buffalo - 1, Cow - 3, Tractor - 1 (with accessories)

<u>Problem</u>	<u>Consequences</u>	<u>Response</u>
High wages of labour	Low labour input	Can't do anything
High transport charges	High market expenditure	-do-
Seasonal price fluctuation of produce	Uncertainty	Early harvest of autumn crop late harvest low price
Insect and disease attack	Pesticide spray	
Leaf deterioration Disease	Can't help	
Water for irrigation	High electric charges	Installed diesel engine
Poor quality seed	Low yield	Complaint to the agent.

Key findings:

They identified 2 sources of seed a) Balakot seed, b) Crate seed (imported). Imported seed is better but he cannot afford to buy crate seed (Rs.1500/crate). So he usually buys from second generation seed of imported seed from farmers. Seed from Balakot source is also bought from other local farmers who can go to Balakot. Because of high prices he sells all of his fresh potatoes in the market. From crate seed he grows further 3-4 crops in autumn cycle. However, from Balakot seed he takes only 2 crops - spring, autumn.



FLOW - PROBLEMS DIAGRAM

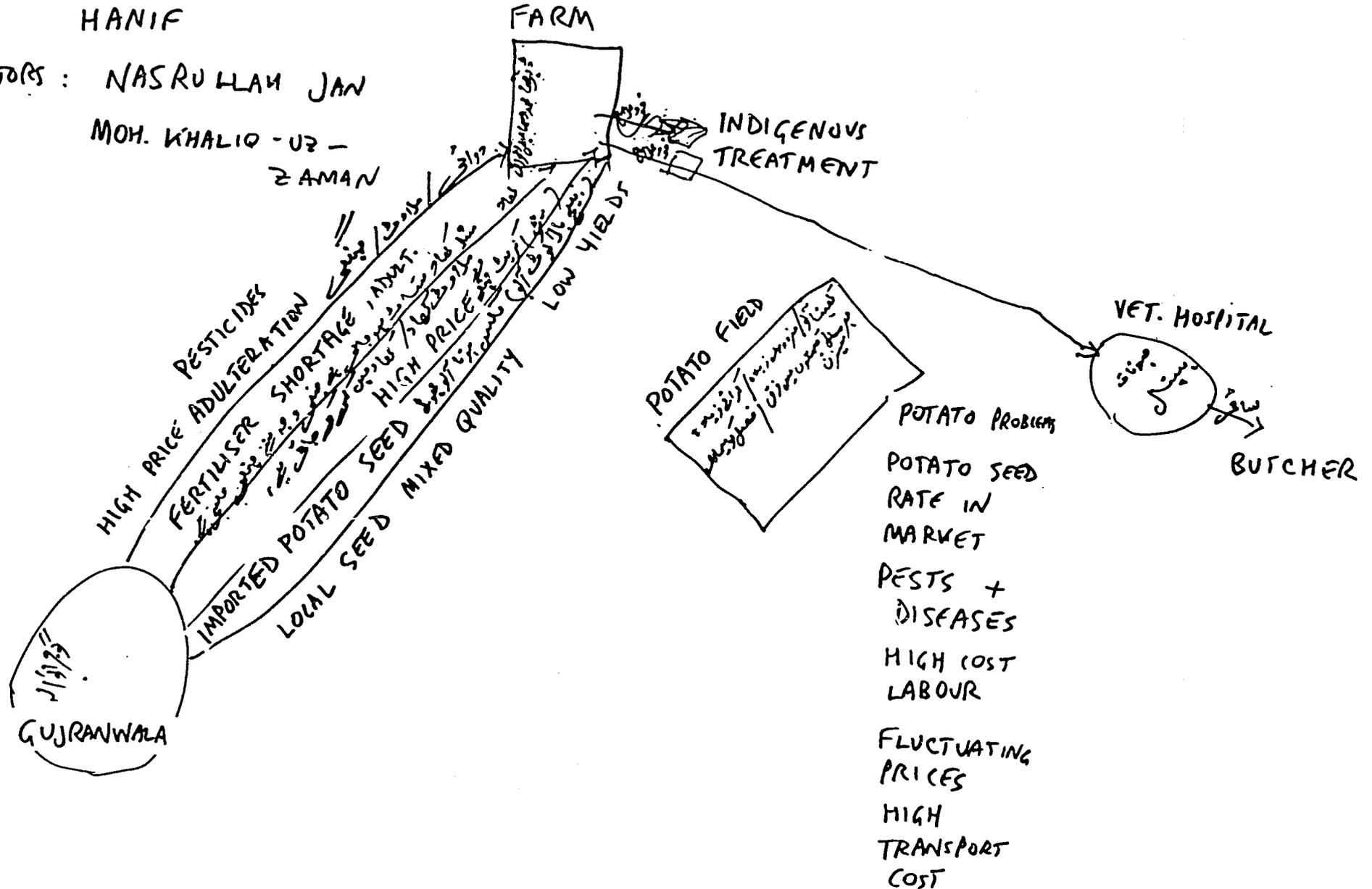
17 FEB 1992

AROOP

DRAWN BY : M. ISMAIL
HANIF

FACILITATORS : NASRU LLAH JAN

MOH. KHALIQ - UZ -
ZAMAN



د. محمد رفیق
 علی، کمپنی سائنس
 اختتام جبر سے
 ۱۳۱ جبر سے

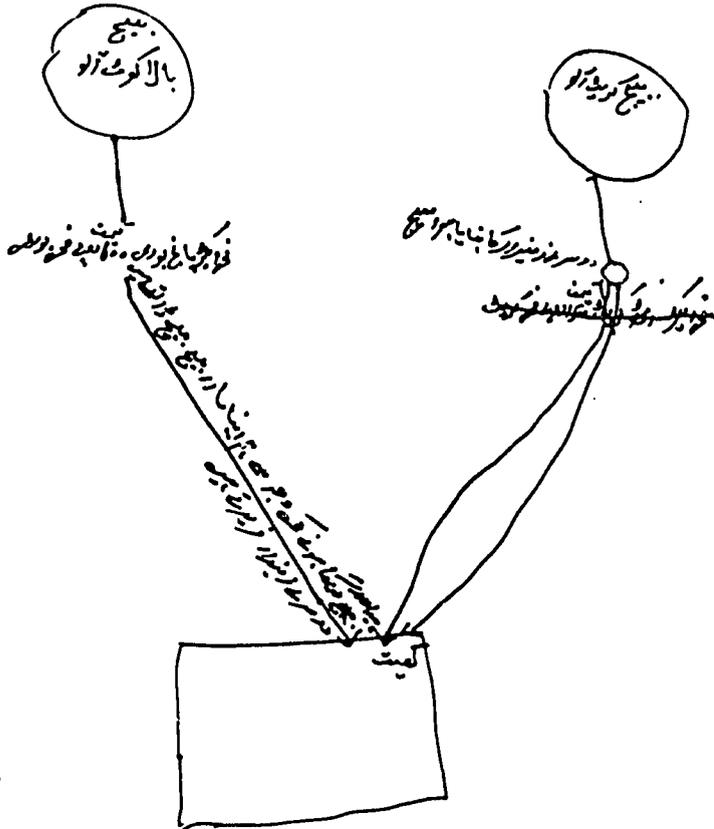
PROBLEMS

نتیجہ

PROBLEMS

- | | |
|-------------------|-------------------|
| ۱۔ کمبود پیداوار | ۱۔ کمبود پیداوار |
| ۲۔ زیادہ خرچ | ۲۔ زیادہ خرچ |
| ۳۔ کمبود پیداوار | ۳۔ کمبود پیداوار |
| ۴۔ کمبود پیداوار | ۴۔ کمبود پیداوار |
| ۵۔ کمبود پیداوار | ۵۔ کمبود پیداوار |
| ۶۔ کمبود پیداوار | ۶۔ کمبود پیداوار |
| ۷۔ کمبود پیداوار | ۷۔ کمبود پیداوار |
| ۸۔ کمبود پیداوار | ۸۔ کمبود پیداوار |
| ۹۔ کمبود پیداوار | ۹۔ کمبود پیداوار |
| ۱۰۔ کمبود پیداوار | ۱۰۔ کمبود پیداوار |

(۷) ویزل ٹین
 دس، آڈٹ سے حکایت



M Hanif
 محمد اسماعیل اویسی

PROBLEMS - RESPONSES MATRIX
+ DECISION TREE FOR
SEED SOURCES

17.2.92 AROOP

DRAWN BY: M. ISMAIL HANIF

41. Farm Profile and System Diagram

17/2/92

Location: Aroop, Hayatpura, Berseem fields

Drawn by: Khushi Masih (Christian)

Copied by: Safdar

Type of farmer: Always middle (contract farmer)

Facilitator: Farhana, Safdar, Jaffar, Asghar

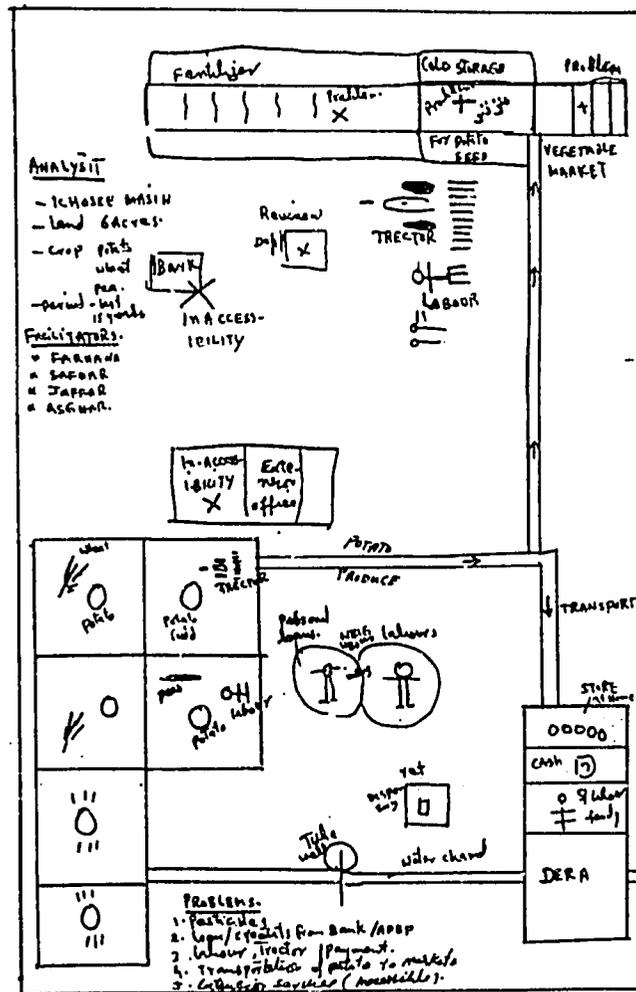
Materials: paper sheet, markers

Process:

The informant was in Berseem fields cutting the crop. There were also a couple of wage labourers working in his fields. He has been in farming all his life. We explained to him the objectives of our visit. He has always grown potatoes on six acres. After talking to him for about 20 minutes we asked him to draw a map of his farm. He protested, saying that he has never in his life held or used a pencil/pen and what is more since he is illiterate would not know how to draw lines properly. At that we told him that we are totally illiterate when it comes to farming as we don't know the first thing about it. What is more, had we known anything about potato growing we would not have asked him to tell us all about the potato production processes. He started by drawing his fields. The team suggested that he could use some symbols to differentiate/identify fields, *dera*, etc. and left to him to think of symbols. He used cross sign (x) to indicate inaccessibility of farmer to various institutions as problem areas.

Key findings:

Indebtedness of middle farmers who always grow potato since the returns are subject to many factors (eg. price, attack of pests and disease, un-adulterated fertiliser, timely availability of labour during the peak season ie. harvesting etc). Inaccessibility of farmers to the government department for loans etc. Maintenance of imported (Desiree) seed which he uses for five seasons.



42. Decision Tree for Health Services

16/2/92

Location: Aroop, Hayatpura, Farhat's house

Drawn by: Zahida

Type of farmers: Landless working as labour

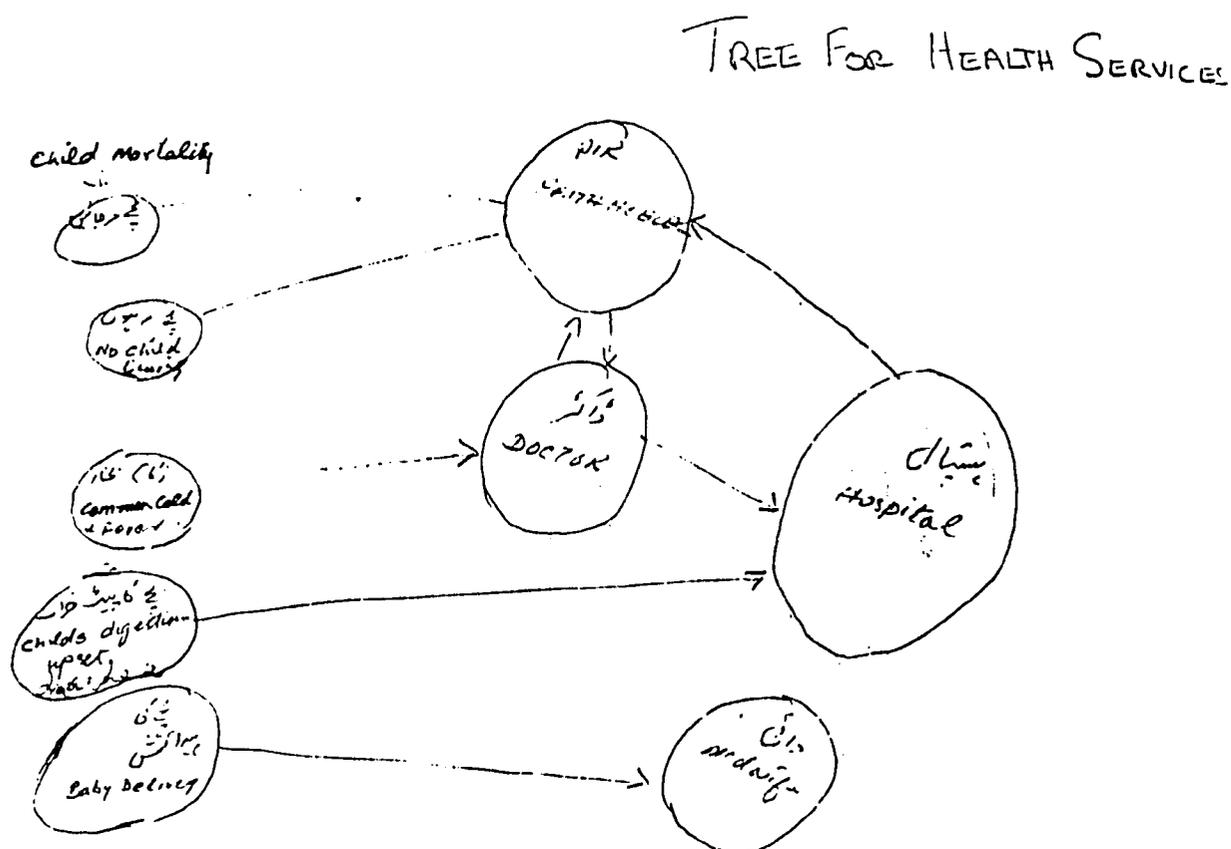
Facilitator: Humera Malik

Materials: Drawing chart, markers

Process:

PRA female team was busy taking information from three different groups of farmers of Hayatpura. In one group health and services was the topic under discussion. Zahida was very good important but she was very reluctant to draw anything on the chart and the excuse she gave was that she never hold the pen in her life so she can't know how to draw. Then Farhat another woman but educated gave her a cue that why don't you draw inches for diseases and services and link them with lines accordingly. On her first response Zahida said that for all kinds of disease they consult doctors and in Aroop there are many doctors. After probing she then drew other circles for child mortality and for not child bearing and for this particular reason they consulted traditional faith healers. Another important thing that came out of this exercise in that in most of the cases people consult both the faith healer and doctors simultaneously. For child delivery they prefer to call midwife rather than consulting doctors, only in very serious conditions they go to the hospitals.

This was the third day of our field work and by this time most of the villagers had either heard about us or met with us, so starting all our discussion was not a very serious problem, only problem was how to take initiative for handing over the pen.



Drawn by:

Basheersan

captioned by: Humera Malik

Facilitator: Humera Malik

ANALYSIS OF PROBLEMS AND OPTIONS FOR RESEARCH OR POLICY

Following the fieldwork and participatory analysis, the team analysed the findings to develop a research and policy agenda. The discussions focused on:

- Problems
- Causes of the problems
- Local responses
- Options for research
- Options for policy

The responses to problems differ according to type of farmer, and so the typology and wealth rankings (see nos. 27-29) coupled with the systems diagrams (nos. 30-41) were used to disaggregate the responses and options according to:

- small potato grower
- middle grower
- large grower.

