



Community Participation in Rural Water Supply Projects in Northern Punjab and AJK

An Exploratory Study

Volume II

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Note of Introduction

Volume I of this report, focuses on the main findings of the study, which are

The study reveals that there is a direct link between the participation of communities and the sustainability of water systems. Overall, per capita costs of comparable schemes were three times less where communities had contributed financially towards the project and had been involved in project level decision-making. Similarly, per capita O&M costs were also three times lower in such schemes

Effective use, equity of access and informal coverage through neighbours' connections were influenced by the extent and depth of community involvement

Furthermore, the timing and intensity of community involvement during the various stages of the project cycle, is a determinant of the effectiveness, maturity and sustainability of the community's organizational capacity

Volume II of this report, covers the supporting tables, appendices and annexures to substantiate the above conclusions

Contents

THEMATIC CASE STUDIES

Case Study 1

Service Levels and the Need for Piped water in Hasal, Chakwal 3

Case Study 2

Technology choice and its impact on people's management capacity,
Qutb Bandi, Attock 8

Case Study 3

Community Level Cross Subsidisation of Facilities, Haji Shah, Attock 12

Case Study 4

Piece Meal Development and the Functioning of Water Systems,
Raira, Rawalakot 16

Case Study 5

The Kakra Town Water Committee, Kakra Town, Mirpur 19

APPENDIX ONE

Supporting Tables for Chapters 2-7	25
---	-----------

APPENDIX TWO

Role of Union Council Secretary (UCS)	40
--	-----------

APPENDIX THREE

Sequential Ordering of the Phases of a Water Project	42
---	-----------

APPENDIX FOUR

Socio Economic Profile of the Area	44
4.1 Geophysical Characteristics	44
4.2 Existing Village Level Infrastructure	48
4.3 Available Skill Mix and the Economic Possibility Frontier	50
4.4 Conclusions:	54

APPENDIX FIVE

Methodology	55
5.1 Principles of Triangulation	55
5.2 Methods and Tools	57
5.3 Pretesting	60
5.4 Training and Orientation of the Field Researchers	61
5.5 Sampling procedures	62
5.6 Lessons from the Field	65

ANNEX ONE

List of Communities for AJK **71**

ANNEX TWO

List of Communities for Northern Punjab **73**

Index of Tables & Figures

APPENDIX ONE

APP1 Table	1 0	Summary Table by Type of Source	25
APP1 Table	1 1	Pattern of Use by Source in Northern Punjab	25
APP1 Table	1.2.	Pattern of Use by Source in AJK	26
APP1 Table	1.3:	Pattern of Use by Source in Mirpur	26
APP1 Table	1 4	Household Connections by Coverage Levels	27
APP1 Table	1 5	No of Households using Neighbours' Connections	27
APP1 Table	1 6.	Total Project Cost by Area	28
APP1 Table	1 7.	Total Community Contribution by Area	28
APP1 Table	1 8:	Annual Maintenance Cost by Area	28
APP1 Table	1 9.	Existing Management Responsibility by Area	29
APP1 Table	1 10	Type of Training by Area	29
APP1 Table	1.11	Amount of Cash Contribution per household by Area	29
APP1 Table	1 12	Process of Cash Contribution/ No of times money was collected	30
APP1 Table	1 13.	Duration of Construction till Completion	30
APP1 Table	1 14	Breakage of the Mainline by Area	30
APP Table	1 15	Breakage of Valves by Area	30
APP1 Table	1 16	Distribution Pipe Breakage	31
APP1 Table	1 17.	Leaking Joints by Area	31
APP1 Table	1.18	Motor Failure by Area	31
APP1 Table	1 19	Frequency of Mainline Breakage by province	31
APP1 Table	1.20:	Mainline Breakage and Repair Time	32
APP1 Table	1.21:	Frequency of Valve Breakage by Area	32

App1 Table 1 22:	Valve Breakage and Repair time by Area	32
APP1 Table 1 23:	Frequency of Distribution Pipe Breakage by Area	32
APP1 Table 1.24.	Distribution Pipe Breakage and Repair Time by Area	33
APP1 Table 1 25:	Frequency of Motor Failure	33
APP1 Table 1.26:	Motor Failure and Repair time	33
APP1 Table 1 27:	Amount of Water Fee by Area	33
APP1 Table 1.28:	Payment of Water Fee by No of Households by Area	34
APP1 Table 1.29:	Process of Water Fee change by Area	34
APP1 Table 1 30:	Changes in the Water Fee by Area	34
APP1 Table 1.31.	Satisfaction with Water Quality by Area	35
APP1 Table 1.32:	Frequency Distribution of Changes by Area (% of total cases)	35
APP1 Table 1.33.	Role of Leaders during Initiation by Area	35
App1 Table 1 34:	Role of Leaders in technology selection by Area	36
APP1 Table 1.35.	Line Department Officials during the Initiation Process by Area	36
APP1 Table 1.36:	Role of Community in Technology Selection by Area	36
APP1 Table 1 37:	Role of the Community during Construction by Area	37
APP1 Table 1.38:	Year of Formation by Age of Scheme by Area	37
APP1 Table 1 39	Frequency of Meetings by Area	37
APP1 Table 1.40:	Task Function of Water Committee by Area	38
APP1 Table 1.41.	Water Committee Decisions by Area	38
APP1 Table 1.42:	Process of Selecting Members by Area	39
APP1 Table 1 43:	Profile of Water Committee Members by Area	39
APP1 Table 1 44:	Number of Members by Area	39
APP4 Table 1 0.	Distribution of Villages by Population (No of persons)	44
APP4 Table 1.1:	Distribution of Villages by No of Households/village	45
APP4 Table 1.2:	Distribution of Villages by Area Type	45
APP4 Table 1.3.	Distance to nearest city	46
APP4 Table 1.4:	Distance to nearest city by Unpaved, Paved and Metalled road	46
APP4 Table 1.5	Distance to Nearest Market	47
APP4 Table 1.6.	Type of School by Gender (% of total cases reported)	48

APP4 Table	1 7.	Summary Table of Type of Infrastructure by Area (% of Total)	49
APP4 Table	1 8	Percentage of Poor Households	50
APP4 Table	1 9:	Poor Households by Occupation	50
APP4 Table	1.10.	Percentage of Middle Income Households	51
APP4 Table	1 11:	% of Households receiving income from abroad	51
APP4 Table	1 12.	% of households receiving income from “Down country”	52
APP4 Table	1 13.	% of Literate male population	53
APP4 Table	1 14.	No of Skilled Persons (Males) in village	53
APP4 Table	1 15.	Incidence by Skill Type (technical)	54
APP4 Table	1 16	Incidence of Traditional Skills	54
APP5 Figure	1.0:	Triangulation of Data	55
APP5 Figure	1 1.	Possible Information Flows at the Village Level	56
APP5 Figure	1 2	Decision Making Process	59
APP5 Box	1 0:	Four R’s of Research	62

Thematic Case Studies

Case Study 1

SERVICE LEVELS AND THE NEED FOR PIPED WATER IN HASAL, CHAKWAL

1.1 Introduction:

Village Hasal is an interesting case to study in Northern Punjab scenario. The community exhibited an increased capacity to make choices and utilise opportunities available to it. Its ability to manage the facilities improved over a period of time. However, like other villages of Northern Punjab, this village would also like the PHED to manage the scheme. The motivation of the villagers behind giving up the responsibility of management to a government body is that it would be equipped with regulatory powers that would help enforce the rules among the community. The maintenance and operations functions would be handled more efficiently and chances of expansion in the scheme would be possible.

Village Profile:

Hasal, a large village with approximately 1400 houses, is isolated with no road, health or electric facilities. To access the village, travellers have to cross the Soan nullah (water channel). When water level in the nullah is low, the villagers can hire pick ups to bring them to the village, otherwise they cross the nullah on camels or on foot. Despite its remote character the villagers have been able to get education and veterinary facilities. There is a government boys high school (upto class 10) and a girls middle school (upto class eight) and a veterinary centre.

All residents own their homes, most have small land holding of less than 50 kanals. With the nullah so close, the village has developed an irrigation system based on 200 ground wells. The well water is used for growing sugar cane and vegetables. Other crops grown are maize, cotton, mustard, wheat, peanuts and a variety of lentils. Livestock, as in goats, poultry, cows and buffaloes is also an essential source of sustenance for most of the village households. One to three goats are reared by nearly every household as an additional source for cash income. While poultry, cows and buffaloes are being reared by most to supplement daily food and fuel needs.

Other than agriculture, the village only offers unskilled wage labour as a form of employment. Outside the village, most of the villagers are employed in the government services or do wage labour in the nearby cities and towns. The village consists of middle and low income groups with the majority falling in the latter category. The households considered to

be poor are described by the villagers to be landless, or with very little land (one or two kanals) or having no alternative income sources.

1.2 The Existence of a Need for Piped Water Supply Determined by Service Levels:

The village has achieved its water supply system in three stages. The first stage consisted of provision of water through standposts located at a ground storage tank, second stage consisted of standposts within the village and the third stage consisted of service levels at the house.

At the time funds for the water supply scheme were allocated to the village, the residents of Hasal had several needs. Piped water supply was considered a need, but compared to a road/bridge or electricity, it was not considered as most urgent by the village men. Women were transporting water from the wells situated in the fields just outside the residential area of the village. However, the Deputy Commissioner (DC) clarified that the grant was not convertible and could only be utilised for a water supply scheme.

At the completion of the first stage the utility of the piped system was recognised by the villagers, especially the women. Those using the storage tank standposts, though still carrying water, no longer had to tow and lift it from the well. Piped water supply, therefore, was also elevated as a priority for the village. Within a period of two years the village welfare committee had been mobilised to seek additional funding from the DC to cover a greater area of beneficiaries by extending the stand posts system into the village. As a result, in 1980 the DC was able to sanction another grant of Rs.550,000 for laying a distribution pipe into the village with 10 standposts.

The need of the villagers was still not satisfied. Conflicts arose between women on water sharing which were threatening the peace and harmony of the community. Water was released for a limited time which was not adequate to fill the utensils of all the women queuing up for it. In addition the households refused to pay for the use of public standposts. The need for improved service levels of piped water was demonstrated by the demand and willingness to pay for household connections. Within a few months of installation of standposts in the village, the welfare committee was mobilised to seek the permission of the PHED for allowing household connections.

1.3 The Formation and Role of a Community Based Organisation:

It was during the stage of pursuing the administration for development projects that the Hasal Welfare Committee was formed. The villagers decided that a voluntary organisation of the villagers would represent them in a better manner. This was in response to a vacuum in village level political representation due to Martial Law in the country. The Committee comprised of approximately 50 resident villagers who were active participants in any effort for village improvement. These volunteers comprised mainly of young literate village males who were shopkeepers, school teachers, retired government servants who had come back to live in the village and could spare time and money for community welfare work.

Each member of the Committee contributed Rs 10 per month and also accepted donations from resident and non resident villagers. The fund thus collected helped to meet costs incurred for any work connected with village improvements. This committee took on the role of coordinating all activities related to village improvement on behalf of the village. Though all villagers were not its members, the committee had their support in terms of participation in whatever work the committee called upon them to perform.

1.4 Process of Communicating Felt Need and Information Sharing:

To communicate their felt needs to the government, the villagers had evolved a strategy of visiting the Tehsil and District headquarters. These calls were a matter of routine for all village men who were visiting the nearby towns for their private work. Members of Hasal Welfare Committee would go as a formal delegation to enlighten the district administration about the plight of the village. Officials were invited for a first hand look at the plight in the village. Besides getting better acquainted, this helped to gain the sympathy and confidence of the officials. On one such visit by the Deputy Commissioner, Jehlum District, the Committee members elicited a commitment from him. It was in this manner that in 1978 Hasal received a water supply scheme out of the two sanctioned for the Tehsil.

1.5 Planning and Implementation:

Being a Government grant, the fund was required to be utilised by the PHED to plan construct and manage the entire scheme. According to the villagers no one in the village was consulted. The villagers also did not interfere at this stage as they were not aware or experienced about the complexities of a piped water system. They however, closely observed the work and played a supportive role in cooperating with the PHED staff to make their task easier.

As a standard procedure, the PHED engineers had designed the entire distribution system of household level piped water supply, even though in the first stage service levels were limited to standposts located at the storage tank. Water from a newly excavated open well was pumped to the storage tank having a capacity of 5000 gallons. Since there was no electricity, a 12 horse power diesel engine was selected to operate the turbine.

The work at the first stage took six months to complete and was contracted out by the PHED. The villagers were hired as labour and the land on which the well was located was given free of cost by a local land owner. In addition the contractor gave on the job training to three villagers respectively as engine operator, plumber, and oil man. Subsequently in stage two the same contractor was hired by PHED to lay the distribution pipe for village standposts. Having worked closely with the contractor, the Welfare Committee was able to access the network of the contractor for implementing stage three of the project.

The cost of the first stage amounted to Rs. 440,000. According to the villagers the construction work was of good quality. However, the well was not deep enough and did not have adequate water. The work was monitored by the overseer who remained in the village throughout the construction period. The SDO and XEN of PHED made regular visits and the final certification was given by the XEN.

1.6 Expansions:

As already mentioned earlier the standposts were extended into the village by laying a distribution pipe network in parts of the village. Within a few months private investments made by the villagers converted the service levels from stand posts to household connections. Out of 1400 households, 250 were able to afford household connections. These households mostly belonged to the middle income group and could afford the cost of installing the piped system. In addition to paying Rs 100 per connection to the PHED, the cost of installing a half inch pipe from the main distribution line to the house ranged from Rs.250 to Rs 1200. This expense depended upon the distance of the house from the distribution line. Households with piped connections were also required to pay Rs.20 per month as operation charges. In order that the household service level be adopted uniformly by the rest of the community all stand posts from within the village were removed by the PHED with the cooperation of the Welfare Committee.

Before the scheme could be further extended, problems arose with the distribution system. The distribution pipes had been laid according to the original plans which did not take into consideration the undulating physical environment of the village. Houses in the lower parts of the village received water for longer periods while those located at higher levels could not meet their daily minimum requirements. However, the system could not meet the increased demand for water as a result of household connections.

1.7 Management of the Scheme:

The villagers did not complain of any management problems while the scheme was run by the PHED. However once the scheme was transferred to the Union Council (1984), problems began to arise. The cooperation expected between the villagers and the Union Council was not there. This was mainly due to rival political groupings. The Chairman Union Council, who was not of the village, was given the responsibility to manage the scheme with the resources generated from the payment of water bills and connection fee. According to the villagers the fund amounted to Rs. 75,000. The local councillor from the village had no authority or say in the management of the fund or the scheme. The Chairman also ignored the Welfare committee. He did not give any account to the villagers of how the money from the fund was utilised. As a result the users lost confidence in the management system and began to default on the bills.

The employees of the scheme were required to report directly to the Chairman Union Council. Maintenance problems in the scheme became acute, especially engine breakdowns. The operator had to travel to the neighbouring village, where the office of the Union Council was located, seek release of funds for repairs as well as get a technician. The water supply fund got depleted and finally the scheme closed down after three years with the Union Council.

