

PN-ABU-634

94270

**SOCIO-ECONOMIC PROFILE OF
NORTH WAZIRISTAN AGENCY**



**PREPARED FOR THE PLANNING
AND DEVELOPMENT
DEPARTMENT OF NWFP BY:**

**U.S. AGENCY FOR
INTERNATIONAL DEVELOPMENT
OCTOBER 1990**

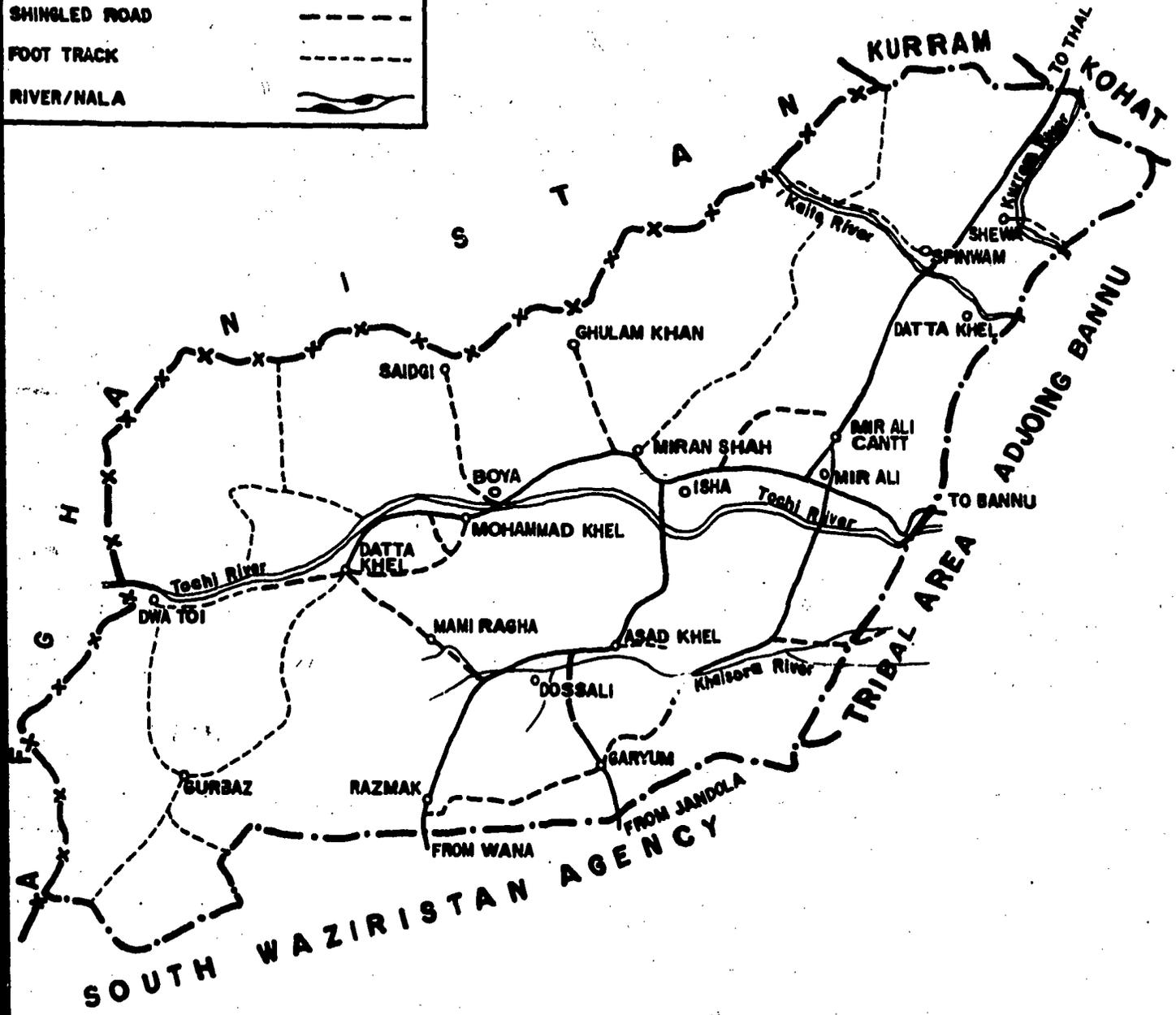
**PROPERTY OF
CHRISTINE M. SHECKLER
RDD, USAID/ISLAMABAD**

NORTH WAZIRISTAN AGENCY



REFERENCES

INTERNATIONAL BOUNDARY	—x—x—
AGENCY BOUNDARY	- - - - -
PAVED ROAD	—————
SHINGLED ROAD	- - - - -
FOOT TRACK	- - - - -
RIVER/NALA	~~~~~



SCALE, 1:600,000



BEST AVAILABLE DOCUMENT

EXECUTIVE SUMMARY

Geography

Among the seven tribal agencies, North Waziristan ranks second in size after South Waziristan. It is bounded on the north by Kurram Agency and Kohat; on the east, by Kohat and Bannu; on the south by South Waziristan; and on the west, by Afghanistan. It is a very hilly area with limited arable land and surface water resources. There are no regular mountain alignments, and hills appear to zig-zag in every direction. The main river and most fertile river valley is the Tochi. Other rivers are the Khaisora, Kaitu and Kurram. These rivers run on a horizontal axis.

There has been no reliable reporting of rainfall and temperature data since the early 1970s. Miranshah appears to receive around 10-13" of rainfall annually. Rainfall decreases as one moves south through the Agency. The Agency has cold winters (with snowfall in places) and mild to hot summers. Agency territory is classes as arid in parts and sub-arid in other parts.

Administration & Economy

There are three administrative sub-divisions: Miranshah, Mir Ali, and Razmak. Each sub-division consists of three tehsils. An Assistant Political Agent is in charge of each sub-division. The Daur tribe, which lives in the Tochi river valley, sought British protection from their Wazir neighbors at the end of the Nineteenth Century. Daur lands were assessed in 1903, and a land tax has been paid ever since. The Daur area has long been administered. Much of Datta Khel Tehsil is totally inaccessible while the Tori Khel area is not under administration control but development schemes are still carried out there. Law and order remains the top priority and all development schemes are carried out through Political Agent. North Waziristan remains one of the most unsettled and volatile of the tribal agencies.

There are no general indicators that yield information concerning income, employment, migration, or the degree of illicit activity (smuggling). Agriculture and remittances are probably the economic mainstays. Pressure on scarce land resources has led to considerable migration to settled area of Pakistan and the Gulf. Opportunities for overseas employment, however, are far more limited now than they were in the 1970s. Remittances have in general not been invested in productive activities, except perhaps for the purchase of trucks or tractors. Land prices in Miranshah and Mir Ali are very high. The principal bazaars are Miranshah, Mir Ali and Razmak. Three industrial units established by FATA DC in mid 1970s are closed. There are two training cum production centers in Miranshah for sheet metal working and weaving.

Population

In 1981 the population numbered almost 239,000. N. Waziristan ranked sixth in terms of population. Density was also one of the lowest in FATA, with about 51 persons per sq. km. Given the rugged nature of the terrain, however, this is not a very useful figure. The population tends to be clustered in those limited areas where there is arable land. Miranshah tehsil is the most densely populated of Agency tehsils.

The population growth rate is not known. If we somewhat arbitrarily use an average annual growth rate of 3.1%, then density now would be around 65 persons per sq. km. Around 45% of the population was aged fourteen and under in 1981 - a very high dependency ratio.

The literacy rate was low in 1981 - only 7.4% of those aged ten and older were literate. The male rate alone was around 13%. Mir Ali and Miranshah tehsils had the highest male literacy ratios - over 20% in each case. Garyum tehsil had the lowest literacy, followed by Datta Khel and Spinwam tehsils. The largest tribal group is that of the Utmanzai Wazirs, who are then divided into four major sub-tribes. The Tochi river valley is inhabited by Daur tribesmen, traditional rivals of the Utmanzai, particularly since the Daur occupy the best agricultural land. The Political Agent estimates that there are no more than 80,000 Daur.

Refugees

After Kurram Agency, North Waziristan is the Agency with the largest number of refugees. As of November 1989, there were over 184,000 refugees in the Agency, and roughly 48 per cent of them lived within a ten - fifteen km. radius of Miranshah town. There are 24 camps. Drinking water is a serious problem in many of the camps. Agency refugees have fared less well than refugees in other parts of Pakistan, and about half still live in tents. The lack of security in the Agency has meant that there has been little private NGO interest in assisting these refugees, and Commissionerate resources are thin. While the monthly wheat ration has remained constant, kerosene and edible oil rations have become erratic.

In summer, the refugee population increases dramatically when around 150,000 refugees migrate from the Punjab, with their animals, to escape the heat. This puts further pressure on Agency grazing land and water resources.

Land Use and Agriculture

The only area for which land records exist is the Tochi valley. At the time of the 1903 settlement, the only one ever carried out, 15,262 acres of cultivated area were measured in the valley, and the surveyors commented that pressure on the land was already very great and that there was little room for expansion. Improvements in irrigation systems in the last 20 years would have permitted some new land to come into production but land may also have been lost to erosion.

Land use estimates have been made annually since the 1970s, but it would be unwise to place much faith in them. The estimates show too much variation from one year to the next not to raise doubts. Statistics for the past few years show cultivated area as ranging from 29,771 acres to 39,536 acres, with the cropped area ranging from 41,251 acres to 43,020 acres. Accuracy with respect to land use is impossible without resorting to a cadastral survey, carefully time aerial surveys or landsat imagery. Whatever the cultivated area is, it is very small relative to total Agency area.

The majority of farms are small and fragmented. In 1980, 73% of the holdings were under 2.5 acres in size. The average number of parcels of land per farm was 3.6 parcels, and for those farms under one acre in size, it was three parcels. Because pressure on available farm land continues to grow, and farms are not especially productive, powerful incentives for out-migration and the conduct of illicit activities such as smuggling exist.

In 1981, N. Waziristan had less of a crop mix and placed more emphasis on growing subsistence grains than Kurram or South Waziristan. Wheat and maize together accounted for about 86% of North Waziristan's cropped area. This suggests that N. Waziristan farmers have been less quick to exploit opportunities offered by vegetable and fruit crops than their counterparts in S. Waziristan or Kurram. Wheat is the dominant crop, followed by maize. Minor crops include potatoes, tomatoes, onion, fodder, rice, sugar cane, and fruit (including dates). There appears to be more interest in vegetables rather than fruit. Hashish is reportedly becoming a popular crop in the Razmak area. Yields generally are low.

There appear to be considerably fewer tractors in use in North Waziristan than in S. Waziristan or Kurram. Threshers are not common. Improved varieties of certified seed (grain and vegetable) are not readily available. The closest point for grain seed is Bannu, but access is still difficult since there is a shortage for the province as a whole. The Agriculture Department sells a limited quantity of grain seed and also of fertilizer. Fertilizer is available for sale in Agency bazaars

as well, but its use is limited by cost and lack of knowledge. Agro-chemicals are used to a lesser extent than fertilizer. There are no institutional sources of credit.

The Agriculture Department has a staffing pattern that gives better coverage in North Waziristan than in South Waziristan, but this does not mean that coverage is good. The program for plant protection is woefully inadequate, and those Field Assistants assigned to extension work have no means of transportation. There are six fruit nurseries, and the department cares for about 100 demonstration plots per annum, most of which demonstrate improved varieties of wheat and corn. As long as access to seed remains difficult, demonstration plots of grains can be expected to have only a small impact. No attention is given currently to increasing vegetable production - this should be an area of activity given the profits that can be made, and also because planting techniques and farm management are poor.

Irrigation, Flood Protection and Potable Water.

Improvement and development of surface and ground water irrigation schemes are undertaken by FATA Development Corporation. There has been significant investment in improving Agency irrigation facilities, but no comparable investment in agriculture per se in order to maximize the investment in irrigation. Improvements to surface schemes or construction of new surface irrigation systems seem to have been undertaken at approximately 61 sites, mostly on left and right banks of the Tochi river. One of the schemes is being funded by USAID. Improvements cost on average Rs.1.6 million per scheme.

Seventy nine testwells have been drilled. Nineteen of these have been abandoned, while the rest have been converted into functioning tubewells or are awaiting conversion. Evaluation of operational tubewells appears to be needed. There is some evidence that they pump water for relatively few hours per day and therefore irrigate less land than anticipated. While this preserves groundwater, this is an expensive program, and sufficient numbers of people and acres should benefit in order to justify both the considerable investment cost and the high operating costs, which are borne by the government.

Small dams are a new area of interest. FATA DC has surveyed many sites in the Agency, and feasibility reports of the ten of these have been prepared.

There is relatively little activity with respect to flood protection. The Local Government and Rural Development Department seems to carry the major responsibility for the construction of small scale bunds, but its efforts are erratic,

perhaps because its funding is erratic. In 1985-86, 112 bunds were completed by LG & RDD but after this numbers declined to 13 in 1988-89. There is no replacement program for bunds that have come to the end of their useful life.

Animal Husbandry

The animal population recorded at the time of the 1980 Agriculture Census was higher for most kinds of animals (except for goats) in North Waziristan than in neighboring South Waziristan, despite South Waziristan's much larger area. This suggests higher animal density in North Waziristan, with more untoward consequences for the Agency's grazing land. There are also large numbers of refugee animals, particularly in summer.

North Waziristan appears to be better served with animal health facilities than South Waziristan. There are four hospitals, only three of which have DVMS. There are also 23 dispensaries and 3 A.I. Centers. Refugees make use of these facilities. Local usage of these facilities also appears to be good. The department places most emphasis on curative and to some extent preventive care, but little on improved animal production. The artificial insemination program, which is small, is the principal component of the program to improve production.

Forestry

As in most of FATA, deforestation and consequent soil erosion are serious problems. The refugees have hastened the process. The Forestry Department began activities in the late 1970s. Since then it has planted about 2,400 acres of block plantations and about 38 miles of road side plantings. It also runs four nurseries which sell seedlings at subsidized rates.

Communications

One enters the Agency via paved roads from Thall to the north or Bannu to the east. The road from Bannu is safer and shorter. From South Waziristan, one can enter the Agency from Makin and Razmak, again over dangerous roads. From the Afghan border, one enters the Agency via Saidgi or Ghulam Khan. There is much traffic of persons and goods over these two roads. The road from Ghulam Khan to Miranshah is paved, while the one from Saidgi to Miranshah is in the process of being paved. There are no roads in the southwestern or northwestern parts of the Agency.

The closest air link is at Bannu, which is a 45 minute drive from Miranshah.

Education

With respect to primary education, the female participation rate was under 1% in 1981, while the male participation rate appears to have been around 65%, according to both Census and enrollment data. This male participation rate is extraordinarily high and is well above that of Kurram for the same period. Accordingly, either the census count or the enrollment data may be in error. Considerable investment has been made in increasing educational opportunities by opening new schools since that time. Enrollments have increased. Male enrollments, for example, have increased by 26% since 1981, but much of that increase has probably been consumed by population growth - in other words, new opportunities have kept pace with population growth but perhaps no more than that. Female participation remains under 1% of eligible girls, although enrollments have increased. Access to girls' education may be best in Miranshah and Mir Ali. Garyum, Spinwam and Ghulam Khan tehsils have no girls' schools.

Around 23% of males aged 10 - 14 attended middle school in 1981. Enrollments have increased by 19% in that time, not even keeping pace with population growth. There are no girls' schools, although the girls' high school at Miranshah has a middle section.

In 1981, 15-16% of age-relevant boys attended secondary school. Enrollment in secondary school has increased by 25% since then. There are nine secondary schools for boys. There are very few females who attend the girls' secondary school at Miranshah.

Attrition is a serious problem as one moves through primary, middle and secondary school. For example, only 19.5% of the male students who started first class in 1986-87 were still in fourth class in 1989-90. There is particularly a sharp drop from first to second class enrollments.

Health

While a network of 48 facilities of different kinds exists, it is difficult to speak of a functioning referral system being in place. Almost all referrals from lower level facilities are to the hospital at Miranshah or to hospitals and physicians outside the Agency. The Miranshah hospital is the only one of the eight hospitals in the Agency to admit in-patients, and it also carries the heaviest out-patient load. It is not particularly well equipped, although 24 of the 28 physicians assigned to the Agency are posted at the hospital. Bed utilization at the hospital is fairly low. Most BHUs and one of the hospitals lack physicians and are staffed by medical technicians. The only two health facilities in the Agency with LHVs are at Miranshah. Thus the

BHUs cannot function at the level at which they were designed to function.

There are no female physicians working at any Agency facility. There is only one MCH Center at Miranshah, and many facilities lack trained Da'is. The difficulty of recruiting female practitioners adversely affects the quality of care for women in the Agency.

There is a general trend toward increasing out-door patient loads at Agency facilities. Where case loads are very low or show a decrease from one year to the next, this is likely to indicate a serious problem with staff absenteeism.

It is very difficult for the Agency Surgeon's office to supervise the far flung network of 25 dispensaries. Some dispensaries see far more patients than many of the BHUs - others see less than 1000 patients annually. Several dispensaries treat far fewer females than males.

There are only seven fixed EPI centers. While outreach teams also work from these fixed centers, their "reach" is limited given that their only transport is bicycles. There is one mobile team working from Miranshah.

Electrification

WAPDA has provided almost 8,000 legal connections, while another 11,000 illegal connections exist. Thus, WAPDA cannot bill for much of the electricity it provides to the Agency, and it appears to have no way of cutting illegal connections. An additional problem is that about 95% of the holders of legal connections do not pay their bills. Again, WAPDA has no recourse.

Most of Datta Khel tehsil has not been included in the electricity grid. This is mostly inaccessible territory. The southern part of Mir Ali tehsil has also not received electricity. The grid has been extended to other parts of the Agency but this does not mean that all villages have been electrified.

Investment

There was a steady increase in allocations from 1971-72 till 1986-87, when investment peaked at Rs. 111 million annually. The allocation fell to Rs. 70 million in 1988-89. Infrastructure development and especially road construction has been a continuing priority and receives almost 30 percent of total annual investment. Electrification was a higher priority in

1974-75 when major capital investments were needed to begin electrification of the Agency. Development of irrigation systems gradually gained priority, with investment growing from one percent of total investment in 1974-75 to 24 percent in 1986-87. Education received RS. 11 million in 1988-89 as compared to only Rs. 2 million in 1974-75. Investment in health has increased from over time but is still under 10 percent of total annual investment in the Agency. However, total health investment including investment in potable water accounts for 13 percent of the 1988-89 total allocation. Investment in agriculture is negligible.

TABLE OF CONTENTS

Executive Summary

Preface

Introduction to the Maps

I.	Geography.....	1
II.	Administration and Economy.....	5
III.	Population.....	10
IV.	Refugees.....	14
V.	Land Use.....	19
VI.	Agriculture.....	21
VII.	Irrigation, Flood Protection and Potable Water.....	40
VIII.	Animal Husbandry.....	48
IX.	Forestry.....	52
X.	Communications.....	56
XI.	Education.....	62
XII.	Health.....	78
XIII.	Electrification.....	92
XIV.	Investment.....	94

Appendix A Date Production and Marketing in North
Waziristan and FR Bannu

TABLES AND FIGURES

<u>No.</u>	<u>TITLE</u>
FRONTISPIECE	Map of the Agency
I.1	Drainage and Main River Systems
I.2	Rainfall in inches (Miranshah)
I.3	The Tribal areas: mean annual rainfall.
I.4	The NWFrontier: climatic regions.
I.5	Mean Min and Max temperature in F (Miranshah)
IV.I	Refugee camps: Location and population in NWA
IV.2	Map showing refugee camps
V.I	Estimates of land use in acres
VI.1	Price acreage, production and yields since 1974-5.
VI.2	Wheat acreage, production and yields.
VI.3	Maize acreage, production and yields.
VI.4	Fruit acreage and production.
VI.5	Potato acreage and production.
VI.6	Onion production and acreage.
VI.7	Locations of department staff, nurseries and schemes.
VII.1	Location of irrigation schemes.
VII.2	Location for potable water schemes
VIII.1	Native animal population (1980).
VIII.2	Placement of veterinary facilities
VIII.3	Locations of veterinary facilities
IX.1	Locations of forestry block plantations and nurseries.

- X. 1 Road network
- X. 2 Roads
- X. 3 Bridges
- XI.1 Girl's schools Locations and Enrollments by Tehsil for 1989
- XI.2 Girls School Locations
- XI.3 Girls' primary level enrollment
- XI.4 Boys' primary level enrollment Overtime
- XI.5 Boys' primary schools (October 1989)
- XI.6 Boys' overcrowded primary school
- XI.7 Girls' middle level enrollments
- XI.8 Boys' middle schools (October 1989).
- XI.9 Boys' middle level enrollment
- XI.10 Boys' middle level over crowded schools.
- XI.11 Boys' secondary level enrollment
- XI.12 Boys' secondary schools (October 1989).
- XI.13 Boys' overcrowded high schools
- XII.1 (Placement of) BHUs, RHCs, and SHCs
- XII.2 (Placement of) dispensaries
- XII.3 Locations of health facilities
- XIII.1 Electricity grid
- XIV.1 Joint FATA-DC, P&D and MNA senator allocations.
- XIV.2 Allocation trends over time.
- XIV.3 Sector-wise allocations from 1971-1989.

Preface

This is the third in a series of profiles on four of the tribal agencies. The other three in the series cover Kurram, Orakzai, and South Waziristan. Each profile is accompanied by a series of maps, more about which can be found in the following section.

The purpose of these profiles is to make available, in an integrated fashion, what is known (and equally, what is not known) about the resources, development achievements and prospects, and limitations (be they physical or man-made) in the concerned Agency. Because the information that has been collected and analyzed is designed to help development planners, a considerable level of detail is presented in the reports.

Work began on this profile in late 1989 and continued through April 1990 at which time a first draft was completed. Some initial research concerning agriculture was conducted thereafter.

With respect to completing the profile on North Waziristan, an unfortunate occurrence hampered field work and restricted the amount of time the team was able to spend in the Agency. Most of the information was acquired in Peshawar and Bannu. Therefore, this report lacks the richness of the profiles on Kurram and South Waziristan, in which team members spent approximately 25 work days each. It is to be hoped that over the next twelve months, information contained in this report can be verified and filled out, via field visits to the Agency.

I would like once again to thank senior officials of the Planning and Development Department and the Home Department for sharing information and views. Line Agency staff gave generously of their time and tried to respond to what must at times have seemed like an unending series of requests.

Within USAID, we are particularly grateful to have had the help of Engineers Nayyar and Cheema, who shared their considerable knowledge of the Agency with us. The research team consisted of the following individuals: Dr. Lynn Carter, senior social scientist/team leader; Mr. Shahzad Raza; Ms. Rashida Khanum; Mr. Zia uddin; and Mr. Shakeel Tabassum, all staff of USAID/Peshawar except the first who is a consultant. Finally, we would like to record here the work of Mr. Khairullah, and Mr. AR Sharooki, who drew the maps of the Agency that accompany this report.

Lynn Carter
Senior Researcher

August 1990

Introduction to the Maps

We relied on three sets of maps in drawing a new base map of North Waziristan Agency. Two sets were provided by the Survey of Pakistan: one on a scale of 1:250,000 and the other on a scale of 1:50,000. The third set was US-made and was on a scale of 1:250,000. We used both sets of 1:250,000 scale maps to draw an enlarged base map of 1:100,000 (or more than twice the size of 1:250,000). The three sets of maps relied on information collected at different points in time, but all were old, and therefore somewhat out of date. Both sets were missing roads, for example. The team found it a little difficult to place new roads on the new 1:100,000 map accurately because C&W did not have large scale maps from which we could work. Further complicating our efforts were disagreements about the precise locations of villages and areas. We often found that maps of different make (both published and sketch maps from the different line agencies) placed villages in different locations - perhaps on the other side of the track, on a different nullah, north or south of another village, and so on. There were many differences in village location in comparing the US and Survey of Pakistan maps. We checked and cross-checked village placement and, for this task, the 1:50,000 maps were invaluable. However, all the maps to which we had access were missing many, many villages. For resolving differences concerning location and for locating unincluded villages, our only recourse was to turn to individuals knowledgeable about the Agency. This was particularly true for villages off the main roads. There were, of course, many parts of the Agency to which we could not travel, and time did not permit hunting for villages up and down the many alghads, tois and nullahs of the area. We should therefore warn the reader that for several villages, placement on the map is only as accurate as the information of our informants and must generally be viewed as approximate rather than exact.

Those studying the maps will realize that they include part of South Waziristan and FR Bannu. We found no map of a reasonable scale (and therefore accuracy) that included the southern boundary of the Agency, and therefore did not attempt to draw it on our map. Our Survey of Pakistan maps also only showed part of the boundary with FR Bannu, and we obtained these only after our base map was drawn. Thus, we left FR Bannu on the map and added as much of the boundary between it and the Agency as we could.

The maps are as follows:

- 1) 1:100,000 base map with villages, roads, elevation contours, rivers, tois, and refugee camps.
- 2) 1:100,000 transparent overlay for the base map, showing elevation and vegetation shadings. This was taken directly

from the US-made map, and no information was available to permit updating or amendment. The area of vegetation may have changed.

3) two 1:100,000 transparent overlays for the base map, one showing girls' schools and the other boys' schools as of October 1988. Primary, middle and high school sections are shown separately even if they are considered as part of the same school, to permit the viewer to understand the distribution of each level of education.

4) 1:100,000 transparent overlay for the base map, showing ground and surface water irrigation schemes. The scheme is marked by the village it serves.

5) 1:100,000 transparent overlay for the base map showing health facilities and potable water projects.

6) 1:100,000 transparent overlay for the base map showing agricultural facilities.

7) 1:100,000 transparent overlay for the base map showing forestry facilities.

8) 1:100,000 transparent overlay for the base map showing animal husbandry facilities.

9) 1:100,000 transparent overlay for the base map showing the electricity grid.

The team was not able to mark tehsils or subdistricts on the base map because we did not have sufficiently accurate information to permit us to do so. It was not possible to develop a land use map because the researchers lacked adequate materials from which to draw one. It was equally impossible to do a map showing the cropping pattern or irrigated/unirrigated land. It was also not possible to draw a population density map.

A decision was made not to mark planned projects on the map since plans can change and projects sometimes run into political difficulties. No distinction was made on the maps between projects under construction and projects completed, in order to keep the maps current a little longer except with respect to roads. Projects under construction could be completed the week after the map was submitted, requiring changes in the map. Where appropriate, plans are mentioned in the narrative report. These maps will, in any case, require annual revision. New schools or the upgrading of existing schools, roads, health facilities, irrigation schemes, and the like will need to be added, if the maps are to continue to be useful.

I. GEOGRAPHY

A. Topography*

The highland area of North and South Waziristan together take the shape of a somewhat irregular parallelogram 160 miles long and 60 miles wide. The elevation rises gradually moving to the west, until peaks of 10,000 feet are found at the Afghan border. The elevation continues to rise in a westerly direction until the watershed dividing the Indus basin and the Helmand basin is reached. There are no regular mountain alignments and hills appear to zig-zag in every direction. The northern and southern boundaries are formed by the Kurram River and the Gomal River respectively. Most of the rivers and streams in Waziristan are placed on a horizontal axis. They generally are flanked by hills which sometimes give way to allow the appearance of small valleys. Alluvial land borders even the narrowest of these valleys, which are invariably farmed, arable land being in very short supply. Usually, little water flows in Waziristan's streams. The beds generally are strewn with large rocks. In summer, with the rains, they become raging torrents. The two Agencies are divided by a mountain range which terminates in the Ghalimighar mountains. Tribal configurations as well as physical features determined this as the boundary.

North Waziristan Agency is situated between latitudes 32 45' and 33 15' north and longitudes 69 30' and 70 40' east. It is bounded on the north by Kurram and Kohat and on the east by Kohat and Bannu. The boundary to the south follows the Shaktu stream to Shuidar, and then it follows the eastern watershed of the Shawal valley to Drenashtar Sar, and then runs north east along the Durand line. To the west lies the Afghan province of Paktia.

The 1905 Gazateer of NWFP recorded the area as 6,006 sq. km., while land use statistics from the 1970s and 1981 showed the area to be 4,707 sq. km. However, the Agency appears to have retained the same boundaries it had under the Raj, so it is difficult to account for the decrease. Post-1982 land use statistics show the area as 5584 sq. km., a figure which is closer to the Raj estimate and is probably the most accurate given newer techniques for deriving area. The change in area recorded beginning in 1982 probably represents a correction in the previous under-estimate of 4,707 sq. km. North Waziristan is the second largest of the 7 tribal agencies in area, following South Waziristan.

The Agency lies in a zone of mild to moderate seismic activity. A total of 68 earthquakes registering between 3.5 and 5.5 on the Richter scale were recorded from 1905 to 1979.

 *Much of the information in this section was drawn from David Dichter's excellent geography, The North-West Frontier of West Pakistan: A Study In Regional Geography, Oxford: Clarendon Press, 1967.

The Agency is drained by the Tochi and Kaitu rivers, both of which are tributaries of the Kurram river which enters the Agency in the north, flows south, and leaves the Agency near Bannu. The Tochi or Gambila river, which waters the Tochi valley, rises in Afghanistan and flows due east through the Agency to Bannu. The river is between 100 and 150 miles long.

The Kaitu river rises in the area of Khost in Afghanistan. It flows south east through the Agency, entering North Waziristan near Zira Khel, and enters the Kurram river due east of Datta Khel. Fig. I.1 shows FATA drainage and river systems.

The Agency includes four substantial and fertile valleys: the lower Kurram river valley; the Kaitu valley, the Tochi valley; and the Khaisora valley in the south. The Tochi valley is surrounded by the Wazir hills, the highest peak of which reaches 7,700 feet. It is 35 miles long and while its breadth averages 1 1/2 miles, it widens to 5-6 miles at its broadest part.

Between these valleys lie barren plains and high, barren hills. The plains are as follows:

- o Sheratullah, an area of about 30 sq. miles between the Kaitu and Tochi rivers near the boundary with FR Bannu. The road from Thall to Mir Ali crosses the plain. This area appears to be mostly barren, but there is at least one spring (information circa 1950s). Several alghads, including the large Sangasara, cross the plain;
- o Dande, north of Miran Shah, also about 30 sq. miles. This is criss-crossed by the many alghads that flow into the Tochi river near Miranshah;
- o Spereragha, a little smaller than Sheratullah, between the Kurram and Kaitu rivers, north of Datta Khel. This plain appears to be relatively barren;
- o Spinwam, in the north, an area of about 14 sq. km. with good agricultural land; and
- o Mir Ali plain, which lies between the Tochi river valley and the Shna Alghad and is farmed.