The following problems were analysed through the use of *Flow Diagrams* (nos. 43-68)

Potatoes

43. High cost of imported potato seed
44. Low quality seed potato
45. Shortage potato seed
46. High price of cold storage

Fertilisers

47. Lack of availability of fertiliser at appropriate time
48. Inappropriate dosage of fertiliser
49. Poor quality fertiliser sacks
50. Price of fertilisers

Pests and Disease Treatment

51. Pest and disease problems
52. Lack of accurate information on pesticides

Water and irrigation

- 53. Cost of water
- 54. Load shedding by electricity suppliers
- 55. Lack of irrigation
- 56. Waterlogging

Labour

- 57. Shortage of labour
- 58. Changing attitudes to farming

Land

- 59. Land fragmentation
- 60. Small size of land holdings
- 61. High cost of renting land
- 62. Land disputes

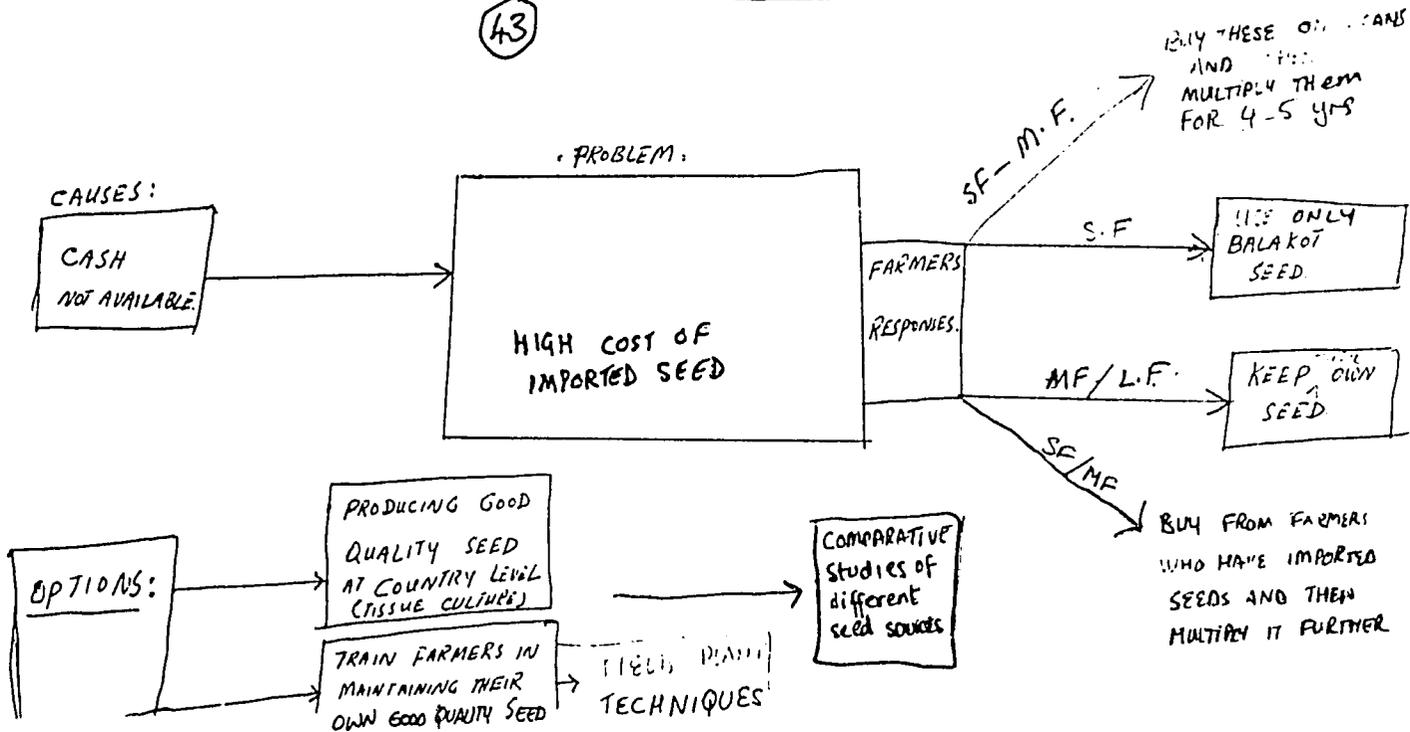
Credit and Loans

- 63. Lack of access to institutionalised credit and loans

Marketing

- 64. Potato price fall in Jan-Feb.
- 65. Potato price fluctuation across the years
- 66. Transportation of produce to market
- 67. Low wheat price
- 68. Exploiting practices of commission agents

43

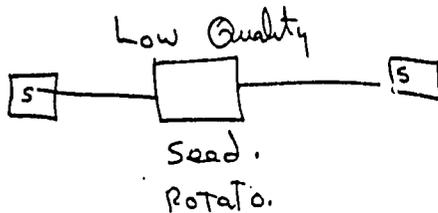


Causes:

1. High demand of seed
2. Mixing of seed.
3. Poor storage.
4. High prices
5. not sufficient supply.
6. Insufficient producer.
7. Political influence of persons.
10. Poor management of seed production.
11. mixing of varieties.
12. Lack of proper source of seed supply.
13. lack of research

44

PROBLEM



Response

- exchange farmer to farmer seed
- seed maintained
- solvent taking seed source.
- Intra-use of seed cause deterioration
- to contact with widras, choudhries to get seed.
- shift to line stock farming.
- shift to her cropping pattern.

Choose the crop which which certified is available change cropping pattern direct to livestock poultry farming.

OPTION.

- divert to the institution which supply seed.
- seed maintenance programme in field
- Contact to P SPDP
- Contact with private potato seed supply Co's which had good reputation
- Avoid to take seed from Agents (Co Agents).
- use of fungicide
- Try to get certified variety seed of potato.
- get seed checked by laboratory.

45

- Cause
- Rush of grower at sowing time
 - High demand
 - low production
 - Stocking
 - High Prices
 - Role intermediary.



- Response.
- maintain his own seed.
 - Exchange with other farmers
 - lesser area under the crop
 - stocks the require demand.

- OPTION
- Great Nucleus seed from Research institute multiply on farm
 - SCo should check on dealers
 - Rationing in sugar
 -

CAUSES

- High energy cost
- High maintenance cost
- High initial capital investment
- Limited competition amongst cold storage business

46

PROBLEM

S
+
M

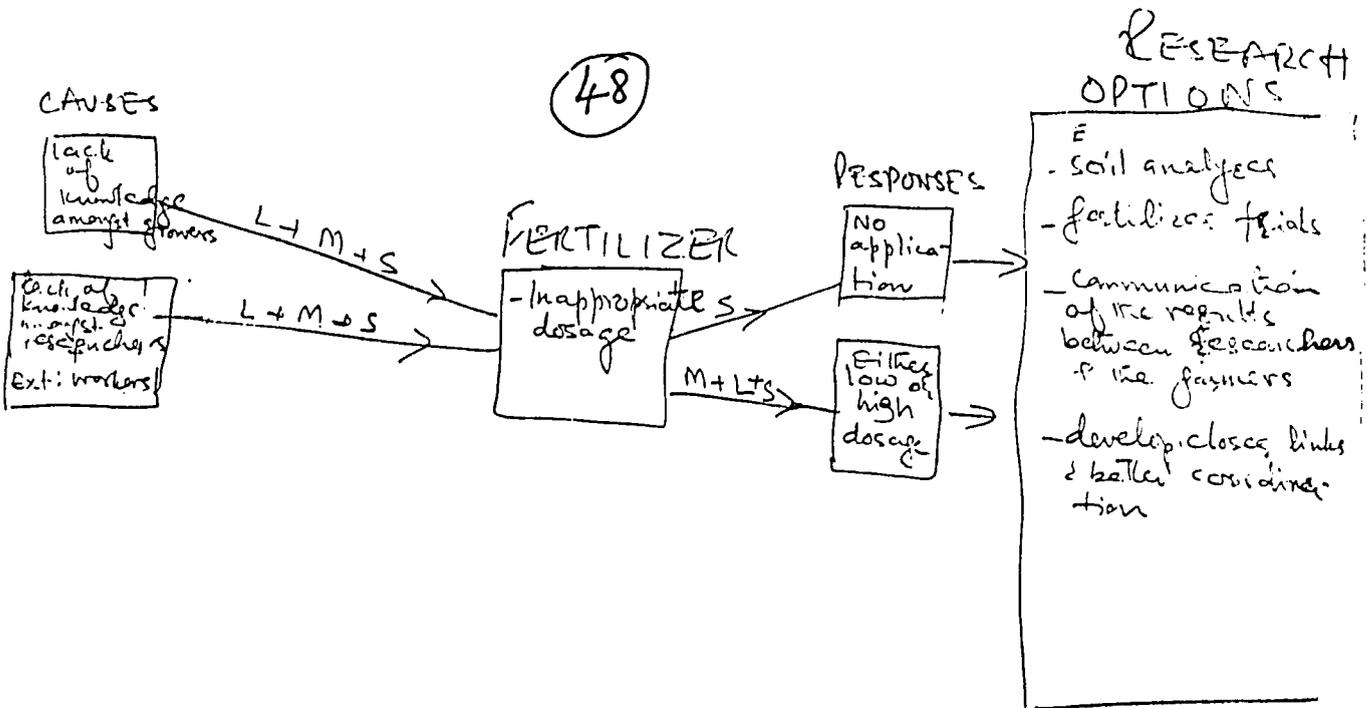
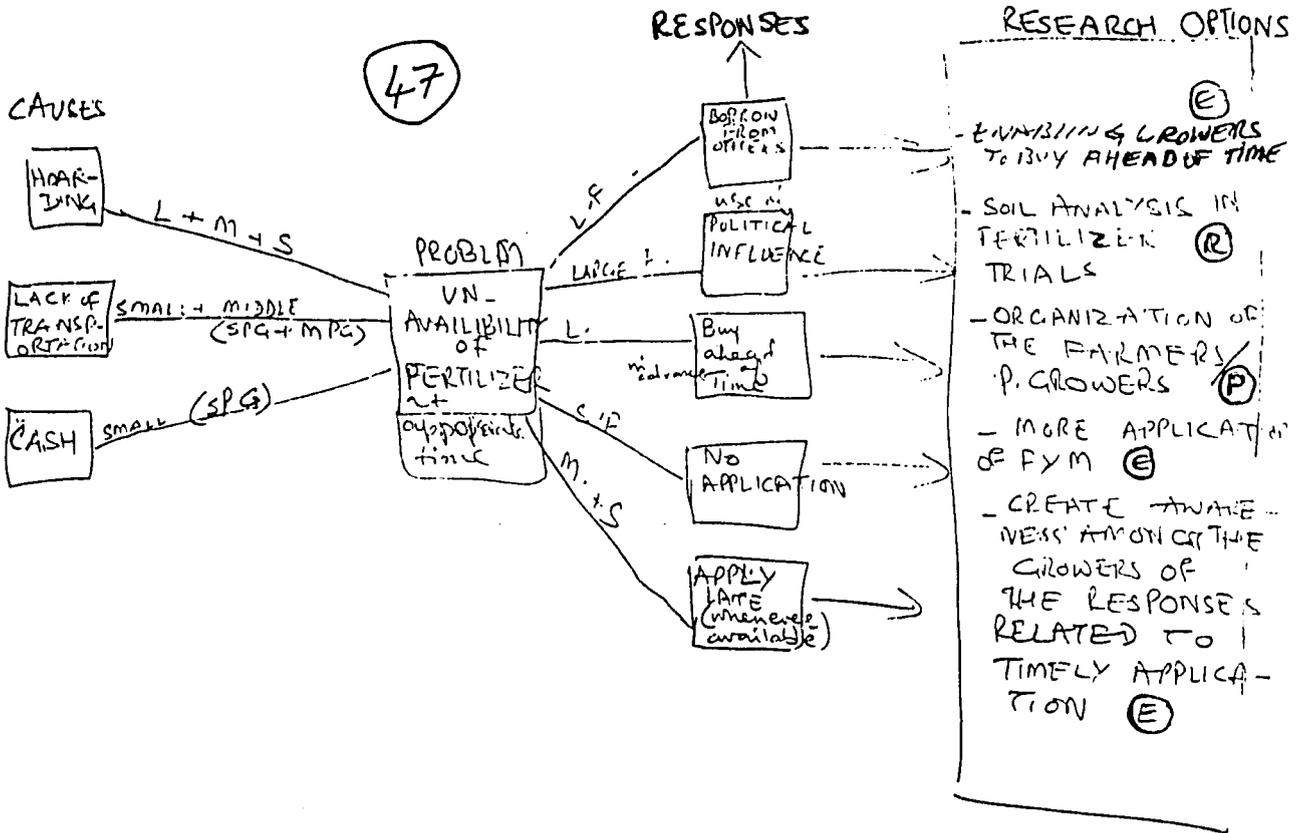
HIGH PRICE OF COLD STORAGE

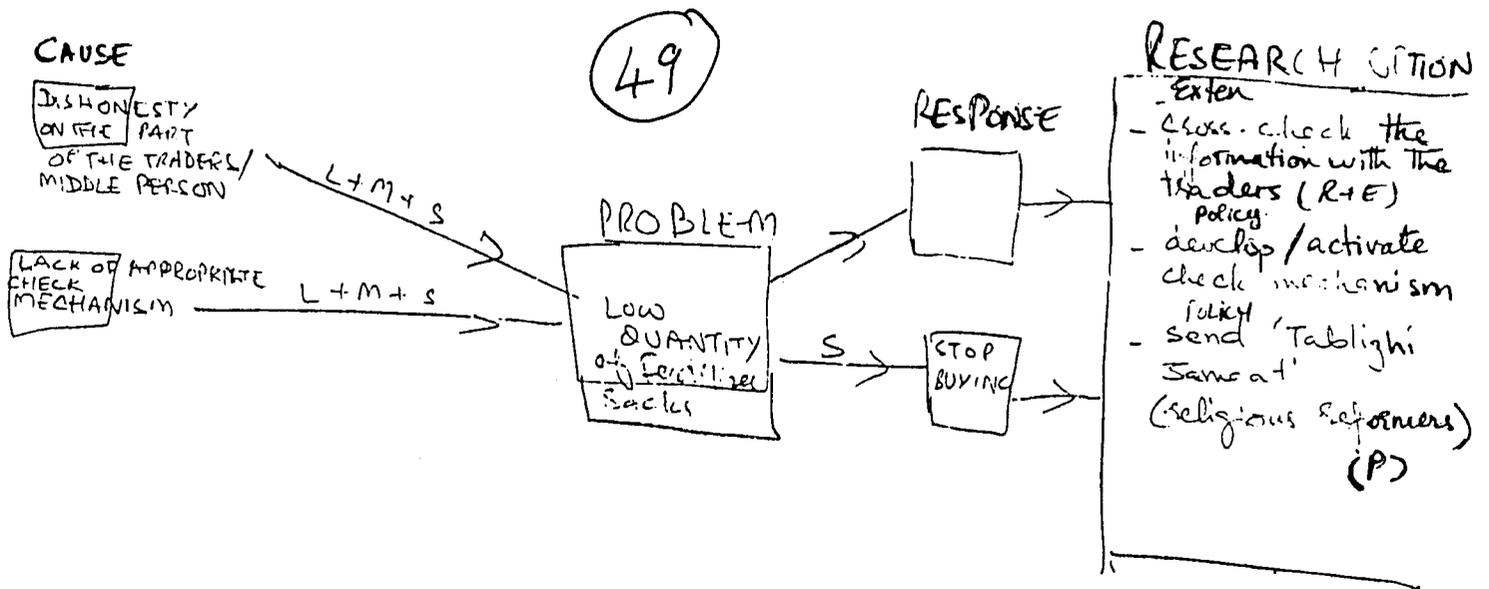
RESPONSES

- Disruption in autumn to autumn seed cycle amongst S/M farmers
- Early selling of the crop
- Limited autumn crop

RESEARCH OPTIONS

- Research in alternative seed storage systems (P)
- Training of cold storage owners for efficient use of their facilities (minimise energy, maintenance cost)
- organization of the farmers to build their storage (P)





Cause.

