

Northern Areas

Strategic Provincial Investment Plan
and Project Preparation for
Rural Water Supply,
Sanitation and Health.

Final Strategic Investment Plan

VOL. II (Appendices)

September, 1989

Wardrop - Acres
Cowater International
NESPAK.

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Annex 1

Supplementary Descriptive Notes on the Northern Areas

1. Stylized Facts about the Rural Economy of the Northern Areas
2. Supplementary Information on the Local Government System
3. Note on the People's Program

1. Stylized Facts about the Rural Economy of the Northern Areas

Based on: James F. Oehmke and Tariq Husain. The rural economy of Gilgit. Staff Paper No. 87-28, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, U.S.A., March 1987.

1. The major changes in infrastructure have been the improvement of road communications, especially the opening of the Karakoram Highway and the Skardu Road, and the construction of new irrigation channels in Gilgit and Baltistan.

2. Farm technology has been improved by the introduction of tractors and machinery; biotechnical innovations have centered on improvements in wheat and vegetable varieties and the introduction of seed potato production in some high altitude villages.

3. Domestic technology has come to rely increasingly on imported material: the use of spices in cooking; the small but growing use of kerosene for cooking (less frequently for heating); the growing availability of piped water, etc.

4. Education is of primary concern to the region's people, and parents invest substantial resources in sending their children to Gilgit and Karachi for higher education. Female education, however, appears to be a low priority, except in Ismaili areas.

5. Landholding per household has increased as a consequence of new irrigation channels sponsored by AKRSP; rapid population growth, however, counters this trend.

6. Men are increasingly employed as paid laborers, with the majority moving into nonfarm sectors such as construction and tourism and trekking.

7. Male seasonal and semi-permanent migration is increasing. Some interesting patterns of the mobility of specialist labor can be observed within the Northern Areas: jeep drivers and painters from Punyal (in Gilgit District) can be found all over Gilgit; masons from Hunza can be found in large numbers in Baltistan District; there is seasonal migration of unskilled labor from Baltistan to Gilgit District at the time of wheat planting in Gilgit; and workers from Astore (in Diamer District) are reported to be particularly skilled at the manual labor that goes into new land development in Gilgit.

8. As a result of growing male migration, women are spending more time than before in agricultural production, both by increasing the scale of those activities that women traditionally performed, and by expanding the range of productive activities.

9. Cropping patterns are switching into products with high payoff to labor - away from labor-intensive staples, into less labor-

intensive fruit and high-payoff vegetables.

10. The composition of livestock is changing to favor the more sedentary stalled cattle at the expense of pasturing goats and sheep.

11. The exchange of goods and services is relying more heavily on explicit contracts, formal markets and cash payments.

2. Supplementary Information on the Local Government System

In September 1979, the Northern Areas Local Government Order, 1979, was promulgated by the Northern Areas Administration. This order provided for the creation of elected local government institutions throughout the Northern Areas. Six types of local councils were envisaged, of which three - the Union and District Councils, and Municipal Committees - have been institutionalized. Two others - the Dehi and Markaz Council - were never institutionalized, while the Town/Municipal Committees are not of direct relevance to the RWSS Project: these three institutions are introduced below.

The Dehi Council

This was envisaged as the village council for all villages/settlements with more than 500 persons; when a settlement has less than 500 persons, it is grouped together with other neighboring village(s) in a cluster having more than 500 persons. The Dehi Council is a non-formal body and does not constitute a tier of Local Government; its members are appointed by the Union Council.

Its functions are to promote and control some social development aspects at the village level. In the water sector, it is responsible for preventing use of any source of water suspected to be dangerous to public health; and to regulate or prohibit watering of cattle, steeping of plants, bathing or washing near a drinking water source. For the sanitation sector, it is responsible for the sanitation, conservancy, and adoption of other measures for the cleanliness of the Deh. This level of government has not been actually institutionalized in the Northern Areas.

The Markaz Council

The Chairmen of the Union Councils within the jurisdiction of a markaz are ex-officio members of the Markaz Council. All sectoral department heads of the markaz area also become members of the Council, but do not have the right to vote.

The Markaz Council is to undertake any function in the Markaz which has been assigned to it by the District Council, and which the District Council is competent to undertake in the District. This institution was never established in the Northern Areas, and also does not constitute a formal tier of the Local Government system.

The Town and Municipal Committees

These institutions of local government represent urban settlements, and therefore do not concern the present project which is aimed at water supply and sanitation for the rural settlements.

3. Notes on the People's Program

There are three main components of the People's Programme¹:

- o The main programme will concentrate on water supply, health and sanitation, education, rural roads.
- o About 10% will cover sectors which are "vital for socio-economic development not included in the main programme".
- o About 5% of total outlay will be used for pilot schemes which test the experience of socio-economic development schemes on the model of those being run in the Northern Areas and Orangi.

Under the People's Program² funds are being allocated not on the basis of population but on the basis of constituencies of the National Assembly in the Provinces. In the 1988-89 budget a sum of Rs 8 million was to be distributed to each of the constituencies in the Provinces. For the Northern Areas a lump sum grant of Rs 30 million has been allocated for 1988-89. Each of the districts will get Rs 10 million each. Under the 1989-90 budget each of the constituencies in the provinces will get about Rs 10 million each.

A Federal Implementation Committee will ensure implementation of schemes in the People's Programme in accordance with the rules. A District Committee will be appointed in each District and will be led by a federally appointed administrator. This Committee will consist of elected representatives or public spirited men. District heads of nation building departments such as Health, Education, Communication and Works, Public Health and LB&RD will be ex-officio members of the Committee. After completion of the schemes under this programme they will be taken over by the provincial departments, local councils, non-governmental organizations and voluntary organizations for operations and maintenance.

¹People's Programme, Introductory Brochure, Ministry of Local Government and Rural Development, Government of Pakistan. April, 1989.

²Personal Communication, Director General, People's Works Programme, Ministry of Local Government and Rural Development, Islamabad. September 5, 1989.

Annex 2

Statistical Tables for the Project Area

Table 1	Administrative Divisions and Political Representation
Table 2	Profile of the Typical Rural Household
Table 3	Land Ownership and Tenure
Table 4	Share of Important Crops in Total Cropped Area
Table 5	Educational Attainment
Table 6	Housing Tenure and Quality.
Table 7	Projected Population of the Northern Area
Table 8	Projected Number of Rural Households in Northern Area

Table 1

Administrative Divisions and Political Representation

	District			Total
	<u>Gilgit</u>	<u>Diamer</u>	<u>Baltistan</u>	
Sub-divisions	5	3	4	12
Union Councils	39	20	46	105
Number of elected members in:				
o District Council	12	8	12	32
o Northern Areas Council	6	4	6	16
o Provincial Assembly	-	-	-	-
o National Assembly	-	-	-	-

Notes:

1. The number of districts will be increased from 3 to 5 with the implementation of the recent government decision to divide Gilgit and Baltistan Districts into two districts each, as was briefly the case in the 1970s. The new districts will be Ghizar in Gilgit and Ghaince in Baltistan. This change will not affect the number of other administrative units.

2. The Northern Areas do not have representation in the National or Provincial Assemblies.

Table 2
Profile of the Typical Rural Household

	<u>Gilgit</u>	<u>Diamer</u>	<u>Baltistan</u>
A. HOUSEHOLD COMPOSITION			
Number of :			
o adult men	2.24	2.15	2.24
o adult women	2.00	1.79	1.89
o children (under 15 yrs)	<u>3.37</u>	<u>3.86</u>	<u>2.87</u>
	8	7.80	7
B. FARM AREA PER HOUSEHOLD (HECTARES)			
Cultivated Area			
o orchards	0.15	0.10	0.06
o annual crops	0.61	0.83	0.51
	<u>0.76</u>	<u>0.93</u>	<u>0.57</u>
Uncultivated Area			
o can be developed	0.24	0.25	0.10
o cannot be developed	0.08	0.07	0.06
	<u>0.32</u>	<u>0.32</u>	<u>0.16</u>
Average holding	1.08	1.25	0.73

Source: Based on AKRSP Regional Statistics Note No. 8, District Reports of the 1981 Population Census, and the 1980 Northern Areas Census of Agriculture.

Table 3

Land Ownership and Tenure

A. SIZE DISTRIBUTION OF FARM AREA

<u>Size of Holding (ha)</u> <u>%Area</u>	<u>Gilgit</u>		<u>Baltistan</u>		<u>Diamer</u>	
	<u>%Farms</u>	<u>%Area</u>	<u>%Farms</u>	<u>%Area</u>	<u>%Farms</u>	<u>%Area</u>
Under 0.4	11	2	47	14	28	
0.4 to under 1.0	42	22	36	31	35	18
1.0 to under 2.0	31	33	14	27	21	23
2.0 and above	16	43	3	28	16	54
	100	100	100	100	100	100

B. LAND TENURE

Tenure

Owners	95	94	63	51	86	86
Owner-cum-tenants	4	5	35	47	10	12
Tenants	1	1	2	2	4	2

Source: Northern Areas Census of Agriculture, 1980.

Table 4

Share of Important Crops in Total Cropped Area

<u>Crop</u>	<u>Gilgit</u>	<u>Diamer</u>	<u>Baltistan</u>
Wheat	33	25	32
Maize ^a	23	33	-
Rice	-	-	-
Barley ^a	8	4	29
Millet ^a	1	-	3
Fodders ^b	15	28	11
Vegetables ^c	3	3	3
Orchards	15	1	-
Other Crops	2	2	22
	<u>100</u>	<u>100</u>	<u>100</u>

^agrown for grain

^bincludes clover and alfalfa, and maize, barley and millets grown for fodder.

^cincludes potatoes

Source: Northern Areas Census of Agriculture, 1980.

Table 5

Educational Attainment

(all figures in percentage)

	<u>Gilgit</u>	<u>Diamer</u>	<u>Baltistan</u>
Adult literacy ration for:			
o urban men	48	35	54
o urban women	17	8	14
o rural men	24	16	24
o rural women	4	2	2
Adults with at least secondary education:			
o urban men	18	12	31
o urban women	4	2	8
o rural men	5	9	15
o rural women	0.2	0.2	0.2

Source: District Reports, 1981 Population Census.

Table 6

Housing Tenure and Quality

(all figures in percentage)

	<u>Gilgit</u>	<u>Diamer</u>	<u>Baltistan</u>
Percentage living in own houses			
o urban	64	71	48
o rural	95	87	96
Persons per room			
o urban	3.3	4	2.6
o rural	4.3	7	3.6
Piped water inside the house			
o urban	42	33	19
o rural	0.6	3	0.2
Piped water outside the houses			
o urban	38	-	58
o rural	2.5	8.4	9.9
Electricity available for lighting			
o urban	60	49	93
o rural	8	5	4
Wood as main cooking fuel			
o urban	84	99	93
o rural	94	99	85
Urban houses with			
o own flush latrine	16	12	9
o no latrine	68	88	12

Source: District Reports, 1981 Population Census.

Table 7

Projected Population of Northern Areas											
Growth Rates: 4.35%, 3.35%, 3.68%, 3.8%											
TOTAL POPULATION	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	309,400	322,859	336,903	351,559	367,394	383,376	400,053	417,455	435,614	455,212	475,013
Baltistan	282,780	292,253	302,044	312,162	323,097	333,920	345,107	356,668	368,616	381,508	394,288
Diamir	158,740	164,582	170,638	176,918	183,700	190,460	197,469	204,736	212,271	220,396	228,507
Total	750,920	779,694	809,585	840,638	874,191	907,757	942,629	978,859	1,016,501	1,057,115	1,097,808
Growth Rates: 6.6%, 5.73%, 4%, 5.9%											
URBAN POPULATION	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	48,268	51,454	54,850	58,470	62,329	66,442	70,828	75,502	80,485	85,797	91,460
Baltistan	17,352	18,346	19,398	20,509	21,684	22,927	24,240	25,629	27,098	28,651	30,292
Diamir	7,770	8,081	8,404	8,740	9,090	9,453	9,832	10,225	10,634	11,059	11,501
Total	73,390	77,881	82,651	87,719	93,103	98,822	104,899	111,356	118,217	125,507	133,254
% of Total	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	15.6%	15.9%	16.3%	16.6%	17.0%	17.3%	17.7%	18.1%	18.5%	18.8%	19.3%
Baltistan	6.1%	6.3%	6.4%	6.6%	6.7%	6.9%	7.0%	7.2%	7.4%	7.5%	7.7%
Diamir	4.9%	4.9%	4.9%	4.9%	4.9%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total	9.8%	10.0%	10.2%	10.4%	10.7%	10.9%	11.1%	11.4%	11.6%	11.9%	12.1%
Growth Rates: 3.84%, 3.14%, 3.6%, 3.5%											
RURAL POPULATION	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	261,132	271,405	282,054	293,089	305,066	316,934	329,225	341,953	355,129	369,414	383,553
Baltistan	265,428	273,907	282,646	291,653	301,412	310,994	320,866	331,038	341,518	352,857	363,996
Diamir	150,970	156,501	162,234	168,178	174,610	181,007	187,638	194,511	201,637	209,337	217,005
Total	677,530	701,813	726,934	752,919	781,088	808,934	837,729	867,503	898,284	931,608	964,554
% of Total	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	84.4%	84.1%	83.7%	83.4%	83.0%	82.7%	82.3%	81.9%	81.5%	81.2%	80.7%
Baltistan	93.9%	93.7%	93.6%	93.4%	93.3%	93.1%	93.0%	92.8%	92.6%	92.5%	92.3%
Diamir	95.1%	95.1%	95.1%	95.1%	95.1%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
Total	90.2%	90.0%	89.8%	89.6%	89.3%	89.1%	88.9%	88.6%	88.4%	88.1%	87.9%

Table 8

Projected Number of Rural Households in Northern Areas

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gilgit	32,642	33,926	35,257	36,636	38,133	39,617	41,153	42,744	44,391	46,177	47,944
Baltistan	37,918	39,130	40,378	41,665	43,059	44,428	45,838	47,291	48,788	48,788	51,999
Diamir	21,567	22,357	23,176	24,025	24,944	25,858	26,805	27,787	28,805	28,805	31,001
Total	92,127	95,413	98,811	102,326	106,136	109,903	113,796	117,822	121,984	123,770	130,944

Annex 3

*An Assessment of the Rural Water Supply Sector
in the Northern Areas*

1. Rapid Assessment of Existing Rural Water Supply Schemes in the Northern Areas:
 1. Objective and Scope of Survey
 2. Summary of Findings
 3. Report on Gilgit District
 4. Report on Baltistan District
 5. Report on Diamer District

2. Existing and Planned Rural Water Supply Schemes
 1. Existing NAPWD Schemes
 2. Existing LB&RD Schemes of District Councils
 3. Existing LB&RD Schemes of Community Basic Services Program.
 4. Northern Areas Council Water Supply Schemes (Planned).
 5. UNICEF Assisted Water Supply Schemes (Planned)
 6. Cost Analysis of Rural Water Supply Schemes, Public Works Department
 7. Cost Analysis of Rural Water Supply Schemes, Local Bodies and Rural Development
 8. Private sector

Rapid Assessment of Existing Rural Water Supply Schemes in the Northern Areas

1.1. Objective and Scope of Survey

The objective of this survey was to draw a better picture of the situation in the water and sanitation sector at the village level, in order to identify and better understand the factors leading to the success or failure of water supply projects in the Northern Areas. The survey was conducted over a three-month period from June to August 1989; it involved approximately four weeks in the field visiting villages. In all, 78 water supply schemes were surveyed - 58 executed under LB&RD, and 20 by NAPWD.

One researcher was sent to meet members of the Village Project Committees, Union Council members, villagers, and Government employees working at the sub-division level. In each village, discussions and interviews of the aforementioned persons took place. Opinions and views of these people were sought in order to assess the situation. In most villages, an inspection of the infrastructure (gravity systems) was undertaken. This inspection was not highly technical, but was aimed at giving an observable context to the opinions and views expressed. Therefore, the following information should not be regarded as a technical evaluation of the schemes, but as a good example of the current situation at the village level; and as showing the kind of problems faced in the implementation of water supply and sanitation projects in the Northern Areas.

Four levels of repair needs have been identified, and are represented on a scale between 0 and 3. They are defined as follows:

- 0 Scheme is in good working condition, it does not need any repair or any major change in its maintenance procedure.
- 1 The scheme is in good working condition, but needs better operation and maintenance procedures, or minor repairs which would not incur any costs to the community. For example, the tank needs to be cleaned, the intake pipe needs to be covered with a mesh to filter debris, or responsibilities for maintenance need to be fixed.
- 2 Parts of the scheme (or, in some instances, the whole scheme) are not operational due to a breakdown of one or two of the components of the scheme. The repairs that are needed can be met at a cost which the community can support, with only limited supervision from the government departments. For example, most taps need to be replaced, one or few pipes have burst, the tank needs repairs, or some fitting is needed.
- 3 The scheme is usually not operational due to major breakdowns of many components of the system. The repairs needed would

incur costs difficult to bear for the community, and close supervision from the government departments. For example, a combination of some of the repairs mentioned above, or a tank needing to be rebuilt entirely, or pipes having been laid not deep enough necessitating digging them all out and reinstalling them.

1.2. Summary of Findings

The district-wise summary of scheme assessment is given below. This is followed by detailed reports on each of the three districts.

SUMMARY TABLE

Abbreviations: GLT = Gilgit District
 BLN = Baltistan District
 DMR = Diamer District

LB&RD Schemes

<u>Level of Repair</u>	<u>GLT</u>	<u>BLN</u>	<u>DMR</u>	<u>Total</u>	<u>%</u>
0	3	5	3	11	19
1	1	5	1	7	13
2	10	11	1	22	40
3	11	4	3	18	31
	<u>25</u>	<u>25</u>	<u>8</u>	<u>58</u>	

NAPWD Schemes

<u>Level of Repair</u>	<u>GLT</u>	<u>BLN</u>	<u>DMR</u>	<u>Total</u>	<u>%</u>
0	7	1	2	10	50
1	3	1	0	4	20
2	2	1	0	3	15
3	2	1	0	3	15
	<u>14</u>	<u>4</u>	<u>2</u>	<u>20</u>	

District reports for Gilgit, Baltistan and Diamer are given next.