1.8 Rehabilitation and Community Management of the Scheme:

The Chairman Union Council having no other alternative handed over the management of the scheme to the villagers. On behalf of the villagers, the Hasal Welfare Committee took

on the responsibility of rehabilitation. This included collection of finances from resident and non resident members. One non resident villager apparently had either contacts with a foreign donor agency, or he read about the rural development programme of this agency in the newspaper and informed the Welfare Committee.

1.9 Access to Resources

The members of the Committee immediately visited the city to enquire further about the possibility of the donor funding the water supply project. The conditionalities of the donor agency required a matching fund to be put up by the community. The committee was also required to keep accounts in a more formal manner and formalise itself by registering with the local authority. The committee met with these conditions by contributing Rs 100,000, 50% of which was value of land donated by a villager and the remaining amount was in the form of cash collected as voluntary contributions from the water users. The donors gave Rs. 520,000 as the remaining amount required to meet the cost of the project.

The donor agency left the decisions regarding the type of rehabilitation or expansion of the scheme to the welfare committee. The welfare committee decided to excavate a new source to ensure more water, build a larger elevated water tank and link it to the current distribution system. They decided to install valves to ensure a more equitable distribution among users. The welfare committee submitted the design and cost estimates which were scrutinised by the donor. This included site visits. The Welfare committee had hired engineers from a local university to undertake the survey and help prepare cost estimates.

All labour was contributed by the villagers for construction of a pump house and for laying the main line. No contractor was hired, work was supervised by the committee members and technicians brought in to do the more specialised functions. A new engine and turbine was installed.

1.10 Donor Monitoring

Regular monthly reports and statement of accounts were submitted by the Welfare committee to the donor. Other than that, two formal monitoring visits were undertaken by a representative of the donor.

1.11 Current Management:

The scheme has been functioning since 1988 and is managed by the welfare committee. The expansions are restricted because of lack of lane level distribution pipes for household connections. Ninety percent of the users pay their dues and the water fund has approximately Rs 9000 in its account. There is one full time employee for the scheme who is the engine operator. There are two part time employees who assist the operator.

Case Study 2

TECHNOLOGY CHOICE AND ITS IMPACT ON PEOPLE'S MANAGEMENT CAPACITY, QUTB BANDI, ATTOCK

2.1 Profile of Village

Qutb Bandi comprises of two types of settlements, one is the main village with about 50 households, and the remaining are small settlements scattered all over the hillsides, with a total of about 150 households. Communication between these scattered households is difficult and involves crossing a deep ravine. Overall the village is not accessible, there is no road and no transportation. Moreover, the village is unreachable during the rainy season, because of the existence of a seasonal rivulet/rainwater stream. Like most villages in Northern Northern Punjab, political affiliations of the village are based on biraderi/caste lines, and block voting is practiced. Women are not allowed to vote, and each election period village leaders meet to decide on two issues, which candidate to vote for and whether to allow female franchise. Qutb Bandi is under-represented politically and there have been no representatives of the village at the District Council level, this greatly constrains the ability of the village to access public funds. As a result development work in the village has been slow, the village is backward in terms of basic facilities with only a primary boys' school and water supply. Low literacy levels, 25% men and 0% women.

2.2 Water History

2.2.1 Process of Approval

The case of the Qutb Bandi water supply project is that of a very conventional project, with low involvement of people at all levels of decision making. The scheme was approved in 1980, during the district council elections. The district council incumbent had come to the village for a promotional meeting and had been approached by the religious head of the village for a water supply scheme. The incumbent had promised a scheme to the village on the conditionality of obtaining the joint votes of the villagers. The villagers had agreed and a verbal commitment was made by the candidate. This candidate had won and a year later, Rs 933,000 were approved for the village and its outlying settlements.

2.2.2 Story of Implementation

All decisions regarding technology choice and siting were made by the officials of the PHED and two potential open wells were identified as the source for the piped water scheme. These wells predated the scheme and had been dug by the assistance of the big

landowner of the area almost 20 years ago. Since the village did not have electricity, a diesel generator with a turbine was the preferred choice. The siting of the tank and standposts, were also decided by the PHED officials, in consultation with the contractor.

2.2.3 Invisible Hand Syndrome

The PHED managed the scheme for two years and charged a monthly rate of Rs 5/ household to pay for the salary of the operator. The choice of the operator involved some sharing of decision making, primarily dictated by the existing conventional setup, the environment of the village was extremely conservative and the villagers had expressed to the PHED that they would be wary of strangers coming from outside to operate the scheme, since, this would violate the existing norms of purdah within the village. As a result, a person from the village was selected as the operator and was provided training by the PHED representatives in the following areas operating the diesel engine and the motor, adding the fuel and opening and closing of valves etc. According to village sources, this training was extremely informal and was given by the PHED driver, who accompanied the field engineer on each visit.

For the two years, the operational guidelines were extremely simple, the villagers were provided water two times for half an hour each and all running and maintenance costs, like diesel costs etc, were borne by the PHED. If a major breakdown occurred like a fault in the generator, the operator would inform the PHED and they would send their mechanic. This happened three times in the two year period, and on average took 12 days to repair. However, the villagers had no control over the quality of repair and on the choice of the mechanic. Regular maintenance if conducted, was also the responsibility of the PHED and the villagers had no role in supervising or regulating the process.

2.3 Community in the Deep end

The scheme was then handed over to the Union Council, after a maintenance fund of Rs 12,000 was provided to them. Being ill equipped to take on this responsibility, the Union Council gave the main task of running the scheme to two individuals from the village, the religious leader and the operator. However, at the community level, no prior preplanning was conducted and the community was not prepared in any way for taking on new roles and responsibilities. Moreover, past decisions regarding technology, siting and choice of operator, were major factors determining the functioning of the water supply scheme.

Despite these decision constraints, many strategic resolutions were made, which support the latent management skills of communities, and illustrate that people are rational decision makers and can make optimum choices. Reflecting past behavioural patterns, the process of decision making within the village was non-representative, most decisions regarding the water system were taken by the religious leader and the operator. The first decision that was taken at the community level was to change the service levels from 6 standposts to 50 household connections. Water distribution had become a matter of great concern and women would fight over the amount of water each was transporting. To prevent this constant conflict, the religious leader of the village decided to allow villagers to obtain household connections. The main reason for communal friction was the rise in the water bill, from

Rs 5 to Rs 10 and then to Rs 30, in order, to meet the operational costs of the system. Faced with the steep costs of running the system, it was also decided to cut down on the timings and water was made available once a day for half hour.

Having had no prior exposure to maintenance issues, breakdowns became more frequent. Many villagers opined that the operator had not been trained properly and since there was no one to supervise his activities, once the scheme was handed over to the Union Council, major breakdowns occurred. The frequency of generator faults increased to almost once a month. At one point, each household was contributing Rs 60-65 in monthly contribution towards the running of the scheme. This situation could not be continued indefinitely, given the low income of the households, since households were earning on average Rs1200/month. The community managed to operate the system for 3 years until it finally stopped running due to major faults in the generator and the motor, which would have implied an upfront cost of Rs 12,000. Even during the three years the scheme functioned sporadically, that is, whenever the village leaders intervened by collecting emergency funds and doing a patchwork job which kept the system running for a month or so. There was an all pervasive expectation that the overall investment was the responsibility of the government and after having tried to manage it for three whole years, the people reverted to using the traditional sources, like the two source wells and the stream.

2.4 The Proactive Community & the New Water Supply Scheme

Having learnt from the above experience, the villagers were better informed about the complexities of technology choice. Even politically things had undergone a transformation and the village and its outer settlements had been given the status of a ward, thus implying that they could now elect their own Union Council member. New water sources had also been identified, like a new spring that had recently emerged about 3 miles away from the village. Moreover, demand patterns had also undergone a change, the 3 years of house hold connections had demonstrated to the villagers the convenience of having a functioning piped water system. Based on this hindsight, the villagers could now take on a more active role in community level decision making.

Through the member of the Union Council, they initiated a request for a gravity flow system, in order to provide water to the village mosque. A grant of Rs 200,000 was approved after a period of two years from the District Council. Since the fund was not adequate for covering the costs of a contractor, the villagers decided to take over the construction work themselves. In a village meeting, a contractor was selected from among the villagers, to supervise the construction work. Each house contributed Rs 100 towards the scheme to meet the costs of building a source tank at the spring. In total, the community contributed Rs 22,000 towards the scheme. The mainline was connected to the existing water tank and the system began to function within 3 months of the provision of the grant.

However, the settlements, which were also supposed to receive water from the scheme, were unable to benefit from the project because adequate funds were not available at the District Council level. The grant approved had been Rs 500,000, only Rs 200,000 had been released because the Member of the District Council who had approved the scheme had lost

in the most recent elections; piece meal development has been another cause of non-sustainability of schemes and can often intensify conflicts within the community. Animosity has been generated between the main village and the outlying settlements, as a result of the non-completion of the scheme. Manifestations of this have surfaced in the form of deliberate breaking of the main line and the distribution network. Based on the past experience with the water bill collection, a joint meeting was arranged and the amount of the bill was decided, in order to cover the operator's salary, and each household contributed Rs 10 per month. A new operator was also selected, since the previous operator was now working in the city. The scheme has been functioning over the past few years with few hindrances. This outcome has resulted because of a more aware and active community and because of the right technology choice.

Case Study 3

COMMUNITY LEVEL CROSS SUBSIDISATION OF FACILITIES, HAJI SHAH, ATTOCK

3.1 Profile of Village

Haji Shah is located about 15 kilometres from the city of Attock and is about 1/2 kilometre away from the main road. A narrow dirt road leads right upto the main village. The total population of the village is around 25,000 and is divided into seven wards, each with about 300 households. The layout of the village is fairly straightforward, all main streets transect from north to south, while side streets lie from east to west. Given its large size, Haji Shah has received prominent development funds; electricity came to village about 20 years ago and now it boasts a 7 bed hospital, partial drainage and street soling, high schools for boys and girls. In terms of communication, the village has a post office and 75 telephone connections. The traditional leaders of the village are the rich landlords, who live in two separate wards.

Commercially, the village is extremely vibrant, and at every corner there are small family enterprises, like flour machines, cotton pressing mills, traders and electricians. Economic linkages to the cities are strong and a total of 25 percent of the labour force works in the cities or abroad. Geophysically, the area is sandy and rocky, with the rock facing varying between 1 foot to 3-5 yards. Boring is therefore expensive, and besides the existing water supply scheme there are 4 community wells in the village. Seasonal sources like ponds and rivulets also occur, during the rainy period. In some ways things have also regressed, the villagers no longer have access to agricultural extension services and to mosquito prevention services of the Department of Health. Levels of literacy are fairly low, with female literacy at 25 percent and male at 50 percent. However, skills like masons, carpenters, electricians, shoemakers are fairly common, incidence of skill level was 25 percent of the adult male population.

3.2 Community level of Decision making

Piece meal development has been the state of the art in rural Northern Punjab; within the Attock district, 8 villages on average fall within the jurisdiction of one Union Council. Funds at the district level in turn have to be spread across the different villages and sharing of funds is done tacitly, that is, as a rule 2 development schemes are approved per village in a year and additional demands are met the following year. The type and amount of the project is determined by the political clout of the village or the political affiliations of the

residents Fishing around for different fund sources has become quite the norm and the politically aware leaders of Haji Shah were able to circumvent the District Council funds, by accessing the MPA fund pool

Sharing of power within the village has undergone a transformation. The traditional leaders, that is the big land owners, have been replaced by a relatively newer commercial class. Out of the seven Union Council Members, 2 belong to the landed gentry, while the remaining five are traders, technicians and ex- migrant workers. Leadership is also determined by the external contacts of the person, that is, familial links with national figures etc. Within the village, there has been great consistency in political representation, and the same individuals have been re-elected over the past three terms. Political representatives in Haji Shah are very active and are the main decision makers in terms of the development sector.

Alternative sources are scarce and a reliable supply of drinking water was a priority need for the community To meet this felt need, the Chairman of the Union Council, who had amassed wealth in the Middle East, approached the MPA of the District, with whom he had both family and political ties. The MPA was invited to the village and during a meeting two points were raised, the MPA promised a water project in exchange for votes. The villagers agreed and a year later, that is in 1981, a grant for Rs 2,600,000 was approved for the village, in order to construct two wells, an elevated tank and a distribution network

Given the phased nature of development, the first tranche of funds was adequate for rehabilitating an already existing open well. A community tank was built close to the well to serve the community, while the laying of the mainline and the distribution network continued At this stage, the leaders of the community were elemental in identifying the source for the water supply scheme Three contractors had been tendered by the Agency to perform the following tasks: one was for well rehabilitation, one for building the tank and one for laying the pipes The community was able to take interest in the construction and to informally monitor the progress of the construction work, because they were familiar with depth of the water table and with the concept of open wells.

The second phase of the project involved a bore well, which in the original design required boring to 300 feet However, this work began a year later, due to lack of funds, and involved a new contractor The people were not visibly able to check the depth of the boring and since no one from the Agency was supervising, the contractor did not bore deep enough and stopped the work as soon as the water table was reached, that is, 93 feet. This had the following outcome, the source would dry up during the summer, thus leading to an unreliable supply during the hot season The contractor was also responsible for determining the number of connections and a total of 250 connections were provided to the area closest to the source well

At this stage, the villagers were not satisfied with the performance of the scheme, so an elevated tank was built, to improve the distribution of water within the village The process of getting additional funds was similar, and the ex-Chairman of the Union Council, who was now only a member, directly approached the MPA to obtain approval of funds. At this stage, the scheme was being operated by the PHED, however, most of the major decisions were being taken by the Union Council members; these involved issues of repair and main-

tenance, approval of additional connections, choice of the operator and valveman, with the lead being taken by the ex Chairman. From the beginning, a monthly bill of Rs 12 was imposed, it was, however, inadequate to cover the running expenses of the scheme. Additional funds were being provided directly by the PHED. In compliance with regulations, the scheme was to be handed over to the Union Council after a period of two years. The Union Council members refused to take the responsibility of running the scheme because of the incorrect boring of the second source well

During this period, an additional scheme was also provided to the village, in order to supply water to the affluent landed residents of the village. This was an independent scheme, with its own source well and distribution network, and had a total of 300 connections. However, the operation and maintenance staff was common between the two and all rules and regulations were also synonymous. These included rules regarding connections and disconnections, use of water, installation of motor pumps in the house etc. Levels of service between the two schemes were different, in the older scheme water was available every 4 days for one hour each, while in the independent scheme it was available for an hour every alternate day. Despite these operational differences, the bill was the same for both the schemes, that is, the low income section of the village was indirectly subsidising the operations of the higher income households.

When the Union Council finally took over the running of the system, a number of strategic decisions were taken, that is, additional connections were no longer provided and the operation timings were changed for the first scheme from every fourth day to every fifth day. The process of decision making regarding the water sector, was in accordance with the structures of the existing Union Council system, all decisions regarding water were taken during the closed door sessions of the Union Council members. The frequency of these meetings however increased from every month to every fortnight. Most decisions made by the members, were supported by the community, and information was shared between the different wards to have clarity regarding the implication of different decisions. Despite all the efforts of the Union Council, water distribution was not equitable, out of the 600 households being covered under the initial scheme, 300 were not receiving adequate water; these households were located on higher ground and usually the tubewell would dry up by the time water would reach the peripheral parts of the village.

