SOCIO-ECONOMIC PROFILE

OF

MOHMAND AGENCY

BY:

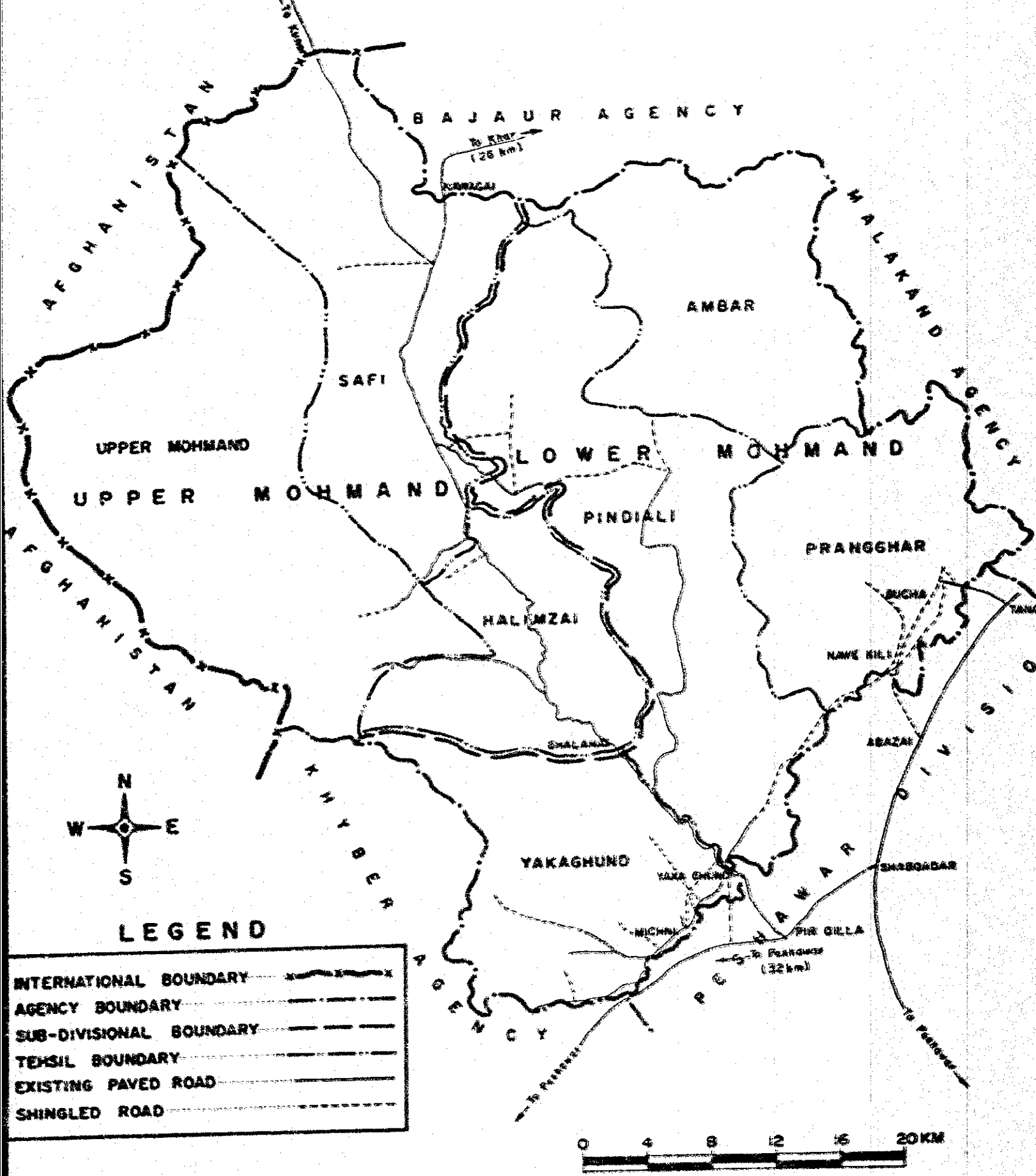
Ziauddin
Consultant to
Technical Support and Planning Unit (TSPU)
Tribal Areas Development Project (TADP)
Rural Development Division (RDD)

UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT

PREPARED FOR:

The Planning, Environment and Development Department, The Government of North West Frontier Province

May, 1993


BAJAUR AGENCY
To Khar (26 km)
KHWAZAI
AFGHANISTAN
MALAKAND AGENCY
AMBAR
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
HALIMZAI
BUCHA
NAWE KILLI
ABAZAI
SHALANDI
N
W
E
S
YAKAGHUND
YAKA GHUND
SHABQADAR
MICHNI
PIR GILLA
To Peshawar (32 km)
KHYBER AGENCY
PESHAWAR DIVISION
To Peshawar
To Peshawar
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
0 4 8 12 16 20KM

Preface

This is the sixth in a series of seven profiles of the tribal agencies. All profiles are funded by the Tribal Areas Development Project (TADP). The five completed cover Kurram, Orakzai, North Waziristan, South Waziristan and Bajaur. Each profile is accomplished by a base map with 11 overlays depicting:

- Area under cultivation
- Irrigation facilities
- Agricultural facilities
- Forestry areas such as plantations and nurseries
- Animal husbandry facilities
- Health facilities and potable water supply schemes
- Boys' Schools
- Girls' Schools
- Roads under construction
- Electrification
- Refugee camps

The purpose of these profiles is to make available to the public what is known about the present conditions within each tribal agency. Baseline data is often difficult to obtain and the reliability of the data is sometimes questionable. However, within these limitations, primary and secondary data has been collected and analyzed. The basic limitation is reliable population statistics since no population census has been undertaken in over twelve years. Previous census data has been disputed by various government agencies. The scheduled population census of 1991 has not taken place.

USAID would like to thank Mr. Habibullah Khan, the Political Agent from Mohmand Agency and his staff, Mr. Mazhar Ali Shah, Ex Political Agent Mohmand Agency, Mr. Arbab Mohammad Arif, Project Manager, Mohmand Area Development Project, the line agency staffs, and the officials of the Planning Environment and Development Department for providing information in this report and sharing their views.

The research was implemented by Mr. Ziauddin, Senior Research Consultant to USAID/RDD's Technical Support and Planning Unit in Peshawar. The Agriculture and Water Resources Management chapters were written by Mr. Mohammad Ahmad Khan, of the Agricultural University's Institute of Development Studies. The maps were completed by Mr. Riaz Ahmad, Cartographer, and Miss Shaheen Kausar, Draftsperson. Mr. Mansoor Arif did the typing.

Salient Features of Mohmand Agency (Year 1992)

Area	2,296	Square kilometers
Population (estimated in 1992)	230,000	
Population density (estimated in 1992)	100	persons per square kilometer

Administrative Units

Agency Headquarters	Ghalani

Sub-Divisions	Tehsils
Upper Mohmand	Upper Mohmand Halimzai Safi
Lower Mohmand	Yakaghund Ambar Pandiali Parangghar

Land Use

Percentage of Agency's cultivated area	6	Percent
Major Crops		Wheat, Maize, Sugarcane
Operating Tubewells	43	

Livestock Facilities

Veterinary Hospitals	2
Veterinary Dispensaries	7
Veterinary Centers	7

Forestry

Forest covered area	6624 acres
Number of Forest nurseries	6

Communications Status

Paved Roads	178 km
Shingled Roads	120 km
Public Telephone exchange	1
Telegraph office	1
Post office	1

Education Facilities

For Boys'

Number of Primary schools	168
Number of Middle schools	22
Number of High schools	10
Number of Higher secondary schools	1
Number of colleges	1
Number of commercial training institutes	1
Number of technical training institutes	1

For Girls'

Number of Primary schools	55
Number of Middle schools	4
Number of High schools	3

Health Facilities

Civil Hospitals	2
Rural Health centers	1
Basic Health units	23
Civil Dispensaries	3
Hospital beds	74

Electrification

Percentage of Agency's villages electrified	50%

Investment

Total investment allocations from 1973-74 to 1992-93	718 million rupees
Total investment in 1992-93	48 million rupees

TABLE OF CONTENTS

LIST OF TABLES

LIST OF MAPS

LIST OF GRAPHS

LIST OF ACRONYMS

ADA	Agriculture Development Authority
ADBP	Agricultural Development Bank of Pakistan
ADP	Annual Development Program
AI	Artificial Insemination
APA	Assistant Political Agent
APO	Assistant Political Officer
BCG	Bacilus Calmate Gurine
BHU	Basic Health Unit
C&W	Communication and Works Department
DPT	Diptheria, Pertussis, Tetanus
EADA	Extra Assistant Director of Agriculture
EPI	Expanded Program for Immunization
EXEN	Executive Engineer
FATA	Federally Administered Tribal Areas
FATA-DC	Federally Administered Tribal Areas Development Corporation
FR	Frontier Region
GOP	Government of Pakistan
IGP	Income Generating Project
LG&RDD	Local Government and Rural Development Department
MNA	Member, National Assembly
NAS	Narcotics Affairs Section
NGO	Non Governmental Organization
NRC	Norwegian Refugee Council
NWFP	Northwest Frontier Province
OPV	Oral Polio Vaccine
PA	Political Agent
PE&D	Planning Environment and Development
PHED	Public Health Engineering Department
RTV	Refugee Tented Village
SDO	Sub-Divisional Officer
SHU	Sub Health Unit
TT	Tetanus Toxoid
UNHCR	United Nations High Commission for Refugees
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority.

Introduction to the Maps

We relied on Survey of Pakistan maps in drawing a new base map of Mohmand Agency. The Survey of Pakistan maps were on a scale of 1:75,000 and contained roads (shingled, paved and tracks), rivers, towns, contours and Agency boundaries. We updated the base maps for paved and shingled roads. Subdivision and tehsil boundaries were drawn with the help of area tehsildars and people knowledgeable of the area.

1) 1:75,000 base map with villages, roads, rivers, stream beds, subdivision and tehsil boundaries.

2) 1:75,000 transparent overlay for the base map, showing elevation and vegetation shadings. Areas of vegetation may have changed since data were collected for the Survey of Pakistan maps.

3) 1:75,000 transparent overlays for the base map, one showing girls' schools and the other boys' schools as of December 1992.

4) 1:75,000 transparent overlay for the base map, showing ground and surface water irrigation schemes.

5) 1:75,000 transparent overlay for the base map showing health facilities and potable water projects.

6) 1:75,000 transparent overlay for the base map showing agricultural facilities.

7) 1:75,000 transparent overlay for the base map showing forestry facilities.

8) 1:75,000 transparent overlay for the base map showing animal husbandry facilities.

9) 1:75,000 transparent for the base map showing the electricity grid.

10) 1:75,000 transparent for the base map showing planned roads.

These maps will require annual revision as new projects become completed. 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.

EXECUTIVE SUMMARY

Geography

Mohmand Agency is bounded by Bajaur Agency on the north, by Peshawar division and Malakand protected area on the east, by Khyber Agency on the south and by Afghanistan on the west. Mohmand Agency is formed mostly by rugged hills and basins. Two rivers flow through Mohmand Agency forming their basins called the Kabul River Basin and the Swat River Basin. The annual rainfall in this area averages 400 mm. The climate is hot and dry in summer and cold and dry in winter.

Large deposits of decorative stones, glass and ceramic raw material, dolomite, chromite, precious stones and asbestos are available in the Agency. There is a strong need for preparing estimates of these deposits and building the infrastructure needed to facilitate the movement of ore from mines to the market.

Administration and Economy

The Agency is administratively headed by a Political Agent, and an Assistant Political Agent who is in charge of each subdivision. Most of the area in the Agency is accessible but some is inaccessible such as upper Mohmand Tehsil and Ambar Tehsil. Roads are being planned in these areas.

There are no general indicators that yield information concerning income, employment and migration. There is a limited area for agriculture. Poppy is cultivated in Ambar Tehsil. Because of the mountainous area and lack of economic opportunities in the Agency, large numbers of people have migrated to the urban areas of Pakistan and some to the Gulf states. The principal bazaars are at Yakaghund, Ghalani and Mian Mandi. There is a need for planning income generating schemes in the Agency to provide economic opportunities for the people.

Population

According to the 1981 Population Census, Mohmand Agency was at the bottom among all seven Tribal Agencies in terms of total population and fifth in terms of population density. The average household size was seven persons in 1981. The sex ratio in 1981 was 101.3 males for every 100 females. The literacy ratio was 3.61 percent which was the second lowest (the lowest was Orakzai at 3.03) among all seven Tribal Agencies.

The population is made up entirely of Sunni Muslims. The major tribes are the Musa Khel, Tarakzai, Safi, Utman Khel and Halimzai.

Any future population census must take maximum precautions to get as much accurate data as possible for planning purposes. Before a census is taken, elders of the area, members of Parliament and NGOs should be briefed about the importance of the accuracy of data so that they can further persuade the people to provide data that is accurate.

Refugees

Mohmand Agency had a registered refugee population of 4,663 as of May 11, 1993. These refugees are located in two camps near the Yakaghund main bazaar. There are three primary and one middle school for refugee children. There is also one BHU for refugees. Refugees have started going back to Afghanistan and almost 11,006 have returned since September 1990. The very limited refugee population has not had much impact on Mohmand Agency's resources.

Land Use

The Agency has a very small arable land resource base. In 1989-90, it had only 13,500 hectares under cultivation. This area represented a mere six percent of the Agency's total geographical area, and provided only one hectare for as many as twenty seven persons. The arable land is coming under mounting population pressures, while the possibility of an increase in its availability is not likely. The culturable waste area was 17,331 hectares in 1989-90. Even if all of this area were brought under the plough which would be impossible in the foreseeable future, the cultivated area would increase to only 30,831 hectares which would be too small to make any noticeable improvement in the arable land/man ratio. This situation underscores the need to place increasing emphasis on intensive cultivation, the introduction of high value crops, yield optimization, cost minimisation, afforestation, and the promotion of off-farm income/employment activity as a means for agri-rural development in this Agency.

Agriculture

The agricultural sector has been, generally speaking, characterized by stagnation during the last decade. The agency has, however, medium to high level agri-development potential especially in the irrigated zones. The main features of the sector are summed up as follows:

A major constraint of the Agency is its limited land resource base. Only six percent of the total area is available for cultivation. The average farm size was 2.16 hectares in 1980 and would be much smaller now. Fragmentation of farm holdings is widespread. Self cultivation is the dominant mode of farm management. As far as the tenancy system is concerned, the bulk of the tenanted area is operated by share croppers.

Wheat, maize and sugarcane are the main crops of the Agency. Orchard crops and vegetables are slowly becoming popular, but their area is still a small fraction of the total cropped area. The cropping pattern is undergoing a slow, but a definite transformation in favour of high value crops.

The yields of most crops have been stagnant for a number of years. The gap between the achieved and the achievable yields is large. There are, however, good prospects of minimizing it within a short period by activating the agri-extension agencies and increasing farmers' access to improved inputs.

The scarcity of improved inputs is an impediment to yield enhancement, but not the only or the most important one. The real problem lies in the cultivation practices. Most farmers are not aware of the proper method of farming due to which even the use of improved inputs doesn't prove very productive. The Agriculture Department has been doing some good work to improve farmers' awareness of modern agricultural practices. The farm labour supply situation is, on the whole, good and the use of farm machinery is increasing too. Farmers' access to central agricultural markets has improved considerably due to an increase in the availability of transport. The agricultural marketing system is, however, still dominated by the traditional middlemen with the consequent large gap between the market and the farm-gate prices.

The most widely felt needs of the farmers are: an increase in irrigation facilities; more and timely credit; cheaper and plentiful supply of improved seed; cheaper and adequate insecticides/pesticides, fertilizers, threshers, and other imputs, and a larger number of crop demonstration plots. No farmer mentioned the need for farmer's training in improved methods of farming, though this is badly needed there. There is also a need to improve the farmers' awareness of market prices and better marketing methods. To further these needed improvements in the Agency's farming systems, the existing agriculture sector agencies and the farmers need be brought into regular contact.

Water Resources

The Warsak Left Bank Canal is the principal source of irrigation. The other sources, accounting for 42 percent of the irrigated area, are tubewells, lift pumps, springs, channels, etc. Out of the 43 tubewells that had been sunk in the Agency by mid-1992, only 31 are operating; the remaining 12 tubewells are not in use because of inadequate water, the disconnection of electricity, repair problems, etc. Thirteen new tubewells are expected to be commissioned in 1993 while work is in progress on the construction of 81 dugwells which are also targeted to be completed during 1993. Sites have been selected for the construction of 27 small dams which will irrigate a total area of 2441 hectares in different

parts of the Agency. Work is in progress for the supply of potable water. So far 37 potable water schemes have been completed.

Animal Husbandry

Livestock activities are very limited in Mohmand Agency due to the large barren area. The existing livestock facilities are not properly utilized largely due to a severe shortage of liquid nitrogen gas for insemination and vaccine for vaccination. Vaccination, insemination and castration cases have dropped over the year due to the same reason although facilities are properly staffed. There is a strong need to provide more funds for vaccines and nitrogen gas to these facilities for the optimal utilization of current facilities. Thirty-five percent of the Mohmand population in Upper Mohmand Teshsil and Ambar Tehsil needs to have access to facilities which currently don't exist there.

Forestry

Although Mohmand Agency is mostly a barren area, forestry activities are visible. The species indigenous to the Agency are phulai, kikar, sanather, bair, manas, toot and bakain. The Forest Department usually sows eucalyptus in the plains area, and kikar and phulai in the mountains. There is a strong need to support the forestry activities in Mohmand Agency especially in upper Mohmand Tehsil, Ambar Tehsil and Pandiali Tehsil where currently there are no forestry activities. More forest nurseries can be started within the central parts of the Agency where people can easily buy plants.

Communications

There are two entry points to Mohmand Agency. One is from Peshawar through Warsak road which enters Mohmand Agency at Yakaghund by turning from the Pir Qila intersection. The second is through Bajaur Agency which enters Mohmand Agency at Nawagai. These two entry points are connected within the Agency through a 62 kilometer road. Halimzai, Safi, Yakaghund and Pandiali Tehsils are well connected through black-topped roads while Ambar, Upper Mohmand and Prangghar Tehsils don't have black- topped roads. Two major roads are planned for Ambar and Upper Mohmand Tehsils. Prangghar Tehsil should be connected with Ghalani through a black-topped road so that residents of Prangghar don't have to travel via Shabqadar and Yakaghund to get to Ghalani.

Education

Upper Mohmand Tehsil and Ambar Tehsil are generally without schools. Girls' schools are more concentrated in Halimzai and Yakaghund Tehsils. Although the participation rate is increasing in girls' schools every year, the dropout rate is alarming as only one girl in ten joining the first class makes it to the fourth

class. Two boys out of three joining the first class make it to fourth class. Many schools are concentrated in an area with limited population, therefore in those areas class enrollment is lower than in other areas. There is a strong need to disperse educational facilities evenly in all areas so that the capital costs on building and operational expenditures on staff salaries and maintenance can be justified. Moreover, the population of all areas should have access to educational facilities.

Another major problem to be addressed seriously is the lack of proper attention to technical education in Mohmand Agency as compared to general education. Commercial and technical institutions in Mohmand are under utilized with a low enrollment while the general education college has more than 90 students in one classroom. Technical education needs to be emphasized through motivation, incentives and proper allocations.

Health

Health facilities are under utilized in the Agency. The reason for this may be easy access to facilities in Peshawar. A network of 29 health facilities mostly without electricity and potable water connection, shortage of medicines and residential accommodation comprise the health care service of the Agency. It would be appropriate to improve and utilize the existing facilities.

Electrification

There is a 66 Kilovolt grid station at Ghalani to supply electricity to most of Mohmand Agency. Prangghar Tehsil is supplied electricity through the Tangi grid station (settled area) and some areas of Yakaghund Tehsil are supplied electricity through Shabqadar grid station (settled area). There are about 8,129 domestic connections, 400 commercial connections, 156 industrial connections and 556 tubewell connections. Besides these, there are around 8,500 illegal connections in the Agency.

Electricity is highly subsidized. The average monthly household consumption is roughly 1050 KWh in Mohmand Agency which costs around 1700 rupees if used in the settled areas. But in the Tribal Areas, there is a flat rate of 90 rupees charged to each consumer. Even this low, flat rate charge of 90 rupees per domestic connection is not paid by consumers.

Investment

Mohmand Agency ranks last of all seven Tribal Agencies in terms of total allocations from 1973-74 to 1992-93. In mineral, forestry, irrigation, agriculture and rural development schemes, the allocations registered insignificant changes while communication, health, education and potable water sectors received gradual increased allocations. There is a need to coordinate various

sectoral activities for better planning of schemes. Irrigation allocations should be linked with the agricultural sector so that with an increase in the irrigated area, agriculture extension facilities could also be improved. In the same way, technical education could be given due attention.