- storage (stock holding)
- Price
- shortage
- adulteration
- high demand
- low production

(50)



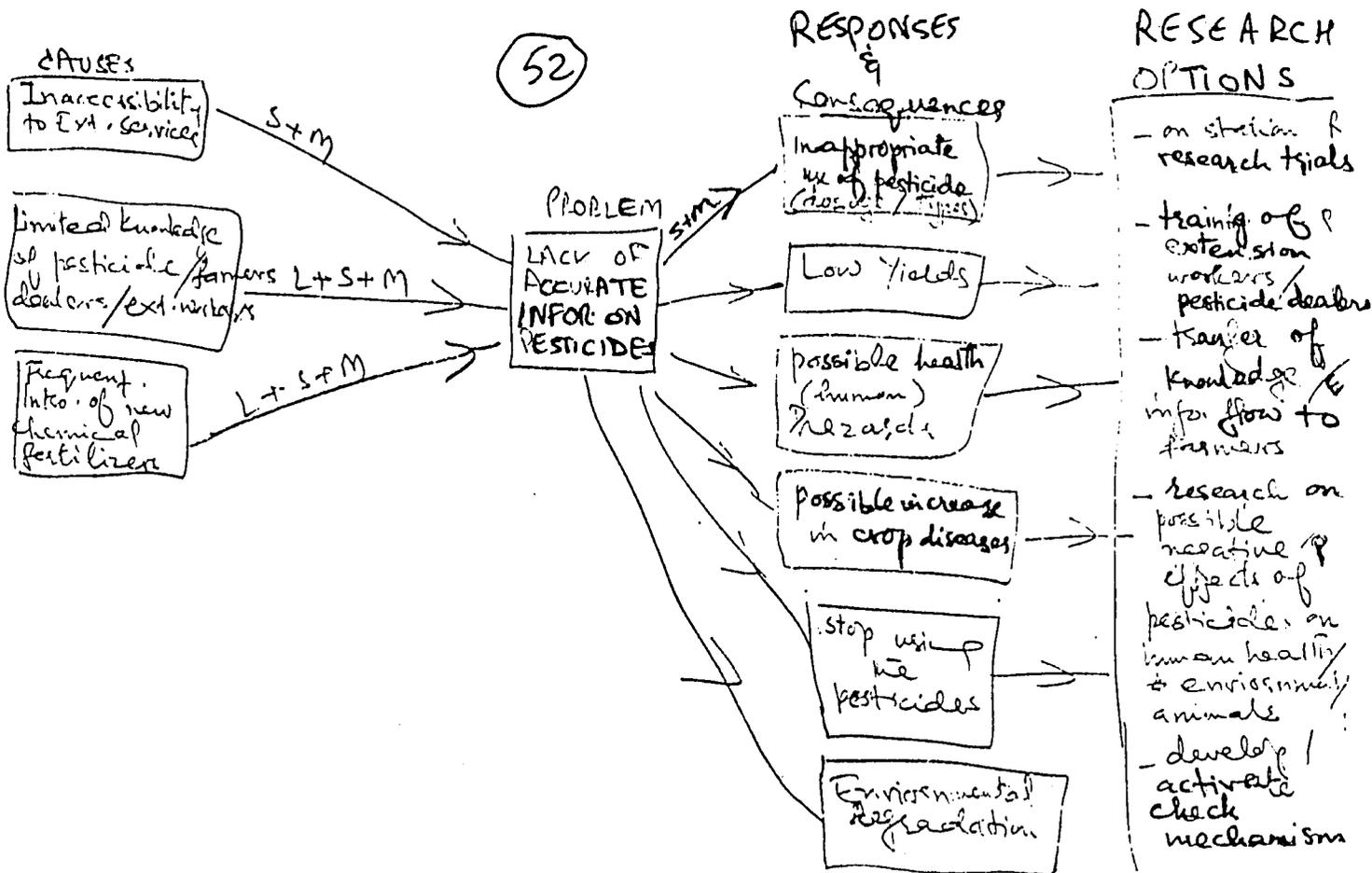
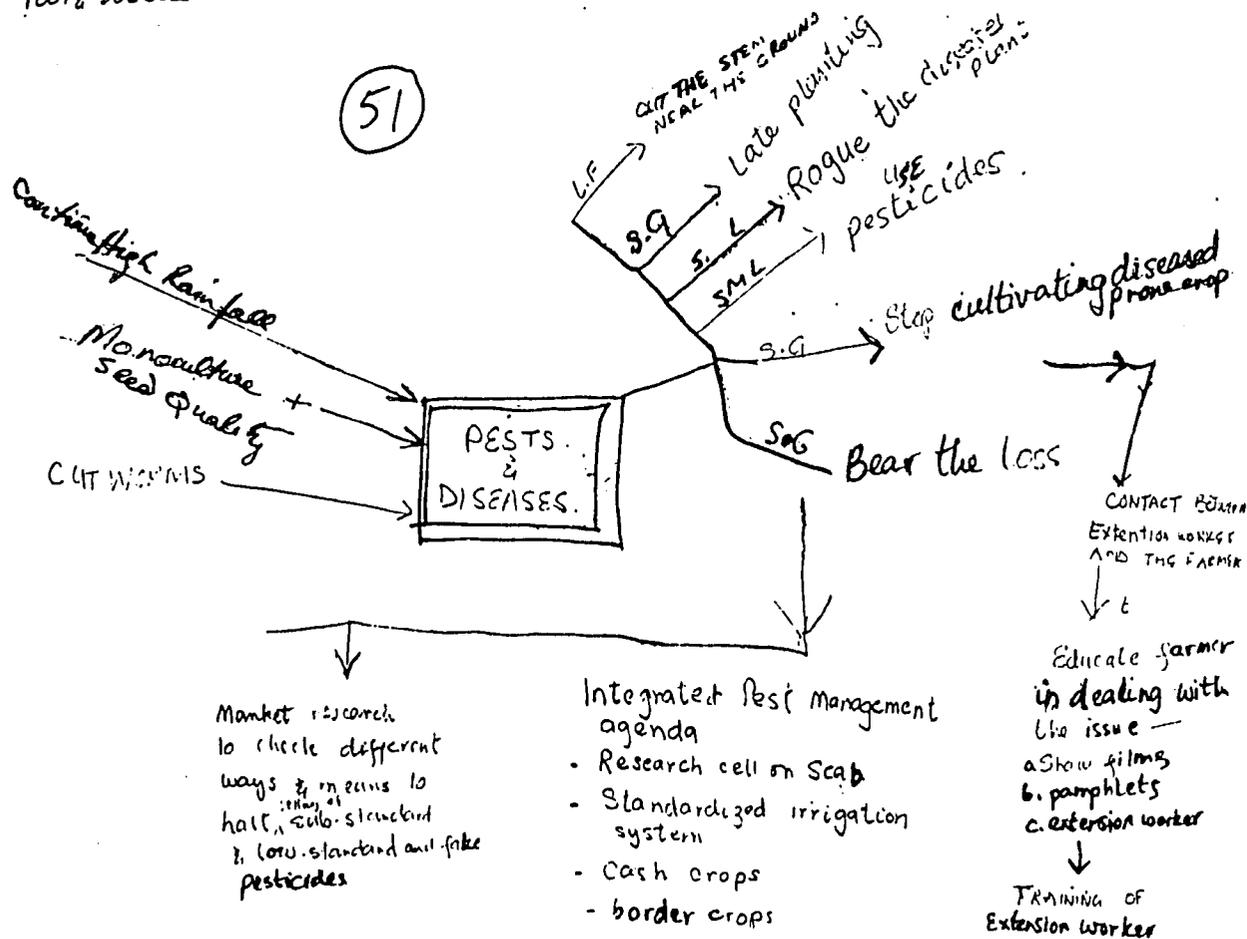
Response.

- stock before season
- less application
- Green Manure
- F.Y.M.
- legume crop rotation
-

OPTION

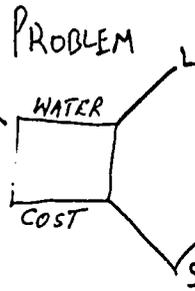
- Green Manure
 - use of F.Y.M
 - use of proper dose of C.F after soil analysis
 - More fertilizer factories should be installed
 - labor input
- Policy

PESTS & DISEASES



53

- Causes install
- High Cost of Machinery
 - High Running cost
 - i. ci Electric
 - ii raised fuel
 - iii repair of machinery
 - shifting to Diesel Pump due to load shedding.
 - wastage of water in the way Tube well - field.
 - improper wheel system (cacha kach)

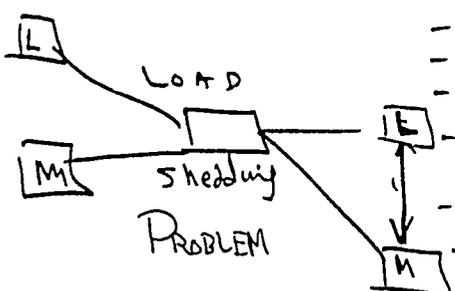


- Response
- Low cropping intensity
 - Drought Resistant crop
 - Sewerage water
 - STOP to grow potato
 - short duration crop of vegetable
 - Mix Cropping potato + Rabi
- OPTION
- mulching of crops
 - Alternate source of water
 - use of sewerage water
 - Coop with other small farms to decrease water cost
 - short duration crop.
 - grow short lived crop.

Causes of water

1. deficit in resources
2. low power generation of power
3. High demand of consumer.
4. High population pressure
5. More no of Electric equipments
6. Increase industry
7. wastage of power.
9. Excessive Activities
10. (Peak) Temperature with

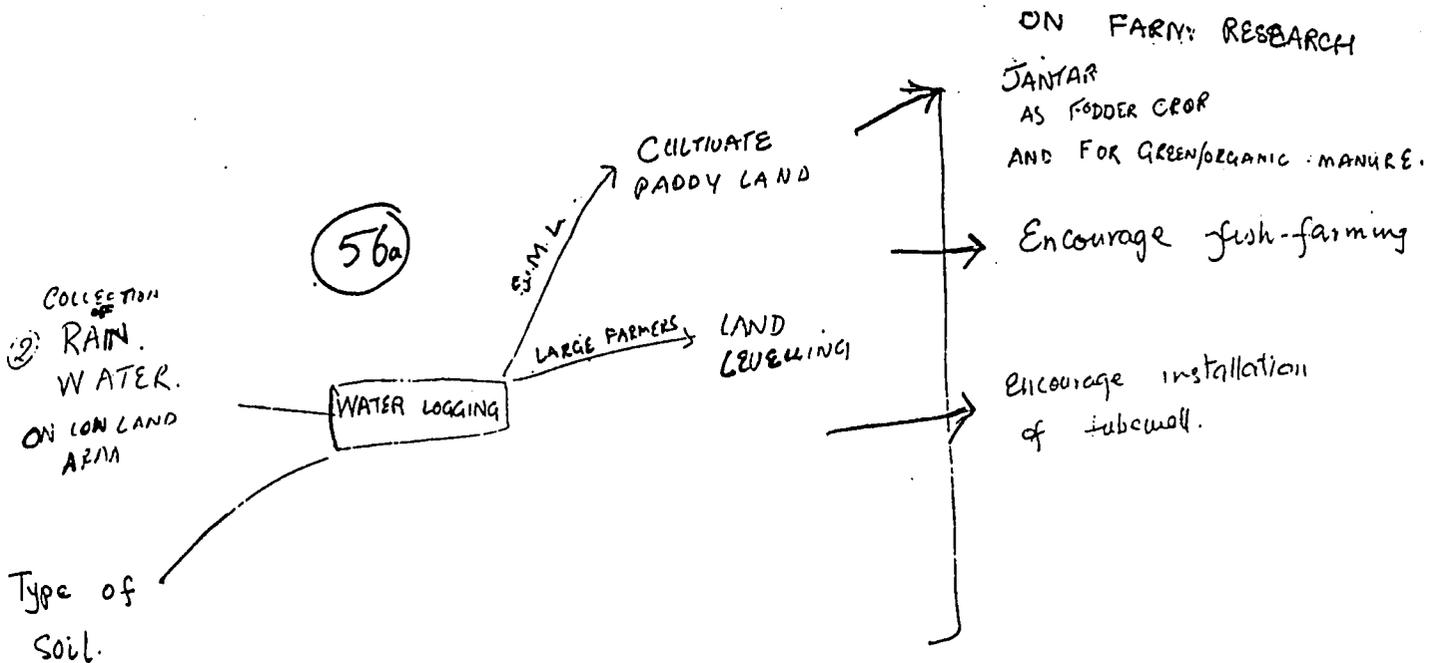
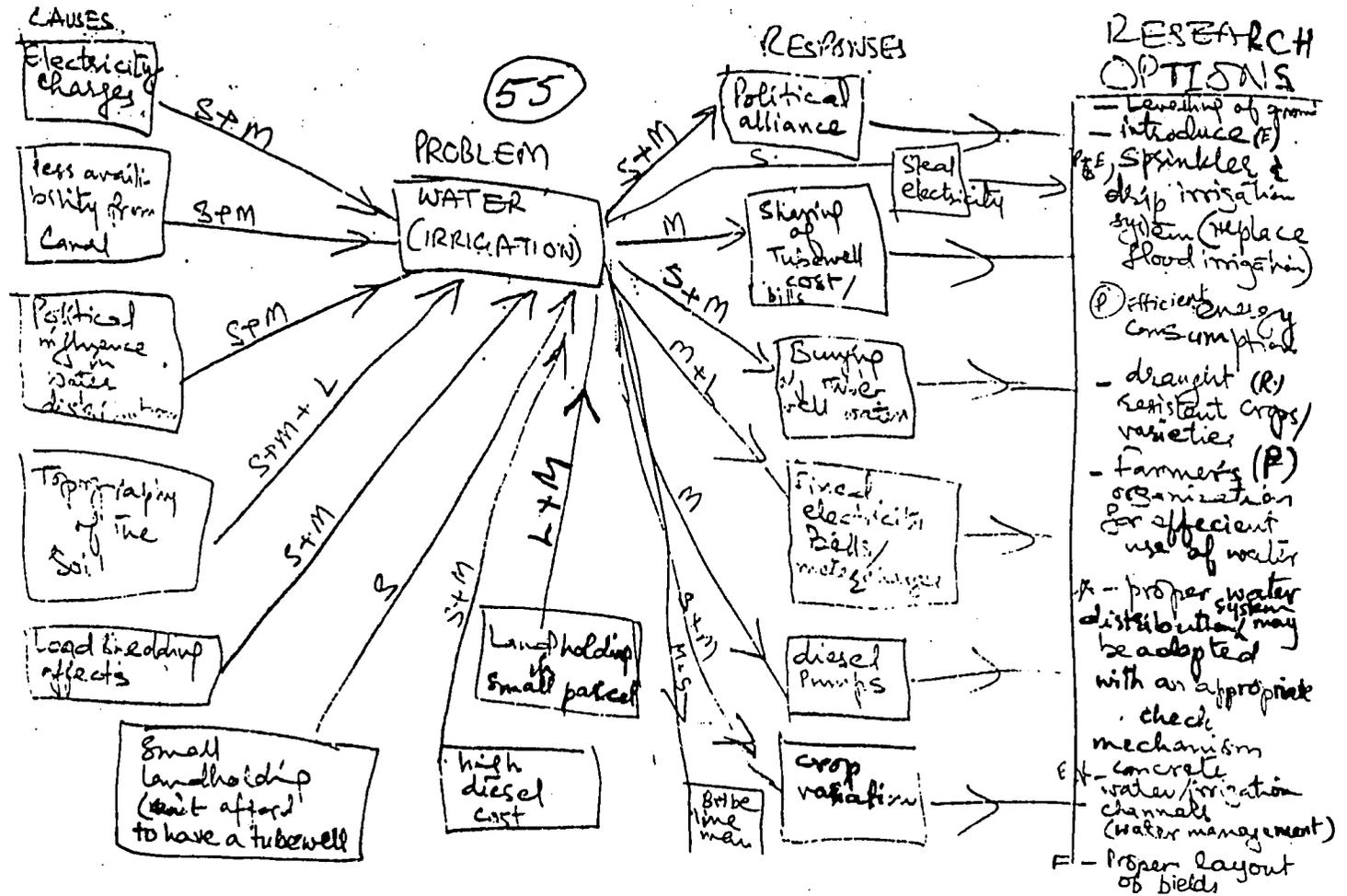
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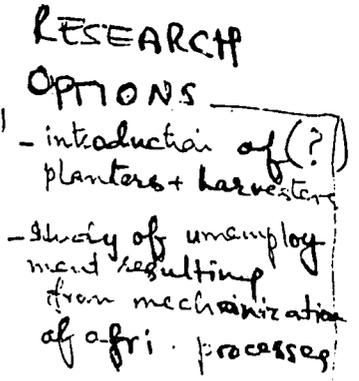
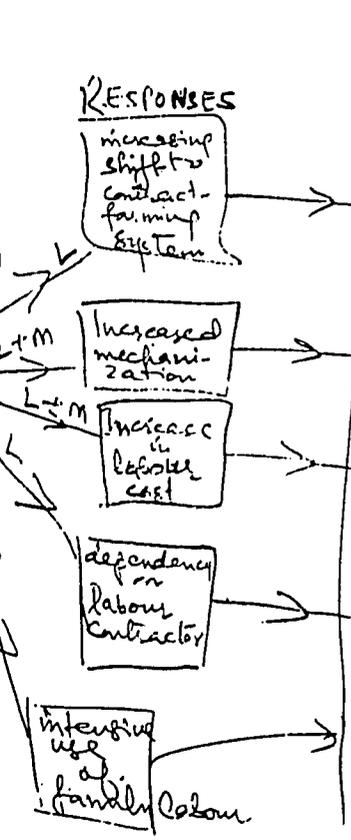
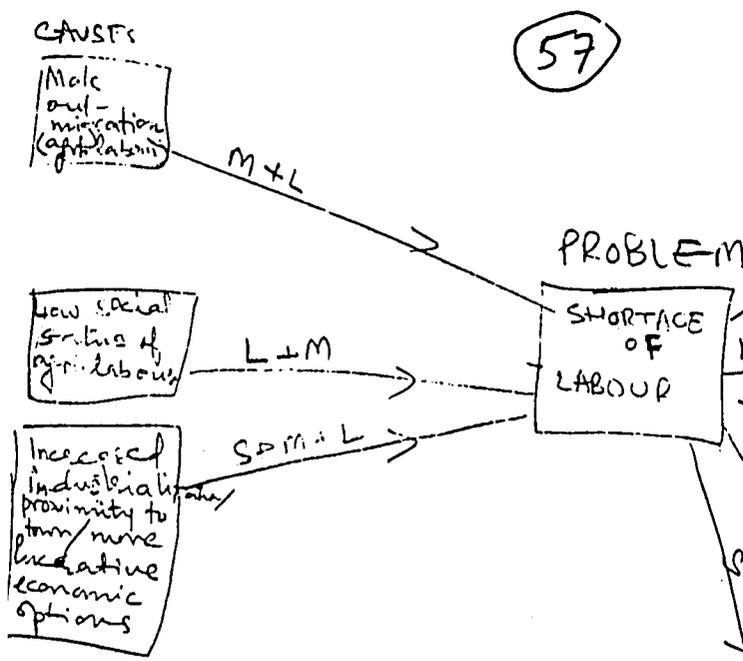
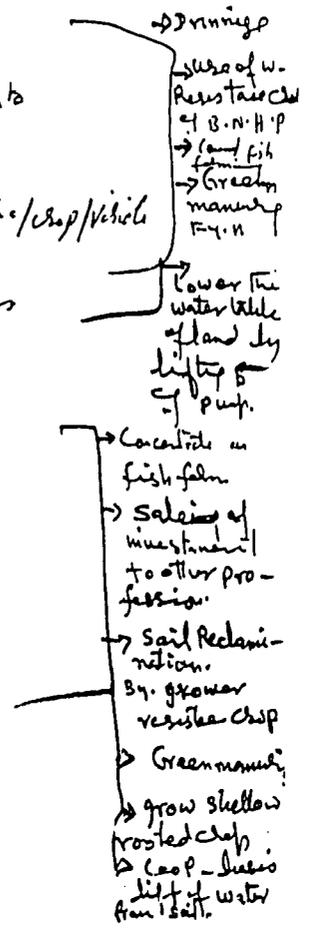
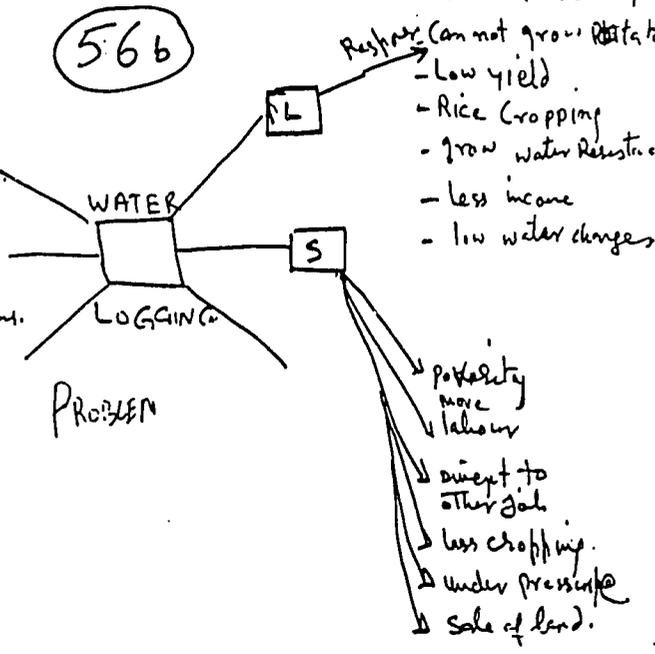
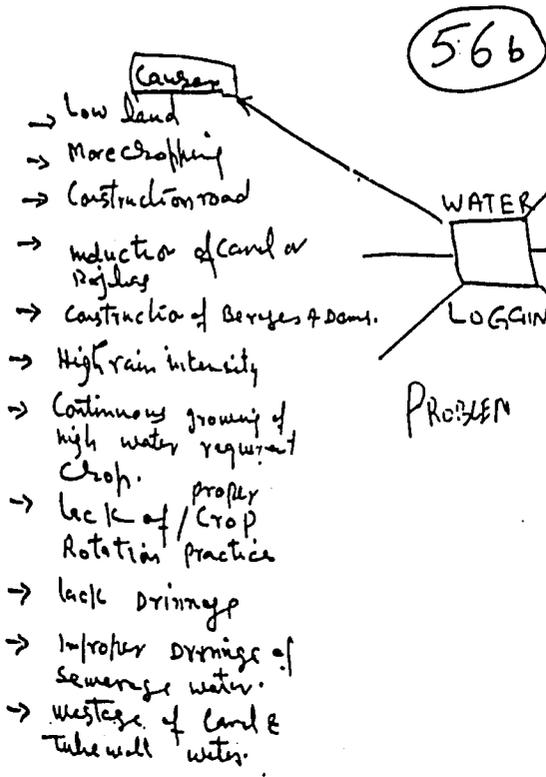


