N.W.F.P.

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

Final Strategic Investment Plan

VOL. I

September, 1989

Wardrop - Acres
Cowater International
NESPAK.

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ABBREVIATIONS & ACRONYMS

ABES	Adult Basic Education Society
ADP	Annual Development Plan
AKRSP	Agha Khan Rural Support Programme
BHU	Basic Health Unit
BUSTI	Basic Urban Services for Katchi Abadis
CDWP	Central Development Working Party
CIDA	Candian International Development Agency
C-B P	Community-Based Projects
DC	District Council
DiDAC	District Development Advisory Committee
DOE	Department of Education
DOH	Department of Health
DPDAC	District Planning and Development Advisory Committee
ECNEC	Executive Committee of the National Economic Council
EPI	Expanded Program of Immunization
FATA	Federally Administered Tribal Area
FHT	Female Health Technician
FWC	Family Welfare Centre
HEU	Health Education Unit
HRD	Human Resources Development
HT	Health Technician
IPHER	Institutue of Public Health Engineering and Research, Lahore
LGRDD	Local Government & Rural Development Department
LHV	Lady Health Visitor
MNA	Member of National Assembly
MPA	Member of Provincial Assembly
MT	Medical Technicians
NIH	National Institute of Health
NWFP	North West Frontier Province
O&M	Operation and Maintenance
ORS	Oral Rehydration Salts
PATA	Provincially Administered Tribal Area

PC-I	Planning Commision Form 1
PHC	Primary Health Care
PHED	Public Health Engineering Department
PPH	Physical Planning and Housing
RHC	Rural Health Centre
SDIP	Sector Development and Investment Program
TBA	Traditional Birth Attendant
UC	Union Council
VIP	Ventilated Improved Pit (Latrine)
VLOM	Village Level Operation and Maintenance.
WAPDA	Water and Power Development Authority
XEN	Executive Engineer

EXECUTIVE SUMMARY

The purpose of this World Bank/CIDA funded project was to produce for the Government a Provincial investment strategy for the next eight years in the rural water supply, sanitation and health sector to maximize the impact of the Government and Donor Agency investments.

Strategy objectives include ensuring water supply to 80% of the rural population, and increasing coverage of sanitary drainage and human waste disposal. Complimentary to these targets are new methodology, reduced operation and maintenance burden, improved institutional involvement and a more hygienic living environment.

Present coverage levels, in percentage of the rural population, are:

	Water Supply	Sanitary Drainage	Human Waste Disposal
NWFP	59	1	3
FATA	35	1	3

The current sector constraints have been identified and detailed for institutions, personnel, financing, project selection, technology, communities and hygiene education.

Water Supply strategy is consistent with the current Five Year Plan, Government policy declarations and guidelines. It is based on four axioms:

1. People in rural areas should receive, free of any capital cost, at least the minimum supply of safe water for their basic needs.

2. More than a basic level of service should be provided if the community is able and willing to contribute the extra cost.

3. The community should own, manage, operate and maintain the simple, low-cost, appropriate technology systems provided to them.

4. The people should be involved in all phases, including the planning, simple design and construction and they should be given the necessary training.

The proposed Institutional arrangements are:

- P&D to continue to provide general planning, monitoring and evaluation; assist in Provincial level coordination; and make the ADP requests following DPDAC and PHED processing;

- PHED to be responsible for assessing feasibility; design and construction of ADP financed schemes; technical advice; major repairs; projecting O&M costs and providing grants where necessary; and providing services on a fee basis after completion of construction;

- LGRDD to provide: a link with the DPDAC; creation of VDOs; training; and construction of schemes financed by elected official's grants over and above the ADP;

- DoH to implement the hygiene education; and

- the Education Department will provide training programmes for PHED and LGRDD as well as hygiene education in primary schools.

Coordination at the Provincial level will be maintained by a Sector Steering Committee, chaired by the ACS, P and D. Planning of sector investments is the responsibility of the DPDAC which will provide the District level coordination. Implementation of the plan will be overseen by a District Coordinating Committee. The mechanism for community participation will be Village Development Organizations.

Community selection for system construction will be made by the DPDACs and forwarded to PHED for feasibility assessment. The least expensive technical option which can provide the basic level of service will be selected.

Operation and Maintenance cost recovery is recommended for VDO responsibility.

The involvement of women is through the VDOs, in community organization and minor system maintenance.

Private sector involvement will be the manufacture and supply of equipment and materials, mainly handpumps and pipes, as well as constructors on construction and installations.

Drainage strategy follows the proposed pattern set for water supply in the institutional and coordination arrangements. For drainage within individual house grounds the owner constructs, with technical input from PHED, while village drains will involve the community in all aspects of planning, design and construction with responsibility for maintenance.

It is recommended that 15% of the ADP allocation be devoted to drainage.

Human waste disposal strategy also follows that for water supply and drainage in the institutional and coordination arrangements, except the community level coordination will be done by PHED using VDOs established by LGRDD.

The community involvement here will be in:

- planning, technology selection and level of service through the VDO;
- financing a portion of the cost of demonstration latrines plus all costs of future latrines;
- supervising or construction; and
- all maintenance.

It is recommended that 5% of the ADP be allocated to human waste disposal.

Hygiene education strategy has three key elements:

- strengthening the capacity of DoH with a Hygiene Education cell;
- integration with new schemes; and
- follow-up.

Institutional arrangements proposed in the Hygiene Education strategy are for the Department of Health, Health Services Division to be the lead agency with a new Cell, coordination being handled by the Provincial RWSSH Steering Committee and the District RWSSH Coordinating Committees, with community involvement.

Training strategy envisages programmes for line department staff, communities and elected officials.

In the case of PHED a new position of Training Coordinator is proposed and for LGRDD an in-house facility leading to a Rural Development Academy.

Training of DoH staff is an integrated component of the Hygiene Education initiative.

The sector Strategic Investment Plan recommends Rs. 1,774.1 million over eight years divided as shown in Table 5.1.1.2.

In water supply the investment plan is summarized in Table 5.1.4.1.

Coverage levels are expected to be:

	1993	1998
NWFP	79%	89%
FATA	51%	62%

In drainage the investment plan is summarized in Table 5.1.5.1.

In Human Waste Disposal the investment programme is shown in Table 5.1.6.1.

In each District the total investment is shown in Table 5.1.7.1.

In Hygiene Education the total investment is outlined in Table 5.1.8.1.

Institutional strengthening initiatives are recommended for P and D, PHED and LGRDD and are summarized in Tables 5.1.9.1, 5.1.9.2 and 5.1.9.3.

Training is recommended in PHED and LGRDD as shown in Tables 5.1.10.1, 5.1.10.2 and 5.10.3. DoH staff training will be an integral part of the hygiene education initiative. Donor project proposals are for the Netherlands, KFW and GTZ to make up an estimated shortfall of Rs. 174.9 million in the sector's required investment. Costs of the three proposed projects are summarized in Table 5.4.2.

Implementation of the strategic investment plan is proposed as follows:

1. Integration of project components.

2. Institutional arrangements:

- The Provincial Steering Committee monitors the investment, line departments carry out their specific functions, DPDAC will provide District level planning with coordination by the District RWSSH Coordinating Committee and the VDO will participate in village level implementation and ultimately operation and maintenance.

3. Community involvement.

4. Institutional development with cells to manage initiatives.

5. Training.

6. Hygiene education provincial cell.

7. Projected milestones in implementation are shown in Table 5.5.8.1.

Financing of capital costs will be through the ADP, People's Programme and the Donor Agency support.

Expected sources include:

.	ADP	Rs.	1,217.6 million;
.	People's Programme	Rs.	240.0 million; and
.	Donor Agencies	Rs.	316.5 million.

INTRODUCTION

The Government of Pakistan has undertaken to expand the coverage of water supply, sanitation and drainage facilities to people living in the rural areas. In the past, these services have been provided by the Government through the Annual Development Plan, through special projects with foreign funding, and by the private sector.

The Seventh Five Year Plan set the target of increasing water supply coverage of the rural populace in the Province from 40% to 70%. It specified that the priority was to be given to areas where sweet groundwater was not available at reasonable depths and to areas where people rely on untreated surface water. In areas where people have their own handpumps or house connections, priority would be given to sanitation and disposal schemes. Initial delivery systems were to be based on community stand posts and storage tanks and not house connections.

A review of the sector was carried out by the World Bank and CIDA in 1987 and a National Policy Conference on Rural Water Supply and Sanitation was held in Islamabad in April, 1988. It was attended by representatives of Government line departments and other agencies from all Provinces. The delegates to the Conference proposed a strategy for future investments in the sector which would expand the role of the beneficiaries in the development of projects (including financing of operation and maintenance costs), integrate water supply, sanitation and hygiene education, strengthen and coordinate institutions, enhance the role of the private sector, use technically appropriate, sustainable and affordable technologies which would provide service levels the beneficiaries want and can afford, with the Government assisting in the provision of a basic level of service.

The purpose of this report is to outline a revised investment strategy for the balance of the Seventh Five Year Plan and recommendations for the Eighth plan period which reflect the principles outlined above and which will maximize the benefits of the investment being made. The strategy has been developed by a team of Provincial Government staff supported by Pakistani and International Consultants with frequent inputs by Senior Staff in the various concerned departments of the Government.

ALLUVIAL PLAINS SHOWING GROUND WATER POTENTIAL IN N.W.F.P.

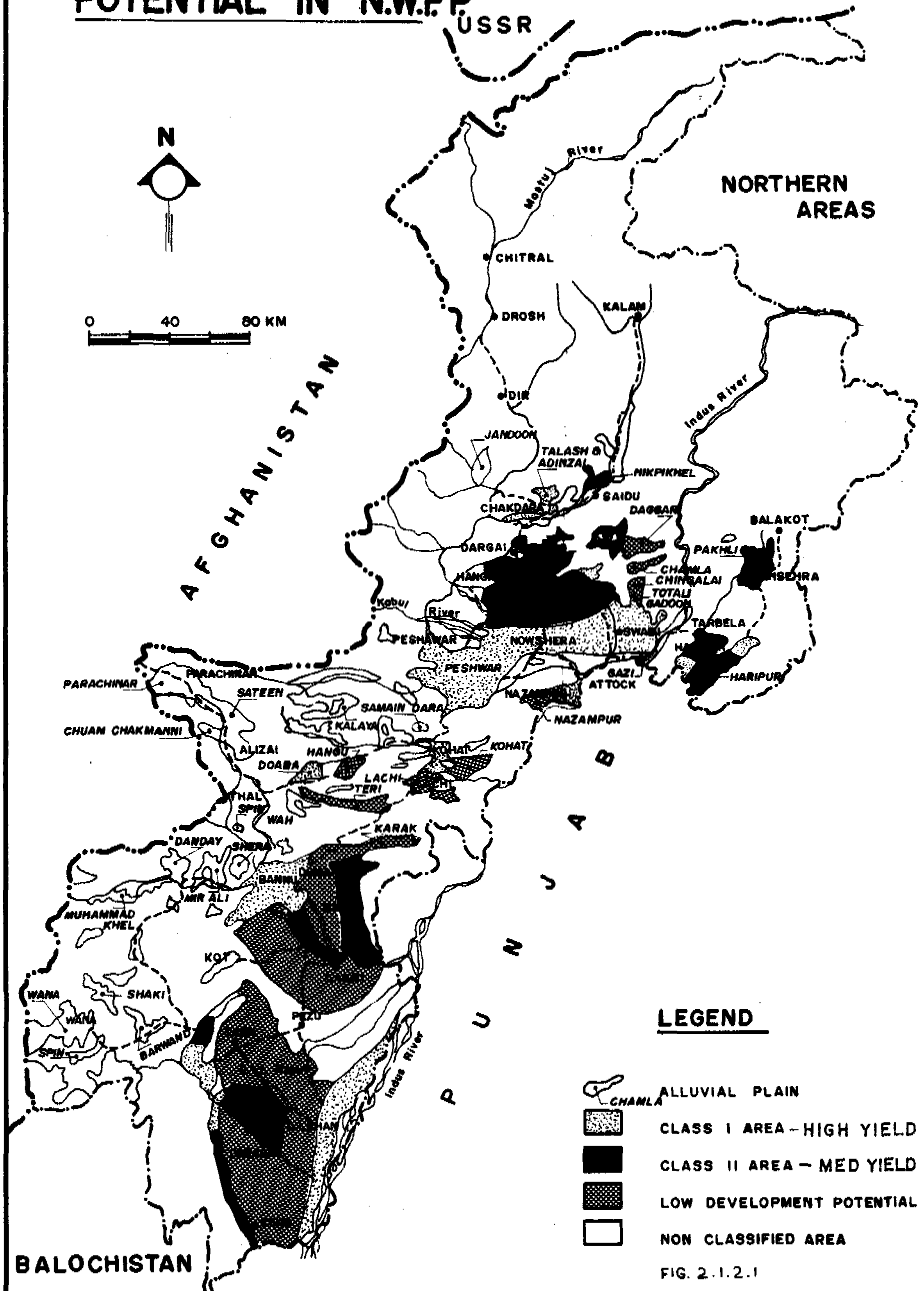


FIG. 2.1.2.1

SOURCE: NESPAK- 1989

2. THE SECTOR

2.1 General

2.1.1 Scope

This chapter covers the present situation in the Rural Water Supply, Health and Sanitation Sector as found in NWFP and the Federally Administered Tribal Area (FATA).

Institutions involved in this sector and the current financing are also outlined.

2.1.2 General Landscape

Landscape ranges from the Hindu Kush mountains overlooking the District of Chitral, through flat alluvial plains in Peshawar Valley (Fig: 2.1.2.1) , to the limestone and gravel plains around D.I.Khan. The river Kabul flows across the province to join the Indus at Attock. The southern plains are barren while the north is well forested.

The northern area extends from the rugged and partly glaciated mountain ranges of the Hindu Kush down to the central zone of Peshawar Valley. Most of the consolidated rocks are of Paleozoic age and are igneous and metamorphic in origin. The southern area is generally composed of exclusively sedimentary rocks with all stages of the tertiary era very well developed. These rocks are less resistant to erosion. The zones differ markedly, due to erosion that has produced some dramatic contrasts.

The northern area lies at an altitude of 4800 m, with some peaks in the Hindu Kush range 7300 m high. A few minor ranges, emerging from Hindu Kush System, descend gradually towards Dir, Kohistan, Swat and Hazara areas. These have an altitude of about 5480 m in the north and carry many permanent glaciers.

The mountains increase in altitude and ruggedness towards the west, and especially north west; to the east they become low, flat hills before the alluvial plain is reached. The sub mountainous Indus region consists of comparatively less elevated Himalayan mountains.

The Peshawar Plain forms a great circular, fertile low-land of about 6,400 sq.km.

Except Dera Ismail Khan, which represents a part of the Indus Basin, all the valleys are surrounded by hills which usually offer steep gradients on their northern margins.

2.1.3 Physiographic Zones

North West Frontier Province (NWFP) covers an area of 39,300 sq. miles (63,400 sq.km) and borders with Afghanistan to the north west, Balochistan to the south, Punjab to the south east and AJK and the Northern Areas to the north east.

The physiography of NWFP is variable, ranging from snow covered mountains in the north to relatively dry and sandy land in the south.

As a consequence of the mineral content of the various geological formations, both surface and groundwaters can contain high concentrations of salts. Both river and groundwater salt contents increase as the rivers move towards the delta. The concentrations of salt in groundwater also increase in areas remote from the main rivers as these areas are farther away from recharge of fresh water. Concentrations vary also with depth.

The province can be divided into the following four Physiographic Zones: (Fig: 2.1.3.1)

- Northern;
- Central;
- Southern; and
- Western (Tribal areas - FATA)

Northern Zone

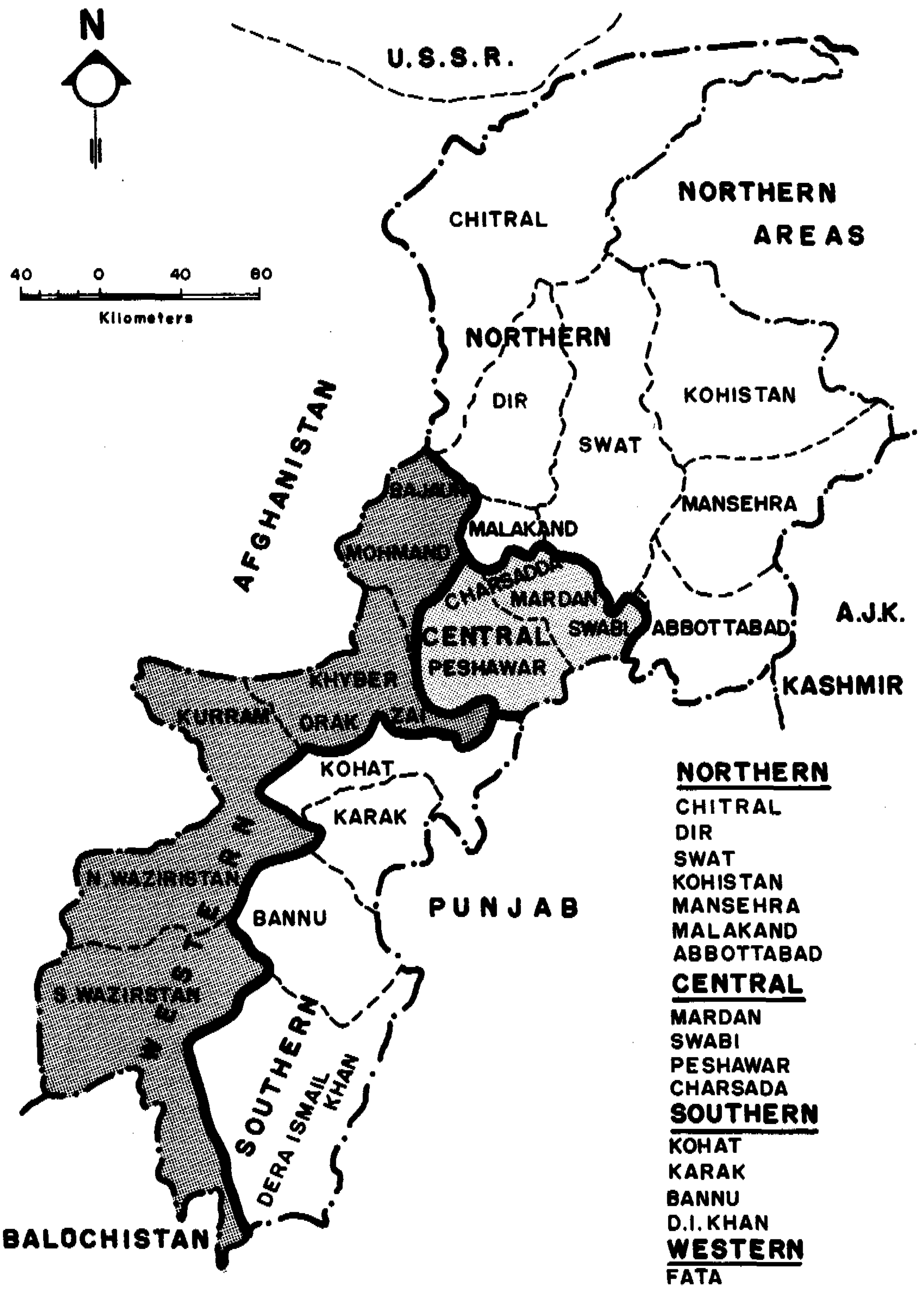
The topography of this zone ranges from high mountains in the extreme north (Chitral, upper Swat and Kohistan Districts) to hilly terrain in the south (Lower Swat and Dir, Malakand, Mansehra and Abbottabad Districts). The elevation above mean sea level varies from 25,000 ft (7620 m) (Trichmir Peak in Chitral) to 2,000 - 4,000 ft (610 m - 1220 m) for Abbottabad District.

Parts of the area are forested, and numerous natural springs and streams are found.

The climate is characterized by severely cold winters and pleasantly warm summers.

FIGURE 2.1.3.1

PHYSIOGRAPHIC ZONES & THE DISTRICTS OF NWFP & FATA



SOURCE: NWFP – 1988

Precipitation, shown in Fig. 2.1.3.2 occurs in the form of snow in winter and thunderstorms or heavy showers in the monsoon period of summer, ranging up to 40 inches per year.

The Indus river rises in the mountainous catchment of the Himalayas, entering the Northern Zone of the Province to receive the waters of four right bank tributaries: Swat, Kabul, Kurram and Gomal Rivers, and one left bank tributary, the Siran River.

The Kabul River has its source in Afghanistan and as it enters Pakistan it takes a south-east direction to Warsak, and then joins the Indus river at Attock, in the Central zone.

Water quality of both surface and ground sources in general is classified as sweet and potable (see Appendix 1). However some of the natural water sources such as the Panj Kora in Dir and the Indus in Kohistan Districts are quite turbid and need treatment to produce a potable supply. Availability of water at convenient distances is an issue in many locations. Main water sources are perennial springs and streams, which flow with varied discharge. In some valleys, such as Dir and Swat, ground water is also readily available.

Settlement patterns are scattered, low density with significant numbers of nomadic tribes retreating southwards, on a seasonal basis, from the inhospitable winter at higher elevations, mainly in Kohistan and Swat.

Central Zone

This zone includes the valley of Peshawar comprising the Districts of Peshawar/Charsadda and Mardan/Swabi. It consists mostly of fertile agricultural land irrigated by the Swat canal system and lies on both banks of the Kabul River.

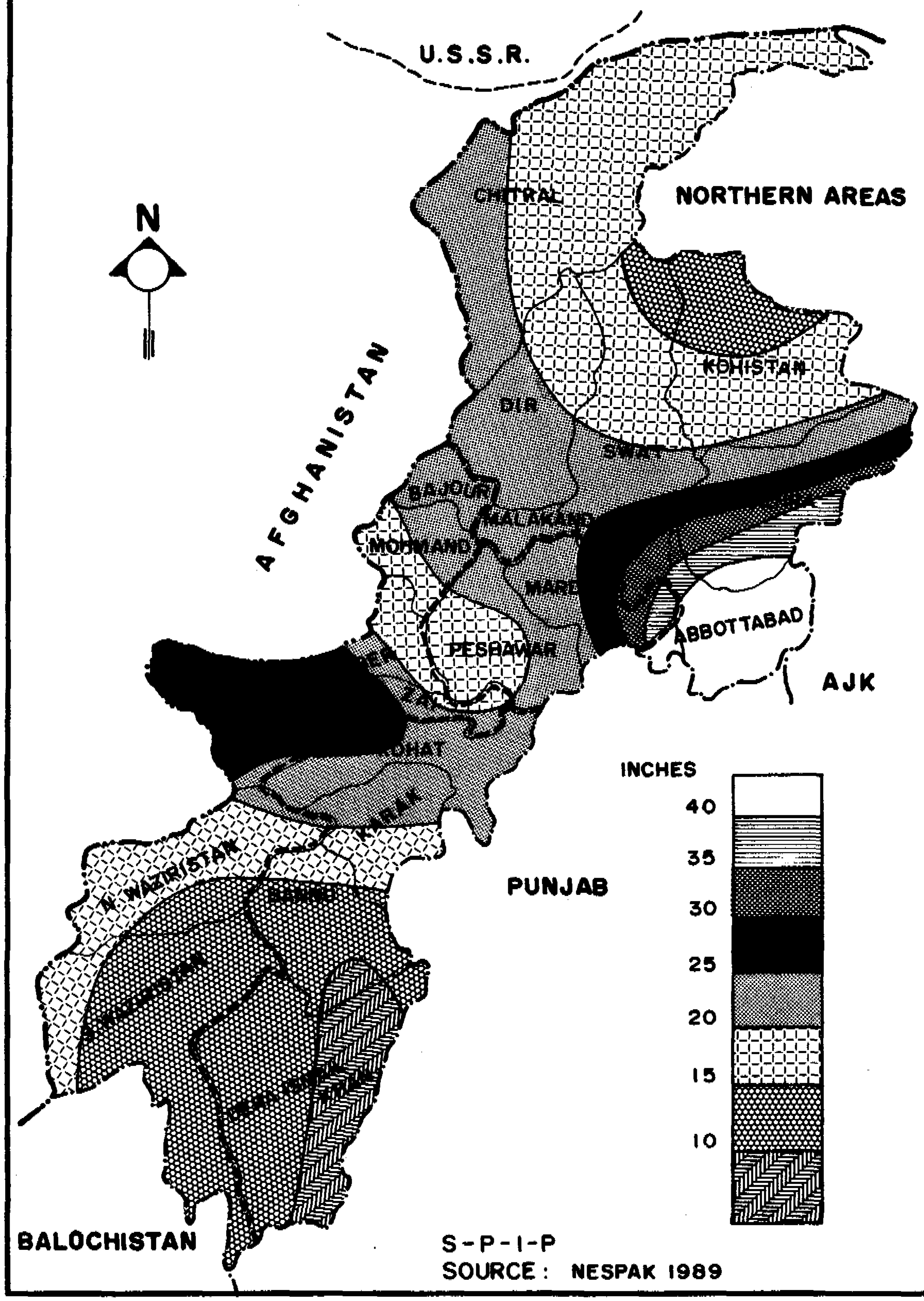
The climate is very hot in mid-summer with maximum temperatures exceeding 46 °C (126 °F) but most of the winter months are mild and pleasant at 5 °C to 16 °C (47 °F-80 °F). Precipitation follows the pattern set in the Punjab plain with widespread rain of 20 to 25 inches per year in the monsoon period.

The central zone has ample reserves of potable, fresh groundwater at shallow depths.

Settlement patterns are stable and density of population is the highest of the four zones.

FIGURE 2.1.3.2

N.W.F.P. MEAN ANNUAL RAINFALL



S-P-I-P

SOURCE: NESPAK 1989

Southern Zone

The southern zone comprises arid, hilly terrain in Kohat and Karak Districts and the flat lands of D.I.Khan and Bannu. The Indus River, flowing from Attock to D.I.Khan, separates this zone from the Province of Punjab, and the Kurram River flowing from the westerly boundary divides Bannu.

Natural surface levels range from 500 ft (150 m) near the Indus River to 3,000 ft (915 m) above mean sea level towards the Afghanistan boundary.

The climate is very hot in summer months (May, June, July) with daily maximum temperatures normally exceeding 40°C (104°F) while winter (November through March) has a range of 5°C to 16°C (47°F- 80°F). Water resources in this zone are generally scarce. Precipitation is limited in the south on the plain areas to 10 inches per year.

Groundwater occurs chiefly in the alluvial fill and is obtained from open, dug wells or tube wells. Depth to water table varies from 30 m to 160 m in confined, semi-confined and unconfined conditions. Basins of groundwater occurrence are in Bannu, D.I.Khan, Kohat and Karak Districts. Quality is generally good with some pockets of brackish water in all Districts except Kohat.

Settlement patterns are scattered and population density is medium to low and clustered. Except for some small tracts of irrigated land, there are no significant agricultural or cash crop oriented activities.

Western Zone: Federally Administered Tribal Area (FATA)

The western zone contains seven tribal agencies: Bajaur, Mohmand, Khyber, Orakzai, Kurram, North Waziristan and South Waziristan. Bajaur in the north (adjoining Dir District) to South Waziristan in the south (adjoining D.I.Khan) forms the western boundary with Afghanistan.

The topography is characterised by hilly terrain in most parts of the agencies.

The natural surface level varies from 2000 ft (610 m) to 6500ft (1980 m) elevation. Parachinar in Kurram Agency and Razmak in South Waziristan are two hill stations with elevations of more than 5000 ft (1525 m).

Dry, sandy and stony ground characterize FATA with little vegetation, and scarce water resources.

The climate is very hot in the summer months (May, June, July) with daily maximum temperatures normally exceeding 40°C (104°F) while the winter months of November through March range in temperature from 5°C to 16°C (47°F - 80°F).

Precipitation is limited to an annual average of 10 inches per year in the south west but ranges up to 40 inches per year in the hills between Bannu and Peshawar, as shown in Fig. 2.1.3.2.

Groundwater is relatively scarce and ranges up to 160 m in depth with poor quality (brackish) water in some areas.

Settlement patterns are scattered and low density.

2.2 Institutions Involved in the Sector

The following institutions are involved (or in the case of Sarhad RSC, may become involved) in the Rural Water Supply, Sanitation and Health Sector:

- Planning and Development (P&D);
- Public Health Engineering (PHED);
- Local Government & Rural Development (LGRDD);
- Department of Health (DOH);
- Education Department (ED);
- Training Institutions;
- District Planning and Development Advisory Committee (DPDAC);
- District Councils (DC);
- Union Councils (UC);
- Non-Government Organizations (NGO);
- Sarhad Rural Support Corporation (SRSC);
- UNICEF;
- Donor Agencies (International Aid);

- Private Sector; and
- Communities.

In addition, the presence of the Afghan refugees has resulted in several organisations developing sector expertise. The regugees are briefly discussed in Section 2.2.15.

2.2.1 The Planning and Development Department (P&D)

The Planning and Development Department is an administrative department of the Government of NWFP responsible for coordination of economic and social development in the Province. It prepares the development budget (ADP) of the Provincial Government and monitors its implementation, reviews and processes approximately 1200 development projects per annum for approval by the competent authorities and for inclusion in the ADP, and monitors their implementation.

The approval process is as follows:

- projects costing less than Rs. 60 million are approved by the Provincial Development Working Party of which the Additional Chief Secretary (P&D) is the Chairman; and

- Projects exceeding Rs. 60 million in cost are sent to the relevant section of the Planning and Development Division in the Federal Government for examination and subsequent approval by the Central Development Working Party of which the Secretary, Planning and Development in the Federal Government is the Chairman.

P and D assists the Provincial Government in setting provincial development priorities (keeping in view national development priorities), including regional and sectoral priorities. It conducts research in support of the above, including data collection (largely through the provincial Bureau of Statistics).

The Department is headed by the Additional Chief Secretary. Day to day management is carried out by the Secretary, assisted by two Additional Secretaries and the Chief

Economist. The attached Bureau of Statistics is supervised by the Chief Economist and is headed by a Director. The Department has 6 sections dealing with different sectors - transport and communications, water and power, agriculture, health and education. In addition, one section deals with plan evaluation and formulation and another exclusively with projects in FATA, and has several sections dealing with the following specific tasks:

- coordination;
- special Development Programme (SDP);
- women's affairs; and
- administration.

The coordination section is supported by the P & D Computer Centre. The department also comprises a Special Development Unit (SDU) headed by a Director General; the SDU is in charge of the implementation of integrated area development projects and poppy substitution projects for which P and D has been designated as the executing agency. The Department has a total establishment staffing strength of 186 (excluding the Bureau of Statistics), of which 51 are officers/professional staff. This excludes professional staff of SDU and SDP who are employed on a contract basis.

2.2.2 Public Health Engineering Department (PHED)

Organization and Mandate

PHED, administered under the Sectretary, Irrigation and Public Health Engineering is primarily an engineering organization with a strong technical orientation. In recent years, it has become increasingly involved in community oriented activities. It has been traditionally involved in urban water supply projects and has more recently moved into the rural areas. In addition to the normal staff components it has a water quality testing laboratory, and a Sanitation Division, the first in Pakistan.

PHED is mainly concerned with the physical engineering and execution of projects, but, due to the inability of local bodies to maintain the systems, it has also been required to retain responsibility for operation and maintenance. Generally, PHED has not involved communities directly in the planning, selection, execution and operation of schemes, but more recently, community participation has been emphasized through workshops, which were held in collaboration with GTZ (German Technical Assistance) in April/December 1988.

The Department, combined with the Irrigation Department for its mandate, is formally listed as conducting the following:

- Public health works pertaining to government buildings and residential estates;
- Public Health Engineering and drinking water supply schemes;
- determination of rates of supply to consumers in bulk and otherwise and prescribed tarrif (only in the case of private undertakings);
- levy and collection of fees under the Act of 1985; and
- sanitary and waste water disposal projects.

The organization structure of PHED is shown in Fig. 2.2.2.1.

Staffing

The Chief Engineer reports to the Secretary, Irrigation and Public Health Engineering. Directly reporting to the Chief Engineer are six Superintending Engineers (SE) and four Senior Officers, as delineated. Beneath the Superintending Engineer's level are shown the Divisional offices manned by Executive Engineers (XEN) to whom the Assistant Engineers report from their Sub Divisional Offices (SDO) which include Sub Engineers.