I. GEOGRAPHY

A. Topography

Mohmand Agency is situated between parallels 33°30"and 34°40 north, and longitudes 70°30' and 71°30 east. It covers an area of 2,296 square kilometers and is bordered by Bajaur Agency on the north, by Peshawar division and Malakand Protected Areas on the east, by Khyber Agency on the south and by Afghanistan on the west.

The area is formed by basins and rugged hills. Very little vegetation grows, except coarse grass, scrubwood and the dwarf palm (mazri), which sparsely dot the hills. Physiographically the Agency can be divided into the following divisions:

1. Hills:

The Mohmand Hills are situated in the transitional zone between the towering mountains of the Hindu-Kush and the lowland basins. Their average height is 1450 meters. The Mohmand Hills include the following ranges:

(a) The Sappar Ranges: These are the extensions of the Dir-Bajaur Ranges which stretch to the north of the Agency forming a watershed between the Agency and the Kunar River basin in Afghanistan. These hills are generally barren and devoid of any vegetative cover.

(b) The Illazai Hills: These branch off the Sappar Ranges to the southwest of the area. The hills first turn southeast and then follow an easterly direction, forming a watershed between the various streams flowing east and south.

(c) The Malakand Hills: These hills occupy the eastern side of the area and have a thin cover of olive and oak trees.

Ilazai (2,716 meters) is the highest peak near the Afghan border. Other important peaks are Yarigar (1,929 meters) and Silai (1,768 meters).

2. Basins:

The relatively flat area of Mohmand Agency is composed of 1) the Swat basin and 2) the Kabul basin.

a) The Swat basin: Most of the area is drained by the Swat River which enters the Agency from the northeast. It first flows southwards and then turns eastwards, and finally breaks into the plains to the west of the Charsadda Tehsil. On its way, the river collects the waters of Danish Kol and its tributary, the Ambahar, and the Pandiali. The Swat River flows in a deep gorge; not much cultivable land is found along its banks. However, various places along the river banks are pierced by deep nullahs; at the confluence of some of these are found patches of alluvial fans which are cultivated.

The Danish Kol stream is the main tributary of the Swat River and forms the principle valley of the Agency. It rises in the Sappar ranges and flows southeast, then turns eastwards to drain finally into the Swat River. On the way, it collects various streams; of these Ambahar is the most important. Excluding the Pandiali stream which empties into the Swat River directly, the entire drainage of the northern and western half of Mohmand Agency is carried by the combined Danish Kol-Ambahar streams. The valleys along these streams are wide and their sides are dotted with alluvial fans.

b) The Kabul River basin: The Kabul River flows along the southern fringe of the Agency. It runs through a gorge, 66 to 100 meters wide with steep sides. Thus, fertile patches of lands are found only where streams have pierced through the valley sides and formed alluvial fans.

Various rivers which drain the eastern and southern faces of the Illazai Hills, e.g., the Gandab, Shalman, Sallala and Bira Darray flow into the Kabul River. These rivers, with the exception of the Gandab, do not contain much water in their courses. However, considerable fertile areas are found along their banks which are either dry cropped or irrigated by springs.

B. Climate:

The climate is hot and dry in summer and cold and dry in winter. The summer season commences in April and continues until October. June, July and August are the hottest months. The mean maximum and minimum temperatures for this period are 34°C and 23°C respectively. The winter season lasts from November to March with December, January and February being the coldest months. The mean maximum and minimum temperatures for this period are 13°C and 2°C respectively. The rainfall is scanty. Most of the rainfall occurs during the winter months. The data on temperature and rainfall for this Agency are given in Tables I.1 and I.2

Table I.1

MAXIMUM AND MINIMUM TEMPERATURES (C°)
IN MOHMAND AGENCY
YEAR 1991-92

Mean temperature (C°)

Month	Maximum	Minimum
July	30.70	30.30
August	34.00	30.30
September	31.50	29.80
October	26.23	24.42
November	21.10	18.02
December	17.30	14.00
January	14.60	12.70
February	15.40	10.30
March	20.00	15.77
April	22.10	18.20
May	28.50	24.50
June	35.30	32.20
Annual	24.60	21.70

Sources: Agriculture Office, Mohmand Agency

Table I.2

MONTHLY RAINFALL DATA
MOHMAND AGENCY
(1982-83 TO 1991-92)

Month	1982-83 mm	83-84 mm	84-85 mm	85-86 mm	86-87 mm	87-88 mm	88-89 mm	89-90 mm	90-91 mm	91-92 mm
July	N.R	5.0	45.0	35.0	2C.0	6.0	95.0	N.R	15.0	9.0
August	2.3	5.4	88.0	N.R	30.0	N.R	40.0	N.R	41.0	39.0
September	0.4	5.0	25.0	5.0	15.0	8.0	N.R	N.R	14.0	41.0
October	2.5	5.0	N.R	5.0	N.R	47.0	20.0	N.R	41.0	N.R
November	4.1	N.R	9.0	N.R	25.0	N.R	N.R	N.R	N.R	11.0
December	2.9	N.R	3.0	37.0	30.0	4.0	40.0	N.R	71.0	9.0
January	N.R	7.0	24.0	20.0	N.R	47.0	25.0	N.R	26.0	72.0
February	2.3	20.0	6.0	45.0	10.0	7.0	N.R	66.0	84.0	31.0
March	5.0	45.0	N.R	45.0	115.0	00.0	75.0	112.0	141.0	90.0
April	5.6	60.0	63.0	15.0	38.0	9.0	15.0	94.0	92.0	80.0
May	3.2	5.0	13.0	23.0	14.0	N.R	N.R	N.R	39.0	22.0
June	N.R	N.R	N.R	15.0	3.0	3.0	N.R	N.R	N.R	N.R
Total	28.3	157.4	276.0	245.0	300.0	325.0	310.0	272.0	564.0	404.0

N.R = Not Recorded

Sources: FATA Devolpment Statistics
Agriculture Office, Mohmand Agency

C. Mineral Development Potential

Mohmand Agency spreads over an area of about 2296 square kilometers. This region was mostly an unexplored region from the geological point of view until 1972. In 1972, a mineral wing was created in FATA DC and since then, 1988 square kilometers of the Agency has been explored. With the exception of limited areas around Ghalani, Gandao, Lakaro and Yakaghund, the majority of the survey work in the Agency was carried out in disguise because clearance for a sustained stay had never been available to geologists, nor have working conditions been smooth.

A resume of the mineral potential of the Agency in descending order of importance is as follows:

1. Decorative Stones:

Large deposits of decorative stones such as marble, dolomite, massive carbonate schist, jade and serpentinite are available throughout the Agency. The marble is of various shades and fabrics. These are grey, whitish grey, pure white, and green zebra. The marble is mainly located at Pampokha, Gumbatai, Katsori, Ziarat, Lakaro, Durba Khel and Wali-Baig Kor (Ghalani). Serpentinites are found at various localities in Laman and Ambar Utman Khel.

These stones can be cut and polished for decorative purposes in the construction industry. Some of the deposits are being exploited by private parties and individuals. However, primitive extraction techniques are used which lead to more than sixty-five percent wastage of the deposits. It is of interest to point out that Italy earns one third of its total income from the decorative stone industry.

2. Glass and Ceramic Raw Materials:

These include silica-sand, quartz and feldspar. Glass-sand deposits are located at Ghalani, Davat Kore, Durba Khel and Sangar. These reserves, minable to a depth of fifty feet, are estimated at about 537.0 million tons. The deposits are exposed at the surface and are lying adjacent to the main Ghalani-Gandao road.

The silica-sand is of medium-grade quality and needs to be upgraded before use. Elsewhere in the world, silica-sand of inferior quality is consumed for domestic uses and exported in large quantities. (The required technological studies were completed through FATA-DC by British experts). The U.K. is one of the countries which utilizes its low-grade sand deposits and also exports its silica-sand to Canada and Australia.

Source: Mineral Section, FATA-DC.

Quartz and feldspar are the main raw materials used for glass and ceramic manufacturing. These exist as pegmatites having wide-spread distribution and are sporadically distributed in Luman Utmankhel and Lower Gandao. The locals are engaged in the surface extraction of these deposits which results in damage to the deposits. Silica-sand, quartz and feldspar are useful for the ceramic and glass manufacturing industry in Pakistan.

3. Dolomite:

High-grade dolomite deposits containing 21.9% magnesia exist in the accessible localities of Sangar, Durab Khel and Wali-Bagh Koor. These deposits are close to the main roads, where the reserves are estimated to be about 11.0 million tons. The commodity is fit for use as a flux-stone in the steel industry. In addition, due to its bright white colour, dolomite is in great demand in the marble and chips making units in the surrounding districts. It is unfortunate, however, that this useful raw material is being damaged by people engaged in its extraction through irregular blasting and wrong end use.

4. Chromite:

Sporadic occurrences in the shape of lenses, pockets and veins are located all along the central part of the Agency, from Prangghar in the east to the extreme west of Ambar Utman Khel in the west. These bodies are found in ultrabasic rocks which occupy the main Himalayan suture zone, which in a discontinuous fashion runs from Jijal (Indus Kohistan) in the north to Muslim Bagh (Balochistan) in the south. On the average, the chromium content in the ore from various localities is around 30%. The exact quantity of the chromite deposits is not known as the conditions for proper geological investigation have never been favourable. Chromite is an important ferro-alloy mineral which is needed for both local consumption as well as for export.

5. Precious Stones:

Emerald mineralisation was located at Tora Tiga (Gandao) and Aman Kot (Barang) in 1973. The former locality falls in Mohamand Agency while the latter is located in Bajaur Agency. Emeralds at Tora Tiga are associated with quartz veins in the dolomite limestone. The locals extract the emeralds through blasting to get the proper crystals. In quality/grade, the emeralds are close to those from Panj-Sher (Afghanistan) and Mingora Swat (Pakistan). The mineralized host-rock constitutes the divide between Baru Khel in the north and the Kabul River in the south. This is a sizable extension.

The mineral at Barang is of inferior quality and is associated with Talc-Carbonate-Schist. This host-rock mineral association resembles that of Mingora (Swat). The emeralds at either of the

above localities are inaccessible due to political reasons. Private individuals with their ownership claims are engaged in extraction, the details of which are not known.

6. Asbestos:

Medium to long-fiber asbestos is reported from areas to the north of Prangghar and south of Kohe-Moor. Geological details are not known as clearance for proper investigation is difficult.
Asbestos is a useful industrial mineral and is consumed in the manufacturing of fireproof costumes and asbestos sheets.

Occasionally, asbestos from the area is seen in the market which means that the extraction work is continuing. Mining may not be properly done because proper health protection measures are required as working in asbestos mining can lead to cancerous diseases.

In addition to the above-mentioned minerals, magnetite and green-garnet (high quality gem) and sulphide (copper) samples have come to the notice of the geologists in the region through samples from the locals. These are important minerals but details are unknown because of the prevailing circumstances.

D. Problems:

1. Clearance:

For the proper and speedy development of the area, cooperation should be extended to the geologists so that appropriate estimates of the existing minerals as well as new minerals can be brought to light.

2. Infra-Structure:

Adequate training should be extended to the locals of the area in order to reduce the losses in mining and also minimize hazards to life.

3. Approaches:

Proper approaches should be constructed to the mining sites so as to facilitate the movement of the ore from the mines to the market.

4. Discouraging Uneconomical Use:

Means should be devised to discourage the improper use of the minerals such as the use of dolomite as a decorative stone in the building industry.

II. ADMINISTRATION AND ECONOMY

A. Administration

Mohmand Agency takes its name from the Mohmand Tribe which inhabits the area. This Agency was established in 1951. Earlier, this tribal area was under the administrative control of the Khyber Political Agent. The Agency headquarters are located at Ghalani. Mohmand Agency is bordered on the north by Bajaur Agency, on the east by Malakand Protected Area and Peshawar District, on the south by Khyber Agency and on the west by Afghanistan. The total area of the Agency is 2,296 square kilometers.

The Agency is headed by a Political Agent based at Ghalani. The Agency has been divided into two sub-divisions and various tehsils. Details are as follows:

Subdivisions	Tehsils	Tehsil Headquarters
Upper Mohmand	Upper Tehsil or Musa Khel Tehsil	Ghalani
	Halimzai	Ghalani
	Safi Tehsil	Lukaro
Lower Mohmand	Yakaghund	Yakaghund
	Ambar	Yakaghund
	Pandiali	Yakaghund
	Prangghar	Prangghar

Each sub-division is headed by an Assistant Political Agent while a Political Tehsildar is in charge of each tehsil. For small sized tehsils, the Political Naib Tehsildar is in charge. In the upper sub-division, upper and Safi Tehsildar are managed by Political Tehsildars while in Lamer sub-division, all four tehsils are managed by Political Naib Tehsildars.

Administrative control by the political authorities is carried out in areas where roads intersect, such as Michni, Safi, Yakaghund, and Halimzai. In other areas such as Utman Khel, Musa Khel and Prangghar, there are not many roads but development schemes are still carried out. Some areas are still inaccessible in upper Mohmand such as those inhabited by the Khawazai and Bazai tribes who live on the Afghanistan border.

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 or income. Agriculture is one of the sources of income. Generally, the agricultural sector provides only a subsistence living except in Ambar Tehsil where poppy is cultivated as a cash crop. The people in Ambar are relatively poorer than in other tehsils of Mohmand Agency. People raise livestock but not on a commercial basis. Animals are generally for family use for milk and meat consumption.

Due to mass migration, remittances have been one of the sources of income. A major migration of males has been to the urban centers of Pakistan such as Peshawar, Lahore and Karachi. A limited number of people generally from the Halimzai, Safi and Musakhel tribes have migrated to the Gulf States. No data are available concerning the amount of remittances coming into the Agency and the exact number of Agency residents abroad is not available. As elsewhere in Pakistan, the amount of remittances has declined in recent years and migrants are returning to Pakistan.

There are three main bazaars in Mohmand Agency. Gandab bazaar has 200 shops, Ghalani bazaar has around 60 shops and Yakaghund bazaar has around 70 shops. Most of the shops in these bazaars have items for daily consumption. There are a few ammunition shops but no timber markets in Mohmand Agency.

There are no industrial units in Mohmand Agency. FATA DC completed a glass factory at Ghalani in September 1977 at a cost of 6.147 million rupees. This factory was supposed to provide jobs to 50 people. The factory started operation in September 1977 and was closed down permanently in July 1979 due to losses. Commulative losses up to June 1988 have been estimated at around 6 million rupees. The losses of this factory were due to the remote area and the cost of transportation of finished goods, industrial skills which were not locally available and the poor product quality.

III. POPULATION

A. Government Census Data

According to the 1961 Population Census, the Population of Mohmand Agency was 294,215. Eleven years later in 1972, the Census population figures increased to 382,922. In the 1981 Census, these figures were drastically reduced to 163,933. Table III.1 shows these statistics.

Table III.1

POPULATION SIZE, INTERCENSAL CHANGE & ANNUAL GROWTH OF MOHMAND AGENCY

Description	1961	1972	1981	1992 (estimated)
Population	294,215	381,922	163,933	230,000
Intercensal change		(+)30.2 %	(-)57 %	
Average Annual Growth Rate		(+) 2.3 %	(-)9.5 %	(+)3.1 %

In 1981 Mohmand was at the bottom among all seven Tribal Agencies in terms of total population. Mohmand Agency had a population density of 71.4 persons per square kilometer. It was fifth among all seven Tribal Agencies in terms of population density after Orakzai, Bajaur, Khyber and Kurram Agencies.

According to the 1981 Census, the Mohmand population was scattered among the seven tehsils as follows:

Table III.2

POPULATION BY TEHSIL

S.NO	Name of Tehsil	Population as of 1981	% of Agency Population
1	Halimzai Tehsil	26,783	16 %
2	Pandiali Tehsil	23,671	14 %
3	Safi Tehsil	35,708	22 %
4	Upper Mohmand Tehsil	48,757	30 %
5	Prangghar Tehsil	16,613	10 %
6	Yakaghund Tehsil	12,401	8 %
7	Ambar Tehsil	N/A*	

Recently a new Prangghar tehsil has been created for certain administrative and developmental purposes.

The average household size in 1981 was approximately seven persons which is a very small household size. Among the seven Tribal Agencies, its household size is only larger than that of Bajaur Agency which has 6.3 persons per household.

The overall ratio of males to females in 1981 was 101.3 males for every 100 females. Mohmand Agency was at the bottom among the Tribal Agencies where male population ranked slightly higher than the female population. Pandiali Tehsil has the highest ratio of 107.9 whereas Halimzai Tehsil has the lowest with 90.7. The low ratio of Mohmand Agency also explains the migration of the male population to other urban centers of Pakistan and abroad for employment.

B. Population Growth

It is very interesting to note that the population in Pakistan as a whole has approximately doubled from 1971 to 1992. Pakistan is the ninth most populous country of the world, with its population growing at a rate of around three percent per annum. Twenty-three years is the time that it takes for the population to double in Pakistan. However, the 1981 Population Census resulted in a negative population growth rate of 1.5 percent for FATA in general, and a 9.5 percent average negative annual growth rate for Mohmand

* The population of Ambar was not available in the 1981 Census.
in particular. The reasons given in the preface of the 1981 Census Report claimed that it was the first time in FATA that a proper census providing for individual enumeration was carried out. In each previous FATA census, the estimates of population were provided by Political Agents with some insignificant exceptions where individual enumeration was carried out.

FATA population census results are very controversial for various reasons such as:

1. There are many areas in FATA which are inaccessible to data collectors.

2. The main source providing the data is a Malik of a particular area who does not provide accurate data for reasons such as these:

   a) Interests b) Illiteracy c) Suspicion d) Not understanding the importance of data for planning.

In Mohmand Agency there are arguments in favour of positive population growth:

1. The desire for greater manpower which is a symbol of status and strength for tribesmen.

2) The high rate of illiteracy among women and the lack of awareness and access to family planning services.

3) The trend towards early marriages.

There are also strong factors behind the negative population growth. These factors are as follows:

a) There are very limited economic opportunities in Mohmand Agency. Because of economic reasons, many families have permanently settled in urban areas of Pakistan especially in Peshawar and the surrounding settled areas of Mohmand Agencies. There is a sizable community of Mohmands in Peshawar as well as Charsada and Mardan districts.

b) Of families presently living in the Agency, more than fifty percent of the male population is working in the urban centers of Pakistan and the Gulf States.

c) There is a high infant mortality among the majority of poor families who lack the finances and access to medical services.

In the earlier censuses of 1961 and 1972, the population figures were provided by political authorities. At that time, tribes were given subsidized food; therefore it was suspected that exaggerated figures had been provided by Maliks to the political authorities and to census officials. The major drop in population in 1981 could be attributed to inaccurate figures of earlier censuses and the very high rate of migration to the Gulf States and to urban centers of Pakistan for employment in the eighties. In the future, census problems of getting accurate data will continue.

Mr. Akbar S. Ahmad an eminent scholar and an ex Political Agent of Mohmand Agency described this dilemma in the following words:

> Demographic surveys, like most other census information in the Tribal Areas, are based on answers provided by 'leading Maliks' and are usually collected and collated at the Agency headquarters or in Peshawar. The statistical accuracy of such surveys may be gauged from the fact that they are officially labelled 'estimates' or 'enumerations'. The first enumeration in the Tribal Areas took place in 1881 and only included British troops and their followers in the Khyber Pass. In 1911, 1921 and 1931 estimates of the tribal population were made. In 1941 the Malakand Division was included in the census. In the first census in 1951, after the creation of Pakistan, the population for the Tribal Areas was also based on estimates. This remained unchanged for the census of 1961 and in 1971.

> Exaggeration of male and deflation of female numbers in questions regarding demographic or domestic statistics is a common tribal practice. In the eyes of tribesmen this interconnected formula is explained thus: "Inflated male numbers increase political (military) prestige and social status and thus command that much more attention, and allowances, from the political administration". The subject of females is strictly private and information regarding their lives is an infringement of this privacy. Concepts of shame, highly developed regarding chastity among women may be evoked. The inflation of population figures may also have a valid explanation. The two houses system that many Mohmands maintain may result in double counting. According to the 1971 population census, there should be 432 people per square mile in the Agency. However, a superficial visit to the Agency with its vast, desolate areas will indicate the considerable inflation in the population figures.
>
> In the summer of 1974, in my early surveys I was repeatedly assured that the Population of Shati Khel's twenty hamlets was 3,000, whereas it turned out to be about 1,031. Similarly, Bela Mohmandan was said to have 2,000 people when the actual number is about 432. Inflation of population figures by three or fourfold should emphasize my earlier caution regarding figures, population, age and even dates, unless substantiated. 1

In order to estimate the population figures in 1992, we have used the national average growth rate of 3.1 percent from 1981. This growth rate would give a 1992 population of around 230,000 for Mohmand Agency.