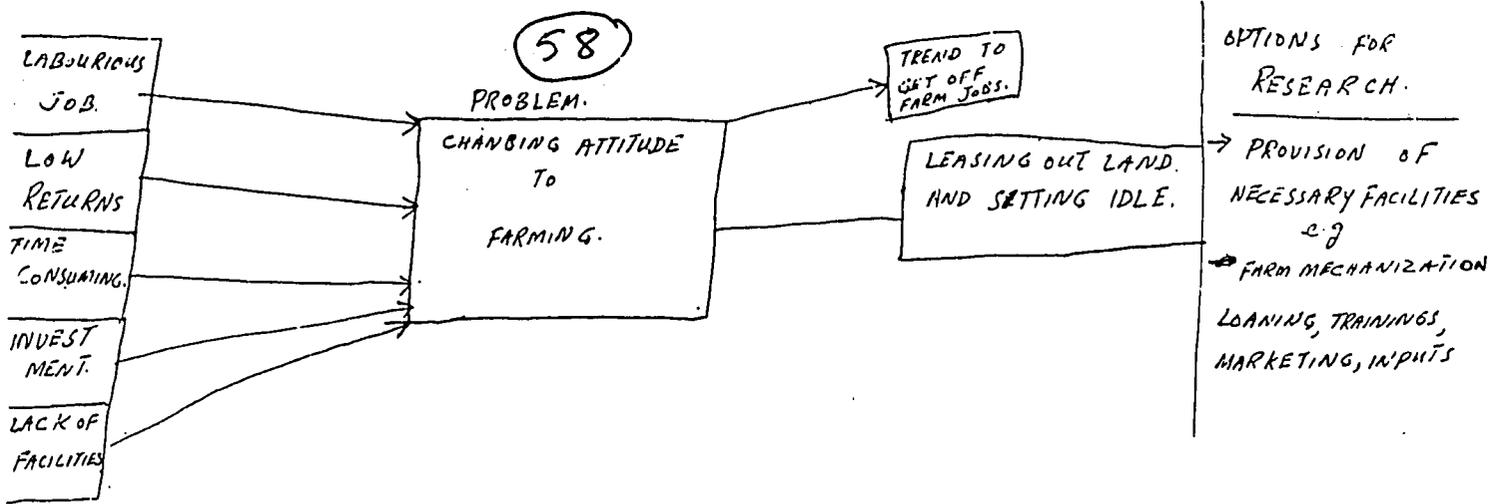
- Response diesel
- use tube well
 - use wells (well)
 - use sewerage water
 - use rain water
 - use canal irrigation
 - use Tube well driven by tractor
 - use kerosene oil for lighting
 - use fuel wood.
 - use of crops residue as energy.
 - gas cylinder
 - use of animal dung
 - use of Biogas, plant

- OPTION (WPA DA)
- low enhancement of electric charges
 - Regular to use Diesel Pumps.
 - Automatic Engg (gears)
 - regular payment of bill
 - Avoid wastage of power
 - simplify economical Activities
 - Temperature of E.M should be stable
 - Construct more dams to (reservoir) for storage of water
 - use generator to their capacity
 - Economical use of Electric equipments
 - Go for Biogas
 - go for natural gas.

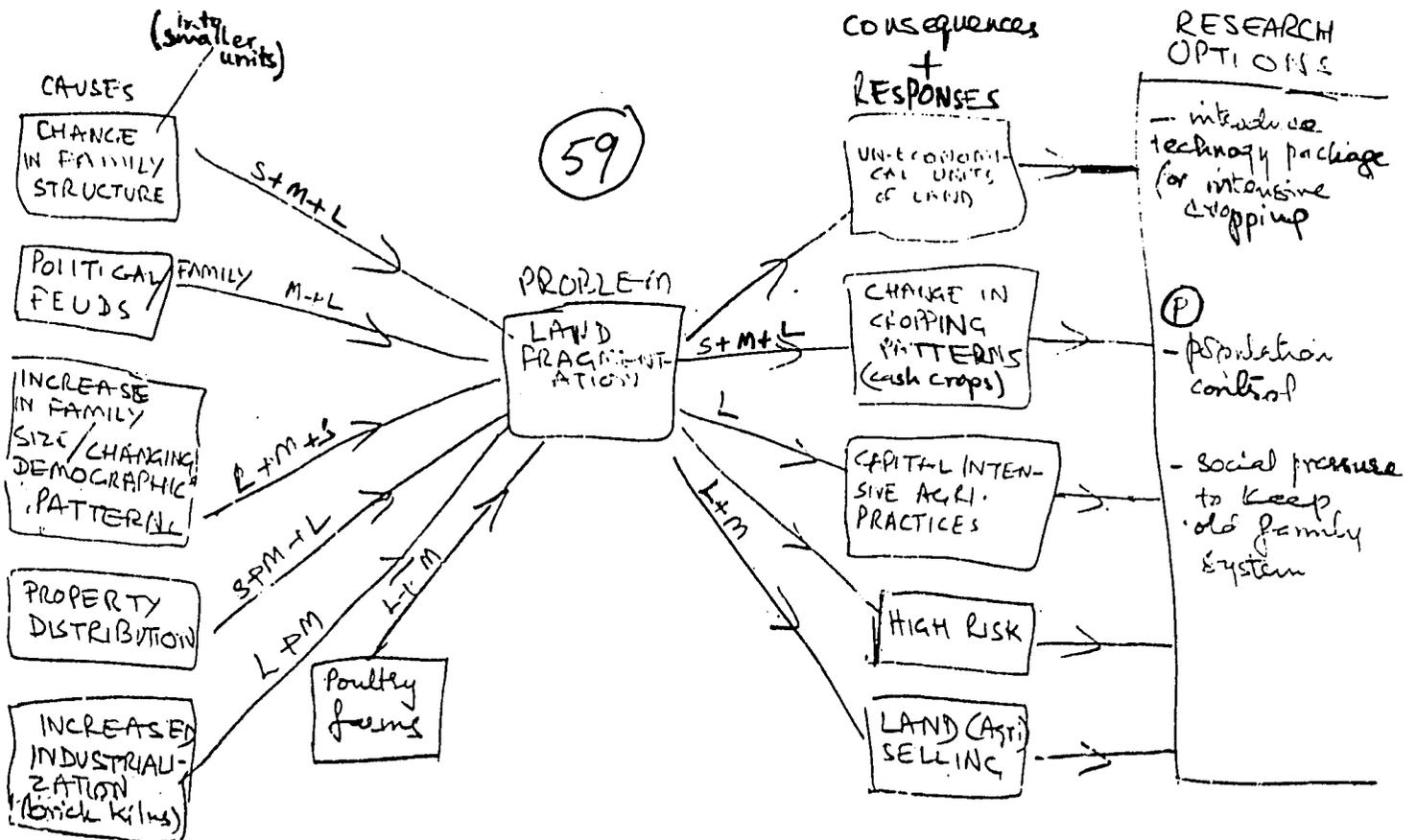
- Elect. meters.
11. Non Payment of Electricity Bill.
 12. Unauthorised Consumption or connections.

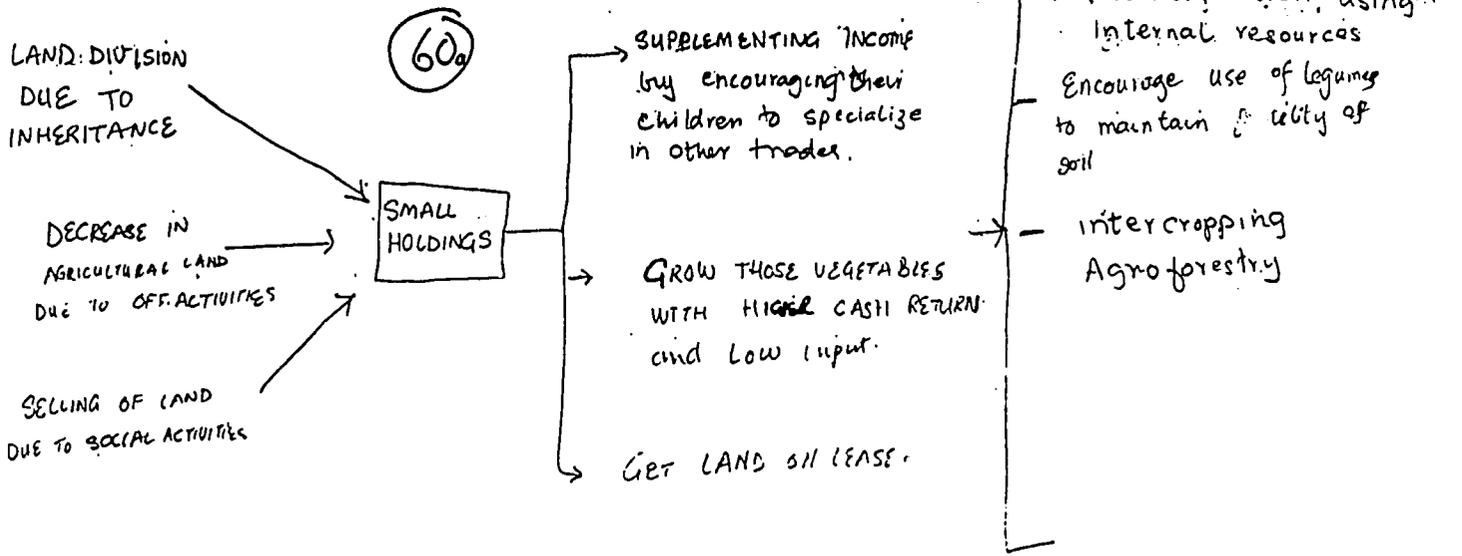




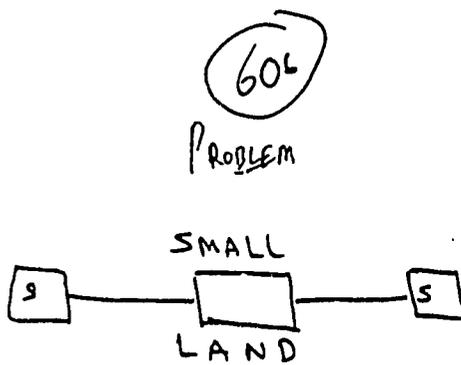


→ Pakistan is entirely dependent on Agriculture because it is the back bone of our ^{economy} country. So all steps should be taken to facilitate this sector in all respects