The highest mountain in the agency is the Shuidar, which peaks at 11,000 feet to the west of the Khaisora valley. The hills are covered with crumbling soil, which hill torrents bring down and lay over the valley.

B. Minerals

Copper deposits exist at Khedar Khel, Dejan and Shinkai. Manganese is found at Saidgai and Barzai. Chromite deposits have been discovered at Boya-Pai Khel and Mami Ragma. Magnesite has been located at Khaisin. It is not known if any of these deposits are of a size to justify commercial exploitation, assuming of course that the tribal situation would permit such exploitation to take place. Geological investigations are continuing.

C. Climate

FATA Agriculture staff are asked to estimate monthly rainfall in mm. and to estimate monthly mean maximum and minimum temperatures. They have no gauges by which to do this, and it is not easy to sit in an office at the end of March and decide that the rainfall for the month was so many millimeters based on one's impressions over a 31 day period. Therefore, the data on these subjects published in FATA Development Statistics must be viewed as unreliable.

The Meteorological Department has not maintained rainfall and temperature gauges in the Agency since 1971. Since post-1971 statistics are suspect, we have relied on older data for assessing rainfall and temperature. The Agency receives between 10 and 15 inches of rainfall annually, while a small area in the east central part of the Agency generally receives less than 10" annually. Miranshah reportedly averages around 13" of precipitation annually, although the average is lower than this in Table I.2, which shows monthly rainfall data for Miranshah for an eleven year period. Fig. I.3 shows the rainfall pattern for the Agency.

Agency territory is classified as either arid or sub-arid. Rainfall decreases as one moves south. The central portion appears to receive about as much precipitation in summer as in winter, while other parts receive more in summer or in winter. Table I.2 suggests, based on an eleven year period, that Miranshah receives most of its rainfall in late winter, early spring, and then derives some benefit from being at the tail end of the Monsoon in July and August. Fig. I.4 shows climatic regions based on rainfall and temperature. The Agency has cold winters, with snowfall, and summers range from warm to hot depending on elevation. Miranshah has hotter summers and milder winters than many other parts of the Agency because it lies at a lower altitude. In Razmak, in the south, for example, it snows in winter and summers are pleasant. Table I.5 shows monthly

TABLE I. 2

MIRAN SHAH
RAIN FALL
IN INCHES

YEARLY
TOTAL

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEARLY TOTAL
1961	1.04	0.65	0.81	2.47	0.00	0.00	1.58	0.55	0.14	0.76	0.00	0.38	8.38
1962	1.46	5.14	4.54	0.18	0.74	0.78	0.86	1.26	4.45	0.13	0.45	0.55	20.54
1963	0.00	1.78	3.10	4.45	2.88	0.09	0.85	0.13	0.00	0.00	0.00	0.13	13.41
1964	2.67	0.00	1.20	0.68	0.22	0.22	2.81	2.32	0.00	0.00	0.00	0.40	10.52
1965	0.82	0.85	0.80	6.57	4.06	1.52	1.09	0.46	0.00	0.00	0.00	1.08	17.25
1966	0.00	0.00	1.69	1.68	0.00	0.58	1.04	1.16	0.50	0.00	0.21	0.00	6.86
1967	0.80	0.18	4.61	5.14	0.00	0.00	1.06	1.35	0.25	0.60	0.00	4.68	18.67
1968	0.00	0.00	0.00	1.63	0.75	1.63	0.00	0.00	0.00	0.00	1.28	0.46	5.75
1969	0.00	1.47	0.75	1.37	1.06	1.00	0.00	0.17	0.37	0.37	0.00	0.00	6.56
1970	0.00	0.00	0.85	0.00	0.00	0.00	0.00	1.01	0.10	0.00	0.80	0.00	2.76
1971	0.00	0.88	0.05	0.17	0.20	0.00	0.90	0.00	0.00	0.00	0.00	0.00	2.20
AVG:	0.62	1.00	1.67	2.21	0.90	0.53	0.93	0.76	0.53	0.17	0.25	0.70	10.26

TABLE I.5

HIRAN SHAH TEMPERATURE IN F (mean maximum and minimum)

MONTHS	1954		1955		1956		1957		1958		1959		1960		1961		1962		1964		AVERAGE		
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
JANUARY	35.9	56.1	37.5	59.5	38.0	59.8	33.3	54.9	38.5	63.2	36.4	59.9	36.3	59.4	36.3	59.9	33.8	60.7	31.9	53.2	35.7	58.7	
FEBRUARY	44.5	59.2	44.5	70.5	41.3	65.7	36.4	60.8	39.1	64.9	36.6	58.0	36.1	71.6	36.1	57.5	41.0	61.8	62.2	62.2	40.3	63.2	
MARCH	48.4	70.5	52.6	73.2	49.1	67.4	46.1	67.3	50.5	72.4	52.1	74.1	49.0	65.6	49.0	72.1	48.4	70.2	50.7	73.1	49.3	70.6	
APRIL	58.1	85.6	58.0	77.7	60.4	80.5	53.2	73.4	61.7	85.1	60.5	82.1	53.3	75.3	54.9	76.2	59.3	81.0	59.9	82.8	57.9	80.0	
MAY	74.7	96.1	64.3	84.6	101.7	60.9	83.7	66.3	89.7	69.7	90.7	66.9	93.1	69.3	69.3	93.2	67.1	92.8	68.2	92.2	67.5	91.8	
JUNE	77.7	98.9	77.2	100.8	98.8	71.3	95.9	76.8	100.3	79.9	102.0	77.2	111.6	76.9	100.0	75.2	100.1	75.9	94.4	75.9	94.4	76.5	100.3
JULY	75.5	96.1	76.7	97.1	74.4	90.2	76.8	97.7	77.8	96.5	77.3	92.5	78.7	96.2	78.6	96.3	77.7	97.2	76.9	93.7	77.0	95.4	
AUGUST	76.3	95.9	72.9	91.1	72.5	89.0	75.0	93.7	75.9	92.4	79.6	95.0	79.4	95.8	78.1	95.8	76.8	94.8	77.5	94.4	76.4	93.8	
SEPTEMBER	71.8	92.8	58.2	90.3	92.5	67.2	90.9	73.6	89.9	70.5	90.2	70.7	91.9	75.3	93.2	66.8	87.8	71.2	90.5	69.5	91.0		
OCTOBER	55.8	79.9	46.2	82.4	80.6	57.1	82.5	60.1	84.0	64.0	86.4	58.1	85.1	58.4	83.1	56.1	81.9	81.9	57.5	84.5	57.0	83.0	
NOVEMBER	47.0	68.6	38.7	75.5	73.7	46.5	70.2	46.1	71.1	48.9	68.7	44.5	72.8	43.6	69.0	44.8	71.1	44.7	72.4	44.7	72.4	45.0	71.3
DECEMBER	36.4	64.6	62.8	36.5	64.8	39.0	62.0	40.4	64.6	39.0	63.5	35.6	67.5	62.3	34.5	65.3	34.5	65.3	35.8	62.1	37.2	64.0	

temperatures over a ten year period in the 1950s and 1960s, during which the Meteorological Department maintained a temperature gauge at Miranshah. January is the coldest month and June the hottest.

D. Soils

Agency soils range from clay loam, loam, sandy loam and gravel. The Tochi river valley is composed of rich alluvial soil and is very productive.

II. ADMINISTRATION AND ECONOMY

A. Administration

The British Raj extended its authority to the Tochi river valley from Bannu in 1894 when the Daur Tribe of the Agency requested the British to protect them from the Wazir Tribe. The Daurs requested this protection because their Wazir neighbors, living in surrounding hillside villages, made a practice of raiding Daur villages in the fertile Tochi valley.

The first British Political Agent was appointed in the early part of the century. The British were not able to pacify the entire Agency & were only able to bring a measure of peace to the Tochi Valley. North and South Waziristan were the scene of many fierce battles. From the beginning of the British Raj in North Waziristan, the Daur tribe was loyal to Government. Hence the Upper & Lower Daur valleys have long been administered. The Political Agent has control over this area and development schemes are carried out.

After the creation of Pakistan in 1947, the new GOP continued to manage the Agency in much the same way as the British. Law & Order remained & still remains a top priority in Agency. All development agencies co-ordinate their activities through the Political Agent.

Agency administration is headed by a Political Agent based at Miranshah, the headquarters of N.W. Agency. The Agency has been divided into 3 Sub-divisions and each Sub-division consists of 3 Tehsils:-

<u>Sub-division.</u>	<u>Tehsil.</u>
Razmak	Razmak Garyum Dossali
Mir Ali	Mir Ali Spinwan Shewa
Miran Shah	Miran Shah Datta Khel Ghulam Khan

Each Sub division is headed by an Assistant Political Agent and a Tehsildar is in charge of each Tehsil. For small-sized tehsils, the Naib Tehsildar is in charge. Razmak, Miranshah, Shewa and

Ghulam Khan tehsils are small in size so Naib Tehsildars are in charge of these tehsils. The Political Agent has a support staff consisting of one Superintendent, two Stenos and clerks. Assistant Political Agents (APA) usually have a staff consisting of a Reader, Steno and Political Muharars, while Tehsildars are supported by some clerks.

The Mada Khel area of Datta Khel Tehsil is still a totally inaccessible area over which the Political Agent has no control. No development schemes have been carried out so the area is without schools, health facilities, irrigation and potable water projects, and the like. The Tori Khel area is not under the administrative control of Political Agent but development schemes are being carried out there.

B. Economy

There are no general indicators that can help us gain a sense of Agency productivity, the contribution of various sectors to productivity, remittances, employment, the economic impact of refugees, or income. Estimates made of agricultural production are problematic and may understate or overstate true production.

Agriculture and remittances are probably the two most important sources of income for the vast majority of inhabitants. Enlisting in the militia and army has also been a traditional source of employment and it is still important. Short-term unskilled employment on development projects (roads, irrigations systems, etc) and longer term employment as chowkidars on some schemes has become more important during the last two decades. There is virtually no industry and no mining. The Agency appears to lack both the skilled manpower and the raw materials that would be needed to support the development of successful industrial enterprises.

Smuggling and transport are also important components of the economy. Goods are imported to Pakistan, trans-shipped to Afghanistan to avoid customs duties, and then smuggled back into the Agency via Saidgi and Ghulam Khan.

Transport of goods and people is a significant sector. As one indication in this sector, there were 60 auto repair & 15 auto supply shops in Miranshah alone in 1987.

No data are available concerning the amount of remittances coming into the Agency annually. The Bureau of Immigration calculated in 1987-88 that there were 4,178 Agency men working abroad. This may understate the true number. As elsewhere in Pakistan, the

total amount of remittances has declined in recent years owing to decreased job availability in the Arab petroleum-exporting countries. The Ministry of Labour, Manpower and Overseas Pakistanis reports that returning migrants now outnumber those who are emigrating for work. This is particularly true of the unskilled and semi-skilled, as most of NWA's migrants would be classified. Over the longer term, overseas opportunities are likely to remain stable and improve only for the better educated, such as doctors and engineers. It is possible that those who can no longer emigrate abroad for work choose to go to Karachi or another major city in Pakistan. However, remittances earned in Pakistan are substantially lower than those earned overseas.

In general, remittance monies have not been invested productively, in part because of the lack of opportunities in the Agency. Perhaps most remittances were and still are spent on marriage; building a Pucca house; buying a truck, van or tractor; opening a shop, and purchasing consumer goods. Those with considerable funds might buy land in the settled area and build a house for rent or a hotel. Investment in agriculture seems to have largely been limited to the purchase of tractors and trucks, although some investment in new cash crops has occurred. Some may have bought farm land in the Agency but good land is almost impossible to buy and is expensive.

With respect to agriculture, very little Agency land is arable, and most land that is farmed is used to produce subsistence rather than cash crops. The best farm land is in the Tochi Valley. This land was assessed by British officials in 1902. The cultivable area came to 15,262 acres. A total tax of Rs. 36,000 was charged on this land at that time, & the tax remains the same today. It costs the government more to collect the tax than the tax produces in revenue. The most agriculturally productive tehsils are Mir Ali, Miranshah & Datta Khel. These are also the main bazaar towns.

According to a 1987 survey carried out by Dr. Richard English of UNHCR there were a total of 1808 shops in Miranshah Bazaar. Out of these, 859 were owned by locals and 949 by Afghans. Around 17 percent of these shops were groceries, 8 percent arms and ammunition shops, 9 percent cloth shops, 8 percent sold fruit & vegetable, 5 were percent pharmacies, and 5 percent were auto-related stores (repair & spare parts). In total, there were 52 types of business being conducted in these shops.

There are 3 major wood bazaars at Miran Shah, Mir Ali and Datta Khel. Wood is brought from Afghanistan and sold in the Agency or transported down country.

Three industrial units were established by FATA-DC between 1975 to 1982. All are now closed. Details concerning these units are as follows:-

<u>Industrial Units.</u>	<u>Date Started.</u>	<u>Date closed.</u>	<u>Initial Invest. Million/ rupees.</u>	<u>Losses million rupees</u>	<u>Jobs creat ed.</u>
Tochi Valley Match Unit, Miran Shah.	Oct. 1975	Aug. 1984	11.878	10.827	221
Tochi Woolen mills. (carpet Yarn) Miran Shah.	Aug. 1978.	Aug. 1985	15.808	7.757	84
Mir Ali Loom Unit. Mir Ali	Feb. 1982.	Jan. 1985	2.879	0.510	30

These industrial ventures by FATA-DC were a worthy attempt to develop a manufacturing capacity and skilled work force among tribal people. An important objective was employment generation. For a mix of reasons, these industrial units were unable to become self-sufficient and were finally closed. Some of the problems were:

1. Remote location resulting in high transport costs;
2. Lack of sufficient raw materials locally (i.e, wood for the match factory);
3. Marketing problems, and lack of adequate local markets;
4. Bureaucratic practices and delays; and
5. Lack of skilled manpower and managers.

The factory machines and buildings are sitting unused and are depreciating. There has been private sector interest expressed in leasing these factories but FATA-DC would prefer to hold out for a joint venture. There appears to be no private sector interest in a joint venture at this time.

At one time more than 400 household looms operated in the Agency. Tribesmen were given import permits for importing yarn. Later

on, due to the free import of yarn to all areas of Pakistan and a change in the taxation policy for textiles, weavers could no longer compete and make a profit. These small cottage industries closed. There are two training cum production centers in Miranshah for sheet metal working and weaving.

There are 7 branches of nationalized banks in N. Waziristan.

III. POPULATION

A. Government Census Data

The 1981 population census counted the population of North Waziristan at 238,910, divided as follows among the 8 tehsils:

o Datta Khel	72,880
o Dossali	11,895
o Garyum	5,184
o Ghulam Khan	9,314
o Mir Ali	49,304
o Miranshah	47,427
o Razmak	10,562
o Spinwam	32,344

These estimates must be viewed as approximate since the Census was obliged to rely largely on the estimates of maliks, which it then tried to adjust through some limited sample surveys in accessible parts of the tribal Agency. Miranshah appears to be the most densely populated of the tehsils. This is not a surprise since the Agency headquarters and main bazaar are at Miranshah town.

As compared to other Agencies, North Waziristan in 1981 was sixth in terms of total population. Only Mohmand Agency had fewer people. North Waziristan also had one of the lowest population densities - in 1981, the density was 50.8 persons per sq. km., compared to 46.7 persons per sq. km. in South Waziristan and 87.1 persons in Kurram. Given the rugged terrain of much of Agency, this is not a very useful figure. The population tends to be clustered in those plains and valleys that permit agriculture.

The sex ratio overall was 107.3 at the time of the Census. On a tehsil basis, the figure ranged from a low of 95.6 males per 100 females in Garyum tehsil to an incredible high of 174.5 males per females in Razmak. The ratio at Spinwam was also an unlikely 116.3. What we can conclude about Razmak and Spinwam is not that there were many more males than females, but that these were inaccessible or relatively inaccessible areas. Census personnel either could not visit them or had great trouble collecting information, and thus females were seriously undercounted. Since females were probably undercounted, this factor would of course push the total population higher than the Census indicates.

Somewhere between 41 and 45% of the population was aged 14 and under at the time of the Census, indicating a very high dependency ratio which has most likely grown higher. In 1981, about 31% of the population was under 10 years of age.

Average household size for the Agency as a whole was 7.9 persons, ranging from a low of 5.4 persons in Dossali to a high of 10 persons per household in Datta Khel. Average household size was slightly larger than in South Waziristan.

B. Population Growth

The 1972 to 1981 intercensal average annual growth rate was recorded as $-.57$. In other words, there was no growth but rather a net loss of population during this nine or ten year period. This is unlikely, even with considerable migration. While we do not know the exact fertility rate, we do know that it was and is high. We also know that health services improved over the course of that decade. The likely explanation for this apparent drop in population is a change in census methodology from one census to the next. The first census relied on malik-made estimates, and maliks have many reasons to exaggerate the numbers of those for whom they are responsible. The latter census used malik-provided figures but then relied on sample surveys to adjust those estimates. We can probably safely assume that those adjustments, in the main, were in a downward direction. This suggests then that the 1981 census is more accurate in its estimates than the earlier census, and that its conclusions represented a much needed correction.

Given the problem mentioned in the above paragraph, we have no valid way to extrapolate population growth since 1981. We simply have no idea what the annual growth rate is. The government has been using an average annual intercensal growth rate of 3.1% both for the whole country and for parts of the country. This may or may not turn out to be a useful figure for North Waziristan, but we use it here to give us a very crude idea of what the population might now be. Using this rate, in 1989, the population was more or less than 305,000 persons. This would indicate a population density in the range of 64.8 per sq. km.

C. Literacy

Literacy rates are low, as elsewhere in FATA. In 1981, 7.4% of those ten years of age and older were literate, a percentage that is marginally higher than that of South Waziristan. About 0.5% of females of the same age were literate, while the male rate in North Waziristan was 13%. Mir Ali and Miranshah tehsils had the highest male literacy ratios - 23.28 in Miranshah and 21.04 in Mir Ali. The highest female literacy ratio was in Miranshah, at 1.27. These two tehsils are populated in considerable measure by Dauris, who are said to have a greater interest in education than

the Utmanzai Wazirs who surround them. Those tehsils most lagging in terms of literacy in 1981 were Garyum, with only 1.5% of males aged 10 and over literate; Datta Khel, with 6.11% in the same age group literate; and Spin Wam tehsil, with 6.95% of males of this age literate. The remaining two tehsils had literacy rates in the 10-11% range for males. It is interesting to note that, in comparison, tehsil literacy rates in South Waziristan showed greater similarity, with none of its tehsils showing rates as low as Garyum or Datta Khel tehsils. The lowest rates for North Waziristan tehsils are comparable to Orakzai and Mohmand literacy rates for the same period.

Among males aged 10 and older in 1981, 5% completed primary school. Another 6.7% of males in this age group obtained some level of post-primary education. Primary school completion rates were highest in Miranshah and Mir Ali tehsil. Of males in this age group, 22% of those in Miranshah tehsils had completed at least primary level education, while 20% had done so in Mir Ali tehsil.

Among females, only 0.2% of those ten years old and above had completed primary school in 1981, while another 0.2% had achieved a level above that of primary school. Since females were undercounted in the Census, these low percentages may actually overstate female educational achievement. It should be kept in mind that in 1981 there were few girls schools in the Agency--opportunities were very limited. Miranshah had the most educated females in both the absolute sense and relative to tehsil population.

While the literacy rates at Miranshah and Mir Ali are not bad relative to many parts of FATA, these figures and those for the other tehsils indicate a poor human resource base, and one that is ill-equipped to move beyond subsistence farming and unskilled and semi-skilled trades and commerce.

D. Religion and Tribal Groups

The population is almost entirely Muslim. In 1981, the Census counted 899 Christians.

The main tribal group is the Utmanzai Wazirs, who along with their cousins the Ahmadzai form the Darwish Khel branch of the Wazirs. The Tochi river valley is inhabited mainly by Daur tribesmen, but there are pockets of Utmanzai, particularly along the edges of the valley. The Daur had been under direct administration since 1894, when they requested British protection against the frequent raids of their Utmanzai neighbors. The

Political Agent estimates that the current Daur population is not more than 80,000, so the vast majority of the Agency's population are Utmanzai Wazirs. The Utmanzai are further divided into 4 clans: Mada Khel, who inhabit inaccessible territory; Tori Khel; Kohal Khel; and Bara Khel.

IV. REFUGEES

After Kurram Agency, North Waziristan is the Agency with the largest number of refugees. Because native population density in North Waziristan is relatively low, the refugee presence does not seem as overwhelming as it does in Kurram - except within a 10 km. radius of Miranshah, where approximately 48% of the registered refugees live.

An all-weather dirt road links Miranshah with Khost, the provincial capital of Paktia and scene of much fighting in the war, via the border point of Saidgi. Miranshah has accordingly been an important staging point for the Resistance parties. Because of this, inhabitants living close to the border, particularly in the Ghulam Khan, Saidgi and Datta Khel areas, have been subject to artillery and aerial bombardments throughout the war. Bunkers have been constructed at these sites. There appears to be steady traffic on the roads from border posts at Saidgi and Ghulam Khan. At Saidgi, there is a bazaar and many pickup trucks for rent. From Ghulam Khan, the road is shingled but is being paved.

From the start of the Afghan war, many of those seeking refuge in Pakistan entered the country via North Waziristan. Until 1986, they were settled in North Waziristan camps. Since that time, the GOP has had a policy of shifting new arrivals to the Punjab, with registration depending on willingness to shift.

There are 24 camps in North Waziristan Agency, with a total registered population of 184,308 as of November 1989. Table IV.1 shows camp location and size. Fig IV.2 shows camp locations on the map. No new refugees are being registered. The number of unregistered refugees is not known. One conservative estimate suggests that 2,000 to 3,000 unregistered families may be living in the Agency, mostly scattered among the existing refugee camps. About half the refugees (including some who have been in the Agency for more than five years) still live in tents - one reason being the shortage of water with which to construct katcha houses. It is also expensive to purchase roofing materials, doors, windows and the like. One observer visiting Agency refugees in November 1989 noted that the newest tent in use seemed to date from 1985, and many tents are now in poor condition and leaking badly during rains. One reason the tents are all old is that UNHCR has a policy of providing new tents only to new arrivals.

In summer, the refugee population increases dramatically, when refugees migrate from Mianwali to escape the heat. Roughly 150,000 refugees are said to participate in this summer migration - most of them end up in Razmak, Datta Khel, Dossali and Muhammad

Khel, where it is relatively cool. They come with their animals, bringing further devastation to grazing land in the area. Some refugees from Miranshah also migrate to Razmak in summer.

TABLE IV.1

REFUGEE CAMPS AND POPULATION IN NORTH WAZIRISTAN

<u>S.No</u>	<u>CAMP</u>	<u>NUMBER OF FAMILIES</u>	<u>INDIVIDUALS</u>
1.	Bado Ziarat	572	3962
2.	Bangidar	996	6723
3.	Bahtti - 1	766	6534
4.	Bahtti - 2	629	4886
5.	Chassma	1438	10543
6.	Darga Mandi	1127	7472
7.	Darpa Khel - 1	1597	10338
8.	Darpa Khel - 2	1495	10652
9.	Dawa Ghundi	641	4059
10.	Godi Wala	559	4040
11.	Hamzoni - 1	753	5723
12.	Hamzoni - 2	714	5622
13.	Match Factory	1101	8408
14.	Mir Ali	979	7476
15.	Mohammad Khel - 1	655	4815
16.	Mohammad Khel - 2	749	5479
17.	Nari Dag(Saidgi)	1765	12194
18.	Qutab Khel	1114	8413
19.	Serai	625	4274
20.	Spin Wam	1453	9215
21.	Sher Khel	1193	7861
22.	Sitane	1969	12833
23.	Tabai	1937	12723
24.	Village Miran Shah	1388	9941
	Grand Total:	26215	184308

Fig. IV.2

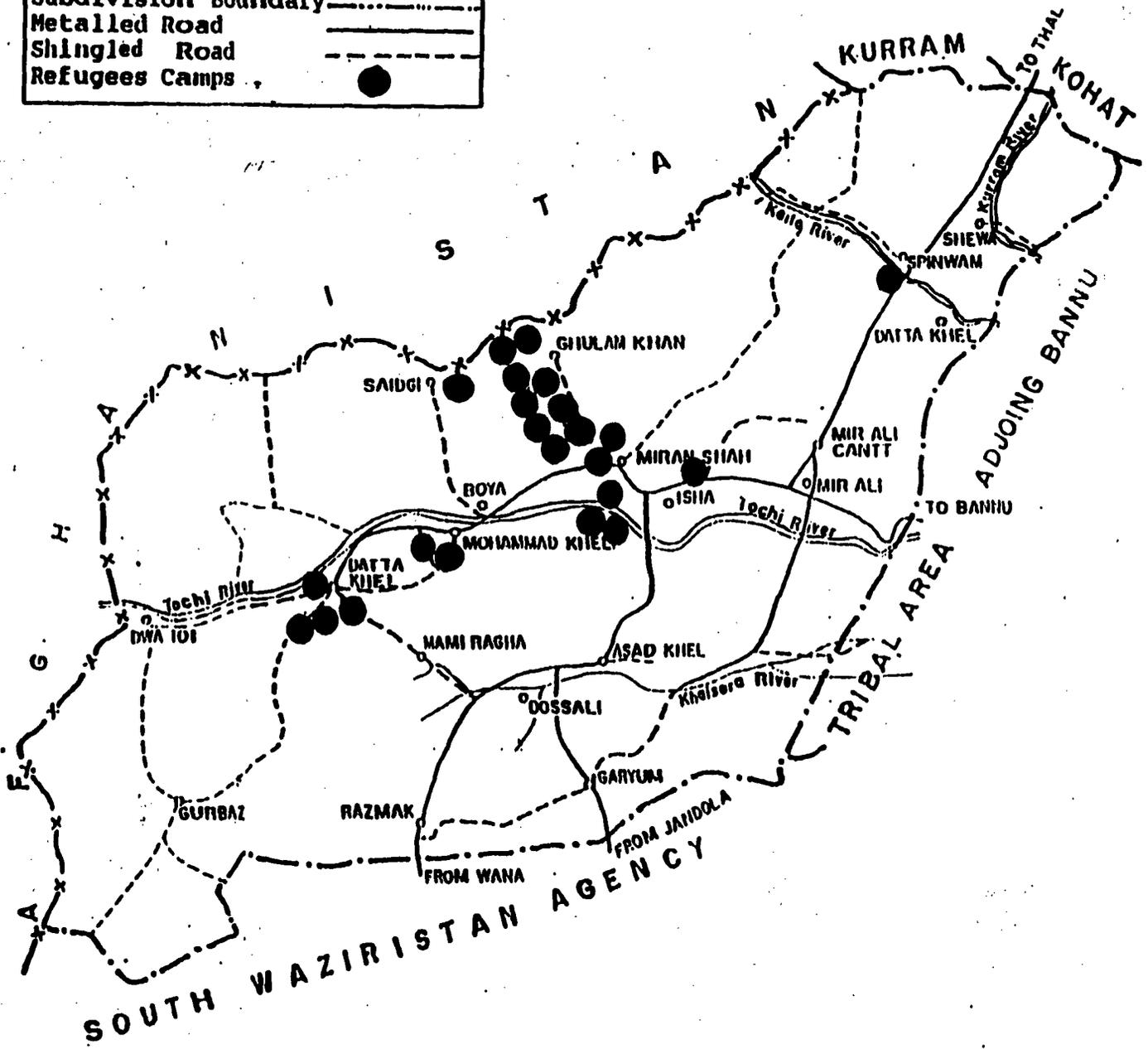
NORTH WAZIRISTAN AGENCY

REFUGEES CAMPS

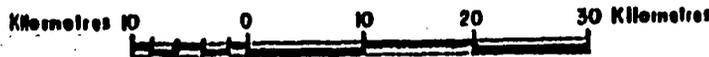


LEGEND

International Boundary	-X-X-
Tribal Boundary	-----
Subdivision Boundary
Metalled Road	————
Shingled Road	- - - - -
Refugees Camps	●



SCALE, 1: 600,000



Most of the permanent refugees are from Paktika and Paktya. Many are also from Logar and Wardak. About 32% of the registered refugees are from the Zadran tribe, 9% Ghilzai, 10% Khostwal and 11% Baluch. There are some Tajik refugees, perhaps as many as 2,000 families (about 12% of the total, according to UNHCR), from the north, particularly Kunduz, Balkh and Baghlan. They have arrived mainly since 1986. They live primarily in Qutub Khel and Dargamundi camp, but may be found in all camps. There have been tensions between them and the Pushtoon refugees from time to time.

No refugees appeared to be returning home as of January 1990. The situation in many of their home areas of Afghanistan was still viewed as being too precarious. Some new refugees were coming out, principally from the Khost area, where fighting was continuing. These new refugees appeared to be stopping in the Saidgi area on the border with Afghanistan, perhaps waiting for the fighting around Khost to lessen. Mujahideen from North Waziristan camps were still going to fight at Khost.

The refugee administration consists of an Agency Administrator and 6 Area Administrators. A Field Supervising Medical Officer oversees health services and an Assistant Commissioner for Education oversees education programs. Funding for activities is seriously limited, and this makes it difficult for the refugee administration to accomplish very much.

Refugees in North Waziristan are fairly badly off. There has been only very limited assistance from foreign NGO groups, due to security concerns, and GOP resources have not been adequate to meet the needs of this large population. This is particularly true of the camp in the Spinwam area, which appears to be a relatively insecure part of the Agency. Not much local employment is available in general, due to the limited agricultural base and poverty of the local inhabitants. Refugees are not active in the transport business as they are in Kurram. They have been able to lease some land and are doing some farming - their involvement in this cannot be quantified. Some say they are particularly involved in the production of bang or hashish. They also provide casual farm labor at peak seasons.

Water is a serious problem. A large percentage of the refugee population relies on water from springs, irrigation channels and rivers. Many refugees rely on water tankers to deliver supplies to their camp. Tanker visits are irregular and insufficient. Local residents are sometimes reluctant to share their water because what they have is limited. One water project intended for refugees at Spinwam ran into difficulties for this reason. UNHCR operates water tankers at Miranshah, Ghulam Khan and Spinwam. There are tubewells at Darpa Khel, Saidgi and Spinwam,

but the Spinwam tubewell has never been used. About 215 shallow wells have been improved. DACAAR, the Danish Committee which works with refugees, has improved wells, and put in 10-15 hand pumps. UNHCR plans to sponsor new water schemes with piped systems at Saidgi, Stanye and Tabbi - these wells were bored a long time ago but disputes with locals preventing further development.