The situation became more critical, when electricity charges were increased, to meet this increase, operation timings were reduced further and water was made available every seventh day for 25 minutes each. The community approached the MPA in order to express their dissatisfaction. This was combined by the occurrence of major breakdowns, like faults in the motor and pump, eg, winding of motor or replacement of pump assembly; the cost of these varied from Rs 2,500 to Rs 10,000 and had to be paid out of the bill or the Union Council funds. Two types of changes took place in the village, in the past pump repairs would imply physically transporting the pump to the manufacturer's factory in the next district. This meant a repair period of 2 months at a steep cost of Rs 10,000. This necessitated the need for alternatives, and a local mechanic was sought to fix the pump, thus enhancing the capacity of the community to manage its own repairs. This reduced the cost to Rs 1,500 and involved a repair time of 10 days only.

Within the Union Council's jurisdiction, water is only one component, the members were beginning to feel the strains of running an effective water supply scheme. It was therefore decided to constitute a Water Committee with the ex-Chairman as the head of the committee. An announcement was made in the mosque and each ward was requested to select one resident as its representative on the committee. With the exception of one ward, all wards nominated the members of the Union Councils as their representatives. With the constitution of the committee, the role of the members became clearly defined. Their responsibilities included the following: to ensure that every one in their ward is receiving adequate water, to collect bills from their area, to regularly attend meetings, to ensure that no one had installed a motor pump in their house. Moreover, the water bill was increased for the first time in ten years from Rs 12 to Rs 15 for the first scheme and to Rs 30 for the second scheme. The members were of the opinion that given the better service quality in the second scheme, water was available more frequently, it was justified to charge a different rate. Levels of satisfaction with the system have generally improved and the villagers feel that at least now they are getting water in small quantities regularly.

Case Study 4

PIECE MEAL DEVELOPMENT AND THE FUNCTIONING OF WATER SYSTEMS, RAIRA, RAWALAKOT

4.1 Profile of the Village

Raira is picturesquely located in a gentle valley about 18 miles from Rawalakot. The village is surrounded by tree plantations and rice fields, which are irrigated by a network of water channels. The irrigation channels are fed by a perennial natural stream and are jointly maintained by the Raira farmers' association. Over the years, however, the importance of agriculture as a source of income has declined. According to village sources 30 percent of the total adult male population is working in Europe and the Middle East, while the remaining is employed in other parts of the country. The arrival of the remittance economy has wrought many visible changes in the village. Most of the houses are of brick with brightly painted tin roofs in many different hues of orange and red. The buoyancy of the village economy can be assessed by the fact that a new commercial market area has recently been developed where merchandise ranging from small consumer durables like irons to spare parts and repair services are available. Raira is also unique with respect to its existing level of female literacy, which is higher to that of males, that is, 85 percent as opposed to 65 percent respectively. Despite the high level of female literacy, women's involvement in community level decision making is negligible. However, they are active in making household level decisions especially regarding the schooling of children. In terms of existing basic facilities, the village has a dispensary which is manned by a doctor one day in the week, a boys' and a girls' high school and electricity. Leadership patterns have also undergone a transformation and traditional leaders have been made ineffectual by the existing system of elected representation.

4.2 Water History

4.2.1 Initiation

The advent of remittances has also impacted on the existing social structures within the village and on the demand for basic services. Exposure to different cultures has created a demonstration effect and villagers are now wanting a more urbanised environment with better facilities especially sanitation. The water supply scheme in the village, which currently covers two fifth of the village population, was initiated by a village activist who had worked in the Middle East for a number of years. Upon his return, he had been struck by the tedi-

ousness that women had to undergo in collecting water for daily use. By donating Rs 19,000 towards the village water supply system, he convinced the influentials of the village, including the Chairman of the Union Council about upgrading the existing village water supply. Additional money was then collected and contributions were made according to the economic ability of each household. A total of Rs 26,000 was collected by the villagers and the process of approval was quickly started and completed. Through out the implementation of the scheme, an adhoc process of money collection was followed, each time the money ran out, announcements were placed in the market place requesting the villagers to collect a certain amount. The money would then be handed over to a member of the Project Committee, who had been assigned this task by the Chairman of the Union Council. Informal records were maintained by the Project Committee each time money was collected.

4.2.2 Implementation

Once the project was officially approved and designed by the LGRDD, the community had to sign a memorandum of understanding, stating that they would be responsible for completing the construction work for the storage tanks. Pipes were to be provided after the community was to complete the construction. For this purpose, a Project Committee was selected with the Chairman of the Union Council as the Project Leader. The community on the other hand had completed its side of the bargain by successfully implementing the construction work within four months. No external contractor was hired for constructing the smaller storage tanks, while the main source tank and the laying of the pipes was undertaken by an outside contractor, who had been selected by the LGRDD. The overall responsibility of monitoring the construction was given to the Leader of the Project Committee.

4.3 Piece Meal Development

The water supply scheme for Raira was approved through the Union Council. However, like most water projects in the area, the Raira water supply project has also been phased and its completion has depended upon the availability of funds at the Union Council level. As a result, the pipes for the scheme were received over a number of years. A number of times, to expedite the matter the villagers directly approached the LGRDD to obtain pipes for the scheme. The phasing of pipe availability set the tone for conflict over the distribution network. The layout of the village scheme was fairly straightforward with a source tank, two main distribution lines and three sub-tanks for community use. The only direct connection that had been approved was for the school. However, as implementation had progressed, an obvious pattern had emerged. Lines were first laid where the Project Leader's family resided and they were therefore the first ones to receive water. The rest of the village got water much later since pipes were not available and this created a rift between the two sides of the village. Many times during the implementation, work was stopped because someone would deliberately take away sections of the pipe. Apparently, to this day unutilised pipe is still with the villagers which no one has claimed. Since one section of the village received the pipes before, there is a general perception in the village that the quality of work are superior in that part and that generally the residents in that part of the village are better organised because they got their needs addressed first.

Another problem the community faced at this stage was the sizes of pipes that were made available. Since pipes are procured centrally by the LGRDD Directorate, the right sizes may not be made available. According to the original design, 3/4 inch pipes had been approved for the main distribution line, however only 1/2 inch pipes were received. According to community sources, this mismatching is a general pattern and results from the fact that the government wants to cover a large number of village schemes in the area and thus provides smaller pipes than requested. In terms of village reality, this posed a very grave issue. Actual availability of water was being hampered due to the smaller pipe sizes and had resulted in an inequitable system, since the upper areas of the village were getting less water. This fired differences within the lower and upper sections of the village. However, a Water Committee was formed at this stage to manage the running of the scheme. This Committee was again dominated by the the Union Council Chairman and did not meet the approval of the rest of the village and was therefore unable to take any concrete steps.

4.4 Conclusion

The villagers were aware that alternative funds could be accessed to obtain additional and maybe larger sized pipes. This is common practice as well and typically a scheme begun with UC funds may be completed through other sources. A request was then put through to the District Council to obtain 3/4 inch pipes. This was approved and the 1/2 inch pipes were replaced. However, this did not help to resolve matters, because influential households were able to utilise the 1/2 inch pipes for getting household level connections. Within the village now a number of different water options are available: the majority are still using the traditional spring sources since they are not covered by the existing scheme, 40 percent are using the community tanks while 5-10 households have direct connections. Moreover, levels of satisfaction with the existing system are fairly low. Water becomes turbid during the rainy season since the storage tanks are uncovered. Some people feel that the pipes change the taste of the water and make it unfit for drinking. This feeling has resulted from the fact that the community perceives UNICEF pipes to be of a better quality than LGRDD pipes. The pipes used for the scheme were LGRDD pipes. Women overall, were more satisfied with the system for it had somewhat relieved the drudgery of their lives. During the summer season, when the water in the source is less, women still have to get water from alternative sources.

Case Study 5

THE KAKRA TOWN WATER COMMITTEE, KAKRA TOWN, MIRPUR

5.1 Background

The Kakra town scheme is a complex system covering a total of 4 settlements, with a population of 580 households. Actually all four of these settlements are independent villages, with the source well located in one of the smaller settlements. The four villages belong to the same clan and have a common history, since they are all fairly recent resettlements, which resulted after the Mangla Dam was constructed in the 1960s. This area is also a water scarce area, and prior to the scheme, which was approved and completed in 1981, the villagers were relying on two main systems of water. The houses that were closer to the dam, were transporting water directly from the dam, while the rest of the area was paying for tankers which came once a week. Women and children would line up each week, to fill 5 litre tin boxes, each at the cost of Rs 5. In terms of monthly expenditures, households were expending on average between Rs 250-300 for purchasing water. Anecdotal references to this period are always related quite animatedly by the villagers. Apparently, water was so valuable that villagers used to put locks on their individual storage tanks, as a deterrent for possible water thieves. Resettlement had other implications for the community as well, the experience of having to leave their homes, their land and a distinct way of life behind, created greater bonding between the villagers. Having faced this massive disruption, the villagers were prepared to try and solve their communal problems and make their new environment habitable.

5.2 Cost of Scheme and Community Contribution

The process of approval of the scheme took about 4 years and it was completed at the cost of Rs 3,000,000 (approx per capita cost of Rs 517.24), involving a 120 feet deep open well, a 50 horse power motor and 11,000 feet pipe of various sizes, ranging from 3 inches to 3/4 inch. The villagers contributed twice at the rate of Rs 250 and Rs 300 per household, respectively, implying a total contribution of Rs 319,000 (10.6 percent of the total cost). This money was primarily utilised towards the construction of a storage tank and for labour charges which were incurred for pipe fitting.

5.3 The Kakra Town Water Committee

5.3.1 Profile of Members

During the initial six months of the scheme, the LGRDD managed the operation and maintenance, because a system of maintenance had not been established. To hand over the scheme to the community, a Water Committee was formed. There is a tacit understanding within the LGRDD that economically sound and influential persons of the village should be included as members of the Water Committee. As far as the running and maintenance of the water supply scheme is concerned this is a risk averse option, since members may be called upon to provide buffer funds at times. However, it can also promote inequities in terms of water distribution, service levels available to various segments etc. The Kakra town Water Committee was also selected in this manner. The selection of members was conducted under the direct guidance of the LGRDD officials and a meeting was called with all the villagers by making an announcement at the village mosque. A total of five members were selected and included a District Councillor, three Union Councillors and a retired army officer. According to the villagers, they were selected because they had already established their credibility, since they had been involved in the process of getting school and road projects approved for the village. Moreover, this was a reflection of the fact that the villagers had elected these people in the past and therefore felt confident about their capabilities. If things went wrong they knew that the members could find solutions through their city contacts and their ability to access funding mechanisms. It is a general belief that District Council funds are made available to neglected or troubled schemes, in order to assist the functioning of ongoing projects. The selection and consistent presence of a District Council member on the water committee in Kakra, supports this belief. The other issue related to selection of members pertains to their time availability and their continued presence in the village. One of the members selected for the committee, was a retired army officer, who had recently acquired a transportation business. His interests in the village were very well entrenched and over the years, he had become a focal point for village activities. Generally, the villagers were of the opinion that members of the Water Committee should be trustworthy and should have established their credibility within the village by undertaking village development activities.

5.3.2 Modus Operandi

Within the village, perceptions regarding the purpose and function of the Water Committee varied. As compared to other segments in the village, women defined the role of the Water Committee very narrowly, that is, the main purpose of the Water Committee as perceived by the women was to ensure that repairs are carried out immediately and adequately. Women also believed that the committee meets for the express purpose of solving repair problems and most meetings are therefore called during an “emergency”, that is, when the pump requires repair or the motor is out of order. Men had a wider notion of the role of the Water Committee, according to the males interviewed, all water related issues were the responsibility of the Water Committee. These included bill collection, repair and maintenance, solving of disputes within the four settlements over water distribution, enforcing rules and regulations, sanctioning of additional funds from the LGRDD for expansions. According to male perceptions, the Water Committee functioning is more formalised and they have regular weekly meetings.

Within the sphere of decision making, the Water Committee has been active at a number of different levels. The committee has been at the forefront in resolving operational matters. Early on during the scheme, water sharing within the settlements had been a source of conflict within the community and the supply line to one village had been deliberately uprooted by the residents of another settlement. This was strongly frowned upon by the committee members and they were forced to adopt a hardline. To punish the trouble makers, the committee was forced to register a complaint with the police. The reason why the committee could adopt such an approach was due to their existing clout within the community; they belonged to the elite of the village and could therefore enforce their decisions. This incident made it clear to the community that the committee was serious about resolving water related issues. A meeting was then arranged and a plan for water distribution was determined. Water was to be made available on alternate days to two settlements each time for 1 1/2 hours. This sharing has worked fairly well and no changes in the operational timing have been made

The role of the committee was also imperative in determining the rules and regulations to ensure smooth and equitable functioning of the system. Knowledge regarding rules and regulations was fairly common and two types of rules existed. The first set was regarding use of water and pertained to the fact that water was not to be used for vegetable growing or for watering of trees. Clear rules existed regarding connections and disconnections and households that did not pay the bill consecutively for three months would get disconnected from the system. However, this rule had never been strictly enforced, since most people were paying their bills regularly. To facilitate payment of bills, the committee has adopted a system of announcing the names of the defaulters each month in the village mosque. This social pressure ensures prompt payment of bills. Villagers were of the opinion that the enforcement of this rule was difficult because of the close family ties that existed among the community and the Water Committee. One rule that has been strictly enforced was regarding the obtaining of temporary connections directly from the main line, especially during the summer months when water available is less. Apparently, during the summer months, one member of the committee by rotation takes on the responsibility of physically checking the entire extent of the mainline, to ensure that no one is taking water illegally. In a way, the committee also functions like a water board, it has a joint account, records for which are being maintained regularly and can be seen on demand by any user of the system. Recently, the committee has also introduced the option of yearly payment of the bill; this is convenient for households where the men are working abroad. Any household requesting a new connection, has to file an application with the committee along with a deposit of Rs 500. Once the application is processed and approved by the committee, a new connection may be obtained. Both men and women feel that the committee is working well because all they need to be concerned with is the payment of the bill, the day to day running, selection and hiring of operator etc are all taken care of by the committee.

Decisions regarding the amount of the bill are also made by the committee. The first bill was decided by the LGRDD and was set at Rs 13 per month. However, when the scheme was handed over to the committee, the bill was increased to Rs 15, because the operation and maintenance costs were not being met. The bill has been regularly increased at an inter-

val of 3-4 years at increments of Rs 5, implying a current rate of Rs 30. Each time the bill is to be changed, the committee informs the community about the amount and the reasons for increasing the rate. Mosque announcements are used as a way of disseminating information. The reason most commonly cited for change in the bill is the increase in the electricity charges, which make up almost 70 percent of the monthly cost. The committee has also been active in planning and implementing physical expansions. The first set of decisions regarding this was obtaining approval for funds from LGRDD for larger sized pipes to ensure better water distribution. The 3 inch main line was replaced by a 4 1/2 inch pipe. Similarly, streets with more population were provided larger pipes, that is, 3/4 inch pipes were replaced by 1 1/2 inch pipes. The population of the Kakra town area has been expanding quite rapidly, at the rate of almost 2% per annum. To meet the increased demand for connections a second phase of the water project is currently being implemented, involving a second bore well and larger storage tank of 10,000 gallons. The total cost of this phase has been estimated to be about Rs 1,000,000, of which Rs 500,000 have been provided by the community. The Water Committee has been acting in a supervisory capacity and has been responsible for selecting the contractor, overseeing construction and maintaining records.