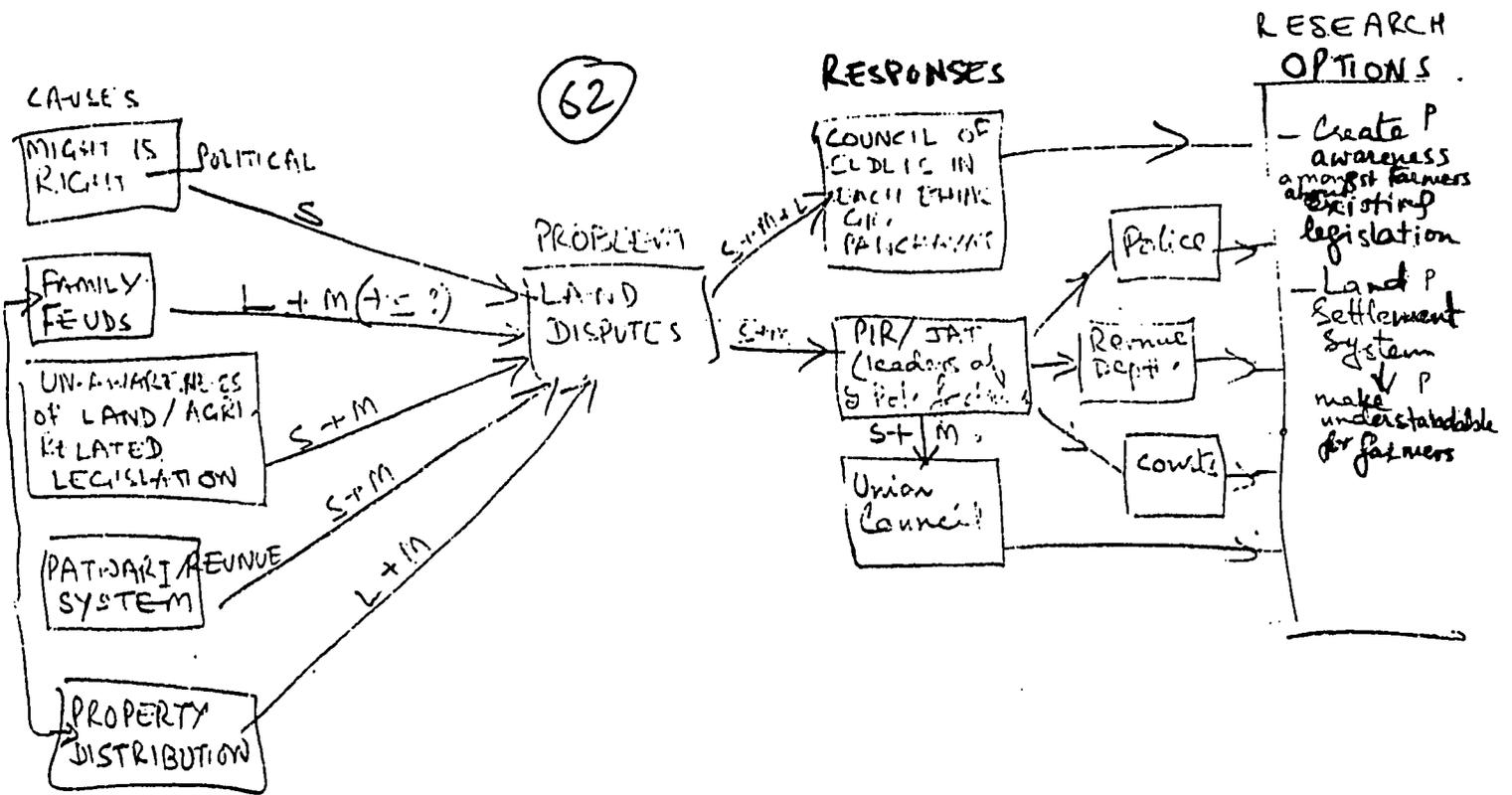
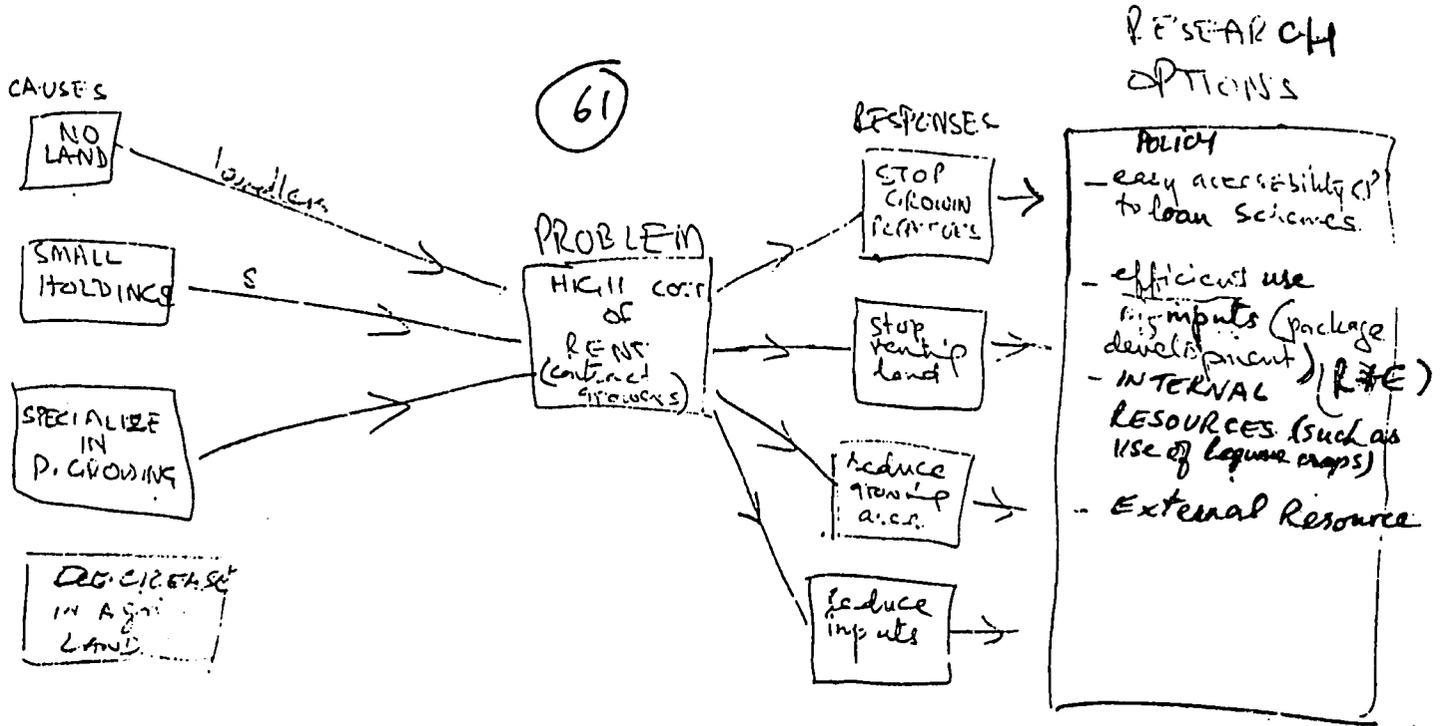


- Causes:
- Inheritance of land.
 - More dependents
 - Sale of lands
 - land disputes
 - Crimes
 - Population pressure
 - Housing colonies
 - Industrialization
 - bricks kilns (plant)
 - Sale of earth
 - low income
 - Construction of roads & canals.
 - electric power (acquired by Govt)
 - ushpatan (illegal holding).

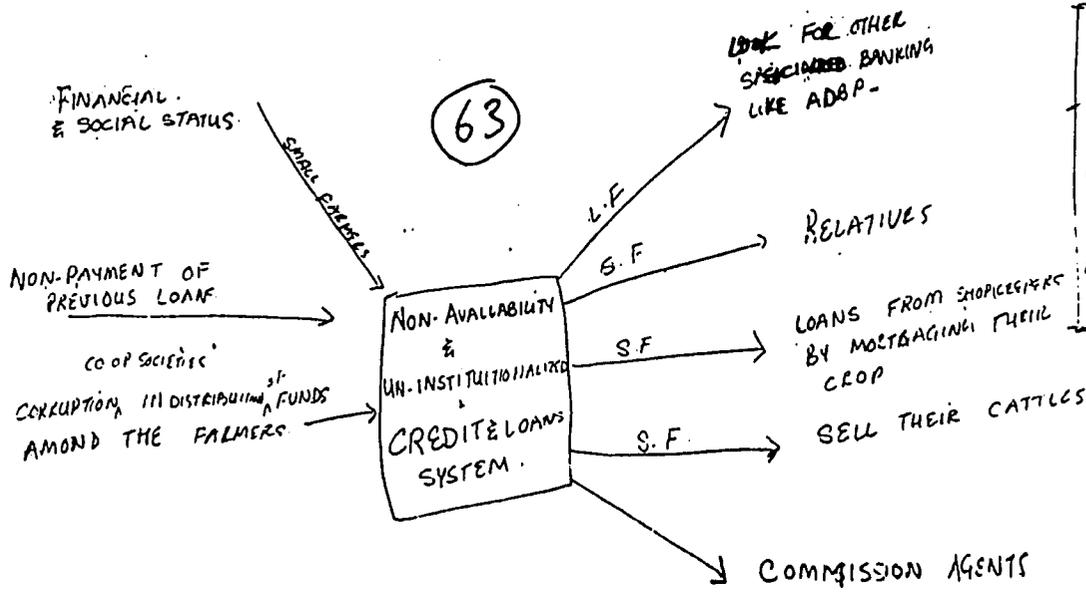


- Response
- Avoid land's disputes
 - look for alternate job
 - Intensive cropping (veget + fodder + food)
 - mix cropping
 - Acquire more land on Contract Basis
 - Rearing of live stock poultry, Buffalo, sheep, goat, cow, etc.

- option
- Relay cropping
 - Avoid franchise
 - Avoid to sell cultivation land
 - Sell the land go for other job
 - More power full against ushpatan
 - Family planning
 - opt for livestock poultry farming
 - opt more land for cultivation of potatoes
 - Purchase machinery for use in for other job (transport, etc)



CREDIT & LOANS:



POLICY

Lengthy procedure in giving out loans should be facilitated

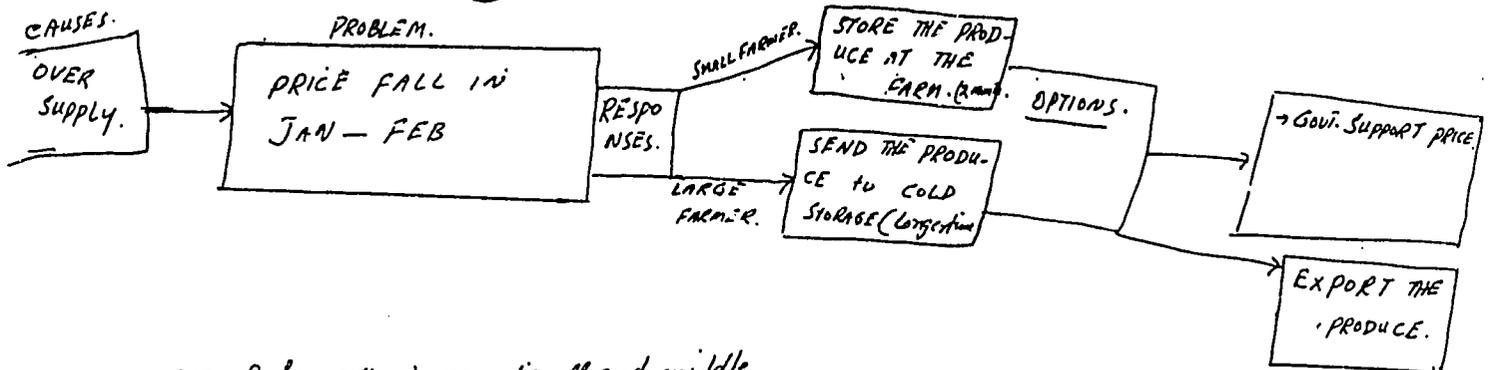
EXTENSION:

CREATE AWARENESS & INFORMATION AMONGST FARMERS ABOUT FACILITIES PROVIDED BY THE GOVT.

RESEARCH

Contact b/w NGO's and other credit schemes

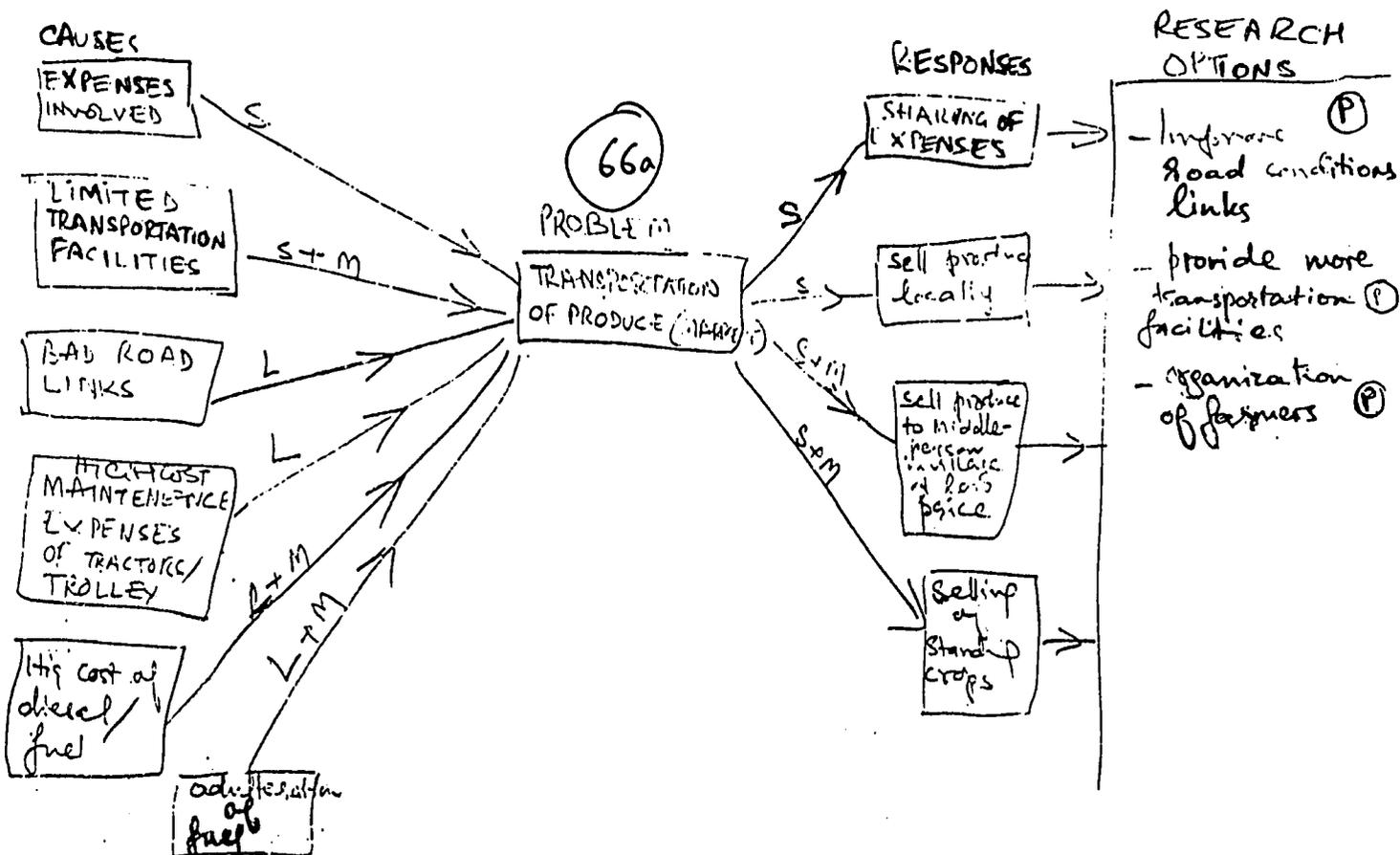
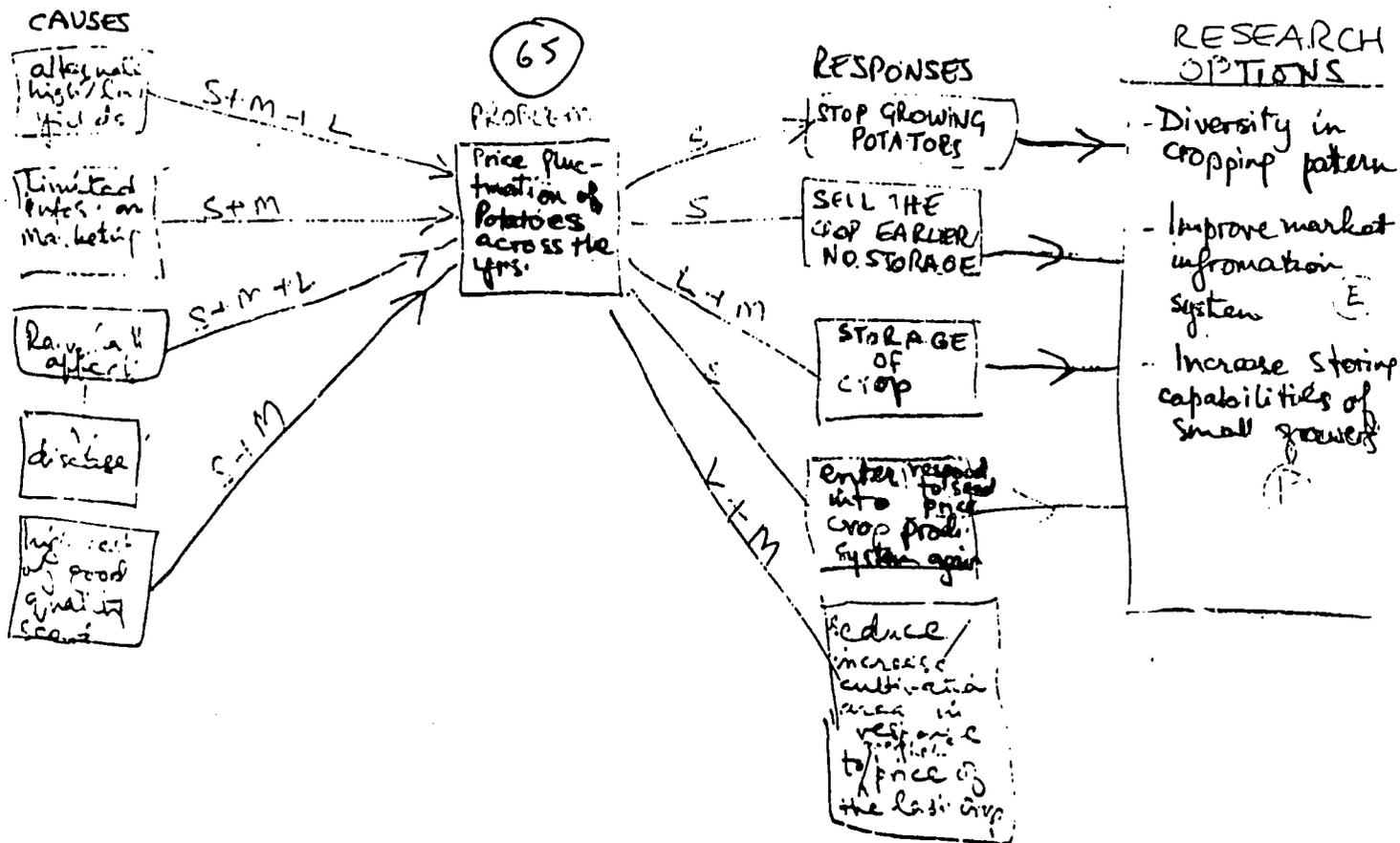
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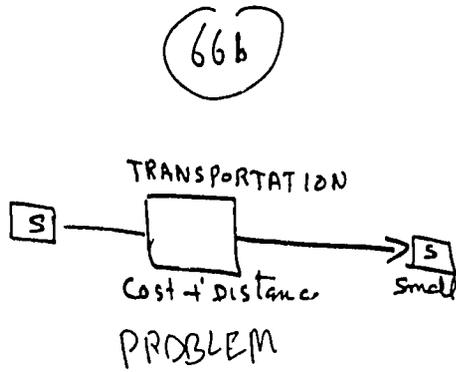
type of farmers: Large and small and middle.