1.3. Report on Gilgit District

Gilgit and Punial Valley

<u>Scheme</u>	<u>Status</u>	<u>Implementing System</u>	<u>Village Population</u>	<u>Remarks</u>
Naupura	3	LB&RD	1000	Tank not used, it leaks. Piped water seldom used, too warm. Pipes often laid on the surface.
Jagir Basseen		LB&RD	3000?	Under construction, almost completed.
Danyore	?	NAPWD	12000	Irregular service. +90% covered.
Henzel	1	LB&RD		Pipes get clogged. Villagers do repairs.
Gulapur	0	LB&RD		Villagers do small repairs. At present 35% covered. Missing pipes for 2nd tank.
Gich	2	LB&RD		Maintenance by villagers in vicinity of breakdown. 50% covered.
Singal	1	NAPWD	1300	Unprotected source. 50% covered. LB&RD scheme to be started.
Bubur Bala	3	LB&RD	1000	Tank leaking. Villagers willing to repair if they get money. +90% covered.
Bubur Paeen	-	LB&RD	1100	Under construction. Tank completed. Half the pipes laid. Villagers installed fund. +90 % covered at completion.
Sher Qilah	0	NAPWD		Excellent condition, but service intermittent due to small tank. 2nd tank will be built.
Gakuch	?	NAPWD		Small scheme for official buildings.
Gupis Valley				
Phandar	3	LB&RD		Village scattered over long distance, scheme still under construction after 5

Gulagh Muli	3	LB&RD		years. At present only very low coverage. 100% covered. Pipes not deep enough. Piped water not used in summer: too warm. Unprotected source. Tank grows all kinds of things!
Shamaran	2	LB&RD		Pipes burst last winter. People happy with system.
Charmoyan	3	LB&RD		Tank too small. Burst pipes. 50% covered.
Gupis	2	NAPWD		Small scheme for official buildings and few houses.
	3	LB&RD		Small scheme, only few houses covered. Inappropriate source.
Yasin Valley				
Yasin	-	NAPWD		Under construction, still needs some fitting.
Taus	-	NAPWD		Under construction.
Deretch(Harpo)	0	LB&RD	275	Good system, good maintenance. 60% covered.
Shot	2	LB&RD	250	Scheme completed but non-operational because 1 pipe between intake and reservoir is missing. Otherwise, 100% covered.
Hundur	-	LB&RD		Scheme never implemented. LB&RD did survey but dropped the project. Villagers say they wanted the pipes.
Sandi	-	LB&RD		Scheme never implemented, villagers refused self-help principle. Wanted the scheme free "like PWD". Channel water is perceived by many to be "best water".
Gujalti	3	LB&RD	1000	50% covered. Tank leaks. Pipes not laid deep enough because

Roshen	2	LB&RD	800	scheme constructed during winter. Intermittent service. Maintenance person "not reliable". Not completed yet. When complete 80% covered. Tank has no roof.
Sumal	2	LB&RD	800	80% covered. Supply is low. Blocked pipes: due to some villagers (from a "powerful family") who intentionally divert water for irrigation. Service of plumber not reliable because he is not paid.
Ishkomen Valley				
Chatorkhan	3	NAPWD	1100	Small scheme for official buildings. PVC pipes were used, bursting problems. The scheme is presently being extended to the whole village.
Pakura	-	LB&RD		New scheme. Tank completed but no pipes.
Nominabad Bala	3	LB&RD		Tank completed, pipes received "4 years ago" but never installed. Unity problems among the villagers.
Faizabad	3	LB&RD		Abandoned scheme. Digging is too difficult, too much stones, needs blasting.
Hunza Valley				
Altit	2	LB&RD	2200	Operational, but need sedimentation tank and/or filtration tank.
Moaminabad	2	LB&RD	3500	Presently not operational, but

Hyderabad	2	LB&RD	
Nasirabad	2	LB&RD	2500
Khanabad	2	LB&RD	900

usually works. Water is too muddy, the tank fills up rapidly. Tank badly built. Presently not operational. PVC pipes were installed; some were later replaced, but still some are present. Some of these pipes are damaged. Operational. Water very muddy. Nobody responsible for repairs. +90% covered, but villagers complain about pipe shortages (only 1100 rft). Plumber feels not paid enough, he has to volunteer his time.

1.4. Report on Baltistan District

Rondu Valley

Dambodas	0	NAPWD	180
Basho	0	LB&RD	160

Successful system.
Successful system.

Skardu Valley

Hotto	2-3	LB&RD	
Kumrah	0-1	LB&RD	
Ghamba	0-1	NAPWD	
Hussainabad	0	NAPWD	
Thorgo	1	NAPWD	
Thorgo Bala	3	LB&RD	400

Infrastructure not inspected. Does not work since 1 year. Infrastructure not inspected. Apparently working well. Infrastructure not inspected. Apparently working well. Working well. 65% covered. Piped water used in winter, but in summer source is mainly used for irrigation. People using the same channels. Very low pressure when working. Pipes not laid deep enough. No

maintenance system. Taps need to be replaced. Presently not working.

Shigar Valley

Marapa- Blassan	1	NAPWD	1400	System works well but intermittently.
Shigar	0-1	NAPWD		System works well but intermittently. Source does not provide enough water on a continuous basis.
Chorka	-	NAPWD		Under construction since 1987.
Hourouhouse	2	NAPWD	640	One of the main line pipes crosses a river, and the system has to be shut down when river is high during the summer to prevent clogging of the pipes. 100% covered.
Alchori	3	NAPWD	1600	90% covered. Water from stream gets very muddy at some times. Need a sedimentation tank, probably filtration.
Tsildi-	3	NAPWD		One source for two villages; shortage of water.
Kashmal				
Sisko	3	LB&RD		Supposed to be LB&RD scheme here, but no pipes or tank were to be seen.
Matulu	2	LB&RD	550	Large pipes have burst last winter. Villagers requested LB&RD for new pipes. 85% covered.
Zagonda	2-3	LB&RD	800	Part of the scheme does not work.

Khapulu Valley

Gowari	0-1	LB&RD		2000	System working well. Plumber left the village to work in the army. Yougo is a typical Balti village; building latrines and installing pipes is difficult because the houses are densely grouped. 2 lines out of 6 or 7 are broken down. Pipes not laid deep enough, many rocks. Villagers do not maintain themselves apart from very simple repairs which can be done with some rubber bands or some plastic.
Yougo	2-3	LB&RD			
Balghar	0	LB&RD	1050		Working well.
Barra	2	LB&RD	2000		Main pipe broken where it crosses the river. 100% covered.
Khapulu	2	LB&RD			Many taps are leaking. Otherwise good maintenance. Four different sources are used.
Surmon	0-1	LB&RD			Infrastructure not inspected. Apparently working well.
Saling	2-3	LB&RD			Infrastructure not inspected. 50 % covered?
Keris	1	LB&RD	3500		Working well. Channel water widely used.
Goal	-	LB&RD	3000		Under construction. Should be 100% covered.
Kharmang Valley					
Sirmik Gons	2	LB&RD	1700		Most taps are not working properly. Lack of maintenance.
Mehdiabad					
Guzbar	2	NAPWD	175		Presently broken down.
Mehdiabad					
Panda	0-1	LB&RD	450		Infrastructure not visited. Apparently working well.
Mathoka	3	LB&RD	500		Tank not high enough,

Sando	3	LB&RD	575	no pressure. Tank needs cleaning. Not operational.
Serling	0	NAPWD	450	Not operational. Tank and intake out of order. Some taps need to be replaced.
Gons	0-1	LB&RD	450	Working well.
Pari	0	NAPWD	1000	Working well.
Ingut	-	NAPWD	600	Working well. 100% covered.
Ghandus	2	LB&RD		Under construction. Not operational. Some pipes burst. No resources for maintenance.

The next few schemes are located in an area where mobility is restricted. Information was gathered by interviewing a Union Council member, and some villagers familiar with the area.

Baghicha	0-1	LB&RD	1550	Infrastructure not inspected. Apparently in operation.
Tarkoti	0-1	LB&RD	750	Infrastructure not inspected. Apparently in operation.
Hamzigoun	0-1	NAPWD	450	Infrastructure not inspected. Apparently in operation.
Olding	0-1	NAPWD		Infrastructure not inspected. Apparently in operation.
Morol	2-3	LB&RD		Infrastructure not inspected. Not operational. Pipes have burst.
Tchachatang	2-3	LB&RD		Infrastructure not inspected. Not operational. Pipes have burst.

1.5. Report on Diamer District

Chilas

Gais Paeen	3	LB&RD		Project dropped after installation of few pipes, villagers did not feel the need for it anymore.
Gais Bala	2	LB&RD		Not operational. Pipes

Ginni - LB&RD

burst, villagers not interested in repairing them. Still under construction. Villagers migrate to higher valleys during the summer. Makes construction very slow. Pipes inadequately stored. Those pipes that are already installed were not laid deep enough.

Darrel Valley

Palati 3 LB&RD

Total of 20 taps in this village but all of them have been installed at the mosque, for ablutions. Not a single communal tap or house connection. Women do not seem to fetch water at the mosque, they use channel water.

Gayel 1 LB&RD 1500
Phuguch - LB&RD 800
Gumari 1 LB&RD 3000

Operational.
Under construction.
Operational.

Tangir Valley

Diamer - NAPWD 8000
Jaglote - NAPWD 9000
Gali Paeen - NAPWD 800
Gali Bala - NAPWD 900
Chumari 0 NAPWD 2400

Under construction.
Under construction.
Under construction.
Under construction.
In operation, working well.

Darkali Bala 0-1 LB&RD 1500

Infrastructure not inspected. Apparently working well.

Mushki 0 NAPWD 3500

Operational, working well.

Khai Batogah3 LB&RD

Badly maintained scheme. Half the taps out of order. One of two lines clogged.

Darang

Goharabad

0-1 LB&RD

450

Operational. Working
well.

Table 1
Existing NAPWD Schemes

District	Small Village			Medium Village			Large Village			Total		
	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion
Gilgit	3	875	2.2	12	10000	6.7	3	13125	18	18	24000	9.2
Baltistan	4	1061	4.4	7	5312	4.5	11	36925	30.2	22	43298	16.3
Diamer				2	1875	2.4	2	3438	13.7	4	5313	3.5
Total	7	1936	1.7	21	17187	5	16	53488	24.3	44	72611	10.7

Source: Office of the Chief Engineer NAPWD, Northern Areas.

Table 2
Existing LB&RDD Schemes of District Councils

District	Small Village			Medium Village			Large Village			Total		
	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion	No. of Villages Covered	Populati- on	% of Populat- ion
Gilgit	1	210	0.5	11	7290	4.9				12	7500	2.8
Baltistan	1	168	0.7	10	5832	4.9				11	6000	2.3
Diamer	1	193	0.4	4	3307	4.3				5	3500	2.3
Total	3	571	0.5	22	16429	4.7				28	1700	2.5

Source: LB&RD Northern Areas.

Table 3

Existing LB&RDD Schemes of Community Basic Services

District	Small Village			Medium Village			Large Village			Total		
	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion
Gilgit	8	2741	6.9	37	28107	18.9	7	15412	21	52	46260	17.7
Baltistan	20	5603	23.2	26	18140	15.2	3	6988	5.7	49	30731	11.6
Diamer	6	1878	3.8	18	12957	16.9				24	14836	9.8
Total	34	10222	9.1	81	59204	17.2	10	22400	10.2	125	91826	13.5

Source: Community Basic Services Program 1987 Annual Progress Report.

Table 4
Northern Areas Council Water Supply Schemes (Planned)

District	Small Village			Medium Village			Large Village			Total		
	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion
Gilgit	1	320	0.8	6	7531	5.1	3	6649	9.1	10	14500	5.5
Baltistan	4	1337	5.5	5	4957	4.2	3	9598	7.9	12	15892	6
Diamer	6	1874	3.8	7	6848	8.9	1	4001	16	14	12723	8.4
Total	11	3531	3.1	18	19336	5.6	7	20248	9.2	36	43115	6.4

Source: Planning and Development Department, Northern Areas.

Table 5
UNICEF Assisted Water Supply Schemes (Planned)

District	Small Village			Medium Village			Large Village			Total		
	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion	No. of Villages on Covered	Populati- ed	% of Populat- ion
Gilgit	3	359	0.9	8	8395	5.7				11	8754	3.3
Baltistan	4	1779	7.4	7	7294	6.1	1	2400	2	12	11473	4.3
Diamer	2	579	1.2	8	5565	7.2				10	6144	4.1
Total	9	2717	2.4	23	21254	6.2	1	2400	1.1	33	26371	3.9

Source: Research Director, Women Development Project, UNICEF, Northern Areas.

Table 6
COST ANALYSIS OF RURAL WATER SUPPLY SCHEMES
PUBLIC WORKS DEPARTMENTS

S/No.	Name of Scheme	District	No. of Tanks	Storage Capacity in Gln	Population served	Per Capita Cost (Rs)	Capital Cost in Million (Rs)
1.	SAKWAR	GILGIT	1	62000	2000	850.00	1.700
2.	DANYORE	"	1	32500	15000	240.00	3.600
3.	JAGLOTE	"	1	62300	3000	551.00	1.653
4.	SINAKER	"	1	500	1000	0	0
5.	SHERR QILLA	GHEZER	1	2000	2000	424.00	0.848
6.	SINGAL	"	1	2000	1000	605.00	0.605
7.	L/SAKUCH	"	1	1000	1500	403.00	0.605
8.	G/SAKUCH	"	1	1000	1400	432.00	0.605
9.	CHATOK KHAND	"	1	1000	1000	800.00	0.80
10.	GUPIS	"	1	1000	1300	85.38	0.111
11.	YASIN	"	1	1000	1500	74.00	0.111
12.	TAUSE	"	1	1000	1300	85.38	0.111
13.	SKANDERABAD WAGER	GILGIT	1	50000	500	1600.00	0.800
14.	THOLE WAGER	"	1	10000	400	500.00	0.200
15.	GULMIT HUNZA	"	1	20000	1000	750.00	0.750
16.	WAGER PROPER	"	1	20000	1000	957.00	0.957
17.	GANISH HUNZA	"	1	15000	500	470.00	0.235
18.	SHIGAR	BALTISTAN	1	8000	5000	412.00	2.060
		SKARDU	1				
19.	SILBI SHIGER	"	1	45000	800	1250.00	1.000
20.	ALCHORI "	"	1	50000	1000	294.00	1.300
21.	SHIGER 2	"	1	50000	5000	294.00	1.470
22.	THOWAR	"	1	65000	3000	700.00	2.100
23.	HUSSAINABAD	"	1	60000	2500	400.00	1.000
24.	GANBA	"	1	60000	2500	640.00	1.600
25.	HENDIABAD	"	1	30000	8000	234.38	1.875
26.	KHAPULO	"	1	100000	15000	166.67	2.500
27.	CHOWAR	"	1	30000	1500	533.33	0.800
28.	KIRIS	"	1	40000	5000	206.00	1.030
29.	THALLEY	"	1	50000	7000	160.00	1.120
30.	TOLTOBOROQ	"	1	600	1000	300.00	0.300
31.	PARRI	"	1	16000	2000	150.00	0.300
32.	PION	"	1	16000	3000	83.33	0.250
33.	SIARY	"	1	16000	1500	466.67	0.700
34.	KATISHA	"	1	600	500	600.00	0.300
35.	DAPO	"	1	600	500	600.00	0.300
36.	HANZIGOND KHARMONG	"	1	2400	300	1666.67	0.500
37.	OLDING	"	1	60000	700	2807.14	1.900
38.	CHURKA	"	1	46200	3080	1298.70	4.000
39.	CHATPA	"	1	10000	397	1435.77	0.570
40.	DAREL/TANGIR	DIAMIR	1	150000	3000	342.67	1.028
41.	ASTORE	"	1	80000	2500	936.80	2.342
42.	BUNJI	"	1	74000	2000	923.50	1.847
43.	GORIKOTE	"	1	40000	1000	1208.00	1.208
TOTAL					113177		47.091

SOURCE: Head Office MAPWD GILGIT

Table 7

COST ANALYSIS OF COMPLETED RURAL WATER SUPPLY SCHEMES IN NORTHERN AREAS
Local Bodies and Rural Development

(Figure in Pak Rupee)

Ser No.	Name of scheme	Population benefitted	Costs				Cost per capita				
			Govt	Comm.	UNICEF	Total	Govt	Comm	UNICEF	Total	
1.	RWS Scheme Thole Nagar Gilgit	791	20000	30000	66000	116000	25.28	37.93	83.43	146.64	
2.	RWS Scheme Khanabad Hunza Gilgit	1000	34000	50000	127000	211000	34.00	50.00	127.00	211.00	
3.	RWS Scheme Ghulmitdas Nagar Gilgit	2000	30000	60000	224000	314000	15.00	30.00	112.00	157.00	
4.	RWS Scheme Niacher Nagar Gilgit	2300	47000	81000	242000	370000	20.43	35.22	106.22	160.86	
5.	RWS Scheme Fekir Nagar Gilgit	3241	60000	85000	285000	430000	18.51	26.22	87.93	132.67	
6.	RWS Scheme Hassanabad Hunza Gilgit	700	36200	63200	146700	246100	51.71	90.28	209.57	351.56	
7.	RWS Scheme Passu Hunza Gilgit	600	20000	30000	81000	131000	33.33	50.00	135.00	218.33	
8.	RWS Scheme Markhoon Hunza Gilgit	900	31000	55000	115700	201700	34.44	61.11	128.55	224.1	
9.	RWS Scheme Soust Hunza Gilgit	610	30000	63300	156600	249900	49.18	103.77	256.72	409.67	
10.	RWS Scheme Thorgo Baltistan	430	20000	25000	65000	110000	15.00	30.00	112.00	157.00	
11.	RWS Scheme Tarkati Ehamang Baltistan	565	19000	23000	38400	80400	33.62	40.70	67.96	142.28	
12.	RWS Scheme Yugo Khaplu Baltistan	800	22800	33400	72000	128200	28.50	41.75	90.00	160.25	
13.	RWS Scheme Wazirpur Shigar Baltistan	500	24200	41200	90600	156000	48.40	82.40	181.20	312.00	
TOTAL		14437	394200	640100	1710000	2744300					
AVERAGE COST PER CAPITA							31.33	52.26	130.5	214.09	

Table 8
Private Sector

CATEGORY	TRAINING	LABOR AVAILABLE (Skilled/Unskilled) Associates	INPUTS AVAILABLE	GOODS/SERVICES OFFERED	CREDIT	SALE OF GOODS AND SERVICES	CLIENT	EXPANSION PLAN
Retailor	Nil	Yes	Yes	GI, CI, PVC Pipe and Sanitary fittings	Not Using	Increasing	House Hold Consumers	Subject to Market Demand
Contractor 1	During Work	Yes	Yes	Installation, Repairs, Const ruction of Bui lding, Roads & Bridges	Will not use Credit	Increasing	NAPWD	Planning to Expand Existi ng Busine- ss.
Contractor 2	Private	Yes	Yes	New Instal- tion of Water Supply and Civil Works	Needs Credit	Increasing	NAPWD/NBS	Planning to Expand Existi ng Busine- ss.
Consultant	Yes	Yes	Yes	Archetctural & Engineering Civil & Elect.	Needs Credit		Individuals	Planning to Expand Existi ng Busine- ss.
Artisan 1	Yes	Yes	Yes	New as well as Repairs	Needs Credit	Increasing	Contractor and Individ- uals	Planning to Expand Existi ng Busine- ss.
Artisan 2	On Job Train- ing	Yes	Yes	New as well as Repairs	Needs Credit	Increasing	Contractor and Individ- uals	Planning to Expand Existi ng Busine- ss.
Artisan 3	On Job Train- ing	Yes	Yes	Masonry Ser- vices	Needs Credit	Increasing	Contractor and Individ- uals	Trying to be- come a cont- ractor.