Appendices

Supporting Tables for Chapters 2-7

Supporting Tables to Chapter Two

Source Type	Northern Punjab	AJK	Mirpur
Well	77%	5%	68%
Handpump w/in house	35%	0	9%
Community Handpump	9%	2%	9%
Pond	9%	5%	0
Spring	15%	90%	5%
Stream/River	22%	23%	0
Others (Dam)	6%	0	9%

APP1 Table 1.0: Summary Table by Type of Source

Source	All year	Summer/ Winter	Summer	Winter	Break down of Piped system
Well	48%	0	0	0	52%
H.pump house	74%	0	0	0	26%
H pump Comm	60%	0	0	0	40%
Pond	83%	0	0	0	17%
Spring	20%	0	0	0	80%
River/Stream	46%	0	0	8%	46%
Others	100%	0	0	0	0

APP 1 Table 1.1: Pattern of Use by Source in Northern Punjab

Source	All year	Summer/ Winter	Summer	Winter	Break down of Piped system
Well	0	0	50%	0	50%
H pump house	0	0	0	0	0
H.pump comm	0	0	100%	0	0
Pond	100%	0	0	0	0
Spring	37%	6%	27%	0	30%
Stream/ River	20%	0	20%	0	60%
Others	0	0	0	0	0

APP1 Table 1.2: Pattern of Use by Source in AJK

Source	All year	Summer/ Winter	Summer	Winter	Break down of Piped system
Well	17%	0	7%	0	76%
H pump house	0	0	0	0	0
H pump comm	0	0	0	0	100%
Pond	0	0	0	0	0
Spring	100%	0	0	0	0
Stream/ River	0	0	0	0	0
Others	0	0	0	0	100%

APP1 Table 1.3: Pattern of Use by Source in Mirpur

	Northern Punjab	AJK	Mirpur
HH Conn/No unknown	5 36% 8%	6 43% 20%	3 21% 15%
Upto 50	3 14% 5%	12 57% 40%	6 29% 30%
51-100	2 17% 3%	6 50% 20%	4 33% 20%
101-200	20 80% 32%	3 12% 10%	2 8% 10%
201-300	18 82% 29%	1 5% 3%	3 14% 15%
301-400	2 50% 3%	2 50% 7%	0
401-500	6 100% 10%	0	0
500+	6 75% 10%	0	2 25% 10%
Total Cases	62	30	20

APP1 Table 1.4: Household Connections by Coverage Levels

No of households	Northern Punjab	AJK	Mirpur
Upto 10	24%	60%	71%
11-50	48%	20%	29%
51-100	7%	7%	0
101-1500	21%	13%	0

APP1 Table 1.5: No of Households using Neighbours' Connections

Total Cost (in Rs)	Northern Punjab	AJK	Mirpur
Upto 50000	0	6%	0
50000-100000	0	19%	9%
100000-300000	0	50%	55%
300000-900000	40%	25%	27%
900000-2000000	48%	0	8%
2000000+	12%	0	0

APP1 Table 1.6: Total Project Cost by Area

Total Community Contribution	Northern Punjab	AJK	Mirpur
Upto 20000	0	53%	0
20000-50000	0	29%	40%
50000-200000	0	18%	60%

APP1 Table 1.7: Total Community Contribution by Area

Maintenance Cost/year	Northern Punjab	AJK	Mirpur
Upto 2000	0	50%	0
2000-6000	0	44%	0
6000-10000	4%	6%	9%
10000-15000	0	0	9%
15000-35000	4%	0	82%
35000-70000	13%	0	0
70000-100000	33%	0	0
100000-250000	38%	0	0
250000+	8%	0	0

APP1 Table 1.8: Annual Maintenance Cost by Area

Management Responsibility	Northern Punjab	AJK	Mirpur
PHED	11%	0	0
Union Council	70%	0	0
Water Committee/ Community	14%	100%	100%
District Council	5%	0	0

APP1 Table 1.9: Existing Management Responsibility by Area

Type of Training	Northern Punjab	AJK	Mirpur
Operation of Motor & Pump	8%	10%	23%
Repair of Motor & Pump	0	0	14%
Valve Repair	12%	0	27%
Repair of pipe joints	1%	19%	9%
Tank Chlorination demonstration	1%	7%	0
Hygiene Education Training	0	5%	0

APP1 Table 1.10: Type of Training by Area

Supporting Tables to Chapter 3

Amount Contributed	Northern Punjab	AJK	Mirpur
Upto Rs30/hh	0	10%	11%
Rs31-100/hh	60%	24%	6%
Rs101-500/hh	40%	35%	55%
Rs501-1000/hh	0	21%	11%
>Rs1000/hh	0	10%	17%
% of Total cases	8%	69%	82%

APP1 Table 1.11: Amount of Cash Contribution per household by Area

No of Times	Northern Punjab	AJK	Mirpur
Only Once	60%	43%	48%
2-3 times	40%	29%	33%
More than 3 times	0	28%	19%
Labour for tank construction (% cases)	3%	67%	41%
Labour for laying of pipes (% cases)	2%	60%	55%

APP 1 Table 1.12: Process of Cash Contribution/ No of times money was collected

Duration in years	Northern Punjab	AJK	Mirpur
Upto 3 months	6%	32%	25%
3-6 months	16%	27%	30%
1 year	62%	20%	30%
> 1 year	16%	21%	15%

APP1 Table 1.13: Duration of Construction till Completion

Type	Northern Punjab	AJK	Mirpur
Mainline Breakage	100%	78%	83%
Mainline Blockage	0	11%	17%
Both	0	10%	0
Total Incidence	15%	45%	27%

APP1 Table 1.14: Breakage of the Mainline by Area

Incidence	Northern Punjab	AJK	Mirpur
Total Incidence	21%	12%	0

APP Table 1.15: Breakage of Valves by Area

Type	Northern Punjab	AJK	Mirpur
Pipe breakage	100%	85%	80%
Pipe blockage	0	15%	20%
Total Incidence	27%	31%	23%

APP1 Table 1.16: Distribution Pipe Breakage

Type	Northern Punjab	AJK	Mirpur
Loose joints	88%	27%	0
Socket/Union Breakage	12%	73%	100%
Total Incidence	12%	36%	5%

APP1 Table 1.17: Leaking Joints by Area

Incidence	Northern Punjab	AJK	Mirpur
Total Incidence	59%	21%	73%

APP1 Table 1.18: Motor Failure by Area

Frequency	Northern Punjab	AJK	Mirpur
Monthly	10%	44%	17%
Yearly	60%	11%	67%
Summer	0	6%	0
Winter	0	11%	0
Seasonal (rains)	31%	28%	17%

APP1 Table 1.19: Frequency of Mainline Breakage by province

¹² Mainline is taken to be the length of pipe from the source to the storage tank(s)

Repair Time	Northern Punjab	AJK	Mirpur
Less than a day	27%	71%	100%
1-3 days	36%	29%	0
3-6 days	18%	0	0
7-30 days	19%	0	0

APP1 Table 1.20: Mainline Breakage and Repair Time

Frequency	Northern Punjab	AJK	Mirpur
Weekly	0	20%	0
Yearly	54%	20%	0
Summer	8%	20%	0
Seasonal (rains)	31%	20%	0
Do not know	8%	20%	0

APP1 Table 1.21: Frequency of Valve Breakage by Area

Repair time	Northern Punjab	AJK	Mirpur
Less than a day	20%	67%	0
1-3 days	50%	0	0
3-6 days	10%	0	0
Do not know	20%	33%	0

App1 Table 1.22: Valve Breakage and Repair time by Area

Frequency	Northern Punjab	AJK	Mirpur
Weekly	8%	32%	0
Monthly	38%	21%	25%
Yearly	15%	11%	50%
Summer	15%	5%	25%
Seasonal (rains)	23%	5%	0

APP1 Table 1.23: Frequency of Distribution Pipe Breakage by Area

Repair Time	Northern Punjab	AJK	Mirpur
Less than a day	45%	62%	50%
1-3 days	55%	38%	50%

APP1 Table 1.24: Distribution Pipe Breakage and Repair Time by Area

Frequency	Northern Punjab	AJK	Mirpur
Weekly	8%	12%	0
Monthly	30%	11%	20%
Yearly	18%	22%	49%
Summer	5%	0	9%
Seasonal	39%	44%	12%
Don't know	0	11%	0

APP1 Table 1.25: Frequency of Motor Failure

Repair Time	Northern Punjab	AJK	Mirpur
Less than a day	3%	25%	25%
1-3 days	19%	25%	12%
3-6 days	24%	13%	33%
7-30 days	32%	37%	30%
More than a month	16%	0	0
Don't know	6%	0	0

APP1 Table 1.26: Motor Failure and Repair time

Amount in Rs	Northern Punjab	AJK	Mirpur
Upto Rs 15	18%	21%	14%
Rs 16-Rs 30	68%	15%	72%
> Rs 30	7%	3%	14%
No Water fee	7%	61%	0

APP1 Table 1.27: Amount of Water Fee by Area

No of Households	Northern Punjab	AJK	Mirpur
Upto 50	14%	18%	10%
51-100	8%	38%	29%
101-200	20%	28%	29%
201-300	20%	0	29%
301-400	6%	8%	0
401-500	14%	0	0
> 500	18%	8%	3%

APP1 Table 1.28: Payment of Water Fee by No of Households by Area

Process	Northern Punjab	AJK	Mirpur
Open meeting with villagers	32%	50%	38%
Meeting with special community representatives	12%	0	0
Influentials of the village decided	18%	0	15%
Water Committee decided	3%	35%	38%
Government representative decided	35%	15%	9%

APP1 Table 1.29: Process of Water Fee change by Area

Water Fee Changes	Northern Punjab	AJK	Mirpur
Yes	81%	42%	77%
No	19%	58%	23%
Increment of Rs 10	52%	38%	29%
Increment of Rs 5	48%	62%	71%

APP1 Table 1.30: Changes in the Water Fee by Area

Satisfaction Levels	Northern Punjab	AJK	Mirpur
Satisfied	69%	67%	82%
Not Satisfied	25%	17%	9%
Partially Satisfied	7%	16%	9%

APP1 Table 1.31: Satisfaction with Water Quality by Area

Change by Type	Northern Punjab	AJK	Mirpur
Replacement of Pipe sizes	0	7%	14%
Construction of Additional Storage tanks	15%	26%	5%
Placement of Additional valves	13%	4%	0
New water source	20%	10%	5%
Additional Connections	42%	14%	27%
Replacement of Motor	42%	5%	5%

APP1 Table 1.32: Frequency Distribution of Changes by Area

Supporting Tables to Chapter Four

Type of Leader	Northern Punjab	AJK	Mirpur
Numberdar	6%	5%	5%
Member Union Council	33%	40%	41%
Chairman Union Council	20%	14%	14%
Member District Council	11%	0	14%
Chairman Dist Council	8%	0	0
High level Representative	17%	9%	5%

APP1 Table 1.33: Role of Leaders during Initiation by Area

Technology Option	Northern Punjab			AJK			Mirpur		
	UC	DC	MPA MNA	UC	DC	MPA MNA	UC	DC	MPA MNA
Well	10%	6%	2%	2%	0	0	27%	9%	0
Spring	5%	0	0	26%	0	2%	0	0	0
Pump/Motor	6%	0	0	0	0	0	10%	9%	0
Storage Tank	2%	2%	0	21%	0	5%	14%	5%	0
Main line	2%	2%	0	19%	0	2%	18%	0	0
Household Connection	0	0	0	10%	0	2%	18%	5%	0
Standposts	6%	0	0	19%	0	0	9%	0	0

App1 Table 1.34: Role of Leaders in technology selection by Area

Official	Northern Punjab	AJK	Mirpur
Assistant Director	0	2%	0
Project Manager	0	2%	0
SDO/XEN	0	2%	0
Overseer	2%	0	0
UC Secretary	0	2%	0
Others	4%	5%	5%

APP1 Table 1.35: Line Department Officials during the Initiation Process by Area

Technology Option	Northern Punjab			AJK			Mirpur		
	Com Mem	Com Act	Spe Mem	Com Mem	Com Act	Spe Mem	Com Mem	Com Act	Spe Mem
Well	14%	5%	5%	5%	0	0	27%	5%	0
Spring	2%	0	0	45%	12%	3%	0	5%	0
Pump/Motor	2%	3%	2%	3%	10%	3%	14%	14%	0
Storage Tank	6%	0	8%	38%	17%	3%	41%	10%	5%
Main Line	0	0	0	14%	3%	0	14%	5%	0
Household Connection	48%	0	3%	48%	3%	3%	41%	5%	0
Standposts	8%	0	0	21%	10%	0	9%	10%	0

APP1 Table 1.36: Role of Community in Technology Selection by Area

Construction Input	Northern Punjab	AJK	Mirpur
Provided Supervision	2%	26%	23%
Collected money for construction	6%	64%	72%
Provided free land for tanks	39%	0	0
Donated well	6%	0	0
Transported materials to site	9%	55%	36%
Laid main pipes	5%	62%	41%
Provided labour for construction	12%	69%	50%
Provided skilled inputs	5%	31%	14%

APP1 Table 1.37: Role of the Community during Construction by Area

Supporting Tables to Chapter Five

Year	Northern Punjab		AJK		Mirpur	
	Age of Scheme	Year of WC	Age of Scheme	Year of WC	Age of Scheme	Year of WC
Before 1975	6%	5%	0%	0	0	0
1975-1980	5%	5%	2%	0	25%	25%
1981-1985	76%	20%	38%	33%	25%	25%
>1985	13%	70%	60%	67%	50%	50%

APP1 Table 1.38: Year of Formation by Age of Scheme by Area

Frequency	Northern Punjab	AJK	Mirpur
Weekly	4%	17%	21%
Monthly	26%	9%	20%
On Spectal Occasions	57%	52%	59%
Never	13%	22%	0

APP1 Table 1.39: Frequency of Meetings by Area

Task	Northern Punjab	AJK	Mirpur
To solve water related problems	59%	45%	72%
Maintenance of system	41%	28%	28%
Providing Connections	7%	3%	0
Repairing pipes	24%	7%	17%
Deciding about increasing the water fee	51%	0	6%
Solving other village development issues	10%	2%	0

APP1 Table 1.40: Task Function of Water Committee by Area

Type of Decision	Northern Punjab	AJK	Mirpur
Technology Choice	17%	41%	25%
Decision regarding amt per hh	3%	21%	10%
Collection of per hh amount	3%	21%	10%
Amount of Water fee	41%	21%	70%
Changes in the water fee	21%	14%	55%
Water timing	14%	14%	20%
Hiring & Firing of Employees	7%	0	0
Changes in Maintenance	7%	10%	20%
Expansion of system (new valves, new source etc)	7%	0	0
Other development work	14%	34%	40%

APP1 Table 1.41: Water Committee Decisions by Area

Process	Northern Punjab	AJK	Mirpur
Selected by Chairman UC	33%	14%	0
Selected by Member UC	10%	0	8%
Selected by Secretary UC	0	9%	8%
Selected by influentials of village	10%	36%	31%
Selected in open meeting	23%	27%	31%
Mohalla representation	24%	13%	22%

APP1 Table 1.42: Process of Selecting Members by Area

Group Type	Northern Punjab	AJK	Mirpur
Traditional Leaders	10%	3%	0
Elected Representatives	48%	41%	30%
Government Representatives	0	3%	0
Community Activists	28%	55%	35%
Community Members	66%	72%	60%

APP1 Table 1.43: Profile of Water Committee Members by Area

Number of Members	Northern Punjab	AJK	Mirpur
Upto 3	23%	50%	7%
4-6	54%	37%	73%
> 7	23%	13%	20%

APP1 Table 1.44: Number of Members by Area

Role of Union Council Secretary (UCS)

In the context of AJK, the LGRDD is present in every village through the Union Council Secretary. The UCS is responsible for five to six villages which in turn comprise one Union Council. He is the contact person at the village level with the government. Especially in the remote villages of Muzaffarabad, Bagh, Poonch and parts of Kotli, he is a source of information for the villagers on opportunities regarding access to future projects. He assists the villagers through the application process and may introduce them to contacts in government departments. Although schemes are managed by the community after they are completed, the Secretary keeps an eye on them to ensure that they are properly utilised. If there is any evidence of mismanagement he reports it to the project officer who may take it up with the elected representatives.