PROBLEM: PRICE FALL IN JAN - FEB.

There are different types of responses in different farming categories. The small farmers can store in the farm for a short period which is risky. The large farmers store the produce in the cold stores and wait for high market prices.



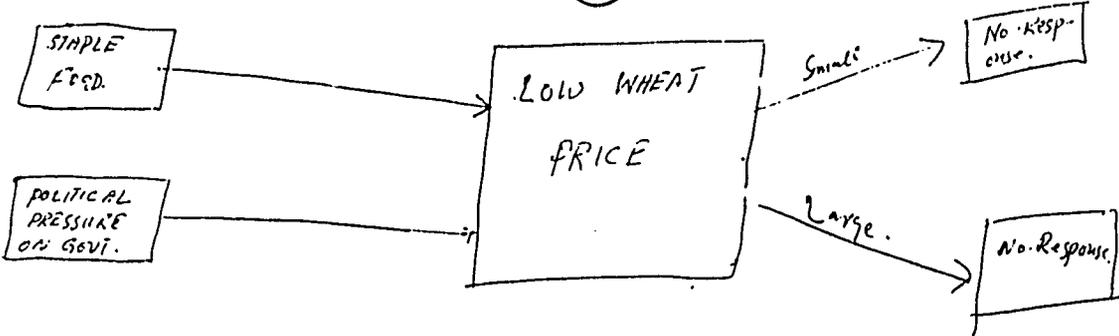
- Cause:
- High pol cost
 - distant market
 - Tax of district municipality
 - Cost of machinery
 - Repair cost
 - High wages
 - influence of law imposing restrictions
 - T. Policies, Courts etc.
 - obligation to influential political persons.



- Response
- locally sale crop cultivation
 - on transportation means
 - on situ sale
 - Coop with other s. farmer. to save T. cost

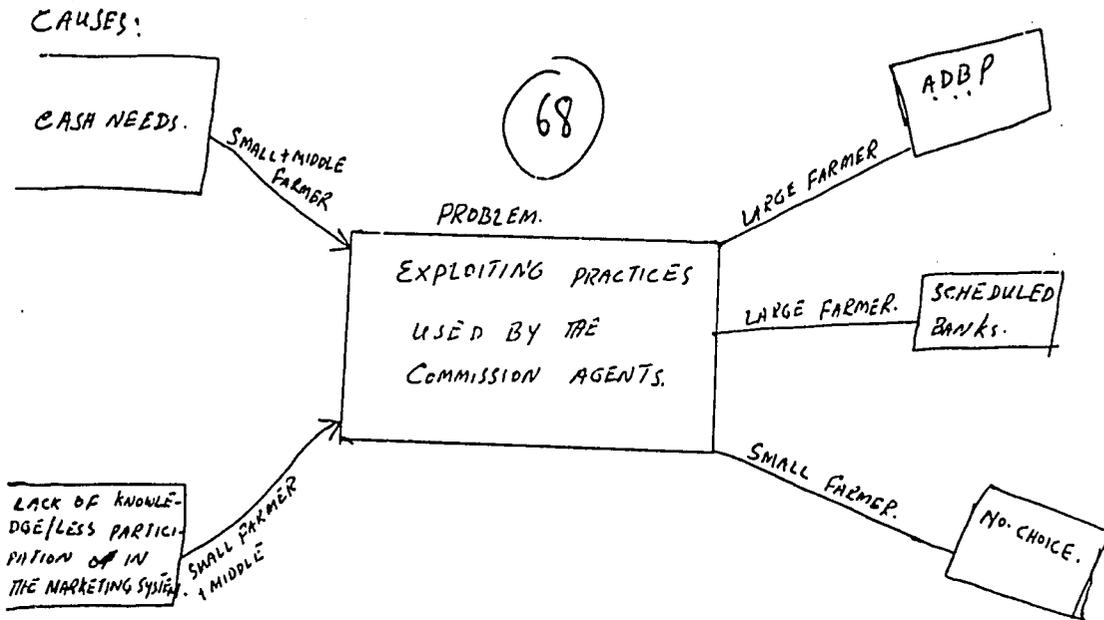
- OPTION
- change Cropping Pattern
 - Coop with other s. farmer. to save
 - Transportation cost split into cropping system
 - source & input supplier should be closer to the village -> decentralized system
 - use to its capacity
 - use alternate crop source

(67)



- Main staple food for majority of the population
- Within the purchasing power of ordinary man.
- Due to political pressure from the general masses, Govt. is not in the position to increase the price, but support price could be increased.
- Hybrid varieties are not in the reach of small growers.
- Trials could be carried out with small growers on-farm, to reproduce mix & relay cropping patterns.

- policy options:
- INCREASE SUPPORT PRICE. (Small + Large)
- EXTENSION OPTIONS:
- Hybrid varieties. (Large farmers)
- RESEARCH OPTIONS:
- Mixed and relay Cropping e.g. potato + wheat (Small growers)
 - on farm trials. (Small growers)



RESEARCH OPTIONS

- OPEN MORE OPTIONS FOR EASY CREDIT
- CREATE AWARENESS AMONGST GROWERS ABOUT EXISTING LOANING SYSTEM.
- GROUP ORGANIZATION AND HIGH MARKET INVOLVEMENT OF THE FARMERS.

- LARGE FARMERS HAVE EASY APPROACH TO THE FINANCIAL INSTITUTIONS.
- LARGE FARMERS ARE WELL AWARE OF THE MARKETING SYSTEM
- SMALL FARMERS ARE BOUND TO TAKE THEIR PRODUCE TO THOSE MANDIES WHO PROVIDE THEM LOANS. THEY'VE NO OPTION.

APPENDIX A

LIST OF PARTICIPANTS

NAME	DESIGNATION and INSTITUTE
Mr. M. Masud Mahmood	SO Agronomy PSPDP-CU
Mr. Najibullah Khan	SO Agronomy PSPDP-CU
Mr. Javed Anwar	SO Agronomy PSPDP-CU
Mr. Allah Wadhayo	SO Economy PSPDP-CU
Mr. Khalid Bajwa	SO Economy PSPDP-CU
Dr. Ashraf Sahibzada	SSO Seed PSPDP-CU
Dr. Nasrullah Jan Malik	SSO Agronomy PSPDP-CU
Mr. Richard Edwards	Production Specialist PSPDP-CU
Mr. Richard Eberlin	Farming Systems Economist PSPDP-CU
Mr. Urs Zaroni	Production Specialist PSPDP-CU
Mr. Abdul Hamid Tariq	Assistant Botanist (Vegetables) AARI Faisalabad
Mr. Muhammad Habib	Potato Botanist AARI Faisalabad
Mr. Ahmad Masood Khan	ARO AARI Faisalabad
Mr. Mohammed Anwar	ARO ARI Sariab
Mr. Mohammed Sadiq	Assistant Botanist (Potato) VSSPP Quetta
Mr. Hamidullah Jan	Plant Pathologist PRC Abbottabad
Mr. Khaliquz Zaman	Assistant Botanist (Potato) PRC Abbottabad
Mr. Misbahud Din	Assistant Research officer ARI Tarnab
Mr. Shaukat Ali Arain	Assistant Vegetable Specialist ARI Mirpurkhas
Mr. Abdul Ghani Balouch	ARO ARI Mirpurkhas
Mr. Khairuddin Tonio	Assistant Professor Agronomy SAU Tandojam (FSR)
Mr. M. Asghar	Agronomist ARS Farooqabad (FSR)
Ms. Rubina Akhtar	Plant Taxonomist NARC Islamabad
Mr. Ch. Safdar Hussain	SMS Agriculture Training Institute Garhi Dopata
Ms. Farhana Faruqi	Anthropologist SPO Islamabad
Ms. Farzana Bari	Sociologist Islamabad
Ms. Rashida Dohad	Programme Assistant IUCN Karachi
Ms. Mehreen Hosain	Natural Resources Specialist EDC Islamabad
Ms. Maliha Khan	Anthropologist EDC Islamabad
Ms. Humaira Malik	Anthropologist SUNGI Islamabad
Ms. Afshan Mohsin	Psychologist SEBCON Islamabad
Ms. Marheb Qasmi	Research Officer Sindh Development Study Center, Jamshora
Mr. Ajmal Malik	Programme Assistant SDC Islamabad
Mr. Jaffar Shah	Development Officer KIDP, Kalam
Mr. Mukhtar Ahmed	Agricultural Officer, Dep. of Agri. Gujranwala
Mr. Mohammed Iqbar Khan	Agricultural Officer, Dep. of Agri. Gujranwala
Mr. Jules Pretty	Sustainable Agriculture Programme, IIED, London
Ms. Irene Guijt	Sustainable Agriculture Programme, IIED, London

APPENDIX B

NOTES ON TRAINING

The notes below present an overview of the timing and content of the PRA training in Gujranwala, focusing on the workshop conducted prior to the fieldwork. Successes and problems are presented as arose during the group sessions.

DAY 1 Saturday, February 8

Morning: chairs at end of the restaurant were arranged in straight lines facing podium. We rearranged 7 clusters of chairs and tables into 'fishbone' style - 3 on each side angled towards the front, and one at the back facing forward.

1230 Opening Ceremony

Workshop officially opened by Amjad Hussein and Jan Morrenhof. Speeches and introductions.

1330 Lunch

Removed podium, moved tables towards front, arranged OHP, slide projector.

1530 Overview of workshop

Introduction to logistics of workshop. Group work. Three phases to workshop. Daily monitoring - likes, dislikes and suggested changes.

1545 Pair-wise Introductions

Participants were asked to pair off and interview each other to discover name, organisation, area of expertise and two good things that had happened to them in the last year. We decided to drop any discussion of expectations as this has usually been time-consuming in the past, and not necessarily very helpful. Talked in pairs for ten minutes, then each participant reported back on their partner. This lasted 35 minutes. The "two good things" both created much amusement and kept the pace going. No need to interrupt reporting to suggest more precise summaries.

1630 Data Collection Methods Buzz Session

The seven groups were asked to discuss two questions in a buzz session:

Q1: Which data collection methods have you used in the field?

Q2: What problems have you faced in data collection?

Groups reported back to plenary. Summary written up on flip charts (See B.1 and B.2). This led in well to ICRISAT video, which combines participatory and normal methods of research.

1700 ICRISAT Video - Participatory Research with Women Farmers**1740 End of day**

DAY 2 Sunday, February 9**0840 Systems Thinking**

Lecture interspersed with buzz sessions and small games. Learning as adaptive behaviour. Questions asked: *What constitutes improvement? What happens to the rest of a system when one part is improved?* Described South Nyanza example of impact of intensification on a woman's labour. Slides of farmers' impact diagrams.

Buzz session on examples from participants' experience of negative impacts following improvement to one part of system (see B.3). Complexities of systems. Another buzz on components of rural livelihoods (see B.4).

Emphasis on "us" as the problem, and "them" as part of the solution. Used K and H game to show how our perceptions and thinking are influenced strongly by what has gone before - historical contingency. Discussed groups and group work; roles and responsibilities; the best leaders.

1015 Coffee**1040 Criteria and Perceptions**

Continuation of principles and concepts. Development paradigms: blueprint versus process and adaptive. Ideas exchange (using coin as example of ineffective exchange leading to no enrichment, unlike exchange of ideas) and rucksack game (to illustrate the importance of adaptive explanation). Conclusion with PRA and core components, namely attitudes and behaviour, methods and sharing.

1115 Fruit Salad

Chairs had already been established in the area of the restaurant not used for the workshop. As usual participants nervous at the start, but soon laughing. Used this to form seven groups.

At this stage we were running over the planned timing by about one hour. Not concerned because the original plan had been to begin today. At least 2 hours saved by beginning yesterday.

1130 Introduction to Semi-Structured Interviewing

Covered components of SSI (listen, checklist, flexibility, observation, probing, respect, open contact, open questions) (see B.5 and B.6).

During this session, one of us arranged with hotel staff for a bottle to be filled with beans for the iteration game.

1145 SSI Pictures Game

Analysis of pictures in seven groups. Production of do's and don'ts for interviewing. Presentation of slides, discussion and consolidation of guidelines on flipchart. Much concern that whether an interview is good or bad depends on context, which is, of course, the whole point. We usually describe what has really happened after the discussion of the slide, but this somehow creates an atmosphere of 'correcting' the participants. Need an alternative, such as describing what could be done to change things, either before or after the picture.

1315 Lunch. Agreed to extend to one and a quarter hours.

1430 Some participants arrived on time. Suggested they try to solve the Nine Dots puzzle (join with only 4 lines without lifting pen from paper); then did first iteration on beans in the jar. Collected in guesses, and compiled onto frequency distribution during the evening. For those arriving late, we asked them to ask their colleagues for the instructions and explanation. Objective is not to make latecomers lose face, but emphasise that they will miss something if they do come late.

Completion of SSI guidelines (see B.7).

1450 **Saboteurs Game**

Participants were asked to divide into threes: one to be the saboteur of a discussion between the other two about their work. After 3 minutes, rotated roles, and then again. This increased the pace after lunch, and was lots of fun. We moved amongst the groups acting as additional saboteurs. Plenary session to list types of saboteurs (see B.8) such as dominance, rigidity, not serious, silent, taking over and interruptions. Then produced another list for how to sabotage the saboteur (see B.9).

This exercise was an enormous success. Not only did it create lots of discussion, it also produced a strong reference point for the rest of the workshop. The notion of group work being easily sabotaged had been introduced, and participants now self-monitored their own group behaviour, mainly by calling out "saboteur", and embarrassing the miscreant.

1520 **Leading and Ambiguous Questions**

Presentation of examples, and then buzz. Each group to formulate two each of leading and ambiguous questions. An excellent way to get them to discuss about the difference and then present back to get a group opinion. Especially ambiguous questions proved difficult, might need better clarification in future or to be left out.

1555 Tea

1610 **Continuation of SSI Guidelines**

Neutral listening. **Fact, Opinion, Rumour** game for judging responses. Explanation of definitions, and reading out of paragraphs of text.

1630 **Probing and But Why? game**

Probing with 6 helpers, but why, suppose, tell me more about that, etc. For 'But why?' game again divided into threes, this time one interviewer, one informant and one recorder. Half of groups given "why is your cow thin?", and others "why is there a gully on your land?". In plenary, discussed the core of the onion (the final response), use of leading questions, recording of interviews, etc.

1720 Monitoring - everyone asked to fill in cards to pin on board with likes, dislikes and suggested changes. We decided to make this enforced for the first day, to try to establish the route for concerns and worries to be made clear.

1730 End

DAY 3 Monday, February 10

0840 **Logistics.** A query from the participants if the likes, dislikes and suggested changes were noticed at all. They will be reported on in summary the next morning. This should have been done for each round of feedback.