C. Literacy

According to the 1981 Census, the literacy ratio in Mohmand Agency for the population 10 years and above was 3.61 percent. It was 6.07 percent for males and 0.64 percent for females. Mohmand Agency had the second lowest literacy rate among all seven Tribal Agencies and registered only slightly better than Orakzai Agency's 3.03 percent. Yakaghund tehsil had the highest literacy ratio of 12.57 percent; Safi tehsil was lowest at 1.51 percent. Table III.3 below explains these details further.

1. Ahmad, Akbar S., Pukhtoon Economy and Society. London: Routledge & Kegan Paul, 1980, pages 43-45.

Table III.3

LITERACY OF POPULATION 10 YEARS OF AGE & ABOVE IN 1981

Area/sex	Total	Illiterate	Literate	Literacy Ratio
MOHMAND AGENCY				
BOTH SEXES	114,142	110,021	4,121	3.61 %
MALE	62,291	58,507	3,784	6.07 %
FEMALE	51,851	51,514	337	0.64 %
SALIMZAI TEHSIL				
BOTH SEXES	18,536	17,722	814	4.39 %
MALE	9,910	9,231	679	6.85 %
FEMALE	8,626	8,491	135	1.56 %
SANDIALI TEHSIL				
BOTH SEXES	15,733	15,325	408	2.59 %
MALE	8,929	8,536	393	4.40 %
FEMALE	6,804	6,789	15	0.22 %
SAFI TEHSIL				
BOTH SEXES	24,753	24,377	376	1.51 %
MALE	13,512	13,155	357	2.64 %
FEMALE	11,241	11,222	19	0.16 %
UPPER MOHMAND TEHSIL				
BOTH SEXES	35,553	34,244	1,309	3.68 %
MALE	19,387	18,204	1,183	6.10 %
FEMALE	16,166	16,040	126	0.77 %
UTMAN KHEL TEHSIL				
BOTH SEXES	11,847	11,604	243	2.05 %
MALE	6,474	6,238	236	3.64 %
FEMALE	5,373	5,366	7	0.13 %
YAKAGHUND TEHSIL				
BOTH SEXES	7,720	6,749	971	12.57 %
MALE	4,079	3,143	936	22.94 %
FEMALE	3,641	3,606	35	0.96 %

D. Religious & Tribal Groups

The Agency population is almost entirely Sunni Muslims. In 1981, the census counted 944 Christians, two Hindus and 230 Ahmadis as non-Muslims. The major tribes are Baŕizai, Safi, UtmanKhel, Kemezai, Tarakzai and Halimzai.

Information regarding the major tribes, their sub-tribes, the tehsils where they live, and the 1981 census population are given in Table III.4

Table III.4

TRIBAL GROUPS

Tribes	Sub Tribes	Tehsils of Residence	1981 Census Population
MusaKhel		Upper Mohmand	48,757
Khawezai		Tehsil	
	Khad Khel		
	Mohammad Khel		
	Abdul Khel		
	Isab Khel		
	Tauta Khel		
Baizai			
	Sepai		
	Usman Khel		
Tarakzai			
	1) Dadu Khel	Yakaghund Tehsil	
	2) Qasim Khel	and	36,032
	3) Burhan Khel	Pandiali Tehsil	
	4) Isa Khel		
	5) Utman Zai		
	6) Dawezai		
	7) Mundi Khel		
Safi			
	Masood	Safi Tehsil	35,708
	Qandhari		
	Gurbaz		
	Shinwari		
Utman Khel			
	Laman	Prangghar Tehsil	16,613
	Ambar	Ambar Tehsil	N/A
Halimzai			
	Kamali	Halimzai Tehsil	26,783
	Gundab		
		Grand Total	163,933

Among all these tribes, the Tarakzai Tribe has the most access to development facilities. After the Tarakzai are the Halimzai, Safi, Musakhel and Laman Utman Khel in that order. The Khawazi, Baizai and Ambar have the least access to socio-economic services in Mohmand Agency as they live in remote, isolated and inaccessible areas.

IV. REFUGEES

Although Mohmand Agency has border links with Afghanistan, it still has a very limited refugee population for the following reasons:

1) Lack of water
2) Few job opportunities
3) Harsh climatic conditions.

There are two camps in Mohmand Agency with the following population as of May 11, 1993:

S.NO	Camps	Number of Families	Individuals
1.	Yakaghund-1	426	2589
2.	Yakaghund-2	303	2074
	Total:	729	4663

These camps are located near the main Yakaghund Bazaar. Due to the limited number of refugees they don't cause any major problems for the local population or the environment. For the most part, the refugees have moved from Kunar, Laghman, Ningrahar and Paktia provinces of Afghanistan. These refuges belong primarily to the Nasir, Khusyani, Mohammad Zai, Safi and Mohmand tribes of Afghanistan.

The refugees live in mud houses in the camps and work in agriculture in the Yakaghund Bazaar. Some even go to Peshawar to work as laborers.

The Pakistan Government Commissionerate for Afghan Refugees distributes relief items to refugees when these items are received from international donors or private voluntary agencies. The United Nations High Commissioner for Refugees (UNHCR) takes care of the health and education needs of the refugees. The World Food Program (WFP) distributes 12 kilograms of wheat per head per month and 600 grams of edible oil per head per month.

There are three primary schools for boys, one primary school for girls and one middle school for boys. A description of these schools is as follows:

Table IV.1

NUMBER OF SCHOOLS FOR AFGHAN REFUGEES AND ENROLLMENT

.NO	Schools	Number	Type	Enrollment (November 1992)
	Primary Schools for boys	3	Mud building=1 Tented schools=2	320
	Primary School for girls	1	Mud building	75
	Middle School for boys	1	Concrete building	211

There is one Basic Health Unit (BHU) for refugees at Yakaghund which has one doctor, one dispenser, one lady health visitor, one malaria supervisor, one vaccinator and one midwife. UNHCR has funded the completion and operation of one tubewell, 43 shallow wells, seven reservoir tanks, and eight hand pumps for drinking water in the camps. The Norwegian Refugee Council (NRC) started a tailoring training center in 1991 and also provides tool kits to refugees.

Since September 30, 1990 (when the repatriation program was started), the repatriation status of refugees up to May 11, 1993 was as follows:

S.No	Tehsil/Camps	Families	Individuals
1.	Yakaghund Camp-1	903	5110
2.	Yakaghund Camp-2	967	5896
	Total	1870	11006

V. LAND USE

The total geographical area of Mohmand Agency is 229,620 hectares. In this section utilization of the area is studied along with other indicators of land use in the Agency. The study is based mainly on FATA development statistics and the Pakistan Census of Agriculture, 1980 report.

A. The Global View

Mohmand Agency has a cultivated area totaling 13,500 hectares which is only 5.88 percent of its total reported area. The area classified as culturable waste is also small, only 17,331 hectares.

Table V.1

LAND USE IN MOHMAND AGENCY: 1988-89

	Land Use Classification	Area	
		Hectares	% of total
1.	Cultivated area	13,500	5.88
2.	Culturable waste	17,331	7.55
3.	Forest	924	.40
4.	Not available for cultivation	197,865	86.17
5.	Total reported area	229,620	100.00

Source: FATA Development Statistics, 1990

The Agency's cultivated area is 9.6 percent of the total cultivated area of the seven Tribal Agencies. The corresponding figure for reported area is 8.43 percent (Table V.2).

Table V.2

AGENCY WISE REPORTED AREA, CULTIVATED AREA, AND POPULATION PER HECTARE IN 1988-89

Agency	Reported area[a]		Cultivated area[a]		Population per cultivated hectare[b]
	Hectares	% of total	Hectares	% of total	
Mohmand	229,620	8.43	13,500	9.60	27
Khyber	328,354	12.06	17,000	12.10	12
Kurram	338,052	12.42	17,112	12.17	21
Orakzai	153,761	5.65	9,700	6.90	38
Bajaur	129,035	4.74	55,500	39.47	8
N.Waziristan	558,396	20.52	16,000	11.37	19
S.Waziristan	984,824	36.18	11,800	8.39	33
All Agencies	2,722,042	100.00	140,612	100.00	17

Source: a) Based on FATA Development Statistics: 1988-89
b) Estimated population of 1989 divided by cultivated area

The population/arable land ratio, i.e., persons per cultivated hectare is high and increasing in Mohmand as in other Tribal Agencies. It is estimated to be roughly 27:1 compared to 17:1 for the Tribal Agencies as a whole for 1989.

B. Farm Area and its Utilization as Reported by the 1980 Census of Agriculture

According to the 1980 Census of Agriculture, the total farm area of the Agency in that year was 21,700 hectares out of which 21,500 hectares, accounting for 99 percent of the total farm area, were under cultivation.

Table V.3

LAND USE PATTERNS IN MOHMAND AGENCY ACCORDING TO 1980 CENSUS OF AGRICULTURE

	Land use classification:	Area	
		Hectares	% age
1.	Cultivated area	21,500	99.08
2.	Culturable waste	50	.23
3.	Unculturable area including forests	150	.69
4.	Total farm area	21,700	100.00

Source: Pakistan Census of Agriculture 1980, Volume-III

As far as the land utilization patterns are concerned, the 1980 Census of Agriculture data cannot be taken as an adequate indicator because the unit of enumeration was the 'farm' not the entire land owned or possessed by the respondents. Therefore, the statistics given in Tables V.1 and V.3 are not comparable.

The 1980 Census estimate as to the Agency's cultivated area raises questions, as it is substantially more than the 1989 estimate arrived at by the NWFP Agriculture Department which is the source of Table V.1. To recall, the figures are 21,500 hectares (1980) and 13,500 hectares (1988-99) respectively. The questions raised by these data are 1) Which of the two estimates is correct?; and 2) If both are correct, (which can be the case as there is a time lag of nine years between the two points in time under study), then what caused the cultivated area to decline so sharply? In all probability, the Agriculture Department's statistics on the Agency's cultivated area are more accurate than the older estimates of the 1980 Census which are thought to err on the high side.

C. Land Use Patterns in 1984-85 and 1988-89

The proportion of cultivated area in the total reported area was almost the same in the two time periods under comparison: 5.80% in 1984-85 and 5.88% in 1988-89. The net cropped area, however, increased by a much larger margin (23.57%) than the cultivated area, while the area sown more than once declined by 14.49 percent. The total cropped area, therefore, increased by only 4.67 percent.

According to Table V.4 in 1988-89 the forested area covered 924 ctares. This is a small area, but a gratifying feature is that it is more than twice the corresponding figure (457 hectares) recorded four years earlier in 1984-85.

Table V.4

LAND USE PATTERNS IN MOHMAND AGENCY
IN 1984-85 AND 1988-89

Land Use	1984-85		1988-89		Change 1988-89/ 1984-85	
	Hect.	%	Hect.	%	Hect.	%
I. Cultivated Area						
i. Net sown	7,000	-	8,650	-	+1650	+23.57
ii. Current fallow	6,300	-	4,850	-	-1450	-23.02
iii. Total	13,300	5.80	13,500	5.88	+200	+01.50
II. Cropped Area						
i.Net cropped area	7,000	-	8,650	-	+1650	+23.57
ii.Area sown more than once	6,908	-	5,907	-	-1001	-14.49
iii.Total cropped area	13,908	-	14,557	-	+649	+4.67
III. Uncultivated Area						
i.Culturable waste	17,998	-	17,331	-	-667	-3.70
ii.Forests	457	-	924	-	+467	+102.19
iii.Not available for cultivation	197,865	-	197,865	-	-	-
iv.Total uncultivated area	216,320	94.20	216,120	94.12	-200	-0.10
Total reported area (I,III+ III,IV)	229,620	100.00	229,620	100.00	-	-

Source: FATA Development Statistics

All told, the change in land use during 1984-89 affected a total area of 667 hectares. The categories that showed gains and losses were:

CATEGORIES THAT GAINED

* Cultivated area 200 hectares

* Forests 467 hectares

CATEGORY THAT LOST

* Culturable waste 667 hectares

D. Land Use and Cropping Intensity

Land use and cropping intensity are important indicators of land/farm resource utilization. Some comparative data for other Tribal Agencies and Mohmand Agency are given in Table V.5.

Table V.5

LAND USE AND CROPPING INTENSITY IN TRIBAL AGENCIES

Agencies	Land use intensity		Cropping intensity	
	1984-85	1988-89	1984-85	1988-89
Mohmand	43	44	108	108
Khyber	17	19	109	98
Kurram	96	92	104	157
Orakzai	90	90	96	101
Bajaur	93	95	150	156
N.Waziristan	17	92	110	135
S.Waziristan	12	12	142	150
All Agencies	43	43	125	138

Source: Based on FATA Development Statistics

Land use intensity is low in Mohmand Agency compared to Orakzai, Bajaur, and North Waziristan, but higher than that of Khyber and South Waziristan. Theoretically speaking, it can be more than doubled. Will that be feasible economically? This question needs to be studied because despite the small arable land potential of the Agency as a whole, any addition to the cropped or/and forested area would be a welcome addition to the community's productive resources. That is, a small increase in farm land may not be significant for the Agency as a whole, but it can have a profound and positive impact in the regions where the increase occurs.

The cropping intensity in Mohmand is lower than FATA's overall average, but is consistent with its agro-climatic characteristics. Can and should this be enhanced? This question justifies a full-fledged study. The study should address different agro-ecological zones of the Agency, as the answer to the question posed above would vary according to the characteristics of the land in different localities.

E. Concluding Notes

The arable land resource base of this Agency is very small; only one hectare of cultivated land was available to 27 persons in 1989. Even doubling the cultivated hectarage, which by itself seems to be a very difficult if not impossible task, wouldn't materially change the arable land to man ratio. This clearly implies that in any agricultural development plan for the Agency, the emphasis should be placed on intensive cultivation, diversification in favour of high value crops, yield optimization, and cost minimization rather than extensive agriculture. Similarly, in the plans for the overall development of the Agency, adequate attention to the non-farm sectors should be given as the farm sector's income and employment generating capabilities are seriously limited by land resource constraints pointed out above.

VI. AGRICULTURE

The agricultural sector in Mohmand Agency is, on the whole, characterised by backwardness and stagnation. Land holdings are small and fragmented. The cropping pattern is dominated by cereal crops and is subsistence oriented. The use of improved inputs is low as well as the average farmer's level of awareness of modern agricultural practices. The Agency has, however, moderate to high level agri-development potential both in the irrigated and the un-irrigated zones. These need and can be exploited through concerted and integrated efforts of the agri-sector related agencies operating in the area. The main thrust should be towards farmers' education, diversification of the cropping pattern, improvement of agri-credit and marketing systems, wider and closer contacts between the farmers and the extension workers, and more irrigation facilities. With this brief overview of the agricultural sector, the salient features of the latter are described in the rest of these sectors.

A. Land Holdings

In this section information is presented on 1) average farm size; 2) distribution of the farms by size of farms; 3) tenure classification of farms; 4) tenancy systems; and 5) fragmentation of land holdings in Mohmand Agency. Most of the information is drawn from the 1980 Census of Agriculture. This is supplemented in places by the data collected from a sample of farmers interviewed in connection with this study.

1. Farm Size

The 1980 Census of Agriculture placed the Agency's average farm size at 2.6 hectares with the range of 0.2 - 20.4 hectares. The corresponding average for the entire FATA is 2.16 hectares. Agency-wise comparative statistics are given in Table VI.1.

Table VI.1

AVERAGE FARM SIZE IN TRIBAL AGENCIES 1980

Agency	Farms (No.)	Total farm area (hectares)	Average farm size (hectares)
1. Mohmand	8,505	21,700	2.55
2. Bajaur	25,039	88,676	2.54
3. Khyber	10,730	13,478	1.26
4. Kurram	9,257	11,818	1.28
5. N.Waziristan	17,040	21,056	1.24
6. S.Waziristan	19,223	51,029	2.65
7. Orakzai	15,424	19,883	11.29
8. All Agencies	105,218	227,640	2.16

Source: Pakistan Census of Agriculture, 1980

In farm size, Mohmand Agency compares favourably with other Tribal Agencies and is third in overall ranking. But it must be borne in mind that these are twelve-year old estimates. Due to mounting population pressure it would be logical to expect that the existing (1992) corresponding average would be much lower. So at this point, it seems relevant and useful to present data on farm size collected through interviews (using a questionnaire) with 71 farmers in different localities of Mohmand Agency.

Table VI.2

LAND HOLDINGS OF SAMPLE FARMERS IN MOHMAND AGENCY IN 1992

	Tehsils	Sample farmers (number)	Farm area (hectares)	
			Total	Average
1.	Pandiali	10	29.15	2.91
2.	Prangghar	10	39.47	3.95
3.	Yakaghund	19	79.75	4.20
4.	Ghalani	11	26.52	2.41
5.	Halimzai	10	24.09	2.41
6.	Safi	11	32.48	2.13
7.	Total	71	202.31	2.85

Source: Sample Survey 1992.

The 1980 census and the 1992 sample survey estimates on the average size of holding are quite close. An unexpected aspect about the 1992 sample survey-based figure is that it is higher than the 1980 census-based corresponding estimate.

The 1992 sample survey's data are not strictly comparable with the 1980 census data on a methodological plane. The 1992 sample, besides being small, was not drawn by the standard listing and random selection method for the reason that it was designed to serve only as a mean for rapid appraisal of some aspects of farmers, their land, crops, etc.

In addition to the foregoing, despite the increase in population, the farm size in 1992 is higher than that recorded in 1980. A plausible explanation for this may be found in the tendency to sub-divide the proprietary holdings but to maintain or even increase the operated holdings. This phenomenon is observed in the settled areas and is said to be operative also in this Agency. A large scale exodus of the working population of this Agency has taken place since 1980. The migrants' land goes to increase the size of operated holdings of their next of kins or tenants. This is one of the explanations of the phenomenon under comment. It would be a worthwhile proposition to inquire into the size of operated holdings and causes as well as implications of change in the size over time.

2. Distribution of Farms by Size

Land ownership is highly concentrated in this Agency like the general pattern in the other agencies. In 1980, as reported in the Census of Agriculture, only 40 percent of the farm area comprised 70 percent of the farms. While at the lower extreme, 19 percent of the farms of less than one hectare size comprised only 4.79 percent of the area under all farms of the Agency; at the higher extreme, 1.77 percent of the farms had 10 hectares or more and they made up 8.83 percent of the total farm area (Table VI.3).

Table VI.3

DISTRIBUTION OF FARMS AND FARM AREA BY SIZE OF FARM IN MOHMAND AGENCY: 1980

Farm size (hectares)	Farms		Area	
	Number	%	Hectares	%
Under 1.0	1,655	19.46	1,040	4.79
1 - 2.0	2,275	26.75	3,174	14.62
2 - 3.0	1,930	22.69	4,421	20.37
3 - 5.0	1,760	20.69	6,485	29.89
5 - 10.0	735	8.64	4,665	21.50
10 - 20.0	140	1.65	1,712	7.89
20 and above	10	0.12	204	.94
All sizes	8,505	100.0	21,699	100.0

Source: Pakistan Census of Agriculture, 1980

Although not designed specifically for a study of farm size and distribution patterns, it would be interesting and useful to see what the 1992 survey conducted for this study has to say on the subject. The relevant data are presented in Table VI.4.

Table VI.4

DISTRIBUTION OF SAMPLE FARMS AND FARM AREA
BY FARM SIZE IN MOHMAND AGENCY: 1992

(Percentages)

Tehsil	Farm size (hectares)											
	Under one		.1 - 2.0		2.0 - 3.0		3 - 5.00		5 - 10.0		10 - 20.0	
	a	b	a	b	a	b	a	b	a	b	a	b
1. Pandiali	10.0	2.1	20.0	10.4	20.0	13.9	30.0	34.7	20.0	38.9	-	-
2. Prangbar	-	-	-	-	20.0	12.3	50.0	39.0	30.0	48.7	-	-
3. Yakaghund	5.3	18.5	10.5	4.1	26.3	14.0	31.6	25.4	21.1	38.1	5.3	17.8
4. Ghalani	9.1	2.3	45.5	21.4	9.1	9.2	27.3	40.5	9.1	26.7	-	-
5. Halimzai	-	-	10.0	5.0	40.0	31.9	30.0	29.4	20.0	33.6	-	-
6. Safi	9.1	0.9	45.5	28.4	27.3	27.6	9.1	17.2	9.1	25.9	-	-
7. Total	5.6	0.9	21.1	8.9	23.9	16.5	29.6	30.4	18.3	36.9	1.4	6.4

Source: Survey a = % of farms b = % of farm area

3. Tenure Classification of Farms

The overwhelming majority of the farms are owner operated which is the general pattern in the Tribal Agencies. The tenure classification of the farms by farm size as recorded in the 1980 Census of Agriculture is given below in Table VI.5.