Source: Private Sector Survey, Conducted by Research Director, Women's Development Project, UNICBF, April 1989, Northern Areas

Annex 4

A Case Study of the Community Basic Services Program

Excerpted from report of the same title by Maliha H. Hussein, submitted to the International Council for the Management of Population (ICOMP), Kuala Lumpur, 1988.

1. Background Informations
2. Assessment of the CBS Program
 - 2.1. The Program Objectives
 - 2.2. The Program Strategy
 - 2.3. The Delivery System
 - 2.4. The Process of Community Participation
 - 2.5. The Monitoring & Evaluation System
 - 2.6. The Role of Participating Agencies
3. Progress and Impact Assessment
 - 3.1. Water Supply Schemes
 - 3.2. Sanitation Projects
 - 3.3. Traditional Birth Attendant Training
 - 3.4. Vocational Skill Training
 - 3.5. Community Health & Nutrition Workers
4. Summary and Conclusions
 - 4.1. Sustainability Analysis
 - 4.2. Synthesis of Effective Development Principles

1. Background Information

This case study of the Community Basic Services Program (CBS) is intended to highlight the role of the community in the design, identification and implementation of a package of social sector activities. The basic research objective is to extract from the experience of the CBS Program effective development principles which will enable development planners to improve the level of community participation in health and population programs.

2. Assessment of the CBS Program

2.1. The Program Objectives

The Community Basic Services Program comprised of a package of basic health, sanitation and income generating services for the three districts of Gilgit, Baltistan and Diamer. The basic objective of the Program was improvement in the health, sanitation and economic status of women and children. More specifically, the Program aimed at reducing infant and maternal mortality and morbidity caused by communicable diseases, reducing malnutrition, increasing the enrolment of children in schools and increasing women's participation in rural development activities.

In the project documents the Program objectives were listed as follows:

- o To assist the local community organizations (formal and informal) in the organization of planning, implementation and management of basic services based on their felt needs and local resources.
- o To train Sectoral Department officials and other staff: the community officials, elected councilors, managers, village project committees and village sectoral sub-committee members in the field management of project activities related to the felt needs of the local communities in 150 villages.
- o To provide services for primary health care, sanitation, hygiene and literacy to women and children through the organization of Village Project Committees.
- o To upgrade local skills through training and education of community workers.
- o To help increase both directly and indirectly the income of the poorest families through skill training of women and through village learning groups participating in non-formal education.
- o To provide potable water supply to 150 villages in the project area by the end of the project period.

The strategic objectives of the Community Basic Services Program were described as follows:

- o To reduce the infant and child mortality and morbidity due to communicable diseases, infantile diarrhoea, dysentery and related infections from the present level of 27.3% to 23% in the target areas.
- o To reduce the prevalence of protein-calorie malnutrition in infants and children (0-5 years age group) from the present level of 24.17% to 20% in the target areas
- o To reduce maternal mortality from 6.8 per thousand live births to 6 per thousand in the target areas.
- o To increase enrolment of 5-9 age group for boys from 21% to 35%, and for girls from 10% to 25% in the target areas.
- o To increase rural women's participation in income generating activities from 25% to 40% in the target areas.

2.2. The Program Strategy

The main factors responsible for infant and child mortality, morbidity and malnutrition were attributed to the scarcity of potable water, unhygienic living conditions, lack of training of mothers about proper child care, food requirements and personal hygiene, absence of referral health facilities, poor nutritional intake, low levels of income and illiteracy. These problems were seen as inter-related and requiring not just provision of basic health and sanitation infrastructure but a program of activities which aimed at behavioral changes.

The Program targets were given as follows:

- o The construction of 150 water supply schemes and 150 demonstration water drainage systems.
- o The construction of 300 demonstration latrines and encouragement to construct individual household garbage disposal pits and a minimum of five latrines in private households in each village and to encourage the construction of three bio-gas plants by the community in each district.
- o The training of 150 village plumber-cum-sanitary workers for maintenance of the water supply schemes and the sanitation facilities.
- o The training of 150 Traditional Birth Attendants.
- o The training of 150 Community Health and Nutrition Workers.

- o To impart vocational skills training to 150 women.
- o The establishment of 150 Community Women's Centers.
- o To impart refresher courses to primary school teachers and mid-level health personnel.
- o To provide immunization to 90% of the 0-5 population in the selected 150 villages.
- o To establish a system for effective distribution and use of Oral Rehydration Salts (ORS).
- o To train 600 Village Project Committee members in program management techniques through community participation.

The entry point used was a drinking water supply scheme, on the assumption that a major cause of mortality and morbidity in the project area was due to water borne diseases. The package was put together after a comprehensive survey of felt needs in a random sample of villages in the project area.

The program planners felt that the results of the survey indicated that the community attached sufficient priority to the availability of drinking water to allow them to make the availability of the water contingent on acceptance of other components of health and sanitation which might not be that popular. As such, the basic package of services included components which, in the survey, had not been identified as priority needs by the community but which in the view of the program planners warranted inclusion due to the impact they would have on the target population.

The delivery, implementation and monitoring of this package of services was to be achieved by using a three-pronged strategy; existing government infrastructure supplemented by specialist field staff was to be used for the delivery of the packages. The implementation of the various packages was to be conducted under the supervision of the Union Councils with the involvement of the community through the Village Project Committees (VPC) which were specially established for the purpose. Initially, Village Project Committees were entrusted with sending project implementation reports but this system was replaced by the establishment of a Monitoring & Evaluation Unit in 1984. This M&E Unit was to record progress and coordinate program implementation and review with the line departments of the Government and the donor agencies.

The program was to run for five years and was expected to cover 150 villages in three districts. The different packages were to be implemented in three phases with each phase covering 50 villages. Including the preparation period, the Program was to run

from January 1981 to the end of 1986. The selection of villages was made by the respective district councils in consultation with the CBS unit. In some cases, this decision was inspired more by political considerations than by those of need. However, the main point about the selection procedure was the assumption that all the selected villages had identical health and sanitation profiles and needs and would respond to the different CBS packages in the same manner.

The village plans of action which listed the targets for each phase were not prepared in consultation with the community but were reviewed first at the Markaz and District level and then at the regional level by the CBS Unit, and then consolidated into the CBS Program Plan of Action. The absence of community participation in the preparation of the village plans was a serious oversight in a program which relied heavily on the notion of self-help to encourage the community to participate in the implementation of the program.

The Program targets were of two kinds: those that were expected to provide a direct service to the community and those that were to be provided for demonstration purposes. A review of the targets reveals that the Program planners relied heavily on the demonstration effect for the achievement of program targets. However, the program did not put in place mechanisms that would have enabled the people to have access to a facility after its demonstration had proved its usefulness. The program did not fully comprehend that poverty was the principal reason for poor access to adequate sanitation, drainage and nutrition status. Behavioral changes were expected without putting into place incentives which would reinforce the desired behavior.

There was heavy emphasis on training village level workers in the list of targets. In the three phases of the Program, there were plans to train at least 1,200 village level workers in various tasks. An important question which was left unanswered was how these people were to be motivated in the performance of their tasks after their training. The question of remuneration was not discussed on the assumption that these people would be willing to volunteer their time for the good of the community. There was no utilization strategy worked out between the project and the users of the services which these trainees would provide.

The Program strategy was clearly premised on community participation but there was very little understanding of how this was to be achieved. To begin with, there was very little or no involvement of the target population. The Village Project Committee (VPC), the main implementing agency of the Program at the village level, consisted of four or five members who did not or could not always consult the other villagers on aspects of the Program. As a result, a majority of the villagers were unaware of its workings or the exact nature of its responsibilities. The VPC

needed the support and active collaboration of the villagers for the implementation of the CBS program. The mechanisms which would ensure accountability of the VPC to the village were also very weak.

2.3. The Delivery System

The main body responsible for the planning, implementation and monitoring of the CBS Program was the CBS Unit. The chief of this body was the Deputy Director of the Local Bodies & Rural Development (LB&RD) Department. The Unit had four deputy chiefs. These were the Planning Officer of the Planning and Development Cell, one representative each from the Health and Education Departments of the Government, and the Assistant Director of vocational training project. In addition, the Unit had four members: a coordinator who was the representative from the Aga Khan Foundation, and the three chairmen of the District Councils.

The Additional Commissioner of the Planning and Development Cell was designated the Project Director and the Chief Coordinator of the Program. At the District level, the District Councils were made responsible for planning, implementation and review of the program components with the assistance of the respective Assistant Directors from the LB&RD Departments in the Districts. In the Markaz, the Project Managers and their staff were assigned the duties of coordination and facilitation. At the Union Council level, each Union Council member was designated Chairman of the Village Project Committees in his ward, with responsibility for planning, execution and maintenance of projects.

All the equipment, materials and inputs received from UNICEF were delivered directly by the CBS Unit in the Gilgit District. The delivery of inputs for the Baltistan and Diamer Districts was coordinated through the Assistant Directors of the LB&RD Department. The Project Managers were not involved in the delivery or management of the inputs supplied to the villages in the three districts.

The training programs for local leaders, health workers, Traditional Birth Attendants and vocational skills trainers were planned, designed and conducted by the CBS Unit with the technical assistance of the line departments. The training programs for teachers were conducted by the Aga Khan Education Services, and they selected teachers from CBS villages in their regular courses.

At the village level, Village Project Committees (VPCs) were formed. Sectoral sub-committees were formed under these VPCs to implement, supervise and maintain different components of the CBS program. The VPCs consisted of a president who was the member of the Union Council of the ward. The other office bearers of the VPC included a vice-president, a secretary and a joint secretary. The membership of the sectoral sub-committees was decided by the

VPCs. It was up to the community to select as many members in a sub-committee as it thought were required for a particular purpose. Committee membership was guided by the simple rule that no person from the same household could be nominated to more than one committee.

The VPCs were required to follow a series of rules and regulations. These are summarized below:

- o The VPC was required to maintain contact with the Union Council, the District Council and other concerned departments. It was required to extend its full technical and administrative cooperation in the implementation of project activities.
- o The VPC was required to plan and implement the CBS program with the participation of the local population and the cooperation of the concerned Union Council.
- o The VPC was required to arrange administrative matters regarding the implementation of the project at the local level.
- o The VPC was responsible for the financial management of the program at the field level.
- o The VPC was responsible for the supervision and monitoring of the project activities of the sectoral sub-committees, assessment of their performance, and keeping a check on financial matters.
- o The VPC was required to submit reports to the Union Council, Markaz and the District Council members.
- o The VPC was required to nominate community workers such as the Traditional Birth Attendants, the Community Health and Nutrition Workers, sanitary workers and vocational skills trainers in consultation with the representatives of Government Departments and the community itself.
- o The VPC was required to decide about service charges in consultation with the community.

The sectoral sub-committees had a more specific set of responsibilities. They were required to advise on the design and site selection for water supply schemes and other construction work; to help in the motivation of the community for participation in the implementation of project activities, specifically, women's participation; to help in the selection of trainees; to mobilize community contribution in terms of cash, land and labor; to monitor progress of the project activities and report these to the VPCs.

The Union Councils were given the responsibility of implementation and execution of program activities through the VPCs.

2.4. The Process of Community Participation

The Community Basic Services Program, as its name suggests, was very clear that it wanted to involve the community in the design, implementation and monitoring of the Program. However, it was not very clear on how to secure such participation or the precise purpose of such participation. None of the CBS documents clearly indicates what was to be achieved by the involvement of the community. The motives for the involvement of the community have to be assumed from the stated objectives of the Program.

It seems that the Program planners felt that the involvement of the community was beneficial for the following reasons:

- o The Program was designed to benefit the community and, as such, it was natural for the community to be involved in its identification, design and implementation.
- o The involvement of the community would help to achieve the targets of the Program in a cost effective manner and would also help to generate resources (labor, land and local materials) which the community could provide.
- o The involvement of the community would help in the broader and more long term objective of developing local village level capacity to participate in the development of the village.

Although, these objectives are not explicitly stated in the project documents they are evident from the manner in which the strategic program documents are phrased. However, there was very little done to systematically involve the community in a sustained manner. The espoused objectives of community participation could not be met through the Village Project Committees which was a very small body unable to generate the interest of the village. The VPCs had failed to mobilize the village population in the achievement of its tasks.

The level of community participation was different at various stages of the Program. In the identification phase, the participation of the community was invited through a comprehensive survey of felt needs. Once this survey was translated into a package of services, technical considerations weighed more heavily than the priorities of the villages. A standard package of services was designed for all the 150 villages selected. The villages were not allowed to pick and choose components from the package in accordance with their health status or needs. Similarly, the villagers were not given a choice in the selection of villages for the CBS Program and the selection for inclusion in

the Program was made by the District Councils. These factors had a negative effect on the achievement of Program targets.

A major drawback of the CBS Program was its failure to involve the target population. Women were to be the main beneficiaries of the Program. However, there was no effort to involve the women in the planning or implementation stage. The participation of the women was restricted to those packages which required women trainees, e.g., the Traditional Birth Attendant package and the vocational skills training program. The nature of the CBS packages was such that women would have taken greater interest than men in the implementation of the program, as it would have helped reduce their workload and provide them direct access to other basic services.

2.5. The Monitoring & Evaluation System

A system of monitoring had been built into the system devised by the planners. The sectoral sub-committees were to report on progress, problems and solutions to the VPCs. The VPCs, in turn, were made responsible for consolidating the information on a prescribed *pro forma* and sending copies to the Union Council, District Council and the Planning and Development Cell. The system of reporting was to be a two-way flow, with the CBS Unit members and other staff reporting about Program policies, changes and follow up action to the VPCs.

At the District level, the District Councils were reviewing the Program implementation in their districts every quarter. The CBS Unit was also made responsible to review program implementation and take decisions to change strategies and recommend policy matters to the Program Review Committee consisting of representatives of the Government, UNICEF and AKF in their periodic meetings.

The initial system of monitoring which relied heavily on the submission of periodic progress reports from the VPCs was severely handicapped due to the delay in submitting these reports and the failure of the concerned staff members to take prompt follow up action. Due to the persistent delay in the achievement of the targets, a Monitoring and Evaluation Unit was established in 1984. This Unit was given wide ranging responsibility for monitoring and coordinating follow up action. The M&E officers were expected to undertake extensive field visits and report first hand on the progress on various packages. A quarterly progress report was also prepared by this Unit.

2.6. The Role of Participating Agencies

There were four major participants in the CBS Program: The Government, the Aga Khan Foundation, UNICEF and the community. Between them, these four entities shared the responsibility for

financing the Program and for its execution.

The Government bore the major responsibility and was in charge of logistical support and managerial salaries. UNICEF provided equipment and materials for several of the components and also arranged for expertise in various fields when required. A major contribution of UNICEF was PVC pipes for the water supply schemes. The Aga Khan Foundation provided funds for TBA training, equipment for Community Women's Centers and personnel for the M&E Unit. The community was expected to provide free labor, land, local materials and trainees for the various components of the program. The community was also expected to provide the skills for the management and maintenance of village level projects.

The community was to be the major participant in the Program. Not only was the Program designed for the community, but the contribution expected from the community was also the greatest. Despite the extent of its expected community involvement, communication between the villagers and the program planners was minimal. There was no mechanism through which the representatives of the community could regularly meet the implementers of the Program. Contact between the VPCs and the community was also restricted or non-existent. The VPC could, on occasion, enlist the support of a majority of the village for a large project such as the water supply scheme. This support was not forthcoming for the other components of the Program. The VPC felt it expedient to bypass the community on a number of issues. In particular, it was felt that detailed discussions with the community might hinder the implementation of such components as the TBA training or vocational training, where the community was asked to select a person for training in Gilgit.

3. Progress and Impact Assessment

3.1. Water Supply Schemes

These schemes were the entry point of the CBS Program. The main purpose behind providing these schemes was to furnish the villages with a clean source of drinking water. The comprehensive survey on the basis of which Program targets were formulated, revealed that the prime cause of infant mortality and morbidity was water borne diseases. Water supply schemes became popular because of the ease of collection of clean water. By the end of 1987, it was reported that water supply schemes had been completed in 130 of the projected 150 villages. This figure is misleading for two reasons: (i) in most villages maintenance problems have hindered the functioning of the schemes; and (ii) the schemes have made drinking water available to only a small section of the village population.

There was a delay in the implementation of most of these schemes due to two main reasons: delay in the supply of materials,

and delay in implementation by the community. Where the delay was caused by the failure of the community to act promptly, the reason was that the scheme was projected to benefit only a certain section of the population and it was difficult to enlist the support of those not directly benefitting by the scheme. The most severe drawback in this package has been the failure of the community to maintain the schemes in working order. The CBS Program made provisions for the training of a village sanitary-cum-plumber specialist but the inability of the Program to specify the terms of remuneration of the specialist made him a reluctant worker. The community also shied away from accepting any responsibility for payment to him, expecting that this might persuade the Program planners to accept the responsibility.

3.2. Sanitation Projects

This component consisted of the construction of demonstration latrines at several places in the village, provision of household latrine equipment to five influential community members and providing them technical guidance through trained field staff, and training a village sanitary promoter in order to help bring changes in the behavior of communities through education, motivation and installation of some basic facilities around the community taps. A sectoral sub-committee was seen as the main motivator for achieving certain behavioral changes in the villages.