0845 **Mapping**

Brief introduction to mapping, using only one overhead. Straight into **neighbourhood maps**. Participants were asked to take 10 minutes to sketch their neighbourhoods. The plenary feedback focus on:

- What did you include and omit? What process did you go through? What did you draw first? Only a few started with their houses, some started with their houses and moved out. Those from Islamabad started with the roads as I. is completely planned along blocks, and then came into their houses.
- What happened when you reached the edge of the paper? Stopped, distorted, adapted their dimensions to the size of the paper.
- Where is your house placed? Only 2 in the centre, the rest on the edge.
- Where is north? (12 out of 34 with a large number in Islamabad orienting their maps towards the NE, which is how the official maps are oriented)

0905 **Mental maps**

Introduction to the mental maps exercise, used Los Angeles, Ethiopia, Bangladesh, Sierra Leone. We decided to do a mixed set of maps, with three indicating who had drawn each map and asking them to guess the drawers of only one set. They were asked to consider two questions for all the maps:

Q1: What does the map tell you?

Q2: What does it tell you about the people who drew them?

0935 **Feedback of mental maps**

The two assignments have different learning points. Guessing 'who drew?' is an easy way to stress common assumptions about people and their abilities. Providing the drawers' identities was more effective in to emphasise the existence and logic of different perceptions.

1015 **Slides on mapping and modelling**1020 **Coffee**1105 **More slides**1115 **Mapping of Islamabad**

We decided to base the mapping exercise on knowledge of Islamabad. The participants divided themselves into 5 groups:

- residents of Islamabad (2 groups)
- non-residents who have visited often (1 group)
- non-residents who have visited few times (2 groups).

They were told to make the map outside in the hotel grounds using as many types of material as possible. Several groups limited their initial map to chalk on concrete and were then asked to leave the chalk and consider using local material as they would not always have chalk in the field.

330

1220 **Feedback on maps of Islamabad**

The feedback was a presentation on the findings, less on the process. Learning points that came up included: different perceptions and that there is no single correct map, that scale and accuracy can be distorted easily, ways of dealing with probing villagers about missing details in a non-accusatory manner, the use of different materials.

1250 **Buzz session and feedback on:**

Q1: What two things did you learn?

Q2: What two things would you do differently next time?

This included the following: being more careful with scale and accuracy, being very clear on the objective of the map, to review it at the end, to not make it too complicated, to plan it more before starting. Other comments were that it was an easy way to let everybody interact and that it brought out very clearly a collective view of what was known and what was not known.

1320 **Lunch**

1440 **Social mapping**

The maps in the Training Notes were reviewed with a brief introduction of social mapping as compared to resource mapping. Slides on social maps were shown.

1500 **Buzz session on Poverty**

To introduce wealth ranking, a table-based group buzz session discussed two questions:

Q1: What is poverty? (See B.10)

Q2: How do you identify poverty when working with rural people? (see B.11)

This moved us smoothly from mapping and clearly brought out the difference between a theoretical definition of poverty and the difficulties encountered in the field when trying to identify whether someone or a household is poor. The main ways to identify poverty were based on observation and on asking, bringing out the inevitability of biases in both cases.

1535 **Wealth Ranking**

Using a profile from Senegal, the technique of wealth ranking was explained briefly. Some clarification remained necessary and it would be good to develop an exercise for the participants to do rather than a passive explanation.

1600 **Tea break**

1625 **Example of wealth ranking from the Gambia to assess the impact of an intervention.**

1650 **Seasonality analysis**

Seasonal calendars were started with the milch buffalo example from India, a short and light exercise that allowed us to start with a new technique despite it being the end of a full day.

1715 **We suggested showing the Myrada video before dinner, which everybody agreed to. Although we dropped the exercise of listing the sequence of methods, we emphasised looking at the video with that in mind. End of day.**

Notes

The main schedule changes were dropping the Myrada video and the analysis of Sierra Leone seasonal calendars. The feedback of the mental maps, the Islamabad mapping and the buss session on poverty all

took longer than planned (related to the size of the group). We had planned to show it after the Islamabad mapping exercise to move onto social mapping. Rather than a passive viewing, we planned to ask everybody to write a list of the sequence of methods used. This would be a good way to discuss the importance of sequencing during the fieldwork. We also dropped the vegetable stew due to time pressure and redistributed the groups for the milch buffalo analysis by asking the left half of the tables to change with adjacent tables.

The field groups were formed by considering gender mix, ability to speak Punjabi, prior knowledge of Aroop, and leadership skills.

DAY 4 Tuesday, February 11

- 0840 Feedback of likes/dislikes/suggested changes and other logistical matters.
- 0850 **Seasonal calendar analysis**
The groups around each table were given 3 calendars each (Kenya - welfare and fodder, Ethiopia - composite), with one question to consider for each calendar: *What does this diagram tell you?* The groups were too large (6-7 people) to share one diagram; there was at least one person per group left out of the discussions. Groups of 4 are optimal, or 5 if the tables are smaller.
- 0910 **Feedback of seasonal calendar**
There was a dominance of articulate speakers. Learning points included: the value of the 18 month calendar, the use of local months, not necessarily starting in January, identifying stress periods and linkages of issues, such as the implication of health problems on agricultural labour.
- 0935 Slides on seasonal calendars.
- 0950 **Vegetable bhajia**
To form groups for the matrix exercise, we started with a potato salad alternative, which did not work well. The non-PSPDP participants found it impossible to remember the different potato varieties so we ended up with a vegetable bhajia (local curry). This once again worked well to get people moving and into new groups.
- 1000 **Matrix scoring**
An explanation of what matrices are useful for was followed by a high-tec, overhead based demonstration, with me interviewing Jules on why he buys certain fruits. Then 10 minutes of slides to prepare the groups for doing the matrix.
- 1030 Before coffee, the groups were asked to agree on a topic for their matrix exercise and to generate about 10 criteria. The topics ranged from holiday resorts in Pakistan to potato varieties, cities and staple foods. A concentrated discussion despite a full morning.
- 1045 Coffee
- 1110 Explanation of the matrix exercise, encouraging them to use different material.
- 1150 Feedback on the matrices was excellent (focusing on the process and not the substance) to reinforce key learning points on using fixed and written versus mobile counters, making the matrix a workable size, being careful to formulate criteria carefully, getting group consensus, ownership and pride that develops from a diagram you helped make, how to probe about a

diagram when done by villagers without being critical. Following a comment that matrices are an unreliable method, we decided to have a buzz session before lunch.

1245 Buzz session on matrices. Two questions were discussed:

Q1. What two things did you learn?

Q2. What two things would you do differently?

The points raised included: weighting of criteria, needing material that contrasted with the surface, clear criteria, that a total score is unreliable, that having all criteria positive is important.

1305 **Venn diagrams**

Lunch was served late so we started with a brief explanation of Venn diagrams and preparing the exercise. The participants divided themselves into six groups:

- federal PSPDP staff (1 group of Pakistani staff, 1 group of expatriate staff)
- provincial PSPDP staff (2 groups)
- non-PSPDP staff (2 participants).

Splitting into groups before lunch helped create a group that people flowed back into smoothly afterwards. Some groups continued working during and immediately after lunch probably because of this sense of a group task.

1315 Lunch

1430 Venn diagrams continued

The exercise was set up with three questions to focus on: types of organisations that PSPDP has links with, how important they are for PSPDP and how much contact they have with PSPDP.

1510 **Exhibition of Venn diagrams**

The participants were asked to hang up their Venn diagrams and to examine the other diagrams, thinking of key differences between them. The points raised including relative importance and position of farmers for PSPDP federal staff (expatriate staff - theoretical, national staff - actual position), number of linkages by provincial PSPDP limited compared to federal. The exhibition is an active, short and structured way to exchange information. It is essential to give a question that they should be focusing on while studying the other diagrams which is then the basis of the feedback.

1530 **Network diagrams and slides**

The expansion of venn diagrams into network diagrams was briefly explained before going into a series of 20 slides. The session on Venns was finished before tea with a brief walk through most of the Training Notes.

1550 Tea break

1610 The last two diagrams from the Training Notes were explained before starting with the preparation of the fieldwork.

1620 **Jigsaw puzzle**

To form the field groups, the precut jigsaw pieces with one postcard for each field group were distributed and the postcards matched together. The tables were then rearranged to form 3 groups: Elephants, Lions, Leopards.

1630 Problem-solving exercise

The three groups were given 6 different problem situations each to discuss for presentation. After 35 minutes the feedback started with some additional suggestions from other groups.

1745 Team contracts

The groups were then given time to develop their team contracts.

1830 End of day**Notes**

The main change was that we dropped the checklist formulation until the next day. We had planned to give a brief introduction to the next phase, also about PSPDP's specific objectives and to then formulate the interview guide and choose methods to start with. The seasonality analysis took 30 minutes longer, matrix feedback one hour longer and Venns 45 minutes longer. The size of the group and the focus on thorough feedback made the feedback sessions lengthier than planned. However, it soon became clear that we would be unable to complete the preparation for fieldwork anyway so we decided not to try to make up for lost time.

DAYS 5/6 Fieldwork

As the fieldwork preparation had not been completed, we started with a presentation of the objectives for the fieldwork and the overall objectives of PSPDP. In the field groups, the first interview guide was generated, methods were chosen and subgroups formed.

DAY 7 Free day**DAY 8 Workshop Analysis**

Workshop day spent on feedback of the first two field days. Overall impression was that doing it in the field is more difficult than it seemed from the slides. The cold wet weather did not help and Aroop was felt to be too large and relatively unfriendly because of its close location to Gujranwala and urbanisation. Most of the day was spent on drawing diagrams and writing up the process, and deciding on activities for the next stage of fieldwork:

1. List of all diagrams
2. Draw the diagrams (divide among group) - include which group, how many informants, degree of participation
3. Write up - describe the findings and the process (not too long)
4. Presentation of diagrams/exercises - exchange of ideas
5. Deciding programme for the field work on Sunday and Monday, focusing more on problems and solutions. Tuesday to Thursday in the workshop, so that by the end have a draft report ready for editing and finalising.

DAY 9/10 Fieldwork

Fieldwork focusing on problems and constraints in systems diagramming.

DAY 11-13 Writing Up and Evaluation

After the last day of fieldwork, each group spent one day finalising the diagrams and writing up the process and local problems and responses. The second day was spent analysing these and writing up the final findings. On the last day the participants wrote their individual PRA Plans (see Appendix C) which were discussed in detail. The participants evaluated the workshop before the closing ceremony and receiving the certificates.

B.1 DATA COLLECTION METHODS

- Ice breakers
- Questionnaire - format, interviews
- Surveys + census
- Verbal discussion focused, general
- Group discussion + brainstorming
- Aerial photography
- Time line + historical profile
- Secondary data
- Maps
- Case studies
- Trials - on-farms
- Open-ended interviews with key informants
- Information
- Media
- Ethno-botanical survey

B.2 PROBLEMS OF DATA COLLECTION

- Long Questionnaire - literacy needed
 - uncertain results
 - farmers don't understand
 - outsiders don't understand
 - communication
 - language difficulties
 - over-surveying, too much data
 - how to perceive differences
- Attitudes + cultural representation
- Availability + validity/time management
- Intimidation of informants/fear by informants
- Timing of day
- Accessibility - mobility and safety
- Weather
- Lack of funds
- Lack of knowledge + survey
- Biases - spatial
 - reporting
 - reporters
 - gender
- Institutional rigidity
- Gender
- Gap between field contacts

B.3 EXAMPLE OF NEGATIVE IMPACTS FOLLOWING IMPROVEMENT TO ONE PART OF SYSTEM

- Road - ecological damage
- deforestation
- Late blight control - causing cropping of potatoes
- build up of soil borne diseases
- Mulberry plantation - allergy
- loss indigenous plants
- Canear (oleander) - poisonous
- Popular - allergy
- trunk borer in fruit tree
- Pest control chemicals - pollution
- residues - health
- Mechanisation - displacement
- marginalisation
- Education - increasing inequity
- HYV - dwarf crop
- increased cost fodder

B.4 COMPONENTS OF RURAL LIVELIHOODS

- Farming - crops (including potato)
- dairy
- livestock
- sericulture
- aquaculture
- Home gardens
- Exchanges + barter
- Handicrafts
- Small scale - industry/artisans
- Off-farm - labour, local, services, distant (skilled + unskilled)
- Land renting
- Agroforestry - selling wood and tree products
- Wild products - plants, animals, fish
- Processing and marketing
- Patron-client relationships
- Dowry
- Zat - funds - credit
- Crime

B.5 COMPONENTS OF SEMI-STRUCTURED INTERVIEWING

- Listen
- Checklist/Interview guide
- Flexibility
- Observation
- Probing
- Respect/open contact
- Question (open)

B.6 SELECTION OF INFORMANTS

- Personal contact
- Specific search - household heads
 - schools
 - ext. agents
 - political groups
 - etc...
- By chance
- Identification by others

B.7 DO'S AND DON'TS FOR INTERVIEWING**Do:**

- Ask children
- Be sensitive about invitations
- Join in activities
- Relax
- Face each other
- Consider gender mix
- Be clear about objectives + explain
- Mix disciplines
- Split team roles
- Consider translation difficulties
- Do use visual aids
- Consider tape recorder use
- Adapt checklist to situation
- Go to the field

Don't:

- "Get rid" of informants rudely
- Talk together as team members excluding farmers
- Leave out group members
- Have too large groups
- Have split up discussions in one group
- Go on too long
- Sit behind barriers
- Forget to make regular notes
- Be too relaxed
- Carry too much paper in the field

B.8 TYPES OF SABOTEURS

- Dominance
- Rigidity
 - hurried
 - idiom
- Interruptions
 - answers/questions
- Not serious
- Not focused
 - rudeness
- Silent
- Taking over
- Physical distraction

B.9 WAYS TO SABOTAGE SABOTEURS

- Ignore politely
- Polite/clear interruption
- Definite stopping
- Talk it out
- Acknowledge + postpone
- Divert attention - form subgroups or set task
- Use saboteur for debate
- Ask others for help
- Allow it
- Stood

B.10 WHAT IS POVERTY?

- Ability to control access to material - non material resources (education spiritual)
- Is relative
- Individual condition
- Lack of resources (shelter, land, health, education, food cattle, creation water)
- Below subsistence/basic needs
- Weak economic position
- Lack of security
- Vulnerability

B.11 IDENTIFYING POVERTY

- Political/social status
- Quality of housing
- Ask others
- Too many dependents with less income
- Ask sources of income
- Ask land holding/number of cattle
- Participant observation
- Extent of adoption of technology
- Clothing
- Type of weapon
- Ask degree of access to household resources

APPENDIX C

PRA PLANNING EXERCISE: PROPOSED ACTION PLANS

PSPDP, NWFP

Topic: To identify researchable problems of resource poor potato growers.

Objective: To increase income of small farmers in potato based agri-system.

Where: Bajna, Mansehra (NWFP)

Who involved: PSPDP and Agricultural Research NWFP

Dr. Nasrullah Jan
 Mr. Hamidullah Jan
 Mr. Javed Anwar
 Mr. Misbahud Din
 Mr. Khaliqz Zaman
 Mr. Ajmal Malik

When: 1st week of April, 1992

Methods and their purpose:

System diagram	Understand systems
Village map	Overview of village
Wealth ranking	Identify resource poor farmer
Seasonal calendar	Understand crop pattern
Crop Ranking	Crop preference
Problem matrix	Identify problems
Causes, problems, effects, responses	Analyse problems and responses and identify researchable options

Obstacles foreseen:

Transport
 Finances

PSPDP, BALUCHISTAN

General objective:

To identify gaps of knowledge about potato-based farming system in pilot areas of Kalat, Kanak, Kan Mehtarzai.

Specific objectives:

- * To identify problems and local responses of small farmers.
- * To set up research options for participatory on-farm research and transfer of technology.

Location: Kalat, Kanak, Kan Mehtarzai.

Who involved:

Institutions: PSPDP (CU)
PSPDP (Bal.)
ARI (Quetta)
VSSPP (Quetta)
Agri. Ext. (Quetta)

Disciplines: Social Scientist
Agronomists
Potato Botanists
Pathologist

Gender mix assured

When: Kanak - June

Kalat - 3 to 4 days/PA

Kan Mehtarzai - half to one day to prepare objectives and train methods of PRA for new team members.

Methods:

Review secondary data
Transect (large areas)
Rank size of potato growers
Farm profit of selected growers
System diagrams/Venn Diag.
Seasonal calendars
Problems & Local Solutions and Responses Diagram
(prioritize problems with matrix ranking)

Obstacles: Not visible

PSPDP, JAMMU AND KASHMIR

Topic: On-farm research for seed plots. The farmers in the high hills of AJ&K are aware of the importance of potato seed, ie cash as well as food value. They used to grow monocrop of potato as a summer crop.