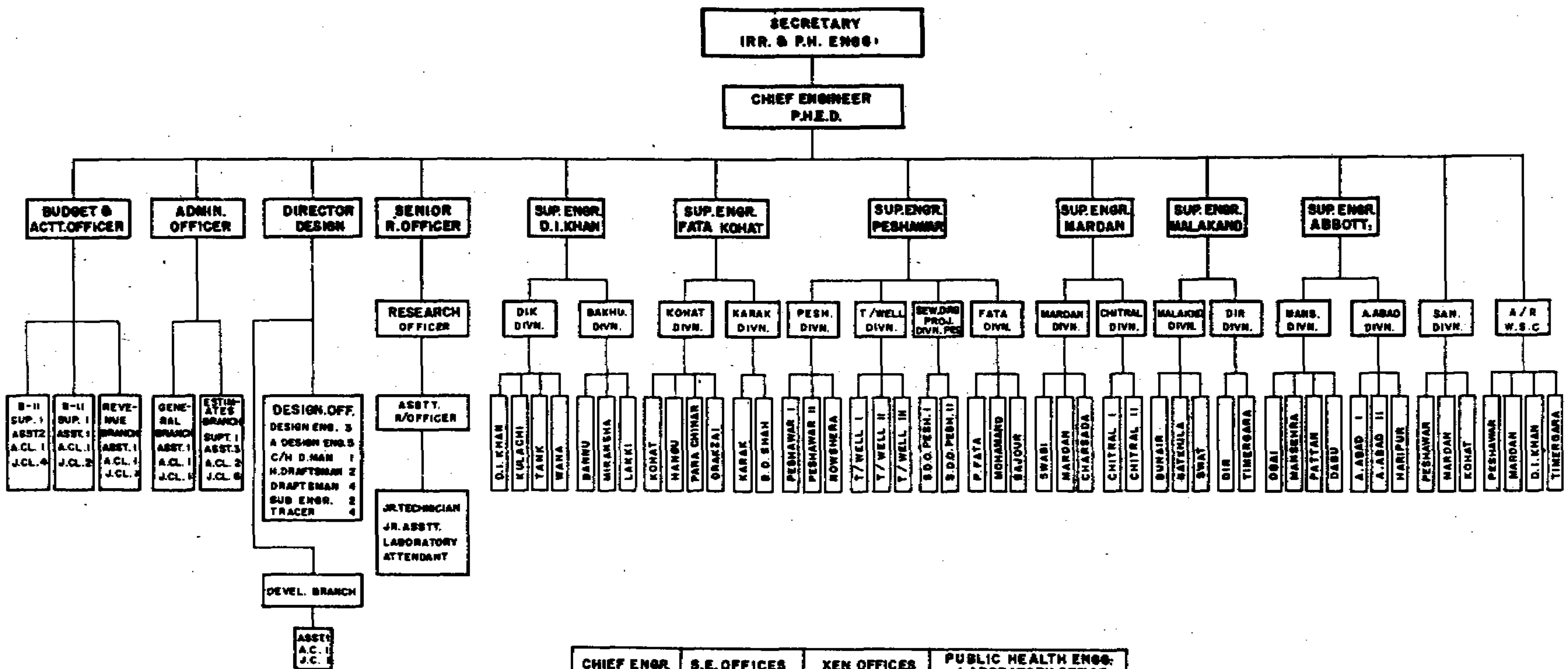
The Sanitation Division is a newly created extension of the organization, funded by KFW (West German Bank for Reconstruction and Development). It is headed by an Executive Engineer who reports directly to the Chief Engineer, and currently operates in the Districts of Dir, Swat, Mansehra, Peshawar and Mardan.

Another Executive Engineer heads up the Afghan Refugee Water Supply Cell, also reporting direcly to the Chief Engineer and operating in the Districts of Peshawar, Mardan, D.I.Khan and Dir.

FIGURE 2.2.2.1

ORGANIZATION CHART

PUBLIC HEALTH ENGINEERING DEPARTMENT N.W.F.P.



CHIEF ENGR.	S.E. OFFICES	XEN OFFICES	PUBLIC HEALTH ENGG: LABORATORY OFFICE
C.E. 1	SUPERINTENDING ENGR. 6	XEN 15	SR. RESEARCH OFFICER. 1
D.D. 1	MIN. STAFF 6	S.D.O. 44	RESEARCH OFFICER 1
D.E 3	DRAWING ESTATE 14	SUB ENG. 122	A. RESEARCH " 1
A.D.E. 5	OTHERS 32	MIN: STAFF 250	JR. LABORATORY TECH. 1
MINISTERIAL STAFF 5		DRAWING STAFF 67	JR. LABORATORY ASSTT. 1
DRAWING BRANCH 12		OTHERS 412	LABORATORY ATTEN: 1

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SOURCE: NWFP PHED

FIGURE 2.2.2.1

The Senior Research Officer in the PHED central Water Laboratory in Peshawar City certifies the test results of water sample examinations and compares the reported analysis with the recommended criteria of World Health Organization (WHO) International Standards. Certification includes advice on fit or unfit sources for drinking water purposes, and covers both chemical and bacteriological examination results.

The Public Health Engineering Department functions with over 35 staffing positions, each having a sanctioned strength. The total number of staff engaged at any one time may be slightly higher than the number of sanctioned positions, which are shown in Table 2.2.2.1.

Table: 2.2.2.1 PHED/NWFP STAFF

Office of the Chief Engineer		Sup.Eng. Offices		Executive Eng. Offices		PHED Water Laboratory	
Staff	No.	Staff	No.	Staff	No.	Staff	No.
Chief Engineer	1	Superin-tending Engineer	6	Exec.Eng.	15	Sr.Research Off.	1
Director Design	1	Ministerial Staff	6	Sub.Div. Officer	44	Research Officer	1
Deputy Engineer	3	Drawing	14	Sub. Eng.	122	Asst. Res. Off.	1
Assistant Deputy Engineer	5	Others	32	Minis terial	250	Junior Laboratory Technician	1
Minis-terial	3			Drawing	67	Junior Laboratory Asst.	1
Others	1			Others	412	Laboratory Attendant	1

Source: PHED/NWFP

With engineering being the predominant discipline in PHED, the source of new manpower, when required, usually comes from the Universities and Polytechnics. When vacancies occur, the number of applicants are 3-4 times that required and the choice of academically qualified individuals is excellent. The scheme of service (Service Rules) has a set pattern for promotion and recruitment. Amongst the engineers seventy per cent of the positions are filled by initial recruitment, ten per cent by selection with regard to seniority among Sub-Engineers and the remaining twenty per cent by selection on merit with regard to seniority from amongst Assistant Engineers of the Department who hold a diploma. Above the position of Assistant Engineer the positions are staffed by promotion. Superintending Engineers and Chief Engineers are promoted or receive lateral transfer from an equivalent post in another department.

Upon appointment, engineering staff only receive on-the-job training in the form of "learn by doing". PHED has no in-service training capability. The engineers receive updated design and technology courses occasionally under donor technical assistance programmes. Low cost rural water supply and sanitation schemes are being installed in NWFP; training in this subject area is weak. Normally, any training delivered to the engineering staff at PHED is arranged in conjunction with a project. Very little of the PHED budget can be spent on staff development.

Operating Budget

In recent years, PHED's recurring budget has increased at the rates shown in Table 2.2.2.2.

Table 2.2.2.2: PHED RECURRING BUDGET

Total Year	Recurring Expenditures Receipts	O & M	Others	Total
1986-87	8.0	75.2	12.5	69.7
1987-88	11.0	67.7	11.6	79.3
1988-89	12.2	75.6	19.0	94.6
1989.90*	14.8	93.1	44.4	137.5
% Cumulative Growth Rate	18.9	17.6	52.5	25.4

* Projected

The main reasons for the Rs. 43 million increase in 1989-90, are:

- increase in staff by about 900 individuals - tubewell & valve operators and chowkidars, falling in the salary grades 1 - 5. Assuming an average pay of Rs. 900/month/person, the estimated annual increase owing to additional staff is Rs. 19.5 million;

- salary increase of existing staff and revisions in some salary related overheads/allowances like medical and house rent, resulted in an increase of Rs. 8.5 million;

- increase in expenditure on electricity because of tariff revisions and new schemes will cost an extra Rs.3.2 million; and

- repairs of tubewells and related equipment required an extra Rs. 1.5 million.

Donor Assistance

PHED is presently receiving assistance through a project financed by KFW. To support the Government of NWFP in its effort to acelerate the rural development, the establishment of a sanitation division within PHED and a rural sanitation programme have been incorporated in the phase I of the ongoing KFW financed project.

A second project, financed by GTZ, is due to start in January, 1990. The target group of the project is the personnel of the PHED which is to be prepared for the provision of more efficient services by intensive training measures, and the population of the NWFP whose supply of hygienic drinking water and sanitation facilities are to be improved and whose hygiene awareness is to be raised by active participation in their projects and by information campaigns. Participation ranges from work inputs and cost contributions to the assumption of responsibility for the maintenance of the installations.

In order to improve the sector situation, relief was given in the past mainly in water supply by the Government of NWFP through PHED and by international donor agencies like UNHCR and UNICEF. Sanitation projects have been initiated by several relief organizations in Afghan refugee camps. For the local population some latrine construction programmes have been initiated only in a few of the northern Districts of NWFP through UNICEF.

Under the refugee related financial assistance programme of the Federal Republic of Germany the Project "Water Supply for Refugee Camps and Neighbouring Villages in NWFP" was taken up in 1984. In its ongoing Phase I water supply schemes have been constructed for 13 Afghan refugee camps and the affected neighbouring local settlements. Additionally a sanitation pilot project was implemented in 1986.

To support the Government of NWFP in its effort to accelerate the rural development the establishment of a sanitation division within PHED and a rural sanitation programme have been incorporated in the Phase I of the ongoing project.

Progress

The number of PHED water supply schemes and their sources as of January, 1989, are shown by District, in Table 2.2.2.3.

Table: 2.2.2.3 PHED SCHEMES COMPLETED UPTO JANUARY, 1989

Name of District	No. of Schemes	Spring	Infiltr-ration gallery	Tube well	Percol-tion Well	Canal
Abbotabad	194	102	30	56	6	-
Mansehra	189	118	49	7	15	-
Kohistan	59	52	3	-	4	-
Swat	143	71	7	50	15	-
Dir	103	50	1	23	29	-
Malakand	55	36	2	13	4	-
Chitral	44	19	-	-	10	15
Mardan	102	4	9	84	4	1
Peshawar	166	1	14	150	1	-
Kohat	78	12	22	34	9	1
Karak	82	1	30	40	11	-
Bannu	122	-	3	114	3	2
D.I.Khan	101	1	17	75	2	7
	1438	466	187	646	113	26

Source: PHED - NWFP

Human waste disposal and sanitary drainage schemes by PHED have been limited to date to the KFW funded programmes Dir, Swat, Mansehra, Peshawar and Mardan Districts. To date, 2,600 latrines and drains in 4 communities have been constructed.

Constraints

As an administrative body of the Provincial Government, the PHED was initially only responsible for the planning, financing (from ADP budget funds) and the construction of urban and rural drinking water supply facilities. After completion, urban water supply facilities were transferred to the municipal administration or District Councils who are responsible for operation, collection of charges and maintenance. Responsibility for sanitation measures in the urban sector also rests with the municipal administrations and the health authorities (Health Department, NWFP).

In the rural sector, mainly in view of the lack of both administrative structure and participation by the population, the PHED itself had to take over the operation and maintenance of the water supply installations to a growing extent. At the present time, 1438 rural water supply installations, of which 958 are installations with house connections, are operated by PHED.

Due to the constantly growing number (approximately 100 per year) of the installations which PHED has to operate, it is totally overcharged with respect to organization, personnel and funds. Operation and maintenance tasks are currently performed by the private sector, organised and supervised by the 12 Division and 34 Sub-Division Offices of the PHED which are not sufficiently equipped for this purpose (no workshop facilities, spare parts stores, vehicles). For all major repairs it is therefore necessary to fall back on the services of local firms and sub-suppliers, which often involve long periods of interruption of service. Regular inspection of the facilities, the operation results and the quality of the water is therefore not assured.

2.2.3 Local Government and Rural Development Department - LGRDD

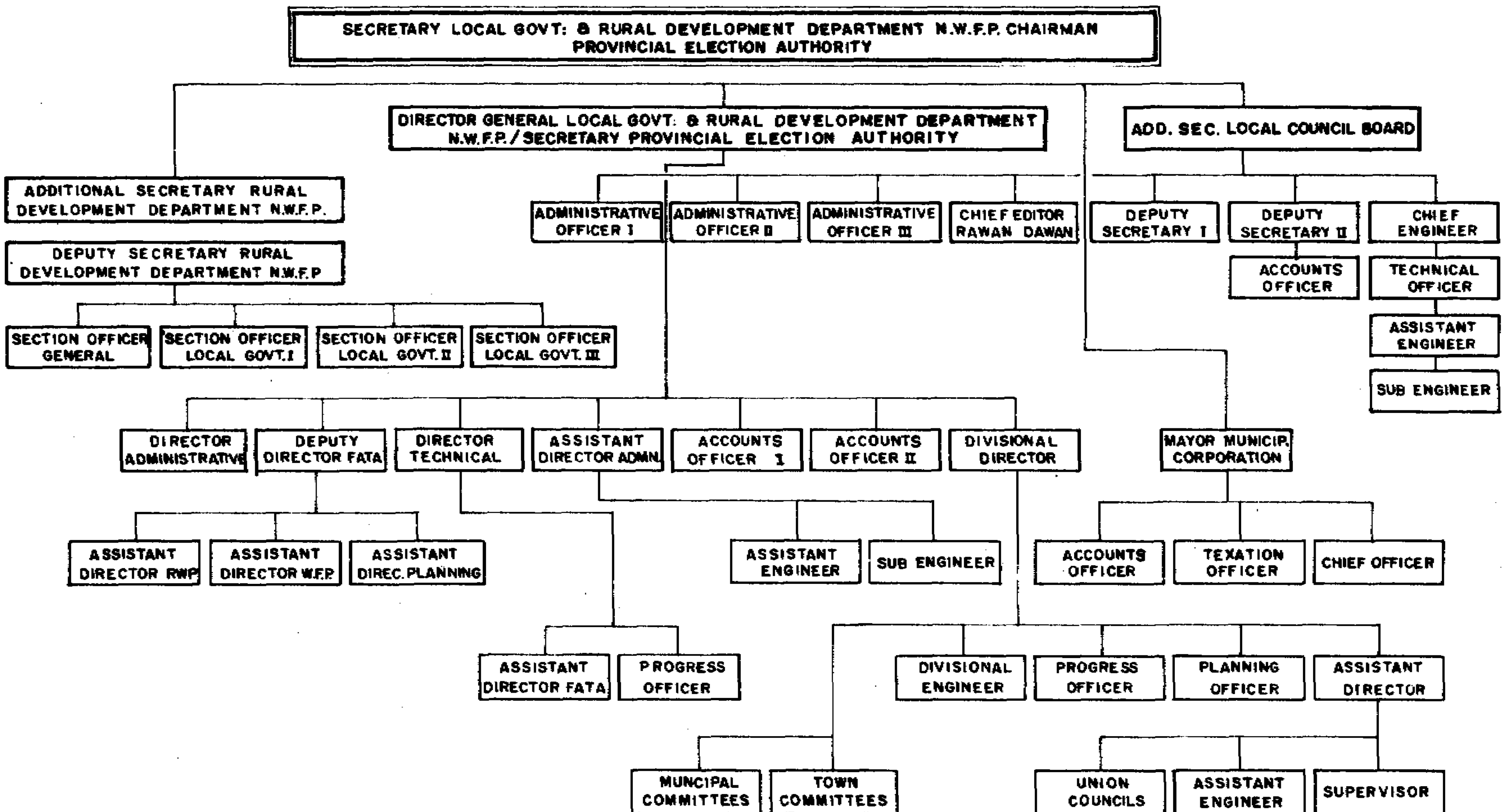
The LGRDD essentially has two wings. The Local Government wing is charged with the responsibility of providing assistance to the urban and rural local bodies either in the form of grant-in-aid or by appointment of officers in such bodies to perform functions including administration, taxation, and finance. The Rural Development wing is the field component and is staffed with engineers and project supervisors as well as the secretaries of Union Councils. It is reponsible for executing the Rural Works Programme and providing technical assistance to the Union Councils.

The administration of LGRDD is organized at four levels. In the Provincial Secretariat, there is the Secretary with two Additional Secretaries, one for rural development and the other for affairs relating to the matters of local councils. The Secretary is the Chairman of the Provincial Election Authority (PEA) which is responsible for periodically (every four years) conducting elections of the councillors of both urban and rural councils. An organization chart is presented in Fig. 2.2.3.1.

The office of the Director General, who oversees the day-to-day administration of the department and is secretary of the PEA, is also located at the provincial headquarters. He has two Directors, one for administration and the other for technical matters.

FIGURE 2.2.3.1

ORGANISATIONAL CHART OF LOCAL GOVERNMENT, ELECTIONS & RURAL DEVELOPMENT DEPARTMENT N.W.F.P.



SOURCE:
LGRDD - AUG. 1989

The third level is the Division.

Each Division has a Divisional Director, who is assisted by a Progress Officer. The Divisional Director performs inspection functions, examines budgets and project proposals and processes appointments.

The lowest level is the District. Each District has an Assistant Director, who performs similar functions as the Divisional Director, but at a lower level. Following the constitution of the District Planning and Development Advisory Committees, he will also act as its Secretary. Also at the District level, there is an Assistant Engineer (with sub-engineers) responsible for preparation of project feasibilities, site inspection and certification of payments. In addition there are supervisors who oversee the work of the secretaries of the Union Councils, who are also employees of the LGRDD.

Table: 2.2.3.1 SENIOR STAFF OF LGRDD IN NWFP*.

Classification	BPS Grade	No.
AT PROVINCIAL LEVEL		
Director General	19	1
Director (Administration)	18	1
Director (Technical)	18	1
Assistant Directors	17	5
Accounts Officer	17/18	2
Superintendent	16	3
Office Assistants	11	14
Sub-Engineer	11	1
Draftsman	8	1
AT THE DIVISIONAL LEVEL (6 Divisions)		
Divisional Director	18	1
Progress Officer	17	1
Office Assistant	11	1
AT THE DISTRICT LEVEL (15 Districts)		
Assistant Director	17	1
Assistant Engineer	17	1
Supervisor	9	2
Assistant	11	1
Sub Engineer (District/Tehsil)	11	54

* Excluding support staff i.e stenographers and staff below BPs-8.

Source: LGRDD

A comparison of technical staffing reveals that LGRDD does not have the same level of technical expertise as PHED. The difference is most pronounced at the senior and middle management levels. For example, the Director (Technical) of LGRDD is in BPS-18 while his counterpart in PHED, the Chief Engineer, is in BPS-20. Also, the LGRDD is yet to establish a cadre of Divisional engineers. Staffing is listed in Table 2.2.3.1.

Total staff of LGRDD, sanctioned and actual are listed in Table 2.2.3.2.

Table 2.2.3.2: TOTAL STAFF OF LGRDD SANCTIONED APPOINTED

Category/Designation of Post	Total Numbers of Sanctioned Posts	Total Numbers of Staff (actual)
Director General	1	1
Directors	8	8
Director (Technical)	1	1
Assistant Directors	29	21
Assistant Engineers	27	29
Accounts Officers	2	2
Divisional Progress Officers	6	6
Superintendent	4	4
Senior Scale Stenographers	9	9
Junior Scale Stenographers	3	3
Stenotypist	39	35
Office Assistant	46	46
Senior Clerks	46	43
Junior Clerks	93	80
Senior Auditor	2	2
Junior Auditor	2	1
Supervisors	51	48
Sub Engineers	54	51
Work Munshis	20	17
Draftsman	1	1
Tracer	1	1
Works Accountant	1	1
Cooperative Officer	1	1
Secretaries Union Councils	655	597
Daftary	2	2
Drivers	37	34
Chainman	2	2
Naib Qasid	171	171
Chowkidars/Mali/Sweeper	78	78

Source: LGRDD - August, 1989.

LGRDD has a vast outreach capability through its cadre of Union Council Secretaries and through the Councillors. It has also demonstrated strong recognition of its role in supporting community participation and local management of projects. In this sense, the roles of LGRDD and PHED are complementary.

2.2.4 Department of Health (DOH)/ Health Education Unit (HEU)

The Department of Health has placed considerable emphasis on improving its curative services in the rural areas through a rapid increase in health facilities and upgrading the professional level of staff attached to these facilities. It is planned that, by the end of the decade, every Union Council will have Basic Health Unit (BHU), the majority of which will be staffed by a doctor. It has organized a number of special programmes to address particular diseases or opportunities. These include:

- Expanded Programme of Immunization (EPI);
- Tradition at Birth Attendant Training (TBA);
- Control of Diarrhoea Diseases (CDD);
- Maternal and Child Health (MCH);
- TB; and
- Malaria.

Of these, the first two are of particular importance for the sector. A special effort has been mounted to address the health needs of women in remote rural areas. Health education capacity is being expanded.

Rural Health Facilities

The number of health facilities in each District is summarized in Table 2.2.4.1.

Overall 89% of Union Councils have a RHC or BHU. Each Rural Health Centre (RHC) is the referral point and source of support for an average of eight Basic Health Units (BHUs). The number of RHC or BHU per Union Council varies substantially among Districts from 0.54 in Mardan to 1.22 in Dir.

Across the province, there is one rural health facility on average per 19,000 residents. The average population per facility ranges from 34,347 in Mardan/Swabi to 13,400 in D.I. Khan.

The department's policy is to increase the range of services offered by BHUs, such as screening school children and in providing health education.

Table 2.2.4.1: RURAL HEALTH FACILITIES BY DISTRICT

District Council	Rural Pop. (000)	No.of RHC's	No.of BHU's	Population served by RHC or BHU	No. of Union Councils	Number of RHC & BHU per UC
Chitral	248	3	15	13778	16	1.13
Dir	983	7	54	16115	50	1.22
Swat	1404	1	59	23400	69	0.87
Kohistan	556	2	15	32700	38	0.45
Mansehra	1144	8	67	15253	70	1.07
Malakand	248	0	15	16533	19	0.79
Abbotabad	1118	8	58	16939	76	0.87
Mardan/ Swabi	1683	7	42	34347	90	0.54
Peshawar/ Charsadda	1544	10	68	19795	95	0.82
Kohat	457	5	23	16321	26	1.08
Karak	268	3	15	14889	17	1.06
Bannu	755	6	44	15100	47	1.06
D.I.Khan	630	7	40	13404	42	1.12
Total/ Provincial Average	11038	67	515	19000	655	0.89

Expanded Programme of Immunization

NWFP has achieved one of the best performances in EPI in terms of infant and child coverage, TT coverage of child bearing age women and the integration of EPI with the remainder of its health services. One particular innovation was the recruitment of a special cadre of 65 female vaccinators, recruited despite skepticism from some of the bureaucracy. They were provided with an incentive of an extra grade above their male counterparts and an additional Rs 500/month if more than 500 women per month were vaccinated. All vaccinators distribute ORS sachets and are responsible for instruction in their usage. No support media are available to assist this communication. The 1988 WHO/MOH EPI review estimated rural use of ORS for diarrhoea cases at 59% (urban usage 47%).

Dai (TBA) Training Programme

This programme aims to train Traditional Birth Attendants (TBA).

Trained LHVs reach villages in mobile teams and train TBAs for 15 days. The training takes place at the nearest BHU. There is a second refresher course by LHVs 6 months after the first course.

One major constraint is a shortage of LHV's. The department has sanctioned 880 LHVs but only 515 (59%) are employed.

The TBA training programme covers the following topics:

- hygienic methods of delivery;
- prenatal care;
- postnatal care;
- growth monitoring and nutrition;
- breast feeding for infants;
- diarrhoea treatment and use of ORT;.
- Immunization; and
- family/kitchen hygiene.

Mobile Dispensaries - DoH and Women's Division

The Women's Division has provided 7 Mobile Dispensaries for women in remote areas in the province. These dispensaries serve in several rural areas of Bannu, Kohat, Peshawar, Mardan, Parachinar, Abbottabad and Saidu Sharif. They provide preventive as well as curative services. The major focus of this programme is to help reduce maternal and child mortality. Each mobile dispensary consists of 1 female doctor, one LHV, one female assistant and a driver. DoH has requested the Women's Division to provide 15 more such mobile dispensaries for this purpose.

Health Education Unit (HEU).

At present there is one Assistant Director, Health Education, at Provincial level. Four Divisions have Health Education Units: Peshawar, Kohat, Mansehra and D.I.Khan Divisions. Mardan has yet to establish its HEU. Up to 1987, the HE unit was extremely weak with a total budget of Rs. 87,000., and with only one Assistant Director at the provincial level and one in D.I.Khan. The 7th five year plan detailed a significant expansion of Health Education activities and stronger links with the health infrastructure. Its budget allocation was increased in the ongoing 5 year plan to Rs. 2.40,790/-per annum.

The programme is managed by a Divisional Deputy Director of Health Services at each Division. Health education is deemed to be an essential element of Health Services, and it is meant to be integrated with all the on-going Health Programmes in the Province. The managers of health programmes make special provision for the health education component in their programmes.

The major responsibilities of the HEU at Provincial level are:

- planning, implementation, monitoring and evaluation of health education and communication components of on going health programmes with consultation of project managers;

- planning and conducting Health Education (HE) training;

- production of training material;

- securing assistance from the Federal Government and Donor agencies;

- preparing PC 1's;

- working with Sectoral Departments such as: Education, Social Welfare, Local Government, and radio and television;

- providing support, guidance, budget and material to the Divisional H.E. Units; and

- monitoring and evaluation of HE programmes in the Province.

At the Divisional level, HEUs have the following responsibilities:

- planning and implementation of HE activities at Divisional level;

- training of health workers in health education;

- providing support to field workers of DoH in scheduling of health education activities, provision of hygiene education material, and guidance;

- formation of School Health Committees, support and guidance; and

- arranging H.Ed. exhibits on special occasions.

Apart from the staff of the HEU, all of the health workers of the department are supposed to carry out health education as part of their daily work. Officers are expected to train the following health manpower in health personnel and communication:

- policy makers and administrators;
- medical officers;
- health workers: LHVs, Medical Technicians, Vaccinators;
- TBAs;
- School Teachers; and
- Health staff of NGOs.

2.2.5 Education Department

Primary Schools

The achievements of the Sixth Five Year Plan and the proposed investment in the Seventh Plan illustrates the commitment of the government to providing primary education in the rural areas to improve the literacy standards. More than 36% of children aged 5-9 do not have access to primary education at the present time.

The Seventh Five Year Plan describes Primary Education in the following terms:

> "Rural primary schools are beset with a shortage of trained and qualified female teachers and teacher absenteeism is high. Most of the teachers lack dedication, motivation and interest in their profession. Usually, enrolment and teachers in private schools are under-reported. Lack of proper school mapping has made it difficult to identify the right locations for opening of new primary schools. The curriculum is mostly urban oriented and is not relevant to rural needs. An unattractive schools environment has resulted in poor retention and a high dropout rate".

There are a total of 13,365 elementary and primary level schools (including mosque and mohallah schools) in rural NWFP, operating with a teaching staff of over 28,000 and a total enrolment of 1.35 million pupils. Of the total number of primary schools, over 2,000 buildings lack facilities and the majority have only one classroom. The target of one teacher and one room for every class appears difficult to achieve even in the next few years. Table 2.2.5.1 shows the number of schools and enrolment by district. The number of teacher training elementary colleges is 18, far short of the total required.

Approximately 55% of the rural school age children attend primary schools. Enrolment figures show that for every 100 pupils entering class one, 80 will drop out by the completion of class five; female pupils contribute considerably to the drop out rate.

The existing curriculum contains a number of references to health/hygiene education. The subject matter is integrated into such topics as Islam and Social Studies; messages are displayed primarily through pictures and supportive script. Because of the weaknesses in the teacher training process, health/hygiene matters are not demonstrated, initiated or presented with the aid of drama or role playing, which would stimulate the child. This task would be made easier if the primary schools had water and latrine facilities (80% of the schools in NWFP do not have such facilities).

The primary education system in NWFP is based on four types of schools which deliver classes 1 to 5. Elementary schools are facilities and operations that are carry overs from the British era. They offer class 1 and 2 only and there are 155 throughout NWFP. Mosque schools totalling 3,477 offer instructions to boys in classes 1 to 3, some schools have the capability of extending to class 5. Mohallah schools (street schools) are providing very basic literacy classes to small groups; there are no formal class structures and the province has 86 facilities in this category. All of the 6,597 male and 3,051 female schools offer class 1 - 5 Programmes. Facilities, number of pupils and number of teachers differ from District to District.

The Asian Development Bank (ADB) and US AID have identified planned capital assistance projects for the primary education sector in NWFP.

ADB has financed a nationwide feasiblility study on girls primary schools. A portion of the study was conducted in NWFP and a proportionate amount of the proposed US $ 50.0 million project support will be spent there. The theme of the project appears at this time to be "Model" schools, that is, a facility having 5 rooms, one for each class.

US AID identified a project for NWFP and Balochistan totalling US $280.0 million over 10

TABLE 2.2.5.1 NUMBER OF SCHOOLS - PRIMARY / MIDDLE / ELEMENTARY / MOSQUE / MOHALLA BY DISTRICT NWFP

Sub-Division District	Elementary	Mosque	Mohallah	Primary			Middle		
	Male	Male	Female	Male	Female	Total	Male	Female	Total
Peshawar	10	213	-	329	192	521	554	192	746
Nowshera	15	162	-	260	132	392	437	132	560
Charasadda	18	97	3	243	10	343	358	103	461
Tangi	3	54	2	73	25	98	130	27	157
Mardan	14	191	6	321	158	479	526	164	690
Takht Bhai	3	88	-	115	87	202	206	87	293
Swabi	11	109	-	190	153	343	310	153	463
Lahor	8	60	-	112	65	177	180	65	245
Kohat	3	133	-	197	103	300	334	103	437
Hangu	-	56	-	131	40	171	187	40	227
Karak	16	87	6	208	100	308	311	106	417
B.D.Shah	-	20	-	61	20	81	81	-	101
Bannu	-	145	4	305	193	498	450	197	647
Lakki	-	115	12	290	120	410	406	132	538
D.I.Khan	4	142	10	312	156	468	459	166	625
Tank	-	56	-	124	66	190	180	66	246
Kulachi	1	31	11	101	31	132	129	32	161
Abbottabad	13	207	3	423	261	684	643	264	907
Haripur	7	146	-	270	116	386	423	116	539
Mansehra	21	297	15	587	237	824	905	252	1157
Battagram	3	76	-	225	76	301	304	76	380
Kohistan Pattan	3	100	-	86	12	98	189	12	201
Dasu	2	71	-	59	5	64	132	5	137
Swat	-	188	-	303	145	440	491	145	636
Daggar	-	81	-	163	52	215	244	52	296
Alpurai	-	58	-	172	45	217	230	45	275
Dir	-	88	3	164	46	210	252	49	301
Timargara	-	106	9	248	111	359	356	120	476
Wari	-	44	-	123	29	152	167	29	196
Smar Bagh	-	33	-	73	19	92	107	19	126
Chitral	-	60	7	86	6	122	196	43	189
Mustug	-	45	-	90	27	117	135	27	162
Malakand	-	84	5	101	48	149	185	53	238
Same Ranizai	-	32	-	52	45	97	84	45	129
Total N.W.F.P	155	3475	96	6597	2931	9640	10281	3117	13359

years. In NWFP, the project proposes to build over 300 schools per year for 10 years, construct up to 10 new teacher training elementary colleges, provide in service training to teaching staff and organize overseas fellowships.

Directorate of Technical Education

Technical education in NWFP is provided through a network of institutions: Government Colleges of Technology, Polytechnic Institutes (Male & Female), Government Vocational Institutes and Commerce Colleges (see organization chart. Fig 2.2.5.1.)