In practice, the sectoral sub-committees remained dormant. The maintenance of demonstration latrines was not carried out in most of the cases. The latrines were either reserved for guests visiting public places or left unattended. In case of household latrines, the situation has been better, but here again the latrines were primarily reserved for visitors.

The village plumber-cum-sanitary worker was responsible for maintaining the water supply projects and motivating the community to adopt flush-type latrines. In return for these services, the community was to make him a payment. The funds for this payment and for expenses on repairs and maintenance of water supply schemes and the demonstration latrines were to be raised by the community cooperatively and put in a development fund. This fund was not raised in a single case. Village plumbers were not paid for their services, nor were funds arranged for maintenance and repair.

The implementation of this component highlights the importance of securing agreement on some basic issues by the community.

3.3. Traditional Birth Attendant Training

The objective behind the training of a Traditional Birth Attendant (TBA) was to reduce the maternal mortality rate by providing the services of a trained TBA at the village level. The responsibilities of a TBA were to advise health improvement

measures to pregnant mothers through regular home visits, provide assistance in home deliveries and post natal care, and refer the high risk cases to the nearest health facilities.

The skills imparted to the TBAs are generally considered of a high quality. The main drawback in this scheme was in the selection of women for TBA training, conflicts with the established TBA in the village, competition offered by health referral facilities in the vicinity, and fixing of the remuneration for the TBA. These problems could have been avoided by discussing these issues with the community.

The establishment of a revolving fund to enable the TBAs to supply medicines to the community did not work well. There was no systematic monitoring of the performance of the TBAs. A few visits were undertaken by the M&E Unit and the AKF Coordinator. The Deputy Chief of the Health Department was supposed to undertake tours to monitor the functioning of the TBAs but he was not made available by the Health Department. The problems identified could not be adequately addressed. The most crippling problem in the achievement of this target was the reluctance of villagers to send women for TBA training. This problem was partially resolved by inviting participation of TBA trainees from non-CBS villages.

3.4. Vocational Skill Training

Under this package, equipment, material and financial assistance was to be provided to selected master trainers with the idea that they would sustain themselves after one year by making handicrafts and marketing them. The VPCs were expected to nominate trainees for the Master Trainers course. The VPCs were also entrusted with providing assistance in establishing Community Women's Centers (CWCs), at a central point in the village where village women could congregate. These Centers were meant to provide the village women an income generating opportunity. A master trainer was to be in charge of each Center and was expected to motivate the village women to participate in its activities. The women were to be given adequate training by the master trainer and then assisted in arranging the supply of raw materials and in marketing its produce. The Centers were also envisaged as training institutions where village women would be given basic training in health and hygiene matters.

Under this package, 79 women were trained as master trainers. Interviews with some of the women revealed that the subjects which they were being taught did not fit in with the traditional skills that they had been taught. For instance, carpet weaving was one of the topics that women were being taught, although traditionally it is the men who weave carpets.

In practice, the establishment of these Centers proved to be a problem due to the reluctance of the community to provide

premises for the purpose. The master trainer's house was used as a Center in a majority of the villages. These Centers showed some activity in the first twelve months when the master trainer was paid an honorarium. After this period, there was very little activity reported in the Centers. The village women were reluctant to work on the Centers and it is reported that in most cases the Centers were not able to encourage any trainee to participate in its activities.

The links of these Centers with markets remained weak. The supply of raw materials and the sale of the finished products remained a major problem. The CWCs needed proper linkages with established marketing outlets and these were not provided. As a result the finished products would remain unsold at the Centers. Partly to look into these problems a female coordinator was appointed in 1985. Two marketing officers were also appointed to investigate these problems. After a year and a half, the posts of these marketing officers were dispensed with because UNICEF did not want to finance these posts and the Government was not willing to provide funds for the purpose either.

3.5. Community Health & Nutrition Workers

The objective of this training was to provide the village a capacity to monitor the growth of infants and children and to keep a record of their nutritional and health profiles. Detailed growth monitoring charts were prepared for the purpose and these records were to be periodically filled in by the CH&NW. The Community health worker was also entrusted with motivating the community to adopt more hygienic measures in child and household care.

Progress in the implementation of this program was delayed for three years due to the absence of a suitable curriculum. A second problem in the implementation of this Program was the absence of suitable candidates for training. Finally, in December 1984, a workshop was held in Gilgit and a mixed group of LB&RD officers, para-medical staff, primary school teachers, village volunteers and some members of the CBS Unit were given this training. No equipment was supplied to the trainees until December 1985. The Health Department representative on the CBS Unit was asked to monitor the performance of these workers and even this was not done, except once at the end of 1986. In any case, there did not seem much point in monitoring this activity as no precise responsibilities were fixed, and it was not clear what was to be monitored. The complicated charts designed to monitor growth were never really used.

4. Summary and Conclusions

4.1. Sustainability Analysis

Community participation was to be instrumental in making the CBS Program sustainable. However, the support of the community was never really enlisted in a manner which would ensure the success of the program. The level of community participation was restricted to the Village Project Committees and the sectoral sub-committees. The membership of these bodies was too narrow to ensure the interest of the target population. The Program needed the support of the community in all its stages from identification to planning, implementation and monitoring. A majority of the village was rarely consulted, and the VPC was taken as a proxy for community participation. The low level of achievements of Program targets indicated the importance of involving the community in the Program.

The role that the community could have played in the implementation of the targets was highlighted by the approach used by the Aga Khan Rural Support Program (AKRSP). The broad-based Village Organizations established by AKRSP could have been more effective in the achievement of the Program targets. In a joint meeting between the staff of the CBS Program and AKRSP it was agreed to use the forum of the Village Organization for all development work at the village level.

Where these Village Organizations were used in the implementation of the targets a very different result was reported. A majority of the villagers were given a forum to articulate the problems in the implementation of the Program targets and the pace of their achievement. Representatives from the CBS Unit and the representatives of the Village Organization were also invited to participate in the Monthly Managers Conference held in the AKRSP offices in Gilgit. This monthly meeting gave the villagers a forum to establish direct contact with those responsible for delivering the requisite inputs. This was the first such opportunity afforded to the villagers. Taking the cue from this, some members of the CBS staff suggested more detailed contact between the village representatives and the CBS staff. This contact was made in day-long sessions immediately following the monthly meetings. The CBS monitoring staff was particularly pleased with these meetings but these were inexplicably discontinued.

The institutional framework within which the CBS Program functioned was very narrowly conceived. It did not make any provisions for making the Program a genuine community venture. The mechanisms which would have ensured the continuation of the Program with minimal support from the donors were very weak. There was no process set in place for an ongoing assessment of community needs in the health and sanitation fields or for a method of meeting these. The utilization strategy which would have helped to affix the user charges for the services of all trainees was missing. In the strategic documents plans were made to consult the community on aspects of user charges but these were never really implemented.

The CBS Program had a large component of training but the procedure laid out for the selection of the trainees did not involve the community to any appreciable extent. The selection procedure is crucial to the success of a training program as it determines the efficacy of the trainees and their acceptance by the client population. Selection by the community can also help weed out candidates who are unlikely to perform their functions or leave the village after the training. The selection strategy followed by the CBS staff was to secure the maximum number of candidates to ensure that the stated targets were met. This approach did not indicate concern with the efficacy of these trainees or their use by the community after their training. The program of TBA training suffered because of the selection of women who were not suitable for the job. In the case of other trainees like the Community Health & Nutrition Workers, the Program planners collected whomever they could and imparted the training without any clear understanding of what might be achieved by this.

4.2. Synthesis of Effective Development Principles

The development principles which can be derived from this case study have been categorized into four broad areas. The issues from which these arise are reported below:

Organizational Issues

- o The target population must be involved in all aspects of project identification, preparation and implementation. A proxy institution such as the VPC will not be effective.
- o Traditional institutions should be incorporated in the development process as far as possible. The CBS Program used the VPC which did not wield any real authority in the villages.
- o Inter-agency coordination is crucial to the success of a program. The four principal parties involved in the CBS program did not clearly understand each other's motivations for participation in the Program. There was very little dialogue between the two principal parties - the government and the community.
- o A system of monitoring and evaluation provides key feedback in the implementation of the Program. The system of M&E initially provided in the CBS Program did not encourage consolidated reporting or follow up action. This was partly redressed by the new system introduced in 1984 when a separate M&E Unit was established.

Implementation Issues

- o The selection of CBS villages, components of the package, and trainees was conducted without adequate consultation with the community. The individual villages were not consulted to obtain their consent for participation in the CBS Program. Similarly, the community had not identified the package of services which they wanted. The package of basic services was built around the water supply scheme and attempts were made to implement it in each village regardless of the community's need for it. The slow rate of progress in the achievement of targets pointed to these serious drawbacks in the Program. All villages were treated as having identical health and sanitation profiles and needs, which they did not have.
- o The traditional division of labor was disregarded in some components of the program. Women were given training in carpet and sharma weaving which is traditionally a man's job. This oversight was corrected and the training discontinued when the response of the community indicated the existence of a problem. The expectation that women could market the products of the CWCs and arrange for the supply of raw materials was not in keeping with the traditional division of labor in the villages and eventually two marketing specialists were hired for the purpose.

Technical Issues

- o Some components of the CBS Program introduced items of new technology like the water supply schemes and the Community Women's Centers. Both of these components required putting into place new institutional arrangements for their success. Although these arrangements were envisioned in the CBS Program, in practice the arrangements were inadequate. For instance, the water supply schemes required arrangements for maintenance, supply of spare parts, and user charges to enable the financing of the maintenance of these schemes. Similarly, the Community Women's Centers required backward and forward linkages with the market, which were missing. It was the inability of the program planners to visualize that new technologies require new institutional arrangements for their success which led to the poor performance in these components.
- o The staff of the CBS Program lacked the technical skills which were required for the success of the Program. The curriculum designed for the CH&NW was far from adequate and it was not clearly understood how the course contents would help to achieve the objectives of the CBS Program. The manner in which the training of the CH&NW was organized lacked understanding of the objectives of the Program. There was inadequate technical input in the implementation of the water supply schemes, the CWCs and other components of the Program.

- o The CBS Program expected to bring about behavioral changes in the client population. This expectation is evident from the number of targets which were explicitly added for demonstration purposes. The mechanisms for introducing these behavioral changes were very weak.

Economic Issues

- o The basic concept on which the designers of the CBS Program relied in expecting community participation was the notion of self-help, i.e., the community was expected to participate in Program activities simply because the Program was designed for the benefit of the community. Such notions of self-help ignore the concept of opportunity cost of labor. This was one factor responsible for the unenthusiastic response of the community.
- o The considerations of supply and demand were not sufficiently investigated when deciding on the kind of training that would be imparted to village representatives. The same mistake was made in deciding on what would be produced by the CWCs. As a result, the products of these Centers remained unsold.
- o Proper arrangements were not made to ensure the remuneration for the trainees. Excessive reliance on the concept of volunteer services has led to the demise of many well conceived programs.

Annex 5

Understanding and Implementing Participatory Approaches

1. An Overview of Approaches to Development
2. Mistaken Notions of Community Participation
3. What Do We Mean by Participation?
4. Planning for Local Development: The AKRSP Diagnostic Survey

1. An Overview of Approaches to Development

Community participation is the desired goal or implementation mechanism in many of the recent projects and programmes in Pakistan. It is such a popular and attractive idea that its mere mention sometimes suffices to earn praise for a project. It is, however, implemented in many ways, some of which involve the community only in a perfunctory manner, while others actually negate the intention behind community participation.

One way of clarifying the concept of community participation is by comparing it with other approaches to development management. The following typology suggests that three broad approaches to development can be observed in Pakistan:

- i) The managerial approach, in which project managers or technical experts identify priorities, propose solutions, design mechanisms, manage resources, and implement and monitor projects. All of this is usually done according to pre-determined blueprints and fixed rules and procedures by a government agency or project management.
- ii) The participatory approach, in which communities establish their own institutions, identify their priorities, organize their resources, manage their development agenda, and forge the necessary links for continuing technical and financial assistance by outside agencies. The supporting agency provides technical and financial assistance, but it does not infringe upon the sovereignty of the community organization: decision making rests with the community, which can reject the advice and judgement of project experts.
- iii) The representative approach, often mistaken for community participation. In this approach, elected or nominated representatives of a community determine the development agenda, interact with the development agencies, and otherwise represent their community's interests as best as they can. Decision making over development activities is delegated to representatives, who are accountable to their constituents at the time of elections.

2. Mistaken Notions of Community Participation

Many projects pursuing community participation actually follow the representative approach: they depend for decision making on influential residents, elected representatives, project committees, etc. Projects which tend to depend on such representatives usually take a project-oriented approach to participation, in which the objective often is to obtain "free" labor or other resources from the community, for execution or maintenance of projects. Because it requires community contributions to reduce the financial burden of the project, this approach has been popularized in Pakistan as

a self-help approach. It is built into many projects and national programmes, including those of the Local Government and Rural Development Departments, the watercourse renovation programs of several major irrigation projects, and diverse social sector programs.

Financing local development through community contributions has been known in South Asia since times immemorial: it is known as *begar*, or conscription. *Begar* is a severe form of regressive taxation exacted by village headmen or notables acting under feudal authority. In this century, it was incorporated into Indian civil administration by F. L. Brayne in his rural reconstruction program in the 1930s. In the Northern Areas, *begar* was used by the region's many Mirs and Rajahs to construct physical infrastructure, develop land, graze livestock, obtain meat and livestock products, and so on.

Even without the dependence on *begar*, an organization that is controlled by representatives will generally produce inefficient and regressive allocation of resources. The cooperatives in Pakistan are a well known example. These cooperatives are created under legislation that gives practically all decision making powers to the executive committee of the cooperative. Unlike the orthodox cooperatives in Europe from which the model for Pakistani cooperatives was drawn, the General Body of Pakistani cooperatives exists as a mere formality: cooperative office bearers are not really accountable to the General Body. Understandably, they pursue their own interests, rather than those of the ordinary members.

This brings us to a well known problem of representative approaches to development - the alienation of public from private interest. Whether they are managing local water supply projects, watercourse renovation, or cooperatives, representatives who are not accountable to the ordinary public will generally not perform according to the public's expectations. In the worst case, representatives could become corrupt as well as inefficient.

In many instances, we can see that a desire for community participation in development projects has degenerated into an inefficient, regressive and sometimes corrupt system. This has happened because, instead of organizing the community to manage development projects and resources, its representatives were given the resources and made responsible for decision making. In effect, representation was mistaken for participation.

A more fundamental mistake is the belief that community organization exists for the purposes for which the project wants to enlist community participation. Thus, project design and implementation is often predicated on existing local government mechanisms, *jirgas*, youth organizations, welfare societies, cooperatives, trade associations, mosque committees, project

committees and the like. Many of these organizations are representative, rather than participatory organizations, and suffer from the problems described above. Others are not suitable for development work: they may have transitory membership, a social welfare orientation, limited resources and management capacity, or little or no correlation to the expected beneficiary base or user group. The general situation in Pakistan is that traditional institutions have become weak or non-existent, and new institutions for the management of common problems have not yet emerged: there is an institutional vacuum at the local level.

We can summarize the preceding discussion by highlighting some of the features of what is mistaken as an attempt at community participation:

- o There is a limited, project-oriented focus;
- o The project seeks to finance local development through community contributions; this is considered self-help and provides the rationale for community participation;
- o In organizational terms, representation is mistaken for participation: decision making over projects and resources is given to representatives, rather than to organized communities; and,
- o It is not realized that there is an institutional vacuum at the local level, that community organization for development has to be created and nurtured.

3. What Do We Mean by Participation?

An alternative approach starts from the last two points - that broad-based, open and democratic community organization has to be the first step in the process of development. This is a process-oriented approach. In this approach, it is recognized that local development is best approached by creating and nurturing broad-based community organizations. It is recognized that representative and participatory institutions represent two distinct and opposite cultures of social organization and development administration. In most instances, the representative approach is an organizational closed shop, in which decision making is the preserve of a few influential individuals; there are no public hearings; accounts are not rendered to the general public in open meetings; and interaction with development officials takes place in offices, *havelis*, *hujras* and the like. In terms of the mobilization of community manpower and capital, the capacity of representatives for promoting sustainable development is extremely limited.

In contrast, the participatory approach should nurture an open process of dialogue and consensus; decision making by the General

Body (i.e., all adult beneficiaries); financial and progress monitoring by each and every ordinary citizen acting through the forum of the community organization; and interaction between development officials and ordinary citizens in open common assemblies. The community organization should be responsible from the very beginning to ordinary project beneficiaries, not leaders and outsiders. From an early stage, community participation should generate capital and devise financial mechanisms that will form the basis of financial and organizational sustainability over time.

Since this kind of community organization for development does not exist in most places, an investment has to be made to create, nurture and sustain it to the point of maturity. This requires, in the first instance, the organization of people around their common interest. It also requires continuing incentive to the people to stay organized. Different communities have different interests that bind them and move them to collective action. These local interests cannot be identified with a distant planning process. Projects that aim to obtain community participation need a planning methodology that is responsive to local needs. The next section describes an established methodology used by AKRSP in planning for village development; other planning methods can also be used effectively, provided they actually draw upon local perceptions and knowledge.

4. Planning for Local Development: The AKRSP Diagnostic Survey

The AKRSP Diagnostic Survey is presented as an example of a planning methodology that could be utilized to improve the effectiveness and equitability of the RWSS Project, and to generate community participation in project activities. It is not, however, presented as a magic solution: like any other methodology, its outcome will depend greatly on the interest and commitment of the practitioner.

The first thing that is needed is, in essence, a reversal of the expectations, norms of behavior and working rules that characterize top-down approaches, whether bureaucratic/managerial, or political/representative. Those who seek community participation have to accept the value and consequences of community participation. It is often difficult for experts to accept that local solutions are sometimes more sensible in many ways than those of outsiders; many outsiders are convinced that poor people lack the knowledge to improve their condition, and that all they need is the superior knowledge of outside experts. There is also a danger of going too far in the opposite direction, by romanticizing local practices to the extent that all local custom and technology is considered "best" for the situation. The truth generally is that outside experts can, indeed, provide useful advice when markets and technology are changing. Their advice will be most readily accepted by local people if it entails incremental changes, that is, the grafting of new techniques on traditional

practices and knowledge.