Table VI.5

TENURE CLASSIFICATION OF FARMS IN MOHMAND AGENCY: 1980
(Percentages)

Farm size (hectares)	Owners	Owners cum tenant	Tenants
Under 1.0	94	2	4
1 - 2.0	88	8	4
2 - 3.0	89	8	3
3 - 5.0	87	12	1
5 - 10.0	92	7	1
10 - 20.0	96	4	-
20 and above	100	-	-
All size	91	5	4

Source: Pakistan Census of Agriculture, 1980

4. Tenancy Systems

The following three land tenancy systems exist in Mohmand Agency:

i. Batai (share cropping) system.

ii. Cash rent/lease system.

iii Free lease not involving cash rent or sharecropping, but requiring the lease holder to provide free service to the landlord.

Of these three systems, Batai is relatively more popular, and the most prevalent rate of Batai is 50:50. In 1980, this category accounted for 46% of the tenant operated areas followed by cash rent with 40%.

Table VI.6

TENANT OPERATED AREA CLASSIFIED BY FORM OF RENT IN TRIBAL AGENCIES IN 1980.

Agency	Share cropped	Leased	Other
Mohmand	46.0	40.0	14.0
Bajaur	75.1	22.0	2.9
Khyber	72.8	27.2	-
Kurram	82.9	16.8	0.3
N.Waziristan	73.1	26.5	0.4
S.Waziristan	47.0	40.0	13.0
Orakzai	70.6	11.7	12.7

Source: Pakistan Census of Agriculture, 1980

5. Fragmentation

The problem of fragmentation is widespread in this Agency as it is elsewhere. The most authentic data available on this subject are those of the 1980 Census of Agriculture according to which 75.5 percent of the farms were found fragmented in that year. In this respect, the comparative picture of Mohmand and other agencies is shown in Table VI.7.

Table VI.7

LAND FRAGMENTATION IN MOHMAND AND OTHER TRIBAL AGENCIES AS RECORDED IN THE 1980 CENSUS

Agency	Farms reported fragmented (%)	Number of fragments per farm (hectare)
1. Mohmand	75.54	3.1
2. Bajaur	86.86	4.8
3. Khyber	62.61	2.9
4. Kurram	84.80	5.0
5 N.Waziristan	33.75	3.6
6. S.Waziristan	90.19	4.4
7. Orakzai	85.10	4.7

Source: Pakistan Census of Agriculture, 1980

3. Crops

Wheat, maize and sugarcane are the major crops of the Agency. Also grown are barley, tobacco, fruit, and vegetables, but the area allocated to these crops is small as a proportion of the total cropped area. Orchard crops and vegetables, though not grown on a large scale, are gradually becoming popular.

The bulk of the agricultural production is concentrated in the area falling under the Yakaghund tehsil and the Prangghar tehsil. Of these two tehsils, Yakaghund is the leading one in crop area, the diversity of cropping patterns, and yields per hectare.

Half of the total cultivated area of 13,500 hectares in 1988-89 was irrigated. Of the latter, almost 59 percent was accounted for by canals, eight percent by tubewells, with the remaining 33 percent by open wells, lift pumps, and other sources of irrigation.

The cropping pattern is characterised by the dominance of cereal crops. The bulk of the total area of the major crops is claimed by wheat followed by maize and sugarcane. A change has, however, set in. High value crops like onions, rape and mustard, and sugarcane, are cultivated on a larger area than before. The statistics published by the Agriculture Department do not, however, fully portray the trend. The available data on major crops are given in Table VI.8.

Table VI.8

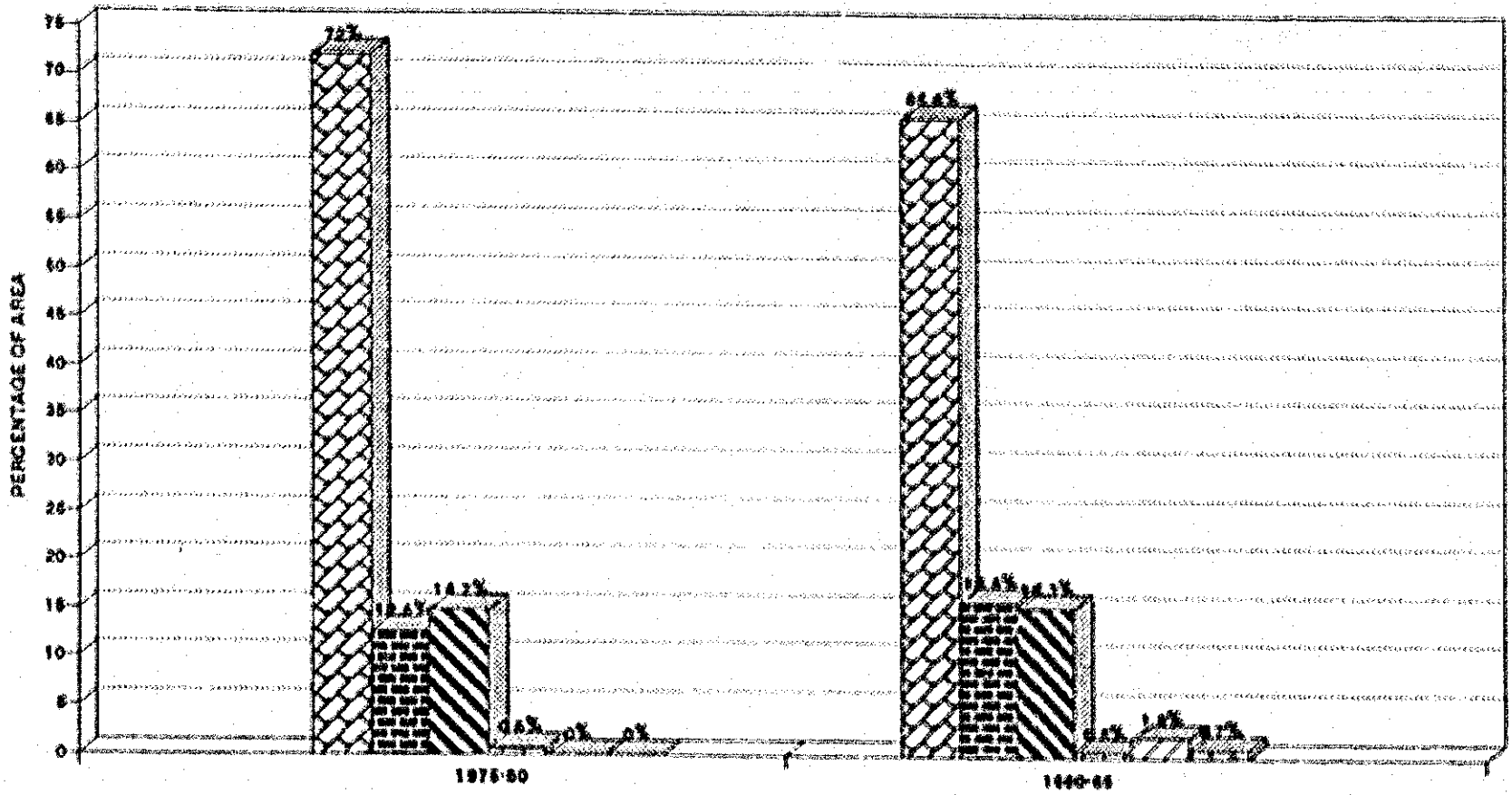
AREA UNDER MAJOR CROPS IN MOHMAND AGENCY
1975-80 AND 1985-89

	Crops	1975-80		1985-89	
		Hectare	% age	Hectare	% age
1.	Wheat	9430	72.0	9502	65.8
2.	Barley	83	0.6	70	0.5
3.	Maize	1656	12.6	2280	15.8
4.	Sugarcane	1930	14.7	2218	15.1
5.	Onions	-	-	268	1.9
6.	Orchard crops	2	-.-	106	0.7
7.	Total	13101	...	14444	100.0

Source: Based on Agricultural Statistics of NWFP Agriculture Department, NWFP, Peshawar.

-.- Less than .1 %
... Do not add up to 100 due to rounding and fractions.

AREA UNDER MAJOR CROPS
IN MOHMAND AGENCY



PERIOD

Graph VI.1

Source: Based on Table VI.8

Wheat
Barley
Maize
Sugarcane
Onion
Orchard Crops

The magnitude of change in the cropping pattern is not very striking, but the direction is. A larger number of crops are grown now than before and the high value crops are becoming popular.

The introduction of high yielding varieties of cereal crops and the increase in the area of gram, lentils, tobacco, sugarcane, onions, and orchard crops are seen as a pressing need of the Agency. The introduction and increase in the area of these crops would be an effective means for raising farm income. This also minimizes the income displacement effects of the ban on poppy cultivation. Higher representation of the above-mentioned high value crops and the farmers' quick and positive response to high yielding varieties, are quite achievable in the irrigated zones of this Agency. Of particular mention in this respect are the areas falling under the Yakaghund and Prangghar tehsils.

Cropping patterns on the 71 sample farms in different tehsils (except Ambar tehsil) of the Agency are shown in Table VI.9.

Table VI.9

CROPPING PATTERNS ON SAMPLE FARMS: 1991-92

Season/Crops	1. Pandiali (Area)		2. Prangghar (Area)		3. Takaghund (Area)		4. Ghalani (Area)	
	% of season	% of the year	% of season	% of the year	% of season	% of the year	% of season	% of the year
1	3	4	6	7	9	10	12	13
I. Rabi 1991-92								
1. Wheat	84.4	67.8	86.5	73.7	79.1	47.2	82.9	57.2
2. Barley	0.8	0.7	1.9	1.6	-	-	6.2	4.3
3. Vegetables	-	-	-	-	6.3	3.7	-	-
4. Rape & Mustard	-	-	-	-	-	-	-	-
5. Tobacco	-	-	2.3	1.9	-	-	-	-
6. Onions	14.8	11.9	3.1	2.6	11.9	7.1	8.2	5.6
7. All Others	100.0	-	6.2	5.3	2.7	1.6	3.1	1.9
TOTAL :-	100.0		100.0		100.0		100.0	
II. Kharif 1992								
1. Maize	100.0	19.6	86.7	12.8	50.5	20.5	100.0	31.0
2. Sugarcane	-	-	13.3	1.9	49.5	19.9	-	-
TOTAL :-	100.0		100.0		100.0		100.0	
Grand Total:	-	100.0	-	100.0	-	100.0	-	100.0

(Contd.....)

Season/Crops	5. Malimzai (Area)		6. Safi (Area)		Total (Area)	
	% of season	% of the year	% of season	% of the year	% of season	% of the year
1	15	16	18	19	21	22
I. Rabi 1991-92						
1. Wheat	72.7	51.8	84.3	71.1	81.7	58.4
2. Barley	-	-	4.6	3.9	1.7	1.2
3. Vegetables	-	-	4.6	3.9	2.5	1.8
4. Rape & Mustard	-	-	-	-	-	-
5. Tobacco	-	-	-	-	0.6	0.4
6. Onions	20.7	14.7	6.5	5.5	10.1	7.2
7. All Others	6.6	4.7	-	-	3.4	2.4
TOTAL :-	100.0		100.0		100.0	
II. Kharif 1992						
1. Maize	100.0	28.8	100.0	15.6	72.0	20.5
2. Sugarcane	-	-	-	-	28.0	8.0
TOTAL :-	100.0		100.0		100.0	
Grand Total:	-	100.0	-	100.0	-	100.0

Crop Rotations

The most widely practiced crop rotations are:

Wheat - Maize - Wheat
Wheat - Fallow - Wheat

The rotations in different parts of the Agency are given in Table VI.10.

Table VI.10

CROP ROTATIONS IN MOHMAND AGENCY

	Tehsil	Crop rotation
1.	Pandiali	Wheat - Maize - Wheat Wheat - Fallow - Wheat
2.	Prangghar	Wheat - Maize - Wheat Wheat - Fallow - Wheat
3.	Yakaghund	Wheat - Maize - Wheat Wheat inter cropped with sugarcane - fallow - Sugarcane Wheat - Fallow - Wheat
4.	Ghalani	Wheat - Maize - Wheat Wheat - Fallow - Wheat
5.	Halimzai	Wheat - Maize - Wheat Wheat - Fallow - Wheat
6.	Safi	Wheat - Maize - Wheat Wheat - Fallow - Wheat
7.	Ambar	Wheat - Maize - Wheat Poppy - Fallow - Poppy (in un-irrigated zone) Poppy - Maize - Poppy (in un-irrigated zone)

Crop Seasons

The Agency has two crop seasons identical to those of neighbouring Bajaur Agency:

- Rabi: October/November ..... April/May
- Kharif: May/June ..... November

The growing periods of different crops are almost identical to those of neighbouring Bajaur Agency and the Peshawar district. Some relevant information about the major crops of this Agency is given in Table VI.11.

Table VI.11
SELECTED CROPS' CALENDAR FOR MOHMAND AGENCY

Operation	Period when performed						
	Wheat	Barley	Maize	Sugar-cane	Tobac-co	Onion	Poppy
1. Land Preparation/ Nursery	Oct. to Nov.	Sept.	June	Nov.to March	Oct. to Jan.	Oct. to Jan.	Oct. to Jan.
2. Farm Yard Manure application	Nov.	Oct.	June	May to June	Jan. to Feb.	Jan. to Feb.	Jan. to Feb.
3. Fertilizer application	Nov.	Oct.	June	July	Jan. to Feb.	Jan. to Feb.	Jan. to Feb.
4. Sowing	Nov.	Oct.	June	Nov. to March	Feb.	Feb.	Feb.
5. Hoeing/ Weeding	Jan. Feb.	Jan. to Feb	July	July	March to May	March to May	March to May
6. Pesticide application	Jan. to Feb.	Jan. to Feb.	July to Aug.	Aug. to Oct.	March to May	March to May	March to May
7. Herbicide application	Jan.	Jan.	-	-	March to May	March to May	March to May
8. Irrigation	Dec. to March	Nov. to Feb.	July	June toJuly	Oct. to June	Oct. to June	Oct. to June
9. Harvesting	April to May	March	Oct. to Nov.	Nov.	June toJuly	June toJuly	April to May

Cultivation Practices

The cultivation practices followed by most of the farmers are still far from scientific with the result that despite the increase in the use of improved inputs, the yields are far lower than the attainable level. The practices most in vogue at different stages of farming are described in Table VI.12.

Crop Area and Production Analysis

An important objective of this study was to collect and analyse historical data on the area and production of the crops grown in this Agency. The relevant information is presented in this section. Compared to adjoining Bajaur Agency, the coverage of agricultural statistics in Mohmand Agency is less extensive i.e., statistics on the area and production of some crops are not available, although pulses, some vegetables and fruit are or have been in cultivation in this Agency. In the case of some crops like barley, some fruits and vegetables, the time coverage is partial. Yet, whatever information is available has utility for planners and is presented as follows.

1. Wheat

Wheat is the most important crop in the Agency in terms of area. The major portion of this crop is grown on unirrigated land which as a proportion of the total wheat area, has not changed much for more than a decade. During 1975-80, the unirrigated area was almost 81 percent of the total wheat area and the corresponding figure for 1985-90 was 80 percent. Similarly, the total hectarage and yield per hectare have been characterized by stagnation during 1975-90 as will be borne out by the following analysis.

a) Area

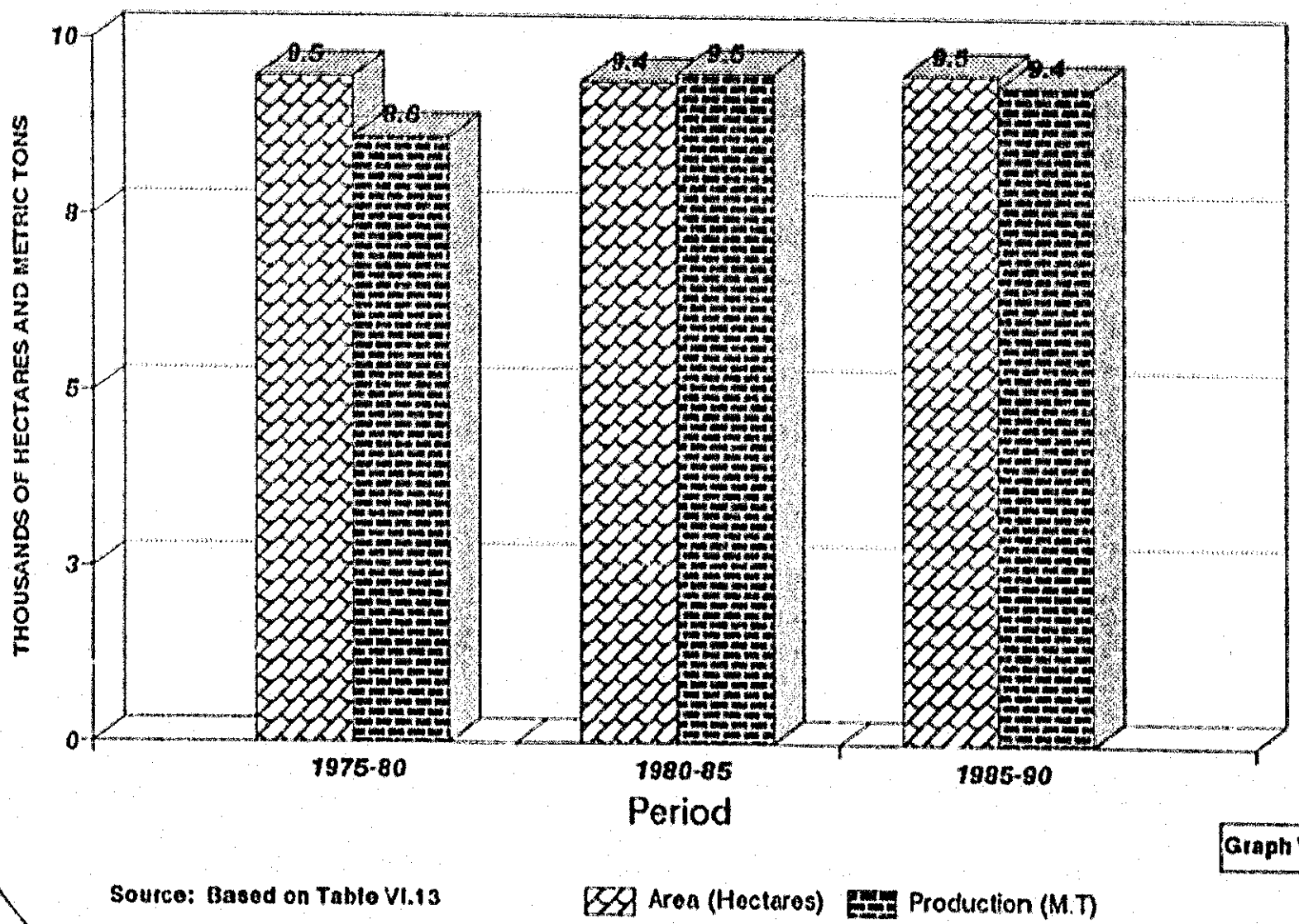
The total area under wheat during 1975-90 varied within the narrow range of 9165-9603 hectares (Table VI.13). During 1975-80 the average annual area was 9469 hectares which fell to 9400 hectares during 1981-85, and was only nominally more - 9502 hectares, during 1985-90.

Table VI.12

SELECTED CULTIVATION PRACTICES AND OBSERVATIONS THEREON

	Operations		Practices/Remarks
1.	Land preparation	•	Mostly done by tractor only, or tractor plus bullock. Use of bullock only is low.
		•	Whether done by tractor or bullocks, most farmers do not perform this operation scientifically due to lack of knowhow.
2.	Sowing		Broad cast method is used.
3.	Irrigation	•	The traditional modes are used.
		•	Much over and under-irrigation is done.
		•	Much water is wasted
4.	Fertilizer application		Use of fertilizer is on the increase, but few farmers know its correct use.
5.	Weeding	•	Little attention paid.
		•	Most farmers unaware of weedicides and the methods of application.
		•	Use of weedicide is insignificant.
6.	Insecticides/Pesticides application	•	Incidence of use is low.
		•	Most farmers have no knowledge of appropriate insecticides/pesticides, but they are aware of their availability and utility.
7.	Harvesting	•	Manual methods are used.
		•	Crop losses in the process of harvesting are high.
8.	Threshing/shelling	•	Use of mechanical wheat thresher is increasing.
		•	Use of shellers is reported and increasing.
9.	Post harvest crop care	•	Harvested and threshed crop is left in the open for long hours but less so compared to ten years ago.
		•	Losses before and after threshing are high but less than before because of the use of machines.
		•	Incidence of loss of crop in store is also high.