The Government Colleges of Technology and Polytechnic Institutes offer a 3 year Diploma programme in a variety of technologies. In one particular prograqmme (electronics) the Peshawar Government College of Technology offers a B.Tech certificate which requires 4 years of study but allows the student upon graduation, to proceed directly into a 2nd year university programme and finally a degree (A list of programmes, institutes and locations can be seen in Appendix 2).

Courses are structured on standardized curricula, designed and produced by the Technical & Vocational Sector, Science and Technology Wing of the Ministry of Education. Curricula are designed to represent the topics on a basis of 70% theory and 30% practical. Due to the lack of equipment and practical attachments, these figures are low and high respectively. Subjects relevant to the water sector are found in the Civil Technology programme (outline of the programme is in Appendix 3). It can be seen by examining the topics found in courses such as water supply, sanitary engineering and project management that the subjects have an urban focus and do not necessarily meet rural requirements.

The teaching staff number well over 350 at Government Colleges of Technology and polytechnics. The male College of Technology in Peshawar trains all the teaching staff for all institutes in its teacher training wing including senior staff who require upgrading courses from time to time. The Directorate maintains sufficient teaching staff but the lack of opportunity (career path) has a detrimental effect on the motivational and incentive aspects of the scheme of service.

The number of student places available for each technology are 50 students per year except in the case of Civil technology which is 60. An average of 2,500 applications are received for 310 positions at the Peshawar Government College of Technology and similar ratios are

INSTITUTES IN TECHNICAL EDUCATION NWFP.

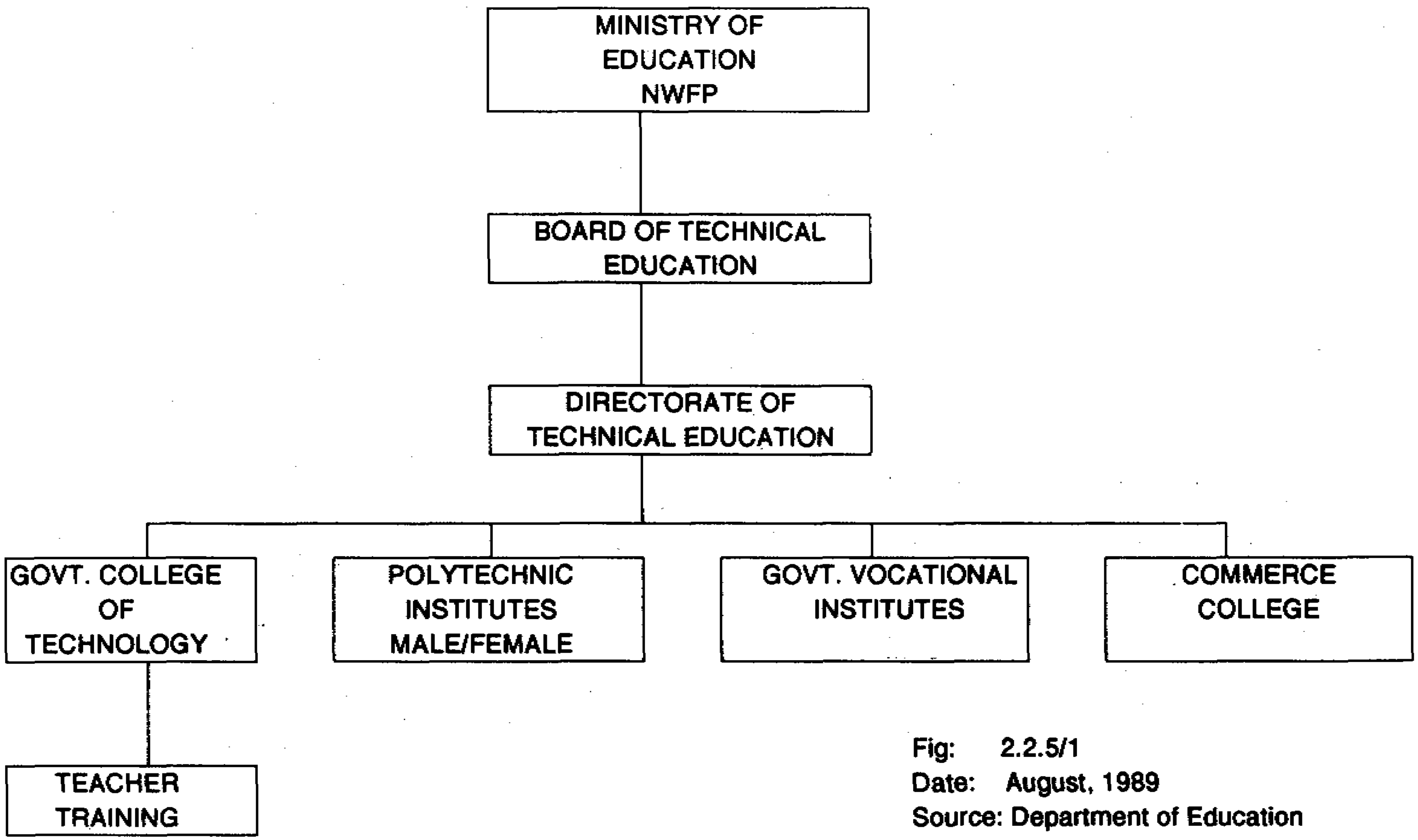


Fig: 2.2.5/1
Date: August, 1989
Source: Department of Education

found at other polytechnics.

Government Colleges of Commerce offer programmes in the administrative field for stenographers, clerks, secretaries, book-keepers and junior executives. After one year of studies and graduation the individual is granted a C.Comm. With a further one year of study and graduation, the college awards a Diploma in Commerce (D.Comm.). The majority of students exit the system at this level. For those who wish to continue their studies, an additional two years of work and exams produces a Bachelor's Degree in Commerce. For honours, one more year is required. The final accreditation available in the commerce stream is a Masters level and this requires one extra year over the B.Comm. Hons. for a M.Comm. At this stage the individual can seek employment or transfer to a university for continued studies.

Teaching staff for the Commerce colleges are trained in Peshawar; currently there are over 150 instructors at the seven Colleges of Commerce. The total number of colleges will rise to nine with the addition of Swabi and Karak institutes in the near future.

A list of commerce colleges and programmes can be seen in Appendix 4.

Government Vocational Institutes (GVI) are similar to the Technical Training Centres operated by the Directorate of Manpower and Training. Essentially the trade courses offered are 1 and 2 years duration, with certification awarded upon successful completion of the courses (A list of subjects and institutions can be seen in Appendix 5). A unique type of training is also offered at the GVI's and it is based on a student attending regular classes in secondary school coupled with training in shop areas such as carpentry, metal work and tailoring; however, this entire exercise takes place at the GVI. Certification is awarded following 2 years of study.

Higher Education

University of Engineering and Technology - Peshawar

Public health engineering is a major activity of civil engineers in all parts of the world but is particularly important in developing countries where the basic essential services of water supply and sanitation are often very limited. It is thus essential that all civil engineering graduates should gain a sound understanding of the fundamentals of public health engineering in their degree courses.

In view of this, the University decided to upgrade its existing facilities to meet future demands. Assistance was received from WHO in the upgrading of curricula, training of staff and equipping a Public Health Engineering laboratory.

Curriculum Review

The existing undergraduate course in Civil Engineering was reviewed with particular emphasis on public health engineering/water resources content. It was concluded that the existing public health engineering course was not particularly appropriate for conditions in Pakistan. A need was felt for additional chapters on rural water supply systems. The new course was designed and placed before the Board of Studies of the Civil Engineering Department for approval. Later it was also approved by the University Academic Council. A detailed description of the course is presented in Appendix 6.

In the past, the University did not have practical aspects of public health engineering in its curriculum. Considering the importance of practical work, it was proposed that experimental work based on the updated course be introduced.

The matter was discussed in the Board of Studies where the Board was informed that WHO had agreed to provide equipment for the proposed Public Health Engineering Laboratory. The Board gave its approval to include practical work of 50 marks in the proposed course of public health engineering.

Training of Teaching Staff

There was only one staff member at the University who was experienced in public health engineering work. To strengthen teaching in this field, another staff member was awarded a WHO internal fellowship for the M.Sc. course at Institute of Public Health Engineering and Research, Lahore. This has considerably improved the teaching capability. In addition to this, a fellowship by WHO has also been allocated for M.S. studies at AIT Bangkok.

Laboratory Staff

In connection with the Establishment of Public Health Engineering Laboratory facilities, the

University has established supporting staff posts for a Laboratory Teachnician and a Laboratory Attendant. The basic qualification for teachnician is graduation in Science preferably with Chemistry and Micro biology or Biology. The technician received training in Public Health Engineering experimental work at PHED (EPCO) Lahore.

PHE Laboratory

WHO has supplied the equipment for the Public Health Engineering Laboratory in the Civil Engineering Department. The University supplied the space, furniture and Laboratory staff. The laboratory is equipped with apparatus and instruments to enable students to gain experience in determining the range of physical, chemical and microbiological characteristics of water and waste water. It will also enable demonstrations of treatment processes such as sedimentation, coagulation, filtration and biological oxidation.

2.2.6 Human Resource Development Institutions

This section contains reviews and assessments of training organizations relevant to the sector:

- Pakistan Academy of Rural Development (PARD);
- National Institute of Public Administration (NIPA);
- Provincial Services Academy (PSA);
- Labour Department (LD); and
- National Vocational Training System (NVTS).

Pakistan Academy of Rural Development (PARD)

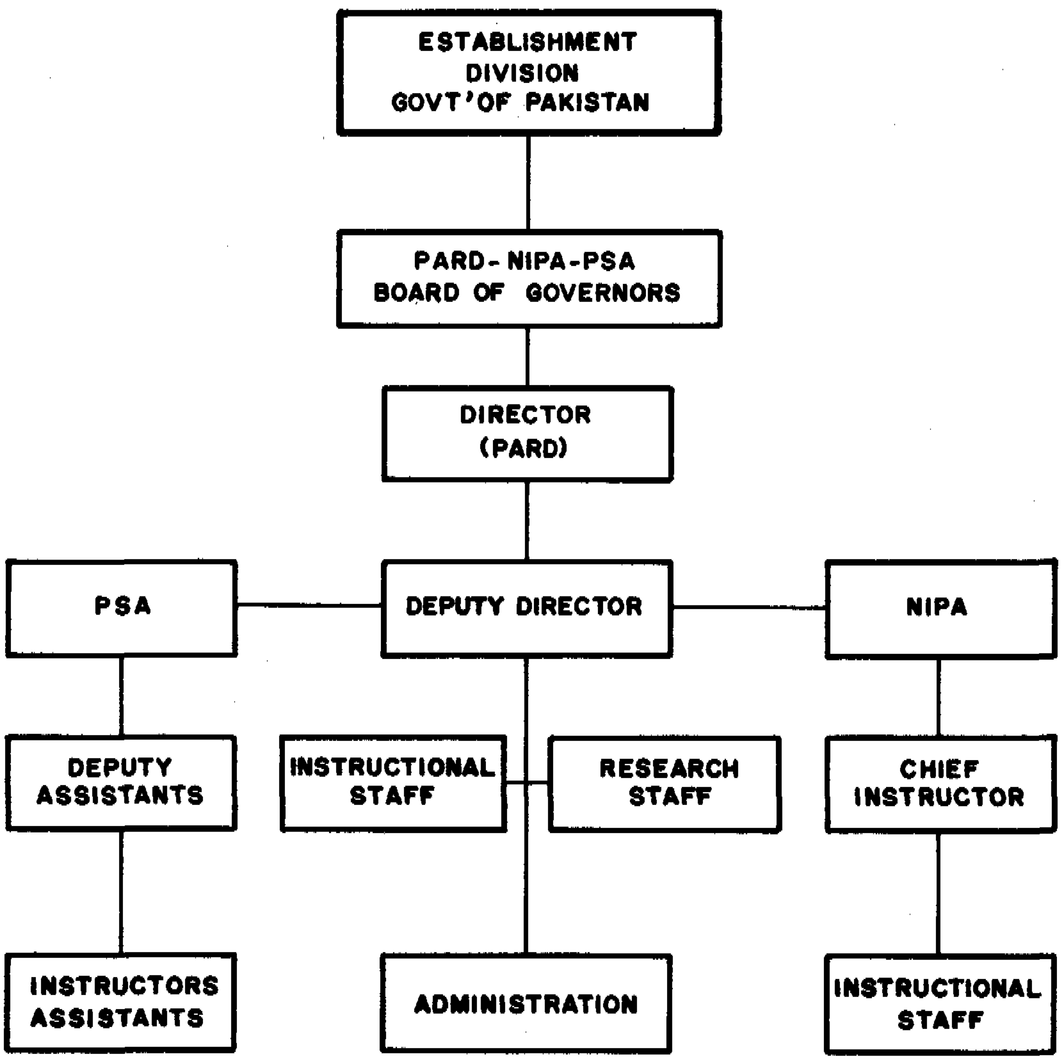
The Pakistan Academy of Rural Development was established in 1962. It was given a mandate to conduct research and provide advanced training in rural development for the administrative and supervisory personnel of the Village-Aid administration and Provincial Civil Service (PCS) officers. The nomenclature has since changed in the case of PCS and Village-Aid but the functionaries are still in place. Integrated Rural Development (IRD) through Local Councils has been introduced and PARD is doing for IRD what it did for Village-Aid. The organization chart is shown in Fig. 2.2.6.1.

Currently there are 12 Faculty members, 11 Research assistants and 9 support staff. The

FIGURE 2.2.6/1

PAKISTAN ACADEMY FOR RURAL DEVELOPMENT-PARD

ORGANIZATION CHART



campus is located in Peshawar on 50 acres of land with facilities for 70 staff houses, 2 hostels for up to 78 trainees and a guest-house with fourteen furnished rooms. Other facilities include cafeteria, library, mosque, auditorium, classrooms and administrative buildings.

The Academy is under the administrative control of the Establishment Division, Government of Pakistan (GOP). However, to facilitate administration, the GOP created a Board of Governors consisting of a Chairman, Vice Chairman and representatives of the Federal and four Provincial Governments. The Director of the Academy is a Member/Secretary of the board.

The Academy is jointly financed by the Federal and the Provincial Governments in a proportion of 60:40 percent respectively. The provincial break-down is:

- Punjab 18%;
- NWFP 10%;
- Sindh 8%; and
- Balochistan 4%.

PARD has the capacity to:

- impart in-service training to development administration and rural development personnel;

- conduct research in the field of Rural Development and the administration of the same;

- conduct experimentation with modern techniques of rural development by undertaking pilot projects; and

- provide continuing education by organizing conventions seminars/workshops, conferences and off-campus courses.

The Academy prepares an annual calendar approximately 6 months prior to the academic year commencing. Courses are listed according to their type, frequency and location, such as:

- regular programmes at PARD include induction and advanced courses for Tehsil, District and Divisional level officers;

- off-campus courses which are regular programmes delivered at the clients site; and

- special courses which include the Local Elected Officials who require administrational and operational training.

National Institute of Public Administration (NIPA)

NIPA, Peshawar was established as a separate wing of the Academy in 1983 under the administrative control of the Establishment Division, Government of Pakistan. The Director, Pakistan Academy for Rural Development is the executive head and the PARD Board of Governors oversees policy matters. The courses are designed to bring about improvements in the administrative capabilities of officers working at the Mid-management level of the Government of Pakistan, both in the field and in the Secretariat.

NIPA has a staff of 4 instructors, 2 training officers and one administrative officer. Classes are held at the same location as PARD and are directed primarily towards officers holding BSP-19 grades who will be promoted to BSP-20 grade in the near future.

The content and theme of the courses include modern management methods, tribal administration, regional planning, Islamic and strategic studies, financial management, development economics and Management Information Systems. The regular courses are of 18-weeks duration and held twice a year. In addition, short thematic courses of varied duration are held throughout the year on the themes of Hospital Administration, Environmental Management and Computers used in Decision Making.

Provincial Services Academy (PSA) - Peshawar

The PSA was established in 1969 on the campus of PARD to impart pre-service training to the probationary officers of the Provincial Civil Service Cadre - West Pakistan. Following the east - west separation in 1971 all four Provinces agreed to continue sending their officers to the PSA. In addition, although administrative reforms have been implemented, the assistant and extra assistant commissioners continue to receive their training at the PSA. Currently their are 4 faculty members on staff who deliver classes at the PARD facilities.

The training mandate constitutes job orientation with special emphasis on inculcating skill and proficiency in human relations, coordination with other departments and esprit-de-corps. For the achievement of these objectives, the courses and syllabi are designed to cover the general revenue, development and judicial administration.

The training methods used in the six month programme are lectures, group-discussions and symposia which ensure maximum participation of the trainees in the learning process. Apart from the academic pursuits, the PSA trainees are thoroughly oriented in the practical aspects of revenue settlement and procedures. For a period of four weeks, they are required to work in land settlement and land measurement in one of the areas where land settlement operations are in progress. The main objectives of the field training are:

- to enable the participants to experience a coordinated approach to public service;

- to acquaint the trainees with practical aspects of revenue administration such as preparation of revenue records and the operational methods of settlement procedures; and

- to familiarize the trainees with the functioning of training institutions and other significant government departments at the provincial level.

Since 1981, PSA has been offering a six-week course in Administration and Law for officers of the District Management and Tribal Areas Group. During the last four years, the Academy has also been catering to the specific training requirements of the Government of NWFP, with courses designed to meet the needs of lower level staff officers and a cadre of personnel from the Civil Secretariat.

<u>Labour Department - National Vocational Training System (NVTS)</u>

The Federal Ministry of Labour, Manpower and Overseas Pakistanis in conjunction with the Provincial Labour Departments, has established a National Vocational Training System (see Fig. 2.2.6.2 for organization chart). Under this system, the NWFP Labour department, through the Directorate of Manpower and Training operates:

- 4 Technical Training Centres (TTC);
- 1 Apprenticeship Training Centre (ATC);
- 10 Skills Development Centres (SDCs); and
- 7 Vocational Training Centres (VTCs).

The TTCs offer courses in trades which are in compliance with National Occupational Skill Standards. Trades are divided into three levels of skills: Basic (level III), Intermediate (level II) and Advanced (level I). Currently the courses are structured to meet levels III & II and have a duration of one and two years respectively. Trainees are tested (written and practical) upon completion of each level. Advanced level I courses to-date have not been offered at any of the TTCs in the province (see Appendix 7 for list of TTCs, courses offered and enrolment).

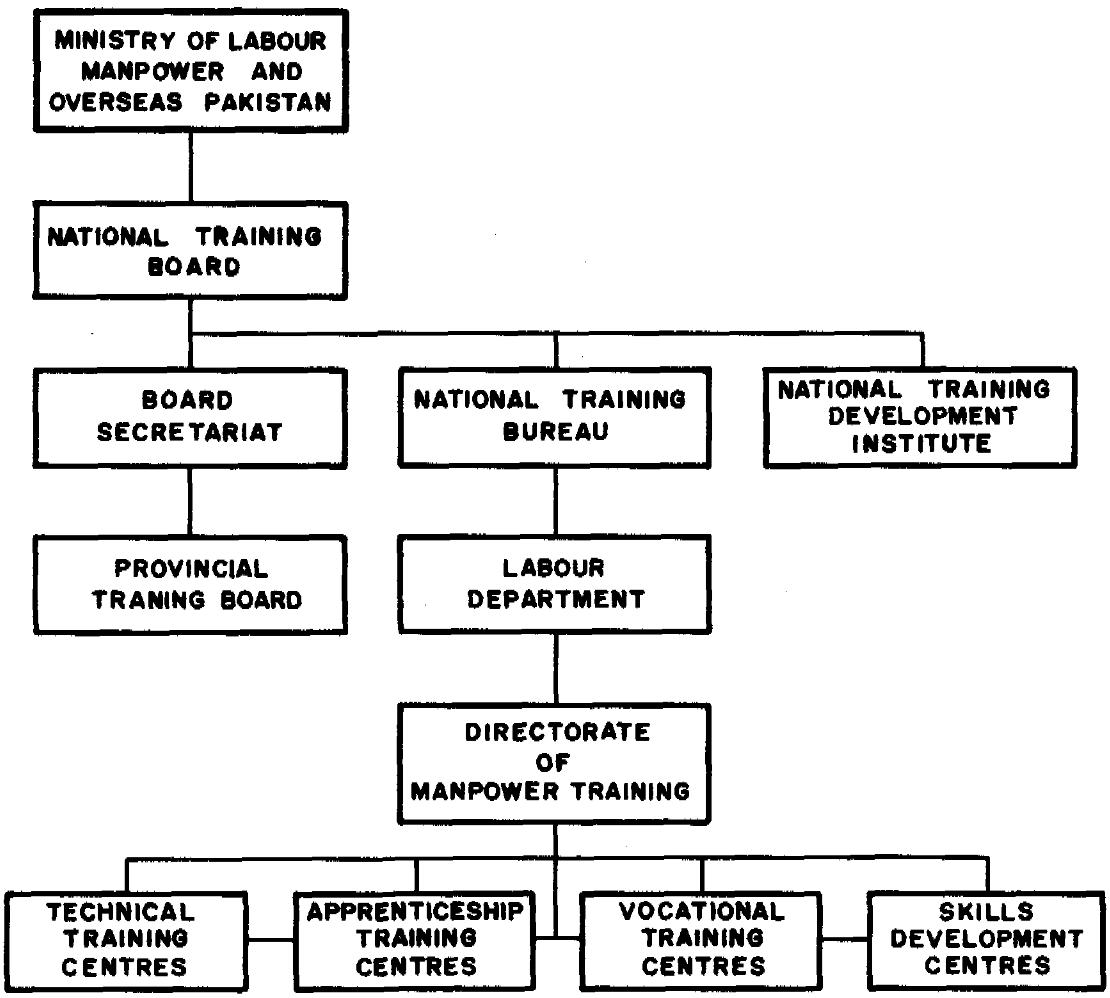
Under an assistance programme sponsored by GTZ, a number of short courses (4-6 months) are being offered at the Peshawar TTC. These are rural versions of a level II & III course. That is, the longer courses operate with mechanized equipment and modern hand tools that produce urban focused practical exercises and tradesman, whereas, the shorter courses utilize equipment and tools which reflect the rural environment and the practical exercises exhibit basic requirements of a community. A large number of Afghan refugees are in attendance at these short courses.

Apprenticeship trades are also based on the National Occupational Skills Standards, however the employer provides on-the-job training for a period of one year prior to the trainee being sent to the ATC. The ATC provides six months of training in the respective trade and then the individual returns to work for a further 18 months. Upon completion he/she is provided with certification (see Appendix 8 for a list of programmes offered at the ATC). A second type of apprenticeship is currently being implemented by employers. Individuals who participate undergo 3 years of on-the-job training in a specific trades area and upon completion, the tradesperson is certified as having performed in a given trade and in accordance with the apprenticeship training ordinance.

Skills Development Centres are located in the rural areas, and were designed to meet the basic artisan requirements of the communities. Each centre offers the same courses, namely,

FIGURE 2.2.6/2

FEDERAL / PROVINCIAL ORGANIZATION CHART FOR MINISTRY OF LABOUR, MANPOWER AND OVERSEAS PAKISTANIS AND LABOUR DEPARTMENT – NATIONAL VOCATIONAL TRAINING SYSTEM.



wireman/electrician, carpentry, tailoring and auto/tractor machine. It should be noted that 3 centres are operated within FATA. The Ministry of Sports, Culture and Youth provides the operational funding and the Directorate of Manpower and Training provide the operational and administrative responsibility.

Instructors for all institutes are trained to specified standards, curriculum and trade tests developed by the National Training Development Institute (NTDI) in Islamabad.

Currently the Directorate is receiving assistance from a Donor consortium (World Bank, UNDP/ILO, CIDA, GTZ and EEC) to implement the National Vocational Training Project Phase II. The project has a total investment of Rs. 2041.35 million, a portion of which will be allocated to NWFP. The financial support and technical assistance will implement a number of components, namely:

- 7 new Vocational Training Centres;
- upgrading of the existing TTC in Peshawar with new equipment;
- the construction of a new TTC in Peshawar for women;
- support to the instructors and the NTDV training facilities; and
- support to the apprenticeship programmes (personnel and facilities).

The Federal Government will support the initial operation of the training programmes by financing consumable training materials, equipment and additional staff salaries for a specified period. To date NWFP has assumed responsibility for operations and maintenance of all the facilities, staff and courses with the exception of those components provided by new projects.

The Netherlands Government is providing equipment and technical assistance to the Directorate to develop and utilize a human resource information system, by strengthening their capacity to collect, process, analyse and publish manpower statistics. NWFP is receiving a proportional amount of the US$ 3.4 million assistance package.

The provincial ADP currently identifies three additional TTCs in Bannu, Kohat and Mansura. It is expected that these centre will be operational by early 1991.

Womens Welfare and Training Programme

In order to improve rural women's socio-economic conditions, the Women's Welfare Programme was launched in NWFP with the assistance of the Women's Division of the Ministry of Local Government and Rural Development, Islamabad, in 1979-80. To date it has achieved the following milestones:

- Industrial Cum Adult Education Centres;
- Secretarial Training School;
- Community Halls;
- Working Women's Hostel;
- Support Staff; and
- Union Council Libraries for women.

Industrial Centres/Adult Education Centres

One of the main activities of the Womens Welfare Programme was the establishment of Industrial Centres in the Rural areas to utilize the potentialities and skills available among women. For this purpose, it was decided that the centres should be located at such places where the local population would donate free accommodation including electricity and water facilities on a self-help basis. The programme was designed to utilize the women's skills in the field of handicrafts (sewing, embroidery and knitting). In the first years (1979-80) these Centres were categorised according to the activities but later they were merged into Industrial Cum Adult Education centres.

In each Industrial Centre, three types of machines are provided for sewing, knitting and embroidery; a diploma holder female Instructor is provided to impart training to women. The female Instructor receives an allowance of Rs. 500/- per month.

At the Tehsil level, female Supervisors are appointed to oversee the operation of the Industrial Centres in their respective Tehsils. Their salary equals a 2% allocation from the District Council Budget. There are 415 such Industrial Cum Adult Education Centres in NWFP; adult education being one of the functions of these centres allows women to receive basic education instruction. Female teachers are appointed as adult educators on fixed salary of Rs. 850/- per month. Statistics to date show that 24,000 trainees have benefitted from these centres and presently 800 students are receiving training. These centres have played an important role in improving the socio-economic condition of the women at the rural levels.

Establishment of a Secretarial Training School

One Secretarial Training Centre has been established at the Directorate General of Local Government and Rural Development Department, NWFP, Peshawar. It is currently conducting courses in short hand, typing and is planning for courses in accounting. Certificates are given to the successful trainees on the completion of the training course. To date, 67 students have benefitted from this centre. Admission is free in order to provide opportunities to uneducated girls so that they may become motivated to learn and join the work force. A trained instructor had been appointed on a salary of Rs. 1000/- per month.

Working Women's Hostel

In order to solve the shortage of residential accommodation for women employed in various Departments/agencies, a scheme for construction of a Working Women's Hostel at Peshawar was prepared at a cost of Rs. 1,930,000. This hostel has since been completed through District Council support.

Working Women's Hostels at Abbottabad and D.I.Khan are under construction at a cost of Rs. 1,404,000 and Rs. 2,850,000 respectively.

The Working Women's Hostel in Peshawar was handed over to the Business and Professional Women's Association for operational, administrative and management provisions.

Community Hall for Women

In order to provide a forum for all development and social activities of women, a scheme for construction of Community Halls in each of the District was prepared in 1980-81 and each of the District Councils in NWFP was allocated a sum of Rs. 181,500 for the purpose. These Halls serve as focal points for the Women's Welfare Programme and are providing basic health facilities to the rural women.

Unit of Supporting Staff

A Unit of support staff for the Women's Welfare Programme has been established at the Directorate General Local Government and Rural Development Department NWFP, Peshawar. It includes the following:

.	Assistant Directress (WP)	-	BPS 17 -	1;
.	Steno Grapher		BPS 12 -	1;
.	Accountant	Fixed pay	1,000	1;
.	Junior Clerk		BPS 5 -	1; and
.	Naib Qased		BPS 1 -	1.

Their function is to monitor the activities of the various women's centres in the province and reports to the Womens Division.

Union Council Libraries for Women

For the Union Libraries, Rs. 1,488,200 have been received from the Women's Division, Islamabad, for 656 library boxes; each box contains 140 selected books which have been purchased and distributed among all the Union Councils Libraries.

2.2.7 District Planning and Development Advisory Committee (DPDAC).

The District Planning and Development Advisory Committees (DPDAC) have replaced the District Development Advisory Committees (DIDAC) which had ceased to operate following the dissolution of the Provincial assemblies in 1988. This committee plays an important role in the selection of sites for location of rural drinking water supply and sanitation schemes.

There are two types of members in the committee. The first category is of regular members and consists of all the elected MPAs of the District. The second category consists of co-opted members who are either other elected representatives from the District or heads of line departments at the District level. Cooption of the former is by the Provincial Government and of the latter by the committee. Co-opted members do not have any voting rights.

The appointment of the Chairman of the DPDAC is by the Chief Minister. The Secretary of the committee is the Assistant Director, LGRDD, who is stationed at the District headquarters. It is expected that the committee will meet at least once every two months.

The functions of the DPDAC are to formulate and recommend:

- proposals for Annual Development Programme (ADP) of the District and communicate it to the Planning and Development Department;

- the list of schemes to be implemented under the Rural Development Programme, other than those of the Union Councils. This list may also include those schemes to be funded from such Federal Grants for the purpose as may be provided;

- location and selection of sites, subject to such planning criteria, as may be prescribed by Government for Development schemes in the following sectors/sub-sectors:

  - Primary, Middle and High Schools;

  - rural health (establishment of Basic Health Unit and Rural Health Centres);

  - public health engineering (rural drinking water supply and sanitation schemes); and

- locations or sites for such other development projects in other sectors as may be included in local programmes of ADP including electrification of villages.

The Committee shall be responsible for conducting periodical reviews of the District Development Programmes approved by it in order to monitor its progress and ensure its timely implementation.

The schemes under the Rural Development Programme, except those for which special grants-in-aid have been announced by visiting dignitaries to a local area, shall be approved, financed and implemented by the Project Director (Divisional Director, LGRDD).

All other schemes included in the Annual Development Programme, which are subject to the advice of the Committee, shall be administratively approved and implemented by the Government Departments concerned in accordance with the prescribed procedure of the

Departments or as may be directed by Government.

A number of points of significance emerge from the legislation. First of all, the District Councils have not been involved in the workings of the DPDAC. This implies the potential lack of co-ordination between the local development programme of the Provincial Government and that of the District Council. Secondly, proposals are to be made on an annual basis for incorporation into the ADP. This precludes the possiblity of medium term planning at the District level. Thirdly, location and selection of sites by the DPDAC has been made subject to such planning criteria as may be prescribed by the Government for development schemes in sectors, including rural water supply and sanitation. This has clearly been done to pre-empt the possibility of excessive politicisation of the process of site selection on the part of the elected representatives. P&D has already issued guidelines to the DPDACs, and these are further developed in Section 3.

2.2.8 District Councils/Union Councils

District Councils and Union Councils constitute the municipal government in the rural areas of NWFP. They have both an elected and a bureaucratic component. The former consists of Councillors who are elected from wards once every four years and of nominated representatives of special interest groups like minorities, women, peasants and workers. The size of the House (of councillors) is a function of the population in the total area covered. In the case of Union Councils, the number of members is determined on the basis of population of one thousand per electoral unit, to a maximum of fifteen members.

Both District and Union Councils are headed by a chairman, elected by the House. In the former, a Chief Officer oversees the day-to-day administration and implementation of directives from the Provincial Government or the House. He is supported in the discharge of functions by an Administration Officer, Accounts Officer, Taxation officer and the Municipal Engineer, who generally belong to the Local Council Service and are appointed by the Provincial Government. Union Councils have a very simple administrative structure, with responsibilities of financial management resting with the Union Council Secretary, Frequently, he is the only functionary working in the Council.

The NWFP Local Government Ordinance has allocated a comprehensive number of functions to rural local councils covering most of the standard municipal functions.