Project experts have to accept local villagers as their partners in all stages of the project. With this frame of mind, it would become possible to employ the following methodology to great benefit.

The identification and implementation of AKRSP's village projects is undertaken through a series of interactive dialogues between villagers and AKRSP management. There are three dialogues (actually, three sets of dialogues); together, they constitute the Diagnostic Survey. The purpose of the Diagnostic Survey is to identify village needs through open village meetings attended by all villagers, and to engage the ingenuity and resources of villagers in designing and implementing solutions to common problems.

The three dialogues of the Diagnostic Survey correspond in the following way to the first three stages of conventional project cycles:

First Dialogue	Project Identification
Second Dialogue	Project Preparation
Third Dialogue	Project Appraisal

The Diagnostic Survey was initially developed for productive physical infrastructure projects, such as irrigation channels, link roads, etc. Over time, AKRSP's experience has taught it to use the Diagnostic Survey as a standard planning methodology for all its activities, including credit, new agricultural technology, women's income generating activities and improved resource management systems. The Diagnostic Survey has proved highly effective in giving location-specific direction to AKRSP's technical sections, and in building viable programs on the basis of broad-based participation in project identification, design, benefits and costs.

In order to simplify the following description of the Diagnostic Survey, it is assumed that the process is taking place in a village that is being visited by management for the first time, so that the focus of dialogue is productive physical infrastructure.

The Diagnostic Survey starts with a visit by the Management Group to a village whose residents have agreed to meet with AKRSP staff. The General Manager initiates the first dialogue by explaining the OBJECTIVES AND METHODS OF AKRSP to the villagers. He then invites them to identify an income-generating project that would benefit all or most of the households in the village and that could be undertaken by the villagers themselves. Almost invariably, villagers are able to agree on a project of over-riding importance to all villagers. Thus, the result of the first

dialogue is the IDENTIFICATION of a small, productive project by the residents of a village.

The identification of a project is followed by the second series of dialogues. The first step here involves a FEASIBILITY SURVEY of the proposed scheme. Supervisory responsibility for this technical assessment rests with the Program Senior Engineer. Responsibility in the field devolves on the Social Organization Unit. This unit works with informed village residents to assess the feasibility of proposed and to obtain data on prices of locally available inputs/material. It is on the basis of information obtained locally that BLUEPRINTS and COST ESTIMATES are prepared by the field unit and sent to the Management Group for finalization.

The finalized scheme is taken to the villagers by the Management Group and discussed with them. This starts the third dialogue, in which AKRSP and the residents of the village explore the TERMS OF PARTNERSHIP that would assign specific obligations to each of the two entities. If willing, villagers could demonstrate their ACCEPTANCE of these terms by convincing AKRSP about the manner in which they would organize to plan, implement, manage and maintain specific projects that could involve physical works, skill development, new technology, loans and collective savings. At this stage, a Village Organization is formed, consisting of all beneficiaries of the project. The formation of the organization is followed by an ASSESSMENT OF PROJECT BENEFITS, conducted by concerned members of the Management Group. The purpose of this assessment is to assure that the project will benefit all or most villagers, and that there is no dispute over the proposed project. This completes the Diagnostic Survey.

The execution and maintenance of the project is the responsibility of the Village Organization, and technical and financial assistance is provided by AKRSP as discussed in the Terms of Partnership. Monitoring the project is the responsibility of each villager as well as the Village Organization. During project implementation, all beneficiaries have to meet every week as the General Body of the VO: there is no project committee and no decision making by elected or self-appointed representatives. The General Body, in open village meetings, has to assign responsibility for specific tasks, daily labor allocations for the project, operation of project accounts, maintenance, etc. Those assigned tasks have to report to the General Body: accounts are presented, progress is reviewed and problems are resolved. Once a specific scheme has been executed, the responsibility for its management becomes completely vested in the Village Organization: villagers become responsible for all aspects of managing the scheme they had identified, helped plan and executed.

AKRSP's Social Organization Unit, consisting of a Social Organizer and an engineer, supervises the project, checks physical

progress and the functioning of the Village Organization, and makes recommendations to management for payment of instalments and the provision of support services. It is rare for the management to overturn the recommendations of the Social Organization section. The continuous monitoring of Village Organizations and the ongoing processes of training and supervision, together with follow-up visits, provide the Management Group with the information it needs for evaluation of persistence of results.

The Diagnostic Survey is summarized below in Figure 1.

Figure 1

AKRSP Diagnostic Survey

Activity	Responsibility
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First Dialogue: Project Identification

- | | |
|---|-----------------|
| (a) Explanation of AKRSP Methods and Objectives | General Manager |
| (b) Identification of Productive Rural Projects | Villagers |

Second Dialogue: Project Preparation

- | | |
|--|-----------------------------|
| (a) Feasibility of Physical Infrastructure Works | Soc. Org. Unit. |
| (b) Preparation of Blueprint or Objective Plan | with villagers. |
| (c) Cost Estimation | approval by Senior Engineer |

Third Dialogue: Project Appraisal

- | | |
|--|-----------------|
| (a) Explanation of Terms of Partnership | General Manager |
| (b) Acceptance/Rejection of Terms of Partnership | Villagers |
| (c) Assessment of Benefits and Equitability | Management |

Annex 6

*Terms of Partnership for
Project Implementation by Village Organizations*

These are the terms of partnership proposed for collaboration between the Local Bodies and Rural Development Department and the Village Organizations for the Implementation of water supply schemes.

Part I

1. The Village Organization will hold regular weekly meetings during the implementation of the Project and at regular intervals thereafter for scheme operation and maintenance: attendance by all members will be ensured as far as possible.
2. One-fourth of the labor cost of the Rural Water Supply & Sanitation (RWSS) Project will be saved for deposit in weekly savings during the development of the project. Savings scheme will continue even after the completion of the project.
3. The project will be completed within the estimated costs, and no revisions will be entertained under any circumstances. The estimated amount is a grant on behalf of the Government of Pakistan and not subject to increases.
4. After completion of the project the responsibility for maintenance shall exclusively rest with the Organization. Furthermore, compensation for land affected by the project will also be arranged by the Organization.
5. During the construction of the project suggestions and advice given by technical staff of the LB&RD and AKRSP will be given due consideration and acted upon.
6. Repairs to damage due to any natural disaster to a completed or ongoing project will also be the responsibility of the Organization, and under this or the conditions of Article No. 4 the Organization will not claim assistance from LB&RD or for that matter from any other agency.
7. It shall be the duty of each member in the Organization to check and verify the progress and expenditure of the water supply scheme under execution. Each member shall ensure proper records of savings attendance and other matters.
10. A two-thirds majority of the total members in the Organization can remove any office bearer.
8. The last instalment of the project shall be paid only after the completion of the project, and on such certification by at least 75% of the members through a resolution, which should be attested by the LB&RD engineers or AKRSP sub-engineers (if requested by LB&RD).
9. The Organization will nominate its members for specialist training

which will be coordinated by LB&RD.

10. It shall be the duty of the Organization to utilize the service of the trained (skilled) specialist and pay the service charges in cash or kind.
11. The Organization shall provide assistance to the Women's Organization of its village, e.g., it will help improve the access of the program to the Women's Organization, encourage their participation in the hygiene education program, help identify the greater involvement of women in the sanitation program.
12. Instruments and materials or finances given to the Organization for any project by LB&RD should be returned to LB&RD if not used.
13. The Organization shall give an understanding that any project initiated with the assistance of LB&RD shall not result in damage or loss to anyone.
14. The Organization shall ensure that until the completion of the project there are no differences within or without the Organization, pertaining to the project and there is no case pending in a court of law.

Part II

1. VO. Name: _____
2. Project identified by the VO _____
3. Date _____ 4. Total savings Rs. _____
5. Total members _____ 6. Total households _____

We, the members of Village Organization _____ hereby agree that any assistance or grant provided by LB&RD for our village would be conditional on our undertaking to complete the project and to increase collective savings.

Savings

Before getting a grant for the project, the savings of the VO are Rs. _____. Before completion of the project, 1/4th portion of labor charges would be compulsorily deposited in the savings. The savings would continuously be increased even after the completion of the project.

Project Implementation Program

1. Project will be initiated with effect from _____ and shall be completed by _____, that is, in _____ months. During this period at least _____ members will work daily on the project.

2. Project work would be completed according to the following stipulated time schedule:

1/4th on _____

1/2 on _____

3/4 on _____

Completed on _____

If not completed on above mentioned specified dates, LB&RD shall have full power/authority to stop payment of installments.

Mode of Payment

LB&RD will pay 20% of the total labor cost plus the entire material cost (i.e. 100%) at the Third Dialogue in the presence of all VO members on acceptance of the aforementioned terms on the receipt of VO resolution duly recommended and forwarded by the concerned LB&RD engineer or SO and Engineer (if requested by LB&RD).

All members will adhere to the above conditions.

Signatures of members of Village Organization _____

Annexure 7

Costing Methodology of Northern Areas

Water Supply Schemes

Table 1	Material and Labour Costs in Northern Areas in July 1989
Table 2	Water Supply Scheme - without Storage without Treatment for Small Village
Table 3	Water Supply Scheme - with Storage, with Treatment for Small Village
Table 4	Water Supply Scheme - with Storage, with Treatment for Medium Village
Table 5	Water Supply Scheme - with Storage, with Treatment for Large Village
Table 6	Summary of Cost and Main Features of Water Supply Schemes proposed in the Plan

Human Waste Disposal

Table 7	Human Waste Disposal - Twin Pit Pour Flush Latrine
Fig. 1	Pour Flush Latrine with Twin Soakaway Pits
Table 8	Human Waste Disposal - VIP Latrine
Table 9	Human Waste Disposal - Modifications of Balti Latrine

Table 1.

Material and Labour Costs in Northern Areas in July 1989

<u>Description of Item</u>	<u>Cost in Gilgit (Rs)</u>	<u>Cost in Remote Areas</u>
G.I. pipe (KPM) 1/2"	10 per foot	Add transport cost as
3/4"	12 " "	below:
1"	16 " "	-do-
1-1/4"	22 " "	-do-
1-1/2"	28 " "	-do-
2"	32 " "	-do-
2-1/2"	40 " "	-do-
3"	45 " "	-do-
Unskilled labour	40 - 50	Add boarding & lodging
Semi-skilled mason/plumber	100 -120	costs
Skilled mason/plumber	180 -220	-do-
Cement (each bag)	115 -120	-do-
Timber (Govt rate)	45	Varies
Timber (open market)	80	Varies
Aggregate	25/load of 25-30 cu.ft. plus carriage -do-	Varies
Gravel mixed with sand	50/load plus carriage	-do-
Stone	30/load of 25 cu.ft.+ 330/day transport (4 to 5 loads)	-do-
Crushed stone	5/cu ft.	-do-
Transport cost (from source)	15-20 per maund in accessible areas	60-80 per maund in remote areas (e.g. Gulmit;Astore,Skardu)
(from R'Pindi)	6,500 per full load of 6 to 8 tons.	Add for accessible or remote areas as the case may be.

Table 2

Water Supply Scheme

Type of Scheme : Without Storage Without Treatment for Small Village
(Avg. Pop. of Village = 340) Description of the System: Spring capping
+ 11,000 feet of transmission and distribution pipeline and stand posts.

i.	<u>Cost of Spring Capping (4'x 4'x 4') including cover</u>	<u>Rs.</u>
	132 cft of stone masonry @Rs 18 =	2,376
	4.5' x 4.5' wooden cover @Rs 25 =	550

	Total	3,926

ii.	<u>Cost of 11,000 feet of Pipeline</u>	
	Galvanized Iron Pipe (KPM) 1/2" dia 3,500' @Rs 10	35,000
	" " " " 3/4" " 800' @Rs 12	9,600
	" " " " 1" " 3,000' @Rs 16	48,000
	" " " " 1-1/2" " 1,700' @Rs 28	47,600
	" " " " 2" " 1,000' @Rs 32	32,000
	" " " " 3" " 1,000' @Rs 45	45,000

	Sub Total	217,200
	Add 15% for G.I. fittings	32,600
	Add Rs 1.5 per foot as handling charges	16,500
iii.	<u>Cost of Labour</u>	
	Skilled labour 100 man-days @ Rs 300	
	a. Trench Making 3'x2'x11000'	55,000
	b. Fixing 11000'	<u>14,725</u>
	Unskilled labour for pipelaying 3' below ground	69,725
	@Rs 2.5 cu. ft. of 66,000 cu. ft. of excavation	
iv.	Cost of 5 standposts in a small village	51,000
	@ Rs 1,000 per standpost	
	Total Cost:	344,951
	Say	345,000

Note: As this type of schemes will be mostly installed for small communities, of average population 340 people, per capita cost = Rs. 1,014

Table 3

Water Supply Scheme

Type of Scheme : With Storage, Treatment for Small Village
(Avg. Pop of Village = 340)

Description of the system:

Intake + sedimentation tank + slow sand filter + 11,000 ft. of pipeline + storage tank 4,000 gallons + 5 standposts

Estimated Cost (with KPM Pipe)

i. Intake	2,376
ii. Sedimentation tank + slow sand filter 3,000 gallons overall capacity ● Rs 8 per gallon	24,000
iii. Pipeline 11,000 ft.	266,300
iv. Labour charges	69,725
v. Storage tank 10,000 gallons @ Rs 8 per gallon	32,000
vi. Standposts	5,000

	Total 399,401
	Say 400,000

Note: As this type of schemes will be mostly installed in large villages, of average population 340, per capita cost = Rs 1176

Estimated Cost (with ordinary pipe)

i. Intake	2,376
ii. Sedimentation tank + slow sand filter 3,000 gallons overall capacity ● Rs 8 per gallon	24,000
iii. Pipeline 11,000 ft.	186,410
iv. Labour charges	69,725
v. Storage tank 10,000 gallons @ Rs 8 per gallon	32,000
vi. 5 Standposts	5,000

	Total 319,511
	Say 324,000

Per Capita Cost = Rs 953.00

Table 4

Water Supply Scheme

Type of Scheme : With Storage, with Treatment For Medium Village
(Avg. Pop of Village = 1,200)

Description of the system:

Intake + sedimentation tank + slow sand filter + 20,000 ft of pipeline + storage tank 12,000 gallons + 15 standposts

Estimated Cost (with KPM Pipe)

i.	Intake	2,376
ii.	Sedimentation tank + slow sand filter 8,000 gallons overall capacity ● Rs 8 per gallon	64,000
iii.	Pipeline 20,000 ft.	484,000
iv.	Labour charges	130,000
v.	Storage tank 12,000 gallons ● Rs 8 per gallon	96,000
vi.	15 Standposts	15,000

	Total	791,376
	Say	795,000

Note: As this type of schemes will be mostly installed in large villages, of average population 1,011, per capita cost = Rs 737

Estimated Cost (with ordinary pipe)

i.	Intake	2,376
ii.	Sedimentation tank + slow sand filter 8,000 gallons overall capacity ● Rs 8 per gallon	64,000
iii.	Pipeline 20,000 ft.	320,000
iv.	Labour charges	130,000
v.	Storage tank 12,000 gallons ● Rs 8 per gallon	96,000
vi.	15 Standposts	15,000

	Total	627,376
	Say	630,000

Table 5

Water Supply Scheme

Type of Scheme : With Storage, with Treatment for Large Village
(Avg. Pop of Village = 3,300)

Description of the system:

Intake + sedimentation tank + slow sand filter + 37,000 ft. of pipeline + storage tank 52,000 gallons + 40 standposts

Estimated Cost (with KPM Pipe)

i. Intake	2,376
ii. Sedimentation tank + slow sand filter 20,000 gallons overall capacity ● Rs 8 per gallon	160,000
iii. Pipeline 37,000 ft.	850,000
iv. Labour charges	229,400
v. Storage tank 32,000 gallons @ Rs 8 per gallon	256,000
vi. 40 Standposts	40,000

Note: As this type of schemes will be mostly installed in large villages, of average population 1,011, per capita cost = Rs 737

Estimated Cost (with ordinary pipe)

i. Intake	2,376
ii. Sedimentation tank + slow sand filter 20,000 gallons overall capacity ● Rs 8 per gallon	160,000
iii. Pipeline 16,000 ft.	254,341
iv. Labour charges	101,418
v. Storage tank 10,000 gallons @ Rs 8 per gallon	80,000

Table 6

Summary of Cost and Main Features of Water Supply Schemes
Proposed in the Plan

Scheme Size	Avg. Population of Village	Avg. Household per Village	No. of Standpost	Tank Capacity (gals)	Pipe (Rft)	Sedimentation Tank (gals)	Total Cost Rs.
Small	340	43	5	4,000	11,000	3,000	324,000
Medium	1,200	150	15	12,000	20,000	8,000	630,000
Large	3,300	412	40	32,000	37,000	20,000	1,540,000

Table 7

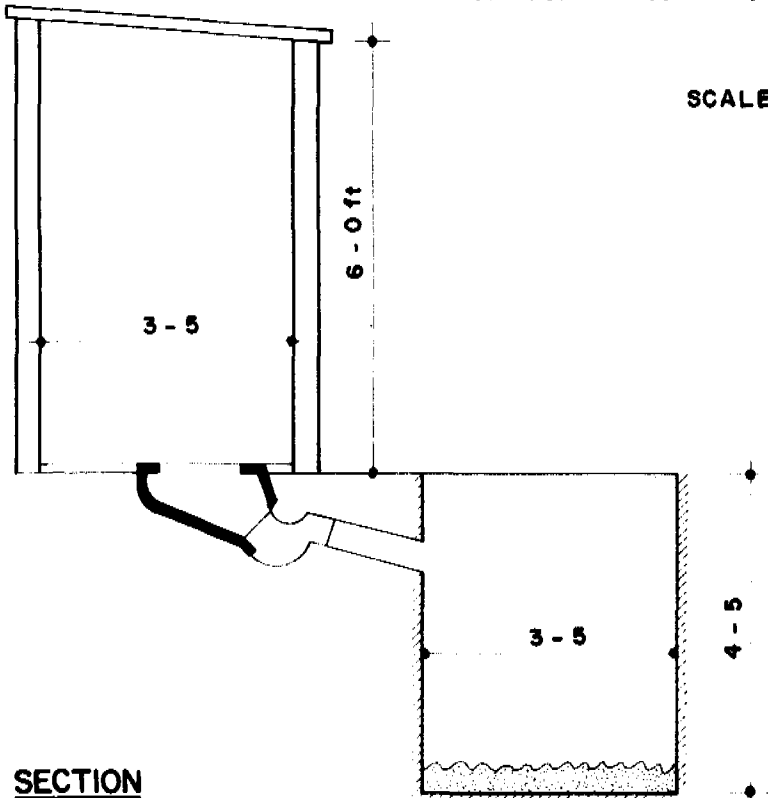
Human Waste DisposalTwin-Pit Pour-Flush Latrine - Unit Cost (July 1989)