The Secretary has a comprehensive portfolio of information on the community, which includes information pertaining to individual villagers and their capabilities. He is required to keep a diary that has all information on births, deaths, economy, health, communication, education etc. of the villages.

The role of the Union Council Secretary has changed over a period of time. The influence of the Chairman Union Council has increased with the requirement that he has to approve of all members of a Project Committee before any funds are disbursed. Therefore the participatory nature of the mobilisation work undertaken by the UC Secretary has been to an extent marginalised. Where villages have established their own contacts the role of the UCS has further been eroded. However, he still provides some continuity if there is a change in the elected representatives of the village.

Though the Union Council Secretary is a regular employee of the Local Government Rural Development Department he reports to two heads. He reports to the Project Manager on a regular basis as well as the Chairman of the Union Council that has been assigned to him. The Union Council Secretary normally sits in the Project Manager's office and prepares progress reports on various projects being undertaken in the villages. He only attends the Union Council office if there is a meeting of the members or if the Chairman of the Union Council is present at the meeting. He is responsible for taking minutes of the meeting and compiling the requests put up by the members.

During the approval process of a project the Union Council Secretary accompanies the technical staff of the LGRDD to assist in the preparation of designs and plans. At the implementation stage he makes regular visits to the site to ensure that work is going as planned.

His report and recommendations accompany the technical reports prepared by the Overseer. The completion certificate issued by the technical department includes the certification by the Secretary Union Council.

Before the end of a financial year the Union Council Secretary reports on each scheme that is under construction. If the work has not been completed within the target period, he can recommend the detainment of further payments. The project manager is authorised to stop payments, at the same time he is required to send a copy of the report along with his orders to the UC Chairman so that he can take up the matter with the Project Leader. There have been very few cases of action being taken against defaulting Project Leaders. Either the money is returned or the work completed albeit with a delay.

For the PHED, the role of the Union Councils in the successful management of the scheme is still important especially for revenue collection. The influence of the Union Councillors would be necessary for motivating villagers to pay their water bills. It is envisaged that the cost of O&M will be higher in PHED managed schemes especially as PHED employees would be hired on a full time basis and will receive the prescribed government wages. Whereas the Union Councils managed schemes through village volunteers and part time employees.

Sequential Ordering of the Phases of a Water Project

1. THE INITIATION PROCESS:

The initiation process under most circumstances begins by a technical survey and is complemented by a socio-economic profile of the community, in other words this sub-activity relates to *community level data gathering*. Data may be generated by household surveys, community meetings, interspersed with official visits. The next category of activities relates to understanding the potential organisational structures within the village and may be followed by the selection and formal establishment of a Water Committee. These activities can be listed as *community mobilisation*. The need for assessing the resource availability and the willingness to pay of the community, the process of financial contribution (ie amount per household, number of times to collect household level contribution etc), is also part of the initiation process. The clustering of the above activities can be under *community resource assessment*.

2. PLANNING & DESIGN:

The selection of technical options, assessment of sources, decision regarding level of service, distribution network layout, siting of storage tanks, etc will all be formalised in this stage. All of the above activities can be jointly termed a *technical design criteria*. During this phase, the ground rules for the functioning of the system are also established and will include regulations regarding the use of water, payment of fees, disconnection/connection and the determination of a terms of partnership through the formalisation of a memorandum of understanding (MOU). All of the above can be clustered as *community regulatory mechanisms*.

3. IMPLEMENTATION & CONSTRUCTION:

Two major issues will need to be addressed at this stage, which as can be seen to have an impact on project outcomes, ie, the selection of contractor and the role of the community (free labour vs supervisory?) These issues will be complemented by the role of leaders and/or village councillors and the role of the agency, in terms of who visits, how many times and who does the agency person meet etc. The need for clarifying responsibility during this stage is crucial for the future of the project and can be termed as *implementation task function*. Once the above are sorted out then the actual phasing and timing of construction, purchase of raw materials, ie the *supply issues* can be resolved.

4. OPERATION & MAINTENANCE:

Repair and maintenance activities will include choice of mechanic, quality of repair and repair time (downtime and idle time), the existing stock of spare parts and process of acquisition etc. A certain degree of planning regarding the type of regular maintenance will need to be conducted, along with the choice of operator and supervision of operator tasks, hiring and firing decisions etc. All the above activities can be clustered as the *management support function*. At this stage the need to assess the *financial support function*, will involve the establishment of a system of bill collection (including amount, frequency, periodic changes), responsibility for bill collection and account keeping (transparency and accountability issues). Issues regarding the “actual” quantity and quality of water can be considered as rudimentary *indicators of satisfaction*.

5. MONITORING & EVALUATION:

The need to identify the purpose of M&E and to decide the monitoring indicators, are critical for this phase, and can be jointly considered as the *M&E system*. Subsumed within this task function is the need for deciding who will monitor and how will monitoring be conducted? Furthermore, information from this phase must feedback into the *management support function*, to ensure timely and appropriate decisions.

6. EXPANSION & REHABILITATION:

Changes in the system including changes in the storage tanks, motors, distribution network and no. of connections, source etc will all be included in this phase. The issue of conducting major repairs will also be addressed at this stage (including planned and contingent repairs and the timeliness of rehabilitation efforts, were the community informed about these?). Another crucial issue at this stage may be to determine the *spin-off effects* (if any) into other sectors or areas of community development. Can these effects be attributed to the developments in water supply in any way?

Socio Economic Profile of the Area

The following Appendix will analyse the data from the village background instrument in order to highlight the underlying socio-economic differences in Northern Punjab and AJK. A total of 69 villages were surveyed, out of which 34 villages were in Northern Punjab, 23 in AJK and 12 in Mirpur.

1. GEOPHYSICAL CHARACTERISTICS

1.1 Size of Villages:

APP4 Table 1.0 highlights the distribution of the villages by population size, as determined by the absolute number of persons. The average village size varies from 2559 persons in Northern Punjab to 1710 persons for AJK and 1398 persons for Mirpur. In terms of distribution by population size, 23.1% of total villages in Northern Punjab fall under the first three categories, while 73.7% in AJK and 72.8% in Mirpur are within the same categories. In other words, the villages in Northern Punjab are larger in size than both AJK and Mirpur. A similar conclusion can be drawn by looking at APP4 Table 1.1, which highlights the size of the villages by number of households.

Category (No of Persons)	Northern Punjab	AJK	Mirpur
Upto 500	0	15.8%	18.2%
501-1000	15.4%	26.3%	27.3%
1001-1500	7.7%	31.6%	27.3%
1501-3000	26.9%	15.8%	18.2%
3001-5000	26.9%	10.5%	9.0%
>5000	23.1%	0	0

APP4 Table 1.0: Distribution of Villages by Population (No of persons)

Seasonal variations in population sizes are a more common feature of rural AJK, in particular the Northern areas of Muzaffarabad and Bagh. During the summer, it is a common practice for the residents in the northern most parts of AJK to migrate to pasture lands, which are usually located at a distance from the main village. This fluctuation in population

may not be completely reflected in APP4 Table 1.0, implying that the village sizes in AJK may have been underestimated.

The differences in village sizes raises the issue of defining the “ideal” community type. The notion of community could vary from a more urbanised “mohalla” level focus as in the case of the larger villages in Northern Punjab to the concept of “nakkas” or hillsides as in the case of most AJK villages. The clustering of many “nakkas” may together form an entire village, however, the familial linkages between these various “nakkas” determines community outcomes. The mohalla concept of the community is more segregated and more entity specific, and identifies itself by lanes, landmarks and mosques. Even though, the villages in Mirpur are smaller in size, the community spread is more mohalla specific, implying a more peri-urban concentration.

No of Households	Northern Punjab	AJK	Mirpur
Upto 50	0	9.1%	25%
51-150	13.8%	36.4%	16.7%
151-250	31.0%	27.3%	41.6%
251-350	17.2	13.6%	16.7%
351-450	13.8%	13.6%	0
>451	24.2%	0	0

APP4 Table 1.1: Distribution of Villages by No of Households/village

1.2. Terrain:

The villages surveyed came under four main types of terrain, mountaineous, hilly, plains and barani (See APP4 Table 1.2). The physical characteristics of villages have a direct relationship with community typology. In the mountaineous regions, ie AJK, clustering is common, while in the plain areas like Northern Punjab and Mirpur communities are more mohalla specific in nature.

Area Type	Northern Punjab	AJK	Mirpur
Mountainous	9.4%	72.7%	10%
Hilly	31.3%	22.8%	20%
Plain	37.5%	4.5%	70%
Barani	21.8%	0	0

APP4 Table 1.2: Distribution of Villages by Area Type

1.3. Accessibility:

The relative links of villages to urban centres in terms of distance, existence and conditions of roads, distance to markets, avenues of communication like telephones, has an impact

on the intensity of village level contacts with the outside and can determine the the income opportunity frontier of the village Furthermore, it can influence perceptions, attitudes and community configurations at the village level.

Distance in km	Northern Punjab	AJK	Mirpur
Upto 10 km	34.4%	56.2%	63.3%
11-20 km	40.6%	18.8%	9.2%
21-30 km	25%	12.5%	18.3%
> 30 km	0	12.5%	9.2%

APP4 Table 1.3: Distance to nearest city

Between all the three areas distance to the closest city/town is fairly uniform (See APP4 Table 1.3). In all three cases the majority of the villages are at the maximum distance of 20 kilometres, ie, 75% in Northern Punjab, 75% in AJK and 72.5% in Mirpur However, the condition of roads and the modes of transportation will emphasise the relative distances and locational hindrances between the three areas.

Within Northern Punjab, only 29% of the total villages surveyed had unpaved roads and that too upto 10 kilometres. In comparison, 60% of villages reported had some unpaved sections in AJK while 42% were reported in Mirpur. In all three cases, the concentration is on the first category, ie upto 10 km of unpaved road, and only 10% of the cases in AJK had unpaved roads of greater than 10 km. In APP4 Table 1.3 it was shown that 75% of all AJK villages were concentrated in the first two categories, implying that under most cases the distance to the nearest town is covered by unpaved roads.

Distance in km	Northern Punjab %			AJK %			Mirpur %		
	UnP	Pav	Met	UnP	Pav	Met	UnP	Pav	Met
Upto 10 km	29	18	24	50	13	13	42	25	17
11-20 km	0	3	21	5	13	9	0	0	0
21-30 km	0	9	3	5	9	0	0	0	8
> 30 km	0	0	12	0	0	9	0	0	17
Excluded Villages	71	70	40	40	65	69	58	75	58

APP4 Table 1.4: Distance to nearest city by Unpaved, Paved and Metalled road

The incidence of paved roads is similar to that of unpaved roads in the case of Northern Punjab with only 30% of the cases reported. However, 18% of the cases fall within the first category, while 12% of the cases reported had paved sections from 11-20 km. In the case of AJK, only 35% of the total cases reported had paved sections distributed between the first three categories. Paved roads occur in only 25% of the cases in Mirpur.

In 60% of the cases in Northern Punjab, the roads were reported to be metalled. It can be seen in Table 3.3 that 75% of all villages reported, fall under the first two categories,

implying that in most cases the road to the nearest town is metalled in Northern Punjab. The opposite is true in AJK with an incidence of only 31%. Mirpur is closer to Northern Punjab in terms of road quality, with 42% of the cases reported having metalled tracts.

From the above analysis it is apparent that the overall condition of roads is better in Northern Punjab. The level of contact between the rural centres and the urban centres and towns can be assumed to be greater in Northern Punjab. As mentioned linkages with the outside will determine existing and future access to resources, information and economic opportunities. The mohalla specific configuration of communities in Northern Punjab and Mirpur may have also resulted from the much closer exchange between the towns and the rural areas. Modes of transportation varied between the three areas, however, the most common were private Suzuki vans. The cost per trip varied from Rs 2-5 and corresponded to the distance.

Distance in km	Northern Punjab	AJK	Mirpur
Upto 10 km	46.9%	43.8%	55.6%
11-20 km	31.3%	37.5%	11.1%
21-30 km	6.3%	6.2%	22.2%
> 30 km	15.5%	12.5%	11.1%

APP4 Table 1.5: Distance to Nearest Market

The distance to market measures the potentialities of the support system and the possibility of cost internalisation of system maintenance. It is also a measure of overall economic possibilities for the community. It is interesting to note that the results of APP4 Table 1.5 reflect the findings of APP4 Table 1.3, i.e., the distance to the nearest town is synonymous with the distance to the nearest market. Relative distances between the three areas will once again depend upon the condition of roads and the mode of transportation as discussed in the previous paragraphs.

In the mountainous areas of AJK, natural disasters like landslides are a common occurrence during the rainy season. Temporary road blocks can disrupt marketing linkages and has often led to scarcity of meat, medicines and other essential items. To counteract these periodic disruptions, small village retailers are a visible part of the local commerce in the rural areas. Most retailers maintain extra stocks to hedge against the risk of roadblocks, as a result the prices of the items are slightly more expensive. This practice could well be utilised to strengthen the support systems for spare parts etc, and could be one way of internalising maintenance costs.

2. EXISTING VILLAGE LEVEL INFRASTRUCTURE

Level of School	Northern Punjab		AJK		Mirpur	
	Boys	Girls	Boys	Girls	Boys	Girls
Primary	53%	69%	30%	44%	43%	50%
Middle	24%	24%	13%	26%	33%	25%
High	38%	18%	35%	26%	25%	17%

APP4 Table 1.6: Type of School by Gender (% of total cases reported)

2.1. Schools:

At the primary school level there are a consistently higher number of villages with girls schools, ie, 69% of total cases in Northern Punjab, 44% of total cases in AJK and 50% of total cases in Mirpur. However, in all three cases, the order is reversed for the middle and high school levels and may be reflecting the underlying demand for female education. To wholistically understand the demand for schooling for females, the rate of increase of additional female schools needs to be assessed, ie the percentage of the area education budget being allocated to female schools to meet this demand. When both men and women were interviewed, the need for educating females surfaced as a potential necessity in all three areas.