Responsibilities in the context of rural water supply and sanitation are highlighted as follows:-

- District Councils:

  - provision, maintenance, improvement and management of wells, water pumps, tanks, ponds and other works of water supply;

  - promotion of sanitation, public health and educating people in public health;

  - provision and maintenance of an adequate system of public drains;

  In addition, District Councils are expected to prepare overall District development programmes and to play a major role in the identification and approval of projects to be executed within the District. Also, District Councils could perform social welfare and community development functions as required by any provincial government department.

- Union Councils:

  - provision and maintenance of wells, water pumps, tanks, ponds, and other works for the supply of water;

  - adoption of measures for preventing the contamination of sources of water supply for drinking;

  - prohibition of the use of water from wells, ponds and other sources of water supply suspected to be dangerous to public health;

  - regulation or prohibition of cattle bathing or washing at or near wells, ponds or other sources of water supply; and

  - acting as construction and maintenance agency for piped water supply, portable water storage tanks, hand pumps, tube wells and sanitation.

In order to finance the performance of their functions, rural councils have been granted fiscal powers to levy certain taxes as follows:

- District Councils:- Tax on transfer of property, export tax, tax on non-motorized vehicles, tax on professions and employment, fees on sale of cattle at fairs, tax on advertisements, miscellaneous fees, usercharges on services provided.

- Union Councils:- Tax on annual rental value of buildings and land, births and marriage tax, tax on import of goods, tolls, fees and user charges on services provided.

The number of District Councils currently in NWFP is 15 while the number of Union Councils is 667. As of 1987, the average land area and population covered by each District Council was 4,968 sq.km and 745,000 respectively. Also, it is estimated that on the average 530, settlements (mauzas) fall within the jurisdiction of a District Council. In NWPF, Union Councils on the average cover an area of 112 sq km and a population of 16,700. The typical union council in the Province consists of about 12 settlements (Mauzas).

Table 2.2.8.1 gives a summary of the total income and expenditure of District Councils in NWPF for the year, 1986-1987. The table reveals a significant variation in the size of the budgets (as measured by total expenditure) among these councils. The larger District Councils are Peshawar (Rs. 30 million), Swat (Rs. 30 million), Abbottabad (Rs. 19 million) and Dir (Rs. 18 million). The size of a District Council appears to be dependent upon, first, the magnitude of rural population and, second, on the level of rural (agricultural) and industrial development of the District. The share of development expenditure in most District Councils is generally high, averaging 70%.

Table 2.2.8.1: INCOME AND EXPENDITURE OF DISTRICT COUNCILS IN NWFP. 1986-87

District Council	Rural Popul-tion (000)	Total Income (Rs.in Million)	Total Expend-ture (Rs.in Million)	Share of Exp (%) Develo-pment	Non-Deve-lopment	Per Capita Income (Rs)	Expen-diture (Rs)
Peshawar*	1544	33.23	30.45	77	23	21.52	19.72
Swat	1404	17.24	30.46	84	16	12.28	21.69
Mansehra	1144	15.36	15.47	71	29	13.43	13.52
Bannu	755	10.23	13.60	70	30	13.55	81.01
Karak	268	4.96	5.60	65	35	18.51	20.90
D.I.Khan	630	8.11	9.44	63	38	12.87	14.98
Dir	983	19.34	18.36	64	36	19.76	18.70
Malakand	248	11.53	12.60	71	29	46.49	50.81
Kohat	457	16.60	16.54	67	33	36.32	36.19
Abbott abad	1118	19.62	19.41	62	38	17.55	17.36
Chitral	248	6.17	6.17	34	65	24.88	24.88
Mardan**	1683	17.67	16.79	59	41	10.50	9.98
Kohistan	833	1.41	1.40	0	100	1.69	1.68
PROV-INCE	11315	181.47	196.29	69	31	16.04	17.35

* Including Charsadda
** Including Swabi

Source: LGRDD

The sources of income of the rural councils in NWFP are presented in Table 2.2.8.2 In the case of District Councils, the largest source of income is the export tax (levied on commodities at point of exit from District boundaries) with a share of 47 percent. Other important sources of revenue are the tax on transfer of property (levied at the time of sale, mostly on agricultural land) and licences and fees, with shares of 15 and 13 per cent respectively. Bulk of the income is self-generated. In contrast to this, Union Councils are highly dependent (94 percent) on the provincial LGRDD for grants.

Table: 2.2.8.2: SOURCE OF INCOME OF THE DISTRICT AND UNION COUNCILS IN NWFP 1985-86 (Rs in Million)

Source of Income	District Councils Amount	District Councils Share%	Union Councils Amount	Union Councils Share%
Export Tax	80.4	47	-	-
Property or and Tax	6.6	4	-	-
Tax on Transfer of Property	25.1	15	-	-
Toll Tax	10.1	6	-	-
Entertainments	3.5	2	1.0	3
Tax on Professions	5.5	3	-	-
Other Taxes	1.0	1	-	-
Licences,Fees & Rates	22.1	13	0.9	3
Income from Investments	9.0	5	-	-
Grants from Provincial Govt	8.2	4	31.9	94
Total Income	171.5	100	33.8	100

An in-depth sudy has been undertaker in the Mardan District Council. This is a medium sized District Council of the province. The objective of the case study was to assess the financial and administrative resources of a typical district council of NWFP and to determine the scope for their involvement in the sector.

The key facts emerging from the case study are summarized in Table 2.2.8.3. The principal conclusions are as follows:

- each District Councillor represents about 62,000 people. In addition, there is representation of special groups, viz, women and peasants, on the basis of nominations. This could ensure that some priority is attached to programmes which have an orientation towards women;

- some staff capability exists. The principal officers are in BPS grades 18 or 17. For example, the municipal engineer is in BPS 18. In addition, there are four assistant engineer in BPS 17 and 9 sub engineers in BPS-11;

- total employment is 229, with personnel being concentrated in taxation and the engineering departments;

- the tax base appears to be buoyant. During the last five years, revenues have grown at the annual rate of 19 percent; consequently, per capita real revenues have increased significantly;

- major heads of recurring expenditure are establishment (56 percent) and maintenance of roods and building (13 percent); and

- the major concentration (97 percent) in development expenditure is on the construction of link roads. Currently, there is negligible expenditure within the sector.

Table: 2.2.8.3: KEY FACTS ON MARDAN DISTRICT COUNCIL - 1986/87

Description	For 1986/87
Population(000)	1864
Electoral Representation	
Number of Councillors	30
% of Special Seats (Women, minorities, peasants)	7
Staff levels - BPS Grades	
Chief officer	17
Municipal Engineer	16
Finance officer	16
Taxation	18
Employment - Numbers	
Admin, Finance & Taxation Depts	90
Engineering Dept	82
Health & other Depts	57
Total	229
Key Financial Ratios	
Development Exp % of Total Exp	59
Capital Receipts as % of Total Rec.	0
Revenues	
Total Revenue (Rs in Million)	18
Share (%) of:	
Export Tax	50
Tax on Transfer of Property	28
Annual Growth Rate of Revenue (%)	19

Recurring Expenditure

Total (Rs in Million)	7
Share (%) of :	
Establishment	56
Health & Medical	10
Maintenance of Roads & Buildings	13

Development Expenditure

Total (Rs in Million)	10
Share (%) of, Link Roads	97

Given that Mardan District Council is of medium size, it appears that the relatively large District Councils of NWFP have a fairly strong financial base with buoyant sources of revenue. They also possess significant development capability and devote a high share of their budgets to development activities. In the context of their potential role within the sector, drainage, because of its link with roods and street paving, is one area that District Councils could be motivated to move into.

With respect to Union Councils, the basic conclusion is of limited financial resources. Currently, average annual expenditure by a Union Council in NWFP is Rs. 100,000, largely financed from grants. Also, expenditures related to the sector are marginal.

Combined with the absence of any significant administrative capability (except for the UC Secretary) it appears that the Union Councils at the present time are not in a position to act as an executing agency for major investments in infrastructure in the rural areas, including those in the sector. However, the Union Councillors, who represent small electoral units, are potentially a resource and could be used for organizing communities to manage projects at the village level.

2.2.9 Non-Government Organisations (NGO's)

In NWFP there are over 300 Non-Government Organizations registered with the Directorate of Social Welfare in Peshawar.

Table 2.2.9.1 shows the activity and number of NGO's, by District.

Table 2.2.9.1: NGOS - ACTIVITY AND NUMBERS, BY DISTRICT

District	Women	Disabled	Drug	Multi purpose	Other	Total
Peshawar	10	11	13	27	27	88
Mardan	-	5	-	19	4	28
Kohat	-	1	2	3	-	6
Karak	-	1	1	2	1	5
D.I.Khan	4	1	3	5	-	13
Bannu	-	-	1	9	3	13
Abbotabad	7	1	1	40	4	53
Mansehra	-	-	-	38	5	43
Kohistan	-	-	-	-	-	-
Malakand	-	-	-	3	-	3
Dir	-	-	-	12	-	12
Swat	-	-	-	23	-	23
Chitral	2	-	2	11	-	15
Total:	23	20	23	192	44	302

Table 2.2.9.2 provides a list of the Social Welfare and Speical Education Projects/Centres in the Province together with their location and the activities carried out in each project/centre.

Services to the socially and physically handicapped and special groups on a self-help basis with the active involvement and participation of the local communities are provided in NWFP. Some of these services are financed by the Government while the rest are run by the Voluntary Sector. Table 2.2.9.3 presents these in detail.

The Development budget of the Social Welfare Sub-Sector is Rs. 16.310 million (revised) and the Non-Development budget is Rs. 6.387 million.

2.2.10 Sarhad Rural Support Corporation (SRSC)

The Provincial Government is establishing SRSC, modelled after the Agha Khan Rural

TABLE 2.2.9.2a
SOCIAL WELFARE AND SPECIAL EDUCATION PROJECTS/
CENTRES IN N.W.F.P
(PUBLIC SECTOR)

Name of Scheme / Institution	Units	Location District Wise	Total units and Services
			(200)
Community Development Projects	24	Peshawar 4 Abbottabad 4 Mardan 2 Bannu 2 Mansehra 2 One each in other Distt: except Kohistan.	M.C.H Centres. Dispensaries. Type and Shorthand Centres. Vocational Skills Centres. Adult Education Centres. Sports and Recreation. 4400 Daily Benfeficiaries
Artificial Limbs Workshop	1	Peshawar	Prosthesis, orthesis, surgical tools etc. 4000 per year
Centre For Mentally Reterded And Physical Handicapped Children.	4	Peshawar, Bannu Chitral and Abbottabad	i) Formal Education. ii) Skills Training. iii) Physiotherapy and referral treatment. iv) Parents Orientation. 110 Daily
Institute For Blind.	4	Peshawar, Mardan D.I.Khan and Abbottabad	i) Institutional Care. ii) Education through Braille system. iii) Skills training. iv) Parents Orientation. 120 Daily
School For Deaf Children.	8	3 at Peshawar 2 at Abbottabad and one each at D.I.Khan, Kohat and Dir.	i) Formal Education. ii) Skills Training. iii) Referral treatment. iv) Parents Orientation. 308 Daily
Institute for the Destitute and Rehabilitation Center.	4	Abbotabbad	i) Institutional care for destitute and court cases. ii) Vocational Skills Training. iii) Rehabilitation. 30 to 40 every month.

TABLE 2.2.9.2b
SOCIAL WELFARE AND SPECIAL EDUCATION PROJECTS/
CENTRES IN N.W.F.P
(PUBLIC SECTOR)

Name of Scheme / Institution	Units	Location District Wise	Total units and Services
Welfare Home For Destitute And Disabled Children.	1	Peshawar	i) Institutional Care. ii) Formal Education. iii) Skills Training. iv) Rehabilitation and mobility aids. 35 Daily
Rehabilitation Centre For Ex-Drug Addicts And Handicapped.	1	Nawagai (Daggar)	i) Welding ii) Auto Repair. iii) Tailoring. iv) Embriodery. 65 persons are trained every day.
Women's Welfare Programme.	44	N.W.F.P	i) Dress Making. ii) Embriodery. iii) Knitting. iv) Adult Education. 1320 women are trained every year.
Training of Mustehqeen Zakat Women.	45	N.W.F.P	i) Dress Making. ii) Embriodery. iii) Knitting. iv) Adult Education. 1350 women are trained every year.
Financial Support to Voluntary Social Welfare Organizations.	250	N.W.F.P	Annual grant is given to supplement their budget.

TABLE 2.2.9.3

GRANT-IN-AID TO VOLUNTARY SOCIAL WELFARE ORGANISATIONS IN N.W.F.P

YEAR	GRANT RECEIVING ORGANIZATION	GRANT FROM FED: GOV'T.	GRANT FROM PROV: GOV'T.	ORGANIZATION OWN CONTRIBUTION	EXPEND Rs. M
1978-79	58	0.257	0.318	3.305	3.898
1979-80	63	0.360	0.413	2.013	2.786
1980-81	83	0.862	1.013	2.128	4.003
1981-82	81	0.537	0.676	1.885	3.098
1982-83	100	0.572	0.710	3.143	4.425
1983-84	108	0.359	0.479	1.959	2.797
1984-85	127	0.622	1.412	3.376	5.410
1985-86	145	0.830	1.324	2.818	4.972
1986-87	155	0.797	1.100	4.018	5.915
1987-88	170	0.662	1.100	4.090	5.852

Support Corporation which is active in Chitral District of the Province and the Northern Areas.

SRSC will establish and support broad based village organisations which will attempt to address priorities identified through discussions with the villagers.

The corporation is based on the premise that sustainable rural development requires self sustaining village institutions.

SRSC is being established during 1989 and will become operational in 1990. Although it is not directly involved in the sector, its role in community development puts it in position to assist the line departments which are sector oriented.

The Corporation is new and its potential is unknown at this point. However, its progress should be monitored and discussions held for ways to cooperate.

2.2.11 UNICEF

A water assesment was performed in 1986 in order to review UNICEF assistance to water and sanitation and make recommendations for necessary changes within the programme.

In light of the recommendations of the assessment team, UNICEF NWFP agreed to follow an appropriate mix of schemes and technologies. Heavy drilling was made the sole responsibility of the government, however UNICEF agreed to provide vital spare parts for the heavy rigs. Similarly, in addition to the introduction of the handpumps, UNICEF continued to support the extension schemes to provide water to more remote villages in arid areas and gravity flows in the mountainous areas. UNICEF support has now been extended into a further three Districts with the intention of three more in the next two years. The active Districts at present are Chitral, D.I.Khan, Bannu, Swat and Kohat. It is intended to expand to Karak, Dir and Abbottabad.

In the light of past experiences, UNICEF has made significant policy and programme decisions. The policy emphasis now is to link water, sanitation and hygiene education, using low-cost appropriate technologies, which are acceptable, sustainable and replicable, in order to impact upon infant and child morbidity and mortality, particularly through the prevention and control of dehydration deaths, caused by diarrhoea. In NWFP a total of

US$ 700,000 has been committed for 1989 and an overall total of US$ 2.5 million for the next four years.

Handpump and Sanitation Project

A community handpump, the AFRIDEV, is now manufactured in Pakistan under a new name, Indus, due to the modifications made to suit the local conditions. It is suitable for depths between 15-50 metres and these pumps are now being purchased by UNICEF after suitable quality control. The pumps are being produced by an NGO, Danish Committee for Assistance to Afghan Refugees (DACAAR) working in the Afghan Programme. At present, the plant produces 120 pumps per month, retailing at slighty more than Rs. 9,700 each.

The programme is implemented through LGRDD and the District Councils. It consists of two phases, a demonstration and an expansion phase. In the demonstration phases UNICEF is paying for the costs of all hardware, hand drilling costs or improvement of existing hand dug wells. In the expansion phase, UNICEF only pays the hardware costs of the pumps and components and all other costs are borne by the community and the District Councils.

Much work has been performed in fully institutionalising the programme through the LGRDD. This is in order to ensure that there is a central counterpart who can coordinate the programme through the District Councils and ensure close coordination at the District level with the office of the Assistant Directors of LGRDD.

The programme has now been fully established within the Districts of D.I.Khan and Bannu where training and recruitment of field staff has been completed and implementation is well underway. Technicians have been recruited and trained for both Districts and handpumps are being installed upon both hand drilled bore holes and improved hand dug wells, average of one per 300 people. In addition, work is underway to start the programme within Kohat and Karak Districts where the project will be implemented through the offices of the Rural Development Department. It is hoped that by the end of the year at least 200 handpumps will be installed serving 50,000 people. The project involves community participation in that they are responsible for ensuring that the materials and labour for the improvement of wells are provided.

Latrines are being installed at both schools and.Basic Health Units. These are pour-flush latrines involving a village contribution of all unskilled labour and local materials. Latrines are also being promoted at the household level. A total of 100 latrines have been installed to date and it is planned to complete a further 50 before December, 1989.

<u>Gravity Flow Water Supply Programme</u>

UNICEF has been supporting the construction of gravity flow systems in Chitral District for the past six years. The focus was on the expansion of the programme as well as improving the quality of the schemes and capacity building. The programme has been implemented through the District Council staff. However there was clearly a need to strengthen the technical capacity and improve the standard of construction of the systems. The level of community participation within the programme has always been extremely high with the villagers providing all labour and some material costs for the programme. UNICEF has been providing assistance in the form of pipes and fittings, cement and local salaries for field supervisers. In the past six years support has been given for the construction of two hundred systems, benefiting 200,000 people.

The District Council requested UNICEF to give assistance in improving the technical component of the programme. There was also a need to expand the programme to further Districts and therefore work was needed in institutionalising the project more closely through LGRDD who supervise both the District Councils and the RDD offices.

It is intended to rapidly expand the gravity flow programme into further Districts during 1990 in order to cover all of the North of the province. The project will be implemented through LGRDD since it is the main agency working actively with small communities involving a high level of village participation. It is intended to expand the programme to a further four Districts during 1990 which will be selected in conjunction with the Director General and the Secretary of LGRDD.

Procedures and Standard designs have been developed for the following:

- detailed surveys and feasibility surveys;
- procedures for requesting a water supply programme;

- standard drawings for storage tanks, intakes, sedimentation tanks, community tanks and tapstands; and

- standard estimates for all components of the system.

Three engineers and ten technicians have been recruited who are responsible for supervising the overall construction of the systems implemented jointly through the Disctrict Council and the RDD office.

The project is phasing down galvanized iron (GI) pipe which will now only be used for rocky areas and for river crossings. The project has now ordered for High Density Polyethylene (HDP) pipe which will dramatically redüce the cost.

Support for Piped Water Supply Schemes in Arid Areas.

UNICEF has been supporting the Public Health Engineering Department for a number of years in the construction of piped water supply schemes connected to tubewells. There has always been a close level of cooperation with PHED and UNICEF is committed within NWFP to supporting the department in the construction of schemes identified for the Districts of D.I.Khan, Bannu, Kohat and Karak. The department has designed a number of schemes for these areas and has requested assistance in the form of PVC pipes and drilling spares for their rigs. UNICEF has agreed to provide assistance in obtaining the spares and a small number of high delivery centrifugal pumps since the programme is for the arid areas where the greatest water supply problems exist.

Pipes have been procured for 33 schemes benefitting approximately 50,000 people to commence during 1989 for completion in 1990 in which will be D.I.Khan and Bannu districts with some schemes in Karak and Kohat. All the schemes have been surveyed and designed and are to be connected to existing tubewells installed by PHED.

UNICEF has ordered drilling spares for their major rigs and centrifugal pumps for the arid areas. The pumps will benefit approximately 20,000 people. In addition, in 1989 a late delivery of GI Pipes were given for the construction of fifty systems to benefit at least 100,000 people, mostly to be used within tribal areas.

Support is presently being given for the standardisation of systems including procedures and designs. Training is being given to engineers using computers to design the pipeline with the use of World Bank software.

Sanitation

UNICEF has been assisting the Sanitation Division for the past two years in the development of suitable programmes for rural areas. Support in the past has been given for promotional activities including health education workshops, provision of audio visual equipment and technical advice. Two workshops were held in 1988. The first was a three day seminar to discuss strategies for promotion of sanitation. The second was for ten days for field level staff in communication methods and hygiene education.

Objectives include the following:

- assistance for the construction of five hundred pour flush and VIP latrines;
- promotional staff for a limited period to strengthen the health education and communication aspects; and
- establishing the Division as the leading agency for sanitation within the Province and ensuring it coordinates training and construction with other agencies.

Latrine construction is underway within two villages and approximately four hundred will be constructed before the end of 1989. The programme is working within two villages at present within Peshawar District in order to develop a suitable strategy for rapid expansion to other Districts. UNICEF is supporting the Division in the provision of a promotion team consisting of two Field Offices, two LHVs ad one driver in order to strengthen their promotional aspects. The team will initially work with them for a period of one year. They are from the Austrian Relief Committee and have previously been working with the Afghan Refugee Programme.

In 1988, support was given to the construction of 37 rain water collection tanks, 40 community tanks and 200 pour flush latrines by LGRDD in D.I.Khan District in the past 1-2 years. This assistance was mainly in the form of construction materials e.g., cement, pipes, water, pans etc. and technical assistance through the appointment of a sub-engineer in charge of the project.

The improved rainwater collection system has had many advantages including improval quality of water. People are now drawing water through handpumps installed on the rainwater tanks.

The total number of beneficiaries of the project were over 40,000 in more than 30 villags of six Union Councils in the remote semi arid areas of District D.I.Khan.

Standardized Design

UNICEF issued in 1989, standardized specifications and drawings for rural water schemes for Pakistan. These have been discussed with, and reviewed by, PHED staff, and were used as a reference point in the evaluation of PHED designs for this study.

2.2.12 International Aid and Donor Agencies

The following Donor Agencies are active in NWFP, in or complimentary to, the sector:

- World Bank (WB);
- Asian Development Bank (ADB);
- Canadian International Development Agency (CIDA);
- Overseas Development Agency, U.K. (ODA);
- Dutch Government (DGIS);
- German Development Bank (KFW);
- German Technical Assistance Agency (GTZ);
- Swiss Government Aid (SGA);
- European Economic Community (EEC);
- United Nations _ (UNICEF) (UNDP) (WHO) (WFP) (UNFDAC) (UNCHR); and
- United States (USAID).

During fiscal years 1984-1988, Pakistan received development assistance commitments from foreign donors of US$ 2.4 billion annually (Development Cooperation - Pakistan, 1988 UNDP Report). The rate of disbursements average US$ 1.3 billion annually during 1983 - 1987, and increased to US$ 1.8 billion in 1988.

Of the total commitments made during the past 5 years, 82% have been targetted to four sectors (agriculture, industry, water and power, transport and communications) and 6% for the social sectors (population and welfare, education and rural development).

UNICEF has been actively involved and details are given in Section 2.2.11.

GTZ, the German Technical Assistance Agency, the German Development Bank (KFW) and the Dutch Government (DGIS) are ongoing participants in NWFP Donor activity.

The outstanding commitments of Pakistan beyond 1988 total US$ 5.5 billion, US$ 1.4 billion in the form of grants, US$ 2.4 billion in concessional loans and the balance, US$ 1.7 billion in non-concessional loans.

Details of the existing Donor programmes are provided in section 2.3.3.

2.2.13 Private Sector

The private sector has functioned in the RWSSH sector in NWFP for hundreds of years. The well-digger, for example, is a well known artisan in Pathan society, his expertise in digging wells as deep as 300 feet has been crucial to the community survival in many areas of the province. Unfortunately the private sector is dispersed and there are few reliable statistics as to its real size and strength.

A survey was carried out in all three of the physiographic zones during April/May 1989 to obtain up to date first hand appreciation of private sector activity in NWFP. The survey covered 82 villages in which householders were interviewed and questions asked relating to water supply, human waste disposal and drainage provided through the private sector. Estimates were made of the numbers of facilities based on local knowledge of the area. These data were extrapolated upwards to estimate total numbers per zone (north, central and southern). Questions were also asked about local artisans prior to the artisans themselves being interviewed. They included masons, plumbers, contractors, well diggers, and well drillers. In total, 51 were interviewed. In addition, local and foreign consultants, retailers and manufacturers of sanitary ware, handpumps, galvanized iron, mild steel and reinforced cement concrete pipes were also interviewed.

Table 2.2.13.1 lists water supply and latrine coverage provided through the private sector in the province. These data are approximate, having drawn from a limited sample of household interviews. They do however give an indication of the importance of the private sector.

Table 2.2.13.1: WATER SUPPLY & LATRINE COVERAGE OF POPULATION BY THE PRIVATE SECTOR, IN ZONES.

Service Provided	North	Central	South	Total
Household Handpump	-	21,400	19,600	41,000
Motorized Handpump	-	9,300	15,800	9,300
Dug Wells	75,500	41,800	15,800	133,100
Motorized Dug Wells	30,300	18,800	-	48,900
Ponds	51,300	-	56,730	108,000
Handpump on Well	-	16,300	-	16,300
Dry Latrine	216,000	291,000	130,000	637,000
Wet Latrines	52,000	87,000	-	139,000

Water supply in installations provided through the private sector are estimated to serve a population of well over 250,000. The vast majority of these are household owned and maintained. The quality of water supplied and their reliability were not determined. Within the limits of the extrapolated data drawn from a limited sample it can be said that the private sector serves a substantial percentage of the population.

Household hand pumps are installed by well drillers and pump installers in the central and southern zones. The pumps installed are mainly imported from the Punjab. Cost varies with the depth to the water table but ranges from Rs. 200 to 400 per installation. Again the cost of repair and maintenance varies but normally falls in the range of Rs.100 to 400 annum. Recently, local maunfacture has begun with the Indus (Afridev) pump to serve communities in areas with deeper ground water.

The motorized hand pump consists of a small electric motor, costing Rs. 3500, fixed to the hand pump enabling the operator to pump water without manual labour. Its use is limited to those rural areas (e.g. central zone) with electricity. Operation and maintenance costs are in the order of 200 to 500 Rs/annum.

The dug well is the most common source of drinking water in NWFP. It is dug by an experienced well digger, 3 to 5 feet in diameter and from 20 to 300 feet in depth. Usually it serves the extended family. In all zones there are adequate numbers of well diggers to satisfy demand.

The motorized dug well represents an improvement to the dug well in which a motorized pump is placed down the well. Commonly, the well is kept accessible in case of power failure. Many homes in communities with centrally supplied water are reluctant to give up their privately controlled supplies, preferring to keep their well and hand or motorized pump. Thus they have a dual supply, with the safety of being able to draw water by hand should the public systems fail. The addition of the pumping system to the motorized dug well was found to cost some Rs. 2,500 and maintenance approximately Rs. 300/annum.

Ponds are also a source of water supply in the northern and southern zones to trap rainwater for later use as drinking water for humans and animals. The quality of water produced is poor being accessible to animals and normally dug out of the natural soil. The water is therefore usually turbid and contaminated.

The handpump installed on the open well is not common in NWFP, being introduced only relatively recently. It is used in the central zone, and offers the owner the advantage of clean water for 24 hrs per day at very low operating and maintenance costs. The addition of the pump to well costs approximately Rs. 1,000 which is within the financial reach of a substantial percentage of families in the central zone. It represents a low cost method of protecting well water from contamination with complete cost recovery. Assuming replacement of filter is required once per year the annual cost would be 50 Rs/annum. Replacement of filter and washer or three years costs Rs. 180.

The dry type of latrine is usually a simple enclosed area beside the house in which defecation takes place in privacy. Normally, it does not include a pit but uses the sweeper (scavengers) or animals for clean-up. it is therefore extremely unhygienic. Septic tanks and its variations are termed wet latrines. A significant mode of defecation (at least for the women) is not in the field but near the home in privacy, especially where the community is clustered and privacy is a priority. This has major implications for the acceptance of latrines in the rural NWFP. Whereas males tend to use the field for defecation instead of the dry type of latrine, they do use VIP or pour flush latrines when they are available. Dry latrines cost in the order of Rs. 300 to construct whereas septic tanks cost Rs. 6,000. Septic tanks (which also require water supply through house connections to operate, are restricted to wealthier families in larger communities.

Interviews were held with artisans (well diggers, well drillers, masons, plumbers and mechanics). Well diggers can be found in most villages of over 500 population. 95% of their work is on new wells, some 60 - 100 wells are dug per digger each year. The market radius for diggers is small and marketing very limited.

Well drillers have greater expertise and capitalization than diggers. They retail, procure, install and maintain/repair wells and handpumps. In the central zone wells are installed at a cost to the owner of Rs. 1000, whereas in the south where depths to groundwater reach 100 feet the cost is Rs. 2,000. Their market radius is up to 20 km. Marketing depends on goodwill and word of mouth. There appears to be no shortage of drillers and the principal constraint to their greater use is marketing and demand. With increased emphasis being placed on household hand pumps and capping of wells with installation of hand pumps, demand for their services will increase.

Experienced masons are found in the larger communities and towns. Their work within this sector comprises the construction of latrine structures, well foundations, and drainage. They are trained as apprentices in NWFP itself or just as commonly in the Middle East region. There are adequate numbers of skilled masons to meet current demands. As the market expands so will the supply of skilled masons.

The plumbers interviewed were independent artisans who indicated that there is little demand for their services in the rural areas. However as communities begin to take on responsibility for operation and maintenance, there will be an increasing demand for plumbers' services, especially during the 8th plan period.

Mechanics are used by private households to install pumps on open wells. The mechanics reside primarily in the city, but there is a demand in those rural communities which are electrified. They offer installation and repair services. Their tools of trade are relatively expensive (Rs. 8,000 to 10,000), and therefore seldom up-to-date. Constraints to expanding their role are lack of marketing, difficulties in capitalization and low demand, all of which could be overcome through effective promotion.

The survey covered manufacturers of hand pumps, pipes and sanitary ware within NWFP. One non-profit organization (DACCAR) manufactures Indus (Afridev) handpumps, in Swabi. The Indus pump is used by UNICEF as a community hand pump in its programmes. The factory's capacity could be expanded should there be an increase in demand. Low cost household hand pumps are not manufactured in NWFP, all being imported from the Punjab. The DACCAR factory is planning to introduce the low lift Tara pump into the market to serve those areas with shallower ground water tables. There does not appear to be any constraint on increasing the capacity of hand pump manufacture in NWFP, however the market for community type hand pumps is currently served by only one manufacturer. With increased demand, additional manufacturers are likely to enter the market which would be welcomed.

There is a shortage of consulting engineers with experience in rural water supply and sanitation. Local consulting firms are available but they lack community development or communications expertise, experience being limited to engineering design and construction supervision. There are opportunities here for upgrading NWFP based consultants to alleviate PHED from its engineerng design workload.

Sector related retailers were also interviewed. Their capacity is also limited only by demand. The vast majority of fittings, sanitary ware and pumps are imported from the Punjab. Where there is demand, retailers will stock spare parts and equipment. Such retailers are within reach of most villages, if not in the larger villages themselves.

Manufacturers of pipes were interviewed. Peshawar Pipes Ltd now manufactures GI pipes sized 1/2" to 3" (4000 tons/yrs capacity) and manufactures MS pipes at similar capacity. It has a strong marketing programme and sells its products throughout Pakistan. There are over twenty RCC pipe manufacturers, most producing low grade pipes at low cost. The sanitary ware manufacturer (Frontier Ceramaics) interviewed is a public company and running at full capacity (3000 tons/yr). It has ten competitors in the market and has a marketing/promotion program using the TV and radio for advertising. There is no serious production capacity constraint in sanitary ware manufacturing in the province.

In summary, the private sector is strong and very active. Historically, it has provided almost all rural water supplies in the province. It has developed various technologies which are not only technically efficient and appropriate to their situation but also offer complete recovery of capital and operating and maintenance costs. These include the motorized hand pump, and the capped open well fitted with hand pumps or motorized pumps. The survey of the private sector in NWFP hgihlighted some key areas in which the private sector could be supported and strengthened at relatively low cost. These are:

- well drillers suffer from being a dispersed group of skilled artisans. Improved marketing and promotion would go a long way to increasing demand (and thereby coverage) for their services;

- masons are available in most larger communities. They could act as the front line promoters for latrine installations. Incentives could be based on the profit motive as in several other latrine programmes on the sub-continent;

- as O&M is handed over to communities in the coming years there will be increased demand for the services of plumbers, electricians and mechanics; and

- consulting engineers, based in the Province, lack experience in rural water supply design. They could be usefully brought into the sector by creating demand for their services and by providing for training in appropriate technology design and community development/communications.