<u>Donor's share</u>	<u>Cost</u> <u>Rs</u>
Pan + P-trap	150
Cement 2 bags	240
PVC pipe with cowl	160
Chick mesh	150
Transportation of all materials (remote areas)	500
Total	1,200
 <u>Community's share</u>	
Sand 5 cft	20
Aggregate 10 cft	40
Stone 20 cft	40
Labour unskilled	400
Skilled labour	400
Wood for shuttering	200
Superstructure	3000
Total	4,100
Grand Total	5,300
Say	5,400

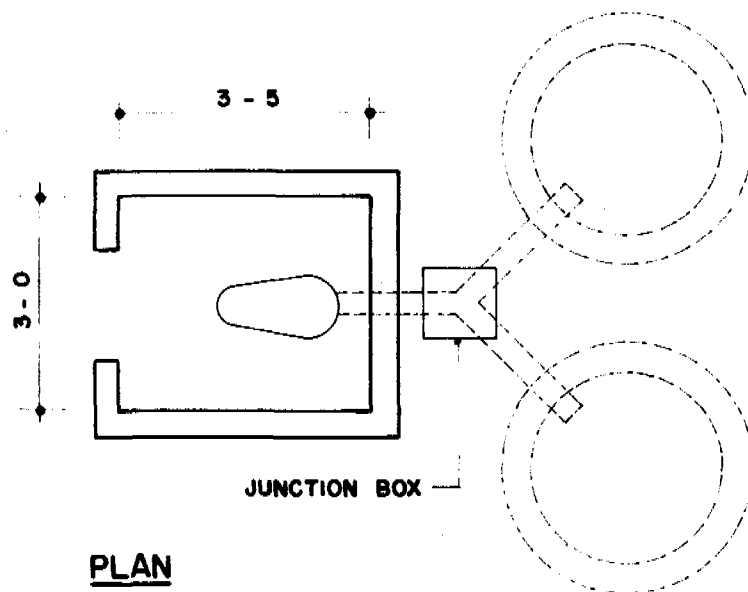
POUR FLUSH LATRINE WITH TWIN SOAKAWAY PITS

(ALL DIMENSIONS ARE MINIMUM DESIRABLE FOR USE HOUSE HOLD ONLY)

SCALE : $\frac{3}{8}'' = 1'-0''$



SECTION



PLAN

SOURCE: 1 - WASA, QUETTA

2 - APPROPRIATE TECHNOLOGY FOR WATER SUPPLY
AND SANITATION BY DUNCAN MARA

Table 8

Human Waste DisposalVIP Latrine - unit cost (July 1989)

	<u>Cost</u> <u>Rs</u>
<u>Donor's share</u>	
Pan	130
Cement 2 bags	240
Vent pipe with cowl	160
Steel reinforcement	150
Transportation of all materials at site	500
Total	<u>1,180</u>
<u>Community's share</u>	
Sand 5 cft	20
Aggregate 10 cft	40
Stone 10 cft	20
Labour unskilled	200
Skilled labour	200
Wood for shuttering	200
Superstructure	3,000
Total	<u>3,680</u>
Grand Total	4,860
Say	4,900

Table 9

Human Waste DisposalModifications of Balti Latrine - Unit Cost (July 1989)Addition of a wall to form two compartments
in the existing Balti Latrine

	<u>Cost</u> <u>Rs.</u>
Size of wall = 8 x 8 x 1-1/2 = 96 cu. ft say 100 cu. ft	
Cost of 1 cu. ft. of masonry work	18
Total cost of masonry work	1,800
Cost of wooden door to cover the opening for decomposed excreta	200
Total cost	----- 2,000
 <u>Donor's share</u>	
Cement (5 bags @ Rs 120)	600
Transportation of all materials	450
Skilled labour (mason, carpenter)	200
Total	----- 1,250
 <u>Community's share</u>	
Stone 125 cu. ft. @ Rs. 3	375
Sand 20 cu. ft. @ Rs. 3	60
Unskilled labour	200
Wood	100
Total	----- 735
Grand Total	1,985
Say	2,000

Annex 8

Costing Details and Physical Targets of the Investment Plan

Table 1	Investment Plan for the Northern Areas
Table 2	Cost of Proposed Water Supply Plan
Table 3	Proposed Plan for Water Supply in Northern Areas
Table 4	Estimated Coverage of Proposed Water Supply Plan in 1993-1998
Table 5	Rehabilitation Program for Existing NAPWD Schemes
Table 6	Rehabilitation Program for Existing LB&RD Schemes
Table 7	Existing Schemes to be Rehabilitated
Table 8	Operation and Maintenance Program for New Water Supply Schemes.
Table 9	Sanitation Coverage Plan for Villages with New Water Supply Schemes
Table 10	Sanitation Coverage Plan for Villages with Old Water Supply Schemes
Table 11	Cost of Water Quality Control and Testing Program
Table 12	Cost of Human Resource Development Program
Table 13	Human Resource Development Program
Table 14	Cost of Hygiene Education Program
Table 15	Revolving Fund for Credit
Table 16	Institutional Strengthening of LB&RD
Table 17	Institutional Strengthening of PWD
Table 18	Institutional Strengthening of AKRSP
Table 19	Institutional Strengthening of Department of Health
Table 20	Institutional Strengthening of the Northern Areas Polytechnic
Table 21	Foreign Technical Assistance Program

Table 1

Investment Plan For Northern Areas

(Constant Prices 1988-89)

(Rs. '000)

Sector Component	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
New Water Supply Schemes	32,336	32,336	33,876	98,548	34,830	35,154	20,664	20,988	22,572	134,208	232,756
Rehabilitation	2,606	3,943	3,560	10,109							10,109
Operation and Maintenance (O&M)	646	1,294	1,971	3,911	2,667	3,370	3,784	4,203	4,655	18,679	22,590
Sanitation	150	150	152	452	154	156	134	136	136	716	1,168
Water Control and Testing	1,440	40	40	1,520	40	40	500			580	2,100
Human Resource Development	856	641	536	2,033	278	278	228	228	218	1,230	3,263
Hygiene Education	170	140	190	500	180	140	190	140	140	790	1,290
Institutional Strengthening (LB&RD)	5,522	2,097	2,257	9,876	2,433	2,626	2,838	3,072	3,330	14,299	24,175
Institutional Strengthening (AKRSP)	910	360	360	1,630	360	360	360	360	360	1,800	3,430
Institutional Strengthening (PHEC & NAPWD)	2,828	2,078	2,078	6,984	1,678	1,678	1,678	1,678	1,678	8,390	15,374
Institutional Strengthening (DOR)	4,816	1,716	1,816	8,348	1,416	1,716	1,716	1,416	1,216	7,480	15,828
Institutional Strengthening (NA Polytechnic)					500	50	300	100	100	1,050	1,050
Institutional Strengthening (Foreign Technical Asst. Program)	7,717	8,479	756	16,952	756	5,290	3,403			9,449	26,401
Revolving Credit	1,250	2,200	3,800	7,250	750	700	500			1,950	9,200
Total	61,247	55,474	51,392	168,113	46,042	51,558	36,295	32,321	34,405	200,621	368,734

Table 2

Cost of Proposed Water Supply Plan

(Constant Prices 1988-89)

(Rs. '000)

Year	PWD (Large Schemes)		LB&RD and VOs (Small & Medium Schemes)				LB&RD and UGs (Small & Medium Schemes)				Grand Total		
	No. of Schemes	Cost	Small		Medium		Total Cost	Small		Medium		Total Cost	
			No. of Schemes	Cost	No. of Schemes	Cost		No. of Schemes	Cost	No. of Schemes			Cost
1990-91	8	12,320	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	32,336
1991-92	8	12,320	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	32,336
1992-93	9	13,860	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	33,876
1993-94	9	13,860	16	5,184	15	9,450	14,634	4	1,296	8	5,040	6,336	34,830
1994-95	9	13,860	17	5,508	15	9,450	14,958	4	1,296	8	5,040	6,336	35,154
1995-96			17	5,508	15	9,450	14,958	4	1,296	7	4,410	5,706	20,664
1996-97			16	5,184	16	10,080	15,264	6	1,944	6	3,780	5,724	20,988
1997-98			18	5,832	18	11,340	17,172	5	1,620	6	3,780	5,400	22,572
Total	43	66,220	129	41,796	124	78,120	119,916	35	11,340	56	35,280	46,620	232,756

Table 3

Proposed Plan for Water Supply in Northern Areas

Institutions	Districts	Vill. Size	Total					Total					Total	Total
			1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98		
PWD Large Village Schemes	Gilgit	Large	3	2	3	8	2	3					5	13
		Baltistan	4	5	5	14	5	5					10	24
	Diamir	Large	1	1	1	3	2	1					3	6
		Total	8	8	9	25	9	9					18	43
LB&RD and VOs Small & Medium Village Schemes	Gilgit	Small	11	11	11	33	12	12	12	12	13	61	94	
		Medium	8	8	8	24	8	7	6	7	8	36	60	
	Baltistan	Small	4	4	4	12	4	5	5	4	5	23	35	
		Medium	7	7	7	21	7	8	9	9	10	43	64	
	Total		30	30	30	90	31	32	32	32	36	163	253	
	LB&RD and UGs Small & Medium Village Schemes	Diamir	Small	4	4	4	12	4	4	4	6	5	23	35
Medium			7	7	7	21	8	8	7	6	6	35	56	
Total		11	11	11	33	12	12	11	12	11	58	91		

Table 4

Estimated Coverage of Proposed Water Supply Scheme in 1993 and 1998

District	Additional villages covered 1990-93				Total No. of vill. covered (cum.)	Pop. covered (cum.)	% of Total pop. covered	Additional villages covered 1993-98				Total No. of vill. covered (cum.)	Pop. covered (cum.)	% of Total pop. covered
	Small	Medium	Large	Total	1993	1993		Small	Medium	Large	Total	1998	1998	
Gilgit	33	24	8	65	147	157,290	49.6%	61	36	5	102	249	321,210	83.7%
Baltistan	12	21	14	47	129	138,030	44.4%	23	43	10	76	205	264,450	72.7%
Diamir	12	21	3	36	69	73,830	40.8%	23	35	3	61	130	167,700	77.3%
Total	57	66	25	148	345	369,150	45.6%	107	114	18	239	584	753,360	78.1%

Table 5

Rehabilitation Program For Existing NAPWD Schemes

(Constant Prices 1988-89) (Rs.'000)

Year	Maintenance		Minor Repair		Major Repair		Total Cost (Rs.)
	No. of Schemes	Rehab. Cost (Rs.)	No. of Schemes	Rehab. Cost (Rs.)	No. of Schemes	Rehab. Cost (Rs.)	
1990-91	8	Nil	2	328,200	2	875,200	1,203,400
1991-92	0		5	820,500	2	875,200	1,695,700
1992-93	0		0		3	1,312,800	1,312,800
Total	8	Nil	7	1,148,700	7	3,063,200	4,211,900

Table 6

Rehabilitation Program For Existing LB&RD Schemes

(Constant Prices 1988-89) (Rs.'000)

Year	Maintenance		Minor Repair		Major Repair		Total Cost (Rs.)
	No. of Schemes	Rehab. Cost (Rs.)	No. of Schemes	Rehab. Cost (Rs.)	No. of Schemes	Rehab. Cost (Rs.)	
1990-91	20	Nil	15	474,750	11	928,400	1,403,150
1991-92	0		23	727,950	18	1,519,200	2,247,150
1992-93	0		23	727,950	18	1,519,200	2,247,150
Total	20	Nil	61	1,930,650	47	3,966,800	5,897,450

Average cost of existing NAPWD schemes = Rs. 1,094,000

Average cost of existing LB&RD schemes = Rs. 211,000

Cost of minor repair = 15% of avg. scheme cost

Cost of major repair = 40% of avg. scheme cost

Table 7

Existing Schemes To Be Rehabilitated

Level of Repair	PWD Schemes		LB&RD Schemes	
	No. of Schemes	% of Total Schemes	No. of Schemes	% of Total Schemes
Maintenance	8	20%	20	13%
Minor Repair	7	15%	61	40%
major Repair	7	15%	47	31%
Total	22	50%	128	84%

No. of schemes implemented by NAPWD = 44

No. of schemes implemented by LB&RD = 153

Table 8

Operation and Maintenance Program for
New Water Supply Schemes

(Constant Prices 1988-89) (Rs.'000)

Year	NAPWD Schemes (Consumer's Share)		LB&RD Schemes (Community's Share)	
	No. of Schemes to be Maintained	Total O&M Cost	No. of Schemes to be Maintained	Total O&M Cost
1990-91	8	246	41	400
1991-92	16	493	82	801
1992-93	25	770	123	1,201
1993-94	34	1,047	166	1,620
1994-95	43	1,324	210	2,046
1995-96	43	1,324	253	2,460
1996-97	43	1,324	297	2,879
1997-98	43	1,324	344	3,331
Total		7,852		14,738

Table 9

Sanitation Coverage Plan For Villages With New Water Supply Schemes

(Constant Prices 1988-89)

Type of Activity	Village		1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total
	District	Size									
Motivation (No. of Vill.)	Gilgit	Large	22	21	22	22	22	18	19	21	167
	Baltistan	Large	15	16	16	16	18	14	13	15	123
	Diamir	Large	12	12	12	14	13	11	12	11	97
Demonstration (No. of Latrines)	Gilgit	Large	110	105	110	110	110	90	95	105	835
	Baltistan	Large	75	80	80	80	90	70	65	75	615
	Diamir	Large	60	60	60	70	65	55	60	55	485
	Total		245	245	250	260	265	215	220	235	1,935
	Total	Cost (Rs.'000)	98	98	100	104	106	86	88	94	774
Credit For Latrines	(Rs.'000)		125	200	300	300	300				1,225

Table 10

Sanitation Coverage Plan For Villages With Old Water Supply Schemes

(Constant Prices 1988-89)

Type of Activity	District	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total
Motivation (No. of Vill.)	Gilgit	11	11	11	10	10	10	10	9	82
	Baltistan	11	11	11	10	10	10	10	9	82
	Diamir	4	4	4	5	5	4	4	3	33
Demonstration (No. of Latrines)	Gilgit	55	55	55	50	50	50	50	45	410
	Baltistan	55	55	55	50	50	50	50	45	410
	Diamir	20	20	20	25	25	20	20	15	165
	Total	130	130	130	125	125	120	120	105	985
	Total Cost (Rs.'000)	52	52	52	50	50	48	48	42	394
Credit For Latrines	(Rs.'000)		75	100	200	200	200			775

Table 11

Cost of Water Quality Control and Testing Program

(Constant Prices 1988-89)									(Rs.'000)
Activity	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total Cost
Water Quality Survey For NA	500					500			1,000
Establishment of 3 District Level Laboratories	900								900
Distribution of Water Testing Kits to Dispensers	40	40	40	40	40				200
Total (Rs.'000)	1,440	40	40	40	40	500			2,100

Table 12

Cost of Human Resource Development Program

(Constant Prices 1988-89)										(Rs. '000)
Category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total	
I Field Staff										
1 Training of Social Organizers (6-12 months)	160	160	160						480	
2 Training of Overseers (3-6 months)	80	80	80						240	
3 Training of Women Coordinators (6-12 months)	80	80							160	
4 Field Staff (NAPWD) (1-3 months)	75	75	75	45	45	45	45	45	450	
II Management Staff										
1 Senior LBARD and NAPWD Engineers (1-2 weeks)	10	10	5	5	5	5	5	5	50	
2 Monitoring and Evaluation Staff (1-3 months)	20	20							40	
3 Mid Level Staff of NAPWD (1-3 months)	10	10	10	20	20	10	10		90	
III Technical Staff										
1 Village Level Dispensers (2-5 days)	40	40	40	40	40				200	
2 Lab. Technicians (1-3 months)	15								15	
3 Village Level Plumbers (1-4 weeks)	20	20	20	22	22	22	22	22	170	
4 Scheme Maintenance Training (6-8 days)	146	146	146	146	146	146	146	146	1,168	
IV Foreign Training										
1 Senior LBARD Staff (3 months)	100								100	
2 Mid Level Staff (3 months)	100								100	
Total (Rs. '000)	856	641	536	278	278	228	228	218	3,263	

Table 13

Human Resource Development Program

Category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total
I Field Staff									
1 Training of Social Organizers (6-12 months)	4	4	4						12
2 Training of Overseers (3-6 months)	4	4	4						12
3 Training of Women Coordinators (6-12 months)	2	2							4
4 Field Staff (NAPWD) (1-3 months)	5	5	5	5	5	5	5	5	40
II Management Staff									
1 Senior LB&RD and NAPWD Engineers (1-2 weeks)	2	2	1	1	1	1	1	1	10
2 Monitoring and Evaluation Staff (1-3 months)	2	2							4
3 Mid Level Staff of NAPWD (1-3 months)	1	1	1	2	2	1	1		9
III Technical Staff									
1 Village Level Dispensers (2-5 days)	20	20	20	20	20				100
2 Lab. Technicians (1-3 months)	3								
3 Village Level Plumbers (1-4 weeks)	10	10	10	11	11	11	11	11	85
4 Scheme Maintenance Training (6-8 days)	73	73	73	73	73	73	73	73	584
IV Foreign Training									
1 Senior LB&RD Staff (3 months)	1								1
2 Mid Level Staff (3 months)	1								1
Total	128	123	118	112	112	91	91	90	862

Table 14

Cost of Hygiene Education Program

(Constant Prices 1988-89)									(Rs. '000)
Program	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total Cost
I Workshops									
- Village Level	30	20	20	20	20	20	20	20	170
- Management Level	20			40					60
II Research									
- Message Development	10	10	10	10	10	10	10	10	80
- Monitoring and Evaluation	20	20	20	20	20	20	20	20	160
III Training									
- Line Departments Staff	20	20	20	20	20	20	20	20	160
- In Service			50			50			100
- Village Level	20	20	20	20	20	20	20	20	160
IV Input Supply									
- Supply of Inputs at Village	20	20	20	20	20	20	20	20	160
- Supply of Subsidized Inputs	30	30	30	30	30	30	30	30	240
- Revolving Fund for Credit **		50	50	50					150
Total (Rs. '000)	170	140	190	180	140	190	140	140	1,290