There are 13 BHUs and 1 Sub-health Unit. It has proved difficult to recruit and retain medical staff because of poor security and problems with arranging appropriate accommodation. Between May and September, 3 additional BHU teams serve the summer migrant population from Mohammed Khel, Dossali and Razmak. Latrines have been built at many camps by the Pakistan Red Crescent Society. The BHUs are located at the following sites:

Boya
 Dargamundi
 Darpa Khel
 Datta Khel
 Ghulam Khan
 Match Factory
 Mir Ali
 Moh'd Khel
 Naridag
 Sarbanki
 Spinwam
 Stanye I
 Tabbi

The Sub Health Unit is also at Stanye.

The refugee Commissionerate supports 45 boys' primary and 11 middle schools, with a combined enrollment of around 8,000. There are 4 girls' primary schools. Only 14 of these schools are in katcha or pucca buildings; the rest are in tents. There are also many party schools.

There is one mobile veterinary unit that operates from Miranshah. It is staffed with one Veterinarian, 2 Livestock Assistants and one attendant. There is also a stationary unit, staffed by a compounder, at Naridag camp, at Saidgi. It is run by the German Afghanistan Foundation. Another mobile unit comes in summer from FR Bannu to serve the migrant population. As of January 1990, UNHCR was trying to interest various NGOs, including the Pakistani Red Crescent and the International Rescue Committee, in undertaking a range of activities in Agency refugee camps.

Wheat rations for the refugees are now the only regular rations, due to the falling off in donor assistance for the refugees. Edible oil and kerosene are distributed irregularly. For example, no edible oil was distributed in November and December 1989, but rations did become available for January and February 1990. Nutrition surveillance of these refugees is very important as rations become erratic. Monthly rations of kerosene were distributed in November and December but not January and February, with untoward consequences for the Agency's supply of brush and firewood. In some areas, brush is not available in any quantity, and the women must walk very far to try to acquire enough for cooking and heating.

A 1000 MT conventional warehouse exists at Miranshah for storing rations.

It is not possible to quantify the effect that 10 years of refugee residence in the Agency have had on the environment and local economy. Deforestation and erosion are major consequences. Use of scarce water resources may have had some effect on agriculture or the water table. New animal diseases may have been introduced, or old ones more rapidly spread. In addition, the political effect has not been a happy one, adding to and complicating indigenous turmoil, instability and tensions. The ease of access to heavy weaponry has also made it easier for tribesmen to resist government encroachments and attempts to incorporate the area more fully into the body politic of Pakistan. North Waziristan remains one of if not the most unstable of the tribal agencies, and the refugee presence is probably in some measure responsible for this.

V. LAND USE

Land use estimates are made and published annually, but no method currently is being used by which accurate data could be obtained. Estimates can vary considerably from one year to another, leaving the reader puzzled as to what has brought about such a drastic change. In the case of North Waziristan, where no land records exist (except for the Tochi valley), much of the recorded quantitative data concerning land use and agriculture appear to be the result of the best guesses of agriculture staff in the field. Accordingly, such data must be handled cautiously. Some of the problems with North Waziristan land use statistics are discussed below.

Land use estimates made for seven years in this decade were compared and are presented in Table V.1. The first estimate is drawn from the Agriculture Census, which was not a "census" but rather a sample survey. The others were published first by FATA Agriculture and then by the Bureau of Statistics in FATA Development Statistics. The Census figures are substantially out of line with those compiled by FATA Agriculture. The former cannot be ruled out but neither can they be substantiated. The fallow area recorded in the Agriculture Census, however, appears to be low relative to total cultivated area, given limited irrigation availability in the Agency in 1980. However, Census enumerators would have had easiest access to the Tochi valley, with good irrigation, and no access to inaccessible areas with marginal agriculture.

The estimates reported in FATA Development Statistics also show some surprising variations. The change from 1980-81 to 1981-82 is the most remarkable. FATA Agriculture staff suggest that this change came about because they were instructed by another department to use new data in 1981-82, which was possibly made available by new research. The research perhaps permitted the correction of earlier data. The land use statistics for several Agencies show a marked change from previous years in the 1981-82 statistics. For some, such as Kurram, a large increase in cultivated area is registered; for others, a decrease. New findings are a plausible explanation for the change but the amount of fallow land recorded in 1981-82 does not seem plausible. It is possible that if the information resulted from an aerial survey, the planes flew over the Agency in between harvest and sowing and so recorded as fallow land that which was about to be planted or had just been harvested. The only other possibility is that there was a general adjustment of tribal agency boundaries circa 1981, but this possibility was ruled out after investigation - no such change in Agency boundaries appears to have occurred.

TABLE V.1

ESTIMATES OF LAND USE IN NORTH WAZIRISTAN
IN ACRES

	1980 AG. CENSUS	FATA DEVELOPMENT STATISTICS			
		1980-81	1981-82	1986-87	1987-88
CULTIVATED AREA	50804	17047	28911	29771	39536
SOWN AREA	48192	14747	15073	22239	29652
FALLOW AREA	2612	2300	13838	7532	9884
CROPPED AREA	66996	22313	29158	41251	43020
AREA SOWN MORE THAN ONCE		7566	14085	19012	13368
CULTURABLE WASTE		1102	5189	4898	3509
FOREST		49	640	857	1942
CROPPING INTENSITY	132	131	101	139	109
PERCENT FALLOW	5	13	49	25	25

The findings for fallow area over the years show no consistency. While the amount of fallow land will vary with rainfall, the drops and increases here do not correlate with good and poor rainfall.

Using 1981-82 data as a base, government estimates since that time show an increase in cultivated area of 10,625 acres, or 37%. This is a very substantial increase, most of which appears to have occurred between 1986-87 and 1987-88. Improvements in irrigation could account for some of the increase in cultivated area. Through October 1988, FATA-DC claims to have brought 6,703 new acres into production via surface irrigation system improvement and 579 acres via tubewells, but these are the maximum command areas, not the functioning ones. Private tubewells have also permitted farmers to cultivate new lands. What remains somewhat inexplicable is that the increase in cultivated area is not reflected in a decline in the area of culturable waste, for where is new cultivated area to come from, if not from waste land that is potentially arable? What is also odd is that if we accept the estimated cultivated area as around 39,500 acres, then that throws into some doubt the estimated cropped acreage of 43,020 acres. We would expect to find the cropped acreage to be larger than this. For example, for the same year in South Waziristan, which has a similar geography, farmers were able to raise two crops on 13,825 acres, while the comparable acreage for double cropping in North Waziristan was only 3,484. Since North Waziristan is not appreciably drier than South Waziristan, such a huge difference is unlikely. The conclusion that the researchers have reached is either that the cultivated acreage in North Waziristan is closer to the 29,771 acres recorded for 1986-87, or that the cropped acreage is substantially higher than the 43,020 acres recorded for 1987-88.

The estimates for culturable waste land show no consistency from one year to the next. Determining the amount of culturable wasteland is difficult and requires a survey and classification of soil types which has not been done for the Agency. Amounts recorded for forest area are also too variable to be reliable.

VI. AGRICULTURE

A. Farm Population and Landholdings

The 1980 Agriculture Census, which was a sample survey, recorded a farm population of 139,270, which was 58% of the total population of the Agency counted in the 1981 Census. There were areas to which enumerators did not have access. This number does not include families that owned herds but did not farm.

Farming in the Agency is carried out mainly by small holders, the vast majority of whom own all the land they work. According to the 1980 Agriculture Census, 73% of the holdings surveyed in North Waziristan were less than 2.5 acres in size, and those holdings occupied 22% of total cultivated acreage. In South Waziristan, 43% of the holdings were less than 2.5 acres and they occupied only 7% of the total cultivated area farmed by the sample. In Kurram, 62% of the holdings surveyed were of this size and they held 17% of the total cultivated area. The average size of holdings of less than 2.5 acres was .97 acres in North Waziristan; 1.12 acres per holding in South Waziristan; and 1.05 acres in Kurram. Thus, the category of smallest holders were slightly worse off in terms of farm size in North Waziristan than in the other two Agencies. This of course, tells us nothing about land productivity - Tochi river valley land probably rivals Kurram river valley land in productivity.

Of these three Agencies, North Waziristan had the smallest percentage of holdings (23%) that might be classed as medium-sized, or from 2.5 to under 7 acres. The comparable percentage for South Waziristan is 43% of all holdings, and for Kurram 28%. While North Waziristan has a marginally smaller percentage of large holdings of 25 acres and over than the other two Agencies, those holdings comprise greater acreage than in Kurram but less than in South Waziristan. In sum, ownership might be most egalitarian in Kurram, followed by North Waziristan and then South Waziristan, but the differences are small.

Kurram Agency in fact had a higher incidence of tenancy in 1980, with a larger amount of leased or sharecropped land than in North Waziristan. Of the three Agencies, North Waziristan had the least amount of land and the smallest proportion of cultivated area (4.9%) leased or sharecropped. While it had a much larger number of tenant farmers than South Waziristan, it also had far fewer owner-cum-tenants.

As with other Agencies, fragmentation of farms is considerable. This has two aspects. The first is that, owing to Islamic inheritance laws and a high birth rate, the number of farms grows while the size decreases. The second is that to ensure fair inheritance of good and bad land, owners end up farming land that

is physically divided into different and often tiny parcels, requiring them to travel from one field to another to another, thereby reducing the time - and cost-efficiencies to be gained in using agricultural machinery.

Of all owner-operated farms in the sample, only 10 per cent were in one piece. Even among those farms less than one acre in size, 46 % were divided into two or more separate pieces. For farms between 1 acre and 2.5 acres in size, 75% were fragmented. Out of a total farm area of 51,960 acres covered in the agriculture census, only 5,427 acres were held in units of one piece. The average number of parcels per farm for the Agency as a whole in 1980 was 3.6. This compares with an average of 5.3 fragments per farm in Kurram and 4.4 pieces per farm in South Waziristan. Even for the smallest size farms, those under one acre, the average number of parcels per farm was 3.

Because the pressure on available farm land continues to grow, a powerful incentive exists for out-migration from the Agency. All families seek other forms of employment because few can support themselves entirely from agriculture. The average household size for farm families was 8.2 in 1980. This is two individuals less per family than in Kurram and South Waziristan for the same period. In terms of farm family members, 37% were living on less than 2.5 acres.

The Agriculture Census recorded that 77.5% of farm family males aged 10 years and older did the work only of their own households, meaning in the main, farming. The balance were either economically inactive or employed elsewhere. Of those farming less than 2.5 acres, 80% of the males 10 and older did the work only of their own households. Of all farm family males in this age group, 1 % did agricultural labor for other households, and all these men were from families farming less than 5 acres.

B. General Description.

The best and most abundant farm land is found in the Tochi or Daur valley. This is the heart of Agency agriculture. The valley lies along the Tochi river and is completely surrounded by Wazir hills. It is 35 miles long and in some parts is as much as 5 or 6 miles wide. Its average breadth is about 1 1/2 miles. The bulk of its farming population is made up of the Daur tribe, although there are Wazir farming settlements. Early in the century, the British registered 15,262 acres of valley land as cultivated, and they noted that there was heavy pressure on available land (5/8th of an acre per head) and not much room for expansion. Early in the century, farmers used spades rather than plows to work this soil because of its heavy alluvial nature. All crops are grown.

Farm lands are also found along the Kurram, Khaisora and Kiwa rivers. The latter empties into the Khaisora. There is also good agricultural land along the Kaitu river, particularly at Spinwam and to a lesser extent at Datta Khel. North and east of Razmak, in the southern portion of the Agency, there is a fair amount of agricultural land, scattered along the many alqads in the area. There appears to be little agricultural land and potential in the southwestern (Madda Khel territory) and northwestern parts of the Agency, where it is very hilly and there appear to be few perennial sources of water.

In 1980, the Agriculture Census recorded that 66% of the cropped area in its sample was irrigated. 92% of the cropped area belonging to farms under 5 acres in size was irrigated. The percentage of unirrigated land relative to irrigated rises as farm size increases, a correlation that does not hold true of Kurram or South Waziristan.

Common crop rotations in the Agency are:

- o wheat - maize
- o wheat - tomato
- o wheat - potato
- o wheat - rice

C. Crops

At the time of the 1980 Agriculture Census, wheat was by far the dominant crop, occupying a larger share of the total cropped area in its sample than in other tribal agencies. In South Waziristan and Kurram, the Rabi and Kharif cropping seasons held roughly equivalent importance in terms of cropped acreage. In North Waziristan in 1981, Rabi crops occupied 66.6 % of the total cropped area, with wheat accounting by itself for 60% of the cropped area. Kharif crops were planted on the remaining 43.4 % of the cropped area. Maize is the predominant Kharif crop, planted on 26% of the total cropped acreage in 1981 (or on 78.6% of the Rabi acreage). Thus, in 1981, North Waziristan had less of a crop mix and placed more emphasis on grains than South

Waziristan or Kurram: wheat and maize together accounted for 86% of North Waziristan's cropped area, 74% of South Waziristan's and only 56% of Kurram's cropped area. Only South Waziristan had a higher percentage of its cropped area planted in maize, and Khyber

a higher percentage in wheat. Minor crops included vegetables, fodder, paddy, sugar cane and fruit. With respect to the Kharif season, the farms that were the smallest in acreage raised the largest percentage of maize, and the smallest percentage of sugar cane and vegetables.

Having said the above, it should be noted that Census estimates for wheat and maize acreage are much higher than estimates for the same period made by FATA Agriculture staff, despite the fact that the Census only reported on a sample, albeit a very large one, while FATA Agriculture estimates try to cover the agricultural "universe" of the Agency. The Census recorded 40,465 acres in wheat on its sample holdings, while FATA Agriculture's 1981 estimate was 15,073 acres. For maize, the Census estimated 17,280 acres planted on its sample holdings, while FATA Agriculture estimated 8,204 acres. The Census also gave a higher estimate for rice acreage - 1,368 acres - vs. FATA Agriculture's estimate of 321 acres (although in 1979-80, FATA Agriculture reported 1,186 acres in paddy). In FATA Agriculture estimates of the period, maize carries more importance in terms of percentage of cropped acreage than it does in the Census estimates. It would be unwise to put too much faith in either set of estimates. The only part of the Agency for which reporting might be accurate is the Tochi valley, whose inhabitants have paid land revenue for several years. Therefore, for this small area, land records exist. For other areas, crop estimates are made quite casually by Agriculture staff who have no accurate means of making them. They lack the time, the skill and the methodology by which to make adequate estimates of acreage under various crops. There are many areas to which they cannot go. While they may note changes in the cropping pattern over the years, the degree of change may escape them. In a number of Agencies, for example, vegetable acreage is probably being seriously underestimated. By contrast, the Agriculture Census relied on farmers' memories and estimates of cropped acreage - farmers in the sample may have over-estimated area under crops.

While the acreage and yield or production statistics for various crops over time may appear rational in agricultural statistics reports, in fact agriculture staff generally strive for consistency, showing small increases (and sometimes decreases) in acreage and often steadily increasing yields. Sometimes, however, their estimates show startling increases or decreases in acreage from one year to the next - extreme changes should be annotated with an explanation in statistical reports because it is very difficult to uncover explanations some time after the fact. We will start the discussion of crops in the Agency with rice, which is not a major crop, but the estimates here are inconsistent enough to cast serious doubt on estimates for all

crops. We simply have no way of judging if any of the estimates approach accuracy.

1. Rice

Table VI.1 shows rice acreage, production and yields since 1974-5.

Table VI.1

Rice Acreage, Production and Yields

Year	Acreage	Prod. in MT	Yield (MT/Acre)
1974-75	801	305	.38
1975-76	810	308	.38
1976-77	801	406	.51
1977-78	1201	455	.38
1978-79	1201	470	.39
1979-80	1186	446	.38
1980-81	316	125	.40
1981-82	321	127	.40
1982-83	672	266	.40
1983-84	964	381	.40
1984-85	969	384	.40
1985-86	131	52	.40
1986-87	136	65	.48
1987-88	618	300	.49
1988-89	912	460	.50

The startling increases and decreases in acreage are difficult to explain for a crop that is entirely irrigated and must be planted where a farmer is certain of an adequate supply of water. We might expect to see some sort of decrease in acreage over time, as has happened in Kurram Agency, as farmers switch to high value vegetable crops which do not require as much water and earn a good income.

The yields recorded are probably more accurate than the acreage or production because agriculture staff can measure yields on a sample basis or can ask farmers. These yields show a slow but steady increase in the last fifteen years. It appears that North Waziristan rice growers are still obtaining lower yields than Kurram farmers. The Census recorded that in 1981, 73% of the rice was planted in the improved Irri variety - a much higher percentage than prevailed in Kurram, where the local variety is said to be preferred because it is higher yielding. Paddy is grown primarily in the Tochi valley, where yields in 1959-60 were .5MT per acre.

2. Wheat

Regardless of disagreements in the statistics, wheat, as elsewhere in FATA, is the predominant crop. The 1981 Census found that 74% of the wheat acreage on its sample of holdings was planted in improved varieties. MexiPak still predominates among improved varieties and may not now have the production potential of newer varieties. Local varieties may also be grown. Farmers save seed from one year to the next, in part because of the cost of buying new seed but also because of very limited availability of new seed.

The Census also found that 53% of the wheat acreage was irrigated, while 47% was barani land. However, FATA Agriculture estimates for the same time period show only 10% of the wheat acreage as barani. The percentage judged as barani by FATA Agriculture staff has declined somewhat since - currently, FATA Agriculture estimates that around 6% of the wheat acreage is rainfed.

Table V.2 shows wheat acreage, production and yields. FATA Agriculture shows small but steady increases in irrigated wheat acreage since the mid-1970s. Whether the particular increases are accurate or not, the trend toward increasing acreage probably is accurate as improvements in irrigation have permitted new land to come into production and changed barani land into irrigated land. This is particularly true since there are not many other crops that compete with wheat for winter planting.

Production and yield estimates show several oddities. For three consecutive years starting 1980-81, the yields on barani land were an improbable 1.75 MT per acre, more than four times the .42 MT/acre yield on irrigated land. In 1976-77, the yield on barani land was also higher than on irrigated land (.51 MT/acre compared with .45 MT/acre), and in 1979-80, 1983-84, and 1984-85, the yields on barani and irrigated land were remarkably similar. Yields on irrigated land, averaging around .42 MT per acre, are low, relative even to Kurram and South Waziristan. In the instance of Kurram, the soil generally is more fertile and water more abundant. Since farming practices do not differ, it is harder to account for the differences in yield between South and North Waziristan. It is possible that North Waziristan has more of a problem with pests and disease.

North Waziristan raises considerably less wheat than South Waziristan (16,185 acres planted in 1988-89 compared with 20,336 acres planted in South Waziristan), despite an estimated total cropped acreage that is approximately the same in both Agencies. Preference may be given to maize.

Table VI.2

Wheat Acreage, Production and Yields

Year	Acreage (Acres)	Prod. in MT	Overall Yield (MT/Acre)
1974-75	12,753	6,096	.49
1976-77	14,001	6,401	.46
1977-78	14,001	5,667	.41
1979-80	14,579	6,000	.41
1980-81	15,073	6,202	.41
1981-82	15,073	6,202	.41
1982-83	15,073	6,202	.41
1983-84	16,556	6,880	.42
1984-85	16,679	6,931	.42
1985-86	16,556	6,891	.42
1986-87	17,545	7,300	.42
1987-88	17,544	8,300	.47
1988-89	17,297	7,232	.42

3. Maize

The Census recorded that 16% of the maize was on barani land in 1981. This finding does not fit with FATA Agriculture data which state that the maize crop has been entirely planted on irrigated land since 1975-6. This is not possible. Considerable maize is planted on rainfed land in Razmak division. FATA Agriculture estimates of acreage are odd, although less inconsistent than for paddy. Table VI.3 shows acreage, production and yields. It seems clear that new estimates were not even attempted for a number of years, with the estimate for the previous year simply repeated. After holding stable for a number of years in the late 1970s and 1980s, acreage suddenly increased by 41% in 1984-85, then fell by almost the same percentage the succeeding year, and then increased by 34% in 1986-87. Since that latter year it has continued to increase. The recent increases must be viewed with suspicion since in many tribal agencies, farmers are switching from maize and paddy to high value vegetable crops, planted in the same season. This is particularly true since maize is an irrigated crop, and the varieties planted are local and low yielding. Recorded yields show amazing consistency since 1976-77 - never a very good year or a very bad year, always a mediocre one for maize. In the Tochi valley in 1959-60, yields were 0.72 MT per acre, but this was on fertile and well watered land.

North Waziristan raises more maize, in absolute terms and also relative to total cropped acreage, than South Waziristan or

Kurram. North Waziristan has the same estimated cropped acreage as South Waziristan and in 1988-89, estimates suggest that 13,170 acres were planted in maize as compared to 10,378 acres in South Waziristan. This suggests that North Waziristan farmers have been less quick to exploit opportunities offered by planting cash crops such as vegetables and fruits - or that certain stumbling blocks have been put in the way of their doing so.

Table VI.3

Maize Acreage, Production and Yields

Year	Acreage (Acres)	Prod. in MT	Yield (MT/Acre)
1974-75	7858	3642	.37
1975-76	6783	2896	.43
1976-77	8199	5131	.63
1977-78	8199	5131	.63
1978-79	8201	5131	.63
1979-80	8204	5112	.62
1980-81	8204	5200	.63
1981-82	8204	5200	.63
1982-83	8154	5200	.64
1983-84	8154	5170	.63
1984-85	11490	7290	.63
1985-86	8327	5283	.63
1986-87	11120	7050	.63
1987-88	12355	7830	.63
1988-89	13170	8250	.63

The above yields show surprising consistency. In the Tochi valley in 1959-60, yields were .72 MT per acre, but this is on fertile and well watered land.

4. Sugarcane

Sugarcane is raised only in Mir Ali subdivision. The 1980 Agriculture Census recorded that 6% of Agency farms raised this crop on 730 acres of almost entirely irrigated land. Acreage then stayed constant for a number of years, not surprisingly since the cane lasts for several years and since it is not a suitable crop for much of the Agency. FATA Agriculture staff records show a decrease in acreage, from 700 acres in 1987-88 to 250 acres the following year, in 1988-89. This seems surprising.

5. Fodder

The 1980 Agriculture Census found 41% of the farms growing fodder crops on 2,846 acres, most of which were irrigated. Those growing fodder crops did so on 11% of their total cropped area. This acreage presumably does not include crops such as maize, which are planted thickly and then thinned during the growing season for fodder.

6. Fruit Crops

The 1980 Agricultural Census recorded only 397 acres planted in fruit crops, or less than 1% of the total cropped area. Estimates for 1988-89 vary, but approximately 684 acres were planted in kharif fruits and another 323 acres in Rabi fruits. It is very difficult to estimate acreage, and therefore yield and production since there are few proper orchards laid out. Plantings are mixed and fruit trees may be planted among other crops. The simplest and least costly way to develop acreage estimates for important fruit crops would be to station checkers to count wagon and lorry loads of the crops leaving the Agency at harvest time. Then a rough calculation would need to be made of amounts sold within the Agency. The existing data, however accurate or inaccurate they may be, appear to suggest that farmers in North Waziristan have not turned to raising fruit crops with the same enthusiasm to be found in Kurram and South Waziristan Agencies. There are few areas with good water suitable for apple cultivation, although low chilling varieties could be explored. Still, the climate is suitable for some temperate-zone crops and some warmer-climate fruits. Much of the information that follows is derived from conversations with and the consultancy report of Mr. Rabi, who studied horticulture crops in the Agency in autumn 1989.

In terms of acreage, the predominant fruit crops are apples and loquats. Loquats have taken hold because they are the only fruit to be harvested in March and April, and so they meet with little competition from other fruits in the market. Dates are also important; apricots follow, and then peaches and plums. Smaller amounts of walnuts, pears, citrus and some other fruits are grown. Persimmons were tried and were not successful and are now being given up. Fig acreage also appears to have declined. Local varieties appear to predominate, and the resulting fruits are of inferior quality as a result. Fruit trees are planted too close together, and pruning is not done. Weeds flourish, giving pests a place to hide and robbing the soil of water and nutrients. Fertilizer and agro-chemical use is limited. Watering is via flood irrigation, which is not appropriate for tree crops.

Apples are grown mostly in Razmak and Miranshah subdivisions, as are walnuts. The altitude and corresponding colder temperatures are really only suitable for apple in Razmak. FATA Agriculture staff have laid out twenty acres of apple orchards to encourage proper management techniques in Razmak on private farm land. This year, 30 acres of apple and walnut orchards will be laid out in Razmak subdivision, part to try to counter hashish growing. One of the difficulties is that the orchards are on rainfed land. The department is providing irrigation by tanker truck. It hopes it can discontinue this once the trees get bigger, but the economics of raising fruit in such a fashion should be carefully examined. There may be little potential for encouraging farmers to begin planting orchards if water must be trucked to the site. Much of Razmak subdivision is rainfed land.

Apricots, plums and loquats are primarily found in Miranshah subdivision. Dates are grown in Mir Ali subdivision, which is at a lower altitude and therefore warmer. Official statistics show date acreage as falling sharply in the past few years, from 519 acres in 1984-85 to 124 acres in 1988-89, but the consultant Mr. Rabi, concluded that acreage in Mir Ali was around 100 acres. Agriculture staff have initiated a program two years ago to distributed high quality date suckers to farmers. The first year of the program 1300 suckers were distributed, and in the second year, 600 suckers. This year, another 600 suckers will be distributed. The total number of suckers distributed would cover 23 acres, if properly spaced, so the program is quite small. The first year, department staff estimate that the survival rate was not very good, owing to lack of knowledge of the farmers. The second year, they believe they brought the loss rate down to a more acceptable 20% and this year they hope to lower it further. The suckers are sold at a 75% discount. The Directorate has proposed to extend this program for another 4-5 years at the same subsidy. They believe that asking the farmers to pay only 25 percent of the cost of the suckers, (not including the Department's transportation costs to bring the suckers from Bannu) is necessary to persuade farmers to plant dates.

There is also a date progeny garden at Idar Khel (also known as Haidar Khel), but it is now old and its sucker production is very limited. One recent consultant, Dr. Zaidan Abdal-Al, suggested that the progeny garden could be improved through weeding, use of basin irrigation, fertilizer, pest control and pollination, and maintenance of yield records. The department has proposed a new program, to be funded under SDP if approved, for the development of fruit and vegetable production in FATA. Increasing the area under date palm would be an important component of this. Appendix A is a detailed report on the status of date production and marketing in Mir Ali and FR Bannu.

Wild mulberry is fairly common in the Agency and the fruit is considered a cash crop. The Agriculture Department has introduced white and purple seedless mulberry in an attempt to improve the wild mulberry, through budding.

Some efforts have been initiated in improving wild olives by budding with improved varieties in Razmak, Garyum and Dossali tehsils. The areas in which the program is being implemented are Musaki Hills, Musa Khan Kot, Ablaki Hills, Razmak, Lakha, Kharsum, and Garyum. One private farmer has been involved in this as has the Agriculture Department. The Department's fruit nursery at Miranshah has improved varieties which are at the bearing stage and could be used for budwood. This activity was initiated in 1982-83 and cost approximately Rs. 2.9 million through 1988-89. About 19,600 trees have been improved. The department hopes to extend the scheme for four years.

There are few if any private nurseries in N.W. Agency.

1988-89 estimates of acreage and production are given in Table VI.4 below.

Table VI.4

**Fruit Acreage and Production
1988-89**

Fruit	Acreage	MT Production
Apple	247 acres	1700 MT
Loquat	250 acres	633 MT
Dates	124 acres	850 MT
Apricots	99 acres	400 MT
Peaches	50 acres	250 MT
Plums	49 acres	300 MT
Walnuts	25 acres	200 MT
Pears	25 acres	200 MT
Citrus	12 acres	50 MT
Mulberry	49 acres	100 MT

7. Vegetables

The 1980 Agriculture Census indicated only minor interest in raising vegetables, particularly relative to neighboring South Waziristan. Of all recorded farms, 34% grew vegetables on 10 % of

their total cropped area. Approximately 2280 acres, 24% of which were rainfed, were devoted to vegetables. In comparing this acreage with recent estimates of around 2,335 acres planted in vegetables, it is worth keeping in mind that the Census gave very high estimates of cultivated and cropped areas. There has surely been an increase overall in vegetable acreage since the Census. At the time of the Census, Kharif and Rabi vegetable crops held roughly equal importance, with 56% of the vegetable cropped area planted during the Rabi season.

Potato, onion and tomato are the main vegetable crops. Potato and tomato are grown primarily in Miranshah and Razmak subdivisions. Planting techniques for these two crops are poor. Both are planted too thickly, and potatoes are planted on flat land instead of in ridges. Access to improved seed is difficult. Accordingly, the varieties grown produce low yields and an inferior product. Only local varieties of seed potato are available for sale in the Agency and neighboring Bannu. Farmers do exchange seed potato as well. Considerable off-season tomato is grown, particularly around Tappi and Hamzoni. Harvest is from July through November, with prices very good at the beginning and end of the season. Tomato and potato fields visited by the consultant, Mr. Rabi, were infested with aphids. Manure and fertilizer is in some use on the tomato crop. Agro-chemicals are in very limited use.

Table VI.5 shows potato acreage and production, according to FATA Agriculture estimates.

Table VI.5

Potato Acreage and Production		
Year	Acres Planted	Production in MT
1984-85	494	1,149
1985-86	119	278
1986-87	148	600
1987-88	247	1,000
1988-89	297	1,190

The drop reflected in potato acreage since 1984-85 seems odd. It is possible that acreage is being under-estimated as it is in Kurram Agency. Yields are between 2.3 and 4 MT per acre, with yields for the past few years being around 4 MT per acre. These are low yields.

There are inconsistencies in the reporting of tomato acreage - for 1988-89, one government source reported 247 acres, while other sources totalling kharif and rabi vegetables for that year suggested 1,038 acres planted in tomato. The latter figure is more likely to approximate reality.

Onion has become a more popular crop. Table VI.6 shows onion acreage and production for recent years.

Table VI.6

Onion Production and Acreage

Year	Acres Planted	Production MT
1985-86	161	827
1986-87	173	850
1987-88	371	1,822
1988-89	482	2,357

8. Barley

Barley acreage appears to have declined in recent years. Acreage was estimated at 593 acres in 1984-85 and at 272 acres in 1988-89. It is interesting that it has fallen, when it appears to have increased in Kurram Agency due to the heightened demand for animal feed and greater pressure on grazing land due to the presence of large numbers of refugee-owned animals. Barley is planted on irrigated land.