There is one important difference between Northern Punjab and AJK/Mirpur in terms of utilisation and distribution of schools. In a number of villages in AJK, it was seen that school facilities were being shared between the different nearby villages and that it was more common for both male and female children to attend schools in adjacent villages. The above figures therefore may not be reflecting actual availability of schools in the context of AJK and Mirpur.

2.2. Health Facilities:

Three main types of facilities were reported, the most common out of which were simple dispensaries, 21% in Northern Punjab, 48% in AJK and 33% in Mirpur. Very few villages had Rural Health Units or Basic Health Units. The complete absence of health facilities is therefore a common feature of all three areas, further exacerbated in AJK because of geophysical characteristics. In most of the villages surveyed facilities for females like MCH centres were also non-existent. There was an overall reliance on traditional birth attendants and local medicine to deal with female ailments. Traditional practices of purdah, which were seen to be more stringently followed in the Pathan area of Northern Punjab, imply that even under emergencies female patients were not being taken to the nearest clinic or centre. In certain areas like Mirpur, private medicine has flourished and both male and female practitioners are available, hence the relatively lower reliance on dispensaries as compared to the rest of AJK.

Infrastructure Type	Northern Punjab	AJK	Mirpur
Electricity	88%	96%	100%
Gas	12%	13%	0
Street Soling	71%	4%	67%
Drainage	44%	4%	25%
Agricultural Extension	18%	17%	8%
Veterinary Hospital	15%	0	17%
Bank	6%	4%	18%

APP4 Table 1.7: Summary Table of Type of Infrastructure by Area (% of Total)

2.3. Infrastructure General:

Levels of electrification were fairly high, ie 88% of villages in Northern Punjab, 96% in AJK and 100% in Mirpur. However, electricity was received in AJK in the mid-70s while the electrification in rural Punjab began in the mid-80s. Also the level of quality between the three areas varies, with electricity in Mirpur more reliable than in AJK or Northern Punjab. 12 hour power outages are a common feature of life in Northern Punjab. Electricity is no longer viewed as a novelty in the AJK rural areas and common advantages that were articulated by community members include the following: acceptance and use of labour saving technologies both at the household level and at the community level (eg electric irons and electric flour mills), decrease in household fuel costs, improvement in the quality of life in terms of available options (eg use of electrical fans and bulbs). Most households were paying electricity bills regularly, however, the incidence of bill payment was seen to decline with the reliability of the electricity supply, as in the case of Northern Punjab.

Street soling within the village is a higher visibility, prestige development project in Northern Punjab and Mirpur, ie, 71% of total cases and 67% of total cases respectively. Within the mores of existing rural development in Northern Punjab, village handouts in the form of street soling and drainage schemes are fairly common, usually initiated by village councillors or higher representatives. Drainage schemes usually imply a rudimentary system of *pucca (cemented)* open drains, which get clogged because of solid waste being thrown into the drain. Maintenance of streets and drains is perceived to be the responsibility of the line agency or the councillor and reflects the lack of involvement of community members in the selection and implementation of the schemes.

Agricultural and livestock extension facilities were non-existent as can be seen in APP4 Table 1.7. The presence of banks within villages, was an indicator of the commercial activities and the reliance on remittances from migrant workers. In the case of Mirpur, the numbers may not be reflecting the actual financial dynamism of the area, for it was seen that two to three villages were sharing one banking facility.

3. AVAILABLE SKILL MIX AND THE ECONOMIC POSSIBILITY FRONTIER

3.1. Economic Opportunities

Percentage of hhs	Northern Punjab	AJK	Mirpur
Upto 10%	15.4%	25%	12.5%
11%-25%	23.1%	16.7%	25%
26%-50%	11.5%	8.3%	37.5%
51%-75%	19.2%	16.7%	12.5%
> 75%	30.8%	33.3%	12.5%

APP4 Table 1.8: Percentage of Poor Households

The distribution of poor households is similar in Northern Punjab and AJK, with 50% of the villages surveyed having 50% and above (last two categories) of the total houses in the poor category. In Mirpur 25% of the villages surveyed were in this category, implying that income distribution is more equitable in Mirpur than in the other areas.

Within the poor households, four main occupations were common, ie, labourers within and outside the village, low grade government employment and subsistence agriculture. The reliance on wage labour both within and outside the village is higher in Northern Punjab than both AJK and Mirpur, ie in 62% of the villages, poorer households were involved in wage labour. In AJK, the emphasis is more on wage labour being provided outside the village. There is a higher incidence of low grade government employment in Mirpur, ie, 25% of all cases reported.

Occupation	Northern Punjab	AJK	Mirpur
Labourer w/in village	62%	30%	8%
Labourer outside village	62%	52%	42%
Low grade Government employee	15%	17%	25%
Farmer (small)	9%	17%	17%

APP4 Table 1.9: Poor Households by Occupation

The incidence of middle income households supports the findings of APP4 Table 1.9, with 75% of all cases reported falling within the >50% category in Mirpur, 28.6% in AJK and 46.2% in Northern Punjab. Subsistence farming in this category was more common, ie, 44% of all reported cases in Northern Punjab had middle income households involved in subsistence farming, while the number was 17% and 25% for AJK and Mirpur respectively. The other most common form of occupation for the middle income group in Northern Punjab was lower grade army employment, ie, 56% of the total cases reported, followed by government service, ie, 47% in Northern Punjab, 43% in AJK and 17% in Mirpur. Self employment and migratory labour shares were 26% in Northern Punjab, 30% in AJK and 67% in Mirpur.

Percentage of hhs	Northern Punjab	AJK	Mirpur
Upto 10%	19.2%	42.8%	12.5%
11%-25%	11.5%	14.3%	12.5%
26%-50%	23.1%	14.3%	0
51%-75%	27%	14.3%	50%
> 75%	19.2%	14.3%	25%

APP4 Table 1.10: Percentage of Middle Income Households

The incidence of rich households in the 10% bracket was the highest for Northern Punjab with 73.4% of total cases reported, 37.5% for AJK and 33.3% for Mirpur. Rich households were basically ascribed by their landholdings with 35% of villages in Northern Punjab having rich households with landholdings greater than 900 kanals, 9% of villages in AJK and 25% Mirpur. Landholdings are therefore more of a wealth signifier in Northern Punjab than in either AJK or Mirpur. Employment overseas is another major source of income for rich households with 24% in Northern Punjab, 43% in AJK and 75% in Mirpur. The greater visibility of rich households in Mirpur can be attributed to the higher reliance of such households on remittances from overseas labour.

3.2. Migration Patterns and Impact on village life

% of Households	Northern Punjab	AJK	Mirpur
None	14.7%	13%	16.7%
Upto 10%	76.6%	52.2%	33.3%
11%-25%	2.9%	8.7%	0
26%-50%	2.9%	26.1%	16.7%
51%-75%	0	0	8.3%
> 75%	2.9%	0	25%

APP4 Table 1.11: % of Households receiving income from abroad

The movement of labour to other parts can be a reflection of a number of issues: it can be a result of historical characteristics eg the recruitment of the Potoharis by the British in the army because of their physical strength and endurance or it can reflect the breakdown of existing systems of subsistence, greater contact with external markets, increase in urban-rural disparities over time, lack of local opportunities combined with a better access to education etc. In all three cases, a minority of the total villages surveyed had absolutely no households relying on remittances from abroad, ie 14.7% for Northern Punjab, 13% for AJK and 16.7% for Mirpur. In most cases in all three areas, at least 10% of the households were relying on income from abroad, ie, 76.6% in Northern Punjab, 52.2% in AJK and 33.3% of the total villages surveyed in Mirpur. However, the dependency of Mirpur on remittances becomes apparent by looking at the last category, ie, 25% of the villages surveyed had at least 75% of the households relying on remittances.

The impact of remittances has been both at the household level and at the community level. In terms of household allocation of resources, the demand for various services has become more visible; the demand impact of returning migrants on improvements in the social sector are a common feature of village life in Mirpur and certain areas of AJK, like Kotli. Furthermore, the need for educating females is higher in AJK and Mirpur as compared to Northern Punjab and may have been fueled by exposure to other cultures. With the mass exodus of men to other areas, the maintenance of agricultural tasks is primarily being shouldered by the women. This is combined with more independent decision making regarding, what to grow, on how much land, whether to invest in household level improvements like the installation of a handpump etc. The decision making profile at the household level has therefore undergone a slight shift and in the future the involvement of women in community decision making in such areas, can be expected to be better articulated. Women also have more financial control at the household level, since they are able to make independent choices regarding the allocation of income, during the absence of men. This may have also had a positive impact on the demand for female education.

% of Households	Northern Punjab	AJK	Mirpur
None	0%	13%	41.7%
Upto 10%	29.4%	39.3%	25%
11%-25%	23.5%	4.3%	16.7%
26%-50%	17.6%	21.7%	8.3%
51%-75%	11.9%	8.7%	0%
> 75%	17.6%	13%	8.3%

APP4 Table 1.12: % of households receiving income from “Down country”

From APP4 Table 1.12 it becomes apparent that there are more households in Northern Punjab that rely on income from “Down Country” than in AJK and Mirpur. These differences may be reflecting overall disparities in skill levels, since the labour force is more educated (as will be seen in the next Table) in AJK and Mirpur and can therefore compete on the international labour market. In APP4 Table 1.13 the differences on male literacy do not reflect the differences in highest educational attainment. In Northern Punjab literate males are more likely to be clustered in the primary and/or secondary levels, while in AJK and in particular in Mirpur higher educational attainments are more common and once again this may be highlighting labour market differences.

% Literate	Northern Punjab	AJK	Mirpur
Upto 10%	18.2%	18.2%	8.3%
11-25%	18.2%	4.5%	0
26%-50%	30.3%	45.5%	41.7%
51%-75%	12.1%	9.1%	25%
> 75%	21.2%	22.7%	25%

APP4 Table 1.13: % of Literate male population

3.3. Availability of skilled human resources and Skill type

No of Persons	Northern Punjab	AJK	Mirpur
Upto 25	60.7%	40%	62.5%
26-50	7.1%	35%	37.5%
51-100	14.3%	5%	0
> 100	17.9%	20%	0

APP4 Table 1.14: No of Skilled Persons (Males) in village

The overall availability of skilled persons, can be seen in APP4 Table 1.14. In most cases, ie, 67.8% in Northern Punjab, 75% in AJK and 100% in Mirpur, there are at least 50 skilled persons in the village. Given the relative differences in village size, it appears that the availability of skilled persons as a size of the population is higher in AJK and Mirpur as opposed to Northern Punjab. There may be a number of reasons for this difference: the outward orientation of the labour market in AJK and Mirpur as compared to Northern Punjab, may be signalling this overall difference. Furthermore, the physical linkages, both due to overall topography and the existence of roads, may have generated a more local demand for such skills as well.

The most common type of technical skill found in all three areas were mechanics or pipe fitters, ie 50% cases in Northern Punjab, 48% in AJK and 34% in Mirpur. The numbers for Mirpur may not be reflecting actual numbers for given the proximity of villages, one mechanic was servicing a cluster of villages. The second most common form of technical skills were electricians with 38%, 39% and 25% respectively. Both these skills have some O&M implications for water supply systems and it would be interesting to trace the process of skill generation. Cost internalisation and the quality of repair could very well be reflected by the availability of mechanics/electricians in the village.

Skill Type	Northern Punjab	AJK	Mirpur
Electrician	38%	39%	25%
Welder	6%	13%	0
Mechanics/Plumbers/ Pipe fitters	50%	48%	34%

APP4 Table 1.15: Incidence by Skill Type (technical)

The most common form of traditional skill found in Northern Punjab are masons, ie, 41% of the villages surveyed. In AJK Carpenters were most common, ie 49% followed by masons, 34%. The link of local masons to water supply may need to be highlighted, in the case of AJK the hiring of local masons to build source tanks and/or storage tanks is a common phenomena and this may have greatly reduced overall project costs. The incidence of traditional skills is quite low in Mirpur, with the exception of tailors, ie 33% of the total cases. The process of skill acquisition varies between the two categories of skills: technical skills are acquired through formal apprenticeship while traditional skills are transferred inter-generationally and have social/class ramifications.

Skill Type	Northern Punjab	AJK	Mirpur
Carpenter	18%	49%	8%
Mason	41%	34%	17%
Black Smith	12%	13%	8%
Cobbler	12%	0	8%
Tailor	18%	9%	33%

APP4 Table 1.16: Incidence of Traditional Skills

4. CONCLUSIONS:

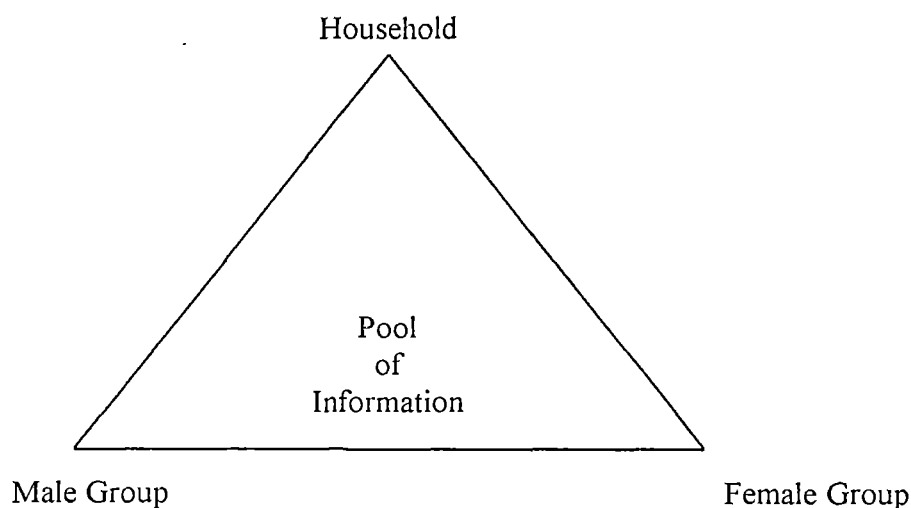
- 4.1 Overall, the size of Northern Punjab villages is larger than the size of villages in AJK and Mirpur
- 4.2 Distance to main city/town is similar however modes of communication vary, with the conditions of roads superior in Northern Punjab as compared to AJK and Mirpur.
- 4.3 Availability of infrastructure are similar with some minor differences.
- 4.4 Income distribution is most egalitarian in Mirpur with a larger middle income class. Income distribution is most inequitable in Northern Punjab.
- 4.5 Outward migration and reliance on remittances is a common feature of the AJK economy, in particular Mirpur and Kotli. This has transformed to a certain extent women's roles and responsibilities.
- 4.6 The incidence of skill availability is higher in AJK and Mirpur as compared to Northern Punjab.