** Credit fund is not included in the total cost.

Table 15

Revolving Fund for Credit

(Constant Prices 1988-89)		(Rs.'000)							
Activity	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	Total
House Connection for Water Supply	1,250	1,750	3,250						6,250
Rehabilitation of Water Supply Schemes		200	200	200	200				800
Sanitation		200	300	500	500	500			2,000
Hygiene Education		50	50	50					150
Total (Rs.'000)	1,250	2,200	3,800	750	700	500	0	0	9,200

Table 16

LB&RD
Rural Water Supply and Sanitation Unit
Cost of Institutional Strengthening

(Constant Prices 1988-89)		Total Cost of Personnel (Rs.'000)						
Category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
I Field Staff								
<i>N & E Officers</i>	108	119	131	144	158	174	191	210
Assistant Engineers	144	158	174	192	211	232	255	281
District Coordinators	144	158	174	192	211	232	255	281
Accountants	90	99	109	120	132	145	159	175
Social Organizers	110	221	243	267	294	323	356	391
Overseers	48	96	106	116	128	141	155	170
II Management Staff								
Deputy Director	90	99	109	120	132	145	159	175
N & E Unit	90	99	109	120	132	145	159	175
Executive Engineer	72	79	87	96	105	116	128	140
Project Coordinator	72	79	87	96	105	116	128	140
Accountant	48	53	58	64	70	77	85	94
III Support Staff								
Computer Operators	138	152	167	184	202	222	244	269
Drivers	120	132	145	160	176	193	213	234
LDC	48	53	58	64	70	77	85	94
Total Cost	1,322	1,597	1,757	1,933	2,126	2,338	2,572	2,830

Table 17

Institutional Strengthening
PHEC & NAPWD

(Constant Prices 1988-89)

(Rs. '000)

Category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
I Personnel								
1 Public Health Engineer	900	900	900	900	900	900	900	900
2 Public Health Administrator	48	48	48	48	48	48	48	48
3 Support Staff	50	50	50	50	50	50	50	50
4 Administrative Staff to Collect User Charges	300	300	300	300	300	300	300	300
5 Computer Operators	180	180	180	180	180	180	180	180
Sub Total	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
II Equipment								
Vehicles	550							
Computer	300							
Survey Equipment	300	400	400					
Sub Total	1150	400	400	0	0	0	0	0
III Administrative Expenses	200	200	200	200	200	200	200	200
Grand Total	2,828	2,078	2,078	1,678	1,678	1,678	1,678	1,678

Table 19

Institutional Strengthening
Department of Health

Category	(Constant Prices 1988-89)									(Rs. '000)	
	1990-91	1991-92	1992-93	Total		1994-95	1995-96	1996-97	1997-98	Total	Total
				1990-93	1993-94					1993-98	1990-98
I Personnel											
1. Health Educationist (1)	72	72	72	216	72	72	72	72	72	360	576
2. District Health Educationists (3)	144	144	144	432	144	144	144	144	144	720	1,152
3. Support Staff	200	200	200	600	200	200	200	200	200	1,000	1,600
4. Field Staff	200	200	200	600	200	200	200	200	200	1,000	1,600
II Equipment											
Vehicle (4)	1,100	---	---	1,100	---	---	---	---	---	0	1,100
Mobile Health Units (3)	1,800	---	---	1,800	---	---	---	---	---	0	1,800
Computer (1)	100	---	---	100	---	---	---	---	---	0	100
Technical Equipment	400	500	600	1,500	200	500	500	200		1,400	2,900
Scooters	200			200						0	200
III Recurrent Expenditure	600	600	600	1,800	600	600	600	600	600		
Total Cost	4816	1716	1816	8348	1416	1716	1716	1416	1216	4480	11028

Table 20

Institutional Strengthening
Polytechnic in the Northern Areas

(Constant Prices 1988-89)		(Rs. '000)											
Category		Total								Total	Total		
		1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98	
1	Course Curriculum & Development												
	Attachment of PWD & LB&ED Engineers to Polytechnic				0	200						200	200
	Student Internship Programs				0			100	100	100		300	300
	Assignment of Engineers from Other Parts of the Country				0		50	50				100	100
2	Library Resources				0	100		50				150	150
3	Equipment (Computers 2)				0	200		100				300	300
Total Cost		0	0	0	0	500	50	300	100	100	1,050	1,050	

Table 21
Institutional Strengthening
Foreign Technical Assistance Program

(Constant Prices 1988-89)		(Rs. '000)										
Category	Total									Total	Total	
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98	
I	Expatriate Staff											
A.	Long Term											
	Economist, (24 months) Monitoring & Evaluation, Rural Water Supply & Sanitation Unit, LB&RD	3,024	3,024		6,048						0	6,048
	Hygiene Education Specialist, (24 months) Health Education Unit, Dept. of Health	3,024	3,024		6,048						0	6,048
	Engineer, (24 months) Norther Area Polytechnic Dept. of Education				0	3,024	3,024				6,048	6,048
B.	Short Term											
	Public Health Engineer,(6mnth) PHEC, PWD	---	756	---	756		756				756	1,512
	Public Health Engineer,(6mnth) RWSS, LB&RD			756	756		756				756	1,512
	Hygiene Education Specialist (6mths), RWSS, LB&RD		756		756	756					756	1,512
C.	Support Staff											
	Computer Operators	55	55		110		55	55			110	221
	Drivers	24	24		48		24	24			48	96
Total Cost of Expatriate Staff		6,127	7,639	756	14,522	756	4,615	3,103	0	0	8,474	22,997

Institutional Strengthening
Foreign Technical Assistance Program

(Constant Prices 1988-89) (Rs. '000)

Category	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
II Equipment											
Vehicles (at 275 each)	550			550		275				275	825
Computers (at 100 each)	200			200		100				100	300
Total	750	0	0	750	0	375	0	0	0	375	1,125

(Constant Prices 1988-89) (Rs. '000)

Category	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
III Recurrent Expenditures											
Vehicle Operation	120	120		240		60	60			120	360
Office Supplies & Expenses	480	480		960		120	120			240	1,200
TA/DA	240	240		480		120	120			240	720
Total	840	840	0	1,680	0	300	300	0	0	600	2,280

Annex 9

Investment Plan by District

- | | |
|---------|--|
| Table 1 | District Wise Investment Plan for Water Supply, Operation and Maintenance and Sanitation |
| Table 2 | District Wise Coverage of Water Supply Schemes |
| Table 3 | District Wise Cost Estimates of New Water Supply Schemes |
| Table 4 | District Wise Cost Estimates of New Water Supply Schemes |
| Table 5 | District Wise Coverage of Sanitation Plan |
| Table 6 | District Wise Cost Estimates of Sanitation Plan |
| Table 7 | District Wise Cost Estimates for O&M of New Water Supply Schemes |

Table 1

District Wise Investment Plan for Water Supply,
Operation and Maintenance and Sanitation

(Constant Prices 1988-89)

(Rs. '000)

Type of Activity	District	Total								Total		Total
		1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	
New Water Supply Schemes	Gilgit	13,224	11,684	13,224	38,132	12,008	12,918	7,668	8,298	9,252	50,144	88,276
	Baltistan	11,866	13,406	13,406	38,678	13,406	14,360	7,290	6,966	7,920	49,942	88,620
	Diamir	7,246	7,246	7,246	21,738	9,416	7,876	5,706	5,724	5,400	34,122	55,860
	Total	32,336	32,336	33,876	98,548	34,830	35,154	20,664	20,988	22,572	134,208	232,756
Operation and Maintenance	Gilgit	264	498	763	1,525	1,003	1,261	1,415	1,580	1,766	7,025	8,550
	Baltistan	237	505	772	1,514	1,040	1,328	1,473	1,613	1,771	7,225	8,739
	Diamir	145	291	436	872	624	781	896	1,010	1,118	4,429	5,361
	Total	646	1,294	1,971	3,911	2,667	3,370	3,784	4,203	4,655	18,679	22,590
Sanitation	Gilgit	66	64	66	196	64	64	56	58	60	302	498
	Baltistan	52	54	54	160	52	56	48	46	48	250	410
	Diamir	32	32	32	96	38	36	30	32	28	164	260
	Total	150	150	152	452	154	156	134	136	136	716	1,168
Total		33,132	33,780	35,999	102,911	37,651	38,680	24,582	25,327	27,363	153,603	256,514

Table 2

District Wise Coverage of New Water Supply Schemes

District	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Gilgit:								
Pop. Cov. (cum.)	111,280	133,750	157,290	190,970	222,430	249,970	280,940	321,210
% of Pop. Covered (cum.)	38.0%	43.8%	49.6%	58.0%	65.0%	70.4%	76.1%	83.7%
Baltistan								
Pop. Cov. (cum.)	103,790	120,910	138,030	163,850	189,590	211,010	233,500	264,450
% of Pop. Covered (cum.)	35.6%	40.1%	44.4%	51.1%	57.3%	61.8%	66.2%	72.7%
Diamir								
Pop. Cov. (cum.)	48,150	60,990	73,830	88,810	107,400	125,000	146,240	167,700
% of Pop. Covered (cum.)	28.6%	34.9%	40.8%	47.3%	55.2%	62.0%	69.9%	77.3%
Total Pop. Covered	263,221	315,651	369,151	443,632	519,422	585,982	660,682	753,362
% Pop. Covered	35.0%	40.4%	45.6%	53.0%	59.9%	65.2%	70.9%	78.1%

Table 3

District Wise Cost Estimates of New Water Supply Schemes

(Constant Prices 1988-89) (Rs. '000)

District	1990-91	1991-92	1992-93	Total						1993-98	1990-98
				1990-93	1993-94	1994-95	1995-96	1996-97	1997-98		
Gilgit	13,224	11,684	13,224	38,132	12,008	12,918	7,668	8,298	9,252	50,144	88,276
Baltistan	11,866	13,406	13,406	38,678	13,406	14,360	7,290	6,966	7,920	49,942	88,620
Diamir	7,246	7,246	7,246	21,738	9,416	7,876	5,706	5,724	5,400	34,122	55,860
Total	32,336	32,336	33,876	98,548	34,830	35,154	20,664	20,988	22,572	134,208	232,756

Table 4

District Wise Cost Estimates of New Water Supply Schemes

(Constant Prices 1988-89) (Rs. '000)

District	Small Village		Medium Village		Large Village		Total	
	No. of Schemes	Cost	No. of Schemes	Cost	No. of Schemes	Cost	No. of Schemes	Cost
	Gilgit	94	30,456	60	37,800	13	20,020	167
Baltistan	35	11,340	64	40,320	24	36,960	123	88,620
Diamir	35	11,340	56	35,280	6	9,240	97	55,860
Total	164	53,136	180	113,400	43	66,220	387	232,756

Table 5

District Wise Coverage of Sanitation Plan

Type of Activity	District	Total									Total	Total
		1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
Motivation (No. of Villages)	Gilgit	33	32	33	98	32	32	28	29	30	151	249
	Baltistan	26	27	27	80	26	28	24	23	24	125	205
	Diamir	16	16	16	48	19	18	15	16	14	82	130
	Total	75	75	76	226	77	78	67	68	68	358	584
Demonstration (No. of Latrines)	Gilgit	165	160	165	490	160	160	140	146	150	755	1,245
	Baltistan	130	135	135	400	130	140	120	115	120	625	1,025
	Diamir	80	80	80	240	95	90	75	80	70	410	650
	Total	375	375	380	1,130	385	390	335	340	340	1,790	2,920

Table 6

District Wise Cost Estimates of Sanitation Schemes

(Constant Prices 1988-89) (Rs. '000)

District	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
Gilgit	66	64	66	196	64	64	56	58	60	302	498
Baltistan	52	54	54	160	52	56	48	46	48	250	410
Diamir	32	32	32	96	38	36	30	32	28	164	260
Total	150	150	152	452	154	156	134	136	136	716	1,168

Table 7

District Wise Cost Estimates for Operation and
Maintenance of New Water Supply Schemes

(Constant Prices 1988-89)

(Rs. '000)

District	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
Gilgit	264	498	763	1,525	1,003	1,261	1,415	1,580	1,766	7,024	8,550
Baltistan	237	505	772	1,515	1,040	1,328	1,473	1,613	1,771	7,226	8,741
Diamir	145	291	436	871	624	781	896	1,010	1,118	4,429	5,300
Total	646	1,294	1,971	3,911	2,667	3,370	3,784	4,203	4,655	18,679	22,590

Annexure 10

Alternative Scenario Analysis

Scenario 1 : Proposed Plan

Table 1	Proposed Plan for Water Supply in Northern Areas
Table 2	Estimated Coverage of the Plan in 1993 and 1998
Table 3	Cost of Water Supply Schemes

Scenario 2 : Settlement size Prioritization

Table 1	Water Supply Plan Based on Priority Coverage to Small and Large Villages
Table 2	Estimated Coverage of the Plan in 1993 and 1998
Table 3	Cost of Water Supply Schemes

Scenario 3 : Existing Implementation Rate

Table 1	Water Supply Plan based on Existing Implementation Rate of NAPWD & LB&RD
Table 2	Estimated Coverage in 1993 and 1998
Table 3	Cost of Water Supply Schemes

Scenario 4 : 100% Coverage Plan

Table 1	Water Supply Scheme for 100% coverage in Northern Areas
Table 2	Estimated Coverage of the Plan in 1993 and 1998
Table 3	Cost of Water Supply Schemes

Table 1

Scenario 1

Proposed Plan for Water Supply in Northern Areas

Institutions	Districts	Vill. Size	Total					Total					
			1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
PMD Large Village Schemes	Gilgit	Large	3	2	3	8	2	3				5	13
		Large	4	5	5	14	5	5				10	24
	Diamir	Large	1	1	1	3	2	1				3	6
		Total	8	8	9	25	9	9				18	43
LB&RD and VOs Small & Medium Village Schemes	Gilgit	Small	11	11	11	33	12	12	12	12	13	61	94
		Medium	8	8	8	24	8	7	6	7	8	36	60
	Baltistan	Small	4	4	4	12	4	5	5	4	5	23	35
		Medium	7	7	7	21	7	8	9	9	10	43	64
	Total		30	30	30	90	31	32	32	32	36	163	253
	LB&RD and UGs Small & Medium Village Schemes	Diamir	Small	4	4	4	12	4	4	4	6	5	23
Medium			7	7	7	21	8	8	7	6	6	35	56
Total		11	11	11	33	12	12	11	12	11	58	91	

Table 2

Scenario 1

Estimated Coverage of the Plan in 1993 and 1998

District	Additional villages covered 1990-93				Total No. of vill. covered Pop. covered % of Total pop. covered			Additional villages covered 1993-98				Total No. of vill. covered Pop. covered % of Total pop. covered		
	Small	Medium	Large	Total	(cum.) 1993	(cum.) 1993		Small	Medium	Large	Total	(cum.) 1998	(cum.) 1998	
Gilgit	33	24	8	65	147	157,290	49.6%	61	36	5	102	249	321,210	83.7%
Baltistan	12	21	14	47	129	138,030	44.4%	25	43	10	76	205	264,450	72.7%
Diamir	12	21	3	36	69	73,830	40.8%	23	35	3	61	130	167,700	77.3%
Total	57	66	25	148	345	369,150	45.6%	107	114	18	239	584	753,360	78.1%

Table 3

Scenario 1

Cost of Water Supply Schemes

(Rs.'000)

Year	PWD (Large Schemes)		LB&RD and VO's (Small & Medium Schemes)				LB&RD and UGs (Small & Medium Schemes)				Grand Total		
	No. of Schemes	Cost	Small		Medium		Total Cost	Small		Medium		Total Cost	
			No. of Schemes	Cost	No. of Schemes	Cost		No. of Schemes	Cost	No. of Schemes			Cost
1990-91	8	12,320	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	32,336
1991-92	8	12,320	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	32,336
1992-93	9	13,860	15	4,860	15	9,450	14,310	4	1,296	7	4,410	5,706	33,876
1993-94	9	13,860	16	5,184	15	9,450	14,634	4	1,296	8	5,040	6,336	34,830
1994-95	9	13,860	17	5,508	15	9,450	14,958	4	1,296	8	5,040	6,336	35,154
1995-96			17	5,508	15	9,450	14,958	4	1,296	7	4,410	5,706	20,664
1996-97			16	5,184	16	10,080	15,264	6	1,944	6	3,780	5,724	20,988
1997-98			18	5,832	18	11,340	17,172	5	1,620	6	3,780	5,400	22,572
Total	43	66,220	129	41,796	124	78,120	119,916	35	11,340	56	35,280	46,620	232,756

Table 1

Water Supply Plan Based on Priority Coverage to
Small and Large Villages

Scenario 2

Institutions	Districts	Vill. Size	Total					Total					
			1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
PMD Large Village Schemes	Gilgit Baltistan Diamir	Large	3	2	3	8	2	3				5	13
		Large	4	5	5	14	5	5				10	24
		Large	1	1	1	3	2	1				3	6
	Total		8	8	9	25	9	9				18	43
LB&RD and VOs Small & Medium Village Schemes	Gilgit	Small	13	13	13	39	14	14	14	14	15	71	110
		Medium	7	7	7	21	7	6	5	6	7	31	52
	Baltistan	Small	7	6	7	20	6	7	7	6	7	33	53
		Medium	5	5	6	16	6	7	8	8	9	38	54
	Total		32	31	33	96	33	34	34	34	38	173	269
	LB&RD and UGs Small & Medium Village Schemes	Diamir	Small	17	17	17	51	17	17	17	19	19	89
Medium			3	4	4	11	4	4	3	2	2	15	26
Total			20	21	21	62	21	21	20	21	21	104	166

Table 2

Scenario 2

Estimated Coverage of the Plan in 1993 and 1998

District	Additional villages covered 1990-93				Total No. of vill covered Pop. % of			Additional villages covered 1993-98				Total No. of vill covered Pop. % of		
	Small	Medium	Large	Total	(cum.) 1993	(cum.) 1993	Total pop. covered	Small	Medium	Large	Total	(cum.) 1998	(cum.) 1998	% of Total pop. covered
Gilgit	39	21	8	68	150	141,000	44.5%	71	31	5	107	257	280,130	73.0%
Baltistan	20	16	14	50	132	125,400	40.3%	33	38	10	81	213	234,300	64.4%
Diamir	51	11	3	65	98	60,760	33.6%	89	15	3	107	205	143,500	66.1%
Total	110	48	25	183	380	327,160	40.4%	193	84	18	295	675	657,930	68.2%