9. Pulses

FATA Development Statistics list North Waziristan as raising gram or chick peas. Staff say, however, that it is FR Bannu that grows gram, not North Waziristan. However, we give here the acreage reported for North Waziristan:

1984-85	395 acres
1985-86	469 acres
1986-87	5,683 acres
1987-88	5,683 acres

An increase of this magnitude is unlikely. A typographical error may have been made in 1986-87, and then repeated the following year when a new estimate was needed.

10. Hashish

Hashish is reportedly becoming a fairly common crop in Razmak subdivision, on barani land. No estimates of acreage were available. This is a politically difficult area. Farmers also raise maize and potato but these two crops cannot rival the income from hashish. Hashish is planted in March and harvested in September. The consultant Dr. Zidan Abd al-Al suggested that crops such as watermelon, muskmelon, pumpkin and snake cucumber might offer a much better return than maize and potato but their introduction would need to be accompanied by enforcement if any headway against hashish were to be made.

C. Marketing

Farmers take their cash crops to nearby markets and sell them to Commission agents, who in turn sell crops through bidding to purchases from various places. The major markets for North Waziristan farmers are Bannu and Miranshah.

D. Farm Labor

In 1980, 406 farm households in the Census sample of 17,036 reported hiring 572 laborers. It is surprising that all except 5 of those 572 workers were reported as laboring on farms that were less than 5 acres in size, and the majority worked on farms smaller than 1 acre in size. It seems odd that farmers owning such small plots could afford laborers even at peak seasons.

The supply of refugees since 1980 has increased the pool of casual labor and may have made such labor more affordable for farmers. Refugees are most likely to be employed in fruit orchards. It is not possible to quantify this phenomenon.

The Agriculture Department pays Rs. 25 per day for casual farm labor. Commercial rates are higher and depend on the task. Below are the approximate rates for different types of labour:

Hoeing	Rs. 40 per day
Irrig. Channel construction	Rs. 50 per day
Pruning	Rs. 120 per day
Spraying	Rs. 40 per day

E. Farm Power

Agriculture statistics indicate that there are 144 private registered tractors in the Agency. This is low relative to Kurram and South Waziristan but agriculture is less productive and the terrain unsuitable for tractor use in many places. Statistics no doubt undercount tractors, since not all tractors are registered, and statistics only count the registered ones. The majority of farmers living in the river valleys have switched from oxen to tractors, while oxen are still in heavy use in the hill areas. It costs Rs. 60 - 80 to rent a tractor for one hour's plowing.

There are said to be 24 - 26 rice husking machines, although very little rice is grown. This amounts to about one machine for every 35 acres.

Department statistics also variously report 21 and 41 threshers in the Agency. If the latter number, this is more than are reported to be in use in Kurram Agency, and yet Kurram grows more wheat. Wheat threshing appears to be fairly expensive. Farmers pay 16-20% of the wheat threshed. This probably discourages a switch from traditional threshing methods.

No maize shellers are reported to be in use.

F. Agricultural Inputs and Services

1. Improved Seed

There are no ADA outlets in the Agency and improved varieties of seed (either grain or vegetable) are not widely available. The closest point for the purchase of grain seed is at Bannu, either through the ADA office or private dealers. The Agriculture Department does run a very small program selling wheat and corn seed to farmers. In 1989, 1000 maunds of wheat seed were sold, and 50 maunds of corn seed (Azam variety). Seed was sold at lower prices than those charged by the ADA because the department did not charge for transportation and storage costs. It bought the seed directly from seed farms. It would seem unnecessary to subsidize this program, particularly since it is so small. Surely there would be no problem locating farmers to buy the seed at the real cost to the department. The point is to make as much improved seed available in the Agency as possible - not to make it cheaper than it really costs.

The department would like to keep a revolving fund so that it can continue to buy seed and fertilizer and make it available on a

timely basis. The government has not approved this, so the costs in terms of staff time and paperwork for each tiny program are high.

Farmers do share seed and this is one way of obtaining vegetable and grain seed. The department estimates that 5-10% of the vegetable seed planted in the Agency is provided by one farmer to another.

2. Fertilizer

Farmers seem convinced of the utility of fertilizer, but problems of access, affordability and knowledge limit usage. The 1980 Agriculture Census found that 74% of the owner-operated farms, 78% of the tenant-operated farms and 91% of the owner-cum-tenant farms used some combination of manure and fertilizer, but the Census sheds no light on amounts used and appropriateness of application. In any case, these percentages seem very high. Farmers are less likely to use fertilizer on a grain crop than a cash crop because of cost. When they do apply it, they apply minimal doses.

The National Fertilizer Corporation has one branch selling fertilizer in Miranshah. There are also private dealers.

The Agriculture Department has a limited program for selling fertilizer. For the wheat crop now in the fields, it was able to make available for purchase 1000 bags of DAP and urea. It was not able to acquire as much DAP as it had hoped.

3. Agro-chemicals

Farmers are less likely to use agrochemicals than fertilizer and only do so on vegetable and orchard crops. The department estimates that agrochemicals might be in use on only 10% of the orchards. As with fertilizer, the problems are access, cost and knowledge. Cost is perceived as being substantially higher than for fertilizer and there is no doubt considerably less knowledge in the farming community about correct use. The cost of agrochemicals appears to have been seriously affected by inflation, and farmers increasingly find it out of reach. Agriculture staff estimate that it can cost up to Rs. 200 to spray one acre of fruit one time, and that the same field might require 5 - 8 applications throughout the growing season. Agrochemicals are available for sale in major Agency bazaars such as Miranshah and Mir Ali, through private dealers.

As in other Agencies, the extension service sells hand sprayers at a 50% subsidized rate. From 1980-81 through 1988-89, 334 hand sprayers were sold to Agency farmers. Small amounts of agrochemicals have been sold at cost for vegetables and at a 50% subsidized rate for orchards.

4. Credit

There are no institutional sources of credit in the Agency. Farmer debt, however, would appear to be considerable. The 1980 Agricultural Census found that almost 100% of all farms had borrowed from non-institutional sources. However, this statistic tells us nothing about the level of indebtedness for farms of different sizes.

5. Agricultural Engineering

This department maintains a small branch office, which reports to Tank, at Miranshah. There is one supervisor and 6 bulldozers, 4 Komatsu and 2 smaller Fiat. There are 6 drivers and 6 greasers to maintain and operate the bulldozers, as well as a Category II workshop staffed by one mechanic with a small supply of spare parts. The primary activity is levelling land for farmers for a fee. It costs Rs. 95 per hour to rent one of the Fiats; the rate for the Komatsus depends on size and age and ranges from Rs. 104 to Rs. 150 per hour. Because all six bulldozers are based at Miranshah, land levelling is only done in neighboring areas. Most of the bulldozers or 24 out of the 35 assigned for North and South Waziristan and adjoining FRs are kept at Tank and work in the area surrounding Tank. Through 1988-89, 2,668 hectares of land in North Waziristan and neighboring FR Bannu had been levelled and 112 km. of rough roads bulldozed. A small number of embankments had been built.

6. Extension

There is one Extra Assistant Director of Agriculture based at Miranshah. He has 5 Agriculture Officers and 18 field assistants under him, and his staff cover FR Bannu as well as the Agency proper. This provides better coverage than in neighboring South Waziristan. These staff are placed as follows:

Miranshah	EADA
	Agriculture Officer
	3 Field Assistants

Mir Ali	Agriculture Officer Field Assistant 2 Budders
Razmak	Agriculture Officer 2 Field Assistants Budder
Pai Khel	Agriculture Officer Field Assistant Budder
Idar Khel	2 Field Assistants
Idak	Field Assistant
Tall	Field Assistant
Darpa Khel	Field Assistant
Kher Killi	Field Assistant
Dossali	Field Assistant 7 Budders
Spinwan	Field Assistant
Ali Khel	Field Assistant
Bakka Khel	2 Field Assistants
FR Bannu	Agriculture Officer 5 Field Assistants Budder

In sum, the Agency itself appears to have one EADA, 4 Agriculture Officers, 18 Field Assistants and 11 Budders. Six of the budders are assigned to the olive improvement scheme. One of the A.O.s is assigned to plant protection, and the others to administration/finance, extension and nursery supervision. The field assistants are assigned either to the nurseries and farms or to extension activities. There appear to be only 10 field assistants to carry out extension work, which in the main means demonstration plots.

In terms of the placement of staff, the emphasis is on Tochi river valley agriculture. Large parts of the Agency are not covered at all, but some of these are inaccessible or nearly inaccessible to government personnel and many parts of the Agency have very limited agricultural potential.

There are six fruit nurseries at Mir Ali (3 acres), Dossali (Asad Khel) (3 acres), Pai Khel (3 acres), Miranshah (4 acres), Idar Khel (4 acres) and Bakka Khel (3 acres) in Mir Ali tehsil. The date nursery at Idar Khel (sometimes called Haidar Khel) is at least 15 years old. The nursery at Bakka Khel, near the boundary with FR Bannu, is relatively new but it will be moved to another area since the local people have proved less than cooperative. It was established to promote non-deciduous fruits such as guava and citrus. This is its third year. Only the nursery at Miranshah is on state land. These nurseries are the major source of fruit seedlings in the Agency. They sell at nominal prices between 45,000 and 50,000 seedlings per annum. The Pai Khel, Miranshah and Dossali nurseries each produced 15,000 seedlings in 1988-89. The Bakka Khel nursery produced 5000 seedlings in 1988-89, while the Idar Khel nursery produced only 100 date suckers. This number meets perhaps 75% of local demand, and farmers buy the rest from the Tarnab farm and private nurseries in Peshawar and neighboring areas, at higher prices.

Since the mid-1970s, Agency extension staff have planted 20-30 demonstration plots per annum. In 1987-88, the number of plots was increased to 35 (information here is contradictory because another report indicates that there were 43 plots for corn alone) and in 1988-89, it leapt to 103 (another report indicates 48 plots for wheat and 49 for maize). The figure of 103 plots may include FR Bannu. The purpose of the demonstration plots is to demonstrate improved seed in conjunction with appropriate fertilizer use. The wheat seed used in Pak 81, while the maize is Azam variety. Demonstration plots have been limited to grain crops but department staff would like to do the same with vegetable crops.

Field Assistants, in particular, require upgrading and training if the department is to become more active in promoting horticulture crops.

The Department has two trucks assigned to Miranshah. Motorcycles are assigned to the Agriculture Officers. Field Assistants have no means of transportation and no reasonable travel allowance. The lack of transportation severely limits outreach activities.

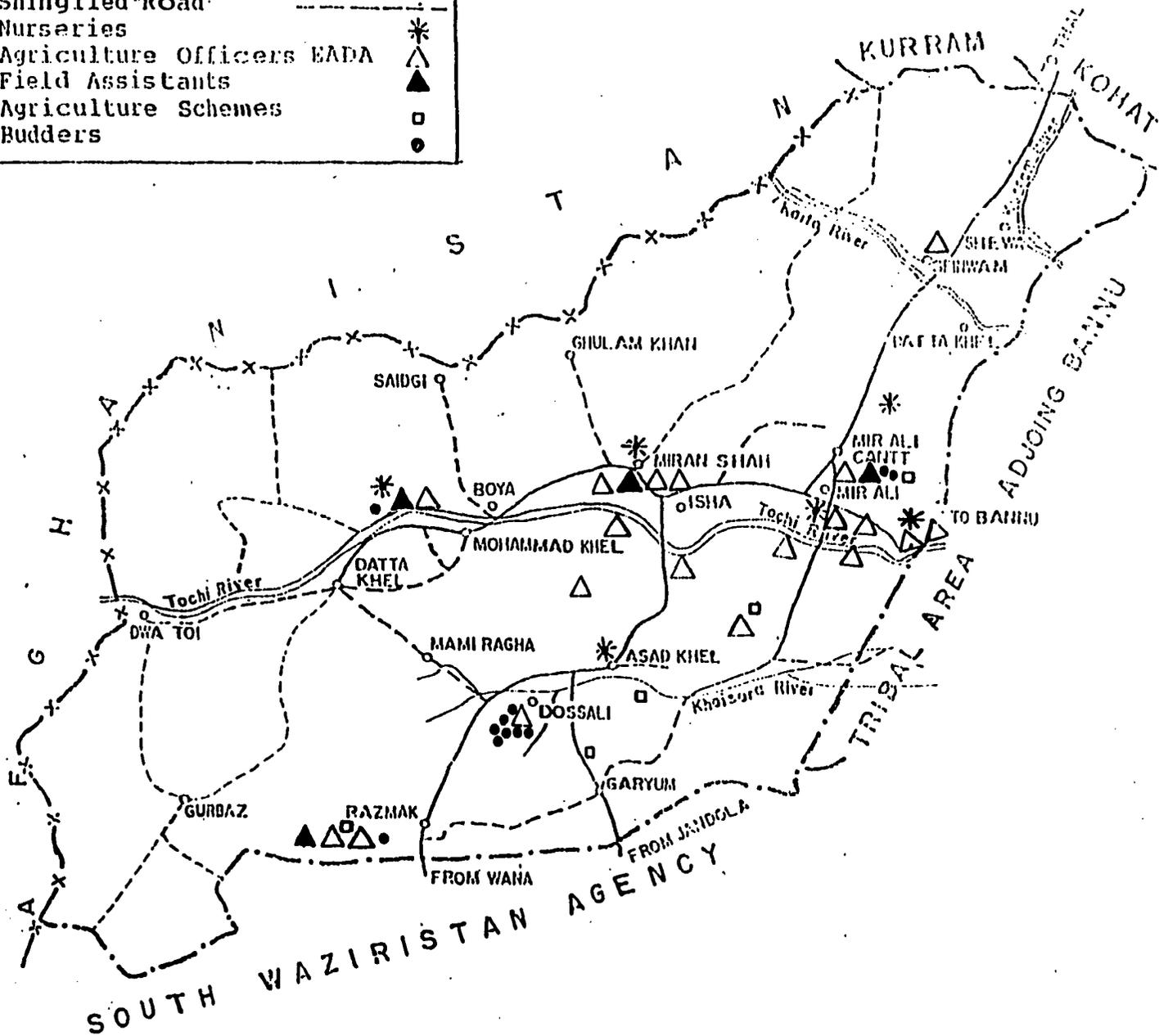
Fig VI.7 shows the locations Department staff, nurseries and schemes.

NORTH WAZIRISTAN AGENCY

AGRICULTURE

LEGEND

International Boundary	-x-x-
Tribal Boundary	- - - - -
Subdivision Boundary
Metalled Road	—————
Shingled Road	- - - - -
Nurseries	*
Agriculture Officers EADA	△
Field Assistants	▲
Agriculture Schemes	□
Budders	●



SCALE, 1: 600,000



VII. IRRIGATION, FLOOD PROTECTION AND POTABLE WATER

Section I. on North Waziristan's geography reviewed some of the basics of Agency water resources. Research on ground water resources needs to continue if the tubewell drilling program continues or accelerates. Many sites have been surveyed with respect to the feasibility of constructing small dams, and some PC-1s have been prepared. Flood protection is very important especially in the Tochi Valley due to regular flooding of the Tochi River. There are no karezes in North Waziristan.

1. Surface Water Irrigation.

North Waziristan Agency is drained by the Tochi and the Kaitu rivers, both tributaries of the Kurram river. Surface irrigation is mainly possible on the left and right bank of Tochi river. From ancient times Kaccha or temporary channels have been taken from the river Tochi for irrigation purposes. Historically, surface irrigation systems are constructed, managed and maintained by the beneficiaries through their elders and Maliks.

The normal discharge of Tochi river is 38 to 40cc perennial (average) discharge. There are usually strong annual floods in the Tochi river in spring with a maximum discharge of 40,000-50,000 cc. Flooding often destroys the temporary Kaccha channels and erodes farm land.

FATA-DC has been involved in the construction and improvement of surface irrigation schemes since 1979-80. Work generally involves the 1) improvement and Rehabilitation of old channels, and 2) construction of new channels.

As part of the Corporation's improvement and rehabilitation work, Kaccha channels are given permanent shape through lining with concrete. This also saves water and often allows new land to be irrigated or increases the flow to existing irrigated land. These schemes are constructed through contractors (often Maliks) approved by the Political Agent. After completion, the schemes are handed over to beneficiaries for management and maintenance.

Since 1979-80, 61 schemes have been completed. Of these schemes, 52 were improvements to existing surface schemes, 2 schemes were rehabilitated, and 5 new schemes were constructed. The numbers of farm families benefitting from these schemes were not available. These 61 schemes have helped irrigate 27,732 acres. Out of this 18,640 acres consisted of previously irrigated acreage; while 9,092 acres of new land were brought under irrigation due to FATA-DC efforts. FATA-DC has spent an average

of 1.608 million rupees on each scheme. Total cost on 61 schemes has been Rs.98.088 million, irrigating a total of 27,732 acres area averaging 3,537 rupees per acre cost of irrigated new and old land.

The USAID-funded Tribal Areas Development Project (TADP) is funding the rehabilitation of an irrigation scheme in N. Waziristan. This is called Khashian Irrigation System and is located in Spin Wam Tehsil. Work began in January 1990 and is expected to be complete in January 1992. This scheme will cost 4.319 million rupees and is supposed to irrigate 288 acres of land. This is the same area which was already irrigated by an existing scheme, but due to the temporary nature of the old scheme, the command irrigated area was steadily decreasing. This channel will have 24 cubic feet discharge and will benefit 600 families. USAID is funding FATA D.C. which is executing this scheme while USAID engineers are monitoring the work.

2. Ground Water

According to FATA D.C. statistics in North Waziristan Agency, as of 30 June 1989, 79 wells have been drilled. Of these, 19 have been abandoned, 37 have been energized, and 3 are waiting electrification by WAPDA. Ten tubewells are in the process of conversion while 10 will not be energized.

Tubewells are primarily located on the Dandy, Kaguri, Datta Khel, Land Muhammad Khel, Shawan, Mir Ali, Plasin/Shewa plains. Spinwan plain is a small area of 14 sq km including the catchment area. Sheratala plain has an area of 83 sq km and is located south of Spinwan. Mohammad Khel area on the Tochi river is 42 sq km and is south of Miran Shah. Dandy plain is north of Miran Shah, with a 72 sq km area. Mir Ali plain covers 138 sq km which also includes the Palasin plain. Eleven wells are in Mir Ali, of which 7 have been commissioned and 4 abandoned. Ten are on the Dandy plain and of these, 3 have been commissioned, 5 abandoned, 1 is still a testwell and one has been turned over to locals. There are six commissioned tubewells in the Idak Kasauri area that have been taken over by FATA-DC from the Irrigation Department. Out of 12 tube wells in the Wazir Khel Shewa plain, 7 have been abandoned, one has been commissioned and 4 testwells are being converted into tubewells. Five tubewells have also been commissioned north of the Dandy plains.

The above-mentioned details concern completed schemes of FATA D.C. Good prospects are thought to exist for the development of ground water resources on the Dandy plain. Currently, work is underway on 15 tubewells in the Dandy plain. In addition to

this, installation of 3 tubewells in Miranshah Village and drilling of 3 tubewells in Razmak Tehsil are underway. FATA-DC employs 2 locals, an operator and a security guard at each tubewell.

Seventy-one tubewells monitored from the month of January 1989 until June 1989, show an average of 7 hours water pumpage per tubewell daily. The lowest pumpage hours for a monitored well was 4.75 hours and the highest was 10.69 hrs. This varies from area to area and tubewell to tubewell. The closing of tubewells from time to time due to load shedding is also a factor in reducing the hours of pumpage.

It cost Rs. 1 to 2 lakh to install a tubewell in 1978. Now the cost has risen to Rs. 7 to 8 lakh per tubewell. The average operational cost, which is borne by FATA DC, is around Rs 30,000 per tubewell per month. This cost includes electricity charges, maintenance charges and salaries of the two employees.

Figures relating to some of the tubewells in North Waziristan Agency show the following picture: Five tubewells in Kajuri, Mir Ali, Tehsil irrigate a total of 107.12 acres of land benefiting 37 persons or an average of 7 farmers beneficiaries and 21.38 acres per tubewell.

In Chashmia area of Mir Ali Tehsil, 5 tubewell have the potential to irrigate a total of 111.38 acres benefitting 51 persons. On average here a tubewell can irrigate 22.25 acres of land & benefit an average of 10 persons.

In Darpa Khel area of Datta Khel Tehsil, 5 tubewells have a maximum command area of 330 acres benefitting 111 persons. Here each tubewell irrigates an average of 66 acres and benefits 22 persons.

In Boya area of Land Muhammad Khel, there are 3 tubewells in operation. Each tubewell irrigates an average of 55 acres of area and benefits 10 persons.

In Dandy area, a cluster of 12 tubewells has a command area of 267 acres, and 10 of these wells benefit 74 persons and irrigate an average of 22 acres each. One tubewell provides irrigation water for the Forest Department and another for Afghan refugees. The number of beneficiaries of these tubewells are not known.

An inspection of 5 tubewells, in August 1989, revealed the following facts: One of the tubewells was irrigating no land while the record showed 150 acres as the command area. Another tubewell was not functioning because of a mechanical fault. A

third tubewell was irrigating 40 acres of land while records showed a command area of 150 acres of irrigated land. The fourth tubewell was found to be functioning properly and irrigating 155 acres of land which was as mentioned in the record. The fifth tubewell was irrigating 60 acres of land against 80 acres mentioned in record.

The number of beneficiaries served and the area irrigated varies from area to area, depending on the landholding pattern, the potential of the well and the way on which water is controlled by the owner of the land on which the well is drilled. FATA-DC should question more carefully the drilling of wells that benefit relatively few families & little land given high investment and operational costs. Fig. VII.1 shows the locations of irrigation facilities.

3. Small Dams

The idea of constructing small dams is a new one for this area. The purpose of small dams is as follows:

1. Irrigation of land;
2. Flood protection;
3. Increasing level of ground water table;
4. Generation of power supply;
5. Provision of drinking water;

An initial survey has indicated many sites for proposed dams in N.W. Agency. As of March 1990, 24 sites have been identified as technically and economically feasible. Of these 24, feasibility reports for the following 10 sites have been prepared.

S.No.	Name of Dam Site	Catchment Area	Capacity
1.	Darwazai Small Dam.	10.5 Sq Miles	213 Acres
2.	Mendaur Small Dam.	13 "	363 "
3.	Mechin Khel Small Dam.	34 "	2675 "
4.	Model Small Dam Muchi Khel.	34 "	3278 "
5.	Small Dam Darwazi.	11 "	1275 "
6.	Small Dam Sarabi.	9 "	1244 "
7.	Small Dam Barganat	27 "	4617 "
8.	Small Dam Daudle.	59 "	6900 "
9.	Small Dam Sein Tangi.	252 "	-
10.	Shuri Kai Barrabvi on Tochi Piner.	1980 "	-

Out of these schemes, Zangari Dam will be used to generate 60 kilowatts of power. Moreover the Dinga Khel scheme and Merci Khel scheme will provide clean piped drinking water to the inhabitants of area.

Fig. VII.1

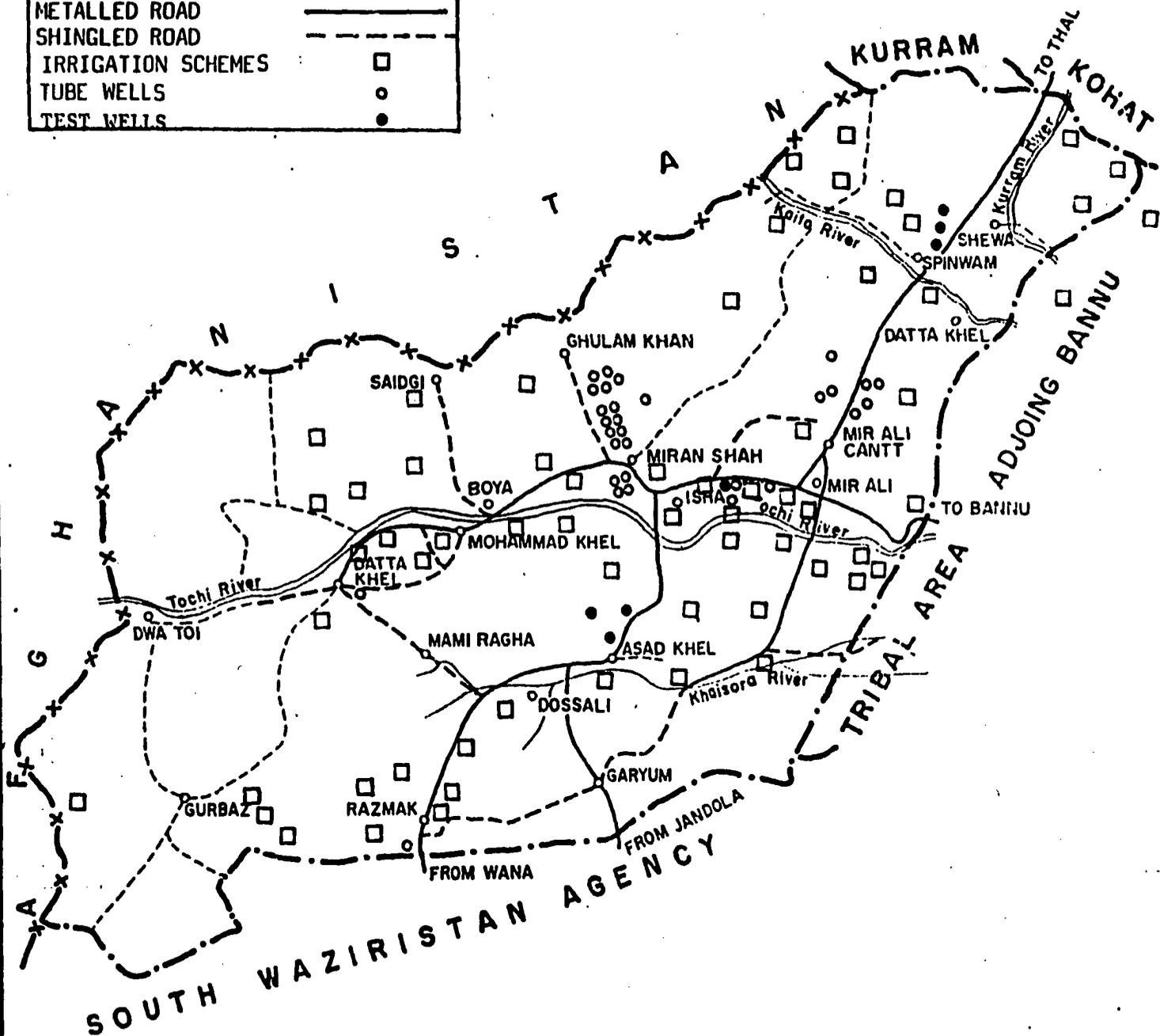
NORTH WAZIRISTAN AGENCY

IRRIGATION



LEGEND

INTERNATIONAL BOUNDARY	—X—X—
TRIBAL BOUNDARY	- - - - -
SUBDIVISION BOUNDARY
METALLED ROAD	=====
SHINGLED ROAD	- - - - -
IRRIGATION SCHEMES	□
TUBE WELLS	○
TEST WELLS	●



SCALE, 1: 600,000



The feasibility reports have been prepared by Associated Consultant Engineers Limited. PC-1's of these schemes are being prepared, as of March 1990 and will be sent to Board of FATA-DC, for approval. Most of the schemes will have to be funded by foreign donors since they are very costly projects. After the approval of proposals and identification of donors, tenders will be solicited from contractors. The cost of these dams varies from 10 million rupees to 70 million rupees. Average operational cost of one of these dams would be 0.3 million rupees per annum.

B. Flood Protection

Owing to heavy flooding in the Tochi river, the land on both sides of this river is subject to erosion. In order to protect scarce agriculture land in this Agency, FATA-DC has completed two flood protection schemes with a combined cost of 4.654 million rupees. According to FATA-DC statistics, these schemes have protected the land of 4000 people. These schemes protect 250 acres with 950 houses. One scheme is at Asokhel near Mir Ali and other is near Miranshah. Each of these schemes has more than 4 Spurs.

An inspection of a protective bund scheme in August, 1989 confirmed that the protective bund scheme was very useful. This scheme helped reclaim 120 acres. In addition, the farm land of 3000 people was also protected. Villagers found this scheme quite beneficial because otherwise much of the village could have been washed away over time by the river Tochi.

The Local Government & Rural Development Department is much more involved in flood protection schemes than FATA-DC, but it only undertakes construction of small bunds. Following are the statistics of Local Govt. & Rural Development Department for the last few years.

S.No.	Sector.	Years.	Targets	Achieved.
1.	Flood Protection Bunds.	1985-86	112	112
2.		1986-87	30	30
3.		1987-88	14	14
4.		1988-89	13	13

LG & RDD efforts have decreased substantially since 1985-86, yet flood protection should remain a priority in the Agency.

C. Staffing.

FATA D.C. has a field office at Miranshah. The Divisional Office of FATA D.C. has the following technical staff:

S.No	NAME OF DESIGNATION	NUMBER
1.	Executive Engineer	1
2.	Assistant Engineer (Civil)	3
3.	Assistant Engineer (Mechanical)	2
4.	Sub Engineers	8
5.	Head Draftsman	1
6.	Draftsman	1
7.	Tracer	2

The Local Government & Rural Development Department also has an Agency office at Miranshah. This office consists of the following staff.

S.NO	STAFF POSITION	NUMBERS
1.	Assistant Director	1
2.	Assistant Engineer	1
3.	Sub Engineer	1
4.	Office Assistant	1
5.	Senior Clerk	1
6.	Junior Clerk	2
7.	Work Munshi	2
8.	Driver	1
9.	Security Guard	1

D. Potable Water Supply.

In North Waziristan Agency, FATA D.C. has completed one tubewell scheme at Razmak in 1984-85 at a cost of 0.953 million rupees. This tubewell is used for drinking water and has a discharge of 7000 cc. It benefits 4200 inhabitants of this area.

The Local Government & Rural Development Department is also engaged in the development of small scale drinking water schemes. According to four year statistics from 1985-86 to 1988-89, the Department has constructed 3 drinking water schemes. Moreover in the same period, 32 water tanks were built, 109 wells were dug and 3300 ft of pipe lines were laid.

The Public Health Engineering Department (PHED) is the primary agency involved in the construction of drinking water schemes in the tribal agencies. As of 1988-89, 39 schemes had been completed, work on 16 was underway, 6 older schemes were being improved, and 7 new schemes were in the process of start up. Of the 39 schemes, 2 are still awaiting electrification while 2, at Dossali and Kam Sorabi, are not operating due to local disputes. The electricity to these schemes was cut in 1984 and has not been re-connected.

The fact that surface water is a scarce commodity in North Waziristan is highlighted by the fact that all except for two of these schemes draw on ground water, via a drilled tubewell. The remaining two schemes, which are at Mami Rogha and Mot Khel Spana Khel, take water from springs, but even at the latter site, the scheme is now being expanded by sinking a tubewell.