WHEAT AREA AND PRODUCTION



Graph VI.2

Source: Based on Table VI.13

Area (Hectares) Production (M.T)

Table VI.13

TOTAL AREA, PRODUCTION AND YIELD OF WHEAT IN MOHMAND AGENCY

Year	Area (hectares)			Production (Metric Tons)			Yield/Hectares (Metric Tons)		
	Irri.	Unirr	Total	Irri.	Unirr	Total	Irri.	Unirr.	Total
1975-76	1821	8094	9,915	2540	4775	7,315	1.4	0.6	0.7
1976-77	1821	8098	9,919	2548	4769	7,317	1.4	0.6	0.7
1977-78	1821	7284	9,105	2612	6727	9,339	1.4	0.9	1.0
1978-79	1821	7285	9,106	2622	6754	9,376	1.4	0.9	1.0
1979-80	1800	7500	9,300	2700	7000	9,700	1.5	0.9	1.0
Av. 1975-80	1817	7652	9,469	2604	6005	8,609	1.4	0.9	0.9
1980-81	1800	7500	9,300	2700	7000	9,700	1.5	0.9	1.0
1981-82	1800	7500	9,300	2700	7000	9,700	1.5	0.9	1.0
1982-83	1950	7500	9,450	2775	7093	9,868	1.4	1.0	1.0
1983-84	1900	7600	9,500	2821	6380	9,201	1.5	0.8	1.0
1984-85	1800	7650	9,450	2672	6428	9,100	1.5	0.8	1.0
Av. 1981-85	1850	7550	9,400	2734	6780	9,514	1.5	0.9	1.0
1985-86	1800	7650	9,450	2680	6470	9,150	1.5	0.9	1.0
1986-87	1800	7650	9,450	2680	6470	9,150	1.5	0.9	1.0
1987-88	2000	7500	9,500	3000	6200	9,200	1.5	0.8	1.0
1988-89	2000	7512	9,512	3050	6300	9,350	1.5	0.8	1.0
1989-90	2000	7600	9,600	3050	6910	9,960	1.5	0.9	1.0
Av. 1985-90	1920	7582	9,502	2892	6470	9,362	1.5	0.9	

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar.

As stated above, the bulk of this crop is grown on unirrigated land. The irrigated area under wheat has increased over time, but not substantially in absolute or relative terms. Thus, in 1975-76 it was 1821 hectares (18 percent of the total area) while the corresponding figures for 1989-90 are 2000 hectares and 21 percent respectively. This trend can be ascribed to 1) the small increase during the period under review in the irrigation water supply; and 2) the growing competition for the water supply from sugarcane, tobacco, orchard crops, and vegetables which yield a far higher profit than wheat.

Wheat is widely inter-cropped with sugarcane. This is a normal practice in the sugarcane growing areas.

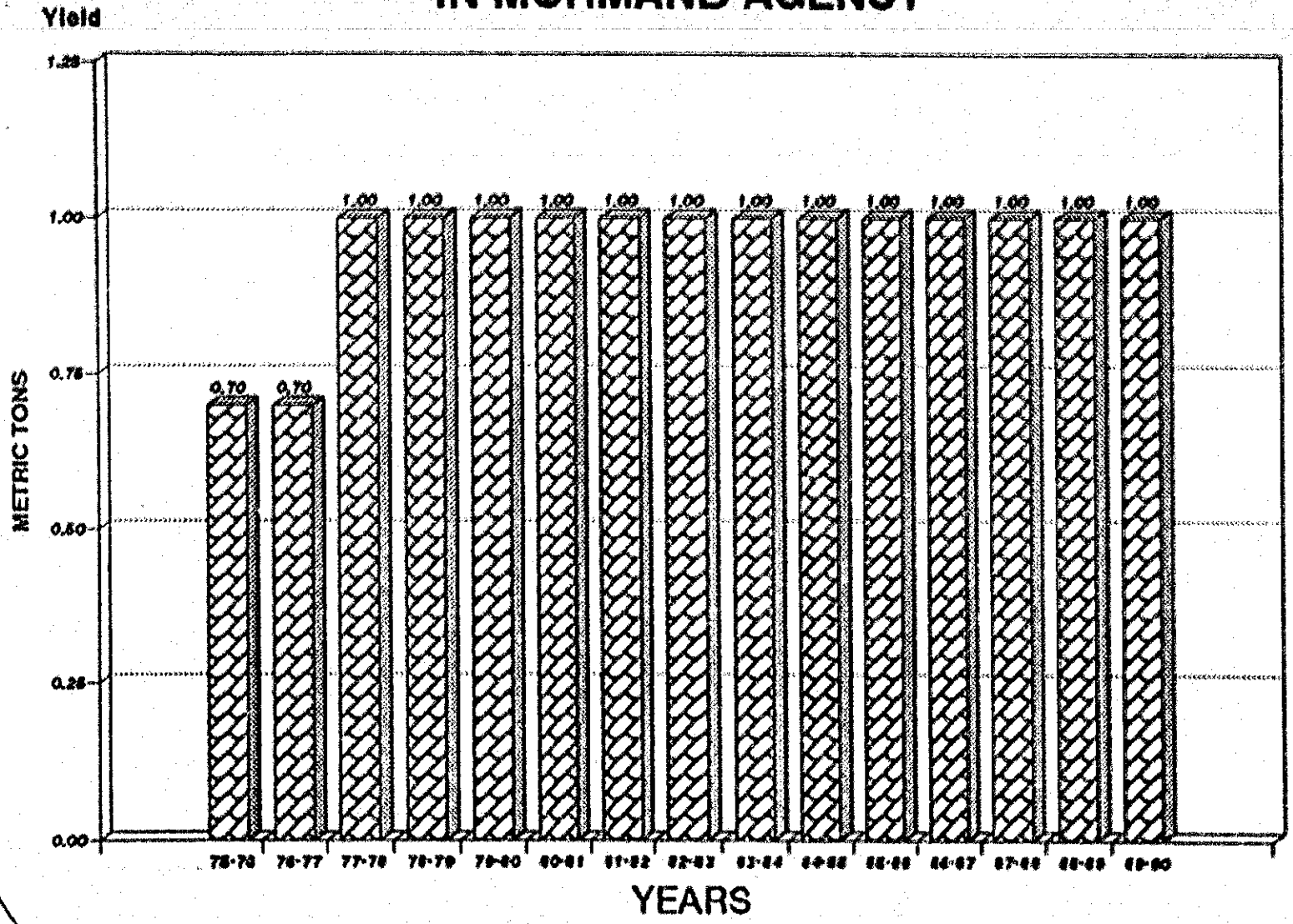
B) Total Production and Yield

Whether viewed in terms of the total production or yield per hectare of wheat, the overall situation was characterized by stagnation during the period under study (1975-90). The average annual production during 1975-80 was 8609 metric tons and during 1985-90 it was 9362 metric tons, an increase of only 8.75 percent over the base period.

The yield per hectare improved a little from 0.9 metric tons during 1975-80 to 1.0 metric ton during 1985-90. But it is noteworthy that after registering an increase in 1977-78 over the previous year, the average yield stayed unchanged at 1.0 metric tons/hectare thereafter. This trend raises a question on the adequacy of agricultural extension work in the Agency, as well as on the reliability of the statistics.

According to the short sample survey conducted for this study, the average yield in the 1991-92 Rabi season was 1.05 tons/hectare which is almost identical to the Agriculture Department reported estimates for 1989-90. The figures by tehsil are given in Table VI.14.

YIELD/HECTARE OF WHEAT IN MOHMAND AGENCY



Source: Based on Table VI.13 Col.10

Graph VI.3

Table VI.14

WHEAT YIELD IN 1991-92 RABI SEASON ON SAMPLE FARMS IN MOHMAND AGENCY

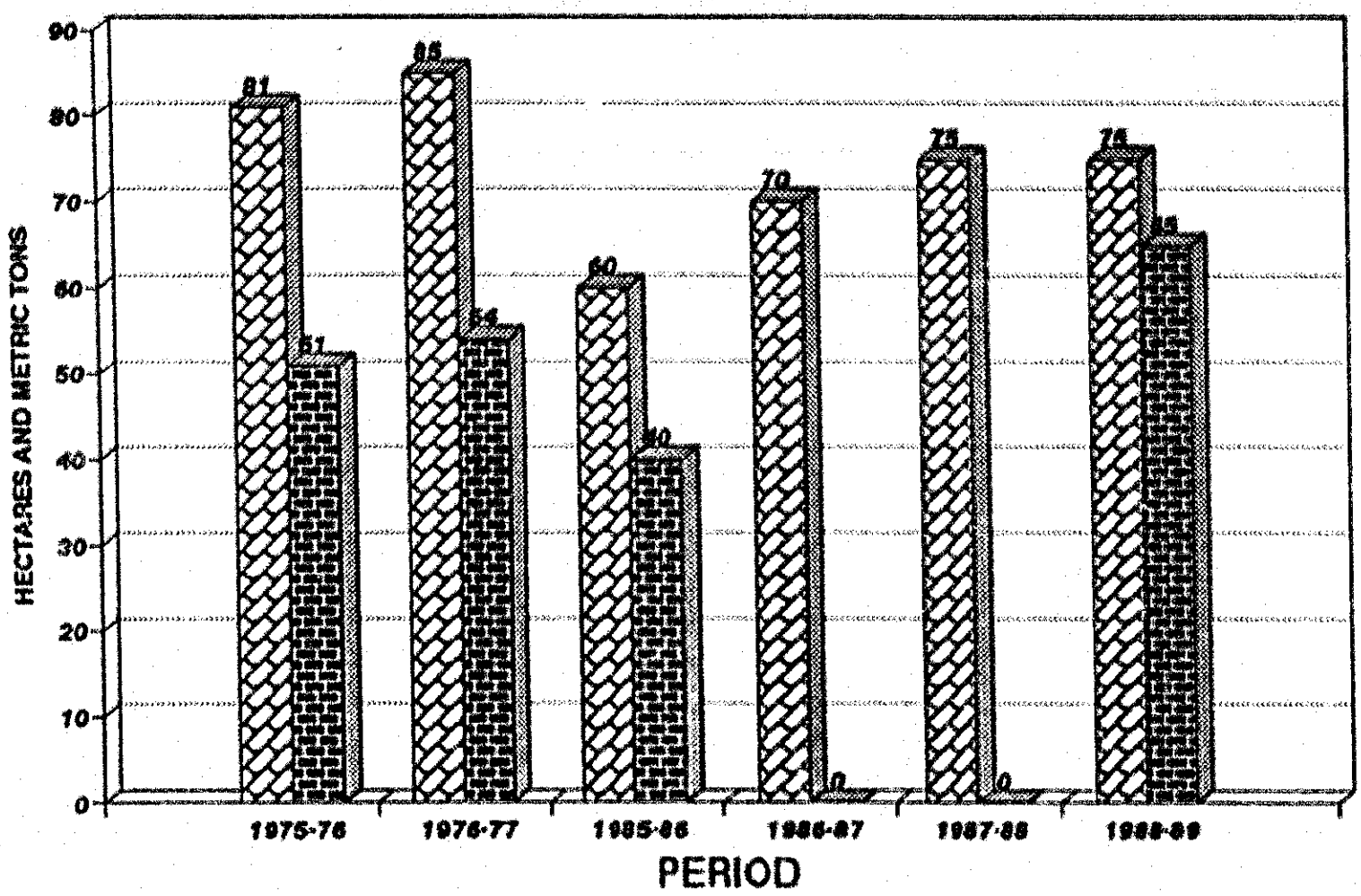
	Tehsil	Average Yield
1.	Pandiali	0.99
2.	Prangghar	0.60
3.	Yakaghund	1.22
4.	Ghalani	2.00
5.	Halimzai	1.30
6.	Safi	1.16
7.	Total	1.05

The varieties sown in unirrigated areas are almost all old varieties. Only in the irrigated areas are the recently introduced varieties grown by a small proportion of farmers. It is recommended that the improved Barani wheat varieties should be introduced in this Agency on a large scale. By being drought resistant, they will provide an increase in wheat hectarage as well as an increase in the yield per hectare.

2. Barley

According to the Agricultural Statistics of NWFP reported in Table VI.15, barley was cultivated in this Agency over a total area of 81 hectares in 1975-76 which rose to 85 hectares in the next year. Thereafter, no statistics were available from 1977-78 until 1984-85 after which barley re-emerged over an area of 60 hectares in 1985-86 and increased to 75 hectares in 1988-89. In 1989-90 no barley production is reported. According to a report of the Extra Assistant Director of Agriculture, in 1991-92 barley was grown over an area of 200 hectares.

BARLEY AREA AND PRODUCTION

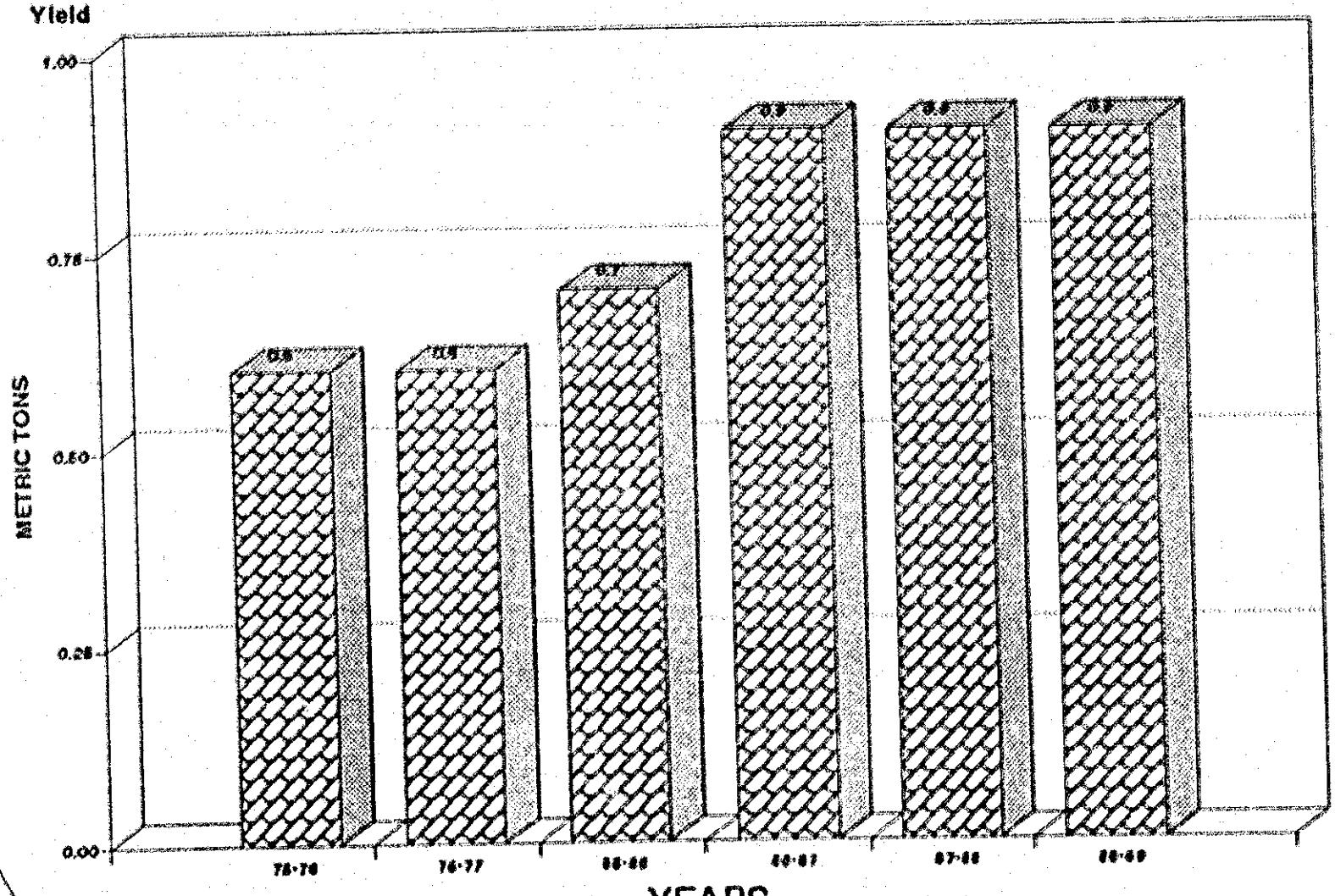


Source: Based on Table VI.15

Area (Hectares) Production (M.T)

Graph VI.4

YIELD/HECTARE OF BARLEY IN MOHMAND AGENCY



Source: Based on Table VI.16 Col.10

Graph VI.6

Table VI.15

TOTAL AREA, PRODUCTION AND YIELD OF BARLEY IN MOHMAND AGENCY

Year	Area (hectares)			Production (Metric Tons)			Yield/Hectares (Metric Tons)		
	Irri.	Unirr	Total	Irri.	Unirr	Total	Irri.	Unirri	Total
i	2	3	4	5	6	7	8	9	10
1975-76	-	81	81	-	51	51	0.6	-	0.6
1976-77	-	85	85	-	54	54	0.6	-	0.6
1985-86	-	60	60	-	40	40	-	0.7	0.7
1986-87	70	-	70	-	-	0	0.9	-	0.9
1987-88	75	-	75	-	-	0	0.9	-	0.9
1988-89	-	75	75	-	65	65	-	0.9	0.9
1989-90	-	-	-	-	-	-	- -	-	

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar.

There must be some error in the reporting of this crop. In the 1980 Census of Agriculture, barley was recorded occupying 16% of the total cropped area in the Rabi season and 13% of the total cropped area for the year. The 1980 census data seems to err on the high side. Discussions with the farmers and the Agriculture Department's officials suggest 1) that barley was never in cultivation so extensively in the Agency as the 1980 agri-census might suggest; and 2) that this crop has been losing area to wheat, sugarcane, and tobacco. Wherever cultivated, it is used as fodder.

3. Gram

Presently very little or no gram is produced in this Agency. The Agriculture Department has not reported any area/production statistics for this crop. The land in this Agency is, however, quite suitable for gram production. The reason for the farmers' and the Extension Department's disinterest in this crop could not be ascertained. Agronomically, as well as economically this crop can be grown here quite successfully.

4. Poppy

The Agriculture Department does not publish poppy area and production statistics as this is a banned crop. This crop is, however, still in cultivation in the Agency. Its main concentration is in the Ambar tehsil.

5. Maize

Maize is the major crop of the Kharif season and the second most important crop in terms of total annual cropped area in Mohmand Agency. The area as well as the total production of this crop experienced a somewhat erratic trend during 1975-90.

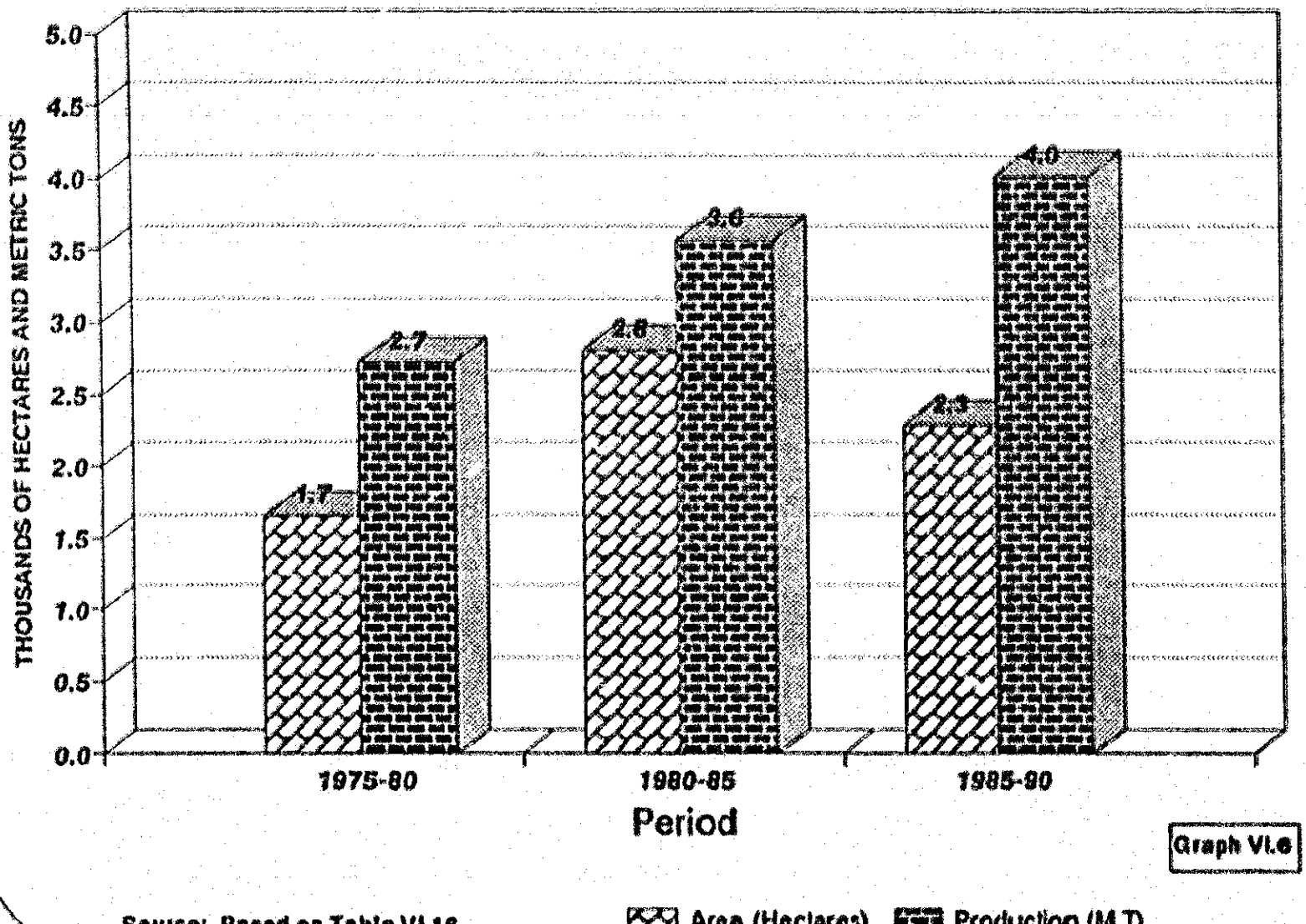
a) Area

The area under this crop, as observed above, experienced a somewhat erratic trend during the period under review (1975-80). In 1975-76, it was 1619 hectares, fell to 1396 hectares the next year, and was as high as 3500 hectares in 1983-84. It then fell to 2040 hectares in 1989-90. This erratic trend is reflected also in the quinquennium averages. Thus from 1656 hectares during 1975-80, the figure rose to 2807 during 1981-85 and fell to 2280 during 1985-90 (Table VI.16).

b) Production

The total production of maize was less erratic compared to the area trend, and on a five-year average basis, the trend was continuously upward. Thus, after 1975-76 the total production declined over the previous year only once in 1989-90. In average terms it was 2728 metric tons during 1975-80, rose to 3581 metric tons during 1981-85, and to 4016 metric tons during 1985-90. Expressed in terms of indices (with 1975-80 as the base), the figures are 100, 131 and 147 respectively.