Table 3

Scenario 2

Cost of Water Supply Schemes

(Rs.'000)

Year	PWD (Large Schemes)		LB&RD and VOs (Small & Medium Schemes)				LB&RD and UGs (Small & Medium Schemes)				Grand Total		
	No. of Schemes	Cost	Small		Medium		Total Cost	Small		Medium		Total Cost	
			No. of Schemes	Cost	No. of Schemes	Cost		No. of Schemes	Cost	No. of Schemes			Cost
1990-91	8	12,320	20	6,480	12	7,560	14,040	17	5,508	3	1,890	7,398	33,758
1991-92	8	12,320	19	6,156	12	7,560	13,716	17	5,508	4	2,520	8,028	34,064
1992-93	9	13,860	20	6,480	13	8,190	14,670	17	5,508	4	2,520	8,028	36,558
1993-94	9	13,860	20	6,480	13	8,190	14,670	17	5,508	4	2,520	8,028	36,558
1994-95	9	13,860	21	6,804	13	8,190	14,994	17	5,508	4	2,520	8,028	36,882
1995-96			21	6,804	13	8,190	14,994	17	5,508	3	1,890	7,398	22,392
1996-97			20	6,480	14	8,820	15,300	19	6,156	2	1,260	7,416	22,716
1997-98			22	7,128	16	10,080	17,208	19	6,156	2	1,260	7,416	24,624
Total	43	66,220	163	52,812	106	66,780	119,592	140	45,360	26	16,380	61,740	247,552

Table 1

Water Supply Plan Based on Existing Implementation
Rate of NAPWD and LB&RD

Scenario 3

Institutions	Districts	Vill. Size	Total							Total 1993-98	Total 1990-98		
			1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96			1996-97	1997-98
PMD Large Village Schemes	Gilgit Baltistan Diamir	Large	3	2	3	8	2	3				5	13
		Large	4	5	5	14	5	5				10	24
		Large	1	1	1	3	2	1				3	6
	Total		8	8	9	25	9	9				18	43
LB&RD Small & Medium Village Schemes	Gilgit :	Small	2	2	2	6	3	3	3	3	3	15	21
		Medium	4	4	4	12	4	3	3	3	3	16	28
	Baltistan	Small	3	3	3	9	2	3	3	2	2	12	21
		Medium	4	4	4	12	3	3	3	4	4	17	29
	Diamir :	Small	2	2	2	6	2	2	2	2	2	10	16
		Medium	2	2	2	6	3	3	3	3	3	15	21
Total			17	17	17	51	17	17	17	17	17	85	136

Table 2

Scenario 3

Estimated Coverage in 1993 and 1998

District	Additional villages covered 1990-93				Total No. of vill. covered			% of Total pop. covered	Additional villages covered 1993-98				Total No. of vill. covered			% of Total pop. covered
	Small	Medium	Large	Total	(cum.) 1993	Pop. covered (cum.) 1993	(cum.) 1998		Pop. covered (cum.) 1998	Small	Medium	Large	Total	(cum.) 1998	Pop. covered (cum.) 1998	
Gilgit	6	12	8	26	108	115,560	36.5%	15	16	5	36	144	185,760	48.4%		
Baltistan	9	12	14	35	117	125,190	40.3%	12	17	10	39	156	201,240	55.3%		
Diamir	6	6	3	15	48	51,360	28.4%	10	15	3	28	76	98,040	45.2%		
Total	21	30	25	76	273	292,110	36.1%	37	48	18	103	376	485,040	50.3%		

Table 3

Scenario 3

Cost of Water Supply Schemes

(Rs. '000)

Year	PWD (Large Schemes)		LB&RD (Small & Medium Schemes)				Grand Total	
	No. of Schemes	Cost	Small		Medium			Total Cost
			No. of Schemes	Cost	No. of Schemes	Cost		
1990-91	8	12,320	7	2,268	10	6,300	8,568	20,888
1991-92	8	12,320	7	2,268	10	6,300	8,568	20,888
1992-93	9	13,860	7	2,268	10	6,300	8,568	22,428
* 1993-94	9	13,860	7	2,268	10	6,300	8,568	22,428
1994-95	9	13,860	8	2,592	9	5,670	8,262	22,122
1995-96			8	2,592	9	5,670	8,262	8,262
1996-97			7	2,268	10	6,300	8,568	8,568
1997-98			7	2,268	10	6,300	8,568	8,568
Total	43	66,220	58	18,792	78	49,140	67,932	134,152

Table 1

Scenario 4

Water Supply Scheme for 100% Coverage in Northern Areas

Institutions	Districts	Vill. Size	Total					Total					
			1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
PWD Large Village Schemes	Gilgit	Large	3	2	3	8	2	3				5	13
		Baltistan	4	5	5	14	5	5				10	24
	Diamir	Large	1	1	1	3	2	1				3	6
		Total	8	8	9	25	9	9				18	43
LB&RD and VOs Small & Medium Village Schemes	Gilgit :	Small	13	13	13	39	14	14	14	14	15	71	110
		Medium	11	11	11	33	10	9	8	9	10	46	79
	Baltistan	Small	7	7	7	21	6	7	7	6	6	32	53
		Medium	8	9	8	25	7	8	9	9	10	43	68
	Total		39	40	39	118	37	38	38	38	41	192	310
	LB&RD and UGs Small & Medium Village Schemes	Diamir :	Small	19	19	19	57	18	18	18	20	19	93
Medium			8	8	8	24	10	9	7	6	6	38	62
Total		27	27	27	81	28	27	25	26	25	131	212	

Table 2

Scenario 4

Estimated Coverage of the Plan in 1993 and 1998

District	Additional villages covered 1990-93				Total No. of vill. Pop. % of covered covered Total pop. covered			Additional villages covered 1993-98				Total No. of vill. Pop. % of covered covered Total pop. covered		
	Small	Medium	Large	Total	(cum.) covered 1993	(cum.) covered 1993	% covered	Small	Medium	Large	Total	(cum.) covered 1998	(cum.) covered 1998	% covered
Gilgit	39	33	8	80	162	173,340	54.7%	71	46	5	122	284	383,553	100.0%
Baltistan	21	25	14	60	142	151,940	48.9%	32	43	10	85	227	363,996	100.0%
Diamir	57	24	3	84	117	125,190	69.2%	93	38	3	134	251	217,005	100.0%
Total	117	82	25	224	421	450,470	55.7%	196	127	18	341	762	964,554	100.0%

Table 3

Scenario 4

Cost of Water Supply Schemes

(Rs. '000)

Year	PMD (Large Schemes)		LB&RD and VOs (Small & Medium Schemes)				LB&RD and UGs (Small & Medium Schemes)				Grand Total		
	No. of Schemes	Cost	Small	Medium	Total	Small	Medium	Total					
	No. of Schemes	Cost	No. of Schemes	Cost	No. of Schemes	Cost	Total Cost	No. of Scheme	No. of Scheme	Cost	Total Cost		
1990-91	8	12,320	20	6,480	19	11,970	18,450	19	6,156	8	5,040	11,196	41,966
1991-92	8	12,320	20	6,480	20	12,600	19,080	19	6,156	8	5,040	11,196	42,596
1992-93	9	13,860	20	6,480	19	11,970	18,450	19	6,156	8	5,040	11,196	43,506
1993-94	9	13,860	20	6,480	17	10,710	17,190	18	5,832	10	6,300	12,132	43,182
1994-95	9	13,860	21	6,804	17	10,710	17,514	18	5,832	9	5,670	11,502	42,876
1995-96			21	6,804	17	10,710	17,514	18	5,832	7	4,410	10,242	27,756
1996-97			20	6,480	18	11,340	17,820	20	6,480	6	3,780	10,260	28,080
1997-98			21	6,804	20	12,600	19,404	19	6,156	6	3,780	9,936	29,340
Total	43	66,220	163	52,812	147	92,610	145,422	150	48,600	62	39,060	87,660	299,302

Annex 11

Financing Details of the Investment Plan

- Table 1 Donor Investment Plan for Northern Areas in Current Prices.
- Table 2 Breakdown of Taxes and Duties on Donor Components.
- Table 3 Capital Requirements of the Proposed Investment Plan with New Donor Assistance in Constant Prices.
- Table 4 Capital Requirements of the Proposed Investment Plan with New Donor Assistance in Current Price.
- Table 5 Capital Expenditure of the Investment Plan.
- Table 6 Recurrent Expenditure of the Investment Plan.
- Table 7 Local and Foreign cost of the Investment Plan in Constant Prices
- Table 8 Local and Foreign Cost of the Investment Plan in Current Prices

Table 1

Donor Investment Plan For Northern Areas

(Current Prices)											(Rs. '000)	
Sector Component	1990-91	1991-92	1992-93	Total						Total 1993-98	Total 1990-98	
				1990-93	1993-94	1994-95	1995-96	1996-97	1997-98			
Water Supply Schemes LB&RD	21,803	22,893	24,037	68,732	26,438	27,785	27,901	29,334	33,574	145,032	213,764	
Sanitation	175	184	195	554	208	218	194	204	217	1,040	1,594	
Water Control and Testing	1,562	44	46	1,652	49	50	723			822	2,474	
Human Resource Development	998	785	689	2,473	375	388	330	341	347	1,782	4,255	
Hygiene Education	198	171	244	614	243	196	275	210	223	1,146	1,760	
Institutional Strengthening (LB&RD)	5,828	2,568	2,902	11,298	3,285	3,669	4,104	4,599	5,305	20,961	32,259	
Institutional Strengthening (AKRSP)	997	441	463	1,901	486	503	521	539	573	2,622	4,523	
Institutional Strengthening (PHEC)	1,170	437	459	2,066	0	0	0	0	0	0	2,066	
Institutional Strengthening (DOH)	3,186	546	689	4,422	212	623	645	205	0	1,685	6,107	
Institutional Strengthening (NA Polytechnic)				0	662	70	419	150	159	1,460	1,460	
Institutional Strengthening (Foreign Technical Asst. Program)	8,872	10,383	972	20,227	1,021	7,315	4,921			13,256	33,484	
Revolving Credit	1,458	2,694	4,886	9,038	1,013	978	723			2,714	11,752	
Total	46,247	41,147	35,583	122,977	33,990	41,796	40,754	35,581	40,398	192,520	315,497	

Table 2
Breakdown of Taxes and Duties
on Donor Components

Sector Component	Capital Invest-ment Required	Taxes And Duties on Components	Recommended Donor Investment
Sanitation	1,168	1,168	
Water Control and Testing	2,100	1,983	117
Human Resource Development	3,263	3,263	
Hygiene Education	1,290	1,290	
Institutional Strengthening (LB&RD)	24,175	23,650	525
Institutional Strengthening (AKRSP)	3,430	3,375	55
Institutional Strengthening (PHEC)	15,374	15,141	233
Institutional Strengthening (DOH)	15,828	14,648	1,180
Institutional Strengthening (NA Polytechnic)	1,050	1,030	20
Institutional Strengthening (Foreign Technical Asst. Program)	26,401	26,236	165
Total	94,079	91,784	2,295

Table 3

Capital Requirements of The Proposed Investment Plan
With New Donor Assistance

(Constant Prices 1988-89)				(Rs. '000)	
Balance of 7th Plan	Capital Requirements of Investment Plan	Resources Available (1)	Recommended Donor Assistance (2)	Total Resources Available	Resource Gap (3)
1990-91	61,247	14,100	39,653	53,753	7,494
1991-92	55,474	14,800	33,600	48,400	7,074
1992-93	51,392	15,500	27,674	43,174	8,218
EIGHTH PLAN					
1993-94	46,042	16,100	25,178	41,278	4,764
1994-95	51,558	16,800	29,912	46,712	4,846
1995-96	36,295	17,200	28,184	45,384	(9,089)
1996-97	32,321	17,700	23,768	41,468	(9,147)
1997-98	34,405	18,100	25,360	43,460	(9,055)
TOTAL	368,734	130,300	233,329	363,629	5,105

Table 4

Capital Requirements of The Proposed Investment Plan
With New Donor Assistance

(Current Prices)					(Rs. '000)
Balance of 7th Plan	Capital Requirements of Investment Plan	Resources Available (1)	Recommended Donor Assistance (2)	Total Resources Available	Resource Gap (3)
1990-91	71,432	16,445	46,247	62,692	8,740
1991-92	67,933	18,124	41,147	59,271	8,663
1992-93	66,080	19,930	35,583	55,513	10,567
EIGHTH PLAN					
1993-94	62,157	21,735	33,990	55,725	6,431
1994-95	72,042	23,475	41,796	65,271	6,771
1995-96	52,483	24,871	40,754	65,625	(13,143)
1996-97	48,385	26,497	35,581	62,078	(13,693)
1997-98	54,807	28,833	40,398	69,232	(14,425)
TOTAL	495,319	179,910	315,497	495,407	(88)

Table 5

Capital Expenditure of The Investment Plan

(Constant Prices 1988-89)

(Rs. '000)

Sector Component	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
New Water Supply Schemes	32,336	32,336	33,876	98,548	34,830	35,154	20,664	20,988	22,572	134,208	232,756
Rehabilitation	2,606	3,943	3,560	10,109							10,109
Operation and Maintenance (O&M)											
Sanitation	100	100	100	300	100	100	100	100	100	500	800
Water Control and Testing	940	40	40	1,020	40	40				80	1,100
Human Resource Development	856	641	536	2,033	278	278	228	228	218	1,230	3,263
Hygiene Education	140	110	160	410	150	110	160	110	110	640	1,050
Institutional Strengthening (LB&RD)	3,700			3,700						0	3,700
Institutional Strengthening (AKRSP)	375			375						0	375
Institutional Strengthening (PHRC & NAPWD)	1,150	400	400	1,950						0	1,950
Institutional Strengthening (DOH)	3,600	500	600	4,700	200	500	500	200		1,400	6,100
Institutional Strengthening (NA Polytechnic)					300		150			450	450
Institutional Strengthening (Foreign Technical Asst. Program)	750			750		375				375	1,125
Revolving Credit	1,250	2,200	3,800	7,250	750	700	500			1,950	9,200
Total	47,803	40,270	43,072	131,145	36,648	37,257	22,302	21,626	23,000	140,833	271,978

Table 6

Recurrent Expenditure of The Investment Plan

(Constant Prices 1988-89)

(Rs. '000)

Sector Component	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
New Water Supply Schemes											
Rehabilitation											
Operation and Maintenance (O&M)	646	1,294	1,971	3,911	2,667	3,370	3,784	4,203	4,655	18,679	22,590
Sanitation	50	50	52	152	54	56	34	36	36	216	368
Water Control and Testing	500			500			500			500	1,000
Human Resource Development											
Hygiene Education	30	30	30	90	30	30	30	30	30	150	240
Institutional Strengthening (LB&RD)	1,822	2,097	2,257	6,176	2,433	2,626	2,838	3,072	3,330	14,299	20,475
Institutional Strengthening (AKRSP)	535	360	360	1,255	360	360	360	360	360	1,800	3,055
Institutional Strengthening (PHBC & NAPWD)	1,678	1,678	1,678	5,034	1,678	1,678	1,678	1,678	1,678	8,390	13,424
Institutional Strengthening (DOH)	1,216	1,216	1,216	3,648	1,216	1,216	1,216	1,216	1,216	6,080	9,728
Institutional Strengthening (NA Polytechnic)					200	50	150	100	100	600	600
Institutional Strengthening (Foreign Technical Asst. Program)	6,967	8,479	756	16,202	756	4,913	3,403			9,072	25,274
Revolving Credit										0	0
Total	13,444	15,204	8,320	36,968	9,394	14,299	13,993	10,695	11,405	59,786	96,754

Table 7

Local And Foreign Cost of The Investment Plan

(Constant Prices 1988-89)		(Rs. '000)										
Sector Component	Total									Total	Total	
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98	
New Water Supply Schemes												
Local	32,336	32,336	33,876	98,548	34,830	35,154	20,664	20,988	22,572	134,208	232,756	
Foreign												
Rehabilitation												
Local	2,606	3,943	3,560	10,109							10,109	
Foreign												
O&M												
Local	646	1,294	1,971	3,911	2,667	3,370	3,784	4,203	4,655	18,679	22,590	
Foreign												
Sanitation												
Local	150	150	152	452	154	156	134	136	136	716	1,168	
Foreign												
Water Control & Testing												
Local	500			500			500			500	1,000	
Foreign	940	40	40	1,020	40	40				80	1,100	
Human Resource Devlp.												
Local	856	641	536	2,033	278	278	228	228	218	1,230	3,263	
Foreign												
Hygiene Education												
Local	170	140	190	500	180	140	190	140	140	790	1,290	
Foreign												
Inst. Strengthening												
Local	8,277	5,805	5,975	20,057	5,990	5,984	6,446	6,469	6,684	31,573	51,630	
Foreign	5,799	446	536	6,781	397	446	446	157	0	1,446	8,227	
Inst. Strengthening (Foreign Technical Asst. Program)												
Local	1229	919		2,148		539	579			1,118	3,266	
Foreign	6,488	7,560	756	14,804	756	4751	2824			8,331	23,135	
Revolving Credit												
Local	1,250	2,200	3,800	7,250	750	700	500			1,950	9,200	
Foreign												
Local	48,020	47,428	50,060	145,508	44,849	46,321	33,025	32,164	34,405	190,764	336,272	
Foreign	13,227	8,046	1,332	22,605	1,193	5,237	3,270	157	0	9,857	32,462	
Total	61,247	55,474	51,392	168,113	46,042	51,558	36,295	32,321	34,405	200,621	368,734	

Table 8

Local And Foreign Cost of The Investment Plan

(Current Prices)										(Rs. '000)	
	Total									Total	Total
	1990-91	1991-92	1992-93	1990-93	1993-94	1994-95	1995-96	1996-97	1997-98	1993-98	1990-98
Local	56,006	58,129	65,391	179,526	61,621	64,780	47,754	48,150	54,807	277,112	456,637
Foreign	15,427	9,804	689	25,920	536	7,262	4,728	235	0	12,761	38,681
Total	71,432	67,933	66,080	205,446	62,157	72,042	52,483	48,385	54,807	289,873	495,319