2.2.14 Communities

The nature of rural society in NWFP lends itself to strong leadership and the spontaneous creation of village based organization's (VO's). These are important factors which support the assumtpion of responsibility for operation and maintenance of infrastructure such as water supplies by the community. Province-wide surveys were undertaken to gain a better understanding of the community, its leadership, organizations, capabilities and sectoral experience. Two surveys were undertaken, the first utilized questionnaires and discussion guidelines in interviews with community leadership and men and women of 60 communities in the three physiographic zones of the settled areas of the province. The second was a mail-based survey in which Union Councils supplies sector related information on 1250 villages across the province (see Appendix 9).

It is estimated that at least two thirds of all villages in the province have some form of development oriented organization whether it be registered with the Social Welfare Department (formal), un-registered (informal) or a mosque committee having a development orientation. In addition, a substantial percentage of villages have development oriented leaders such as retired councillors or traditional leaders who take the lead in individual projects. NWFP is therefore, rich in organizational resources at the village level. Of the development oriented organizations or leaders identified, the percentages of each type are summarized in Table 2.2.14.1.

Table 2.2.14.1: % DISTRIBUTION OF TYPES OF VILLAGE ORGANIZATIONS.

	Type of Organizations				
Zone	Formal	Informal	Trad.Leader	Mosque	L.Counc.
Southern	46	25	11	18	0
Central	69	13	5	0	13
Northern	38	31	31	19	0
Total %	51	23	5	10	11

Over 80% of villages surveyed in the central zone had formal or informal VO's of which 69% had been registered. This was a result of their being closer to Peshawar with stronger communication links with government and higher levels of education.

56 of the 60 villages surveyed had village based infrastructure development or construction experience. Almost all had built their own mosque (most of which included water supply) in self-help projects. Over half of the villages had constructed drains and streets themselves; these are also traditionally a function of the community.

Formal water supplies were undertaken by only ten of the 60 villages, almost all being in the northern zone. This reflects the relative complexity and higher level of capital required for water supply scheme constructuion. Gravity schemes predominated, being technically feasible in the northern zone. Other types were communal hand pumps and open wells. Further down on the list were schools, bridges, culverts, community halls and irrigation channels indicating a wide variety of community supported projects and capabilities embodied in the VO's.

The community's success at project execution and ability to sustain infrastructure were also assessed. It was observed that very few projects had actually failed and many were being extended. The vast majority were categorized as exhibiting medium and high sustainability. Leadership of the VO's was found generally to be strong as is traditionally the case in Pathan society. There was, however, a tendency not to represent the lower income strata of the society, although leadership was generally well accepted, respected, and trusted.

The ability to raise funds from within the community is important to future self-help activity in this sector. In nearly all instances, cash was only part of the contribution: land, labour, materials, equipment and supplies were also generated from within the community. Not only the affluent and influential contribute but also the lower income status groups, although in proportion to their capacity. Funding and contributions needed to not only be derived from inside the community: lobbying outside sources was also considered. Success usually involved a retired, experienced person in the VO being responsible for fund/contribution raising. 80% of villages exhibited the capacity to contribute significantly to such projects as water supply infrastructure provided that a perceived need was felt by the contributors.

Crisis, or emergency fund raising usually results in families contributing Rs 10 to 100 depending on income and ability. Thus from Rs 2,000 to 3,000 is possible in a one time collection depending on the reason. Commonly, VO members (normally 30 to 100) pay membership fees in the order of Rs 10/m.

Willingness to pay for improvements was assessed on a qualitative basis. In general the understanding of level of payment for Operation & Maintenance was Rs. 20/month. It was observed that communituy members were willing to pay where there was a substantial and perceived need for the service, acceptance of past practices in funds management within government run programs, and adequate income. Where these conditions were satisfied there were no negative responses. However, many communities indicated a conditional response: "when we actually see the water pipes and system going in then we'll be willing to pay". Preference was also stated for projects which "deliver" with a short gestation period.

Evidence of the ability of NWFP's communities to participate and contribute to their projects also comes from self-help programmes not covered in the survey. In Chitral, UNICEF is working with LGRDD in water supply schemes. In Mardan Division, the LGRDD/German integrated rural development project is based on the premise that "effective rural development can only succeed through the active participation and involvement of those it is meant to benefit" (ref. LGRDD/GTZ Project Brief, 1988). This project or is in the process of constructing thirteen water supply schemes on a self-help basis. At a much larger scale Mansehra District offers an example of a District-wide program which succeeded in raising water supply coverage from 15% to 38% in 3 years (1982-5).

The principal conclusions arising from this assessment of the community's ability to contribute in a meaningful way to water supply, sanitation and drainage schemes are;

- through the province, there exists community-based organizations which have potential to take an active and responsible role in the operation and maintenance;
- these organizations have had extensive experience in self help projects (mosque, streets, roads, drains and water supply construction) which are relevant to self-help project development in this sector;
- sucessess of installation and sustainability have been medium to high and could be enhanced;
- decision making and leadership tends not to represent the broad base of society within the community which could adversely effect the provision of services to the lower income and less influential group;
- the ability to raise resources from within the community is good; however, a general lack of understanding of government procedures and external opportunities coupled with limited communications hampers the active search for technical assistance and externally derived resources;
- the consumer is willing to pay provided there is a need and the service is rendered fairly and well; and
- there are several factors which appear to be influenced by education levels, access, income and communications. These include attitudes towards female participation, understanding of government, knowledge of the sector, and information dissemination, representativeness of the broad base community in decision making, community consciousness and sustainability. These auger well for the success of self-help projects in this sector.

2.2.15 Afghan Refugees

According to the United Nations High Commissioner for Refugees (UNHCR) the total population of Afghan Refugees in Pakistan is about 4 million. Of this number 3.5 million are living in refugee camps in NWFP (2.25 million), Balochistan (1 million) and Punjab

(200,000). The remaining estimated half million unregistered refugees are scattered throughout the country.

Several international and bilateral agencies are assisting the Government of Pakistan (GOP) under the auspices of UNHCR in providing basic necessities to the refugees. The total UNHCR programme cost is exceeding US$ 100 million per year.

The refugees in NWFP live in 252 camps located in the Districts of Peshawar, Mardan, Mansehra, Chitral and Kohat, and in the Kurram, Mohmand and Bajur Agencies in FATA. The everage camp site holds approximately 9,000 persons.

The design quantity criteria for installing a water supply scheme for the refugees is 5.5 IMP.GAL. (25 litres) per capita per day and the systems are installed in camps holding more than 200 people. There are 93 tubewells (boreholes with motorised pumps) serving as water supply sources for these camps. These tubewells are relatively more expensive in capital cost (Rs. 300,000-400,000 each), compared with dug well or hand pump schemes, as well as in operation and maintenance cost.

Tubewells are installed by PHED following a cost estimate and advance payment from UNHCR. The role of PHED in these schemes is that of contractor and a special division exists for this purpose headed by an Executive Engineer. The coverage under these schemes is not included in the PHED statistics for NWFP.

The tubewells are avoided as much as possible and improved dug wells are now being provided instead for water supply sources in which the refugees, or hired labour dig the wells. These wells are then improved and developed under the supervision of the Danish Committee for Assistance to Afghan Refugees (DACAAR).

To date, approximately 6,500 such improved wells have been installed. The refugees operate and maintain their water supply schemes while DACAAR monitors the system and undertakes water testing for bacteriological pollution and carries out chlorination from time to time. DACAAR also provides training to the refugees in improving the wells and in operation and maintenance of the schemes. In areas where the water table is deep, 20 to 50 meters, Indus (modified Afridev) hand pumps are installed. These pumps are manufactured in the Swabi District of NWFP.

The cost of improving a well, after it has been dug by the refugees, is about Rs. 5,000 which includes lining with 3 to 3.5 feet diameter concrete rings, providing a bracket, pulley, rope and bucket, a cocrete apron and drainage system. An Indus pump costs Rs. 9,700. Any one scheme built on a dug well provides for 30 families (210 persons).

In a few cases, before permanent arrangements are made, or where ground water resources are poor, water is supplied from water tankers. The total number of water tankers is only 15, which indicates the small use of such means. The remaining refugee population is covered by existing wells near their camps, and by spring gravity schemes mainly in the Districts of Mansehra and Chitral.

Agencies involved in the sector in addition to DACAAR, although on a much smaller scale are the International Rescue Committee (IRC) and the Austrian Relief Committee (ARC). UNHCR's expenditure on installation and maintenance of water schemes is over US$ 1 million per year out of which the major portion is spent through DACAAR.

Water Supply coverage in the refugee camps in NWFP with respect to each type of technology, is as follows:

Table 2.2.15.1: WATER SUPPLY COVERAGE IN THE AFGHAN REFUGEE CAMPS.

Technology	No. of Schemes	Estimated No.of Beneficiaries/ Scheme	Total No.of Beneficiaries
Tube wells (Electric Motors on bore holes)	93	2,000	186,000
Improved dug well	6,500	210	1,365,000
Indus hand pumps	650	210	136,500
Water Tankers	-	-	6,000
Existing Wells (protec-tected by sterilization) and spring gravity schemes.	-	-	500,000
			2,194,000

Estimated coverage: 98%

Source: UNHCR Pakistan

Per Capita Costs are presented in Table 2.2.15.2.

Table 2.2.15.2: AVERAGE PER CAPITA COST OF WATER SUPPLY SCHEMES FOR AFGHAN REFUGEES

Technology	Average Cost per schemes (Rs) UNHCR's Share	Beneficiaries Share	Est'd No.of per scheme Beneficiaries	Per Capita Cost (Rs.)
Tube Well (Motorized pump on borehole)	400,000	-	2,000	200
Improved Dug Well	5,000	3,000	200	40
Indus Handpump on Dug Well	17,000	3,000	200	100

Source: UNHCR, Pakistan
PHED, NWFP

For the sanitary disposal of human waste, where water logging or hard ground surface is not a problem, ventilated improved pit (VIP) latrines are provided on the basis of one latrine per family. Other reasons for choosing VIP latrines are as follows:

- they are an improved version of the traditional Afghan Khakandaz and 'Kinarab' shallow pit latrines and are therefore appropriate technology;
- per capita cost is low, about Rs. 130 for a family of 7 persons, which includes UNHCR's share of approximately Rs. 20 per capita;
- materials are locally available;
- operation and maintenance is simple; and
- there is usually limited water in the camps, and traditionally the refugees use earth for sanitary cleaning.

VIP latrines are built on the basis of community participation in which Rs. 130 is the cost paid by UNHCR for the slab and 3 meter long vent-pipe with a fly-proof screen. The community's cost for digging a 3 meter deep pit and building the super-structure is estimated at Rs. 800 in good stable soils. In unstable soils the sides of the pit have to be lined with concrete rings and the additional cost of the latrines is Rs. 500. Over 100,000 such latrines have been built to date by UNHCR and the programme is continuing at a fast pace.

In camps where the water table is high (within 2.5 meters) or in rocky terrain raised, double-tank composite latrines (also known as surface or raised latrines) are built at a cost of Rs. 5,000, but the number of such latrines is very few.

The water supply schemes, as well as the environmental sanitation programmes, are based on active refugee participation. In the process, the refugee elders, teachers, mullahs and heads of the families are approached by the GOP/UNHCR project staff, to encourage and motivate the refugees in providing unskilled and semi-skilled labour for the programme. A team of Lady Health Visitors (LHV) or Female Health Workers (FHW) simultaneously carry out health and hygiene education sessions with the refugee women. The agencies involved in implementing the latrine building and health education programmes are Pakistan Red Crescent Society, International Rescue Committee (IRC) and the Austrian Relief Committee (ARC).

The Afghan Refugees have been in Pakistan for over eight years now. It is believed that they will return to their homes when the civil war is over in Afghanistan, but there are also speculations that some of them may stay in Pakistan, for various reasons. According to UNHCR, the Afghan Refugees, at present, are not using any of the water supply, human waste disposal or drainage system built for the local Pakistani population. Some of the systems built for the refugees are providing water supply and sanitation to the local people. In the long term however, when peace is established, the remaining Afghans will become a liability for the Pakistan Government. This population will have the advantage of the installed water supply and sanitation schemes plus the benefit of the software programmes. There should therefore be no major problem in the sector in the long term with regard to Afghan Refugees in NWFP.

2.3 Sector Financing

2.3.1 Macro Resource Availability

During the past few years, the resource position of the public sector has deteriorated significantly. Domestic resource mobilization has been constrained by a relatively inflexible and narrow tax base. Recurring expenditures on defence, debt servicing, general administration and subsidies have risen rapidly. Recurring deficits widened considerably requiring large and growing subventions and grants-in-aid from the Federal Government. The consequence has been that development expenditure (ADP) in the public sector has become more dependent upon the flow of external resources.

Table 2.3.1.1 presents the ADP expenditures at constant prices of 1987/88 during the Fifth and Sixth Plan periods and the first year of the ongoing Seventh Plan. Based on the recent Federal budget, a projection has been made of the level of real ADP for the next financial year. The table indicates that real ADPs of the Federal Government were constant during the Fifth Plan period, but showed growth during the Sixth Plan period. Provincial ADPs have demonstrated growth throughout the decade culminating with exceptionally large increases between 1985/88. This enhanced rural development by increasing allocations for social and physical infrastructure (including rural water supply and sanitation), primarily through Provincial line departments.

Table 2.3.1.1: REAL ADP EXPENDITURE AT CONSTANT PRICES OF 1987/88*
(Rs Billion)

Fith Plan Period	National	Provincial	Special	Program	Total
1978/79	29.4	7.2	-	-	36.6
1979/80	26.9	5.3	-	-	32.2
1980/81	29.8	6.4	-	-	36.2
1981/82	30.1	8.0	-	-	38.1
1982/83	29.7	8.3	0.2		38.2
Sixth Plan Period					
1983/84	27.4	8.9	0.5	-	36.8
1984/85	31.7	8.4	0.6	-	40.7
1985/86	31.5	10.7	0.9	-	43.1
1986/87	34.7	13.1	0.7		48.5
1987/88	34.0	14.5	1.3		49.8
7th Plan Period					
1988/89	33.4	11.2	3.4	-	48.0
1989/90**	32.4	10.8	3.1	2.5	48.8

* ADP expenditures at current prices have been converted into constant prices by applying the implicit GDP deflator for gross domestic capital formation

** Budget

Source: Pakistan Economic Survey, 1988/89.
Budget-in-Brief, 1989/90. Ministry of Finance, GOP

The change of Government in 1988 along with a tightened resource situation and emergence of inflationary pressures in the economy has led to a cutback in development allocations. At the Federal level, it is expected that current real ADP expenditure will decline by about 2% from the previous year. Provincial development expenditure is likely to fall more dramatically, by almost 23%. The only component of the ADP which is likely to increase significantly is the Special Development Programme.

There has been a noticeable change in government priorities which has led to a precipitous decline in Provincial ADPs from the peak level. Instead, the Government has launched a People's Programme, which will also involve allocations for rural development including roads, education and water supply. Execution responsibility will rest primarily with District committees working directly under the control of the Federal Government.

Indications from the Federal budget of 1989/90 are that the recently established pattern in real ADP expenditures will continue. The Federal ADP could decline further in real terms by about 3% and the Provincial ADP by an equivalent percentage. The People's Programme will involve a development allocation of Rs. 2.5 billion (at 1987/88 prices).

The prospects for the remaining years of the Seventh Plan period (up to 1992/93) are for continued pressure on public finances with anticipated rapid increases in debt servicing liabilities, which have emerged as the largest item in the recurring budget of the Federal Government. Unless a dramatic breakthrough is achieved in making the tax base more broad-based and buoyant, it is unlikely that even with significantly higher levels of foreign loans and grants, the overall development programme in the public sector will increase in real terms. Already the total public sector development programme is operating at a rate of between 70 to 75% of the target level in the Seventh Plan.

Not only will it be difficult to sustain real ADP at its present level but pressures on development funds will increase as limits to growth are attained due to bottlenecks in physical infrastructure. As shown by Table 2.3.1.2 the need for physical infrastructure has caused larger allocations to be made to the power, transport and communications sectors. Simultaneously, cutback is visible in sectors like physical planning housing and rural development from which investments in rural water supply and sanitation have traditionally been financed. Greater external Donor assistance will be required if the country is to come close to achieving the Seventh Five Year Plan targets for drinking water and sanitation.

Table: 2.3.1.2 REAL SECTORAL ADP EXPENDITURES AT CONSTANT PRICES OF 1987/88 (Rs. Billion for Federal and Provincial Government Combined)

	Energy	Transport & Communitation	Physical Planning and Housing	Rural Development	Other	Total
Fifth Plan Period						
1978/79	5.2	7.2	2.7	0.4	21.1	36.6
1979/80	4.8	5.7	2.1	0.3	19.3	32.2
1980/81	5.3	6.9	2.7	0.6	20.7	36.2
1981/82	6.3	7.5	2.6	1.0	19.9	37.3
1982/83	7.2	7.5	2.8	1.3	19.4	38.2
Sixth Plan Period						
1983/84	6.5	6.3	3.3	1.2	19.5	36.8
1984/85	9.6	6.6	3.3	1.2	20.0	40.7
1985/86	9.5	7.3	3.3	1.0	22.1	43.2
1986/87	11.5	6.4	4.8	2.2	23.7	48.6
1987/88	13.1	5.1	5.6	2.7	23.3	49.8
Seventh Plan Period						
1988/90	12.8	7.1	3.7	1.9	22.5	48.0
1989/90	13.8	N.A	N.A	N.A	N.A	48.8

Source: Pakistan Economic Survey, 1988/789.
Budget-in-Brief, 1989/90, Ministry of Finance, GOP

The emerging scenario for the next few years is characterized by the following salient features:

. no growth, or only modest growth, in the overall real public sector ADP;

. a larger share being executed by the Federal Government;

. higher priority being given to investments in physical infrastructure; and

. lower real allocations for the social sectors, including rural water supply and sanitation.

Resource constraints confronted by the Government are not only operative on the development side but also on recurring expenditures. The last two Federal budgets have included an economy drive in current expenditures by Government departments. Table 2.3.1.3 indicates the trend in real recurring expenditure on general administration, social, economic and community services (including PHED) by the Federal and Provincial Governments. These expenditures grew rapidly up to 1986/87 but were followed by an attempt to contain the increase.

In 1988/89 real recurring expenditures by both levels of Government on administration and on the operation and maintenance of publicly provided services are likely to be below the level attained in 1986/87, with the prospect that they would be reduced even further in 1989/90. The pressure on provincial governments to cut back on recurring expenditures is likely to be exceptionally strong in view of the decision by the Federal Government to freeze the total flow of funds (revenues from divisible pool of taxes plus non-obligatory grants) to the provinces at the nominal level of 1988/90.

The economy drive on recurring expenditures implies that the ability of Provincial line departments (including PHED and LGRDD) to expand employment to undertake new initiatives will be limited in the next few years. In addition, there will be strong pressures to limit operation and maintenances expenditures on the existing network of services. The Provincial Government may try to develop its own revenue sources in the face of limits on Federal Government support. This opens up the prospect for more serious cost recovery with escalation in the level of user charges and improvements in revenue collection mechanisms.

Table 2.3.1.3: NOMINAL AND REAL* GENERAL ADMINISTRATION AND SERVICES** RECURRING EXPENDITURE BY FEDERAL AND PROVINCIAL GOVERNMENTS (Rs. in Billion)

	National		Provincial	
Sixth Plan Period	At Current	At Constant	At Current	At Constant
1983/84	11.2	15.1	15.2	20.5
1984/85	13.2	17.8	16.8	22.7
1985/86	14.1	17.4	19.6	24.1
1986/87	21.1	22.8	24.0	25.9
1987/88	18.0	18.0	27.5	27.5
Seventh Plan Period				
1988/89	21.67.1	19.81	27.8***	25.5
1989/90	23.1****	19.3	N.A	N.A

* At constant prices of 1987/88. the nominal expenditures have been converted into real expenditure by using the implicit GDP deflator for the public administration and defence sector in the National income accounts.

** On economic, social and community services (including PHED)

*** Budget estimate

**** Including cost of 5% salary increase for employees up to BPS-16.

Source: Pakistan Economic Survey, 1988/89,

Budget-in-Brief, 1989/90, Ministry of Finance, GOP

2.3.2 Sector Resource Availability

Trends

The primary source of development funding for rural water supply and sanitation in the province is the ADP. Execution of this component of the ADP is by PHED. Table 2.3.2.1 gives the trend in allocations from the ADP to the sector over the last decade. It appears that the sector has been accorded fairly high priority in NWFP since the mid 70s. Allocations to the sector constituted 8 to 9 percent of the ADP during the Fifth plan period. This was relatively high in comparison to the other provinces where the share ranged from 3 to 5 percent.

This priority was however scaled down significantly in the earlier part of the sixth plan period. The level of real expenditure in the first three years actually fell below the level attained in 1982-83, the last year of the Fifth plan period. In 1986-87, however, there was again a jump in allocations, in real terms of over 4.4 percent, as a consequence of the overall higher priority attached to rural development in the Five Point programme of the new civilian government. In 1987-88 the allocation was increased further by about 7 percent. However, despite the higher priority accorded again, the share of the ADP has been about 6 percent, significantly below that in the Fifth plan period.

The emergence of severe resource constraints since 1988-89, as highlighted in the earlier section on macro resource availability, have led to decline once again in allocations. In 1988-89, the real decline over the peak level attained in 1987-88 is as much as 21 percent. The allocation for 1989-90 indicates a further decline in real terms of 10 percent. Altogether, the expenditure in 1989-90 is expected to be lower by 29 percent in relation to the level of 1987-88. This implies that the implementation capability developed by the end of the Sixth Plan period by PHED is likely to be partially unutilized. Given this spare capacity, PHED should be in a position to absorb a moderate level of Donor assistance without having to expand its present capability.

Table 2.3.2.1 also indicates that the rate of utilization of ADP allocations by PHED has been very high, generally approaching 100 percent. This high rate of utili is observed even in years like 1981-82 and 1986-87 when the allocation increased rapidly in real terms. This testifies to the ability of the PHED to increase its implementation rate fast enough to absorb large increases in allocations.

Table 2.3.2.1: ADP ALLOCATIONS* AND ACTUAL EXPENDITURE ON RURAL WATER SUPPLY AND SANITATION IN NWFP (Rs in Million)

Plan	ADP Allocation	% of Provincial ADP	Actual Expenditure	% Utilization of Allocation	Real Expenditure (at 1987-88 prices)	Index of Real Expenditure (1987-88 = 100
Fifth						
1978/79	51.7	8.0	51.3	99	91.3	50
1979/80	57.4	9.3	57.5	100	84.3	46
1980/81	65.3	8.2	64.0	100	88.9	49
1981/82	82.3	8.3	82.0	100	113.3	62
1982/83	93.0	8.5	92.8	100	124.3	68
Sixth						
1983/84	87.6	5.7	87.6	100	110.7	60
1984/85	78.6	5.6	79.6	101	95.1	52
1985/86	106.0	5.3	105.9	100	119.4	65
1986/87	156.6	6.2	156.6	100	172.3	94
1987/88	183.2	6.0	183.2	100	183.2	100
Seventh						
1988/89	155.5	4.5	N.A		144.7***	79
1989/90	152.3 **	4.1	-		130.0***	71

* Allocation to PHED
** Excluding allocation to FATA of Rs. 41.9 million.
*** On the assumption that expenditure equals allocation.

Besides the provincial ADP, other sources of funding for the sector include, first, the allocation from the federal ADP for FATA. This is expected to be Rs. 41.9 million in 1989-90. Second, some donors, UNICEF, KFW/GTZ, are already active in the sector and their combined disbursement this year is likely to be more than Rs. 20 million. Third, results from the private sector survey described else where in the report indicate that the level of private investment in the sector is about Rs. 20 million annually.

Also, the year 1989-90 represents the first year of implementation of the Peoples Programme, an initiative undertaken by the newly elected government to expand the provision of basic services such as roads, education, health and potable water (through specially constituted district implementation committees) funded directly from the federal ADP. The overall national allocation for the Peoples Programme has been fixed at Rs. 3

billion. It is estimated that NWFP's share in this allocation will be Rs 527 million, with about Rs. 80 million (approximately 15 percent) going to rural water supply and sanitation.

In summary, total sector resources for 1989-90 are estimated as follows:

SECTOR RESOURCE AVAILABILITY IN 1989-90

Source of Funds		Rs. Millions
Provincial ADP		152.3
Federal ADP	- People's Programme	80.0
	- FATA	41.9
Donors	- UNICEF	5.7
	- KFW	12.6
	- ADB	5.4
Private Sector		20.1
Total Investment		318.0

The investment is divided as follows:

.	water supply	309.0
.	sanitation and drainage	8.9
.	hygiene education	0.1

Therefore, following the inauguration of the People's Programme, federal financing is expected to be substantial from 1989-90 onwards, with a share of 40 percent. About half the resources will come from the provincial ADP, and the remainder from Donors and the private sector.

Projections

The previous section has highlighted the fact that sectoral allocations from the provincial ADP have declined significantly during the last two years due to emerging resource constraints. However, the fall is likely to be more than compensated by expenditures from the People's Programme. As a consequence, overall public investment in the sector could reach a new peak in 1989-90. It is our judgement that further growth could become even more operative in the next few years. As such, we project that the overall sector resources in July 1989 prices will remain fixed, more or less, at the 1989-90 level.

Beyond 1992-93, projections are fraught with more uncertainty. The level of sector resources will depend critically upon whether the provincial government will continue to give the same priority to rural water supply as will be sustained beyond 1992-93. At this time, however, we also project no significant change in sector resource availability in the Eighth plan period.

2.3.3 Donor Agency Involvement

During fiscal years 1984 - 1988, Pakistan received development asistance commitments from foreign donors of US $ 2.4 billion annually.[1] The rate of disbursements averaged US$ 1.3 billion annually during 1983 - 1987 and increased to US $ 1.8 billion in 1988.

The outstanding commitments to Pakistan beyond 1988 total US $ 5.5 billion, US $ 1.4 billion in the form of grants, US $ 2.4 billion in concessional loans, and the balance, US $ 1.7 billion in non-concessional loans.

Of the total commitments made during the past 5 years, 82 % has been targetted to four sectors (agriculture, industry, water and power, and transport and communications) and 6 % to the social sectors (population and welfare, education and rural development)

A list of selected Donor financed projects in NWFP, selected on the basis of being directly involved in the sector, or as having a direct impact on the economic well being of the rural populace, is presented in Table 2.3.3.1. Other projects, including those with a national focus, are not shown. The data is presented to indicate that Donor support for the province is strong and varied.

(1) Development Cooperation - Pakistan, 1988 UNDP Report.

Table 2.3.3.1: SELECTED DONOR ASSISTED PROJECTS

Project Title	Fin. By	Start Date -End Date	Value US $ 000	Project Description
Swabi SCARP	ADB	1989+	128,000	Surface drain improvement, subsurface drain, flood control, agricul.development.
NWFP Barani Area Development	ADB	N/A	500	Technical Assistance to improve agricultural production in Barani areas of NWFP and Punjab.
Second Barani Area Development	ADB	1989 +	45,000	Infrastructure support service and other facilities for selected areas.
Mardan Scarp	Can. ID	1985 -N/A	84,390	$ 223.8 M irrigation and drainage Aproject.
SCARP Mardan Swat	Can. IDA	1979 - 90	84,390	Complete remodelling and expansion of lower canal irrigation system.
Burner Development	EEC	1989 - 93	12,471	Strengthen impact of previous project enlarging some of the project to rural integrated development including various components:irrigation, roads, drinking water, seeds, forests small scale industries, etc.
Chitral Area Development the	IFAD	1988 -	9537,069	Improve the economic, social & nutritional well being of population.
Chitral Rural programme	UK1	987 - 91	6,964	Institutional development support to villages to plan, implement and manage development.
Groundwater III	Neth.	1985 - 895,102		Inventory of groundwater Investigations availability in selected valleys and training of WAPDA staff.
Swabi SCARP preparation	Swit.	1988 -	355	Technical Assistance for of Swabi SCARP.
Swabi Scarp	Swit.	1992 - 96	17,148	Financing of OFWM and M & E components.
Small Hydel in NWFP and	Swit.	1989 - 90	1,641	Construction, operation maintenance of small Hydels.
Dir Area Development	Neth. UNFDAC USA Can Italt	1986 - 90	28,955	Improve the rural economy while encouraging farmers to change from growing popies to a more diversifed system. Projects include infrastructure.
NWFP Small Dams Feasibility	UK	1989 - N/A	2,250	Identify possible sites for small dams and weirs, prepare designs and costs.

Special Development Unit for Opium Growing Area development	UNFDAC USA	1989 - 90	1,947	Strengthen specialist arm of P&D for planning and coord inating projects in poppy growing areas.
Primary Education Development	USA	1989 - 99	280,000	Increase access and improve quality of primary education in NWFP and Baluchistan.
Rural Development Works	WFP	1985 - 90	18,000	Improve social and economic conditions of rural population through construction of various infrastructure.
Second Rural Vocational Training Project	EEC	1988 - 92	18,824	Construct 11 rural vocational training centres including 2 for women in Baluchistan and NWFP.
Social Forestry Malakand	Neth.	1987 - 90	4,082	Afforestation in Malakand with strong emphasis on extension & motivation of small farmers.
Watershed Management Dir/Swat re-afforestation, range	Neth.	N/A - 89	4,439	Increase income in rural areas through soil conservation and management.
PATA Irrigation	Neth.	1986 - 90	11,480	Development of irrigation systems, in particular for small farmers.
Kalam Integrated Development Programme	Swit.	1987 - 90	2,411	General development of the area with special attention to forestry, syupporting self- help infrastructure improvements and schemes for women.
Tribal Areas Development Programme	USA	1982 - 90	24,000	Strengthen the capability of Government institutions to implement development projects and to construct basic infrastructure.

Of particular interest are projects financed with assistance from KFW, GTZ, Netherlands, the Asian Development Bank, USAID and UNICEF.

KFW has two projects directly involved in the sector. The first is designed to assist PHED to implement integrated water supply, sanitation and hygiene projects in Dir, Swat, Mansehra, Peshawar and Mardan Districts. As part of the project, the PHED Sanitation Division was created, and much of the strategy proposed in this plan is derived from its experience to date. Secondly, KFW is involved with the Mardan Integrated Rural Development Programme in which water supply schemes have been constructed in 13 villages.

A new GTZ financed project is scheduled to start in eary 1990, Promotion of

PHED/NWFP. Two phases of the project are envisaged. The first includes:

- an organisational study from which suggestions will be developed for personnel development and improvement of the finance and accounting system;

- spare parts and supplies will be provided and plant maintenance and repair units will be strenghthened;

- bases for the planning of water supply and sanitation projects will be improved by applying low-cost appropriate technologies;

- PHED's ability to monitor water quality will be improved by equipping laboratories and through organisational measures;

- the establishment of a permanent training unit in PHED will be prepared and preliminary training carried out; and

- models will be developed for the participation of the population in planning, implementation and operation of facilities.

Parallel to this, rural water supplies are to be financed for 250,000 people along with measures for the disposal of sewage, faeces and solid waste.

The second phase of the project is scheduled to last 6 - 8 years, but details are not yet established. This investment plan and its subsequent implementation may help to define the project.

The Netherlands Government is discussing a three year project which could start in mid 1990 and which is designed to enhance the planning capability of P and D. Preliminary discussions have focussed around the provision of:

- reinforcement of skills for planning area development projects in the SDP and FATA sections of the department;

- assistance and training in project appraisal;

- production of working papers and development of manuals for the evaluation of PC-Is and PC-IIs;

- identification and prefeasibility assessments of foreign aid projects;

- support for the projects data bank, facilitating information input and retreival at the sector and District level; and

- support for the Bureau of Statistics in data collection, processign and analysis.

The Asian Development Bank is helping to finance the Chitral Area Development Programme which is designed to improve the economic, social and nutritional well being of the population. Of particular interest is the institutional development support being provided to villages to plan, implement and manage their own development.