Most of the pumps which draw water from the tubewells are electrified but a few are operated by diesel engine. Loadshedding can interfere with system operation, but it should be possible to fill tanks, where these exist, during hours when electricity is provided so that water is available even when there is loadshedding.

For the first 36 schemes, 13 have house connections, an unusually high percentage given PHED's stated preference for constructing community tanks with taps or standpipes because the latter are cheaper. Those schemes providing house connections do not necessarily serve larger populations - one scheme benefitted 1400 individuals, several others served populations in the 2000 persons range, and two served larger populations of 7,000 to 10,000.

The cost of tubewell schemes runs from Rs. 600,000 (with a few schemes costing much less than this) to a high of around Rs. 1.9 million. The average cost of the water supply schemes is around Rs. 871,000. The average number of beneficiaries for 54 of the schemes is 3,888, giving a rough per person cost of Rs. 224 as the initial investment in construction of the water system.

Construction of schemes is generally done by local contractors nominated by the Political Agent. This leads to uneven quality in construction - sometimes tanks leak and waste water pools.

Recurrent costs for PHED are considerable because each tubewell scheme employs three persons, a lineman, an operator and a chowkidar.

They are supposed to carry out routine maintenance themselves but no organized training is provided. PHED remains responsible for major repairs, which it must contract out, thereby slowing the process of fixing systems that are down, and for electricity charges. As the number of schemes grows, so does the financial burden of operating the schemes. Local beneficiaries make no contribution.

Staff in the Agency are based at Miranshah and consist of 1 SDEO, 2 Sub-Engineers (or engineering technicians), an accounts person and a clerk.

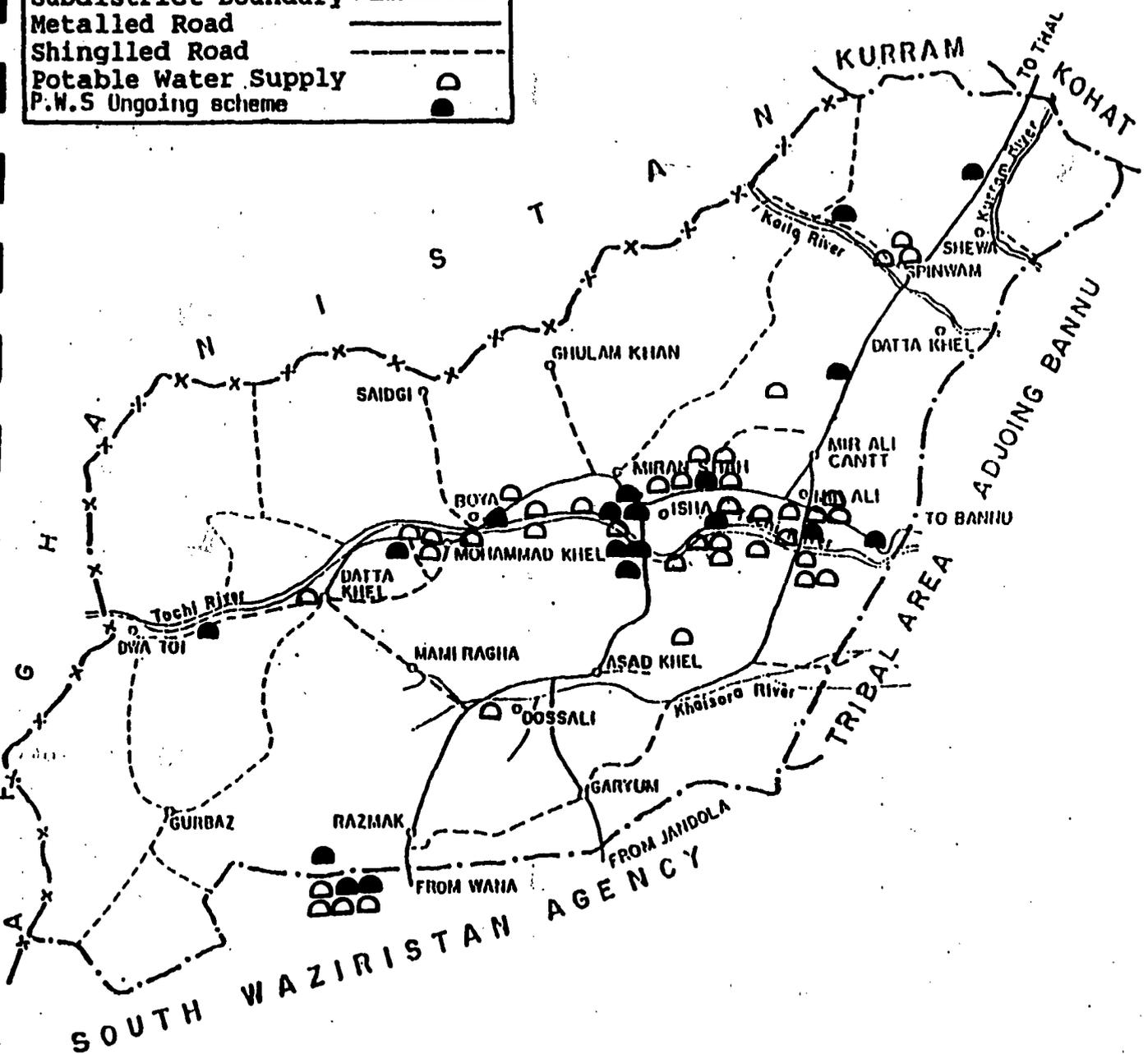
Researchers visited 2 PHED schemes. The first, at Darpa Khel near Miranshah, provides house connections to 1116 houses and will serve over 8,000 beneficiaries. Construction on this tubewell scheme has been completed but the community is waiting for a pump. Currently, women are still drawing water from dug wells. The second scheme, constructed in 1986-87, is at Misyani Algad. It appears to serve two villages. Water is pumped from a tubewell to a tank with a 30,000 gallon capacity. Taps are attached to the tank. The tank appeared to be relatively well constructed. There also appear to be 10-15 house connections, probably put in illegally by more influential members of the community. Fig. VII.2 shows the locations of potable water schemes.

POTABLE WATER



LEGEND

International Boundary	--X--X--
Agency Boundary	-----
Subdistrict Boundary
Metalled Road	=====
Shingled Road	- - - - -
Potable Water Supply	○
P.W.S Ongoing scheme	●



SCALE, 1: 600,000



VIII. ANIMAL HUSBANDRY

Households (farm and non-farm) representing 69% of the Agency's total population in 1981 were reported as part of the 1980 Agriculture Census to own the number and categories of animals given in the first column of the table below. When we add to the native animal population the large numbers of refugee-owned animals, then problems with feeding animals, over-grazing and resulting erosion become much more acute.

Table VIII.1 shows the native animal population, as recorded in the sample survey census in 1980, and the estimated refugee-owned animal population, recorded in 1985.

Table VIII.1

Animal Population

ANIMAL TYPE	NATIVE NUMBER	REFUGEE NUMBER
Cattle	128,141	41,282
Buffalo	15,738	
Sheep	307,962	193,155
Goats	196,686	63,272
Camels	1,511	26,145
Horses	264	3,175
Mules	152	?
Donkeys	19,029	10,319
Poultry	445,801	150,498

The large number of camels, donkeys and horses owned by refugees are probably not permanently resident in North Waziristan but are used to transport war materiel and other goods back and forth from Afghanistan.

A later livestock survey, which surveyed a smaller number of households in the Agency in 1986 and which did not include refugee-owned animals, indicated that there were 6.2 head of cattle, 2.3 head of buffalo, 11.4 head of sheep, and 11 head of goats per household surveyed. These numbers seem surprisingly large and it is possible that the survey was somewhat skewed by the inability of the surveyors to travel to some areas. In fact, the survey report indicates that data from FATA need to be taken with a grain of salt.

The principal animal markets appear to be the weekly ones, held on Sundays, at Miranshah and Mir Ali.

The number of native (and of course refugee-owned) animals is likely to have grown in most categories since 1980. Assuming the above figures are roughly accurate and combining the two categories, the density of sheep and goats might be about 162 animals per square kilometer. One wonders how the Agency can support this number of sheep and goats. For bovines, the density is around 30-40 animals per sq. km.

As mentioned in section IV., the number of refugee-owned animals increases in the summer, particularly around Razmak, owing to the migration of refugees from Mianwali. One additional mobile veterinary unit is brought in to treat these animals, in addition to the one stationed at Miranshah throughout the year. These are too few facilities for the number of animals, and refugees therefore not infrequently seek treatment at facilities established for the indigenous population.

The Livestock and Dairy Development Department supports 4 veterinary hospitals, 21 veterinary dispensaries, 2 veterinary centers, and 3 artificial insemination centers (attached to hospitals or dispensaries) in the Agency. This is one more physical facility than South Waziristan has, but the facilities are spread over a smaller area. In addition, many of the dispensaries are better staffed than those in South Waziristan with 2 compounders per dispensary as opposed to one. Still, the animal density appears to be higher so there should be more animals needing veterinary services in North Waziristan. North Waziristan also offers a higher level of service than neighboring South Waziristan with one additional hospital and three artificial insemination centers instead of one.

The placement of facilities follows in Table VIII.2

TABLE VIII.2

PLACEMENT OF VETERINARY FACILITIES

Hospitals	Veterinarians	Compounders
Miranshah	3	2
Razmak	1	2
Mir Ali	1	2
Spinwam	0	2

Centers/Dispensaries	Compounders	Veterinarian
Ahmad Khel	1	
Moh'd Khel	2	1

Centers/Dispensaries	Compounders	Veterinarian
Sheratala	1	
Dossali	1	
Spulga	1	
Edak	1	
Mussaki	1	
Nitasi	1	
Almerah	1	
Sarobi	1	
Solaborakhel	1	
Kot Madi Khan	2	
Khani Rogha	2	
Datta Khel	2	
Kaitu valley	2	
Ghulam Khan	2	
Darya Khan Kili	2	
Pasha Khan Kili	2	
Kot Momin	2	
Kot Akram	2	
Bichi Kaskai	2	
Koopari (New)	1	
Mami Ragha (New)	1	
<hr/>		
AI Centers	Inseminators	
Miranshah	1	
Mir Ali	1	
Moh'd Khel (New)	1	

Fig. VIII.3 shows facility locations.

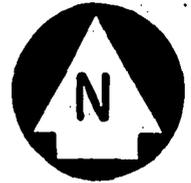
There is a vacancy at the Spinwam hospital for a DVM. At the dispensaries/centers, there are 11 vacancies for compounders. There are supposed to be two compounders per dispensary/center.

Sometimes animals are brought to the treatment facility, and sometimes owners come alone to describe the symptoms and take medications home with them. Staff also sometimes visit sick animals on the farm. Staff find it difficult to make housecalls because they lack transportation, and because they have no budget to hire local transport. There is only one vehicle - a pickup assigned to the Assistant Director. Generally, the farmer needs to make some arrangements for transporting the dispenser or veterinarian if he want a house call made. When a prescription is written for a sick animal, owners are frequently sent to the bazaar to purchase medicines, since the department does not have the budget to stock enough drugs to meet demand. It is, however, useful to have local people make some contribution for the

Fig. VIII.3

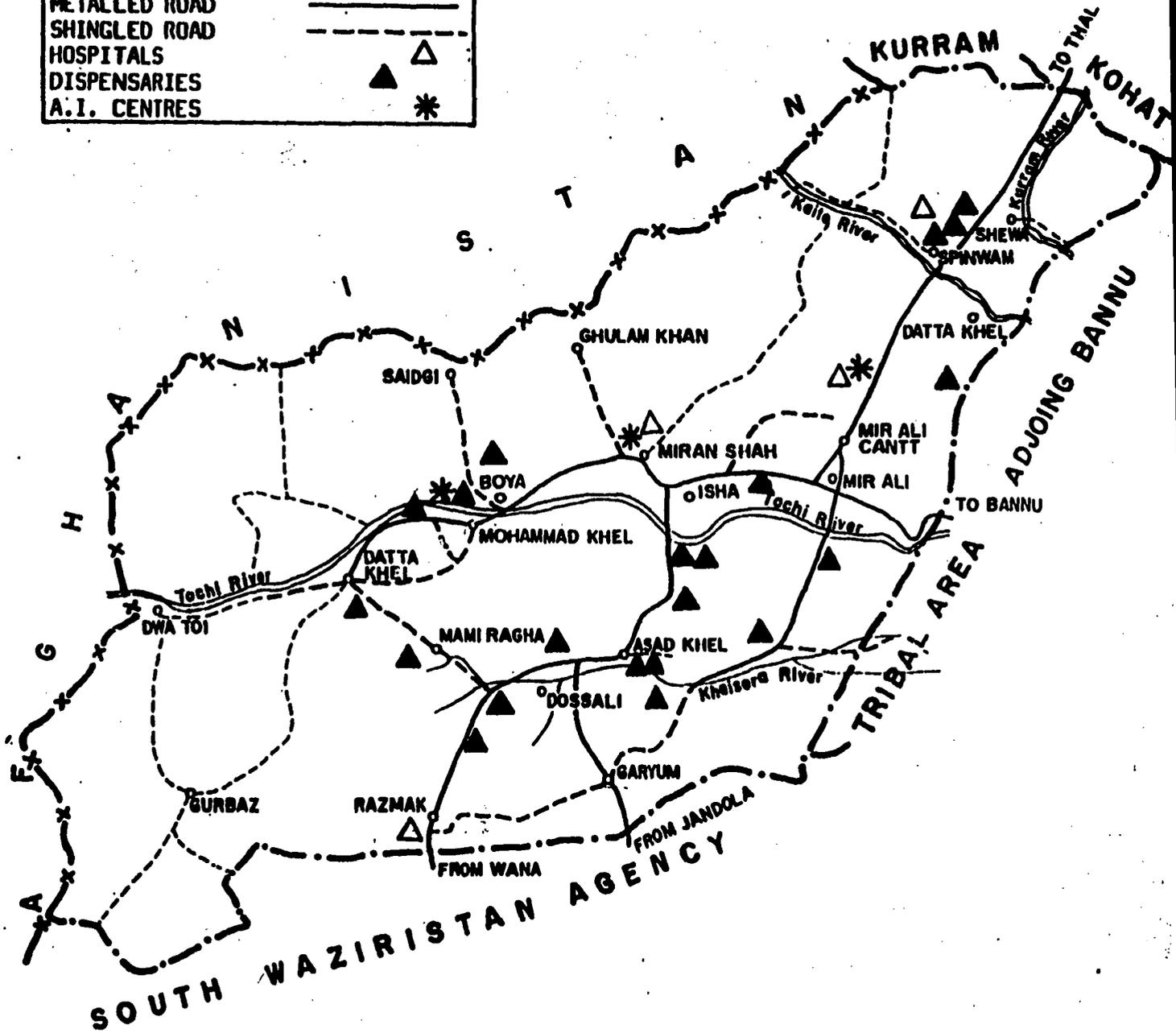
NORTH WAZIRISTAN AGENCY

ANIMAL HUSBANDRY



LEGEND

INTERNATIONAL BOUNDARY	—X—X—
TRIBAL BOUNDARY	-----
SUBDIVISION BOUNDARY
METALLED ROAD	————
SHINGLED ROAD	- - - - -
HOSPITALS	△
DISPENSARIES	▲
A.I. CENTRES	*



SCALE, 1: 600,000



service, so asking them to buy drugs for their own animals is not unreasonable.

Animals treated in recent years are as follows:

	1986-87	1987-88	1988-89
Outdoor patients:	171,271	117,476	153,000
Owners supplied with drugs/prescriptions:		55,495	
Castrations:		5,613	
Inseminations:		2,321	2,281
Drenched w/ Anti-Liver Fluke	56,000	55,297	

Usage of facilities overall appears to be rather good, based on 1987-88 figures. On average approximately 25 sick animals or owners of sick animals were seen daily at each facility - of course, the case load would have been higher at the hospitals and lower at the dispensaries. In addition, castrations were done, vaccinations were carried out, and sheep and goats were drenched with anti-liver fluke. Compounders may also have made private housecalls on a fee basis.

The department lays emphasis on curative and preventive care, and is able to do little to improve animal production. The artificial insemination program is of course some help in improving buffalo and cow stocks but it is a very small program. In addition, in 1988-89, 57 beetal bucks were distributed to begin to bring some improvement in goat herds. Since the Agency seems now to be relatively well served with treatment facilities, it would be good to consider placing additional investment into programs that would improve animal production.

IX. FORESTRY

Shawal in Datta Khel tehsil is the only substantial forested area left in the Agency. It is in inaccessible territory and is scarcely populated. All parts of the Agency suffer from deforestation. Commercial logging operations continue with emphasis placed on chalgoza and deodar (pine and cedar). Trees are also cut down for firewood. Forestry Department staff estimate that deforestation has proceeded to such an extent that 60-70 % of the wood sold in the Agency now comes from Afghanistan.

The following species are indigenous to the Agency:

Up to 3000 feet from sea level:

- * Oak
- * Mazri
- * Phulari
- * Ber
- * Kikar
- * Jang

Up to 6000 feet from sea level:

- * Oak
- * Chalgoza
- * Kail
- * Walnut

Up to 8000 feet and above:

- * Kail
- * Chalgoza
- * Walnut
- * Deodar

The forestry department began activities in the Agency in 1977-78. It has four nurseries, in which it grows the following species:

<u>Location:</u>	<u>Species:</u>	<u>Remarks:</u>
Mir Ali	Eucalyptus	Rented
	Iple Iple	Land
	Sanatha	
	Jaman	
	B/Brush	
	Moor Pankh	
	Saru	
	A. Synopila	
	Phulai	
	Robbinia	

Location:Species:Remarks:

	Mirch	
	Shisham (rosewood)	
	Ailanthus	
	Bakain	
	Amlook (persimmon)	
	Anar (pomegranite)	
	Tooth	
	Ash	
	Poplar	
Shana Khura	Eucalyptus	Rented
	Phulai	Land
	Iple Iple	
	A. Synopila	
	Sanatha	
	Tooth	
	Sivis	
	Mirch	
	Kiker	
	Saru	
	Jaman	
	Amrud (guava)	
	Deodar	
	Moor Punkh	
	Pam	
	Mazri	
	B/Brush	
	P. Soniya	
	Poplar	
	Shisham (rosewood)	
	Ash	
	Galeditchia	
	Robinia	
	Apple	
	Lokat	
	Walnut	
	Amlook (persimmon)	
	Khurbani (apricot)	
Air Field at Miranshah	Eucalyptus	Government
	Phulai	Land
	A. Synophila	
	B/Brush	

<u>Location:</u>	<u>Species:</u>	<u>Remarks:</u>
	Tecoma Stans Sanatha Mirch Kiker	
Razmak	Geleditchia Robinia Moor Punkh Saru Deodar	Government Land

The seedlings are then sold to the public at very nominal prices. In 1987-88 and 1988-89, it appears that approximately 67,874 seedlings were sold at a total price of Rs. 17,161.

The department has planted trees along an approximately 20 mile stretch on the Isha-Miranshah-Nowrak road. In addition, 18 miles have been planted on roadsides around Miranshah. It has also established block plantations on communal or government land, as follows:

- o Air Field, Miranshah
- o Epi area
- o Boya
- o Razmak
- o Mir Ali Camp
- o Tablighi Markaz

TOTAL: 578 acres

- o Cadet College, Razmak 70 acres
- o Air Field 232 acres
- o Boya 36 acres
- o Degree College, Miranshah 20 acres
- o Mir Ali Camp 200 acres
- o Epi area 295 acres
- o Tablighi Markaz 54 acres
- o Civil colony, Miranshah 24 acres
- o Pir Kali 180 acres
- o Isha 170 acres

It appears that a considerable amount of the planting has been done on state land. Forestry department staff report that there generally is little interest in or understanding of forestry activities in the tribal areas. Villages are reluctant to commit community land for the establishment of block plantations because they see no immediate return.

Fig. IX.1 maps block plantations and nurseries.

Staffing in the Agency consist of an Assistant Ranger at Miranshah, one forester at each nursery, and forestry guards at nurseries and block plantations.

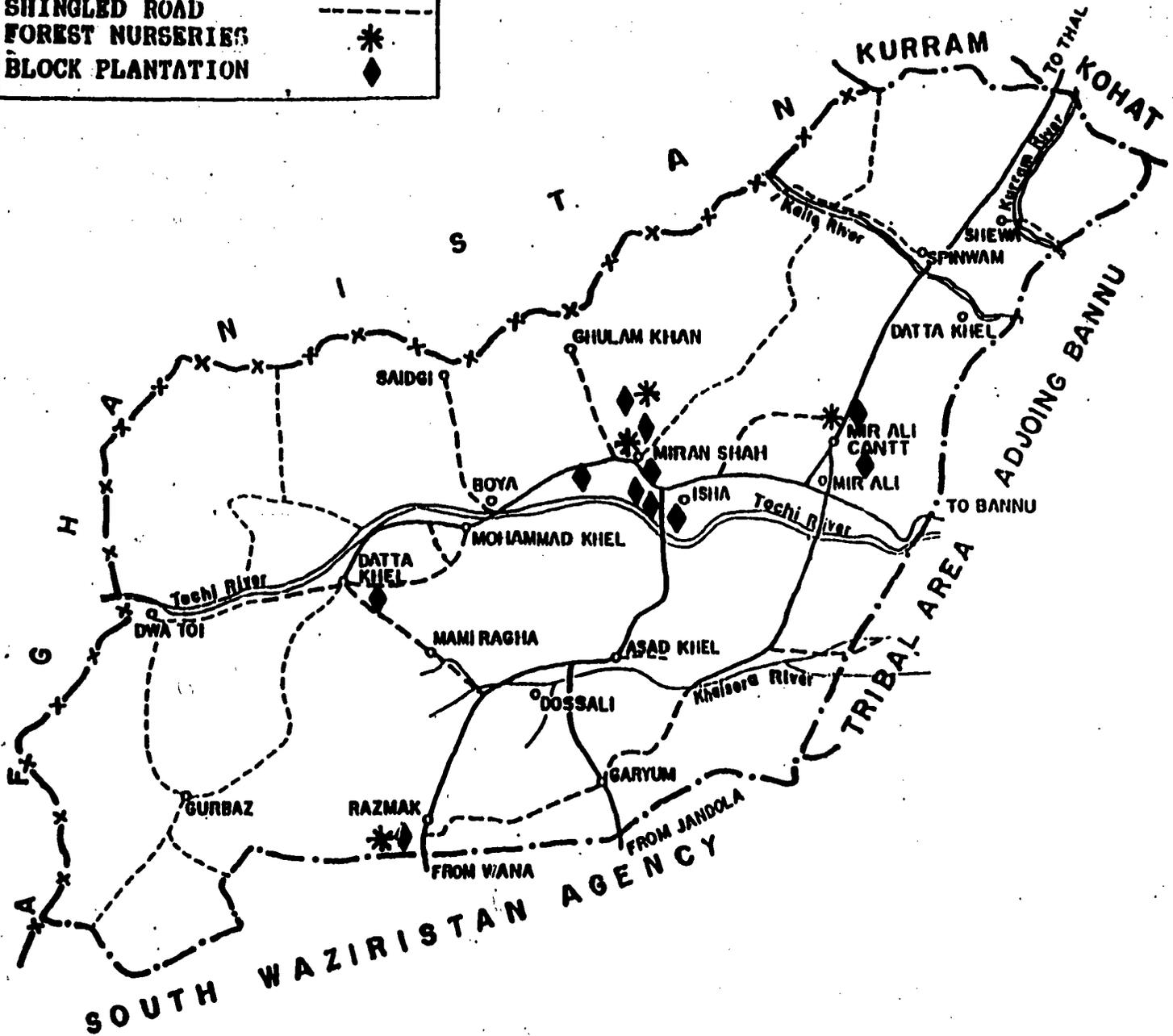
There are no sericulture activities in the Agency.

NORTH WAZIRISTAN AGENCY

FORESTRY

LEGEND

INTERNATIONAL BOUNDARY	-X-X-
TRIBAL BOUNDARY	-----
SUB-DIVISION BOUNDARY
METALLED ROAD	=====
SHINGLED ROAD	-----
FOREST NURSERIES	*
BLOCK PLANTATION	◆



SCALE, 1: 600,000



X. COMMUNICATIONS

A. ROADS

Fig. X.1 shows the road network. Table X.2 lists gravel and paved roads. The main entrance to the Agency from the settled area is via Bannu to the headquarters of Miranshah, over a good, dual lane paved road. The distance is 62 km. and it takes about 45 minutes to drive from Bannu to Miranshah. One can also come via Thall through Spin Wam and Mir Ali, but this is a dangerous road. From Thall to Miranshah the distance is 75 km, and it takes about 1 hour to drive it. This road is currently being widened. From South Waziristan, one can enter the Agency via Makin and Razmak. From Razmak to Miranshah via Isha the road is in good condition, but it is very dangerous. From Wana to Miranshah the distance is 82 km. It takes 1 1/2 hours to drive from Razmak to Isha, and this road is being widened.

The main commercial roads, and the most heavily trafficked, are from Bannu to Miranshah, Mir Ali to Thall, and Miranshah to Datta Khel.

From the Afghan border, one can enter the Agency via Saidgi or via Ghulam Khan. The Saidgi road is 11.8 km. long and has one 450 m. causeway. USAID is funding improvement and blacktopping of this shingled road from Saidgi to Miranshah. The expected completion date is 1992, and it was about 30% complete as of February 1990. About 4,000 locals and 20,000 refugees live in and around Saidgi. In 1987, daily traffic was 548 vehicles, 491 of which were heavy vehicles transporting goods or numerous passengers. A shingled road exists from Ghulam Khan to Miranshah, and it takes about 1/2 hour to travel this road. It is being paved at this writing. The Ghulam Khan road is 17 km. long. A lot of Afghan trade, war materiel, and smuggled goods pass over both roads.

USAID is also funding the construction of a blacktopped road running south of the Tochi river, from Boya to Tal. This will link right bank villages with Miranshah. This is a densely populated farming area, and there currently is only a jeepable track. The area is completely cut off during heavy rains. In fair weather, current traffic along the track is 152 vehicles daily. There is some discussion of also putting a bridge over the Tochi from this road to near Miranshah.

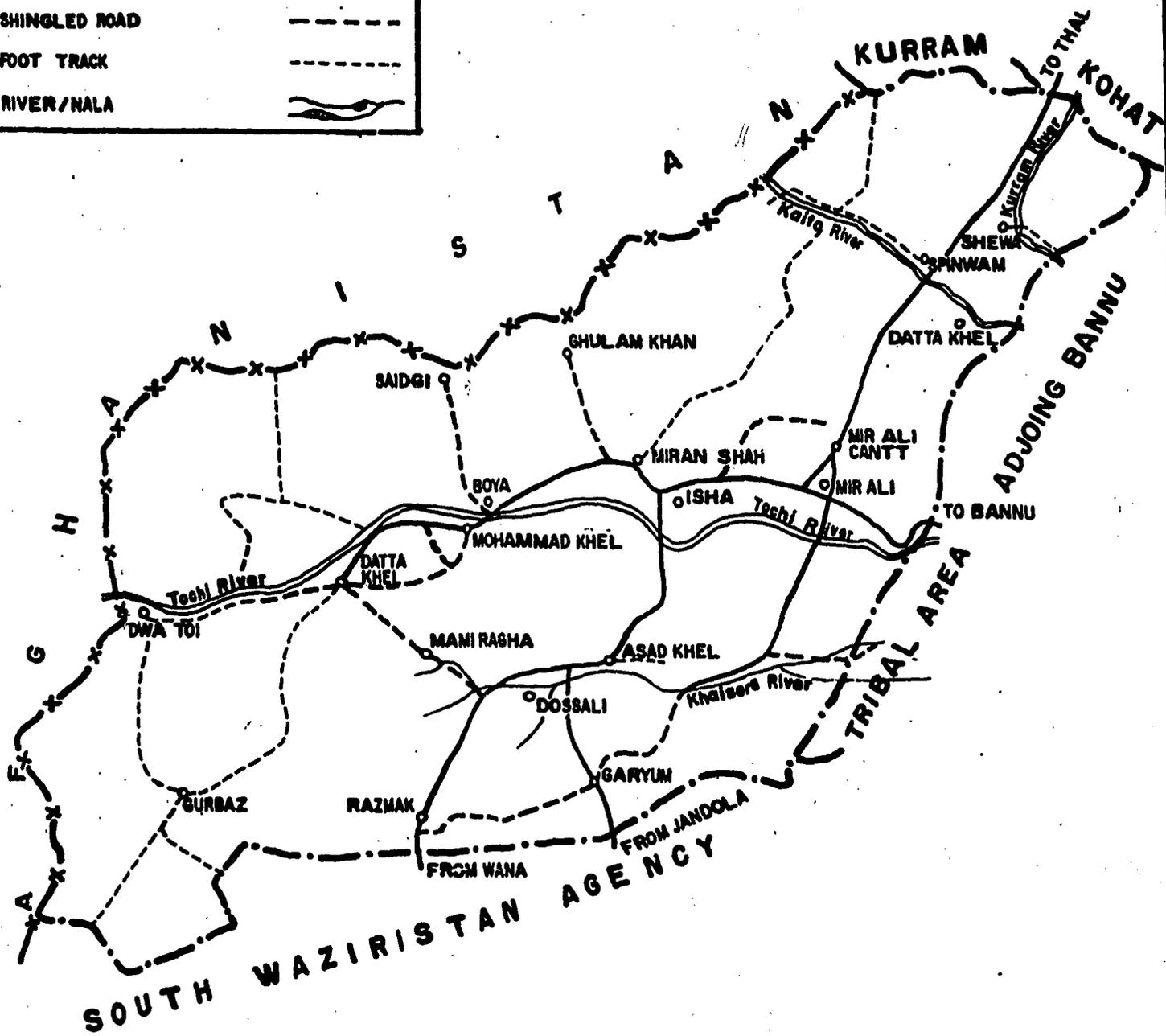
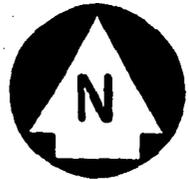
There are no roads in the southwestern parts of the Agency. This is inaccessible territory, and people travel there on camel, donkey or foot. There are also no roads in the north western part, which is not inaccessible but is very insecure. The

Fig. X.1 ROADS

NORTH WAZIRISTAN AGENCY

REFERENCES

INTERNATIONAL BOUNDARY	-x-x-
AGENCY BOUNDARY	-.-.-.-
PAVED ROAD	————
SHINGLED ROAD	- - - -
FOOT TRACK
RIVER/NALA	~~~~~



SCALE, 1: 600,000



TABLE X. 2

ROADS IN NORTH WAZIRISTAN

NAME OF ROADS.	FROM K.M.	TO K.M.	ACTUAL LENGTH	PREV: LENGTH 30-6-88
SHINGLED ROADS.				
Idak Michi Khel Road	45.05	53.10	8.05	8.05
Mohd Khel Khar Kamar	-	19.31	19.31	19.31
Datta Khel Road				
Idal Khel Tut Narai	-	4.83	4.83	4.83
Datta Khel Road				
Datta Khel Gardai road via Mami Rogha	-	24.14	24.14	24.14
Bichi Garium road	-	41.43	1.43	9.25
Shahwali Razmak road	-	20.92	20.92	20.92
Shawa Tangi Zarwam road	-	9.04	9.04	9.04
Dreghundari Khaisora	25.95	34.00	8.05	8.05
Bichi Kaskai road				
Ghulam Khan Sadgai Road	-	12.23	12.23	12.23
Road from Thall Mirali road at Qinwam to Village Hassan Khel	-	32.58	9.67	11.67
Datta Khel Spinwam road	-	17.70	12.70	12.06
Total:			129.13	139.55
BACK TOPPED ROADS				
Bannu Isha Miranshah road	30.57	53.90	23.33	23.33
-do-	53.90	57.12	3.22	3.22
-do-	57.12	57.12	3.22	3.22
Isha Razmak road	53.10	115.85	62.75	62.75
Razmak Tuda China road	115.85	120.27	4.42	4.42
Road inside Mirali camp	24.12	25.75	1.61	1.61
Approach road to Mirali camp	-	37.09	37.09	31.37
-do-	37.09	57.52	20.43	26.15
Miranshah-Boya-Datta Khel road	-	40.35	40.25	40.25
Mirali-Bichi Kaskai road	24.14	45.86	21.72	21.72
Civil Station road Miranshah	-	9.65	9.65	9.65
Bannu Isha road to vill: Haider Khel	32.18	35.20	3.02	3.02

NAME OF ROADS.	FROM K.M. TO K.M.	ACTUAL LENGTH	PREV: LENGTH 30-6-88
Thall bridge to village - Seer Kot	1.64	1.64	1.64
Miranshah to Ghulam Khan - road	16.89	16.89	16.89
Dossali Garium road -	21.72	21.72	21.72
Spinwam-Hassan Khel road -	22.90	22.90	22.90
Bichi-Garium road -	40.00	40.00	32.18
Total:		340.30	330.48

furthest west that a road reaches is Mami Ragma. There are also few roads in the northeastern part of the Agency, as one moves north and east from Ghulam Khan village.