Methodology

The following Appendix will highlight the various methodological tools of data collection and the principles behind each instrument that was used for data collection. Sampling procedures and field testing will also be covered in detail. The methodology described in this Appendix, is based on the original work of Deepa Narayan. For further references the following publications can be consulted:

1. *Participatory Evaluation: Tools for Managing Change in Water and Sanitation*, Deepa Narayan, World Bank Technical Paper Number 207, 1993
2. *Toward Participatory and Simple Research: Data Collection with People*, Deepa Narayan, 1993
3. *Workshop on Goals and Indicators for Monitoring and Evaluation for Water Supply and Sanitation*, June 25-29, 1990, Geneva, Switzerland

1 PRINCIPLES OF TRIANGULATION



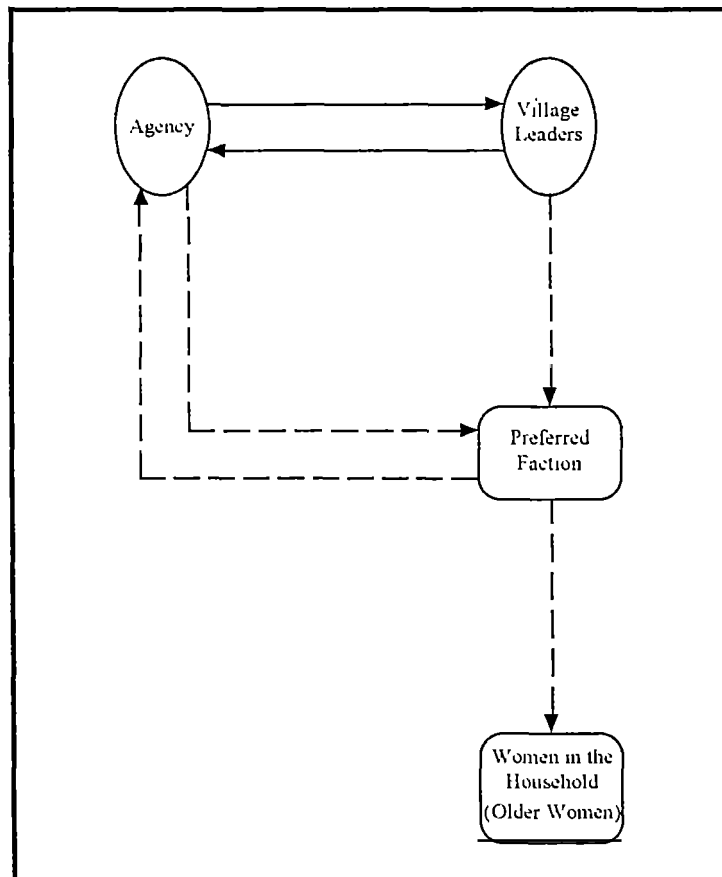
APP 5 Figure 1.0: Triangulation of Data

A three point data collection strategy was closely followed, in order to ensure that reliable information is collected. The first stage involved identifying the potential information source pools within a community, that is, individual members of households, both male and females, male groups and female groups. Each information sub-group was in turn assumed

to have its own set of knowledge and perception variables. The study was designed to negate the distortions resulting from these differences, gaps in information could be overcome by generating data from all three potential information subsets.

The idea was to test the concept of knowledge sharing within a community and to evaluate knowledge as a community resource (See APP 5 Figure 1.1). The existing pool of information within a community will determine the decision making capacity of any group within the community. If men are better informed than women, then they are more likely to be active in decision making, whether at the community level or at the household level. Even if women are well informed, they may not be active in decision making, because of low self esteem and lack of confidence. Moreover, if one sub-faction within the community has better access to information, it can take a superior role in community level decision making.

Asymmetric information flows can therefore be a potential way of controlling the process of development. Information could flow in many different ways, from the external agency to the village leaders, from the village leaders to their preferred factions (primarily males) and sometimes from the males to the females at the household level, usually the older women. Many permutations of knowledge sharing can result and where the objective is to enhance the role of the community, then the information flow will be more egalitarian.



APP 5 Figure 1.1: Possible Information Flows at the Village Level

In a participatory process, information generation and collection becomes a way of building the capacity of the people to enable them to take on new roles and responsibilities. The basic premise is to hand over the process of information collection to the community, so that they can decide what information to collect, when to collect it and how to collect it. Information collection is used as a management tool, so that effective and appropriate decisions can be undertaken by the community, thus ensuring that communities become responsible for their own development.

2 METHODS AND TOOLS

A hybrid methodology was developed, pulling together threads and adaptations from both sets of principles. To conduct a three point analysis, two types of tools were formulated, one type to be used for household level data collection and the second type to be used for group work.

Household level instrument

2.1 Household Questionnaire:

A detailed household questionnaire based on conventional surveying techniques was prepared. The first phase (first generation of tools) involved the formulation of an itemised checklist and a tentative coding scheme. This checklist was then transformed into a questionnaire format, primarily focussing on the following areas: health, income/expenditure, cropping practices, village level infrastructure, agricultural extension, credit availability and use, water supply (history, use, decision making patterns, level of awareness regarding technology choices, operation and maintenance, expansions and changes), traditions of cooperation and sanitation.

During the first field test, the existing format of the household questionnaire was found to be too cumbersome, each questionnaire was taking about three hours to complete. Moreover, information on community level issues could be better addressed through the group instruments. Following this stratified analytic procedure, where quality, relevance and depth of the information from each question was carefully evaluated, redundant areas like health, infrastructure, extension services, income patterns were removed from the household format.

At this stage, some preliminary guidelines and procedures were also prepared. It was felt that the household questionnaires should be best conducted after all the group work has been completed. By the time the group work is completed, the research team will have a good idea about the layout of the village and the water supply and therefore can be in a better position to sample all relevant sections of the population.

Group Instruments

2.2 Model & Model Checklist:

The model instrument was developed in stages. During the first stage, a wooden model set, including houses, wells, handpumps, tanks, school buildings, dispensary/hospital, water pipes, valves, standposts, was made. The concept of the model instrument was based on the

map making exercise, which is used as a confidence building tool, in community development approaches¹³.

The second stage involved the preparation of a model checklist and issue probes, for documenting information and for understanding the process of group dynamics. The model focussed on the decisions and the process of decision making within a community, and was conducted with both male and female groups. The challenging task was to prepare an appropriate documentation format for recording information accurately and with ease

2.3 Decision making process:

This instrument specifically focussed on the decisions that are made during the entire cycle of a water supply project and on the main actors in the process of decision making (See APP5 Figure 1 2) Each decision point was broken into sub-decisions, that is, the decision regarding the design of the system can be sub-divided into decisions regarding type and choice of technology: size and type of motor, service levels (household connections as opposed to standposts). Similarly, the choice of the Water Committee can be analysed from the angle of who are the members, who selected them, how were they selected, have the members changed

In total, nine levels of decision making were identified and nine separate pictures were developed. Decision factors were then formulated, that is, the Water Committee, village leader (s), community member(s) male, community member(s) female and government representative. Each decision variable was then to be sorted out according to the decision factor. Decision making scales could be visually determined and a simple format was prepared to document the findings

2.4 Rating Matrix:

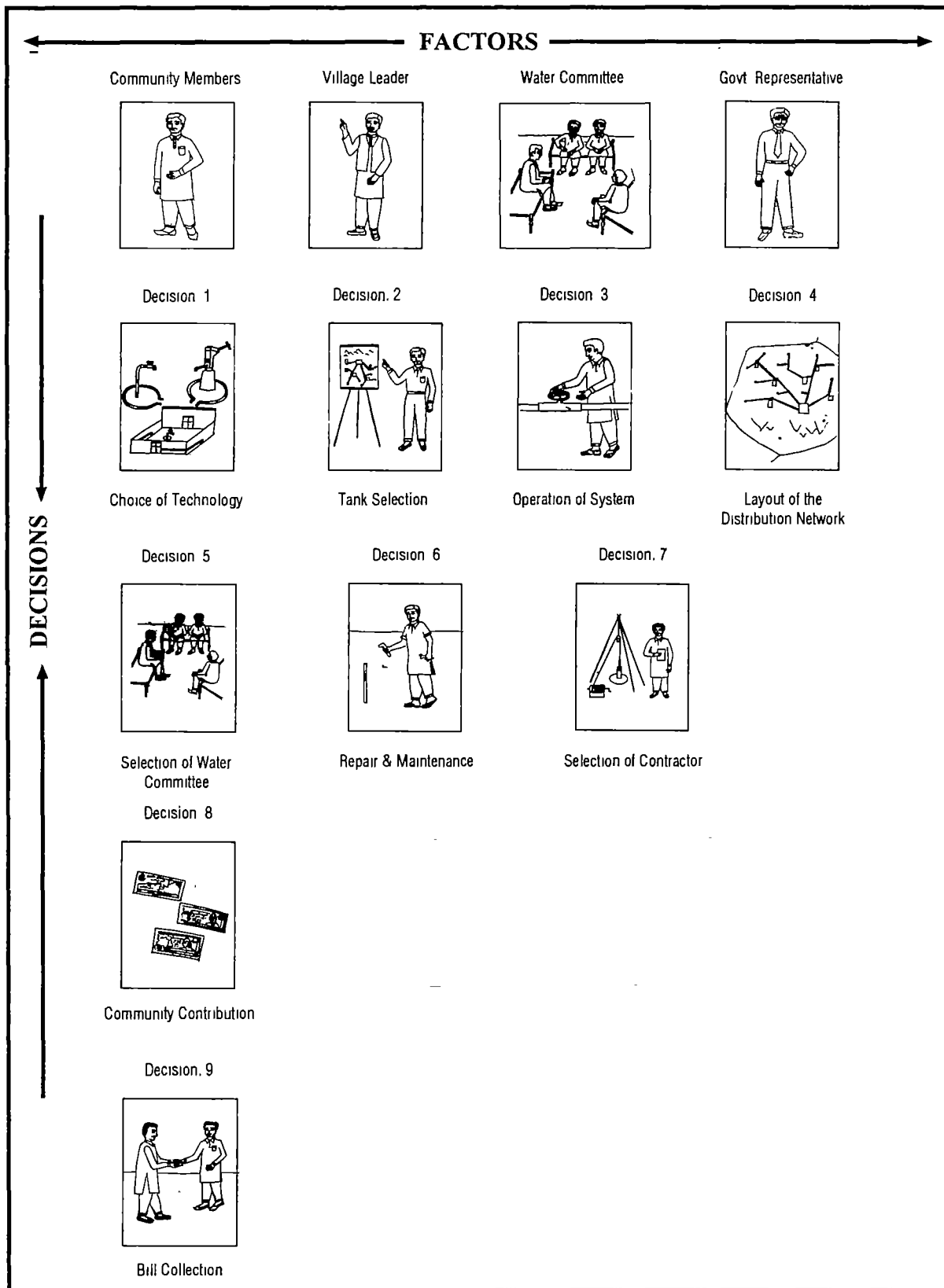
To understand the overall functioning of the water supply system and to determine its impact on the community, a simple rating scale was used. The concept of 3 pile sorting¹⁴, was adapted for this activity and visuals were developed for each evaluation point. The following key evaluation variables were selected. quantity of water, process of repair, process of fee collection, process of Water Committee selection, ability of people to work together to solve water related issues, impact on women's lives

Visuals were developed for each indicator and groups were asked to rate the performance of each indicator according to a 3 point scale, that is, very good, good and poor. Scaling was done by the use of stars, that is, three stars signified very good, two stars meant good and one star was used for poor performance. The rating matrix followed other group instruments as a way of concluding the sessions. To understand the field realities from the

¹³ The beauty of the map is that it can act as an ice breaker, it is a great leveller in the sense it gives every group member an opportunity to participate, it can have multi-dimensional uses eg can be used as a planning tool, it sparks the groups' latent creativity. For further references Lyra Srinivasan, Tools for Community Participation. A manual for training trainers in participatory techniques, PROWESS/UNDP technical series in involving women in water and sanitation, PACT, 1990.

¹⁴ Lyra Srinivasan, Tools for Community Participation: A manual for training trainers in participatory techniques, PROWESS/UNDP technical series in involving women in water and sanitation, PACT, 1990

perspective of the researcher, a similar rating was also conducted by each researcher before the community/group rating was begun.



APP5 Figure 1.2: Decision Making Process

In a true participatory research, however, the process should have been the other way and the community should have been provided with the opportunity to determine the impact indicators, since they are the ones who know their reality and by encouraging them to reflect on their own situation, change can take place.

Female specific Group Instruments

2.5 Women's lives:

An open ended instrument was developed to determine women's role in development activities and the changes that have been wrought on the lives of women through these activities. This instrument was a way of measuring the perceived and actual changes in women's priorities, needs and roles. Moreover, it was a potential way of assessing female perceptions regarding leadership patterns, initiative and decision making abilities.

2.6 Resource Analysis:

The underlying distribution of resources, determines gender specific roles within a community. A sorting instrument was developed to examine ownership and use patterns of resources according to gender. Resources were classified according to non-productive resources, productive assets, community resources (like schools, training programmes). Visuals were used for each type of resource and groups were asked to classify them according to male, female or both.

2.7 Task Analysis:

Gender specific time allocation patterns between productive and non-productive activities, are important for understanding the relative economic contribution of males and females. The design of the task analysis activity was similar to the resource analysis and involved a sorting of tasks in terms of men, women or both men and women. This was combined with a set of questions on the value that men and women ascribe to some of the important tasks.

Background Information

2.8 Village Background:

This instrument was designed for gathering information on the history of the village, critical events, infrastructure both existing and planned, leadership patterns, socio-political mappings, from key informants within the village. This instrument was conducted with elected representatives, operators of the water scheme, retired military persons, school teachers etc.

3 PRETESTING

The objectives of the pretesting were two fold, that is, to determine the efficacy of the instruments in terms of depth, extent and type of information and the ease of documentation and to evaluate the impact of the model and the visual instruments in terms of comprehen-

sion, group processes, interaction and facilitators' role. In total, six phased pretests were conducted and each pretesting was followed by an intensive review of the instruments

The methodology of the pretest was fairly straight forward, 6 villages were identified, 3 in Northern Punjab and 3 in Azad Kashmir. Each member of the team (at this stage the two main field coordinators had been engaged) selected two group instruments and the household questionnaire. For the first pretest, researchers worked in teams of two, one acted as the facilitator and the other as the documenter. This was done to build team cohesiveness and to ensure learning through peer feedback. Moreover, at this stage the researchers were not familiar with the instruments and the issue probes, so forming teams became necessary.

After each pretesting, a day was spent in reflection and review. Each review involved scanning the information from every instrument, to make sure that the important themes were being covered adequately. Redundant themes and issues were deleted in this process. Formats were updated, to ensure correct and complete documentation. At the end, the quality of the processes was assessed in terms of what was going wrong and why? Rectifications and modifications were then suggested in the mode of data collection. The last field pretesting was conducted with the entire research team, that is, the two field coordinators and the eight field researchers.

4 TRAINING AND ORIENTATION OF THE FIELD RESEARCHERS

The training of the team members was also a proactive participatory process. The first session was spent in identifying the qualities and outlining the role of the researcher. The following were identified as the main qualities that a good researcher should have.

- Thirst for learning
- Flexibility
- Humility
- Self Awareness

The team felt that it was necessary to describe the role of the researcher as learners and documenters. The role of the researcher is to learn with and from people, in other words,

“Learning and documenting by being non-judgemental to understand people’s reality.”

This was followed by a norming session, where some ground rules were established:

Rule 1: Ask and question if things are not clear. Ask why, how, where, who and when

Rule 2: Team work requires trust, trust is built on personal integrity, therefore don't fudge answers and observations.