MAIZE AREA AND PRODUCTION



Graph VI.6

Source: Based on Table VI.16

Area (Hectares) Production (M.T)

Table VI.16

TOTAL IRRIGATED AREA, PRODUCTION AND YIELD OF MAIZE IN MOHMAND AGENCY

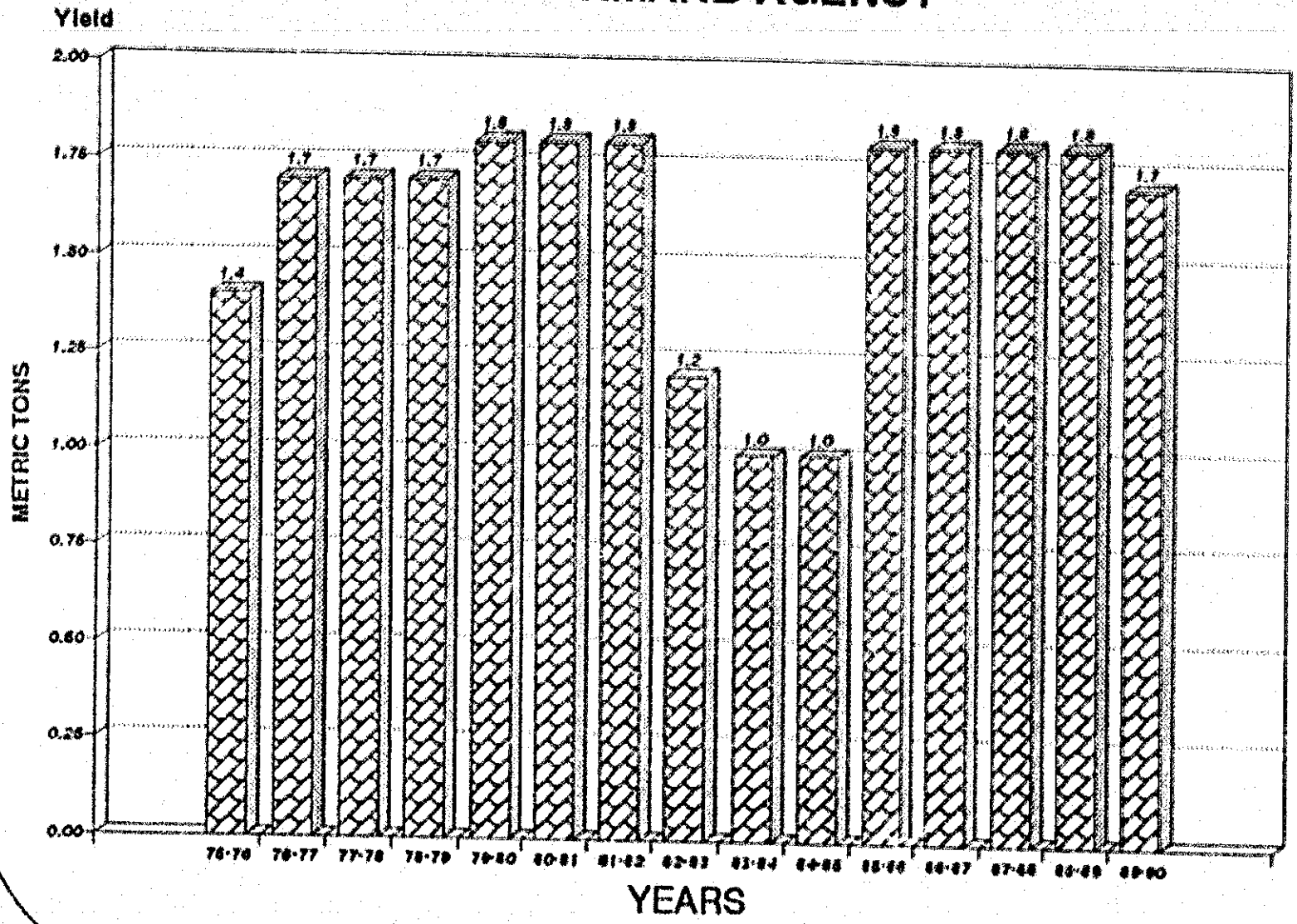
Year	Area (hectares)	Production (Metric Tons)	Yield/Hectare (Metric Tons)
1	2	3	4
1975-76	1,619	2,235	1.4
1976-77	1,396	2,347	1.7
1977-78	1,457	2,451	1.7
1978-79	1,809	3,043	1.7
1979-80	2,000	3,566	1.8
Av. 1975-80	1,656	2,728	1.7
1980-81	2,000	3,500	1.8
1981-82	2,037	3,600	1.8
1982-83	3,000	3,575	1.2
1983-84	3,500	3,600	1.0
1984-85	3,500	3,630	1.0
Av. 1981-85	2,807	3,581	1.3
1985-86	2,340	4,143	1.8
1986-87	2,340	4,145	1.8
1987-88	2,340	4,140	1.8
1988-89	2,340	4,120	1.8
1989-90	2,040	3,530	1.7
Av. 1985-90	2,280	4,016	1.8

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar.

The yield per hectare remained mostly at 1.7 metric tons during the period under study (Table VI.16).

The yield per hectare of maize on the sample farms in the 1992 Kharif season averaged 1.36 metric tons (Table VI.17).

YIELD/HECTARE OF MAIZE IN MOHMAND AGENCY



Source: Based on Table VI.16 Col.4

Graph VI.7

Table VI.17

MAIZE YIELD IN KHARIF 1992 SEASON ON SAMPLE FARMS IN MOHMAND AGENCY

(Metric Ton/Hectare)

	Tehsil	Average Yield
1.	Pandiali	2.30
2.	Prangghar	1.50
3.	Yakaghund	0.77
4.	Ghalani	1.62
5.	Halimzai	1.24
6.	Safi	2.63
7.	Total	1.36

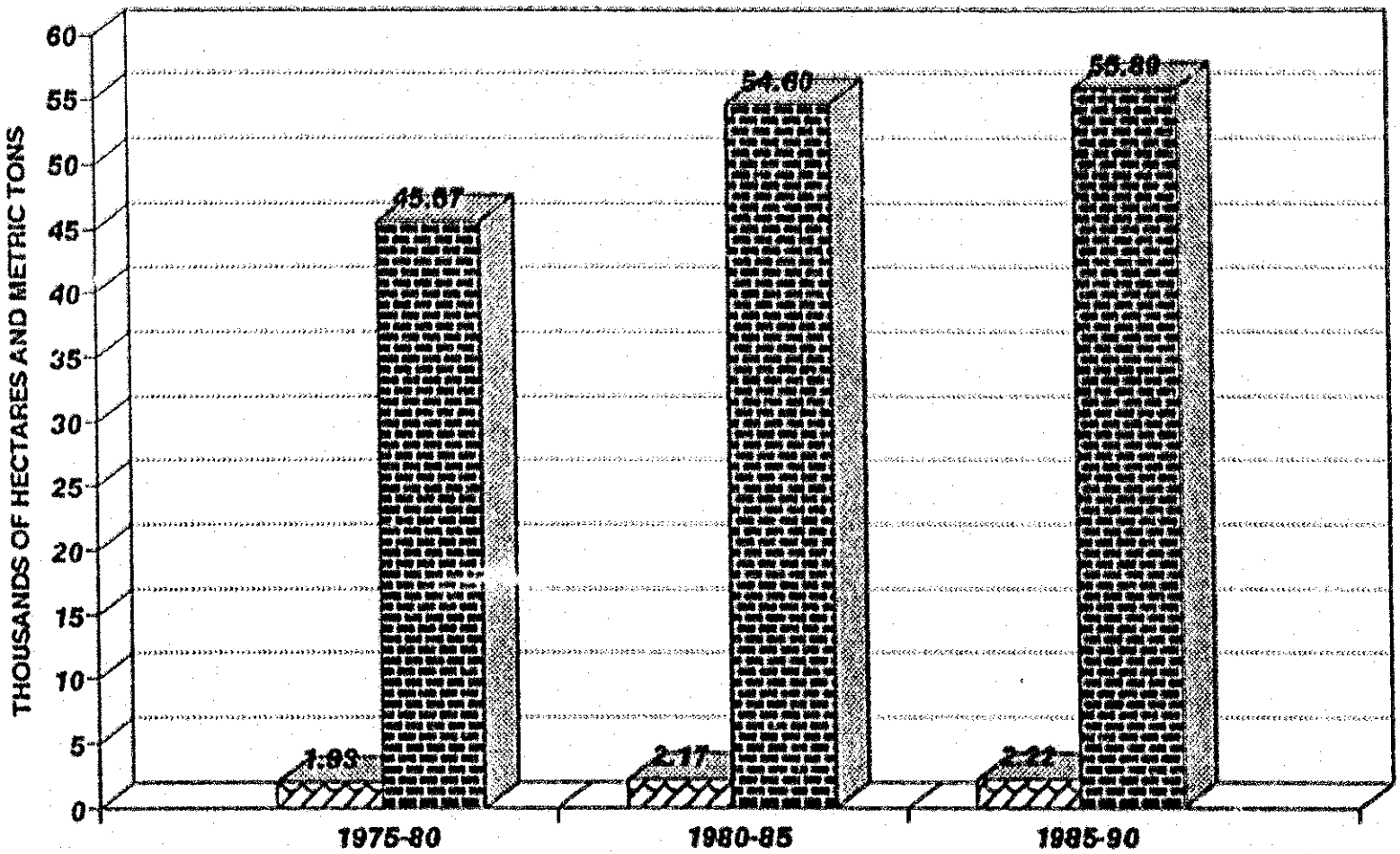
6. Sugarcane

Sugarcane is cultivated mainly in Yakaghund and Prangghar tehsils. Its area and production did not undergo much change in the eighties. The yield per hectare continued almost unchanged throughout the fifteen years covered by this study.

a) Area

The area under this crop ranged from 1760 to 2300 hectares and stayed for the most part around 2100-2200 hectares (Table VI.18). The average for the quinquennium 1975-80 was 1930 hectares increasing to 2169 hectares and then to 2218 hectares during the next two five-year periods. The availability of irrigation water places a definite limit on the area under this crop. In this irrigated sector, only a small improvement has taken place in the Agency and that has been mainly in non-canal irrigation.

SUGARCANE AREA AND PRODUCTION



Graph VI.8

Source: Based on Table VI.18

Area (Hectares) Production (M.T)

Table VI.18

TOTAL AREA, PRODUCTION AND YIELD OF SUGARCANE IN MOHMAND AGENCY

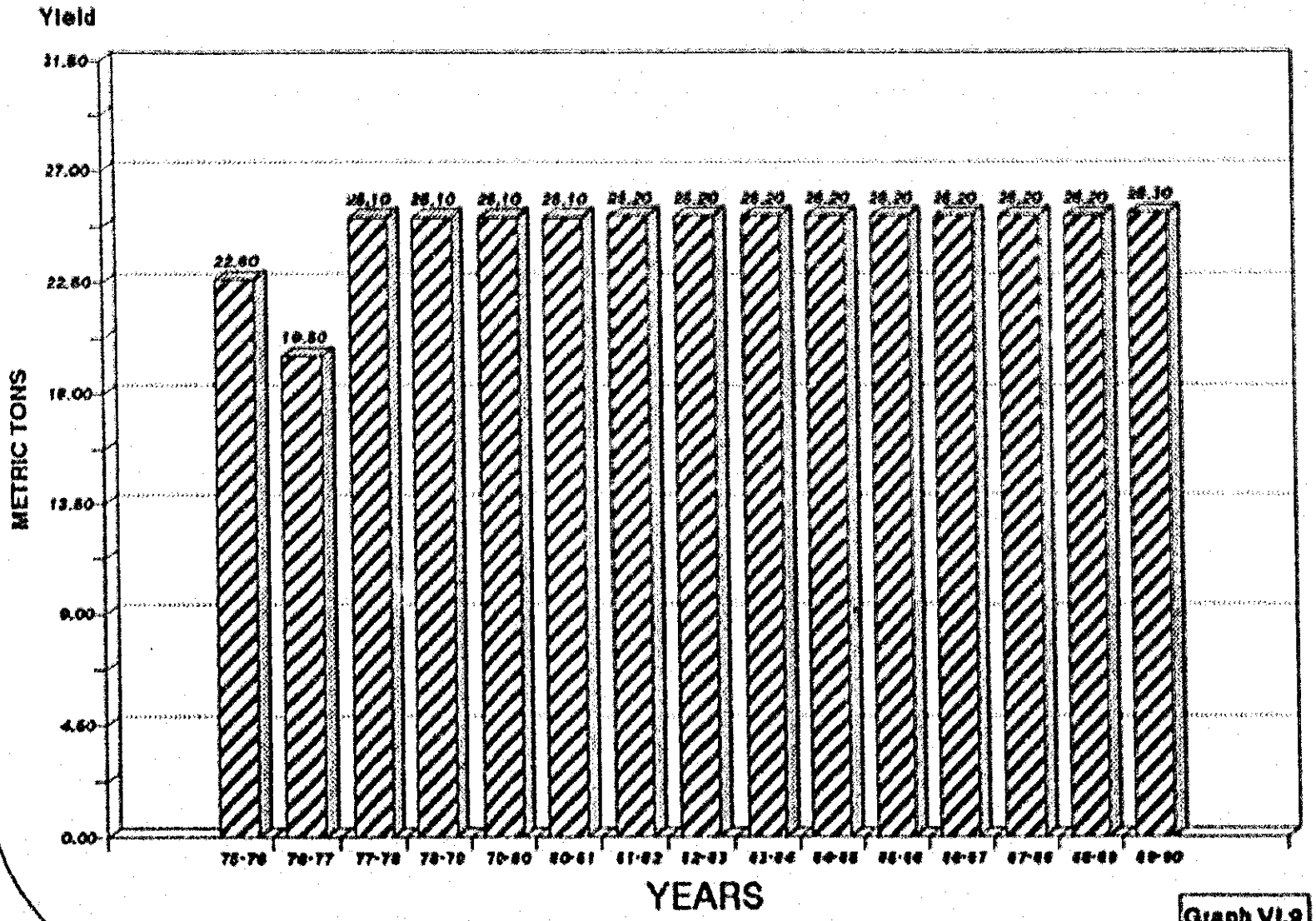
Year	Area (hectares)	Production (metric tons)	Yield/Hectares (metric tons)
1	2	3	4
1975-76	1,760	39,827	22.6
1976-77	1,821	35,560	19.5
1977-78	2,023	50,800	25.1
1978-79	2,023	50,800	25.1
1979-80	2,025	50,850	25.1
Av. 1975-80	1,930	45,567	23.6
1980-81	2,023	50,976	25.1
1981-82	2,201	55,420	25.2
1982-83	2,205	55,521	25.2
1983-84	2,205	55,521	25.2
1984-85	2,205	55,540	25.2
Av. 1981-85	2,169	54,596	25.2
1985-86	2,288	57,630	25.2
1986-87	2,300	57,930	25.2
1987-88	2,300	57,900	25.2
1988-89	2,100	52,887	25.2
1989-90	2,100	53,100	25.3
Av. 1985-90	2,218	55,889	25.2

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar

b) Production

The Agency produced 45,567 metric tons of sugarcane annually on the average during 1975-80. The corresponding figure is 55,889 metric tons for 1985-90. This increase is attributable to an increase in the cane area as well as the yield per hectare. Mohmand Agency, of all the Tribal Agencies, ranks the highest in terms of sugarcane area, total production, and yield per hectare. Comparative statistics are given in Table VI.19.

YIELD/HECTARE OF SUGARCANE IN MOHMAND AGENCY



Graph VI.9

Source: Based on Table VI.18 Col.4

Table VI.19

TOTAL AREA, PRODUCTION, AND YIELD PER ACRE OF SUGARCANE IN TRIBAL AGENCIES IN 1988-89

	Area (hectares)	Production (metric tons)	Yield (Kg/hectares)
1.Mohmand	2,100	52,887	25,184
2.Khyber	550	11,200	20,574
3.Kurram	20	430	21,500
4.Orakzai	-	-	-
5.Bajaur	60	1,500	2,500
6.N.Waziristan	250	5,645	22,580
7.S.Waziristan	60	1,225	20,417
8.All agencies	3,040	72,887	23,976

Source: Agriculture Department, NWFP: Reported in FATA Development Statistics, 1990

The sugarcane yield on the farms surveyed in 1992 in connection with this study was 28,454 Kg/hectare. This is an average of only five sample farms which is not adequate for generalizing about the overall average of the Agency. This average, as gathered from the farmers and agri-extension officials, would be around 25-26000 Kg/hectare or close to the official estimate given in Table VI.19 for 1988-89.

Almost the entire sugarcane crop is processed into gur, the bulk of which is consumed by the farmers themselves. A small proportion of the total gur production finds its way to the local shops.

7. Tobacco

Tobacco is cultivated in the Yakaghund and Prangghar tehsil area, mostly the latter. Its area and production are not officially reported, nor are there any reliable official statistics available. In the survey for this study, only one out of the total of seventy-one sample farmers was found cultivating this crop. He had planted tobacco over an area of 1.21 hectares which accounted for 0.4% of the total annual cropped area of all the 71 sample farmers. As gathered from this sample survey and the interviews with the Agency's shopkeepers, and the officials of the Agriculture

Department and the Tobacco Board, a large number of farmers in Prangghar tehsil and some in Yakaghund tehsil cultivate indigenous tobacco. How large is their number? No precise figure could be obtained in reply to this question. One field assistant of the Agriculture Department could count eight farmers including himself in Yakaghund tehsil who had cultivated tobacco over an area of eight hectares in the last season (1991-92). He knew 25 farmers in Prangghar who cultivated this crop over an area of 50 hectares. The total number of tobacco farmers and area is thought to be much greater than that in Prangghar. The tobacco is entirely of the indigenous (Desi) type used for making naswar (snuff). The solitary sample farmer who planted this crop on 1.21 hectares sold his tobacco for Rs.30,000 meaning a per hectare gross return of Rs.24,700 which is far more than that of other crops except poppy. This makes tobacco a very eligible candidate in the alternative cropping pattern to replace poppy.

8. Rape and Mustard

This crop was grown over an area of only 52 hectares, all unirrigated, in 1988-89 with a total production of 17 MT and a yield of 0.3 MT/hectare. Statistics for this crop are available only for 1985-86 through 1988-89.

Table VI.20

AREA, PRODUCTION, AND YIELD OF RAPE AND MUSTARD IN MOHMAND AGENCY

Year	Area (Hectares)	Production (Metric Tons)	Yield/Hectare (Metric Ton)
1985-86	50	7	0.1
1986-87	50	20	0.4
1987-88	50	18	0.4
1988-89	52	17	0.3

Source: Agricultural Statistics of NWFP, Agriculture Department NWFP, Peshawar.

Rape and mustard grow well in the Agency's unirrigated zones. This crop should be seriously considered for inclusion in the future cropping patterns of the Agency on a larger scale than at present. But in order to induce the farmers to grow it on a commercial scale, the farmers should be extended technical guidance, helped in securing the needed inputs at fair prices, and provided an assured market for the output for a fairly long period.