USAID is financing a US $ 280 million project in Both NWFP and Baluchistan to improve access and quality of primary education in both provinces.

UNIFEF has been active in Chitral and Mansehra in the provision of pipes for water supply schemes. In Bannu, D.I. Khan and FATA, there have been UNICEF extensions to the handpump supply and installation programme. Drilling equipment for tubewell construction and the implementation of low cost, appropriate technology schemes, mainly for the Afghan refugee population, have also been provided. A full description of UNICEF involvement is presented in Section 2.2.11.

2.4 Current Situation

2.4.1 Water Supply

Water supply varies according to topography, rain fall and the surface/ground water resource.

In the northern zone, surface water is generally in abundance in the form of springs, rivers and khwars (snow-melted water) which become sources of drinking water.

In the central Peshawar valley, groundwater is normally available and is the prefered source.

In the arid south, both groundwater and surface water sources are normally scarce.

Most of the surface and/or groundwater available is classified as sweet, with the exception of brackish water zones in D.I.Khan, Bannu and Karak. The brackish water zones are presented in Fig. 2.4.1.1. Table 2.4.1.1 provides a classification by District of water sources for the existing rural water supply schemes.

Table 2.4.1.1: RURAL WATER SUPPLY SCHEMES - PHED

District	% of Schemes Using Surface Water Source	Ground Water Source
Chitral	79	21
Dir	49	51
Swat	55	45
Kohistan	93	7
Mansehra	87	13
Malakand	69	31
Abbottabad	70	30
Peshawar/Charsadda	9	91
Mardan/Swabi	14	86
Kohat	48	52
Karak	43	52
Bannu	4	96
D.I.Khan	25	75

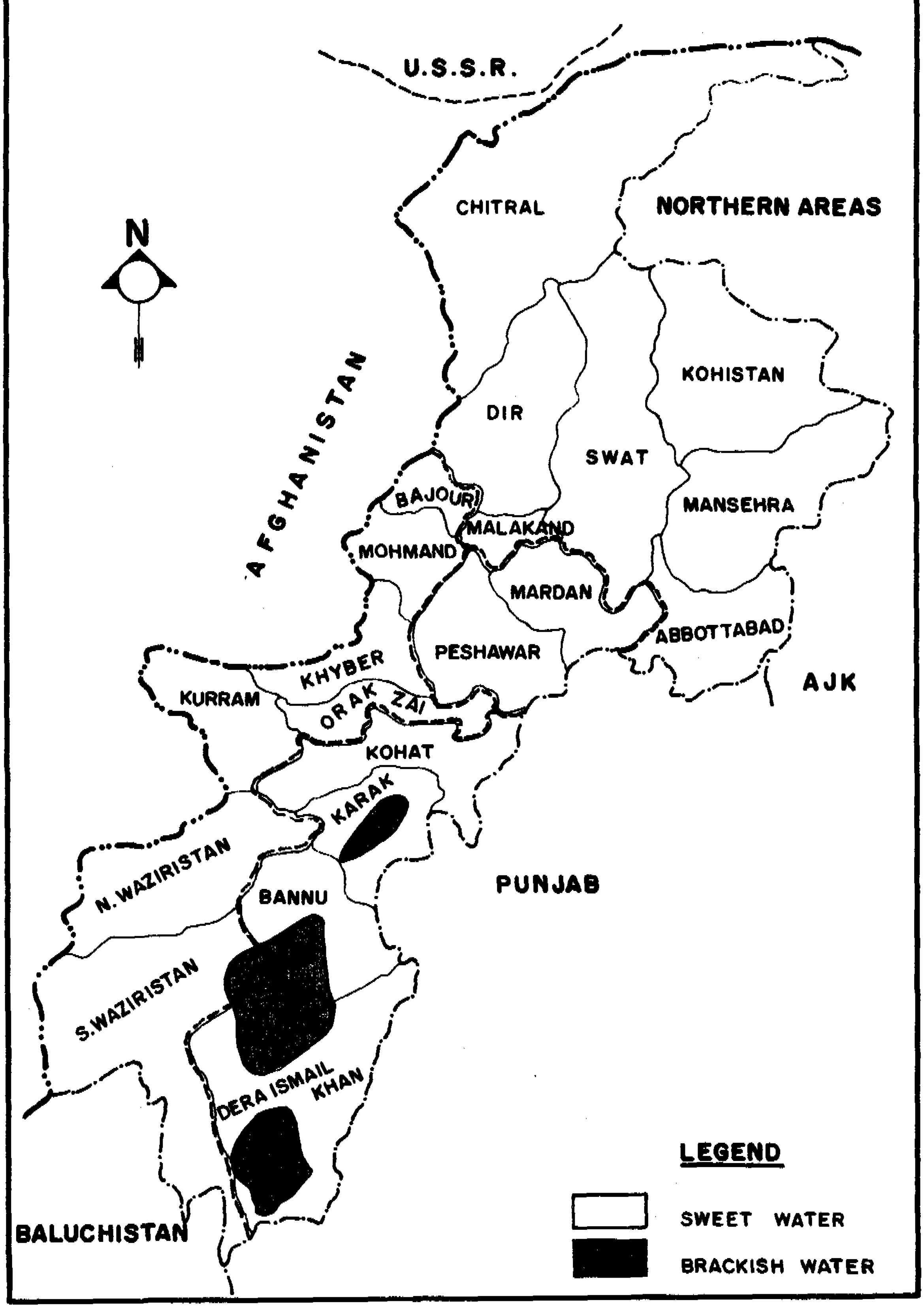
Surface water is the source of drinking water for approximately 72% of the schemes constructed by PHED in the northern Districts with groundwater providing the remainder.

In the central Peshawar Valley (Peshawar and Mardan Districts) 89% of the rural water supply schemes draw on the shallow groundwater and only 11% on surface water. Surface water is usually available also from rivers or canals, but groundwater, which normally does not require treatment is the preferred source and is tapped by means of tubewells.

In the southern region (Kohat, Karak, Bannu & D.I.Khan) surface water is the source in less than 1/3rd of the water supply schemes while the majority are based on the utilization of groundwater. Overall in the settled Districts, water supply sources are evenly divided between groundwater sources (53%) and surface water sources (47%).

FIGURE 2.4.1.1

WATER QUALITY IN N.W.F.P.



Public Health Engineering Department

PHED is the main Government agency responsible for carrying out water supply schemes in NWFP. Schemes so constructed are also maintained by PHED. Upto June 1988, the department has implemented 1438 rural water supply schemes and this number is expected to increase to 1545 by June, 1989. Table 2.4.1.2 provides an abstract of PHED completed schemes with per capita cost.

Table 2.4.1.2: NUMBER AND COST OF PHED WATER SUPPLY SCHEMES TO 1988

District	No.of Total Schemes Completed	Average Cost/Capita schemes completed to 1988
NORTH ZONE		
Chitral	44	475
Dir	103	360
Swat	143	434
Kohistan	59	167
Mansehra	198	345
Malakand	55	350
Abbottabad	194	252
CENTRAL ZONE		
Peshawar/Charsadda	166	207
Mardan/Swabi	102	187
SOUTHERN ZONE		
Kohat	78	380
Karak	82	714
Bannu	122	537
D.I.Khan	101	439
Total:	1438	435

A comparison of the cost/capita indicates that in the Northern Zone, the highest per capita cost is in Chitral, apparently caused by the higher transportation and carriage charges for materials as well as the cost of lengthy transmission pipelines.

In the south, the highest per capita cost is in Karak which is caused by deep drilling of the tubewells due to a very low water-table.

In the central zone the per capita costs are much lower due to clustered populations and groundwater being available at shallow depths. Both the cost of the transmission main and the cost for deep drilling are minimized.

PHED Design Criteria

PHED design criteria for consumption (imperial gallons per capita per day) are:

- 5 g/c/d - for public standposts and community tanks to serve populations up to 5,000;

- 10 g/c/d - for public standposts and community tanks for communities in the population range of 5,000 -10,000; and

- 15 g/c/d - for house connections, used when the population exceeds 10,000;

The department also allows for water storage based on 25% of the average day demand. For perennial springs, the storage may be increased to 50% of the average day demand.

PHED places outlets for community tank systems or standposts such that the distance to travel is 400 ft. maximum.

Technologies Used by PHED

Approximately 80% of the water supply schemes in the northern Districts utilize surface water as the source and infiltration galleries or channels for tapping the source. Of 787 water supply schemes completed by PHED (to June 1989) in the northern Districts, 429 used natural springs, 87 used infiltration galleries and 134 schemes were based on tube wells. The greatest number of tube wells in one District are in the Abbottabad (56) where, compared with the mountainous areas, it is less difficult to drill tube wells, although the yield is not always satisfactory. The maximum number of schemes based on canal water are located in Chitral (15) where surface water sources are in abundance.

The central Peshawar valley mainly utilizes groundwater tapped by tubewells.

In the south, tubewells predominate. Groundwater is from obtained from depths greater than 200 ft.

Overall, 67% of the water supply schemes completed by PHED have house connections, 9% are based on standposts and 24% utilize community tanks for water distribution. Table 2.4.1.3 provides a summary of technologies used throughout the province by, PHED and other institutions.

Coverage

Water supply coverage has been estimated by analysing PHED statistics and through field surveys. The methodology used for the surveys is presented in Appendix 10 and the results in Table 2.4.1.4.

PHED *statistics report* province wide coverage at the end of June, 1988 as 49%. The project field survey, which defined coverage differently and in terms of access to a minimum quantity of 3 gallons/capita/day from a protected source within 1000 ft of a residence in the plains and 500 feet in the hills, estimated the coverage as 50%.

To this was added coverage provided by projects, LGRDD and the private sector, resulting in a total estimate of coverage of 59%.

FATA Water Supply

The rural water supply coverage in FATA, based on the PHED water supply schemes to June, 1988 is 35%, and is summarized in Table 2.4.1.5. The highest rural coverage is in the Khyber Agency, mainly due to the ready availability of groundwater which can be tapped through tubewells.

TABLE 2.4.1.3a EVALUATION OF WATER SUPPLY TECHNOLOGIES, AVERAGE SCHEME COST AND POPULATION COVERAGE

Physiography	Technology	Basic Level of service: Description	Quantity gpd	Water Quality	Maximum distance from farthest consumer (ft)	Evaluation of Technology	Physiographic Zone where technology is used	Average Cost/Per Capita Cost (Rs.): Small Community <500	Medium Community 500-2000	Large Community 2000-5000	Population Coverage using this Technology (%)
Plains	Hand pump on dug well (depth of water table upto 20 m)	Privately owned local hand pump on dug well	5	Protected source	in house	Old traditional technology; hand pump locally manufactured; simple installation and O & M; know how available with local mechanics even in remote areas; suitable for small communities particularly where electricity is a problem and sweet ground water available at shallow depths	Central	8,500	8,500	8,500	3 %
								1,200	1,200	1,200	
							Southern	10,500	10,500	10,500	2 %
								1,500	1,500	1,500	
Plains	Hand pump on borehole (depth upto 20 m)	Privately owned local hand pump on bore hole	5	Protected source	in house	Same as above although hand pump on bore hole is relatively newer and safer technology against pollution as compared to a dug well and is less expensive	Central	4,000	4,000	4,000	3 %
								570	570	570	
							Southern	6,000	6,000	6,000	2 %
								850	850	850	
Plains	Hand pump on dug well (depth of water 20-50 m)	Communal Indus hand pump on dug well (for upto 300 people)	5	Protected source	500	Indus hand pumps are a new technology in Pakistan; pump is sturdy and installation is easy but scarcty of spare parts can present problems; suitable particularly where electricity is a problem and ground water is at moderate depths	Central	80,000	240,000	480,000	-
								160	190	140	
							Southern	80,000	330,000	660,000	-
								160	260	180	

TABLE 2.4.1.3b EVALUATION OF WATER SUPPLY TECHNOLOGIES, AVERAGE SCHEME COST AND POPULATION COVERAGE

Physiography	Technology	Basic Level of service: Description	Quantity gpd	Water Quality	Maximum distance from farthest consumer (ft)	Evaluation of Technology	Physiographic Zone where technology is used	Average Cost/Per Capita Cost (Rs.): Small Community <500	Medium Community 500-2000	Large Community 2000-5000	Population Coverage using this Technology (%)
Plains	Hand pump on bore hole (depth of water 20-50 m)	Communal Indus hand pump on bore hole (for upto 300 people)	5	Protected source	500	Same as above although communal pump on bore hole is a newer, more economical and safer technology against pollution	Central	31,000 60	77,000 60	186,000 50	-
							Southern	31,000 60	87,000 70	186,000 50	-
Plains	Electric pump on dug well	Piped water supply thr. comm. tank or standpost or house conection	5-10	Protected source	500	Suitable for communities where acquifer is too deep for hand pumps, areas with moderate recharge, and electricity is not a problem; O&M cost is usually high; PHED has installed such schemes in the past but now mostly LGRDD and District Councils are installing new schemes	Central	297,000 594	297,000 240	494,000 140	-
							Southern	367,000 734	367,000 290	367,000 105	-
Plains	Electic pump bore hole	Piped water supply thr. comm. tank or standpost or house conection	5-10	Protected source	500	Same as above but applicable where ground water recharge is high and where poor water quality at shallow depths necessitates deep drilling; relativly better protected source as compared to a dug well; suitable for clustered settlements with supply through house connections; installation and maintenance skills available at District / Tehsil level	Central	491,000 982	491,000 390	671,000 190	20 %
							Southern	1,188,000 for 5 comm. 475	872,000 for 2 comm. 350	2,022,000 for 1 comm 578	7 %

TABLE 2.4.1.3c EVALUATION OF WATER SUPPLY TECHNOLOGIES, AVERAGE SCHEME COST AND POPULATION COVERAGE

Physiography	Technology	Basic Level of service: Description	Quantity gpd	Water Quality	Maximum distance from farthest consumer (ft)	Evaluation of Technology	Physiographic Zone where technology is used	Average Cost/Per Capita Cost (Rs.): Small Community <500	Medium Community 500-2000	Large Community 2000-5000	Population Coverage using this Technology (%)
Mountainous	Spring through gravity system	Piped water supply thr. comm. tank or standpost or house conection	10	Protected source	300	This technology is neither low cost nor simple in design and installation but has several other advantages eg. easy and inexpensive O&M; electricity is not required; quality is usually good and supply is available 24 hours through out the day depending on the source.	Northern	284,000 570	492,000 395	735,000 210	14 %
Mountainous/plains	Surface water thr. gravity or pumping system	Piped water supply thr. comm. tank or standpost or house conection	5-10	location of intake at the least polluted site and filtration of water	300-500	Applicable only where springs or sweet ground water is not available at suitable depths and for medium to large communities due to high capital cost; quality of water depends on proper O&M due to frequent changes in the quality of raw water	Southern	1,500,000 3000	1,500,000 1200	1,500,000 300	1 %
							North	857,800 1715	857,800 680	857,800 170	

TABLE 2.4.1.3d EVALUATION OF WATER SUPPLY TECHNOLOGIES, AVERAGE SCHEME COST AND POPULATION COVERAGE

Physiography	Technology	Basic Level of service				Evaluation of Technology	Physiographic Zone where technology is used	Average Cost/Per Capita Cost (Rs.)			Population Coverage using this Technology (%)
		Description	Quantity gpd	Water Quality	Maximum distance from farthest consumer (ft)			Small Community <500	Medium Community 500-2000	Large Community 2000-5000	
Mountainous/plains	Surface water thru infiltration gallery with/w.o. percolation well and supply thru gravity/pumping system	Piped water supply thr. comm. tank or standpost or house conection	5-10	location of gallery at the least polluted site	300-500	Applicable for medium to large communities; requires skillful installation of the intake pipe below scour depth to avoid damage caused by flood; choking of intake pipe frequent in streams carrying heavy silt load therefore O&M is not easy; quality of water is good if O&M properly done	Northern	490,000 980	475,000 380	840,000 240	3 %
							Central	287,500 575	287,500 230	700,000 200	2 %
							Southern	600,000 1200	600,000 480	875,000 250	2 %
										Total	59 %

Source PHED, NWFP / Project Field Sureys August 1989

Table 2.4.1.4 ESTIMATED WATER SUPPLY COVERAGE

District	Physio. Region	Estimated Rural Population	PHED Reported Covered Population %	PHED Reported Covered Population Number	Estimated PHED Covered Population %	Estimated PHED Covered Population Number	Estimated Project Covered Population %	Estimated Project Covered Population Number	Estimated LGRDD Covered Population %	Estimated LGRDD Covered Population Number	Est. Private Sector Covered Population %	Est. Private Sector Covered Population Number	Estimated Total Population Covered %	Estimated Total Population Covered Number	Estimated Population Not Covered %	Estimated Population Not Covered Number
Abbottabad	North	1,148,845	60	689,307	58	666,330	0	0	1	8,156	0	0	59	674,486	41	474,359
Swat	North	1,443,247	33	476,272	32	461,839	0	0	1	8,226	0	0	33	470,065	67	973,182
Dir	North	1,011,398	23	232,622	21	212,394	0	0	0	2,234	0	0	21	214,628	79	796,770
Mansehra	North	1,176,052	34	399,858	41	482,181	36	423,379	0	4,527	0	0	77	910,087	23	265,965
Kohistan	North	572,183	20	114,437	24	137,324	0	0	1	7,798	0	0	25	145,122	75	427,061
Chitral	North	254,921	34	86,673	48	122,362	11	28,041	0	554	0	0	59	150,957	41	103,964
Malakand	North	328,408	63	206,897	74	243,022	0	0	2	8,186	0	0	76	251,208	24	77,200
Mardan	Central	1,529,710	59	902,529	74	1,131,985	1	15,297	0	3,116	7	107,080	82	1,257,478	18	272,232
Swabi	Central															
Peshawar	Central	1,586,672	63	999,603	73	1,158,271	0	0	2	24,484	7	111,067	82	1,293,822	18	292,850
Charsadda	Central															
Kohat	South	470,266	66	310,376	37	173,998	0	0	1	2,458	6	28,216	44	204,672	56	265,594
Karak	South	275,754	72	198,543	83	228,876	0	0	0	777	6	16,545	89	246,198	11	29,556
Bannu	South	776,295	64	496,829	41	318,281	3	23,289	1	3,893	6	46,578	51	392,041	49	384,255
D.I. Khan	South	647,904	64	414,659	48	310,994	5	32,395	0	2,065	6	38,874	59	384,328	41	263,576
Total		11,221,655	49	5,528,603	50	5,647,857			1	76,474	3	348,360	59	6,595,092	41	4,626,563

Table 2.4.1.5: FATA: WATER SUPPLY COVERAGE TO JUNE, 1988

Agency	Projected Population	Population Served (000)	No.of Schemes completed	Expenditure Rs.(M)	Coverage %
Bajour	353.86	71.256	29	14.506	20.14%
Mohmand	198.50	49.04	19	11.50	24.70%
Khyber	347.70	275.75	30	39.95	74.13%
Kurram	365.33	111.947	20	25.372	31.41%
Orakzai	438.94	58.582	20	15.445	13.34%
N.Waziristan	289.75	158.698	49	31.781	54.77%
S.Waziristan	379.76	82.257	35	25.199	21.13%
F.R. D.I.Khan	104.81	29.711	10	06.889	28.37%
F.R. Bannu	96.17	56.421	17	16.696	58.66%
F.R. Kohat	70.28	49.045	13	15.076	69.78%
F.R. Peshawar	45.62	24.967	7	5.144	54.72%
Total:	2681.72	947.892	262	207.249	35.34%

Source: PHED - NWFP

Operation and Maintenance

Unable to hand over the operation and maintenance of the schemes it has completed, PHED has been faced with the need to operate and maintain the existing systems.

The problem is really a dual one. The present systems are going to require a bigger share of PHED's assets than they are at present as they grow older. Secondly, additional schemes are being completed each year. At present trends, PHED will spend more on operation and maintenance than it does on development in three years.

The Department really acts as a facillitator for operation and maintenance. It hires staff from the village the system is located in to operate the scheme, and, when a breakdown occurs, it hires local artisans to make repairs. Maintenance requirements for each technology have been identified and analysed from a requirement point of view. The results were compared with the evaluation of private sector resources compiled through the sector field survey and local staff's knowledge of village resources. It was found that resources required for normal repairs - electricians, plumbers, pump mechanics - are generally available, if not in the village the system is located in, then nearby. This is not considered to be a constraint to communities taking responsibility for the operation and maintenance of their scheme.

The results of the maintenance evaluation are presented in Table 2.4.1.6.

Role of Women

The role of women, as providers of water for the household, places them as the main users of water systems, and those who suffer the most when problems arise. It is important to rightly assess the community's perception of the role of women and the level of knowledge and awareness that women have with respect to water related issues.

The main issues considered in sector involvement relate to:

- perceptions of women in the rural areas;
- knowledge and awareness of issues held by women;
- the purdah system;
- access to economic means;
- involvement in the sector; and
- basic skills and training/opportunities.

The issues of the perceptions of women and their awareness of sector issues are considered as being the most important. In rural NWFP, women's perception of themselves is first seen through the needs of their families and then their communities. From birth to motherhood and finally right up to death, a woman's role in the rural community is traditionally mapped out but opportunity to deviate from this pre-determined role is now on the increase. Modernization, migration and media are creating pressures within the community nucleus with respect to women's role.

TABLE 2.4.1.6a

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out. 1	2	3	4	5	6	7	8	9	10	11	Remarks
1	Plains	Hand pump on dug well (depth of water table upto 20 m)	Privately owned local hand pump on dug well	Operation	Routine Inspection	Tightening of Nuts & Bolts	Lubrication of Pump	Replacement of above ground components	Replacement of below ground components	Cleaning of well	Deepening of well	occasional water testing against pollution and dis-infection if needed	Site drainage & its main-tenance	-	Owner to be advised on importance of clean water and site drainage; local contractor to be trained on disinfection techniques
				Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	-	
				Owner	Owner	Owner	Owner	Local mech.	Local mech.	Contractor	Contractor	Contractor	Owner	-	
2	Plains	Hand pump on borehole (depth upto 20 m)	Privately owned local hand pump on bore hole	Operation	Routine Inspection	Tightening of Nuts & Bolts	Lubrication of Pump	Replacement of above ground components	Replacement of below ground components	Rehab. of bore hole	Deepening of bore hole	Occasional water testing against pollution and dis-infection if needed	Site drainage & its main-tenance	-	As above
				Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	-	
				Owner	Owner	Owner	Owner	Local mech.	Local mech.	Contractor	Contractor	Contractor	Owner	-	

TABLE 2.4.1.6b

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out. 1	2	3	4	5	6	7	8	9	10	11	Remarks
3	Plains	Hand pump on dug well (depth of water 20-50 m)	Communal Indus hand pump on dug well (for upto 300 people)	Operation	Routine Inspection	Tightening of Nuts & Bolts	Lubrication of Pump	Replacement of above ground components	Replacement of below ground components	Cleaning of well	Deepening of well	Occasional water testing against pollution and dis-infection if needed	Site drainage & its main-tenance	-	As above and local mechanic to be trained on repair and maintenance of Indus hand pump. LGRDD to be involved in supervision/monitoring on an as requested basis
				Community	Community	Community	Community	Community	Community	Community	Community	Community	Community	-	
				Community	Community	Community	Community	Local mech.	Local mech.	Contractor	Contractor	Contractor	Community	-	
4	Plains	Hand pump on bore hole (depth of water 20-50 m)	Communal Indus hand pump on bore hole (for upto 300 people)	Operation	Routine Inspection	Tightening of Nuts & Bolts	Lubrication of Pump	Replacement of above ground components	Replacement of below ground components	Rehab. of bore hole	Deepening of bore hole	Occasional water testing against pollution and dis-infection if needed	Site drainage & its main-tenance	-	As above
				Community	Community	Community	Community	Community	Community	Community	Community	Community	Community	-	
				Community	Community	Community	Community	Local mech.	Contractor	Contractor	Contractor	Contractor	Community	-	

TABLE 2.4.1.6c

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out.											Remarks
				1	2	3	4	5	6	7	8	9	10	11	
5	Plains	Electric pump on dug well	Piped water supply thr. comm. tank or standpost or house conection	Operation	Routine Inspection	Repair/ maintenance of control panel comprising starter, main switch, voltmeter ammeter phase ind-cator,etc	Repair/ maint.of motor components eg bearing shaft, gland packing, motor winding repair and lubrication	Repair/ maintenance of pump components eg bushes, impellors, shaft, lubrication	Repair/ maintenance of pipeline etc	Cleaning of well	Deepening of well	Occasional water testing against pollution and dis-infection if needed Community Contractor	Site drainage & its main-tenance	Repair/ maintenance of house conection	As in Technology No.1 and also local mechanic/ electrician should be trained on maintenance of motor and pump. One district engineer to be recruited by PHED for each district and district engineer trained on water supply and sanitation and to be seconded to LGRDD for inspection and monitoring of schemes and providing technical advice to communities on as required basis
				Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Owner	
				In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	Owner	
				Operator	Operator	Operator and elec-trician	Operator and elec-trician	Operator and mechcanic	Operator and plumber	Operator and mechcanic	Contractor	Operator and contractor	Community	Plumber	

TABLE 2.4.1.6d

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out. 1	2	3	4	5	6	7	8	9	10	11	Remarks
6	Plains	Electic pump bore hole usually (medium to large community)	Piped water supply thr. comm. tank or standpost or house conection	Operation	Routine Inspection	Repair/ maintenance of control panel comprising starter, main switch, voltmeter ammeter phase ind-cator, etc	repair/ maint. of motor components eg bearing shaft, gland packing, motor winding repair and lubrication	Repair/ maintenance of pump components eg bushes, impellors, shaft, lubrication	Repair/ maintenance of pipeline etc	Rehab. of bore hole	Deepening of bore hole	Occasional water testing against pollution and dis-infection if needed Community Contractor	Site drainage & its main-tenance	Repair/ maintenance of house conection	As above
				Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Owner	
				In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	Owner	
				Operator	Operator	Operator and electrician	Operator and electrician	Operator and mechanic	Operator and plumber	Operator and mechanic	Contractor	Operator and contractor	Operator and contractor	Plumber	

TABLE 2.4.1.6e

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out.											Remarks
				1	2	3	4	5	6	7	8	9	10	11	
7	Mountainous	Spring through gravity system	Piped water supply thr. comm. tank or standpost or house conection	Operation	Routine Inspection	Repair/ maint. of intake and protection against pollution	Repair/ maint. of trans-mission main	Maint. of storage tank	Maint. of dist. line	Maint. of control valves	Maint. of standposts/ comm.tanks	Maint. of house connections	Maint. of site drainage	-	As in technology No.1 and also the local operator should be trained in maintaining the gravity system.
				Now PHED/ community	Now PHED/ community	Now PHED/ community	Now PHED/ community	Now PHED/ community	Now PHED/ community	Now PHED/ community	Now PHED/ community	Owner	Community	-	
				In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	Owner	Community	-	
				Operator	Operator	Operator/ contractor	Operator/ plumber	Operator/ contractor	Operator/ plumber	Operator/ plumber	Operator/ plumber/ contractor	Plumber	Contractor	-	

TABLE 2.4.1.6£

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physiographic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out.											Remarks
				1	2	3	4	5	6	7	8	9	10	11	
8	Mountainous/ plains	Surface water thr. gravity or pumping system	Semimentation tanks, slow sand filtration Piped water supply thr. comm. tank or standpost or house conection	Operation	Routine Inspection	Repair/ maint. of intake	Repair/ maint. of SSF eg repair of structure and changing of filter media,etc	Repair/ maint. of sedimentation/ settling tank	Repair/ maintenance of control panel comprising starter, main switch voltmeter ammeter phase indcator,etc	Repair/ maint.of motor components eg bearing shaft gland packing, motor winding repair and lubrication	Repair/ maintenance of pump components eg bushes, impellors, shaft, lubrication	Repair/ maint. of clear water tank and disinfection if so needed	Repair/ maint. of pipeline standposts/ comm.tanks and site drainage	Repair/ maint. of house connections	As in technology 5
				Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Owner	
				In future community	In future community PHED	In future community	In future community	In future community	In future community	In future community	In future community	In future community	In future community	Owner	
				Operator	Operator	Contractor	Contractor	Contractor	Operator and electrician	Operator and electrician	Operator and mechanic	Operator and contractor	Plumber and contractor	Owner and plumber	

TABLE 2.4.1.6g

OPERATION & MAINTENANCE OF WATER SUPPLY SCHEMES

Sr No	Physio-graphic Zone	Technology	Basic Level of service	O&M Activities; Responsibility for Each; By whom Carried Out.					
				1	2	3	4	5	6
9	Mountainous/plains	Surface water thru infiltra-tion gallery with/w.o. percolation well and supply thru gravity/pumping system	Piped water supply thr. comm. tank or standpost or house conection	Operation	Routine Inspection	Repair/maint. of infiltra'n gallery, i.e changing of filter media, repair of gallery etc.	Repair/maint. of percolation well	Repair/maintenance of control panel comprising starter, main switch voltmeter ammeter phase ind-cator,etc	Repair/maint.of motor components eg bearing shaft, gland packing, motor winding repair and lubrication
				Now PHED	Now PHED	Now PHED	Now PHED	Now PHED	Now PHED
				In future community	In future community/PHED	In future community	In future community	In future community	In future community
				Operator	Operator	Operator and Contractor	Contractor	Operator and electrician	Electrician

Sr No	Physio-graphic Zone	Technology	Basic Level of service	7	8	9	10	11	Remarks
9	Mountainous/plains	Surface water thru infiltra-tion gallery with/w.o. percolation well and supply thru gravity/pumping system	Piped water supply thr. comm. tank or standpost or house conection	Repair/maintenance of pump components eg bushes, impellors, shaft, lubrication	Repair/maint. of storage tank	Repair/maint. of pipeline including standposts/comm.tanks	Repair/maint. of site drainage	Repair/maint. of house connections	As in techanology 5 and local contractor to be trained on repair and maintenance of infiltration gallery and percolation well if so needed
				Now PHED	Now PHED	Now PHED	Now PHED	Owner	
				In future community	In future community	In future community	In future community	Owner	
				Mechanic	Contractor	Plumber and contractor	Contractor	Owner and plumber	

Source: PHED, MWFP / Project Field Surveys

Water supply (in terms of provision or procurement), sanitation and health have been traditionally assigned to women. The "socially accepted" dominance of men in the rural community, stemming from their economic power, is such that women assert themselves in the community through their husbands. This is particularly so with water related issues.

Poor economic conditions of the rural family and social restrictions drive female pupils out of primary schooling at a young age although religious teaching is pursued for a short period afterwards.

Awareness of health and hygiene is acquired through teachings stemming from religious practices and social beliefs.

Woman's potential involvement in the sector, other than as users of the system, is limited. Educated women, those who work, do have more opportunity and should be approached to acquire an understanding of woman's concerns and view points.

Non Government Organization Involved in the Sector

Four types of Non-governmental Organizations (NGOs) are identified in NWFP:

- foreign and international NGOs working with Afghan Refugees;
- a few medium to large Pakistan organizations: e.g. the Agha Khan Rural Support Programme, a private non-profit company.
- approximately 300 "registered" NGOs most of whom are small and engaged in charitable support; and
- thousands of unregistered community organizations concerned with the provision of selected services on a self-help basis.

There are many international agencies involved in the Health Programme for Afghan refugees and locals. Work done by these international agencies in hygiene education and health includes material produced in Pushto, the regional language. Rural women specially benefit from use of the regional language.

Rural development programmes, such as the Mansehra District Development Plan (MDDP) and the Agha Khan Rural Support Programme (AKRSP) have successfully utilized village organizations for the execution and management of schemes. Water Supply projects were in fact the single most successful component within the MDDP. Adult Basic Education Services have organized fairly large scale literacy programmes. For some new literates, additional training was provided so they could act as village health volunteers. Nai Roshnani Schools show an average student enrolment of 26 in NWFP and 29 in FATA up to September, 1988.

With the exception of AKRSP, there are no mid to large-scale NGOs concerned with the strengthening of traditional village organizations to increase their capacity to work in rural water, health and sanitation. Government has begun to support NGO project proposals within some sectors and the International Rescue Committee has initiated a Health Education Development Programme (HEDP) for rural populations through NGO's.