In the view of C&W, the roads most in need of repair and/or upgrading are the Miranshah to Boya to Datta Khel road with a length of 25 miles, and the Miranshah to Ghulam Khan road, a length of 17 km. No new roads are planned as of this writing.

Two bridges are under construction at Tarkhoba Algad and Shana Algad. They are almost 90% complete.

Table X.3 lists bridges. C&W does not know the year of construction of most of the bridges in the Agency. This suggests that the majority were built in the 1920s and 1930s, under the Raj.

LG&RD undertakes small scale road works, such as culverts, causeways and retaining walls. The Department also constructs short shingled roads, generally less than 2 km. in length. It appears that since 1985-86, the department has constructed 3.5 km of shingled road. No complete list of road-related activities for the Agency was available.

B. Air

There is no direct commercial air link with the Agency. However, there is service to and from Bannu. This link makes Miranshah one of the quickest Agency headquarters to reach from any major city in Pakistan. There is an airstrip outside of Miranshah.

C. Telephone, Telegraph, and Post Offices

In 1986-87 there were 14 post offices in the Agency. There appears to be no telegraph office. Compared to neighboring South Waziristan, there has been good progress in establishing telephone connections. In 1986-87, there were 2 manual exchanges, 2 automatic exchanges and 601 telephone connections. It has of course, been easier to provide North Waziristan with telephone service because it is smaller and more easily reached from the settled area than South Waziristan.

TABLE X.3

BRIDGES

<u>NAME OF ROADS.</u>	<u>NAME OF BRIDGES/ LOCATION</u>	<u>STREAM</u>	<u>REMARKS</u>
<u>Bannu Miranshah Road</u>	Khajuri bridge mile 19.2	Shah Algad	
-do-	Idak bridge mile 26/6	Chinazeb Algad	
-do-	Idak bridge mile 2.27/4	Kand Algad	
-do-	Bakht Jamal bridge mile 28/4	Bakht Jamal Algad	
-do-	Arched bridge in mile-35	-	
-do-	Laiwagai bridge in mile 35	Laiwagai bridge Nullah	
-do-	Sarbandkai bridge in mile-37	Sarband Kai Nullah	
-do-	Chashmai bridge in mile-37	Chashmai Nullah	
-do-	-do-	-do-	Construc- ted 1986-87
Miranshah Boya Datta Khel Road	Wocha Challani bridge mile-51	Wocha, Ghallanai Nullah	
Miranshah Boya Datta Khel Road	Boya bridge mile-51	Tochi River	
Miranshah Boya Datta Khel Road	Chatani Bridge	Khaishi Mullah	Bridge damaged, needs re- construc.
Isha Razmak road	Tal bridge mile-37	Tochi River	
-do-	Arched bridge mile-34	-	
-do-	Puli Lurgi Nullah bridge mile-61	Puli Luragi Nullah	
Shewa Zarwam road	Shewa bridge mile-1	Kurram River	Constructed 1983-84
Thali Mirali Road	Khaisora Nullah bridge mile-5	Khaiseral nullah	
-do-	Lower Tarkhobai bridge	Tarkhobai nullah	

NAME OF ROADS.	NAME OF BRIDGES/ LOCATION	STREAM	REMARKS
-do-	Larwakai bridge mile-9	Larwakai nullah	
-do-	Langasera mile-12	Sangasora	
-do-	Kaity bridge mile-18	Kaitu river	Constructed 1976-77
-do-	Slam bridge mile-18	Spinwam nullah	
Thall Mirali Road	Kitani bridge mile-20	Kotani	
-do-	Algad bridge mile-20	Aster Sherman Khel Nullah	
-do-	Shermankai bridge mile-20	Shermankai nullah	
-do-	Zakhen bridge mile-20	Zakhan Nullah	
-do-	Nari Pal bridge mile-23	Naripul algad	
-do-	Mazarai algad bridge mile-25	Mazarai pal algad	
-do-	Tarkhoba mile-25	Tarkheba algad	
-do-	Paspatal bridge mile-26	Pastapal bridge	
-do-	Tarkhoba bridge mile-28	Pastapal Tarkhoba Nullah	
-do-	Malik Khoni mile-29	M. Khoni bridge	
-do-	Ghaz Algad bridge mile-30	Ghaz algad bridge	
-do-	Tauda China bridge mile-32	Tauda China bridge	
-do-	Kurram river Thall bridge mile-36	Kurram river bridge	

XI. EDUCATION

A. Note on Sources

The information provided on schools and enrollments in North Waziristan was somewhat better organized than that provided for the other two Agencies in which we have worked. Accordingly, we think we may have been able to achieve a higher level of accuracy in describing and analyzing education in North Waziristan than in our studies of Kurram and South Waziristan. Still, we found that enrollments for the same year were reported differently in different documents concerning N.W. Agency. In some cases, it was clear that a mistake had been made; in others, the enrollment might simply have varied from the date of one recording to the date of another. Students drop out and re-enroll with some frequency, and the record-keeping by teachers, who are often untrained, is less than optimal. One general problem with enrollments on a per class and per tehsil basis, rather than by class and school is that mistakes may have been made in calculating the Tehsil totals. These mistakes might consist of erroneous addition, schools omitted from the list from which the enrollment was totalled, and schools (and therefore their enrollments) double counted. We have met with all three problems in our work on education in the three Agencies.

With respect to North Waziristan, we compared by school, by class enrollments for the most recent three years; however, prior to 1987-88, we were obliged to rely on Education Department total enrollments given on a per class, per tehsil basis. For the three years for which we had the by school enrollments, there were inconsistencies, with a few schools (not new) appearing on one year's list and not on another.

Computerization of such information would be highly desirable and could permit more accurate record keeping, provided that a suitably trained and conscientious person was responsible for the data base. The computer could be programmed to question duplications and omissions or unusually high or low enrollments, compared with previous years.

A further problem in using data concerning number of schools and students is that there appears to be no consolidated information on how many schools are open and functioning at an accepted level. Abuses may be more of a problem with girls' schools since the interest in female education is not particularly high. In Razmak tehsil, it is known that a number of girls and boys primary schools have been converted into guest rooms for local maliks. One girls' school is used as a residence by a part of the malik's family and a private clinic is attached. A boys' school in the tehsil appears

to be rented to refugees. Schools are often closed for no acceptable reason. The high school in Miranshah was found closed one day "on account of rain." Staff may be demoralized or cynical. There are instances of middle and high school headmasters and mistresses who live outside the Agency and show up seldom if ever. Teachers and Class-IV staff are assigned and collect salaries but little or no education may be given. The Class IV staff are invariably the village malik or his close relatives, so of course no cleaning or building maintenance is done. The salaries are essentially free gifts. One sad comment on local interest in education is that occasionally school buildings are stripped as soon as they are completed. Everything that can be stolen is stolen. The high school at Sarobi was completed in 1986, but windows, doors, wiring, and furniture have all been removed, and the building is in poor shape. Even the teachers are obliged to sit on the floor. Without knowing the number of schools that truly function, it is difficult to know how much we can rely on enrollment data. Statistics which we have derived concerning participation rates may overstate the actual participation to a considerable extent.

B. Primary Level

Most primary schools offer Classes I - IV. A few offer Class V, but we have counted Class V enrollments as a part of middle school enrollments since the majority of Class IV students would have to switch to a middle school if they wanted to attend Class V.

1. Girls' Primary Education

There appears to be more interest in and greater provision for girls' schooling in both Kurram and South Waziristan Agencies. Enrollments are larger and there are more primary and middle schools in both those Agencies.

The first girls' school in the Agency opened in 1949 at Miranshah. In 1961 it was upgraded to middle school status, and in 1970 to high school level. In 1987, there were 29 schools. Seven new schools were opened in 1988 as follows: Razmak - 2 schools; Miranshah - 1 school; Mir Ali - 2 schools; and Datta Khel - 2 schools. As of 1989, there were 36 girls' primary schools and one high school offering all primary classes. Table XI.1 shows locations and enrollments by tehsil for 1989. Fig. XI.2 maps girls' schools.

Miranshah has a preponderance of girls' primary schools. This is perhaps in part because of the considerable interest in education in this tehsil, but also in part because the Agency headquarters is

TABLE XI.1

**GIRLS' PRIMARY SCHOOLS
As of 1989**

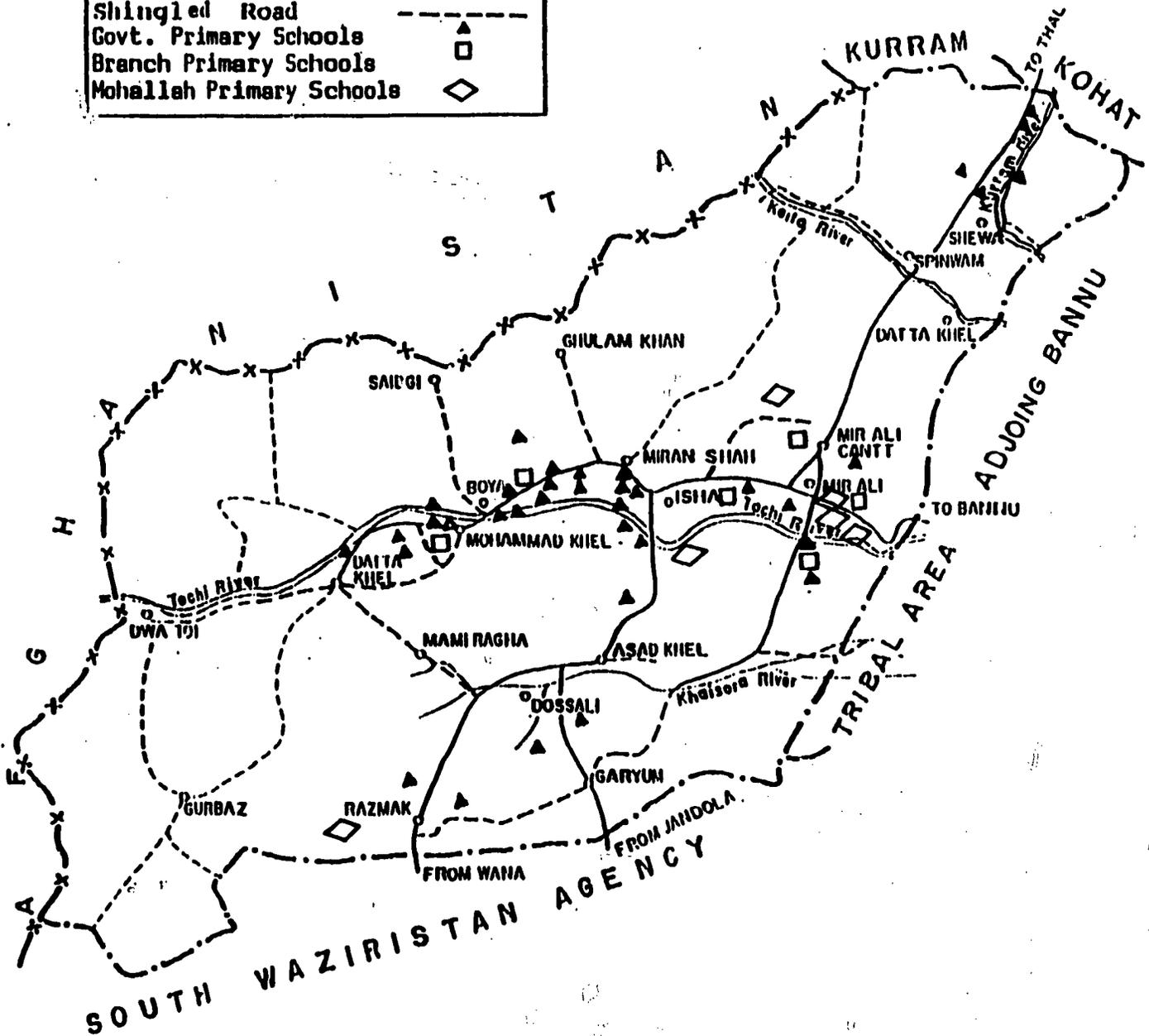
	Number of Primary Schools	Number of Middle/ High Schools w/ Primary Classes	Enrollment
Miranshah Tehsil	15	1	904
Shewa Tehsil	5	0	222
Mir Ali Tehsil	5	0	168
Dossali Tehsil	3	0	127
Datta Khel Tehsil	6	0	220
Razmak tehsil	2	0	17
TOTAL	36	1	1,658

GIRL'S SCHOOLS



LEGEND

International Boundary	—X—X
Tribal Boundary	-----
Subdivision Boundary
Metalled Road	=====
Shingled Road	- - - - -
Govt. Primary Schools	▲
Branch Primary Schools	□
Mohallah Primary Schools	◇



SCALE, 1: 600,000



in the tehsil so services generally are more abundant. Several tehsils have no girls' schools. These include Spinwam, Ghulam Khan and Garyum.

Table XI.3 shows enrollments over time. As a general rule, it takes two years to pass from Class I to Class II. Agency teachers visited, however, say that it takes their students 6 months to one year. This seems inconsistent with the rest of Pakistan, but perhaps accounts for the occasional increase in enrollment and the lack of expected large decreases as Class I sr. moves to Class II. It may be that some students in Class I jr. are being graduated to Class II without passing through Class I sr. This is of some concern because it may indicate that teachers are engaging in automatic promotion.

If we combine Class I jr. and Class I sr. enrollments, we can focus more easily on attrition or the number of students who drop out between first class and second class. For most years, starting with 1979-80, over 50% of the students enrolled in Class I do not return for Class II; for two years, the drop out rate is in the fortieth percentile; and for one year, it is in the thirtieth percentile. No progress appears to have been made in lowering the attrition rate. In 1979-80, only 48% of the previous year's Class I students enrolled in Class II. In 1989-90, only 38% of the previous year's Class I students stayed on for Class II. The problem of attrition (due in part to exam failure - many students apparently do not try a second time) continues through primary school, but the enrollments are so small that it makes little sense to discuss percentages that drop out or remain.

In 1981, using Census data for the number of males aged 5 to 9 and assuming there would be approximately the same number of females (in fact, there would be more), we can derive a female participation rate in 1980-81 of less than 1%. The participation rate today is still less than 1% of age-eligible girls, assuming an annual population growth rate of 3.1%. Considerable progress has been made in increasing coverage and improving enrollments, but some of the improvement in numbers enrolled has been consumed by an increasing population of primary-aged children.

Of 36 primary schools in 1988, 5 had no building. One at Azad Pir meets in a house provided by the malik. Seven buildings were in serious need of repair. The remainder were considered by Education Department staff to be in good or acceptable condition. Those with buildings all consisted of two classrooms. None of the schools is overcrowded, if we use 40 students as the maximum acceptable per classroom. The school at Akbar Khan Kot in Miranshah tehsil is approaching over-crowding with 74 students enrolled in 1989.

GIRLS PRIMARY LEVEL ENROLLMENT*

CLASS	Ijr.	Isr.	II	III	IV	V
1978-79	141**		53	28	25	2
1979-80	166**		67	30	32	4
1980-81	219**		80	52	37	10
1981-2	82	91	102	68	43	5
1982-83	92	100	113	98	57	5
1983-84	104	101	118	96	70	6
1984-85	144	114	151	107	86	4
1985-86	219	129	111	97	62	
1986-87	266	207	125	103	58	
1987-88	342	266	206	336	69	
1988-89	518	367	250	179	115	
1989-90	419	462	336	580	204	

* Enrollments are calculated by taking reported primary school enrollments and adding enrollment in primary classes of the high school, the only upper school that offers primary classes. Because enrollments fluctuate during the school year, they can vary depending on when recorded. Sometimes different documents reported different enrollments for the same year - in that instance we chose the enrollment which seemed more consistent with the previous year's enrollments. For example, one record indicated that the 1987-88 enrollment for Class I jr. was 608, while another gave it as 266. We selected the 266 enrollment figure since it was more consistent with the Class I enrollment the previous year. Some peculiarities still remain. For example, it is not clear why the Class IV enrollment in 1989-90 should be higher than the Class III enrollment in 1988-89; or the Class III enrollment in 1987-88 higher than the Class II enrollment the previous year.

** This represents the combined total for I jr. and I sr.

One persistent problem with respect to both boys and girls schools is the number of children under five years of age attending. There are no facilities for these children - no materials relevant to their age, no nursery teacher and no playground. They disrupt the learning for age-appropriate students in first class, and their presence means that the first class teacher has too many students of widely varying ages. While the rules prohibit the attendance of such young children, in practice parents like to send younger children with their older siblings, and teachers do not feel able to send such children home.

Many of the female teachers in the Agency are from DI Khan, FR Bannu, and Bannu itself. Some are not Pushto speaking. Among the primary school teachers, all are matriculate. A total of 27 are completely untrained, while the rest seem to have received primary level teaching certificates.

Because of the lack of trained teachers, the quality of instruction in many girls' (and no doubt boys') schools is worrying. Two girls' primary schools were visited. The students were found to know very little. In one school, at Sher Moh'd Kot, third and fifth class students were found to be able to read portions of their texts but without understanding the content of what they were reading. At another school, Azad Pir in Datta Khel, four out of eight girls in Class 3 could not write or read the numbers from one through ten. Even though the end of the academic year was approaching, the teacher here had covered only one or two pages of each class' texts and was unaware of the examination procedures.

There are or were a total of 5 branch schools in the Agency: 3 in Mir Ali tehsil, 1 in Miranshah and 1 in Dossali. The Education Department provides no teachers, and a recent report commented that these schools appeared to be closed or to function on a very minimal basis. At whatever point they did function, enrollments were only in Class I and II and did not exceed 63 students.

There is one mosque school at Gem Sarwar in Mir Ali tehsil that was opened for boys but eventually became a girls' school due to the lack of interest of boys. It opened in 1982 and meets in a katcha mosque. Twenty-three children are currently enrolled (in first class) but on the day of our visit, more than 35 were attending the school. The teacher was very good and enthusiastic.

2. Boys' Primary Education

South Waziristan has around 23 more primary schools than North Waziristan but the Agency is more populous and much larger than North Waziristan. Despite additional schools, it enrolls roughly 2,000 fewer primary students than North Waziristan. With its larger population, it accordingly has a lower male primary level participation rate than North Waziristan Agency. Access to primary education is probably better in North Waziristan, particularly considering the considerable size of the inaccessible area in Datta Khel tehsil which means that schools are concentrated in the remaining part of the Agency.

Kurram has roughly 210 primary schools and sections compared with North Waziristan's approximately 229. Kurram's population was roughly the same in 1981 but its area is much smaller. Access in Upper and Lower Kurram tehsils overall is probably better than in any of North Waziristan's tehsils, except for Miranshah tehsil. Kurram currently enrolls roughly 2,000 male primary students more than does North Waziristan, indicating a higher primary level participation rate and greater interest in education.

Table XI.4 shows enrollments over time. Using 1981 Census figures and primary enrollments for that year, about 65% of boys aged 5 to 9 were enrolled in Grades 1-4. This seems to be high and is unlikely to be accurate. Either the Population Census undercounted male children of those ages or the school enrollment is overstated. Relying on these data, both Kurram and South Waziristan had lower participation rates in 1981 than N.W. Agency - Kurram with a 49% male primary participation rate and S.W. Agency with a 27% participation rate. While South Waziristan probably did have a lower rate, Kurram's rate was probably higher.

It should be kept in mind that an estimated 15% of students attending primary school are less than 5 or more than 9 years of age - this would tend to lower the participation rate of the age-eligible group. In addition, the huge number of children in first class artificially inflates the primary participation rate. It is true that these children are attending school but many drop out after one year or during the first year and retain little if anything. If we look at participation of males 7 to 9 year old in second, third and fourth class in 1981, the rate was 56% of those boys attending school in North Waziristan.

Boys' primary school enrollments have increased by 26% in the ten years from 1980-81. This indicates progress, but a progress that may have been consumed mostly by population growth. Table XI.5 shows the enrollments and the numbers of schools on a tehsil basis, for October 1989. We compared the list of schools for October 1989 with the lists for 1988 and 1987, because in the past we have found that schools are sometimes inadvertently omitted from a list or double counted. As far as we could determine the 1989 list of boys' primary schools missed 2 schools: Danat Khel in Razmak tehsil, with an enrollment of 48 in 1988, and Sheratulla Bobali in Spinwam tehsil, with an enrollment of 35 in 1988. The Department states that both schools are open so they have been counted in Table XI.5 as primary schools but their enrollment has not been included because it is unknown.

Approximately 13 primary schools were opened in 1988 or 1989: 1 in Ghulam Khan, 2 in Spinwam, 1 in Dossali, 5 in Mir Ali, 2 in Datta Khel, and 2 in Razmak. With the exception of the school at Sher Ali Kot in Ghulam Khan tehsil (new in 1989), students enrolled in these schools were counted in Table XI.5 enrollment. No enrollment was given for the Sher Ali Kot school. The school has been counted as a primary school but its enrollment is not included.

Attrition is a serious problem, and little progress has been made in the last decade in lowering the percentage of students who drop out. If anything, the percentage of students who drop out between first class and second class appears to have increased from around

BOYS' PRIMARY LEVEL ENROLLMENT

CLASS	I	II	III	IV	TOTAL
1980-81	6001	2081	2413	1791	12286
1981-82	6341	3105	2501	1831	13778
1982-83	6381	3115	2537	1855	13888
1983-84	7439	3153	2551	1871	15014
1984-85	7485	3167	2573	1891	15116
1985-86	8545	3193	2594	1905	16237
1986-87	8593	3217	2603	1930	16343
1987-88	8649	3291	2631	1955	16526
1988-89	8772	3311	2698	1961	16742
1989-90	8903	2911	2002	1676	15492

TABLE XI. 5

BOY'S PRIMARY SCHOOLS
AS OF OCTOBER 1989

TEHSILS	NUMBER OF SCHOOLS	NUMBER OF MIDDLE/HIGH SCHOOLS WITH PRIMARY CLASSES	NUMBER OF STUDENTS
MIRANSHAH	39	16	4173
DOSSALI	17	7	1725
GHULAM KHAN	8	1	333
SPIN WAM	22	3	911
RAZ MAK	17	1	965
SHEWA	14	6	1209
DATTA KHEL	16	8	1899
GARYOM	6	1	360
MIRALI	42	14	3918
GRAND TOTAL:	183	55	15492

BEST AVAILABLE DOCUMENT

50% early in the 1980s to around 60 or 62% in more recent years. It is between first and second class that the biggest loss of students occurs. Students, however, continue to drop out in each successive class.

We only know the number of students enrolled in fourth class in any one year and not the number who successfully complete the year so we can only derive approximate primary school completion rates. For the group that started first class in 1986-87, only 19.5% remained enrolled in fourth class in 1989-90. Some of those included in the 19.5% probably dropped out during the year or had to repeat the year; some in the group might have completed primary school at some date after 1989-90. For the class beginning school in 1985-86, again only 23% were attending fourth class in 1988-89. No improvement overtime seems to have been made here since rough completion rates of students starting first class early in the 1980s might have been around 30 or 31%; in other words, a slightly higher percentage of students appeared to be attending school after four years.

In order to compare the tehsils in terms of access to education, we use 1981 Census data and assume that each tehsil's proportion of the total Agency population has remained the same over time. We have been obliged to combine Shewa and Spinwam tehsils because Shewa was carved from the older Spinwam tehsil after the 1981 Census. Below are shown the percentage of total Agency population and the percentage of total primary students in October 1989 by tehsil :

Tehsil	% of Agency population	% of Students
Miranshah	20 %	27 %
Dossali	5 %	11 %
Mir Ali	21 %	25 %
Datta Khel	31 %	12 %
Ghulam Khan	4 %	2 %
Garyum	2 %	2 %
Razmak	4 %	6 %
Spinwam	14 %	13 %

From this, it appears that access is best in Miranshah. Miranshah has the largest number of schools of any tehsil (38 in 1989), and it is one of the smallest tehsils in terms of area. Interest and/or access are also quite good in Dossali, although Dossali has less than half the number of primary schools that Miranshah has in an area that is about the same size. There is least access to primary education and perhaps least interest in Datta Khel, most of which is inaccessible. There are only 16 primary schools in Datta Khel,

geographically the largest of the tehsils. Access in Mir Ali is not as good as in Miranshah tehsil, although parental interest appears very high. There are 43 primary schools, a few more than in Miranshah, but the area of Mir Ali tehsil is more than twice that of Miranshah. Shewa and Spinwam have 36 primary schools but interest is greater in Shewa. The latter has fewer primary schools but a much larger primary school enrollment. Ghulam Khan and Garyum have very few schools so access is limited although the placement of schools in this two tehsils has not been unfair given the above-mentioned statistics.

Comparing October 1989 enrollments and the number of classrooms in each school, we have determined that the following schools were overcrowded. We have used an enrollment of more than 40 students per classroom as our criterion for overcrowding. The reader should keep in mind that children younger than five attend these schools but often are not formally enrolled, so the actual numbers present on any given day may well be greater than indicated in the enrollment. Table XI.6 lists over crowded primary schools:

Table XI.6

BOY'S OVERCROWDED PRIMARY SCHOOLS

<u>TEHSILS</u>	<u>SCHOOLS</u>	<u>TOTAL ENROLLMENT</u>	<u>CLASS ROOMS</u>
<u>MIRANSHAH</u>	Civil Colony	122	3
	Shana Khura	98	2
	Asghar Killa	82	2
	Sadda Mir	116	2
<u>DOSSALI</u>	Zabbi	86	2
<u>DATTA KHEL</u>	Land Cher Khel	121	3
	Taj Mohammad	128	2
	Degan	85	2

There are 14 boys' branch primary schools in the Agency, with approximately 402 students enrolled in October 1989. Since the Department of Education provides little if any support to these schools, the quality is at best indifferent. We have not included these students, most of whom are in first and second class, in the above calculations made concerning participation and completion rates or in Tables XI.4 and XI.5. These schools have not been located on the map. The schools are located as follows:

Mir Ali tehsil	5 schools	113 students
Dossali	3 schools	98 students

Datta Khel	1 school	39 students
Ghulam Khan	1 school	25 students
Spinwam	1 school	24 students
Shewa	1 school	103 students

C. Middle Level

All middle schools offer fifth class while only a few primary schools do. Fifth class is therefore counted with middle level enrollment in this assessment. We are considering middle level as running from fifth class through eight class.

1. Girls' Middle Education

Very few girls have the opportunity to extend their education beyond fourth class. Official enrollment lists through 1989 name no girls' middle schools. The girls' high school at Miranshah is said to be the only facility offering middle classes.

TABLE XI.7

GIRLS' MIDDLE LEVEL ENROLLMENTS *

CLASS	V	VI	VII	VIII
1978-9	9	6	8	8
1979-80	13	8	6	9
1980-81	22	10	7	5
1981-82	17	14	7	5
1982-83	19	15	8	4
1983-84	27	12	8	8
1984-85	21	20	11	1
1985-86	11	14	17	8
1986-87	10	12	13	13
1987-88	22	11	15	14
1988-89	15	10	15	15
1989-90**	13	23	15	15

* Fifth class enrollment includes those students registered in the few fifth classes offered in primary schools and the fifth class of the high school, except that the former enrollments were not available for 1985-86, 1986-87, 1988-89 and 1989-90. Hence, the fifth class enrollment for those four years counts only those attending fifth class in the Miranshah girls' high school. Primary school Class Five enrollments have never exceeded 10 students in any one year and some years the enrollment appears to have been zero.

** The middle school enrollments at Kot Miraj Din in Landhi Janadar village were added here although this school was not recorded as offering middle school classes on the enrollment list used.

It seems safe to conclude that except for those girls' living in the vicinity of Miranshah, most do not have access to middle school. Still, the very low enrollments for an area as densely populated as Miranshah indicates that there may be little parental interest in higher grades. These are much lower enrollments than we find in South Waziristan and Kurram.

Girls do come to Miranshah to attend the school by means of private transport from neighboring areas such as Mir Ali, Darpa Khel, and Mehran Shah.

Students continue to drop out during the middle school years. The participation rate of age-eligible girls is minuscule, and less than one-tenth of a percent.