9. Groundnuts

In 1989-90 according to the Agriculture Department's statistics, groundnuts were grown over an area of 50 hectares, all irrigated. The total production was 18 MT and the per hectare yield was 0.4 MT. Corresponding data for the earlier years were not given in the official statistical reports. However, according to the farmers and officials interviewed for this study, this crop was also in cultivation before 1989-90, but the area was much smaller.

Groundnuts are presently considered a minor crop on account of its small area. Due to defective marketing channels preventing the realization of an economical price for this crop by the farmers, groundnuts have not been attracting much attention in the Agency. But this crop's achievable profitability is high and for that reason, it is recommended for special attention by the concerned agencies. Farmers should be provided agronomic advice and marketing assistance for this crop. It would be unrealistic to talk in terms of fixing hectarage targets or naming specific regions to promote this crop. What is emphasized is that groundnuts are a highly profitable crop, and as such, a serious candidate for inclusion in alternative cropping patterns in different parts of the Agency. The farmers are expected to respond favourably to this idea provided they are given the help recommended above.

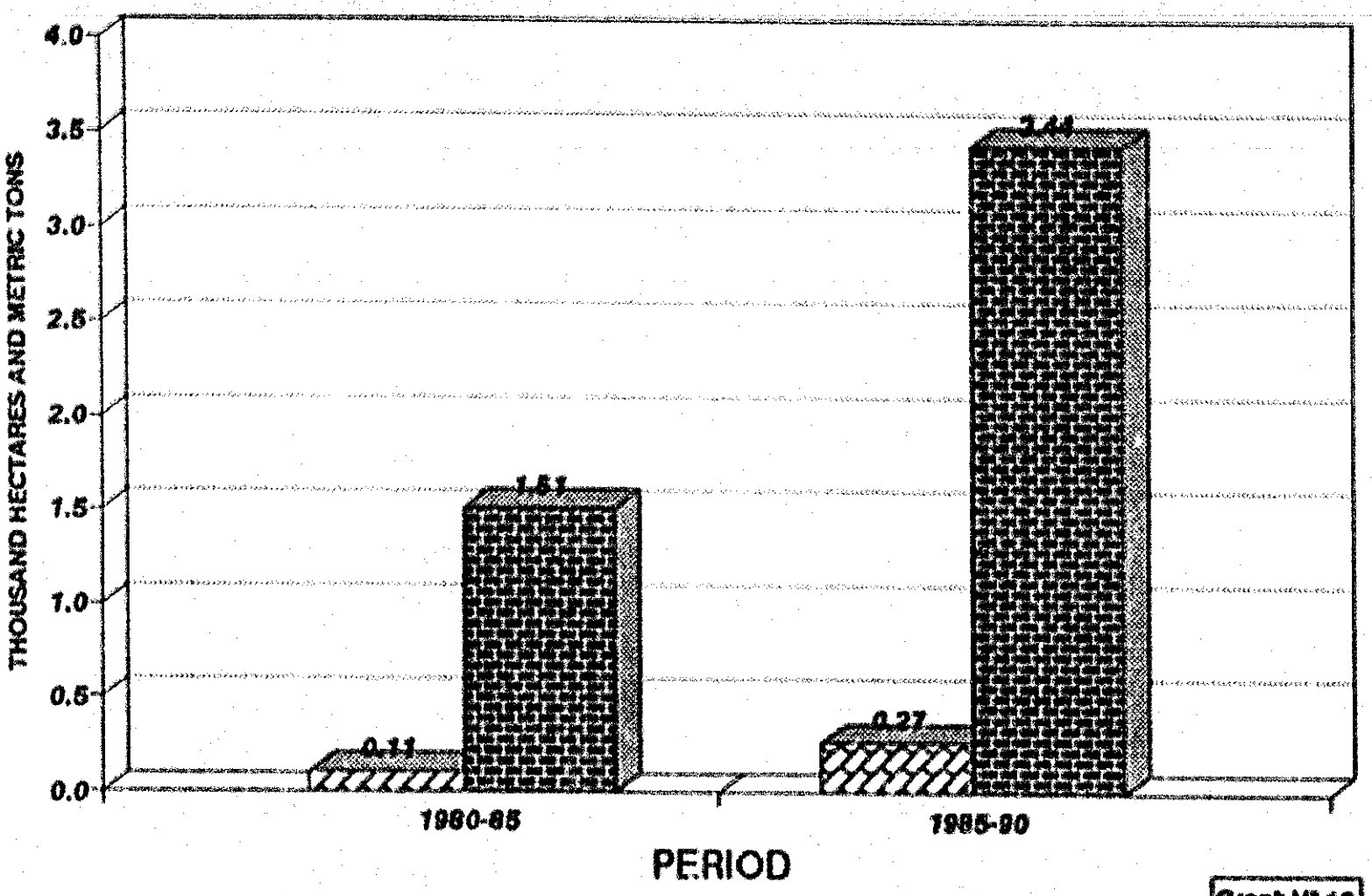
10. Vegetables

Most of the traditional vegetables are grown in this Agency, but with the exception of onions, the hectarage of none exceeds two digits, and for the most part, historical data are not available. Therefore, first the trend in the area and production of onions are studied, followed by a general account of other vegetables.

a) Onions

The area and production statistics of onions, which are given in Table VI.21, are reported in the Agriculture Department's statistical series only for 1980-81 onwards. In 1980-81, this crop was cultivated over an area of only 30 hectares and rose to the figure of 360 hectares by 1989-90.

ONION AREA AND PRODUCTION



Graph VI-10

Source: Based on Table VI.21

Area (Hectares) Production (M.T)

The total production increased from 436 MT in 1980-81, to 4550 MT in 1989-90. It was less than proportionate to the increase in area. This is attributable to a decline in the yield from 14.5 MT/hectare in 1980-81 to 12.6 MT/hectare in 1989-90.

Onions are considered a risky crop by most farmers interviewed for this study. The major threat is posed by frequent attacks of disease and the violent fluctuations in prices from season to season. Therefore, not many farmers venture cultivation of this crop on a commercial scale. Price uncertainties are too complicated a problem to be controlled by any action at the Agency level. However, the problem of disease control can be tackled by taking appropriate, timely action by the Agriculture Department and through educating the farmers in disease identification and control methods.

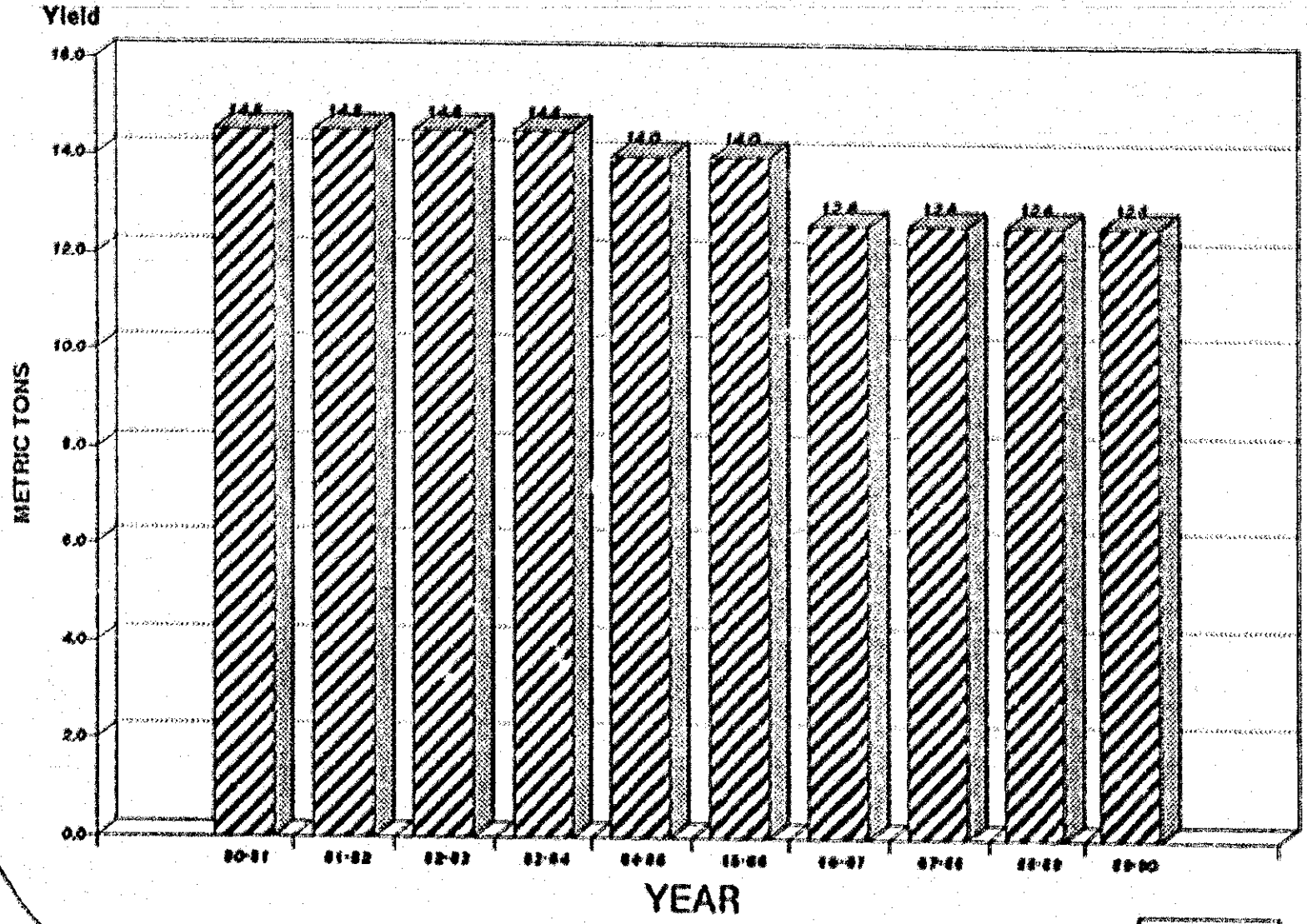
Table VI.21

TOTAL AREA, PRODUCTION, AND YIELD OF ONIONS IN MOHMAND AGENCY

Year	Area (hectares)	Production (metric tons)	Yield/hectares (metric tons)
1	2	3	4
1980-81	30	436	14.5
1981-82	30	436	14.5
1982-83	150	2,180	14.5
1983-84	160	2,250	14.1
1984-85	160	2,245	14.0
Av. 1981-85	106	1,509	14.0
1985-86	180	2,525	14.0
1986-87	200	2,325	12.6
1987-88	250	3,157	12.6
1988-89	350	4,420	12.6
1989-90	360	4,550	12.6
Av. 1985-90	268	3,435	12.8

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar

YIELD/HECTARE OF ONION IN MOHMAND AGENCY



Source: Based on Table VI.21 Col.4

Graph VI-11

b) Other Vegetables

As stated above, most of the traditional vegetables are grown in the Agency. The official statistics, however, provide only a partial coverage of these ostensibly due to their small area. For this reason, no analysis of the production trend is possible, nor is it important because of the rather negligible area. This is, however, not to be taken to mean that vegetable cultivation would be a negligible enterprise in a future context. In fact, this is one of the most promising enterprises deserving attention in order to make agriculture a more profitable pursuit in this Agency. Official statistics on these vegetables' area and and production for the latest year are given in Table VI.22.

Table VI.22

AREA, PRODUCTION, AND YIELD OF VEGETABLES, OTHER THAN ONIONS, IN MOHMAND AGENCY

Vegetable	Year	Area (hectares)	Production (M.Tons)	Yield/ Hectare (M.Tons)
1. Turnips	1978-79	6	7	1.2
2. Ladyfingers	1989-90	10	65	6.5
3. Pumpkins	1989-90	15	90	6.0
4. Bittergourds	1989-90	4	20	5.0
5. Bottlegourds	1989-90	5	30	6.0

Source: Agricultural Statistics of NWFP: Agriculture Department, NWFP, Peshawar.

The foregoing account of vegetable production is based on the NWFP Agriculture Department's estimates according to which the area for all vegetables was only 414 hectares during 1989-90. Ten years earlier in 1980, the vegetable area estimated in the Pakistan Census of Agriculture was 189 hectares. The estimates of the Agriculture Department and the Census of Agriculture are thought to err on the low side. However, correcting the estimated area is not likely to raise the hectarage substantially.

Several factors are responsible for the small area under vegetables in this Agency. One of the major factors is that the Agency is quite close to the vegetable-rich belt of Peshawar Valley which rivals it in almost every kind of vegetable. Therefore, within the Agency vegetable cultivation is mainly subsistence oriented. Despite the agronomic and economic advantage of the farmers in the Peshawar district over those of Mohmand Agency, there can still be

possibilities of a manifold increase in vegetable production in the Agency not only for its own market, but also for the settled areas provided the farmers are rendered appropriate advice, aid, and training. Onions are already a well known crop in the Agency and its area can, and needs to be substantially increased. Not many potatoes are presently grown there, but the area has potential for this vegetable. Potatoes are becoming popular and their cultivation should be encouraged further.

11. Fodder

According to the Pakistan Census of Agriculture conducted in 1980, the Agency's fodder crop area was 285 hectares. In 1988-89 the area was a mere 50 hectares according to the Agricultural Statistics of NWFP, 1989-90. The cultivation of crops exclusively for fodder purposes has been declining according to these statistics. Besides shaftal, wheat and maize crops are used for feeding the livestock.

12. Pulses

The cultivation of pulses is negligible in Mohmand Agency. The only pulses reported by the Agriculture Department to be in cultivation are gram, masoor, and peas (dried for use as curry). Pulses fetch a good price and this Agency has suitable ecological zones for the cultivation of gram and lentils on a large scale. A large number of demonstration plots should be laid out for the popularization of these pulses over a period of years. The farmers are expected to respond positively to this campaign.

13. Orchard Crops

Fruit production is not yet an important enterprise in this Agency, but is becoming popular slowly and steadily, due largely to the efforts of the Agriculture Department. The Agriculture Department's extension work in this field is described later on in this section. The trend in orchard crop area and tree population is reviewed following this section.

a) Area Under Regular Orchards

According to the data supplied by the office of Extra Assistant Director of Agriculture Mohmand Agency, in 1978 the Agency had only 1.42 hectares under regular orchards. The figure rose to 2.5 hectares in 1980 which was too insignificant to be noticed in the Agriculture Census of 1980. The area kept increasing slowly and rather erratically reaching the figure of 4.55 hectares in 1986 and thereafter increased by big strides to 105.7 hectares in 1992 (Table VI.23).

Table VI.23

AREA UNDER REGULAR ORCHARDS IN MOHMAND AGENCY

(Hectares)

Year	Area under orchards according to:	
	EADA Mohmand	Agri.Stat.of NWFP
1978	1.42	N/A
1980	2.53	N/A
1981	0.81	14
1982	4.55	14
1983	0.61	17
1984	3.14	27
1985	5.47	35
1986	4.55	30
1987	30.67	25
1988	N/A	30
1989	N/A	30
1990	N/A	N/A
1992	105.67	N/A

N/A : Not Available

b) Area by Kinds of Fruit

Of the 106 hectares under all the orchard crops in 1992, malta (oranges) accounted for 52 hectares (49%), followed by apricots with 26.42 hectares (25%), and plums with 13.16 hectares (12%). Among the other fruit, persimmons, apples, and pears are the most important ones. It will be seen in Table VI.24 that compared to only five kinds of fruit in 1980 and only three kinds in 1985, the number in 1992 is as large as eleven.

Table VI.24

AREA OF REGULAR ORCHARDS BY KINDS OF FRUIT IN MOHMAND AGENCY

Sr. No.	Fruit	1980		1985		1992	
		Hect.	%	Hect.	%	Hect.	%
1.	Malta	0.51	17.35	0.61	10.39	92.00	49.10
2.	Apricots	1.11	37.75	-	-	26.42	24.95
3.	Apples	-	-	-	-	3.14	2.96
4.	Persimmons	0.71	24.15	0.40	6.81	5.16	4.87
5.	Plums	0.51	17.35	4.86	82.80	13.16	12.43
6.	Dates	-	-	-	-	0.71	.67
7.	Pears	-	-	-	-	2.28	2.15
8.	Lemons	-	-	-	-	1.01	0.95
9.	Guavas	0.10	3.40	-	-	0.81	.76
10.	Pomegranate	-	-	-	-	0.81	.76
11.	Walnuts	-	-	-	-	0.40	.38
12.	All Fruit	2.94	100.00	8.81	100.00	105.90	100

-.- Figures do not add to 100 because of rounding/ fraction.

Source: Extra Assistant Director of Agriculture, Mohmand Agency.

Table VI.25

NUMBER OF FRUIT TREES BY TYPES OF FRUIT IN MOHMAND AGENCY

Type of Fruit	1980 (a)	1992 (b)
Citrus	375	13657
Guava	810	200
Apple	-	848
Date	5	160
Grape	235	635
Pear	110	3396
Plum	420	6932
Apricot	215	N.A.
Peach	450	N.A.
Persimmon	-	1317
Pomegranate	340	200
Walnut	40	80
Mulberry	4155	N.A
Almond	70	N.A
Other fruit trees	965	N.A
Total fruit trees	8190	27425

Source: a. Pakistan Census of Agriculture 1980

b. Extra Assistant Director of Agriculture, Mohmand Agency

The orchard crops will take quite a few more years to increase to a noticeably large area. The trend has, however, been set in that direction.

Fruit Tree Population

In 1980 according to the 1980 Census of Agriculture, there were only 8190 fruit trees in this Agency (Table VI.25). All these were scattered in diffused plantations. For 1992, there were only 27,425 fruit trees in regular orchards. Even assuming that in 1992 there were 1) no diffused fruit plantations, or 2) the number of fruit trees in such plantations would be no more than that estimated in 1980, the 1992 statistics on fruit plants are quite impressive. In percentage terms the 1992 figure represents an increase of 235 percent over that of 1980, assuming that in 1992 the Agency had no diffused plantations. The comparison would yield the figure of 335 percent if it were assumed that in 1992 the diffused fruit plantations numbered at least the same as in 1980.

Summing up, orchard crops are presently in the 'minor crop' category in terms of area as well as total value of the fruit produced. Farmers' response to the incentives and suggestions to grow orchard crops is positive, but still far from being warm or enthusiastic. Orchard crops are a difficult enterprise. The gestation period is long and orchard management requires a lot of care and skill. In addition, there are problems of post-harvest handling and marketing. The prospects for profit are, however, proportionately high. Therefore, orchard crops should be accorded due importance in any future scheme for diversification of cropping patterns. The farmers will need close guidance right from the planting to the marketing stage. The Agriculture Department, the Agricultural University, Peshawar, the Fruit and Vegetable Board, and the fruit processors need to be mobilized for this purpose. Being scientific crops, the orchard crops' popularization, even though on a small scale, will have a good modernizing effect spilling over into other crops.

C. Farm Power

The number and also the use of tractors, wheat threshers, and maize shellers have considerably increased in this Agency since the mid-seventies. As will be seen in Table VI.26 in 1974-75, the Agency had only seven tractors and no wheat threshers or maize shellers. In 1987-88, the number of these machines was 147, 52 and 17 respectively. If needed, the farmers rent these machines from the adjacent areas.

Table VI.26

NUMBER OF TRACTORS, WHEAT THRESHERS AND MAIZE SHELLERS IN MOHMAND AGENCY

Year	Tractors	Wheat threshers	Maize shellers
1974-75	7	N/A	N/A
1979-80	22	22	4
1984-85	98	30	15
1985-86	170	57	20
1986-87	170	60	20
1987-88	147	52	17
1988-89	150	N/A	N/A
1989-90	185	60	20

N/A : Data not available

Source: Office of EADA, Mohmand Agency

Tractors are in great demand in the Agency for cultivation and also for carrying farm and non-farm produce. As far as cultivation is concerned, the 1980 Census of Agriculture reported the use of tractors by a large percentage of farms; 33 percent used only tractors, and 53 percent used tractors as well as animals for land preparation (Table VI.27).

Table VI.27

FARMS REPORTING USE OF TRACTORS, ANIMALS, OR BOTH, FOR CULTIVATION IN TRIBAL AGENCIES IN 1980

(Percentage)

Agency	Farm Reporting use of:		
	Tractors only	Animals only	Both tractors and animals
1. Mohmand	33	14	53
2. Bajaur	3	84	13
3. Khyber	34	19	47
4. Kurram	8	34	58
5. N.Waziristan	10	17	72
6. S.Waziristan	5	70	25
7. Orakzai	7	48	45

Source: Pakistan Census of Agriculture, 1980

All the sample farmers interviewed for this study in 1992 reported using tractors only or tractors as well as animals for land preparation. Since the sample was small, and interviews were conducted only in the easily accessible localities of the Agency, this finding should be read with the reservation that there must be some cases of land preparation with animals only. The percentage of such cases would, however, be much less than that recorded (14%) in 1980 and these cases would be concentrated in remote areas not easily reached by tractors.