Rule 3: Don't give value to outcomes. Make a human interaction, but honestly document what your input was

Rule 4: Proceed with humility, to learn from people's knowledge. Don't go out as the big boss!

Rule 5: Question in a non-judgemental manner. Don't judge people to be ignorant

Rule 6: Try to close the gap between people and yourself by dressing simply

Rule 7: Remember you are going to learn and not to teach, for example

Ask: Why a piped system and not a handpump?

Don't ask: Gravity fed system is too expensive, why didn't you use handpumps instead?

The ensuing sessions concentrated on team building activities, technology options and water delivery systems, institutional arrangements of the line departments and project cycle including types of funding. The second day of the training focussed on translating the instruments from English into Urdu to lead to a common understanding of each question. In order to guide the researchers and to develop awareness about possible probes, responses recorded during the pretesting were discussed. This was followed by role play and the guidelines for conducting each activity were discussed and finalised.

Relax in order to create a congenial atmosphere

Repeat questions or statements if necessary

Reaffirm, to build the group's/respondent's trust

Recognise the group's importance to the process

APP 5 Box 1.0: Four R's of Research

Two field visits (combined with the on-going pretesting) were conducted, where the performance of each researcher was evaluated. A day was spent after each field visit in debriefing, modifying formats and procedures. Given the variety of instruments and the aptitude of the researchers, each researcher specialised in two instruments.

5 SAMPLING PROCEDURES

5.1 Selection of Villages

The general criteria of selection was the following:

- A. Should be a scheme completed before 1985.
- B. Should be a piped water scheme, with either a pumping system or a gravity flow system
- C. In the case Northern Punjab, the scheme should be handed over to the Union Council and/or the community

5.2 Azad Jammu and Kashmir (AJ&K):

(See Annex 1) Weights were assigned to each district, according to the total number of water supply schemes. There are a total of 9217 water supply schemes in AJ&K, out of which 30% are in Mirpur, 26% in Poonch, 20% in Muzaffarabad, 15% in Kotli and 9% in Bagh. The sample size of 40 schemes was stratified accordingly.

District	No of W/S Schemes
1 Mirpur	12
2 Poonch	10
3. Muzaffarabad	8
4 Kotli	6
5 Bagh	4
TOTAL	40

Markaz wise stratification was on the basis of 681 UNICEF assisted schemes, since markaz information on overall LGRDD schemes was not available. Schemes were then randomly selected from each markaz, in compliance with the appropriate weights

5.3 Northern Punjab:

(See Annex 2) Two main circles of PHED Rawalpindi district were selected. In total there were four main districts within this area, that is, Rawalpindi, Attock, Chakwal and Jhelum. Furthermore, it was decided all schemes falling within 50 kilometres of Rawalpindi city will be excluded, since it is a peri-urban area and has been over-sampled. Within the two circles, there were 112 schemes that met the above mentioned criteria and 40 out of these were randomly selected.

5.4 Selection of study area within the village

Pre-selection Assessment:

For each village it was necessary to conduct a pre-selection assessment in order to ensure that the correct water supply scheme is being covered. Upon entering a village, the team would introduce itself to the village elders/influentials and then conduct a quick survey of the village layout. This could either be conducted by a transect across the village or an overview from the highest point of the village (usually the water tank). If there were more than one water supply scheme on-going in the village, the norm was to select the scheme with the largest number of beneficiaries.

The selection of study areas within a village was directly linked to the type and the size of the village. There were three distinct categories of villages:

5.5 Scattered Population:

A number of methods were adopted to define study areas within the context of a scattered population and where distinct clustering of houses was not possible. The first method was to follow the distribution lines and to sample houses at the beginning, middle and at the end of each distribution line. Group work was divided between the beginning, middle and the end of the distribution network, on the basis of relative population. The second method involved selecting areas on the basis of the gradient, that is, in the case of mountainsides to

divide them into three distinct levels, that is the high level, middle level and lower level segments. Group work and household interviews were then divided among these areas in order to provide complete coverage. Where clustering was possible, the third method was to divide villages according to mohallas or settlements. In this case as well, group work was divided according to the relative population size of each settlement.

5.6 Villages in the plains:

For villages that were located in the plains, a four quadrant stratification was used to select sample areas. Two types of practices were adhered to, the researchers would either start from the centre of the village and disperse into four directions, centrifugal selection system, or they could enter the village from the four corners and move towards the centre, centripetal selection system. Group work combined with household interviews would be conducted within each quadrant.

5.7 Small villages:

For villages with a population size between of 20 to 50 households, a prioritising of group instruments was followed. Groups were often difficult to collect, therefore priority was assigned to the model and the rating instruments. If there was adequate diversity within the village, then additional group work would be conducted.

5.8 Selection of Respondents (Male/Female)

5.8.1 Household Questionnaire:

A simple random sampling procedure was selected, for villages with less than 100 households, every fifth house was to be selected and for villages larger than 100 every tenth house was to be selected. It was also decided that before entering the village the researchers would flip a coin to see whether they would turn right or left. However, where it was not possible to follow this methodology, (as in the case of scattered populations or small sized villages), households were selected on the basis of the gradient method (one from each level) or the pipe network method.

5.8.2 Selection of Groups:

After the study areas were identified, groups were selected by two different methods. In the case of a large village, announcements were made in the mosque to collect people at a predetermined place and time. The setting of the appropriate time and place was decided after consultation with the villagers. The second method involved going from house to house in the area and collecting people individually. To build credibility it was sometimes necessary to have someone from the village accompany the researcher. In some cases, where there were distinct opposing camps within the village, separate group work was undertaken to cover each point of view. This also reduced chances of direct conflicts arising.

5.8.3 Selection of Key Informants:

Key informants were selected after consultation with the villagers. These usually comprised of the village elders/influentials like the numberdar and the Water Committee Chairman or members, elected representatives like the Union Council Chairman or member, retired individuals like ex-military men and teachers and employees of the water supply scheme like the operator or valve man

6 LESSONS FROM THE FIELD

6.1 Use of Projective materials with Male Groups

Two types of projective tools were used with male groups, that is, the decision making process and the rating matrix, with differing results. Initially, it was felt that the decision making process could be conducted better without pictures. It was felt that the pictures were trivialising the issue, because male groups perceived them to be games. On the other hand, the rating matrix evoked a lot a response and discussion and no group resistance was experienced. The difference of response was linked more to the content of the activities as opposed to their visual component. The rating was more interesting because it requires the group to analyse its current experience with respect to the functioning of the water system. It is a therefore a more tangible area, since it can reveal the emotive content of their experience and can enable them to reflect on the existing environment.

The decision making process on the other hand requires an analysis of past decisions, which in most cases did not involve the group and over which they may not have had any direct control. In other words, the group may not be able to actively identify with the decision making process pictures. Moreover, underlying each picture were a whole set of decisions that needed to be addressed, and which created too much structuring during the group sessions. Dividing the decisions into sub-decisions acted as a deterrent to communication, since the groups were unable to identify more than one decisions with each picture. Based on this experience, it may be useful to identify 3 or 4 crucial decisions that would impact on the effectiveness of the water system for future evaluation of community level decisions.

6.2 Use of Projective materials with Female Groups

The use of visuals with women's groups led to a completely different reaction. The initial response, of female groups to a structured activity, manifested in expressing extreme doubt and exhibiting low self esteem. They expressed their inadequacy in terms of being uneducated, poor and uninformed. The pictures, specially the ones of the task and resource analysis, which were more familiar to the women, served as a way of building their confidence. The pictures became a way of recognising the depth and diversity of their knowledge. It improved their self image, by encouraging them to talk about something they knew best. The visuals also placed the researcher at an equal footing with the group, since the process of eliciting information became the responsibility of the group. They were the ones analysing each task, ranking it according to its difficulty, preference or responsibility. The visuals of the decision making process led to a luke warm response, since women were not actively involved in community level decision making.

6.3 Use of the Three dimensional Village Model

The village model was most successful if the following simple guidelines were followed: the model should not be introduced as a “game”, this may lead to a trivialisation of the process and also to group resistance. The model may not be accepted immediately by the group, so open ended questions may need to precede the introduction of the model exercise. The model was designed to be used in group sizes of 8-10, a larger group may abort the process of experiential learning and information sharing. The model became a unique way of ensuring equitable group response, thus marginalising the role of the facilitator in the process.

Conducting the model with women was a fascinating experience, initial hesitation was quickly replaced by interest and involvement. Constructing the village water supply, became a confidence building activity. At times, it was also an information sharing process, women’s awareness regarding water related issues was enhanced. Women became visibly confident and often expressed the view that next time a water project was initiated in the village, they would know what questions to ask and who to approach.

In males groups, the model was a way of breaking down reserve and creating a less formal environment, men could very easily squat on the ground, argue, express their views, without being intimidated by the presence of the facilitator. The model, also became a way of resolving conflicts, over differences in opinion, within the group. One problem that was encountered in the model was the extent of topics to be covered, as a result the model took an exceptionally long time to complete. What began as an extremely enthusiastic participatory activity, would usually lapse into a question answer session. The indifference in women’s groups was more apparent, when the interaction became structured, since the intensity of participation would decrease dramatically and often women would depart.

One major lesson can be learnt from this experience, any checklist that accompanies the model should be focussed on key issues only and the entire activity should not take longer than an hour and a half. To revitalise the interest of the group, the structured part of the model was merged with the rating.

6.4 Number of Instruments

Another issue that was confronted very early on in the data collection was the number of instruments. Covering all the possible group instruments became quite a task for the research team, even though, each team had a field supervisor and 4 field researchers. Ideally, it had been decided that each team would cover 2 models, 2 decision making processes, 1 women’s lives, 1 resource and task analysis, 1 village background and 10 household questionnaires, all within the time period of one day. Field realities were such that this became extremely difficult.

Three main issues hindered the completion of the instruments: the first was the existing terrain, which impeded travelling within the village, the second was the difficulty of finding males for conducting group work and the third was the existing capacity of the researchers. On average, each researcher was able to complete one group instrument and/or 2 household

questionnaires. This meant two options, reducing the number of villages and spending 2 days in each village or reducing the number of instruments. It was decided to prioritise the instruments according to the depth of information being generated. On this continuum, the model and rating matrix fared quite high, while the decision making and household questionnaire did not. Consequentially, reliance on the decision making process and the household questionnaire was reduced.

6.5 Flow of information from instruments

Generally group data can reveal the nuances of community level decision making better. Information has been generally inadequate in terms of the approval processes, the timing and lag periods in construction. Types of fault that were occurring in the system were usually not known. Men that were either interviewed during the group work or through household questionnaires, had a general idea of the faults; responses usually included that the motor was out of order, the specifics of the fault were rarely known. Women had better information on the frequency of the faults and the lag period in repair. This probably results from the fact that they were the ones who had to get water from alternative sources each time the system fell into disrepair. The depth of information on decision making processes was scanty in the household questionnaire and was dependent upon the male respondent's individual involvement and length of residency in the village. Women at the household level did not have good information on the water system and other development works. Within the areas surveyed, there was not much variation between the existing traditions of cooperation.

Annexures

List of Communities for AJK

(The villages with asterisks were not surveyed due to logistical difficulties)

- 1 Butmung, Kahori, Muzaffarabad
- 2 Karian Drar, Kahori, Muzaffarabad
- 3 Majhotar, Kahori, Muzaffarabad
- 4 Haryala Gojra, Muzaffarabad, Muzaffarabad
- 5 Sarar, Muzaffarabad, Muzaffarabad
- 6 Nauseri, Muzaffarabad, Muzaffarabad*
- 7 Bararkot, Muzaffarabad, Muzaffarabad
- 8 Bhirran, Muzaffarabad, Muzaffarabad
- 9 Kotli Dewan, Dhirkot, Bagh
- 10 Bashan Wali Thandi, Dhirkot, Bagh
- 11 Kohna Mori, Bagh, Bagh
- 12 Kayaat, Bagh, Bagh*
- 13 Mera Hussain Kot, Rawalakot, Poonch*
- 14 Raira, Rawalakot, Poonch
- 15 Bhagyana, Rawalakot, Poonch
- 16 Chiruti, Rawalakot, Poonch*
- 17 Bandi Taen, Rawalakot, Poonch
- 18 Tarnoti, Rawalakot, Poonch
- 19 Horna Mera, Rawalakot, Poonch*
- 20 Murshidabad, Trarkhel, Poonch
- 21 Gangeel Daar, Hajira, Poonch
- 22 Duarandi, Hajira, Poonch*

- 23 Jamalpur Colony Aghaart, Kotli, Kotli
- 24 Gulpur, Kotli, Kotli
- 25 Luteri, Nakial, Kotli
- 26 Nar Talara, Charhoi, Kotli
- 27 Gola Sonya, Charhoi, Kotli
- 28 Chawk Sahibaan, Charhoi, Kotli
- 29 Gurah Bathroi, Dudyaaal, Mirpur
- 30 Kheri Bala, Dudyaaal, Mirpur
- 31 Mera Kadir, Mirpur, Mirpur
- 32 Kot Kandhoo Khan, Mirpur, Mirpur
- 33 Mera Kandhi, Mirpur, Mirpur
- 34 Paljoora, Mirpur, Mirpur
- 35 Islamgarh, Mirpur, Mirpur
- 36 Panjeeri, Mirpur, Mirpur
- 37 Maloot, Bhimber, Mirpur
- 38 Barsaali, Bhimber, Mirpur
- 39 Jhand Pir Sanghala, Iftikharabad, Mirpur
- 40 Baraal Chappar, Iftikharabad, Mirpur

List of Communities for Northern Punjab

(The villages with asterisks were not surveyed due to logistical difficulties)

1. Sanghori, Rawalpindi
2. Syed Kassrian, Gujar Khan*
3. Kantrila, Gujar Khan*
4. Raman, Gujar Khan
5. Qazian, Gujar Khan
6. Sagri, Jhelum
7. Padri, Jhelum
8. Bara Gowah, Jhelum
9. Dhoke Munawar, Jhelum
10. Padshahan, Jhelum
11. Buchal Kallan, Chakwal
12. Langha, Chakwal
13. Dharyala Kahoon, Chakwal
14. Dhery Syedian, Chakwal
15. Hasal, Chakwal
16. Dullah, Chakwal
17. Nauraghi, Chakwal
18. Pira Fatehial, Chakwal
19. Mamdot, Chakwal
20. Budhial, Chakwal
21. Sehr Bangla, Rawalpindi
22. Latory Syedian, Rawalpindi

- 23 Khani Tek, Rawalpindi
- 24 Maira Sangial, Rawalpindi*
- 25 Boota, Attock
26. Haji Shah, Attock
- 27 Maryalla, Attock
28. Waisa, Attock
29. Qutb Bandi, Attock
- 30 Bai, Attock
31. Pattar Garh, Attock
- 32 Peroshahi, Attock*
- 33 Pindi Bahdar, Attock
- 34 Makay Dhoke, Attock
35. Ratwaal, Attock
36. Malaal, Attock
37. Gharibwaal, Pindi Gheb
38. Mari, Pindi Gheb*
39. Lakar Mar, Pindi Gheb
40. Chaab, Jhand