2. Boys' Middle Level

North Waziristan enrolls about the same number of middle school students as does South Waziristan Agency, despite a larger population in South Waziristan. They both have about the same number of middle schools and high schools offering middle classes. This means that access in North Waziristan is much better than in S.W. because North Waziristan is much smaller in terms of area and population.

Table XI.8 shows numbers of middle schools and enrollments as of October 1989, while Table XI.9 shows enrollments over time on a per class basis. In the last decade, enrollments have increased by 19%, but the increase does not compensate for population growth. The participation rate was around 23 % of males aged 10 to 14 years in 1981 and only 21% of age-relevant boys in 1989. Approximately 22-26% of the students in fourth class do not go on to attend fifth class.

Access again is best in Miranshah tehsil with 16 middle schools or high schools with middle sections and 30% of the enrollments. Access is perhaps second best in Dossali with 7 schools offering middle classes in an area about the size of Miranshah tehsil. Mir Ali probably ranks third in terms of access, with 13 schools offering middle sections in an area that is perhaps four times the size of Mir Ali or Dossali tehsils. Mir Ali, Dossali and Miranshah have considerable enrollments, compared to their proportion of the population, as the following shows:

Tehsil	% of 1981 population	% of students
Miranshah	20 %	30 %
Dossali	5 %	11 %
Mir Ali	21 %	27 %
Datta Khel	31 %	14 %
Ghulam Khan	4 %	0.1 %

TABLE XI-8

**BOYS' MIDDLE SCHOOLS
AS OF OCTOBER 1989**

TEHSILS	NUMBER OF SCHOOLS	NUMBER OF HIGH SCHOOLS WITH MIDDLE CLASSES	NUMBER OF STUDENTS
MIRANSHAH	10	6	1088
DOSSALI	5	2	402
GHULAM KHAN	1		5
SPIN WAM	1	1	86
RAZMAK	1		61
SHEWA	4	2	278
DATTA KHEL	6	2	494
GARYOM	1		5
MIRALI	10	3	1110
GRAND TOTAL:	39	16	3529

**Although this is classed as a middle school, there were no enrollments beyond Class IV.*

TABLE XI. 9

BOYS' MIDDLE LEVEL ENROLLMENT

CLASS	V	VI	VII	VIII	TOTAL
1980-81	1317	1485	895	711	4408
1981-82	1391	1527	913	736	4567
1982-83	1413	1545	930	751	4639
1983-84	1437	1573	941	765	4716
1984-85	1449	1596	952	776	4773
1985-86	1465	1603	976	791	4835
1986-87	1475	1621	993	801	4890
1987-88	1498	1635	1003	813	4949
1988-89	1501	1641	1011	837	4990
1989-90	1527	1696	1039	848	5110

<u>Tehsil</u>	<u>% of 1981 population</u>	<u>% of students</u>
Garyum	2 %	0.1 %
Razmak	4 %	2 %
Spinwam	14 %	9 %

Access to middle schools is very limited in Razmak, Spinwam, Ghulam Khan and Garyum. It is relatively good in Shewa, once a part of Spinwam. Ghulam Khan and Garyum have very small primary school enrollments so perhaps additional middle schools in these areas should not be a high priority. Razmak and Spinwam, however, have larger primary enrollments and perhaps some priority should be given to these two tehsils for upgrading of primary to middle school status. Once again, Datta Khel lags significantly because much of it is completely inaccessible.

A number of boys' middle schools appear to suffer from overcrowding. They are listed below in Table XI.10.

Table XI.10

BOY'S OVER CROWDED MIDDLE SCHOOLS

<u>TEHSILS</u>	<u>SCHOOLS</u>	<u>TOTAL ENROLLMENT</u>	<u>CLASS ROOMS</u>
<u>MIRANSHAH</u>	Zale Gul Kot	269	5
	Tall Village	212	3
<u>DATTA KHEL</u>	Land	297	5
<u>MIRALI</u>	Bora Khel	380	5
	Khaddi	291	3
	Ziraki	242	3
	Mubarak Shahi	153	3
<u>RAZMAK</u>	Public Razmak	308	6
<u>SHEWA</u>	Pipali Pickett	231	4
	Sahib Jan Kot	270	5
<u>DOSSALI</u>	Paryat	226	5
	Babali	213	5

D. Secondary Level

Secondary school include 9th and 10th class. All high schools in the Agency offer the lower grades as well. Here we are counting high school enrollments as being Class 9 and Class 10.

1. Girls' Secondary Education

There is only one, at Miranshah. It has been a high school since 1970 (or 1976 - documents differed) but its upper level enrollments are still tiny. One problem is the lack of middle schools from which the high school can draw its students.

Prior to 1985-86, the combined enrollments for the two classes were always fewer than 10. Enrollments since 1985-86 have been as follows:

Year	Class 9	Class 10
1985-86	6	4
1986-87	7	7
1987-88	8	8
1988-89	12	9
1989-90	15	13

Girls from wealthier families and those with family members residing in urban areas of NWFP may attend high school elsewhere because the Miranshah high school does not have good facilities. There is no science laboratory and no library. There are problems with the electrical wiring. The bathrooms are said to be in poor condition, and there are serious problems with the water supply system - to the extent that piped water does not come to the school. The building requires repair and maintenance but there appears to be no budget for this. The building has 17 rooms and 1 dining hall - some rooms are used as a hostel for teachers, but teachers also rent a house in town. In addition, a few students board at the school, and are supervised by the teachers.

Only about ten percent of girls attending the school had books at the time the researchers visited in December 1989. Some could not afford to purchase books.

The school has about 22 teachers teaching Classes I through 10 - only 12 were present on the day of our visit, suggesting a possible problem with absenteeism. All the teachers are from DI Khan, FR Bannu and Bannu, with one from the Punjab.

2. Boys' Secondary Education

The first boys' secondary classes opened at Miranshah in 1950. Four additional high schools started in the 1960s. The remainder were opened in the 1970s and 1980s.

N.W. Agency has more male students enrolled in secondary school than South Waziristan, despite the latter's population in South Waziristan and higher population density which means that a school can generally serve a larger number of students in the same area. It also enrolls somewhat more high school students than Kurram Agency. Table XI.11 shows enrollments over time in N.W. Agency. Approximately 15.6 % of males aged 15 and 16 were enrolled in high school in the Agency in 1981. Based on an annual population growth of 3.1%, roughly 15.3 % of males in this age group were attending high school, suggesting little real progress over the last decade, although the natural increase in population has been accommodated. In fact, high school enrollments have increased 25% in the last decade.

Approximately 11 - 15% of the students enrolled in eighth class in any one year do not go on to attend ninth class.

Table XI.12 shows numbers of schools and enrollments by tehsil. Access once again is best in Miranshah tehsil with 6 high schools or twice as many as Mir Ali has. Access is probably better in Dossali than in Mir Ali, since the former has two high schools in an area about one fourth the size of Mir Ali, while Mir Ali has 3 high schools. Those residing in accessible parts of Datta Khel have relatively good access to high schools. Those in the inaccessible part are not producing students qualified to attend high school so access is not an issue. Lagging areas include Razmak, Garyum and Ghulam Khan which have with no secondary schools. Parts of Ghulam Khan are easily accessible to Miranshah while parts of Garyum are accessible to Dossali so secondary schools in Miranshah and Dossali may attract students from these other two tehsils.

There appear to be serious problems with some of the high schools. The Spinwam high school is said to function only as a middle school, and it appears that classes may not be held very consistently. On the day of a visit to the high school at Sarobi, only 18 of the 41 enrolled turned up and there were 11 teachers to teach them. The high school at Tappi was upgraded in 1985, but it appears that the staffing pattern is not adequate for a high school. Schools are also sometimes found closed, on days that they should be open.

TABLE XI 11

BOYS' SECONDARY LEVEL ENROLLMENT

CLASS	IX	X	TOTAL
1980-81	603	511	1114
1981-82	615	544	1159
1982-83	627	561	1188
1983-84	649	571	1220
1984-85	667	598	1265
1985-86	673	604	1277
1986-87	695	617	1312
1987-88	702	633	1335
1988-89	733	644	1377
1989-90	742	652	1394

TABLE XI. 12

BOYS' SECONDARY SCHOOLS
AS OF OCTOBER 1989

TEHSILS	NUMBER OF SCHOOLS	NUMBER OF STUDENTS
MIRANSHAH	6	529
DOSSALI	2	84
SPIN WAM	1	58
SHEWA	2	64
DATTA KHEL	2	93
MIRALI	3	374
GRAND TOTAL:	16	1202

All high schools have buildings, although the condition varies. The buildings at Ali Khel in Miranshah tehsil and at Spinwam are reported to be in very bad condition, and at Hurmaz in Mir Ali, the school hall is collapsing. Generally speaking, C&W appears to do little or no maintenance on these buildings although it is charged with the responsibility for their upkeep.

Only the high schools at Miranshah offers both a students' hostel and accommodation for a few teachers. The following boys' high schools have either teachers' quarters (often too few to accommodate the number of teachers) or a students' hostel:

o Miranshah:

GHS Ali Khel, teachers' quarters
GHS Spulga, "

o Datta Khel

GHS, Datta Khel, teachers' quarters
GHS Moh'd Khel, "

o Dossali

GHS Dossali, students' hostel (bad shape, not used)
GHS Pir Shaib Jan, teachers' quarters

o Shewa

GHS Shahmazan Kot, teachers' quarters

o Mir Ali

GHS Idak, teachers' quarters
GHS Hurmaz, students' hostel (also used as primary school; this school is not counted in Table XI.12 as a high school because no staff have been posted since its upgrading in 1988, hence it does not currently function as a high school and does not appear in enrollment lists as such.)

A number of high schools appear to have over-crowded classrooms. Using our same criteria of 40 children per classroom, the following schools listed in Table XI.13 are over crowded:

Table XI.13

BOY'S OVER CROWDED HIGH SCHOOLS

<u>TEHSILS</u>	<u>SCHOOLS</u>	<u>ENROLLMENT</u>	<u>CLASSROOMS</u>
<u>MIRANSHAH</u>	Spulga	514	10
	Gul Shah Jan	435	8
<u>SHEWA</u>	Sharazar Kot	214	5
<u>MIRALI</u>	Idak	712	12
	Haider Khel	455	11
	Hasu Khel	458	8

D. College

There is one boys' degree college offering Classes 11 through 14. It is located at Miranshah. It had 624 students enrolled in 1988. Most of those, or 458 to be precise, were enrolled in eleventh and twelfth classes. There are 44 teachers assigned to teach in the college. There is also a cadet training facility in Razmak that functions as a college.

E. Alternate Education**1. Mohalla and Mosque Schools**

There are six Mohalla schools for females: 4 in Mir Ali; 1 in Datta Khel and 1 in Miranshah. These were started in 1981, and the largest of them has an enrollment of 27. The teachers who are local women are paid Rs. 250 per month to teach one hour per day. They have no materials and no buildings. It is difficult to believe that they accomplish anything substantive, but the social aspect may justify the cost.

There are 6 boys' schools which meet in mosques:

Mir Ali	4 schools	94 enrolled
Datta Khel	1 school	26 enrolled
Miranshah	1 school	19 enrolled

All were opened in 1981. In October 1989, all those attending were enrolled in first and second class, despite the fact that these schools have been in operation for a number of years. Female teachers are employed on a very part time basis for Rs. 250 per month, so these schools function at a very minimal level.

2. Women's Industrial Homes

There are 4 women's "industrial homes," or non-formal education centers located at Jan Bahadar Kalay, Sher Moh'd Kot, Derya Jan Kot and Nawab Kot. These centers teach Urdu literacy, sewing and knitting. The first 3 centers were visited by researchers and do not seem to operate in a very satisfactory manner. The instructors at these centers hold matriculation certificates but have received no training in non-formal education techniques or home economics. All three teachers were absent without reason from the centers on the days that the visits were made. Participants in these three programs seemed to have been drawn entirely or almost entirely from one family (that of the malik) in each village and appeared to have learned little if anything. Two of the programs met in the village malik's house - one of these was restricted to the malik's veranda. The third program uses the girls' primary school.

This has been a low priority program that generated little official interest. USAID, through its Tribal Areas Development Project, will be working with the FATA Education Department and the Directorate of Technical Education to expand the range of Center activities to include health education and income generating or nutrition improvement schemes and to train instructors and supervisors. Up to 20 centers will be supported in FATA beginning in 1990.

F. Technical Education

A commercial training institute exists at Miranshah. In 1986-87, it had instructors and enrolled 123 students. Most of its graduates probably leave the Agency to find employment. A vocational training institute has been built but like the one at Wana, it has not yet opened. Two staff were assigned in early 1990, and it was reported that equipment was in the process of being installed. The institute hopes to admit its first students in July 1990.

XII. HEALTH

The Agency is provided with the following facilities:

- o 8 Hospitals, only 4 of which admits patients
- o 1 Rural Health Center
- o 3 Sub Health Centers
- o 10 BHUs
- o 1 MCH Center
- o 25 Dispensaries

In addition, EPI programs are attached to some but not all facilities. There are also a few vertical programs such as malaria control and sanitation.

The chief problems with respect to providing health care in the agency are 1) the shortage of qualified health professionals, and 2) the difficulties of supervising far-flung staff, many of whom have had very limited training. With respect to the first problem, there are many vacancies for trained professionals and particularly for female physicians, Lady Health Visitors, and nurses. Lab assistants or technicians are, as elsewhere in FATA, in very short supply, with work that should be entrusted to them left to unqualified lab attendants. Several BHUs, which should be staffed with physicians, are directed by medical technicians so they function at a level that is lower than the level at which they should function. These and other problems will become clearer as we discuss each kind of health facility separately.

The overall trend is toward increasing patient loads at most facilities. Those facilities where case loads have fallen from one year to the next are generally experiencing some sort of problem—poor staff attendance, lack of equipment and drugs, bad building conditions, lack of appropriate staff or the like.

In discussing facility utilization, one note of caution with respect to out-door patients is first in order. Often registers of patients are not kept in particularly good order. They may be filled out late, and not all the information required may be provided. In addition to this, arithmetic mistakes may be made in adding up patients on a monthly or yearly basis. Various sources gave different patient loads for the same facility for the same year. For example, staff at the Saidgi BHU reported that they treated 1,164 patients while records provided by the Health Department in Peshawar reported that they saw 1,549 patients. In 1988, this BHU reported 996 patients while Peshawar records state 851 patients. The dispensary at Isha told researchers that 758 patients were treated in 1988, while Peshawar compiled records gave the Isha case load that year as 1,126. In no instance for which we

had both locally-provided and Peshawar Health Department-provided out door patient case loads did the numbers match. Sometimes the discrepancies were small and sometimes they were more serious.

Since our only complete data regarding case load per facility came from the Peshawar Health Department, we have used its data, without necessarily feeling that these numbers were the more accurate.

A. Hospitals

There are 8 hospitals. Only the Agency headquarters hospital in Miranshah admits patients. Hospitals are located and staffed as follows:

Bichi Hospital in Mir Ali tehsil	1 medical officer 2 compounders 1 Dai
Hassu Khel Hospital in Mir Ali tehsil	1 medical officer 2 compounders 1 Xray attendant 2 ward orderlies 1 Dai
Boya Hospital in Miranshah tehsil	1 medical officer 3 compounders 2 ward orderlies 1 Dai
Shewa Hospital	1 medical officer 2 compounders 1 Dai
Dossali Hospital	2 compounders 1 lab attendant 1 Dai
Razmak Hospital	1 medical officer 1 dental surgeon 2 compounders 1 lab assistant 3 ward orderlies 1 OT attendant 1 lab assistant 1 Da'i

Datta Khel Hospital

1 medical officer
 1 dental surgeon
 2 compounders
 1 OT attendant
 3 ward orderlies
 1 Da'i

Of these rural hospitals, one does not have a physician (Dossali) so at this writing it functions as a dispensary. None has a Lady Health Visitor and the Da'is may have had some training under an LHV or may be untrained locals. Only the hospital at Razmak has a lab assistant and so can do proper laboratory tests. Dentists and xray technicians are also in short supply. While there is an xray attendant at Hassu Khel, there is no radiographer, so the unit is closed. The xray equipment lies unused. Maintenance of drug records appears to be a fairly widespread problem, and at some facilities expired medicines were found in the storeroom. Medicines in general were few in number, and the hospital at Shewa had none on the day of the visit.

The buildings of Dossali and Boya hospitals are in very bad condition. The one at Razmak requires repairs. The hospital at Shewa is new. A number of the facilities and grounds are poorly maintained and not very clean. The hospital at Hassu Khel is an exception - one commentator noted that it was kept cleaner than the Agency Headquarters Hospital at Miranshah. The lack of hygiene is largely because the Class IV staff are the local maliks or their near relatives, and these men have no intention of performing the actual jobs involved.

The Agency Headquarters Hospital at Miranshah is the best equipped and staffed of Agency hospitals. It appears to be the only hospital in the Agency that operates laboratory and xray equipment, has proper dental facilities, and admits in-patients. It has an operating theatre but does not do major surgery except on an emergency basis. It is the most important outdoor patient facility in the Agency. It has three components: the civil hospital (males, females and children) with 126 beds (information provided on the number of beds is somewhat contradictory); the TB hospital or ward with 20 male and 10 female beds; and the Zanana (female) hospital with 34 beds. The Zanana hospital treats children as well but has no ORS or EPI facility. The surgical wards are said to be in better condition than the medical wards.

The Agency Headquarters Hospital has 24 of the 28 government-employed physicians in the Agency. The staffing pattern is as follows:

- 24 Physicians (plus several posts which are vacant including 5 for female medical officers)
- 4 Nurses (3 are female; 16 posts are vacant)
- 1 Dental Surgeon
- 1 Dental Technician
- 1 LHV (2 posts are vacant)
- 18 Compounders
- 1 Radiographer (BPS-6, the BPS 12 post is vacant)
- 3 Lab Assistants
- 2 TB Assistants
- 3 OT Assistants
- 8 Da'is

A major problem is the shortage of nurses, but this is a country-wide problem and it will not change until the status of nurses is improved. As of January 1990, there is no gynecologist and no female medical officers, so services for females suffer as a consequence. A male physician treats OPD and in-patient cases at the Zanana Hospital. The LHV, Da'is and 2 of the female nurses are assigned to the Zanana hospital. The post of pediatrician is also vacant. TB patients (outdoor and indoor) are served by one medical officer, 2 compounders and 2 TB assistants.

Bed utilization at the civil hospital is fairly low - between 42% and 52% in 1988 based on an average 8 - 10 day stay per patient, and between 33% and 41% in 1989 based on the same average length of stay. At the Zanana Hospital, bed utilization was around 42% in 1987, 56% in 1988 and 51% in 1989, based on an average per patient stay of 10 days. Utilization was lowest in the TB wards; based on an average per patient stay of 20 days (chronic TB patients may stay longer), bed occupancy in the male ward was 7% and around 30% in the female ward. In 1989, the male ward was closed and only 3 female patients were admitted to the female ward. These low bed utilizations probably occur because families prefer or are obliged to take their sick members to Bannu or Peshawar. While Peshawar is not very accessible, particularly for a very sick person, its facilities are very much better than those Bannu or Miranshah can offer. Bannu does have a small and rather well reputed missionary-run hospital.

The civil hospital treats large numbers of outdoor patients. Between 1987 and 1989, average daily numbers seen in OPD ranged from 128 to 140, assuming 265 work days per annum. At the Zanana Hospital, an average of 12 - 13 outpatients were seen daily between 1987 and 1989. Low case loads at the Zanana Hospital result in good measure from the lack of a gynecologist and female doctors.

The number of outdoor patients treated at Razmak hospital fell sharply in 1988, from 4,984 in 1987 to 1,550 the next year. One observer commented that the hospital was poorly maintained.

B. Rural Health Centers and BHUs

Table XII.1 shows the status of these facilities.

Table XII .1

LOCATION	STAFF	POPULATION	NEAR ROAD
SPINWAM TEHSIL:			
RHC Spinwam	1 medical officer 1 dental surgeon 2 compounders 2 compounders 1 xray attendant 1 lab attendant 1 Da'i		
SHC Jan Khan Kot	1 compounder	1750	No
BHU Hassan Khel	2 medical technicians 1 Da'i	4500	Yes
BHU Titi Mada Khel	2 medical technicians 1 Da'i	4500	Yes
MIR ALI TEHSIL:			
SHC Mir Ali	1 compounder 1 dental surgeon 1 dental technician		
SHEWA TEHSIL:			
SHC Payo Jan Kot	1 compounder	1750	No
BHU Mameet Kot	2 medical technicians 1 Da'i	5500	Yes
BHU Adat Khan Kot	2 medical technicians 1 Da'i	5500	Yes
RAZMAK TEHSIL:			
BHU Nawal	1 medical officer 2 medical technicians 1 Da'i	3500	No
BHU Baro Khel	1 medical officer 2 medical technicians 1 Da'i	3500	Yes

LOCATION	STAFF	POPULATION	NEAR ROAD
GARYUM TEHSIL:			
BHU Garyum	2 medical technicians 1 Da'i		
GHULAN KHAN TEHSIL:			
BHU Saidgi	1 medical officer 2 medical technicians 1 Da'i	500	Yes
DOSSALI TEHSIL:			
BHU Laka Asad Khel	NEW?		
BHU Rahmat Khan Kot	2 medical technicians 1 Da'i		

In addition, there appears to be one private BHU at Datta Khail village in Spinwam tehsil to which the government provides no funding.

Not a single BHU has an LHV attached, and only some of the Da'is are trained. Even then, their training has consisted of on-the-job training with an LHV, rather than a structured program with formal requirements. Many BHUS are missing physicians.

The building at Saidgi has been destroyed in bombing raids. The SHC at Jan Khan Kot and Payo Jan Kot operate from the malik's house. The SHCs should be staffed with medical technicians but only compounders are posted; therefore, these facilities function primarily as dispensaries.

Owing to its staffing, the Rural Health Center at Spinwam appears to function at a higher level than some of the rural hospitals. However, its outdoor patient load fell by more than 50% between 1987 and 1988, dropping from 7,365 to 3,481. One observer commented that the hospital is not well maintained, and this could perhaps be one explanation.

Generally, the BHUs do not seem to function as referral centers. This is reflected in the low case loads. The few dispensaries visited said that they referred patients to Miranshah hospital when greater expertise or better facilities were required. Several

dispensaries see more patients annually than many of the BHUs, despite a smaller and less sophisticated staffing pattern. Only 2 BHUs had case loads over 2,000 patients in 1988. Case loads were reported in Peshawar-compiled records to be as follows in 1987 and 1988:

BHU	1987	1988
Saidgi	1,101	851
Garyum	3,680	3,800
Bora Khel	2,175	1,797
Hassan Khel	833	1,641
Tity Mada Khel	1,464	1,273
Malik Adat Khan	2,277	2,111
Mameet	828	1,372
Nawal	Not functioning	765

Average daily case load, giving a working year of 265 days, ranges from 3 patients to 14 patients in 1988. Nawal is a new facility so it may take time to build public confidence. At the other BHUs, facility utilization is so low that it seems difficult to justify the presence of 2-3 clinical personnel. Even at the Garyum BHU, which carries the heaviest case load, 2 clinical staff probably are not needed. However, if any BHU is selected for posting of a physician, it should be the Garyum BHU since it treats the most patients. A medical officer is probably properly placed at Saidgi because of bombings in the area (a spill over from the Afghan conflict) and the distance from Saidgi to Miranshah over a shingled road.

The 1989-90 ADP calls for the construction of residence quarters at 5 BHUs.

C. MCH Centers

There is only one, at Miranshah. It is staffed by an LHV and 3 Da'is. This appears to be a well maintained and properly functioning institution. Women come from Razmak and Mir Ali as well as from Miranshah and surrounding villages. The Da'is have been trained by the LHV. They make home visits, and deliveries are assisted at both the Center and at home. The MCH Center does not accept women over night but sends them home a few hours after delivery. Staff only accept normal cases. Those with complications are referred to Bannu and, in an emergency, to the headquarters hospital. In 1989, center staff assisted with 357 deliveries; in 1988, with 549; and in 1987, with 881. It is not clear why the number of deliveries has fallen. The staffing level may be lower now than it was in 1987. The Center is probably

operating at capacity - since 1987, between 27 and 33 patients have been treated daily. Given the length of time that deliveries take and the home visits that are made, this is probably all four clinical staff can manage. It is certainly all that the LHV can supervise.

The Center also has a small food distribution program. Commodities distributed include edible oil, wheat flour, and powdered milk. Availability has been erratic. No wheat or milk were distributed in 1988, and only 600 kg. of vegetable oil were distributed to 800 women and children. In 1989, 200 women and children each received 3.5 kg. of flour; 1400 each received 1.2 kg. of milk powder, and 1175 women and children each received .75 kg. of oil. The amounts here are so small as to have no discernible nutritional impact. It would probably be better to have these clinical personnel concentrate on health care rather than food distribution, particularly since commodities are received in such small quantities and so erratically.

D. Dispensaries

All dispensaries are staffed with 1 compounder. Da'is are attached to some and not others. Table XII.2 shows the status of Agency dispensaries.

DISPENSARIES IN NORTH WAZIRISTAN

Table XII.2

LOCATION	STAFF	BLDG.	POP.	NEAR ROAD
Datta Khel Tehsil:				
Mami Rogha	1 comp. 1 Da'i	Needs repair	2000	Yes
Kani Rogha	1 comp.	Collapsed	2000	Yes
Moh'd Khel	1 comp.	Bad condition	3000	No
Pai Khel	1 comp.	Needs repair	1500	No
Miranshah Tehsil:				
Ahmad Khel	1 comp.	Bad condition	5000	Yes
Isha	1 comp.			

Spulga	1 comp.	Needs repair	2000	No
Tappi	1 comp.	Bad condition	2000	No
Angar Kili		No building		
Ghulam Khan:				
Ghulam Khan	1 comp. 1 Da'i	No building	3000	Yes
Mir Ali Tehsil:				
Idak	1 comp.			
Kamarkala	1 comp. 1 Da'i			
Dakekhule	1 comp. 1 Da'i			
Haidar Khel	1 comp.		2250	No

LOCATION	STAFF	BLDG.	POP.	NEAR ROAD
----------	-------	-------	------	-----------

Spinwam Tehsil:

Jalil Piquet	1 comp. 1 Da'i	Building collapsed	2250	Yes
Amadudin Kot	1 comp. 1 Da'i		3500	No

Shewa Tehsil:

Hakim Kot	1 comp.	No building	1750	No
Tarjan Kot	1 Comp.	Bad condition	2500	No
Sadiqi Kot	1 comp.	Bad condition	2500	No

Dossali:

Dandel	1 comp. 1 Da'i	Needs repair	2000	Yes
Paryat	1 comp.		2000	
Kopari	1 comp.	No building	2500	No

Garyum Tehsil:

Qadar Khan Kot	1 comp. 1 Da'i	No building	2000	No
Mada Khan Kot	1 comp. 1 Da'i	No building	2000	No
Fatah Khan Kot		No building	1500	Yes

At several dispensaries, positions for Da'is remain to be created.

In addition, there appear to be a number of private dispensaries for which the government provides no funding. These are located at Sheramat Kot and Kamer Killi in Mir Ali; Fatah Khan Kot in Garyum; and Angar Killi in Miranshah.

Dispensary case loads varied in 1988 from less than 1000 patients to over 5000. Where case loads were very small, it is possible and perhaps likely that the dispensaries were closed more than they should have been closed. Those dispensaries with heavy and light patient loads in 1988 are as follows:

Location	Males	Females	Total
<u>Heavy Patient Loads</u>			
Moh'd Khel	5279	138	5417
Ahmad Din Kot	1823	1227	3050
Kani Rogha	2093	2045	4138
Dandel	2030	1579	3720
Kopari	2277	1583	3860
Perriyat	2030	1690	3720

Light Patient Loads

Hakim Kot	514	372	886
Tarjan Kot	500	365	865
Pai Khel	832	271	1103
Ahmad Khel	723	333	1056
Ghulam Khan Kot	743	602	1345
Isha	667	459	1126

Dispensaries not mentioned in the above two lists had case loads in between the two extremes. The two busiest facilities saw 16 and 20 patients respectively per day, about all that one compounder could reasonably be expected to handle. Those dispensaries that are the busiest should perhaps be considered for upgrading to BHU status, provided that they are not close to an existing BHU.

It is interesting to note that several dispensaries saw significantly fewer women than men, no doubt because of the lack of female clinicians.

Fig. XII.3 shows health facility locations.

E. Oral Rehydration Therapy (ORT) and EPI Services**1. ORT**

Agency authorities had no record of distribution by facility that was readily available. The civil hospital distributed 2 packets of ORS to 1700 children in 1988, or to an average of 6.4 children per day, and in 1989 to 1,930 children. With daily outdoor patient loads of around 140, one might expect that there were more children presenting with diarrhea. What we do not know is how many patients were sent to the bazaar to purchase ORS. Some facilities give out more than 2 packets per child with diarrhea. Staff at the MCH Center give 4-6 packets per child, while staff at other facilities said that they give 3-4 packets. In 1988 a total of 20,000 packets appear to have been issued throughout the Agency; and in 1989, 13,000 packets were distributed. If we can assume that 2.5 packets on average were given to each child with diarrhea, then ORS was prescribed for roughly 8,000 children in 1988 and 5,200 children in 1989. The decline is disturbing, but may represent problems with ORS supply.