With the possible exception of UNICEF there is minimal NGO experience in water, health and sanitation in the rural areas of the Province.

Over 300 registered CBOs in NWFP are involved in multi disciplinary social welfare activities. Unregistered CBOs are of two types:

- from among the community with no external motivation or organizational support; and

- CBOs which came about as a result of external motivation, as per need assessment. Examples include the Mansehra Community Development Project, GTZ/IRDP programme in Mardan and the Agha Khan Rural Support Programme.

The CBOs of the first type are involved in multipurpose socio-cultural activities i.e. educational, health, sports, religious and income generating.

The second type are involved in projects of water supply, sanitation and hygiene education. They receive external support in organization and need assessment.

Fund raising among CBOs is generally made through one of the following sources:

- local leadership;
- mosques;
- local councils;
- government support; and
- international agencies.

Involvement of CBOs in activities such as the building of mosque educational facilities, health and small income generation centres for women can be targeted as a potential for use in the sector.

The presence of CBOs in NWFP points to service delivery being part of a mechanism that involves the community. Bearing in mind the Purda bound tradition of the Province, this can be an effective means in the case of the selection of sites of community tanks, for example, especially to benefit rural women.

The accepted community centres for Women Welfare may also be used for hygiene education.

An approach for women involvement can also be as follows:

- the presence of a latrine in a widow's or poor women's house so that the "haves and have-not's" may both be involved in improved sanitation in rural NWFP;

- the utilization of female extension workers in NWFP for sanitation programmes in keeping with the socio-cultural traditions of the province; and

- the involvement of women in the domestic construction of latrines.

Periodic collaboration with Government or Non Government agencies responding to community needs will not only encourage the efforts of the people but also, in the long run, work towards effective maintenance and operation of sector facilities.

2.4.2 Human Waste Disposal and Sanitary Drainage

Sanitary conditions in most villages of NWFP are considered to be unsatisfactory. This situation arises from lack of proper human waste disposal arrangements, improper liquid and solid waste disposal practices and accumulation of sullage in ditches and ponds.

Although rural water supply coverage in NWFP is estimated to be as high as 59%, progress in the sanitation sector is not more than 3%. However, PHED has played a pioneer role since 1986 by establishing a Sanitation Division.

Initially, sanitation projects were planned to have the following components:

- information and motivation campaign;
- extended hygiene education campaign;
- human waste disposal at household level;
- liquid and solid waste disposal; and
- village storm and waste water disposal.

These projects primarily consist of installing double pit latrines in schools and ventilated pit latrines/pour flush latrines in dwellings. A major contribution is required from the beneficiary towards the capital cost. The construction of drainage systems is also being carried out in some projects.

The latrine building programme has been completed in most of the schools, and cost is totally borne by the government. The installation of household latrines varies from 25% to 70% of the target set for each community in the programme, due to the basic requirement that a major share (63% - 81%) of the installation cost be provided by the community and it has met varied degree of success: 2600 latrines have been installed to date.

Technologies Used and Unit Costs

A list of the various technologies utilized for different soil conditions and water table depths is given in Table 2.4.2.1.

Table 2.4.2.1: TECHNOLOGIES FOR HUMAN WASTE DISPOSAL FACILITIES

Type of Latrine	Evaluation of Technology	Total Cost with Pucca Supper Structure	Govt.Share of Cost	Community Share of Cost
Single Ventilated Pit Latrine	open well water supply system; soil stable(no lining) and water table exceeds 30 feet depth.	Rs.3925/-	Rs.925/- 24%	Rs.3000/- 76%
Double Ventilated	open well water supply; soil unstable, requires pit lining, water table shallow (10-15 feet depth)	Rs.5060/-	Rs.960/- 19%	Rs.4100/- 81.3%
Surface Ventilated Latrine	open well water supply; are water logged; water table exceeds 10 feet depth.	Rs.7200/-	Rs.2700/- 38%	Rs.4500/- 62%
Pour Flush Latrine with Soakage Pit	piped water supply, community tanks or other reliable source not liable to seepage from soakage pits.	Rs.5655/-	Rs.1260/- 22%	Rs.4395/- 78%

Unit costs of latrines, including superstructure, are also indicated, varying from Rs. 3,925 in the case of a single ventilated pit latrine to Rs. 7,200/- for a surface ventilated latrine. The Government share varies from Rs. 925 to Rs. 2,700.

Provincial Financial Allocations

The Annual Development Programme for NWFP for 1988-89 includes financial provision for 37 human waste disposal projects throughout NWFP in which great emphasis is given to community cost sharing and participation.

Accordingly a Provincial Steering Committee, District Sanitation Committees and Village Development Organizations have been established to carry out these projects. The emphasis on community participation implies that the community is involved in early project planning and is encouraged to play an active role in implementation, cost sharing and operation and maintenance of the completed facilities. An organization chart of the Provincial Steering Committee, District Sanitation Committee and Village Development

Organisations is presented in Fig 2.4.2.1.

The organisational set-up is intended to ensure substantial community as well as Government participation to enhance sustainability of the project.

Methodology for implementation

The methodology and strategy for community participation for implementation of the sanitation programme by PHED is:

- Village Development Organization (VDO) at village level to be headed by Chairman Union Council or other person selected by the village elders;

- District Sanitation Committee (DSC) in each District to be headed by the Chairman, District Council;

- Sanitation Programme at household level to be financed jointly by the Government and the beneficiaries in stages;

- communal facilities entirely financed by the Government;

- operation and maintenance of private as well as any communal facilities to be the responsibility of the community through their respective VDO. The school sanitation programme and a small number of model household excreta disposal facilities are considered the entry point to a village for further sanitation measures;

- installation of the remaining facilities to depend on the villager's response after the establishment of a Village Development Organization (VDO). This VDO will serve as a representative institution at village level for active community participation in planning and implementation and will finally become fully responsible for proper operation and maintenance. A clear agreement in the shape of undertaking covering all the above aspects, to be secured from the VDO before physical implementation of any rural sanitation project;

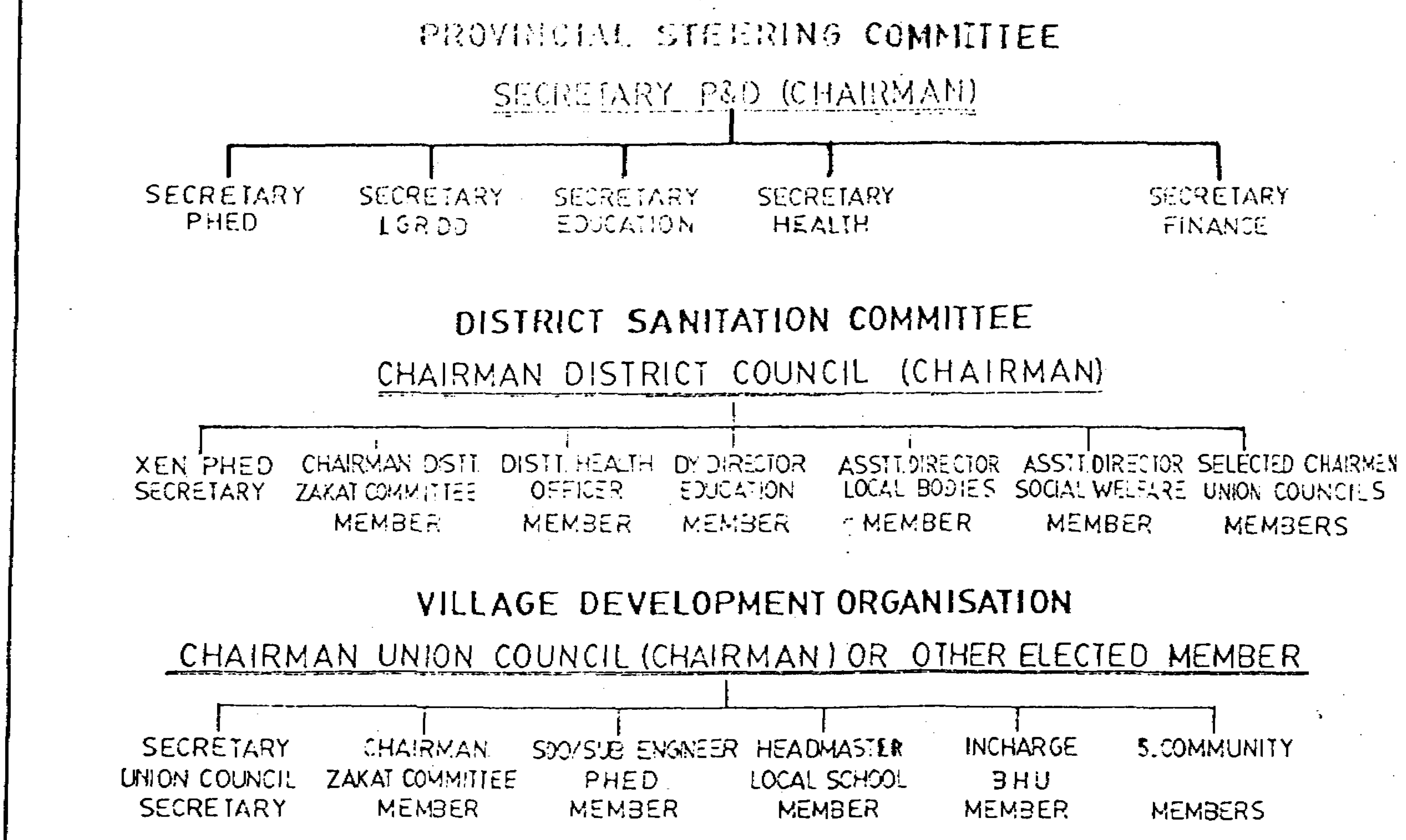

PROVINCIAL STEERING COMMITTEE
SECRETARY P&D (CHAIRMAN)
SECRETARY PHED
SECRETARY LGRDD
SECRETARY EDUCATION
SECRETARY HEALTH
SECRETARY FINANCE
DISTRICT SANITATION COMMITTEE
CHAIRMAN DISTRICT COUNCIL (CHAIRMAN)
XEN PHED SECRETARY
CHAIRMAN DISTT. ZAKAT COMMITTEE MEMBER
DISTT. HEALTH OFFICER MEMBER
DY DIRECTOR EDUCATION MEMBER
ASSTT. DIRECTOR LOCAL BODIES MEMBER
ASSTT. DIRECTOR SOCIAL WELFARE MEMBER
SELECTED CHAIRMEN UNION COUNCILS MEMBERS
VILLAGE DEVELOPMENT ORGANISATION
CHAIRMAN UNION COUNCIL (CHAIRMAN) OR OTHER ELECTED MEMBER
SECRETARY UNION COUNCIL SECRETARY
CHAIRMAN ZAKAT COMMITTEE MEMBER
SDO/SUB ENGINEER PHED MEMBER
HEADMASTER LOCAL SCHOOL MEMBER
INCHARGE BHU MEMBER
5 COMMUNITY MEMBERS

FIG. 2.4.2.1

- the school sanitation programme and 2% to 3% household coverage with model excreta disposal facilities to be initiated with full financing by the Government; and

- education and motivation campaign shall be an integral part of the Phase-I programme and during its implementation the VDO should be established in co-ordination with departments of Local Government and Social Welfare.

Pattern of Government's Financial Assistance

- 100% cost (except excavation and superstructure) for Ist batch of 20% household within first 3 months of the work's commencement;

- 50% to the next 30% households within 5 month of the project commencement;

- all balance work to be done by the beneficiaries themselves; and

- the communal facilities such as drainage and street pavement installed at full government cost.

Population Coverage

It is estimated that up to June 1989 only 3% of the population of NWFP had sanitation coverage.

The Seventh Five Year Plan envisages a 20% sanitation coverage for the rural population of NWFP.

2.4.3 Hygiene Education

Hygiene Education is one component of the mandate of the Health Education Unit of DoH.

Their most susatantial contribution to the topic of hygiene comes as part of the Control of Diarrhoeal Disease (CDD) promotion of Oral Dehydration Therapy (ORT). This of course, deals primarily with promoting a means of treating diarrhoea, rather than its prevention.

Hygiene education has also been attempted by other offices.

The local UNICEF office has a staff person responsible for health education. They believe that much hygiene improvement is a slow process, constrained by the fact that people do not perceive the dirt of faeces. Nothing short of a village by village demonstration that households that practice good hygiene have less diarrhoea sometimes seems to be required.

One cause for optimison is the investment made by returning migrant workers in pucca household water and sanitation.

A major thrust of hygiene education has been stimulated by the special situation of the Afghan refugee camps and undertaken by many of the various agencies. Efforts to coordinate the health education priorities, messages and materials for the refugees have been recently initiated through the leadership of such agencies as UNHCR, UNICEF and the Health Education Resource Centre (HERC). One preliminary result of this coordination had been a decision to focus on six areas, one of which is personal hygiene. Another priority is the promotion of less didactic methods of education, to be covered in a workshop for educators. It is hoped that many of these products will be adaptable to NWFP, particularly for those ethnic groups, such as Pathans, who are found on both sides of the border. As with much hygiene education the pressure to produce materials precludes prior behavioral research, some of which is done during any pre-testing stage. Refugee assisting groups who wish to start health education are referred by HERC to the curriculum contained in the UNICEF "Facts for Life".

All non-formal education is constrained by the low levels of literacy: estimates of rural literacy from the 1981 census for those aged 10 and over were males: 22% and females: 4%.

One major challenge for non-formal education is to reach women. One means of contacting a limited number is through the Women's Welfare Program of LGRDD which has 415 Skill Training/ Adult Education centres for young women.

A few primary school teachers have been trained by HEU/DoH in six day courses covering many topics including hygiene. The target for this program is 1000 teachers divided equally between men and women. There are about 100,000 girls enrolled in rural primary schools, outnumbered by more than five to one by boys. More than three-quarters (78%) of girls

(70% of boys) drop out before completing primary school.

2.5 **Assessment of the ADP Programme**

The ADP for the sector essentially continues the on-going investment plan. Assessment of the ADP is necessary, therefore, to understand the underlying investment strategy being pursued for development of the sector by the government. Since ADP funds for the sector in NWFP are routed primarily through PHED the pattern of allocation of funds by this department between on-going and new projects, among-components and Districts, etc., is analysed in this section.

The analysis concentrates on the two most recent years, 1988-89 and 1989-90, so as to focus on contemporary practice. These are also the first two years of the Seventh Plan Period. Therefore, they can provide an indication of the investment strategy for the sector likely to be pursued by the government of NWFP for the rest of the plan.

2.5.1 Allocation Among Components

Table 2.5.1.1 gives the allocation of funds between the two components - water supply and sanitation. The former dominates in the allocation with a share of 98 percent in 1988-89 and 1989-90. The low share, 2 percent, of sanitation indicates that its priority is yet to be established in the province.

The table also highlights the fact that no allocation is currently being made for rehabilitation of existing schemes in the ADP. This is perhaps largely the consequence of the pressure to extend coverage. Enough priority has not been attached to efficient utilisation of the investment already made. This also explains the lack of allocations for extensions or improvements in existing schemes.

Table 2.5.1.1: ALLOCATION OF THE SECTORAL ADP IN NWFP BY COMPONENTS:1988-89 AND 1989-90

	Total Sectoral ADP (Rs. in Million)	Share of (%) Water Supply	Sanitation	Total
988-89	155.5	98	2	100
1989-90	152.3	98	2	100

Source: Provincial ADP

2.5.2 Allocation Between On-Going and New Schemes

The share of the ADP earmarked for new schemes is not only an indicator of the rate at which the sectoral allocation is increasing over time but it is also a measure of the load placed on the implementation capacity of the department. In addition, the sharing between on-going and new schemes can also convey signals about the speed of implementation of projects. If, due to the politicisation of the project selection and approval process, there is pressure to undertake new schemes then this could have the effect of directing funds away from on-going projects, thereby leading to delays in implementation and in effective expansion of cverage.

Table 2.5.2.1 indicates that in the case of the dominant component, water supply, 66 percent of the funds allocated in 1988-89 went to on-going schemes and the remaining 34 percent to new schemes. The former is expected to decline to 63 percent in 1989-90. In terms of number of schemes, table 2.5.2.2 shows that the number of on-going schemes is expected to increase rapidly in 1989-90. 320 schemes are currently under varying stages of completion. 199 new schemes were actually undertaken in 1988-89. Since the number of on-going schemes in 1989-90 is substantially greater this implies that a number of schemes undertaken prior to 1988-89 have still not been completed.

Table 2.5.2.1: SHARE OF ON-GOING AND NEW SCHEMES IN ADP ALLOCATIONS TO EACH COMPONENT: 1988-89 AND 1989-89

	On-Going Schemes	New Schemes	Total
WATER SUPPLY			
1988-89	66	34	100
1989-90	63	37	100
SANITATION			
1988-89	15	85	100
1989-90	100	0	100
TOTAL ADP			
1988-89	65	35	100
1989-90	64	36	100

Table 2.5.2.2: NUMBER OF NEW AND ON-GOING SCHEMES BY COMPONENT IN THE ADP FOR THE SECTOR: 1988-89 AND 1989-90

	1988 - 89	1989 - 90
WATER SUPPLY	380	485
On-going schemes	181	485
New schemes	199	165
SANITATION	37	37
On-going Schemes	7	37
New schemes	30	-

An attempt is made to study the speed of implementation of schemes by PHED by determining the pattern of allocation of funds of a sample of schemes that were on-going in 1988-89. The percentage of total cost allocated each year since initiation is given for these schemes in Table 2.5.2.3. Out of the sample of 13 schemes, 6 were expected to be completed in 1988-89. Two have been completed in four years, two in three years and two in two years. Schemes which remain to be completed include 5 which have been under implementation since 1986-87 and 2 which were initiated in 1987-88. Therefore, it seems that the period of implementation of most schemes ranges from 3 to 4 years.

Allocations in the first year of implementation of a scheme appear to be ranging from about 5 to 25 percent of the project cost. This is the period when survey, design and appointment of contractors takes place. Disbursements thereafter should be fairly rapid. However, it is observed in the sample that even in the second year allocations range from as little as 2 percent to over 70 percent. The peaking in allocation tends to occur in the last year of construction. Altogether, it appears that if the rate of allocation of funds to on-going schemes could be increased then implementation rates could be enhanced significantly.

Table 2.5.2.3: PHASING OF IMPLEMENTATION OF A SAMPLE OF RURAL WATER SUPPLY SCHEMES IN NWFP

Schemes	District	Total Cost (000Rs)	EXPENDITURE/ALLOCATION 1985-86 (E)	1986-87 (E)	1987-88 (E)	1988-89 (A)	% Completion Expected by by 1988-89
Changalpura	Peshawar	994	- (15)	154 (38)	380 (47)	460	100
Kalo Killi	Mardan	549	- (27)	150 (17)	93 (56)	306	100
Chichana Ghurda + Surrounding Villages	Kohat	3571	-	7 (-)	500 (14)	1064 (30)	44
Isak Khumari	Karak	2111	200 (9)	800 (38)	200 (9)	911 (44)	100
Kohi Nara	Abbottabad	1361	-	2 (-)	200 (15)	300 (22)	37
Tamai	Mansehra	959	-	-	256 (27)	703 (73)	100
Amar Khel Dar	Kohistan	1269	-	-	650 (51)	619 (49)	100
Khajori Aslam Khan	Bannu	842	-	120 (14)	226 (27)	200 (24)	65
Ghishkori Ghulam Koti	D.I.Khan	6046	-	500 (8)	1061 (18)	2000 (33)	59
Shahi Nigar	Chitral	1408	-	-	100 (7)	1000 (71)	78
Dheri Talash	Dir	1738	-	426 (25)	34 (2)	500 (28)	55
Chinda Khura	Swat	1844	200 (11)	533 (29)	672 (36)	439 (24)	100
Sakha Kot	Malakand	2461	-	146 (6)	1834 (75)	481 (19)	100

2.5.3 Spatial Allocation of ADP

An analysis has also been undertaken of the spatial distribution of the rural water supply ADP to new schemes in the province in 1988-89 and 1989-90. The focus is on new schemes to identify the regional strategy for the sector at the margin. This is of relevance to future expansions in coverage.

Table 2.5.3.1 gives the combined picture for 1988-89 and 1989-90 of the District-wise distribution of new schemes and development allocations. Currently, the largest share in allocation is that to District Mardan (including Swabi) with a share of over 23 percent followed by Bannu and Swat with shares of 13.4 and 12 percent respectively. Districts which currently receive a small share of the allocation for new schemes are Kohistan (2.2 percent), Kohat (2.4 percent) and Karak (3.6 percent). There appears to be some correlation between share of rural population of a District and its share in the ADP.

Table 2.5.3.1: NUMBER OF NEW SCHEMES IN RURAL WATER SUPPLY (1988-89 AND 1989-90 COMBINED) BY DISTRICT

				Development Allocation	
District	Share of Rural Population	Schemes Number	Share of Total	Rs.in (Million)	Share of Total
Peshawar	13.6	37	10.2	9.8	8.9
Mardan	14.9	47	12.9	25.5	23.1
Abbottabad	9.9	27	7.4	4.6	4.2
Mansehra	10.1	34	9.3	12.2	11.1
Kohistan	7.4	15	4.1	2.4	2.2
Swat	12.4	53	14.6	13.2	12.0
Dir	8.7	32	8.8	5.7	5.2
Malakand	2.2	22	6.0	5.7	5.2
Kohat	4.0	16	4.4	2.7	2.4
Karak	2.4	19	5.2	4.0	3.6
Bannu	6.7	26	7.1	14.8	13.4
D.I.Khan	5.6	22	6.0	5.2	4.7
Chitral	2.2	14	3.8	4.6	4.2
Total	100.0	364	100.0	110.4	100.0

A more aggregative analysis by physiographic region (North, Central and South) is presented in Table 2.5.3.2. This table reveals that some preferential treatment is being given in allocation to the Central and Southern regions. For example, while the latter region has a share of only 10 percent of the uncovered population in the Province it receives 24 percent of the total ADP allocation to new schemes. It is possible of course, that this is due to underlying differences in unit costs. However, there appears to be a case for orienting the regional strategy for investment more towards the Northern part of the province, especially by diverting some funds from the central region.

Table 2.5.3.2: SHARE OF DEVELOPMENT ALLOCATION TO NEW SCHEMES BY PHYSIOGRAPHIC REGION 1988-89 AND 1989-90 COMBINED

Region	Share of Rural Population (%)	Level of Coverage (%)	Share of Development Share of Uncovered (%)	Allocation to NEW Schemes (%)
North	53	48	67	44
Central	28	82	12	32
South	19	57	21	24
Total	100	59	100	100

2.5.4 Implementation Strategy and Methodology.

A scheme is identified by MPA,s and incorporated into the ADP. Each MPA may recommend two or three schemes of water-supply. This list goes to the chairman of DPDAC from the MPA and then is sent to the Planning & Development Department where funds are allocated on a population basis (60%) and on a need basis (40%).

The scheme is tendered and the lowest bidder is awarded the contract

Post-Construction Management.

The scheme is commissioned after testing and is handed over to the department.

Operation and maintenance and financial management then becomes the liability of the department, a responsibility of the Executive Engineers at Divisional level as discussed in section 2.4.1.

Community Involvement.

The Community is involved in the planning and construction of schemes in the following manner:

- while the source is selected, especially when located on private land;
- when transmission or distribution lines are to pass through private land;

- at the time of locating community Tanks/Standposts to assess maximum walking distance and suitability; and

- for pipe laying when local labour, and sometimes a Contractor, may be available for hire.

The constraints are:

- excessive expenditure on O & M;

- revenue collection correspondingly much less; and

- overburdened with ,operation and maintenance PHED's role as a project implementation Department is affected adversely.

The channel through which the community's views are represented is the Union and District Council. Requests for assistance are directed through the secretary of the Union Council or to the Union or District Council through the relevant Councillor. After approval, designs are drawn up by District and Assistant Engineers. The community has some influence in the design through the local Councillor as its elected representative. The greatest say comes in the field during the survey and again during construction when the community becomes aware of the design. The Councillor is accountable to the people and therefore does tend to reflect their view at Union Council meetings. Community views are not often outwardly solicited in this process.

There are LGRDD projects which have a much greater and purposeful community involvement element. These are the UNICEF supported CBS project in Chitral, and the water supply projects in D.I.Khan and Mansehra Districts. Other projects which involve the community are those involving matching grants in which the community puts its contribution "up front" and therefore has a stronger say in how the project is designed and implemented.

The larger water supply projects begin with a recognition of need within the community and an approach to the MPA. The approach is normally made by leaders of the community who do not necessarily represent the views of the community. Politicization of the process at a high level usually involves political influence and arrangements. The MPA approaches the Chief Minister or may make direct representation to the Minister responsible for PHED. Unfortunately the broad base of the community tends to be left out of the decision making process. After approval, PHED conducts the technical survey. There is no socio-economic survey, no options discussed at public meetings, no community say in the design or in the pre-qualification and selection of contractors. There is no community involvement in construction. The first decision which the individual has is in whether or not to connect to the system at a set fee and tariff. There is opportunity to influence the location of stand pipes or community tanks but this comes only during construction and only in a dispute situation.

As recipients, the community is naturally pleased with the installation of the water scheme but in their minds ownership and responsibility for its operation and maintenance remains with PHED. Under these circumstances, there is little chance of successfully handing the facility over to the community for operation and maintenance.

Human Waste Disposal

The cultural background does not encourage communal latrines, therefore mainly privately owned household latrines are included in the programmes being undertaken by PHED/KFW and other agencies involved in the sector. O&M of the latrine is entirely the responsibility of the owner. Overall monitoring and hygiene education should however be carried out by LGRDD through District Councils and BHUs to motivate the people to make full use of, and hygienically maintain, their latrines.

PHYSIOGRAPHIC REGIONS OF NWFP

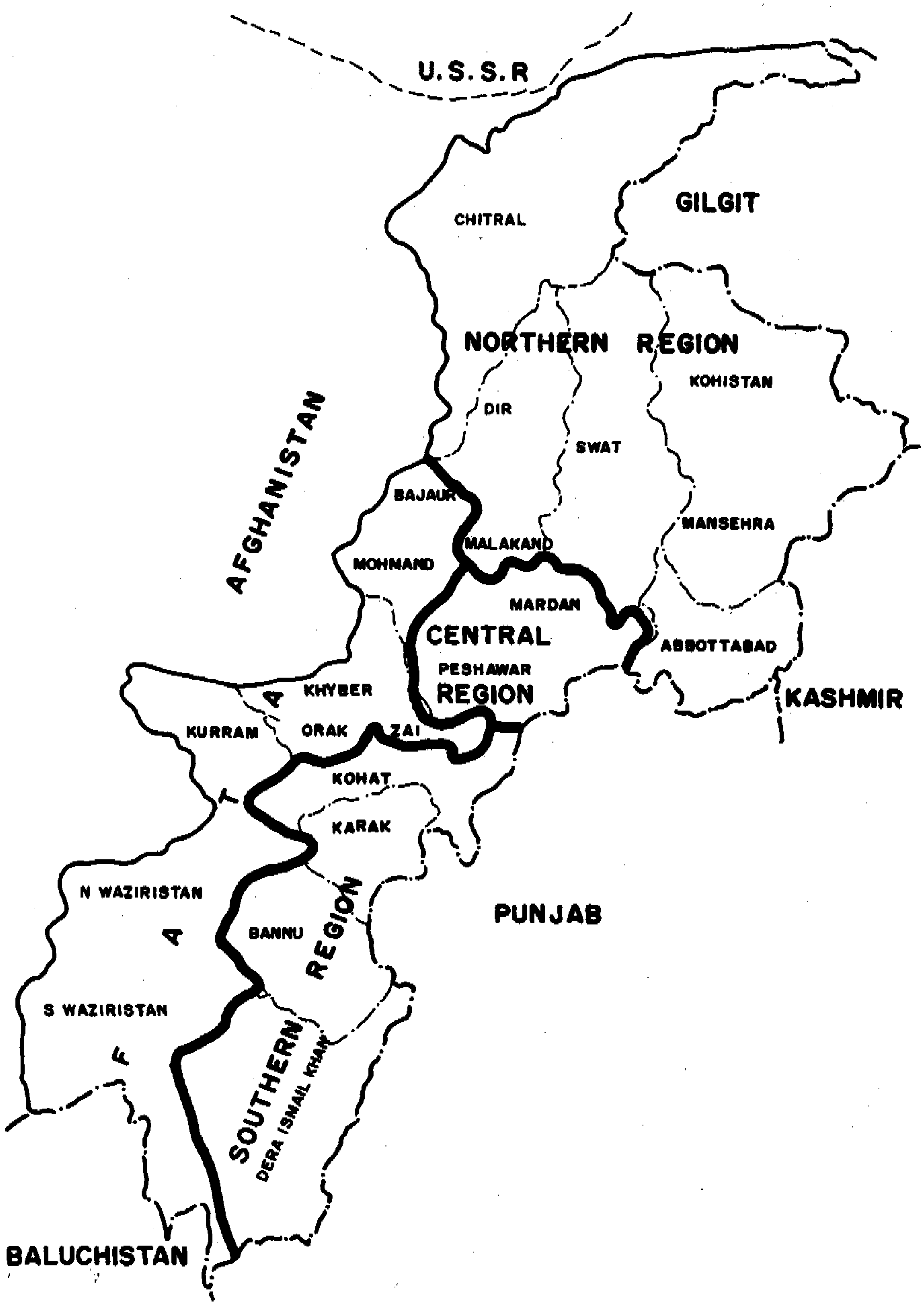


FIG. 3.1

3. POPULATION AND DEMAND

Population figures have been projected from the 1981 census on a District basis through 1998. The methodology used to make the projections and the resulting figures are presented in Appendix 11. Demand has been based on existing government figures and field surveys recently carried out.

Rural communities are defined as those communities which do not have a town or municipal committee. Although communities larger than 5,000 people usually do, and are classified as being urban, it is possible for communities with populations up to 10,000 to be considered rural.

3.1 Population

The province consists of 5 Administrative Divisions, 15 Districts and the Provincially Administered Tribal Areas (PATA). In 1981, there were 13 Districts. Since then, Peshawar and Mardan Districts have been subdivided into two Districts each, resulting in the present 15. NWFP is bounded on the west by the Federally Administered Tribal Areas (FATA) which consist of seven Political Agencies, and 4 Frontier Regions. Figure 3.1 indicates the Districts and Political Agencies.

In 1981, the rural and urban populations for the settled areas was estimated to be 9.4 million and 1.7 million respectively. The entire population of FATA, 2.2 million, was considered to be rural.

By 1988, the rural population was estimated to have grown to 11.2 million in the settled areas and 2.6 million in FATA. In the settled areas, 53 % of the rural population is in the northern physiographic region, 28 % in the central and 19 % in the southern.

The estimated rural population and population density, by District, is presented in Table 3.1.1.

Figure 3.2 gives an indication of the population distribution.