Where: High hills of AJ&K

Who: Extension supervisory service regarding technical know how is provided by the Department of Agriculture of AJ&K. Seed potato is supplied to the potato growers by the potato botanist of agriculture through the extension network. Agriculture Department extension officials - area officer, field assistants and other staff member who are aware about farmers' attitude regarding crop. Technical support from PSPDP is required.

What to look at:

First to know about the cropping pattern and cropping system of the pointed area. How many farmers are engaged under potato grown. After that I will go through their problems and their solutions regarding seed supply on time, good quality fertilizer supply on time. How do they manage seed, what problems they face in this and local responses? If they are able to get seed from extension centre, they use to get seed from the farmer who kept their own seed.

When: As assigned by the Department to finish the job. After the start of spring season is the best time to approach the farmer because they are in the field to cultivate their land for next summer crops i.e. potato, maize, oats (fodder) etc. The first approach to farmer is in the middle of March. Because farmer has to plan which crop he is growing next season. Approach is for commitment of seed reservation, fertilizer, land preparation etc. for plant of crop. Deadline is last week of March.

How: By private transport or official transport if possible, because approach to the other official before planning programme is very important. Locate area or identify the specific grower who is willing to grow potato or to meet and discuss. After pointing out the growers, planning of sowing trial of potato is prepared.

What methods:

- Develop checklist
- Initial entry (protocol)
- History timeline of potato
- Review secondary data
- Mapping
- Transect walks
- Flow diagram with institutional mobility
- Transport
- Venn diagram

Focus on: Farm profile
 Flow system of whole farm
 Potato specific flow diagram
 Seasonal Calendar
 Seed supply - inputs, labour (available)
 Taking material

Management profile
Market flow
Local responses

Obstacles foreseen:

Lack of Dept. Coordination
Enemy firing
Non-availability of grower at sowing time.
Lack of inputs supply.
Natural climates (land slide, snowfall, transport etc.)
Lack of staff
Lack of funds.
Political influences on official transfers.

PSPDP, PUNJAB

Topic: On-farm trials on potato crop

Where: 3 pilot areas in the Punjab:

- * Salara (Chiniot)
- * Aroop (Gujranwala)
- * Chak 48/3R (Okara)

Institutions involved:

- * Vegetable Research Institute, AARI Faisalabad
- * PSPDP
- * PARC

When: March 1992

How: * Participatory mapping: Village mapping showing the layout of the villages, the infrastructure and houses etc. To map the household status of health, wealth, education and other socio-economic conditions.

* Semi-structured interview

* Transect Walk: Transect walk will be to explore differences in land use, vegetation, soils, cultural practices, infrastructure, trees, livestock, water availability and so on.

* Seasonal Calendar: These will be drawn to faster understand rainfall, crop sequence, water use, labour availability, labour demand, income debt, soil and water conservation, pest and diseases, and prices.

* Venn diagram: To understand the current formal and informal institutions in the area.

* Matrix ranking: This will be to understand local perceptions of different groups of villagers or farmers. These will be drawn on: seed potato sources, different potato varieties, various fertilizers, pesticides and weedicides.

Obstacles expected:

- 1) Delay in the release of provincial funds.
- 2) Delay in the availability of manpower.
- 3) Delay in the availability of logistic facility.

Written by:

- i - Muhammad Habib
- ii - Abdul Hamid Tariq
- iii- M. Masud
- iv - Ahmad Masood

PSPDP, PUNJAB

Topic: Seed potato production by small farmers

Where: Punjab, Sahiwal, Chak 89/6 R.

Who: AARI FAISALABAD
PSPDP ISLAMABAD
FARMERS
PSC SAHIWAL
AGRI. EXT. SAHIWAL

When: June 1992
Final dates, with consensus, proposed: 13-20th June

Methods:

- Mapping
- Seasonal calendars
- Venn Diagrams
- Transect walk
- Farm profile
- System Diagram
- Pie
- Crop matrix ranking
- Crop Historical Profile
- Flow diagrams (income & expenditure)
- Decision tree problem solutions

Obstacles expected:

- Funds
- Vehicles
- Hot Weather

PSPDP, SINDH

Topic: General PRA to pinpoint potato-related problems in the farming system of the P.A.

Where: Three villages in Ghotki Teh, Sukkur District

Who: Allah Wadhayo, Economist
 Abdul Ghani Balouch, Horticulturist
 Shaukat Ali Arain, Breeder
 Richard Eberlin, Farming System Economist.
 Two from extension.
 Two female researchers from Jamshoro (SDSC)

When: During cropping season ----> Nov: 1992

How long: 15 days

PROGRAMME AND METHOD

- Day 1 Team meeting - Introduction to PRA for new comers
 - Discussion of objectives, topics and checklist.
- Day 2 Meeting with farmers (arranged previously).
 AM - Village Map and SSI with group and individuals (male/female).
 PM - Brain storming on topics and problems, review checklist.
- Day 3 Transect walk with the farmers.
 PM - Brainstorming on topics and problems, review checklist.
- Day 4-5 SSI and other tools applied to farmers selected according to previous information.
 PM - Brainstorming on topic and problems review checklist.
- Day 6 Draw diagrams and write up.
- Day 7 Write up topics (each member).
- Day 8 Divide topics among members for each to summarize.
- Day 9 Presentation and discussion of topics.
- Day 10 Write-up of Causes - Problems - Responses - Actions.
- Day 11 Final write-up.

OBSTACLES EXPECTED

- Security -- -> contact D.C - S.P.
- Understanding of PRA by new members
- Limited experience in PRA
- Organizational frictions
- Communication between team and farmers

QUAID-I-AZAM UNIVERSITY

Topic: As part of research methodology component in teaching.

Where: Anthropology Department, Quaid-i-Azam University, Islamabad in courses:

- a - Gender and Development
- b - Social change and rural development

Who: Farhana Faruqi

When: Spring semester (Feb - June, 1992)

Who: M.A Level students (3rd term)

How: Two focussed class lectures on PRA approach
Two days in a village (learning by doing method)

- Methods:**
- a) Social mapping
 - b) Seasonal calendar
 - c) Historical profiles
 - d) Activities calendars
 - e) System diagram
 - f) Pile sorting

The above methods are selected for introducing PRA approach primarily because of their relative familiarity in Anthropology. The conventional research tools used to collect similar kinds of data focuses on an entirely different "participatory approach" involving long periods of stay in the community under study. The "visual methods" of PRA can generate the same quality information in much shorter time period. PRA techniques could be complemented with two widely and extensively used research methods in Anthropology ie semi-structured interview (esp. with key informants) and participant observation.

How: Students will apply PRA through small research projects

Why: After graduation, many students will find jobs with development agencies and NGO's. In this action-oriented work, a more positive effect will be achieved in less time, if they are equipped with PRA as well as conventional research tools of Anthropology.

Obstacles expected:

- Disciplinary bias (esp. regarding RRA--> top-down approach)
- Rigidity of senior professors.
- RRA's association with Development - esp. rural dev.
- Synonymous to economic development
- No emphasis on cultural dimension/human aspects

PARC

Topic: Participatory planning/management of protected areas [with natural resources as focal point]

Where: National parks/protected areas of country Margalla Hills, Islamabad.

Who involved:

Villages in the area and institutions involved in management of park area.

3-4 people from:

* Margalla Hills Society, PARC, CDA and others

* Botanist, wild life expert, park manager, sociologist/anthropologist.

Methods:

Historical profile of vegetation - Historical transect

Mapping of protected area

Pie diagram of vegetation zones

Resource flow diagram

Matrix of forest products/uses of vegetation

Matrix for fuel wood preferences

Venn diagram to see institutions involved in the area

Matrix ranking of people's livelihood in the area

Obstacles expected:

Lack of funds

UNIVERSITY AND SDSC

Topic: Waterlogging and reclamation of cultivated land, DEH: Kabool Pure

Where: TAHSIL: Ando Mohd. Khan; District Hyderabad, Sindh

Who: Agricultural University of Sindh + Sindh Development Study Centre (SDSC)

When: 10th June to 17th June 1992 (one week workshop).

How: Transect walk
Mapping
Historical profile
Matrix ranking
Crop biographies
Seasonal calendar
System diagram (before and after waterlogging)

Obstacles expected:

Very hot season
Transportation - (climatic factors), Katcha roads
Unavailability of relevant persons
Finance problem
Less response from concerned agencies

EDC

Topic: Training combined with PRA for women's programme
To identify women's specific role in agriculture and interventions for the PATA Integrated Development Project, Saidu Sharif.

Where: 2 valleys in Malakand Division (NWFP)

Who: PATA Integrated Agriculture Development Project, EDC, MSFP

Disciplines:

Women in Development Specialist (T.A., PATA Project)
Social Scientist
Natural Resource Specialist
Irrigation Specialist
2 Field Assistants (PATA Project)
Social Forestry (TA, MSFP)
Training Specialist

When: After Ramazan

How: Day 1-5 Preparation for training. Gujranwala PRA slides to be provided by Irene/Jules (Preparing module, collecting material etc.) (EDC/Training Spl.)
Day 6-8 PRA Training, covering entire tool box. EDC/PATA/MSFP
Day 9 Planning for field work/preparation of checklist etc.: EDC/PATA/MSFP
Field Work by EDC/PATA/MSFP

Day 1 Introduction of team/PRA techniques/aims & objectives social structure, history, timeline.

Days 2/3 Transect walk, institutional (Venn), Group Discussion, Wealth ranking, Focus Group Discussion ---> Seasonal Calendar, Labour Calendar, Mobility Mapping, Matrix.

Day 4 Identification of Areas of Intervention: Flow Diagram, Problems, Ranking etc.

Day 5 Preparation for presentation and presentation to women focus group

Day 6-7 Collection of Data, writing-up. EDC

Day 8-14 Same for second village

Day 15 Presentation of findings to project EDC/PATA

Day 15-16 ZOPP by EDC/PATA

Obstacles expected:

- . Lack of training materials (Resource people: Jules/Irene)
- . Experience in training (lack of)
- . Lack of adequate budget
- . Lack of understanding of PRA/RRA principles by project/EDC
- . Lack of mobility of women in project area.

SEBCON/QAU/SUNGI

Topic: Training course on PRA techniques for research students/teachers

Who: Students/teachers of:

- Anthropology Dept.
- Sociology Dept.
- Pak-Studies Dept.
- Women and development.

Where: Quaid-e-Azam University, Islamabad.

When: One month in September, when the next term commences.

Obstacles expected:

Funds

Permission from the university

Teachers'/students' responses

How to contact relevant organisation to get material on PRA techniques

- PRA training manual
- Visual aids (photographs from Gujranwala training course)

IUCN

Topic: Familiarization workshop on PRA techniques

Where: Karachi

Who involved: IUCN and IIED (Irene)

Participants to be:

- . IUCN-all professional staff
- . IUCN members: GOP + NGO
- . IBED

When: 23/3/92

How: Introduction of concepts

Obstacles: None? Time constraint.

Topic: Local perceptions on mangroves + how community participation can be initiated.

Where: Coastal villages near Karachi

Who involved: IUCN coastal Eco-system unit

Sindh Forestry Dept.

Shirkat-Gah

When: Beginning 1992

Methods: Toolbox of PRA techniques

Obstacles: None? Lack of trained people

Topic: Community participation in IUCN's "Integrated Management of the Ziarat Junipur Forest".

Where: Ziarat, Baluchistan

Who involved: IUCN Forestry Expert

IIED, Govt. of Baluchistan

Local community

When: Part of IUCN's long-term project

Methods: Tool box

Obstacles: None

Topic: Afforestation small villages of NWFP

Where: NWFP

Who involved: IUCN NGO officer

Sungi, local community

When: To be planned

Methods: Tool box

Obstacles: None

APPENDIX D

NEWSPAPER ARTICLE (translation)

A two weeks course on Rapid Rural Appraisal organized by the Pak-Swiss Potato Development Project, PARC. The Pak-Swiss Potato Development Project of PARC a joint project of Pakistan and Switzerland, has organized a two weeks course on Rapid Rural Appraisal at Gujranwala with the aim of training Pakistani Scientists on the study of problems of Rural population and finding out their solutions.

The course was organized in collaboration with the International Institute for Environment and Development (IIED) London and two scientists from this institute have come to Pakistan to impart training to the Pakistani Scientists. The course began on 8th February, 1992 and will continue to February 20.

The course included training to the scientists through lectures, video films and practical exercises on rapid rural appraisal. The course participants conducted a four day visit of a nearby village "Aroop" themselves with the problems of rural population particularly of small farmers and to have direct discussions with them in accordance with the new techniques of RRA.

The farmers participated in these discussions and practical exercise with the course participants with full interest and cooperation. The female participants of the course visited the fields as well as the houses of farmers and held discussions with the women on their problems of daily life. In general, the men, women, and children of the village participated in the course exercises and discussions with full interest and cooperation.

In the final stage, the course participants are now analysing the problems and information they received during the course, and then will give their recommendations to solve these problems.

پاکستان اور سوئٹزرلینڈ کے مشترکہ منصوبہ پر اسے جسرا دار آوارہ پاکستان زرعی تحقیقاتی کونسل کے زیر اہتمام

دیہی ترقی کے مسائل کے فوری حل

کے موضوع پر پندرہ روزہ
کورس آف ریسیو مہا اعلیٰ میں۔



پاکستان زرعی تحقیقاتی کونسل اور سوئٹزرلینڈ کے مشترکہ منصوبہ پر اسے جسرا دار آوارہ پاکستان زرعی تحقیقاتی کونسل کے زیر اہتمام



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AGRARIAN ECONOMY



M. Sadiq Quraishi

Improved potato production

POTATO production has considerably increased in Pakistan in recent years through better production technologies and improved seed supply system. With effective control of diseases and use of locally produced healthy seed, a big saving of foreign exchange to the tune of no less than Rs. 60-70 million has taken place in the country. The annual import of potato seed has now been reduced from several thousand tonnes to a few hundred tonnes. The small growers of northern areas are very well-off now by producing and marketing high quality seed for the Punjab growers who were partially using virus-infected local spring crop for seed purposes.

The potato crop improvement has been made possible under a research and development programme with financial assistance from Switzerland. The Pakistan Swiss Potato Development Project (PSPDP) was initiated in 1984 when no national research activity existed in the potato sector. Potato has gained importance in the country in the recent past as indicated by the increase in the area under potato cultivation. The object of taking up PSPDP was to develop improved production technologies and a better seed supply system in order to improve the income

of potato farmers.

Since the inception of the project, research has been carried out over the whole range of potato farming and marketing activities on a countrywide basis. Survey, on the farming system on the disease and pest incidence, on marketing practices and other aspects were undertaken throughout the major potato growing and consuming areas. The surveys led to a programme of trials to investigate among other things the most appropriate fertiliser application, control of diseases and pests, introduction of better crop rotations and optimal rates of seed sowing. The existing research institutions were strengthened in various ways and local and overseas training courses were arranged for the staff. All the surveys and other development activities have been documented in over 140 project publications. Over the six years of the project lifetime, a total of about Rs 25 million has been spent on the research activities but it is estimated that the direct benefits of the project have so far amounted to four times this amount.

The project has worked for the introduction of improved cultivation practices and disease-free seed. On an average, yields have improved by 30 per cent in the plains of NWFP and Punjab.

The first Swiss Chief Technical Adviser, Dr Alan Smith, left after six years of commendable service and his place was taken by Mr Jan Morrenhof. After successfully completing the first two phases, the project (PSPDP) of PARC entered its third (and maybe the last) phase in July 1991. The project is being continued with integrated farming system approach in pilot areas. In the new phase of the project currently under implementation, the four provincial departments of agriculture are directly involved with PARC having the coordinating role. The emphasis of the project activities has also changed with more priority towards seed aspects and the development of an integrated domestic seed system. On-farm activities in pilot areas in the provinces, focussed on the needs and problems of small farmers, continue to be an important field of operation of the project. The marketing and post-harvest technology thrust also continues.

Since this seems to be the last phase of the project it was necessary to devote more attention to institution building. The Chairman of PARC, Dr Zafar Altai, has stressed upon the project advisers the importance of leaving behind a sustainable set up and the local staff working in the project has already been shifted to non-development side in order to give the unit a permanent shape.

A new step was taken recently under the project to introduce Participatory and Rapid Rural Appraisal (PRA and RRA) systems which have spread at a remarkable pace throughout NGOs and governmental organisations worldwide. A two-week training course on PRA was arranged by PSPDP this week at Gujranwala in collaboration with the International Institute for Environment and Development, London. PRA is a collective term for a growing list of approaches based on interactive learning, shared knowledge and flexible analysis. The methods are applied in the field by a multidisciplinary team and are designed to generate new information quickly, and new hypotheses about local conditions and livelihood.

Gujranwala District has a large number of small potato growers and a pilot development area was recently opened in village Arup where the trainees of the PRA course will do field work for six days during the next week.

Inaugurating the PRA course, Mr Jan Morrenhof said that the course was an introduction and exercise to an approach of active involvement of community members in agricultural research and extension work at field level.