2. EPI

EPI started in a limited way in FATA in 1980, but in North Waziristan only at Miranshah hospital. In 1984-85, the program was

Fig. XII.3

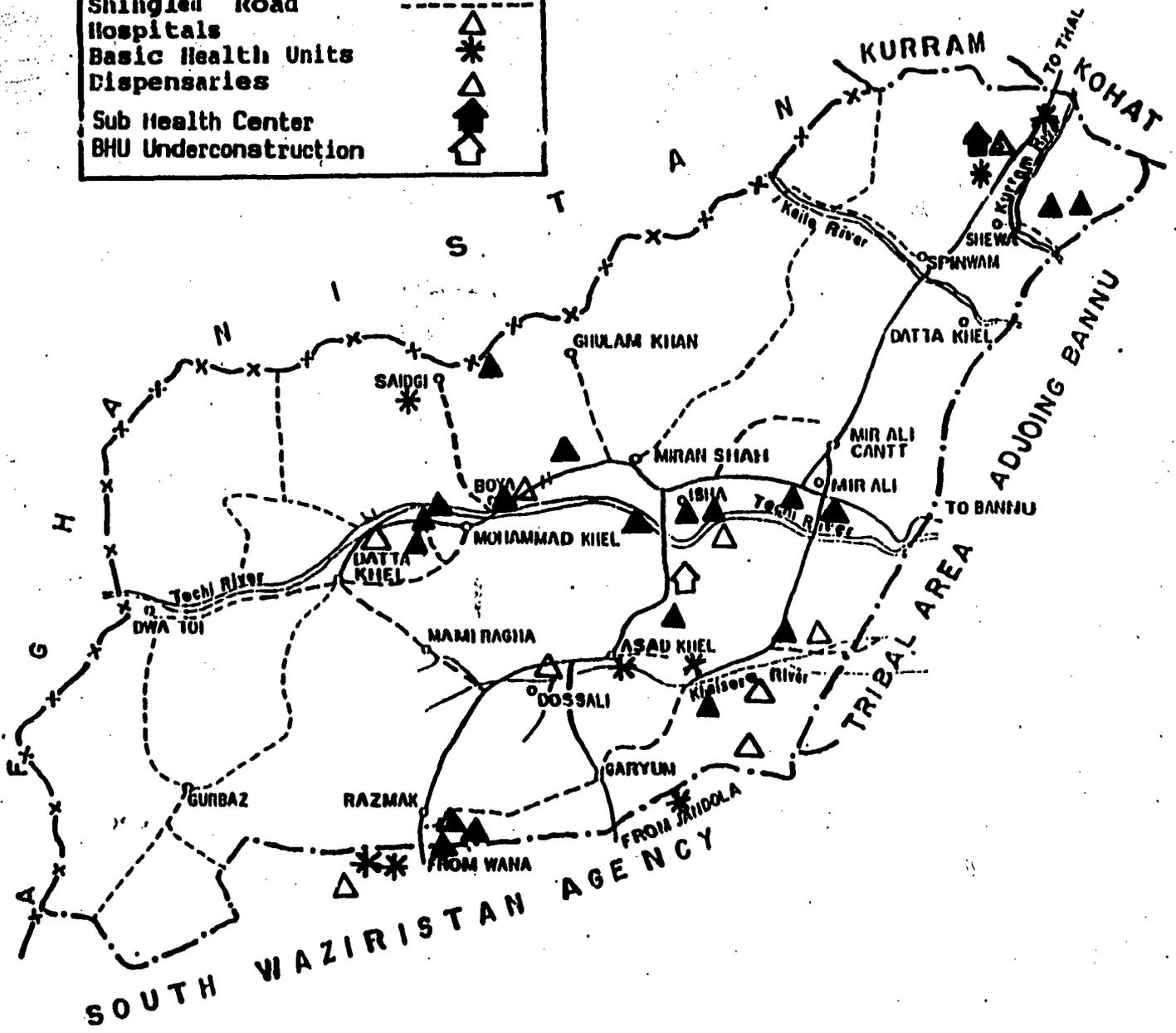
NORTH WAZIRISTAN AGENCY

88-A

HEALTH

LEGEND

International Boundary	— x — x —
Tribal Boundary	-----
Subdivision Boundary
Metalled Road	————
Shingled Road	- - - - -
Hospitals	▲
Basic Health Units	*
Dispensaries	△
Sub Health Center	■
BHU Underconstruction	□



SCALE, 1: 600,000



expanded. The next year, the strategy changed and mobile and outreach teams were initiated due the difficulty of getting people to come to fixed centers. In 1986-87, vaccination with tetanus toxoid vaccine of women of child bearing age began.

The EPI program is fully staffed according to its allotted number of positions. There are 7 vaccinators, 18 junior technicians, 1 ASV, 2 Field Supervisors, 1 tehsil Supervisor, and 1 DSV or District superintendent-Vaccination, who is in charge of the EPI program in the Agency. There are seven fixed centers, each with 1 Junior technician assigned. They are located at:

- o Agency Headquarters Hospital, Miranshah
- o Civil Hospital Hassu Khel
- o RHC Spinwam
- o Civil Hospital Boya
- o Civil Hospital Shewa
- o Civil Hospital Datta Khel
- o Civil Hospital Razmak

There are 11 outreach units, based at the above facilities. because of very limited transportation facilities (bicycles and motorcycles), they cannot travel very far. Each outreach team has 1 or 2 junior technicians or vaccinators assigned. There are 4 teams of two each that operate from Hassu Khel Hospital, one each from the other facilities mentioned above, and one attached to the hospital at Bichi. The teams operating from facilities other than Hassu Khel hospital consist of one vaccinator of junior technician each. There is a mobile team with vehicles. It operates from Miranshah and is staffed with 4 junior technicians. Two Da'is from the MCH center accompany it.

In 1988, 66,170 children received BCG vaccine against TB, while 62,151 were immunized against measles. More than half in each case were children aged 2 to 4. Immunizations against Polio, DPT and DT (given to children aged 2-4 in place of DPT) are given below:

Age	Polio			DPT		
	I	II	III	I	II	III
0-11 months	12824	9986	8203	12824	9986	8203
12-23 months	19569	16758	12736	19569	16758	12736
2-4 years	39007	31712	N/A	N/A.....		

Age	DT I	DT II
2-4 years	39007	31712

A limited number of boosters were given for the above three series, but the return rate for boosters (a fourth injection for DPT and Polio and a third for DT) is very low. With respect to DPT and Polio, 64% of children 0 - 11 months receiving the first injections completed the series of three and so were fully protected. Fourteen percent stopped with the second injections, and 12% had only the first injections. Sixty-five percent of children aged 12-23 months starting the series completed the series of three injections for polio and DPT. Another 21% of those starting DPT and Polio stopped after the second injection and so did not receive full protection. Fourteen percent in this age group received only the first injections for DPT and Polio. For children aged 2 - 4 years, 81% received two polio injections and both DT vaccinations.

Among women, 25,908 received the first TT vaccination, and 17,504 the second TT. Only 222 received boosters.

F. Malaria Control

Malaria case detection and spraying began in the Agency in 1965 and was directly supervised by the office in Bannu. In 1985, it came under the Agency Surgeon's Office. There are 17 Grade 5 supervisors who have matriculation certificates and who received 15-20 days training in Bannu. There are two supervisory staff who have received longer training, including the Assistant Malaria Supervisor who manages the program. The supervisors cover only Miranshah and Mir Ali subdivisions. Razmak subdivision is not covered. Supervisors visit every village in their district once a month. They take blood from probable cases, and then send the blood to Bannu for slide preparation and reading. In villages with considerable numbers of cases, the supervisors spray. They do not have adequate transport but use private vehicles when possible. They also do not receive enough insecticide to do adequate spraying. In the last three years, the number of houses sprayed each year has declined:

1987	10,915 houses sprayed
1988	9,551 houses sprayed
1989	5,400 houses sprayed

The decrease may be due to the receipt of declining amounts of insecticide: in 1987, the program received 16 MT of insecticide; in 1988, 13 MT; and in 1989, 7 MT.

G. Disease Pattern

According to 1987 data, 10% of cases diagnosed at Agency facilities had diarrhea, gastro-enteritis or dysentery; 15% had a fever of unknown origin; 15 1/2 % had a respiratory infection (not including TB); 3.5% had eye problems; 5 1/2% had injuries; and 1.6% had malaria. Out of the total number of 160,558 patients treated, there were 41 cases of tetanus, 517 of pertussis, 1,063 of TB of the lungs; 74 of diphtheria, and 623 with typhoid. At the MCH center, staff say that 70% of the children under five who are brought to the center present with diarrhea or malaria.

H. Private Practitioners

In Miranshah there are 2 private physicians, 6 private compounders, 2 private xray facilities and 2 private labs. Many government-employed physicians also maintain private practices. The number of private practitioners in other towns in the Agency is not known.

XIII. ELECTRIFICATION

WAPDA has provided 7,919 legal connections, mostly to private residences, in the Agency, while another 11,000 connections have been made by private individuals acting illegally. Therefore, WAPDA is unable to bill for a substantial portion of the electricity it provides to the Agency. For the portion for which it does bill, only about 5% of its customers pay their bills. Rs. 39.5 million in unpaid bills has accumulated, and this is only for the legal connections. The total amount outstanding, including what is owed by those with illegal connections, must be more than double this. WAPDA is unable to cut the electricity of defaulters and to regularize (or cut) illegal connections, due to political circumstances in the Agency. WAPDA therefore is essentially providing free electricity to the Agency.

The only thing that helps reduce the rate of growth of WAPDA's Agency deficit is loadshedding. At this writing (winter 1990), there is 11 hours of loadshedding per day in the Agency. In summer, this is reduced to 5 hours per day.

The major grid station of 132KV is at Bannu. It feeds 33 KV of electricity to Miranshah town and 11 KV to Bakka Khel in Mir Ali tehsil. The second grid station is at Bannu Cantonment area, and it feeds 33 KV to Mirali. A 66 KV grid station at Thall supplies 11 KV of electricity to Spinwam. Miranshah Tehsil also has its own grid station of 132 KV which feeds 11 KV to Tappi, Datta Khel and Miranshah. Currently, Razmak is supplied with electricity from Jandola, but in future the Miranshah grid station will supply this area. Lines are under construction as of March 1990.

Most of Datta Khel tehsil has not been incorporated to the electricity grid because much of the tehsil is inaccessible territory. The southern part of Mir Ali tehsil has also not received electricity as of March 1990. Most of the rest of the Agency has been included in the grid, although individual villages still await electricity. Fig. XIII.1 shows the grid.

Damage to the electricity lines by locals, who sometimes cut the lines in disputes, is a problem. Repairs and maintenance can be difficult due to the lack of cooperation of local personnel.

Professional and technical staff based in the Agency are as follows:

<u>Location</u>	<u>LM-I</u>	<u>LM-II</u>	<u>ALM</u>
Manzher Khel	1	1	3
Pir Samand	1	1	3
Land Mohd Khel	1	1	3

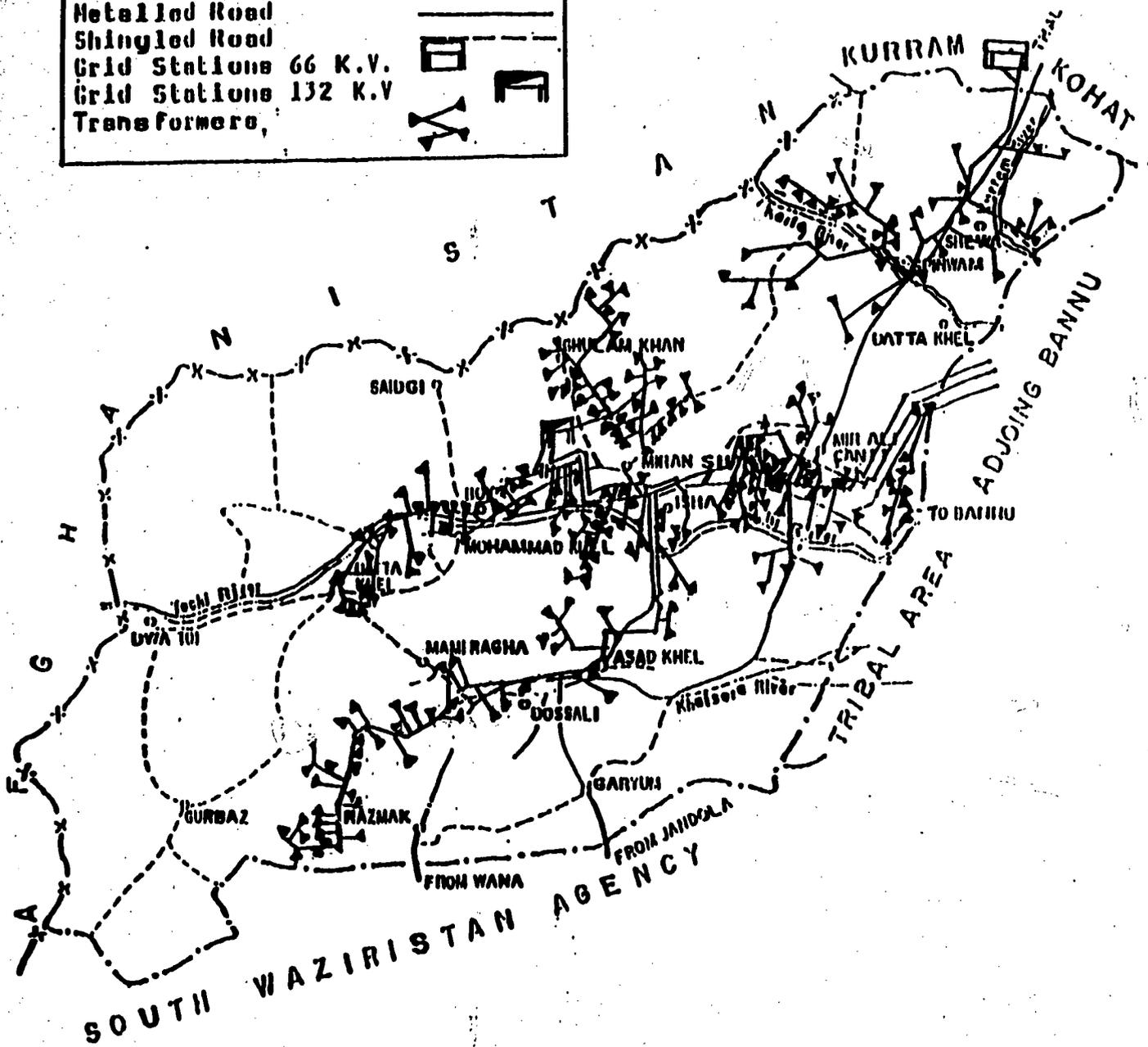
NORTH WAZIRISTAN AGENCY

ELECTRICITY GRID

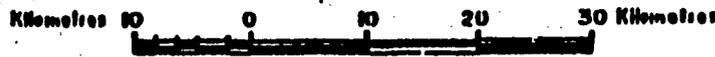


LEGEND

International Boundary	—X—X—
Agency Boundary	— · — · —
Subdistrict Boundary	· · · · ·
Metalled Road	— — — — —
Shingled Road	- - - - -
Grid Stations 66 K.V.	
Grid Stations 132 K.V.	
Transformers	



SCALE, 1:600,000



<u>Location</u>	<u>LM-I</u>	<u>LM-II</u>	<u>ALM</u>
Ali Khel	1	1	3
Miranshah G/Gang	4	3	9
Miranshah C/Office	3	3	8
Spalga	1	1	3
Eidak	1	1	2
Mirali G/Gang	4	3	9
Mirali C/Office	3	3	8
Haider Khel	1	1	3
Spinwam	1	1	3
Shewa	1	1	3
D&R Section (Miransh)	2		4
Services Section "	2		4

Total:	27	21	68

XIV. INVESTMENT IN DEVELOPMENT

Total investment allocations for N.W. Agency from 1971-1972 to 1988-1989 were Rs.752.438 Millions - the third largest investment after Kurram & South Waziristan Agencies. Table XIV.1 show FATA D.C. Planning & Development and MNA/Senators allocations. In 1972-73, schemes were started in the Water Sector via FATA-D.C; thereafter, schemes were initiated in agriculture, power, communications, health, education, housing, industries, rural development, forestry & mining. The initial investment allocation in 1971-1972 was 0.100 million rupees which rose to Rs. 39.041 million in 1974-75. From 1974-75 to 1981-82 allocations were less than Rs. 39.041 million but thereafter they rose to Rs. 49.875 millions. After that, there was a gradual increase in allocations until 1986-1987 when they peaked at Rs. 111.270 millions. There has been a gradual decrease in investment since that year & in 1988-89, the investment was Rs. 70.253 millions.

Table XIV.2 shows allocation trends over time. Table XIV.3 shows sector-wise allocations from 1971 to 1989. Sectoral priorities have differed over time. In some of the sectors such as industry and minerals, the allocations in 1989 are even less than the allocations when the work in these sectors was started because the industrial units have all closed and no new ones have opened. In addition, it has proved difficult to establish commercial mining operations in FATA so a slow down here has occurred. In the health, education and water sectors, the allocations have increased relative to other sectors which means that greater emphasis has been placed on meeting basic human needs.

In the water sector (irrigation), North Waziristan Agency is third among all Tribal Agencies and FRs after Kurram & South Waziristan Agency. The irrigation sector's share of total allocations gradually rose from 1 percent in 1974-75 to 24 percent in 1986-87. This shows the development of irrigation systems as a very important priority of the government in this Agency.

In comparing all Agencies and FRs, investment in agriculture in N.W. Agency is in last position. This is in part a reflection of the limited prospects for agricultural development. In agriculture there has been no consistency in investment with annual allocations ranging from Rs. 0.2 million and around Rs. 4 millions. Investment has fluctuated considerably from one year to the next. Agriculture sector allocations as compared to other sectors in terms of total investment in N.W Agency since 1974-75 show a low of 0.5 percent of total per annum allocations in Agency investment and a high of 6.5 percent in 1978-79. This reveals the very low priority of agricultural development in this Agency.

Table XIV-1

FATA-DC, P&D AND MNA/SENATOR
YEAR/SECTORWISE ADP ALLOCATION
Agency: NORTH WAZIRISTAN

YEAR/SEC	AGRI	POWER	COMMUNI	HEALTH	EDUCAT	PP&H	INDUS	RURDEV	P&D	WATER	FOREST	RESDEV	MINERAL	TOTAL
1-72														0.000
2-73										0.100				0.100
3-74							6.481			0.486				6.967
4-75	0.213	7.873	16.380	2.353	2.216	6.650	2.231			1.125				39.041
5-76	2.231	0.150	11.340	2.350	1.400	4.532	5.122			2.380				29.505
6-77	0.760		11.886	3.749	3.393	4.646	4.453			2.382				31.269
7-78	0.352		6.272	2.131	3.209	3.844	2.194			2.070				20.072
8-79	1.556		6.667	3.005	2.963	3.864	2.880	0.482		2.707				24.124
9-80	1.655		12.761	2.188	1.550	2.142	3.838			4.337				28.471
0-81	1.069	5.000	10.002	1.257	3.056	2.001	1.186			6.787				30.358
1-82						1.400	0.500			8.498				10.398
2-83	0.900	8.031	15.090	3.600	4.542	4.878	0.422	1.192		11.220				49.875
3-84	2.020	5.550	18.327	1.300	5.725	10.201	0.016	1.525		13.445			4.600	62.709
4-85	3.404	8.774	18.950	2.000	8.214	6.064	0.225	1.769		16.520			2.029	67.949
5-86	3.706	4.992	16.598	2.880	8.730	7.773	0.200	1.391	3.333	21.048			2.002	72.653
6-87	2.916	11.938	21.783	4.884	11.768	16.529	0.070	1.391	3.333	27.583			9.075	111.270
7-88	2.956	9.309	23.800	4.884	11.201	10.693		1.474	3.334	26.506			3.307	97.464
8-89	0.647	8.193	21.701	5.025	11.440	7.921		0.820		11.496	1.200		1.810	70.253
TOTAL	24.385	69.810	211.557	41.606	79.407	93.138	29.818	10.044	10.000	158.690	1.200	0.000	22.823	752.478

Table XIV - 2

FATA-DC, P&D & MNA/SENATOR PROGRAM

ADP ALLOCATION In N.W.A. 1971-89

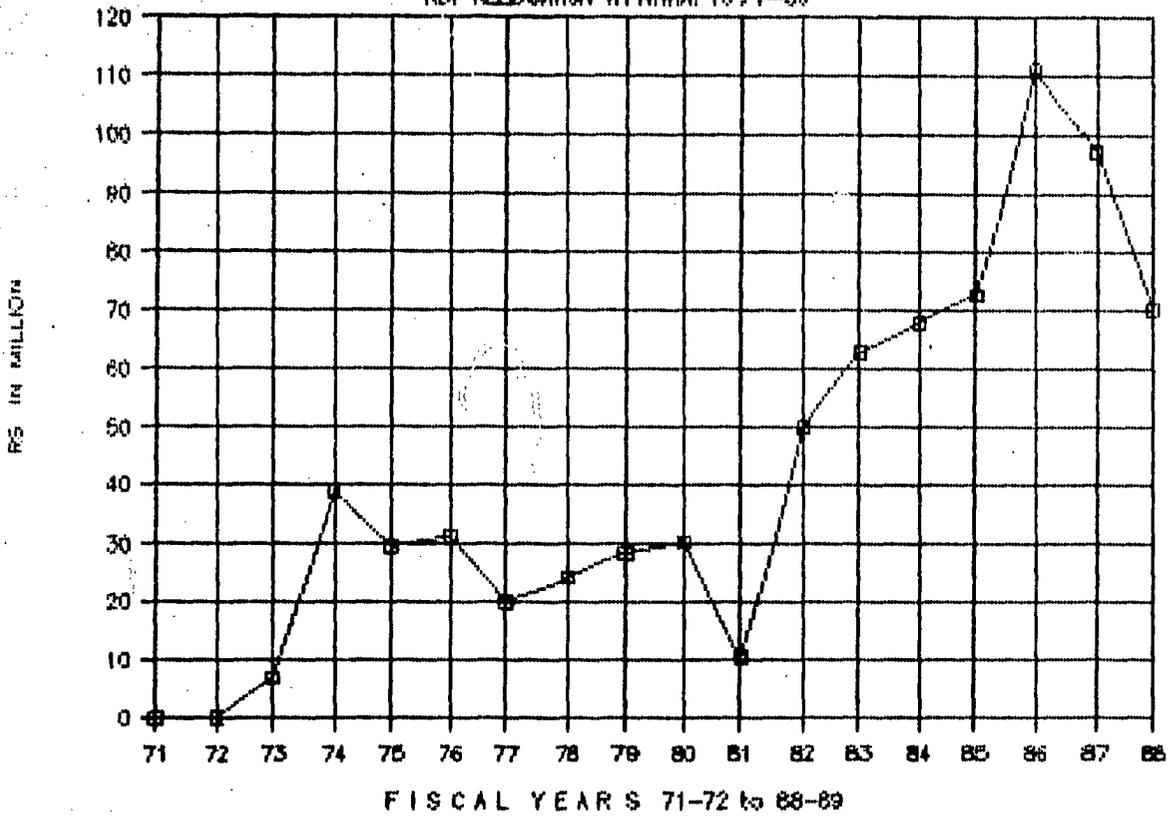
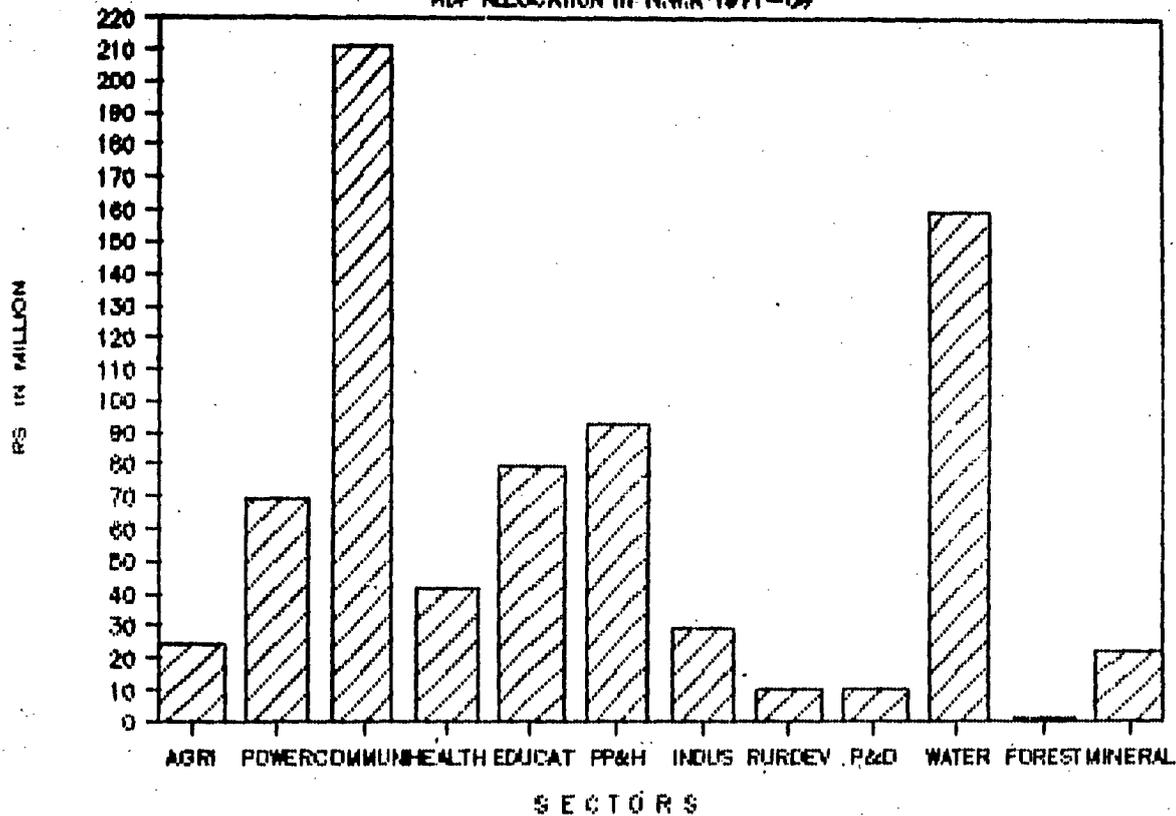


Table XIV - 3

FATA-DC, P&D & MNA/SENATOR PROGRAM
ADP ALLOCATION in N.W.A-1971-89



In N. Waziristan there is no agriculture research component. As far as agriculture extension is concerned, there has been a gradual increase from 1985-86 till 1988-89. where in 1985-86 there were allocations of rupees 0.149 million rupees while the following year there was no allocation. In 1987-88, investment increased to 0.225 million rupees which further rose to 0.400 million rupees in 1988-89.

The Animal Husbandry component of agriculture investment received an allocation of 0.474 million rupees in 1985-86. The following year, it increased to Rs.0.710 million. In 1987-88, the allocations were 0.739 million rupees which in 1988-89 dropped almost 3 times to 0.197 million rupees. Often, more funds have been invested in animal health than in the Agriculture Department's effort to improve agricultural production. As a portion of total annual investment, animal husbandry's share for the last four year ranged from 0.3 percent to 0.7 percent. This indicates both the low priority of this component and the fact that existing interventions are not particularly expensive.

Forestry allocations were included in agriculture allocations in the ADP until 1988-89. In 1985-86, 1.438 million rupees were allocated to forestry. In 1986-87, the allocation was increased almost 30 percent to 1.902 million rupees, while the following year it increased again to 1.992 million rupees. In 1988-89, forestry received an allocation of rupees 1.200 million. Judged according to investment allocations, forestry has consistently received higher priority than agriculture extension. In looking at allocations and expenditures for 2 recent years 1987-88 & 1988-89, there were differences in actual allocations, revised allocations and expenditures. For these three components of agriculture, the revised allocations were slightly less than the original allocations.

In the power sector, North Waziristan stands in 7th position when compared with other Agencies and FRs. Electrification in the Agency began in 1974-75 with an allocation of Rs.7.873 millions. This was for initial capital investment. The next year there was an allocation of only Rs. 0.150 million, while for the 4 years after that there were no allocations. In 1980-81, Rs. 5 million was allocated while the following year there was no allocation. The allocations reached to Rs.8.193 million in 1988-89. In 1987-88, the actual allocations and revised allocations of 9.309 million rupees were the same but the expenditure was less at 9.086 million rupees. In 1988-89, the actual allocation was 8.913 million rupees, while the revised allocations were Rs.7.240 million and the expenditure of 5.622 million rupees was even less than the revised allocation. WAPDA received a high of 20 per cent of total investment in 1974-75 when its capital cost were high and a low of

9 per cent in 1988-89. This indicates both that rural electrification is a priority and that capital cost are high for extending a grid.

In communications, N. Waziristan Agency ranks third among all Agencies and FRs. Investment increased by 20 percent from 1974 to 1989. The original allocation of Rs. 16.380 million in 1974-75 fluctuated over the years; but was Rs. 21.701 million in 1988-89. This increase is probably not much of a real increase because of the many fold increase in the cost of construction and maintenance of roads in 15 years' time. There were significant changes in allocations and expenditure for C & W in 1987-88. The original allocation was 16.600 million rupees which was increased to 35.477 million rupees in the revised allocations. The actual expenditure of 41.861 million rupees was even more than the revised allocation. In 1988-89, the original allocation was 20.701 million rupees which was decreased to 19.866 million rupees in the revised allocations. The amount expended equals the revised allocations. Since 1974-75 the major portion of total investment in the Agency has been on roads. The allocations for this sector account for around 30 per cent of total Agency investment for most of the years.

Total health allocations in N.W. Agency rank 5th among all Agencies and FRs. In the health sector, allocations at the start in 1974-75 were Rs. 2.353 million while in 1988-89 the allocations were Rs. 5.025 million. In 15 years, the allocations fluctuated between Rs. 1 million and Rs. 5 millions per annum. The actual allocation of 4.929 million rupees in 1987-88 was decreased to 3.034 million rupees while the actual expenditure were 3.848 million rupees. The same trend continued in 1988-89 when the original allocation of 5.025 million rupees was decreased to 4.528 million rupees. The actual expenditure however was decreased further to 4.078 million rupees. The potable water component should be counted as part of the GOP investment in health. According to the available allocation figures from 1985-86 to 1988-89, allocations for potable water fluctuated from Rs.1.400 million and Rs.5.592 millions. Health sector allocations have consistently been below 10 percent of the total allocation for this Agency for all years. Total health allocations including allocations for potable water account for less than 9% of the total Agency annual investment for the period from 1985-86 to 1987-88 and 13 % for 1988-89.

In comparing allocations for education, North Waziristan Agency stands in 9th position with respect to all Agencies and FRs. Allocations have gradually risen from around Rs. 2 million in 1974 to Rs. 11 million in 1989. In 1987-88, the original allocation was 11.249 million rupees which was revised to Rs. 8.734 millions. Actual expenditure was 8.909 million rupees or slightly above the

revised allocation. In 1988-89, the original allocation was Rs. 14.729 million, the revised allocation 14.525 million and the actual expenditure was Rs.14.106 million. Education allocations ranged between 6 percent and 16 percent of total annual allocations for the period. Education appears to now be fourth priority, after communication, irrigation and power.

In the housing and potable water sector (PP&H), North Waziristan Agency stands in second position among all Agencies and FRs. The original allocations of Rs.0.650 million in 1974-75 steadily declined for nine straight years. After 1983-84, it increased and in 1986-87, the allocation was 3 times the original allocation.

With respect to Rural Development (LG & RD) investment North Waziristan stands eighth among all tribal Agencies and FRs. The original allocation of Rs 0.482 million in 1978-79 was followed by no allocation the following three years. For the next six years, allocations showed a 20-30 per cent fluctuation up or down of the 1982-83 allocation of Rs.1.192 million. LG & RD has never received more than 3 per cent of any year's investment in North Waziristan Agency.