Table 3.1.1: ESTIMATED RURAL POPULATION AND POPULATION DENSITY BY DISTRICT

(Population Figures in Thousands, Area in Sq.Kilometres)

District	Physio-Graphic Region	Admini-strative Division	Area	1981 Population	1981 Population Density	1988 Population	1988 Population Density	1993 Population	1993 Population Density	1998 Population	1998 Population Density
Chitral	North	Malakand	14,850	209	14	255	17	285	19	317	21
Dir	North	Malakand	5,282	767	145	1,011	191	1,181	224	1,365	258
Malakand	North	Malakand	952	258	271	328	345	376	395	427	449
Swat	North	Malakand	8,788	1,145	130	1,443	164	1,643	187	1,857	211
Kohistan	North	Hazara	7,582	465	61	573	76	665	88	772	102
Mansehra	North	Hazara	5,921	1,076	182	1,176	199	1,267	214	1,359	230
Abbotabad	North	Hazara	3,692	970	263	1,149	311	1,297	351	1,464	397
Mardan	Central	Mardan	1,582	715	452	847	535	930	588	1,016	642
Swabi	Central	Mardan	1,463	567	388	683	467	758	518	837	572
Charsadda	Central	Peshawar	996	499	501	579	581	629	632	680	683
Peshawar	Central	Peshawar	3,005	934	311	1,008	335	1,052	350	1,095	364
Kohat	South	Kohat	3,642	387	106	470	129	525	144	581	160
Karak	South	Kohat	3,370	236	70	276	82	301	89	326	97
Bannu	South	D.I. Khan	4,391	649	148	776	177	858	195	943	215
D.I. Khan	South	D.I. Khan	9,005	519	58	648	72	734	82	824	92
Sub-Total			74,521	9,396	126	11,222	151	12,501	168	13,863	186
FATA			27,220	2,200	81	2,592	95	2,897	106	3,146	116

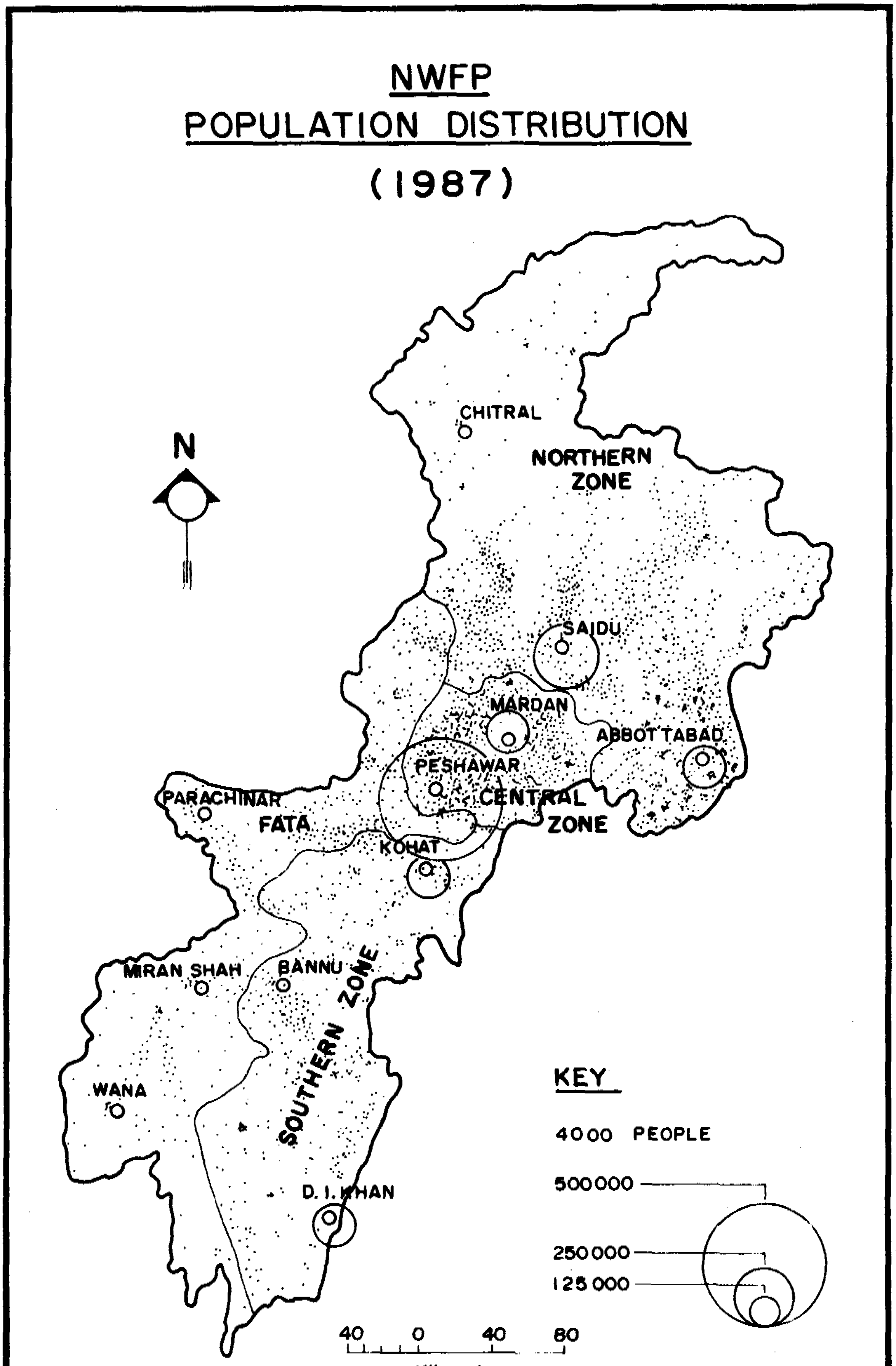

NWFP
POPULATION DISTRIBUTION
(1987)
N
CHITRAL
NORTHERN ZONE
SAIDU
MARDAN
ABBOTTABAD
PESHAWAR
CENTRAL ZONE
PARACHINAR
FATA
KOHAT
MIRAN SHAH
BANNU
SOUTHERN ZONE
WANA
D. I. KHAN
KEY
4000 PEOPLE
500000
250000
125 000
40 0 40 80
Kilometres

FIG. 3.2

Because there can be economies of scale in providing facilities to larger communities, and the resources available for system construction, operation, maintenance and repair vary with community size, the rural communities have been divided into three classifications:

- small, with populations less than 500 people;
- medium, with populations between 500 and 2,000 people; and
- large, with populations larger than 2,000.

Available statistics are not broken down on an individual community basis. The smallest unit presently available is the mauza and it can contain up to 4 or 5 separate communities. Table 3.1.2 shows the number of mauzas and population in each size category in the Province. Because the table is based on mauzas, it does not present the number of water supplies, drainage or human waste disposal systems required. However, it does give some relative indication of the numbers of settlements in each size category.

3.1.1 Social Groupings of NWFP.

The Pathan, or Pukhtun society is generally located in the settled areas and FATA, speaking the Pushto language with different dialects developed in the more remote valleys. There is a rigid tribal social structure within the internal political organization. Within the settled Districts, three non-Pathan cultural sub-groups can be distinguished:

- The Hazara Division - comprising Abbottabad and Mansehra Districts has a separate identity from the tribal and Pushtu-speaking settled areas of NWFP. The language spoken is not Pushto but is more closely related to Punjabi and Hindko and the tribal structure of FATA is not reflected in Hazara;

- Chitral - The languages are Chitral and Urdu. Most people are Muslim but a small proportion are people (Kafirs) from Kafiristan in the northern areas.

- Dera Ismail Khan - A third cultural sub-group is found in D.I.Khan. The principal distinguishing feature is the use of the Sariki language.

In summary, the character of the Pathan society embodies a common culture and language which makes for a common identity. In the rural society this features the following:

- religious influence;
- love of freedom/hospitality and honour;
- poverty;
- purdah system (Socio-cultural segregation of women who may not be seen by men unveiled); and
- illiteracy.

The NWFP settled and FATA societies comprise the following tribes:

.	Mohammad Zai	-	Kundi	-	Jadoon
.	Tanooli	-	Yusafzai	-	Shinwaries
.	Orakzai	-	Bangash	-	Wazir
.	Bajuri	-	Mohmands	-	Afridis
.	Mahsuds	-	Bhihanis	-	Daurs
.	Tarin	-	Zaimukh	-	Khalil
.	Khattak	-	Marwat		

The settled tribes (Bannuchi, Khattaks, Pewindahs) have been merged into the more cosmopolitan population of Peshawar District together with the Peshawaris who are mostly confined to the environs of Peshawar and speak Pushto, Hindko and Urdu. Fig. 3.3 locates the Tribes of NWFP and FATA.

Cultural Aspects

The Pathan traditional and social background is broadly followed throughout NWFP. Pukhtunwali consititutes a complete code of conduct controlling general behaviour and includes a well-developed sense of honour. Pukhtunwali also incorporates a strict adherence to Islamic ways and the concept of 'badal', which calls for revenge for intrusion upon individual honour.

Pathan culture also features the Jirga which is a conciliatory organization (non-formal socio-cultural) designed to arbitrate differences or disputes. Representation is on the basis of age, reliability and equality of distribution among parties. It is tribal in essence and provides a means for liaison between tribes and government.

Table 3.1.2: ESTIMATED RURAL POPULATION & NUMBER OF MAUZAS BY SIZE - 1988

District	Physio-Graphic Region	Admini-strative Division	Population < 500		Population 500-2000		Population > 2000		Total	
			Number of Mauzas	Population	Number of Mauzas	Population	Number of Mauzas	Population	Number of Mauzas	Population
Chitral	North	Malakand	338	81,222	158	154,155	7	19,543	503	254,920
Dir	North	Malakand	1,181	289,463	614	548,144	56	173,792	1,851	1,011,399
Malakand	North	Malakand	1	282	37	50,095	54	278,031	92	328,408
Swat	North	Malakand	676	132,456	592	619,200	158	691,591	1,426	1,443,247
Kohistan	North	Hazara	357	44,472	180	190,557	122	621,285	659	856,314
Mansehra	North	Hazara	72	19,675	205	240,234	210	916,144	487	1,176,053
Abbotabad	North	Hazara	203	53,793	361	392,866	175	702,185	739	1,148,844
Mardan	Central	Mardan	7	1,553	43	53,590	116	791,382	166	846,525
Swabi	Central	Mardan	21	5,305	49	53,401	81	624,478	151	683,184
Charsadda	Central	Peshawar	28	7,340	57	61,784	114	509,802	199	578,926
Peshawar	Central	Peshawar	76	18,294	147	171,430	170	818,020	393	1,007,744
Kohat	South	Kohat	29	6,494	80	90,928	79	372,839	188	470,261
Karak	South	Kohat	35	9,719	43	48,774	41	217,261	119	275,754
Bannu	South	D.I. Khan	75	18,678	185	196,856	121	560,761	381	776,295
D.I. Khan	South	D.I. Khan	186	33,112	181	189,494	97	425,297	464	647,903
Sub-Total			3,285	721,858	2,932	3,061,508	1,601	7,722,411	7,818	11,505,777
FATA			474	138,999	612	758,731	359	1,694,324	1,445	2,592,054

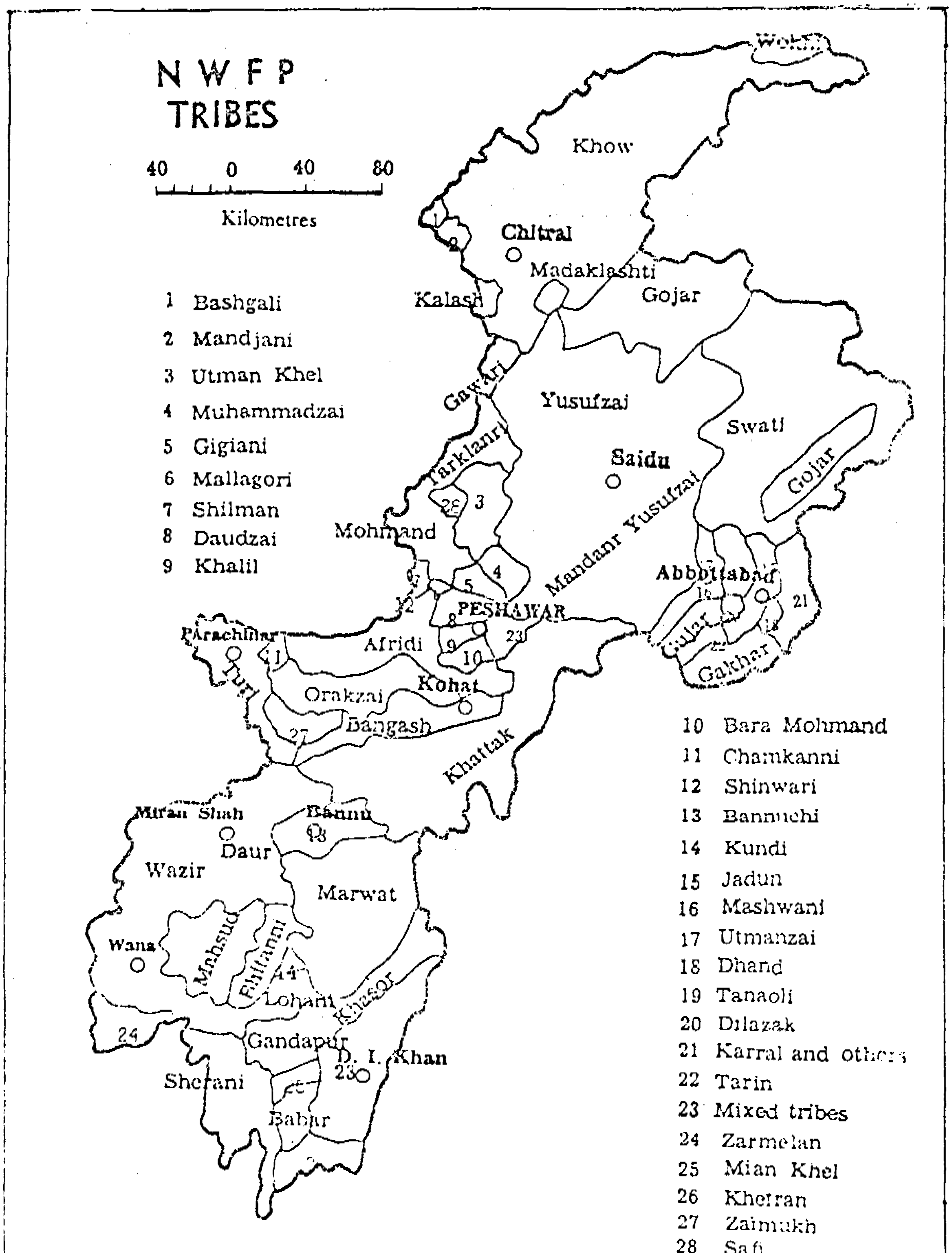

N W F P
TRIBES
40 0 40 80
Kilometres
1 Bashgali
2 Mandjani
3 Utman Khel
4 Muhammadzai
5 Gigiani
6 Mallagori
7 Shilman
8 Daudzai
9 Khalil
10 Bara Mohmand
11 Chamkanni
12 Shinwari
13 Bannuchi
14 Kundi
15 Jadun
16 Mashwani
17 Utmanzai
18 Dhand
19 Tanaoli
20 Dilazak
21 Karral and others
22 Tarin
23 Mixed tribes
24 Zarmelan
25 Mian Khel
26 Khetran
27 Zaimukh
28 Safi
Khow
Chitral
Madaklashti
Gojar
Kalash
Gawari
Yusufzai
Swati
Tarklanri
Saidu
Gojar
Mohmand
Mandanr Yusufzai
Abbottabad
PESHAWAR
Parachinar
Afridi
Turi
Kohat
Orakzai
Bangash
Gujar
Gakhar
Khattak
Miran Shah
Bannu
Daur
Wazir
Marwat
Wana
Mahsud
Bhittanni
Lohani
Khasor
Gandapur
D. I. Khan
Sherani
Babar

FIG. [illegible]

3.1.2 Migration

NWFP has the highest rate of rural out-migration among the provinces. The bulk of it is either to other parts of Pakistan or to the Middle East. According to the 1981 population census, there were 781,000 migrants (8.3 percent of rural population) from the rural areas of NWFP living elsewhere in Pakistan, as shown in Table 3.1.2.1. The bulk of this migration is by unskilled or semi-skilled male workers to the large cities like Karachi, Lahore and Islamabad. It is estimated that almost 53 percent of these migrants are living in the urban areas of Sind and about 19 percent, of males among cities of Punjab. Table 3.1.2.1 also reveals the high share, 69 percent, of males among migrants. The common pattern seems to be for males to migrate for work, leaving families at the orginal residence. These families are supported by regular home remittances.

Table 3.1.2.1: NUMBER AND DESTINATION WITHIN PAKISTAN OF MIGRANTS FROM RURAL AREAS OF NWFP.

Destination	Number (000)	Share of Migrants (%)	Males as % of Migrants
PUNJAB	217	27.8	65.0
Urban	147	18.8	66.0
Rural	70	9.0	63.1
SIND	442	52.6	70.4
Urban	411	52.6	70.0
Rural	31	4.0	75.3
BALUCHISTAN	34	4.4	85.2
Urban	24	3.1	85.4
Rural	10	1.3	84.4
NWFP	88	11.3	67.5
Urban	88	11.3	67.5
PAKISTAN	781	100.3	69.3
Urban	670	85.8	69.4
Rural	111	14.2	68.9

Source: Population Census, 1981.

The rate of international migration is also exceptionally high. At the time of the 1981 census it is estimated that over 555,000 persons (mostly adult males) had gone abroad from the rural areas of the province. This is equivalent to almost 10 percent of the adult male population. Table 3.1.2.2 demonstrates that the highest rate of international migration is from Peshawar Division, with a share of about 75 percent. Almost 18 percent of the adult male population from this area is estimated to have been abroad (mostly in the Middle East) in 1981. Since then the number may have declined as a consequence of return migration.

Table 3.1.2.2 NUMBER OF PERSONS GONE ABROAD FROM RURAL AREAS OF NWFP 1971 - 1981

Division	Number Gone Abroad (000)	Male Rural Population (000)	Rate of International Migration (%)
D.I.Khan	6.2	707.9	0.9
Hazara	98.3	1426.5	6.9
Malakand	35.4	1271.2	2.8
Peshawar	415.7	2335.8	17.6
Total	555.6	5761.5	9.6

The implications of the high rates of out-migration from the rural areas for the rural water supply and sanitation sector are:

- high income levels due to remittances leading to greater ability-to-pay for services;
- greater demand for services, especially human waste disposal, due to exposure to an urban culture;
- active private sector due to the high ability and willingness-to-pay for services;
- high skill levels in the private sector due to the presence of return migrants trained abroad; and
- high participation of women in decision-making due to the absence of the head of household.

3.2 Effective Demand for Services

3.2.1 Water Supply, Sanitation and Drainage

Northern Region

The population density in the region is medium to low with a majority of small and medium sized settlements. In some northern areas, such as Kohistan, it is scattered and partly nomadic.

Water quality of both surface and ground sources in general is classified as sweet and potable. In some locations, streams such as the Panj Kora in Dir and the Indus in Kohistan Districts are quite turbid and the water needs treatment before use. Availability of water at convenient distances is an issue in many locations, and, especially in the hilly areas, although water may be available nearby, the effort required to collect it is significant. Perennial springs and streams are the main source, although in some of the valleys, such as Dir and Swat, ground water is also available. Hence, the demand is often for available water to be made more accessible, and its use more convenient.

Human waste disposal is generally in fields or in areas cordoned off within the compound and there is little felt need for latrines.

Since much of the area is hilly with good natural drainage, and communities tend to be small or medium size, there is little expressed demand for improvements.

Central Region

The population density in the region is the highest of the three zones with a majority of medium and large size settlements.

The region is characterised by plains irrigated by canal systems fed from the Kabul and Swat rivers. The main domestic water source is ground water found at convenient depths of 20 to 60 feet. Surface water is available from the canals and rivers, but it requires treatment.

Because of the shallow ground water, and an active private sector, water supply coverage is quite high in the region. Demands are for access in those settlements not covered and for dependable supplies.

Human waste disposal is a more significant problem than in the other two zones, especially in the larger communities where privacy is less readily available.

Drainage is also more of a concern because of the high water table, extensive irrigation and lack of natural run-off channels.

Southern Region

The population density is low and clustered.

The region is mainly plain or hilly, arid desert terrain. Water is scarce. Ground water is available from deep aquifers, in some areas over 400 feet deep. It is generally sweet, but in some local pockets in Karak, Bannu and D.I. Khan is brackish. There are few perennial streams.

Demand for water supply is high. Although coverage in Karak is high, in the other Districts it is not, and in the absence of readily available alternate sources, there is great need.

Demand for human waste disposal is low and drainage is not a problem except in some parts of Bannu and Kohat where piped supplies with house connections are provided.

3.2.2 Hygiene Education

It is impossible to estimate District coverage of hygiene promotion to date. While some health officers acknowledge the need for hygiene education, only some components are now included in the health education mandate, in particular, those falling within the domain of the Control of Diarrhoeal Disease (CDD) programme. In addition, some aspects of hygiene have been included in other programmes and activities, including schools, the EPI and various rural development projects.

While the need for better hygiene is great, the demand for it from the rural population is nil or minimal. The connections between hygiene and health are not understood and poor hygiene is a large contributor to the high infant mortality rate and heavy burden of illness. Demand can only be created by raising the consciousness of women and others about the health implications of their hygiene and about the fact that, with adequate water supplies, it is within their power to bring illness under some control.

3.3 Population to be Served

3.3.1 Water Supply

As outlined in section 2.4.1, water supplies have been provided mainly by PHED. Some additional coverage has been provided by LGRDD, special projects and the private sector.

It is difficult to determine coverage levels accurately. Only PHED has statistics on systems it has constructed. And its statistics are based on the population figures of the communities in the year the system was built.

In order to gain an appreciation of the overall coverage levels, a field survey was carried out in all Districts and people were considered to be served if they had access to at least 3 gallons of water /capita/day from a protected source within 1,000 feet of their home in the plains and within 500 feet in the hills. The methodology used is described in Appendix 10. The resultant coverage estimates are presented in Table 3.3.1.1.

3.3.2 Human Waste Disposal

Until recently, there was no government programme to construct latrines in the rural areas. Those which have been built, by and large, have been built by the private sector and there are no statistics available.

Existing coverage is not known. In the Sector Study published in 1988, it was estimated as being 31 %. Subsequent field work has not borne this out. A survey of village conditions, as reported by Union Councils, suggests it is of the order of 3 %. Anecdotal evidence from the staff of various line departments suggests this is a more realistic figure and in the absence of other data, this figure is accepted.

Table 3.3.1.1 ESTIMATED WATER SUPPLY COVERAGE

District	Physio. Region	Estimated Rural Population	PHED Reported Covered Population %	Number	Estimated PHED Covered Population %	Number	Estimated Project Covered Population %	Number	Estimated LGRDD Covered Population %	Number	Est. Private Sector Covered Population %	Number	Estimated Total Population Covered %	Number	Estimated Population Not Covered %	Number
Abbottabad	North	1,148,845	60	689,307	58	666,330	0	0	1	8,156	0	0	59	674,486	41	474,359
Swat	North	1,443,247	33	476,272	32	461,839	0	0	1	8,226	0	0	33	470,065	67	973,182
Dir	North	1,011,398	23	232,622	21	212,394	0	0	0	2,234	0	0	21	214,628	79	796,770
Mansehra	North	1,176,052	34	399,858	41	482,181	36	423,379	0	4,527	0	0	77	910,087	23	265,965
Kohistan	North	572,183	20	114,437	24	137,324	0	0	1	7,798	0	0	25	145,122	75	427,061
Chitral	North	254,921	34	86,673	48	122,362	11	28,041	0	554	0	0	59	150,957	41	103,964
Malakand	North	328,408	63	206,897	74	243,022	0	0	2	8,186	0	0	76	251,208	24	77,200
Mardan	Central	1,529,710	59	902,529	74	1,131,985	1	15,297	0	3,116	7	107,080	82	1,257,478	18	272,232
Swabi	Central															
Peshawar	Central	1,586,672	63	999,603	73	1,158,271	0	0	2	24,484	7	111,067	82	1,293,822	18	292,850
Charsadda	Central															
Kohat	South	470,266	66	310,376	37	173,998	0	0	1	2,458	6	28,216	44	204,672	56	265,594
Karak	South	275,754	72	198,543	83	228,876	0	0	0	777	6	16,545	89	246,198	11	29,556
Bannu	South	776,295	64	496,829	41	318,281	3	23,289	1	3,893	6	46,578	51	392,041	49	384,255
D.I. Khan	South	647,904	64	414,659	48	310,994	5	32,395	0	2,065	6	38,874	59	384,328	41	263,576
Total		11,221,655	49	5,528,603	50	5,647,857	5	522,401	1	76,474	3	348,360	59	6,595,092	41	4,626,563

3.3.3 Drainage

As with disposal of human waste, so with drainage there are no coverage statistics available.

PHED has constructed drains in a few communities through its Sanitation Division. LGRDD has constructed drains throughout the province, but there is no data on how many. The Union Council survey of communities suggests drains have been constructed in 44 % of large, 35 % of medium and 21 % of small communities, but there it is known these are usually of short lengths and useful life. The general consensus is that coverage is very low, and in the absence of other data, the generally held coverage of 1 % of the population is accepted.

3.4 Proposed Service Levels

3.4.1 Water Supply

Service levels are defined on the basis of quantity, quality, accessability as measured by distance to the outlet and availability as measured by the number of hours per day the water is supplied.

For the rural areas, the following service levels are proposed:

- quantity
  - for point sources such as stand posts or communal tanks, 5 gallons/capita/day;
  - for house connections, 10 gallons/capita/day;
- quality
  - covered ground water or protected spring or filtered surface water;
- distance
  - in the plains, outlets should be within 500 feet of each house;
  - in the hills, outlets should be within 300 feet;
- delivery
  - over a period of at least 3 - 4 hours per day.

These service levels are intended to be used as guidelines. In some areas, it will be possible to construct water outlets at much shorter distances. Conversely, in areas of scarce water, the quantities suggested may not be available and lower levels will be provided.

It is possible to construct several different types of systems which could provide these levels of service. One of the basic tenets of the investment strategy (outlined in section 4.3) is that the Government should provide the least expensive option which is possible as a basic level of service with enhancements being provided by the recipients at their cost. The basic technology choice is dependant on the available water resource. Based on this, the various basis levels of service are outlined in Table 3.4.1.1.

Table 3.4.1.1: BASIC LEVEL OF SERVICE WATER SUPPLY SYSTEMS

Water Resource	Basic Level of Service System
Ground water within 100 feet of the surface	1 hand pump on dug well per 300 people; or 1 hand pump on a borehole per 300 people; or 1 electric pump on a dug well, 500-1000 gallon storage reservoir, distribution system and 1 stand post per 200 people;
Ground water more than 100 ft.	1 electric pump on a borehole, 1,000-2,500 gallon storage reservoir, distribution system and 1 stand post per 200 people;
Spring	Protected source, intake, collection tank, transmission main, 2,500-5,000 gallon storage reservoir, distribution system and 1 stand post per 200 people;
Clear Surface Water	Sedimentation tank, pump to 2,500-5,000 gallon storage reservoir, distribution system and 1 stand post per 200 people; and
Turbid Surface Water	2 sedimentation tanks, slow sand filter, 2,500-5,000 gallon storage reservior, distribution system and 1 stand post per 200 people.

Optional enhancements which could be constructed at the beneficiaries' cost include upgrading to a higher level of service (electric pump vs. hand pump) and distribution systems with house connections.

3.4.2 Drainage

The recommended level of service for drainage is the prevention of the accumulation of sullage.

In individual houses, sullage should be drained to soakage pits.

In communities, brick lined drains should discharge to a nullah or natural stream. No treatment is required where stream dilution is considered adequate for discharge from small villages.

The Government should finance the construction of community primary and secondary drains and should promote the construction of in-house soak pits by home owners through an educational programme.

3.4.3 Disposal of Human Waste

The basic level of service is a system which removes excreta from human contact. In rural areas, this is a latrine.

Latrines should be constructed by home owners with the Government promoting their construction and use through a motivational programme and some subsidy as outlined in section 4.5.

The type of latrine which should be used in any community is dependant upon the water table, the source of community water, and the type of water supply scheme constructed. Criteria for selection of technology are presented in section 4.5.4.

3.4.4 Hygiene Education

The basic level of service to be provided should be the widespread dissemination of the information necessary to allow beneficiaries to maximise the potential health benefits provided through the improved service. In all communities with a basic level of water availability adequate to practice good hygiene, the following basic information delivery mechanisms are proposed:

- during the formation of the VDO and the planning of the new water supply system with the community, LGRDD staff will explain the health rationale for improvements in potable water quality and quantity to the residents and initiate discussions on the selection of volunteer hygiene promoters who will be trained and asked to conduct training sessions after the water system is complete. Support will be limited to whatever Department of Health outreach is available to the village;

- first level - all women having access to hygiene information and education being provided at the local health centre by staff trained in the messages and their effective dissemination supported by effective teaching aids;

- second level- women's groups receiving discussions on health and hygiene from a trained female village worker in existing community centres and community organisations receiving similar discussions from trained male workers using effective teaching techniques and aids;

- third level - group meetings utilising multi media distance learning packages developed by the Allama Iqbal Open University on community and household health and hygiene with particular emphasis on the sector. Groups will be supported by a village level worker or volunteer trained to animate such a learning method. Children receive regular hygiene education in school from a trained teacher; and

- fourth level- women receiving home visits from trained female village-level workers (TBAs, LHVs, sanitation promoters, primary school teachers, NGO staff, volunteers) to discuss existing home health and better hygiene practices.

The difficulty of travelling to many small communities requires the hygiene education activity to utilise the opportunities of the organization process of the VDO. For many small and remote communities, only this basic level will be available.

The effectiveness of the second level will be constrained by the low utilization rates of many BHUs, but it is a verifiable outcome of the training of Department of Health staff and contributes towards strengthening the rural health infrastructure.

Level three is a first stage of outreach which utilizes existing groups or institutions in the community. Similar activities are already carried out by some DoH staff. This introduces the possibility of using a more sophisticated multi-media technology which could utilise an integrated package of video, audio cassette, visuals and discussion.

The fourth level of home visits aims to reach those women who do not belong to any women's groups and to provide reinforcement to those women reached in earlier levels. Home visits already occur from FHTs and LHVs and these could be strengthened. Coverage by home visits can be expected to slowly increase with the increase in female staff within the DoH, but coverage on the scale and within the time requires by the magnitude of the problem will only be achieved by the use of other cadres such as TBAs and female primary school teachers.

Levels two to four will only be organised and supported in the larger communities with a school or within reasonable reach of a BHU.

The level of service attainable in each community will depend on the human resource available.

Messages will include hand washing, disposal of faeces (particularly those of children), diarrhoea, garbage disposal and messages in support of water supply improvements, latrines and drainage. These messages will be based on experience already gained in the province and suggestions from WHO and UNICEF (Facts for Life), adapted to the problems, present knowledge and experience, practices and possibilities of the province.

4. INVESTMENT STRATEGY

4.1 Objectives

The goal of the investment plan is to maximize the impact of the investment being made in the sector on the improved health and quality of life of the rural population in the province through increased coverage of water supply, human waste disposal and sanitary drainage facilities which are sustainable and affordable and which are integrated with a hygiene education programme.

Specific objectives include:

- increasing water supply coverage to 70 % by 1993, and to 80 % by 1998. The basis for establishing all targets is outlined in chapter 5;
- increasing drainage coverage to 4 % by 1993, and to 9 % by 1998;
- increasing human waste disposal coverage to 10 % by 1993, and to 20 % by 1998;
- introduction of a new methodology, involving beneficiaries on a more substantive basis than at present;
- reduction in recurrent costs of system operation and maintenance to the government by increasing the participation of system beneficiaries;
- improvement in the sustainability of water supply systems;
- raising the awareness of rural residents of the importance of clean water and the proper disposal of human waste to health;
- definition of departmental and beneficiary roles and responsibilities in providing services in a coordinated manner; and
- definition of a methodology for institutional coordination at the Provincial and District levels.

The strategy is presented in detail in sections 4.3 - 4.8.

4.2 Current Sector Constraints

4.2.1 Institutional Constraints

Planning and Development

The workload of the department has increased dramatically over the past few years as the number of development projects and foreign assistance has increased with the department being named as the implementing agency for integrated area development and poppy substitution projects. Staff strengths were not increased and the department was forced to concentrate more and more on day to day operational tasks with the result that long term planning and project monitoring and evaluation have suffered. Provincial level coordination of line departments has not been as effective as may be desired.

A large proportion of the department's staff have been seconded from other line departments. Although secondment has been necessary, it is not as desirable as having permanent staff who see their career path within the department.

The Department has discussed the possibility of assistance with the Netherlands and a potential project has been identified which will support the department as a whole. But the Transport and Communications Section, which is responsible for this sector, will be treated with the same priority as the other six sections, and although relief is to be expected, additional assistance to the Section would permit it to deal with sector issues more successfully.

Public Health Engineering Department

The growing problem of operating and maintaining water supply systems is limiting the department's ability to carry out its development mandate. For the present fiscal year, the operation and maintenance portion of the department's recurring budget is almost 64 % of the ADP allocation for the sector. If present trends continue, the operation and maintenance budget will equal the ADP allocation in three years.