Statistics on the number of tractors and other farm machines in the Agency are thought to err on the low side. In the present context, it is really not important what the actual number of machines is in the area. What is important is the trend and the farmers' receptivity to the idea of using farm machines. The present study finds that this is positive. Farmers are using mechanized farm power, are using it more than before, and have acquired skill in using it.

The impact of the increase in farm machinery use or farm productivity and arable land is presently not being studied scientifically. But the impact is reported to be positive particularly in the case of arable land. Tractors greatly facilitate land development for cultivation purposes and have a cost saving effect.

An important secondary impact of the increase in farm machines is seen in the emergence of a number of tractor and trolley repair workshops as well as shops selling spares, tyres, and devices for mending punctures. Many local people are employed in these workshops.

D. Farm Labour

The main source of farm labour is the farm household itself. Hired labour is used in small numbers usually at the time of land preparation and harvesting. The use of permanent hired workers is negligible. The participation of women in agricultural activities is substantial. These and other relevant aspects of farm labour are elaborated as follows; the principle sources of information are the Pakistan Census of Agriculture 1980, and the interviews with farmers conducted for this study.

The 1980 Census of Agriculture provides information on the number of permanent hired workers and the number of household members who worked on the 8,505 farms covered in the Agency. An estimate is not available about the number of temporary hired workers working on these farms. As gathered from interviews with the farmers and agricultural extension workers, their number must be very small. This can be concluded from the fact that the farm families provided in 1980 as many as 36,140 family workers for 8,505 farms yielding an average of 4.25 workers per farm of 2.6 hectares. This average is sufficiently large to eliminate large-scale dependence on hired hands. The 1980 Agriculture Census enumerated only 90 permanent hired workers on the 8,505 farms under reference. As noted above,

the use of casual paid labour, though not reported, must be very small. Therefore, this section presents some relevant information about family labour which is the farm's main labour source.

Of the 36,140 farm workers under reference, 15,940 (or 44%) were women 90% of whom worked on their farms on a "full time" basis, (Table VI.28). The regular participation of women in farm work on a large scale is a well known feature of Mohmand Agency which is exceeded only by Khyber Agency. Livestock care is almost exclusively a woman's task. Women's participation is quite substantial also in the crop sector where they are most prominent in activities such as weeding, harvesting, storage of products, etc. Comparative statistics on women's participation in different Tribal Agencies are given in Table VI.28.

Table VI.28

PARTICIPATION OF WOMEN IN AGRICULTURAL WORK ON THEIR FAMILY HOLDINGS IN TRIBAL AGENCIES IN 1980

Agency	Total workers (Male + Female)	Women workers		Women who worked full-time	
		Number	% of total workers	Number	% of total women workers
1	2	3	4	5	6
Mohmand	36,140	15,940	44.11	14,345	90.00
Bajaur	11,7,136	56,145	47.93	42,942	76.48
Khyber	44,461	23,453	52.75	1,717	7.32
Kurram	47,898	23,569	49.21	2,838	12.04
N.Waziristan	49,725	17,532	35.26	7,962	45.41
S.Waziristan	71,165	35,220	49.48	13,200	37.48
Orakzai	66,548	32,337	48.59	21,379	66.11

Source: Pakistan Census of Agriculture, 1980

It will be seen in Table VI.28 that women constituted a substantial proportion of the workforce on farms in all the Tribal Agencies in 1980, the year of the Agricultural Census. In terms of percentage of the total farm labour force, the women in Mohmand Agency ranked sixth among the seven agencies under reference. However, concerning the percentage of women working on the farms on a full-time basis, the Mohmand women led all others with 90 percent. The available labour situation is good in this Agency. The peak season wage rate is Rs.35-40/day, while the normal rate is Rs.30-35/day.

E. Agricultural Inputs and Services

Improved seed and chemical fertilizers are in high demand in the Agency, but the supply is inadequate. The use of insecticides has declined due to the high cost.

1. Improved Seed

The Agricultural Development Authority (ADA) which is responsible for the supply of improved seed, has no sale point of its own in Mohmand Agency. It sells improved seed through the Political Agents.

Small quantities of improved seed are also given to farmers by the Agriculture Department but that is only for demonstration purposes. The seed given is multiplied by contact farmers who retain a portion of the multiplied seed for their use and exchange the rest for old varieties with fellow farmers.

It is not known what percentage of the area for wheat, maize and sugarcane is presently sown to improved seeds. The Agriculture Department's yield statistics and the short survey of farmers conducted for this study, however, indicate that the rate of adoption of improved seed must be moderate to high. As early as 1980, the Census of Agriculture recorded 33% of this Agency's wheat area to be under improved varieties. The field reports suggest that the 1990 corresponding figure must be much higher than that. Similarly, improved varieties of maize are quite popular in the area. The maize yield in the Pandiali area is comparable to the yield in the main maize growing areas of NWFP. The average for the area is 2.30 MT/hectare for the 1992 harvest indicating that the farmers must have used high-yielding varieties.

All the farmers interviewed for this study seemed unhappy with the existing system of supplying improved seed through the Political Agent. It is alleged that the 'Maliks' who are supposed to sell improved seed to other farmers use much of it for domestic consumption.

The problems faced by the Agency's farmers in the procurement of improved seed should be removed. In this respect, the Agriculture Department can play a more effective role than the other agencies in the area. Possibilities should also be explored of associating the Agency's shopkeepers with the improved seed business.

2. Fertilizers

The use of chemical fertilizers is now much more than a decade ago. In the 1980 Census of Agriculture, only 43 percent of the farms were recorded using chemical fertilizers. In the 1992 sample survey all the farmers reported using these. In 1980, the overwhelming majority (93%) of the farmers who used chemical fertilizers used these in combination with farmyard manure. The 1992 sample survey was not designed to secure a corresponding estimate but the percentage is believed to be much smaller.

Fertilizer sales in this Agency are managed by the Agriculture Development Authority. The rate of utilization has on the whole been rather erratic as shown in Table VI-29.

Table VI.29

FERTILIZER SOLD IN MOHMAND AGENCY
1982-83 TO 1988-89 (METRIC TONS)

Year	N	P_2O_5	K	Fertilizer sold (Metric Tons)
1982-83	18	46	-	64
1983-84	1019	304	-	1323
1984-85	288	18	-	306
1985-86	222	23	-	245
1986-87	211	114	2	327
1987-88	2385	166	21	2572
1988-89	2011	309	-	2320

Source: FATA Development Statistics

3. Agro-Chemicals

According to the Pakistan Census of Agriculture, 45 percent of the total farms in this Agency used insecticides in 1980. The corresponding figure for 1992 is only 35 percent according to the sample survey conducted for this study. Only in the Yakaghund area did all the sample farmers report that they had been using agrochemicals regularly. In the other tehsils, their use was found to be very rare. The high cost of agrochemicals is the chief hurdle to their popularization in the Agency. The farmers buy agro-chemicals from private dealers. Crop sprayers are also bought on payment from the Agriculture Department. A total of 353 spray pumps were sold by the Agriculture Department to the farmers at a 50 percent subsidy during 1986-92 (Table VI.30).

Table VI.30

NUMBER OF COMPRESSION SPRAYERS SOLD BY THE AGRICULTURE DEPARTMENT TO FARMERS ON A 50 PERCENT SUBSIDY DURING 1986-92

Year	Pumps sold
1986-87	50
1987-88	48
1988-89	45
1989-90	113
1990-91	64
1991-92	33
Total	353

The Agriculture Department has been regularly providing plant protection service to the farmers on a small scale since 1982. During 1990-91 a total area of 3,868 hectares was covered by plant protection measures (Table VI.31).

Table VI.31

PLANT PROTECTION ACTIVITIES CARRIED OUT BY THE AGRICULTURE DEPARTMENT DURING 1990-91

Item of service	Area covered	
Spray on:		
a. Vegetables	425	hectares
b. Sugarcane	23	"
c. Maize	9	"
d. Fruit Orchards	5	"
Soil treatment	335	"
Rodent control	3071	"
Store fumigation	2936	centimeter
Weed control (chemically)	9	hectares
Weed control (mechanically)	300	"

Source: Agriculture Department, Mohmand Agency.

No subsidy is given on the spray done by the Agriculture Department. The Agriculture Department's average annual receipt from spray charges was Rs. 120,543 during 1988-92.

Table VI.32

RECOVERY OF PLANT PROTECTION SERVICES COST FROM THE FARMERS BY THE AGRICULTURE DEPARTMENT, MOHMAND AGENCY DURING 1988-92

Year	Amount (Rs)
1988-89	91,987
1989-90	134,525
1990-91	134,699
1991-92	120,961

Source: Agriculture Department, Mohmand Agency.

4. FATA Agriculture Extension Department

The Agriculture Extension Department Mohmand Agency, is headed by the Extra Assistant Director of Agriculture. The head office is at Ghalani, and there are five sub-offices. The staffing positions of the department are shown in Table VI.33.

Table VI.33

STAFF OF FATA AGRICULTURE (EXTENSION) DEPARTMENT, MOHMAND AGENCY

Post	Number
1. Extra Assistant Director of Agriculture	1
2. Agricultural Officers	5
3. Field Assistants	19
4. Field Workers	33

The Agriculture (Extension) Department is playing an important role in the agricultural development of the Agency. Its major successes are the popularization of improved input use, plant protection measures, the increase in the area under orchard crops, and the increase in farmer-extension agent contacts.

5. Government Nursery and Demonstration Plots

The Agriculture Department has a fruit nursery at Yakaghund which provides nursery plants to the Agency's fruit growers. For improving crop productivity, the department establishes demonstration plots. Both these schemes have had a positive impact on the Agency's agricultural sector.

a) Fruit Nursery

The only fruit nursery in the Agency located at Michni was established in 1982. It went into production in 1984 with a total area of 1.62 hectares. During 1984-85 through 1991-92, the nursery supplied 88,504 plants to the Agency's fruit growers.

Table VI.34

FRUIT PLANTS DISTRIBUTED FROM THE MICHNI FRUIT NURSERY IN MOHMAND AGENCY

Year	Plants distributed
1984-85	12,181
1985-86	15,050
1986-87	15,100
1987-88	15,970
1988-89	16,039
1989-90	4,659
1990-91	4,498
1991-92	5,007
Total	88,504

In order to further popularize fruit production in the Agency, the Agriculture Department has launched a scheme started in 1991-92, under which it will annually plant orchards, free of cost, over a total area of seven acres. In 1991-92, seven orchards of one acre each were planted under this scheme. The scheme is only one year old and for that reason, it is rather too early to evaluate or make a forecast about its success or failure. It should be continued for a sufficient number of years, even if during the early period it does not meet with success. The lessons learned should be used for revising the approach to the popularization of fruit production in the Agency. The Agriculture Department should also be mindful of the risks of subsidies. These are needed in the Agency, but the effort should be to keep their level as low as possible. Once the

farmers get interested in orchard crops, the question of subsidies will cease to be an important one. A close link between the orchards and the market should be developed as that would help secure a fair return to the orchard operators and also take care of much of the input supply and the finance problems. Orchard crops are difficult to raise and manage, but once they increase to a sufficiently high hectarage, they can play the role of catalyst in the agrarian development of this Agency.

b) Demonstration Plots

Demonstration plots are an important means of agricultural extension. During 1991-92, 136 demonstration plots were established for wheat, maize, and oilseeds.

Table VI.35

DEMONSTRATION PLOTS ESTABLISHED IN MOHMAND AGENCY DURING 1991-92

Sr. No.	Locality	Crops				Total
		Maize	Wheat	Sarsoon	Sunflower	
1.	Ghalani	15	11	-	1	27
2.	Yakaghund	16	20	4	19	59
3.	Prangghar	8	-	-	-	8
4.	Lakarro	9	4	13	6	32
5.	Pandiali	4	6	-	-	10
6.	Total	52	41	17	26	136

Source: E.A.D.A. Office, Mohmand Agency

During 1990-91 the Agricultural Department did not establish demonstration plots because it did not have money for this purpose.

6. Credit

The Agricultural Development Bank of Pakistan (ADBP) maintains a branch office at Ghalani for providing credit to farmers. The branch set up in 1989, was previously in Shabqaddar from where it was shifted to Ghalani in 1992. All farmers in Mohmand Agency can borrow from the ADBP, but presently this facility is made available only to the farmers of Yakaghund and Prangghar tehsils because there are administrative problems in other parts of the Agency. Credit is given, other things being equal, on the recommendation of the Political Agent. From July, 1991 to December 1992 this branch of ADBP gave credit totaling Rs. 3,761,000 (Table VI.36).

Table VI.36

CREDIT GIVEN BY THE AGRICULTURAL DEVELOPMENT BANK OF PAKISTAN TO FARMERS IN MOHMAND AGENCY

(Rupees)

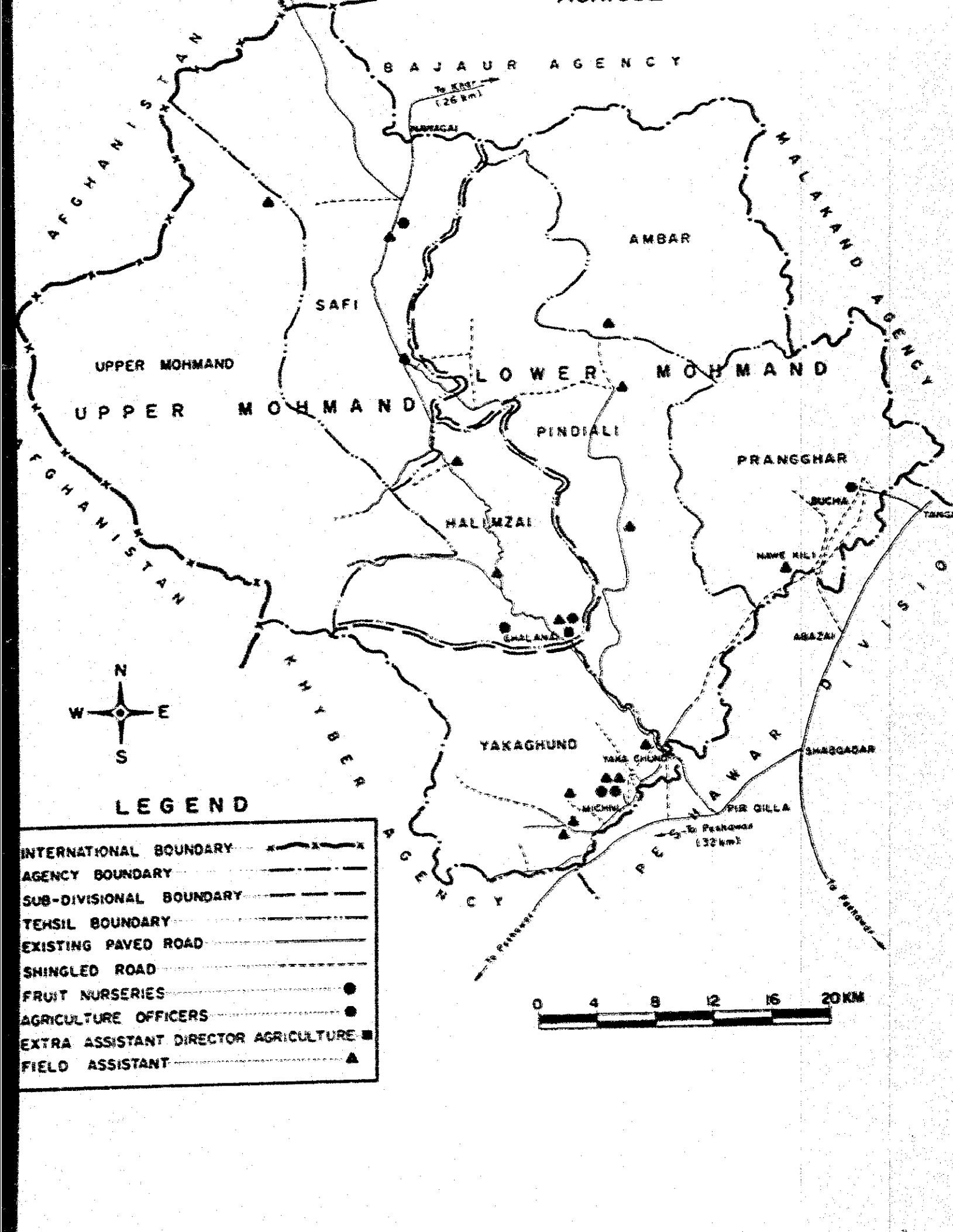
Sr. No.	Purpose of Loan	Loan given	
		1.7.91 to 30.6.92 (Rs.)	1.7.92 to 15.12.92
1.	Short term production loan	64,000	50,000
2.	Tractor lcan	1,372,000	821,000
3.	Equipment loan	132,000	32,000
4.	Poultry loan	653,000	-
5.	Dairy loan	55,000	97,000
6.	Tubewells loan	463,000	22,000
7.	Total:	2,739,000	1,022,000

Source: Agriculture Development Bank, Ghalani Branch, Mohmand Agency

The institutional credit facility is utilised only by the large landowners because of the obvious reason that they can offer guarantees acceptable to the bank and can also win the Political Agent's recommendation. Most of the small farmers are unaware of the existence of this facility and unable to put up with the procedure involved in securing credit from the bank. In 1980 lengthy as reported by the Agriculture Census, the Agency's farmers owed debts totalling Rs 9.6 million, out of which only Rs 0.5 million were payable to credit institutions. Comparable data for 1992 are not available, but it is gathered from interviews with the farmers and the agricultural extension workers that the total share of institutional credit would be presently much higher than the 1980 level. The lending activity of the ADBP is positively correlated with the law and order situation in the Agency. In this respect, things are expected to improve further in the future. If this hope materializes, the ADBP will be able to sanction loans to a larger number of farmers which is one of their widely expressed demands.

F. Agricultural Marketing

The farmers buy agricultural inputs mostly in Shabqaddar (in the Peshawar district located close to Mohmand Agency), Mian Mandi, Ghalani, Yakaghund, and Navagai (in Bajaur Agency located close to Mohmand Agency). Of these five markets, Shabqadar is the most important. The sample farmers complained of problems of high


BAJAUR AGENCY
AFGHANISTAN
MALAKAND AGENCY
AMBAR
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
BUCHA
HALIMZAI
NAWE KILI
SHALANDAI
ABAZAI
KHYBER AGENCY
YAKAGHUND
YAKA GHUND
SHAGGADAR
MICHNI
PIR GILLA
To Peshawar (32 km)
PESHAWAR DISTRICT
To Peshawar
To Peshawar
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
FRUIT NURSERIES
AGRICULTURE OFFICERS
EXTRA ASSISTANT DIRECTOR AGRICULTURE
FIELD ASSISTANT
0 4 8 12 16 20 KM

prices and an inadequate supply of all the important inputs viz., chemical fertilizers, improved seeds, and agro-chemicals. The high cost of the agro-chemicals which has clearly made its impact visible by decreasing their use. The same holds true for chemical fertilizers, but the impact has taken the form of using less than the recommended dosage rather than a decline in the number of farmers using these.

Marketable surpluses are small because the bulk of the farmers practice subsistence farming. Surpluses wherever these exist, are channeled to the central markets mainly through the village shopkeepers and the beoparies (bulk purchasers who visit the villages at harvest time). The bulk of the surplus cereals are sold by the village farmers to the beoparis and the village shopkeepers. Only a small number of farmers sell cereals in the central markets themselves.

As far as vegetables are concerned, three different and almost equally popular methods of sale are used: 1) pre-harvest sale of the crop; 2) post-harvest sale in bulk in the village to bulk purchasers (beoparis) from the central markets; 3) sale through an intermediary in the latter. Most farmers produce vegetables for home use. The cultivation of vegetables for sale is reported mainly in the Yakaghund, Pandiali and Prangghar areas. The important vegetables entering the market are onions, garlic, tomatoes, and some potatoes.

The agri-marketing system is fairly efficient but only in the sense that it caters to the needs of even the most distant farms, and is apparently capable of handling agricultural surplus and input supply needs of the area without many problems. But this system is not cost efficient. The farmers do not get a fair price for their produce, and have to pay a higher price for inputs than do the farmers in the adjoining settled areas.

VII. WATER RESOURCES

The purpose of this section is to determine the adequacy of water resources in Mohmand Agency. The main focus is on the extent to which these have been harnessed for irrigation and drinking and their conservation for future development. This section is divided into the following parts:

1. Overview of irrigation systems
2. Surface Water Irrigation
3. Ground Water
4. Flood Protection
5. Potable Water Supply

A. Overview of Irrigation Systems

The principal irrigation system is the Warsak Left Bank Canal. In addition, tubewells, lift pumps, and other sources comprise about 42% of the land area under irrigation. The relative importance of these sources as shown in Table VII.1 indicates that during the period from 1982-90 the canal became less important in terms of the percentage of cultivated irrigated area in the Agency. Tubewells became more common during the last ten years.

A welcome addition to the Agency's irrigation system is the introduction of lift pumps which were reported in official statistics in 1988-89 for the first time. Construction of dug-wells is also in progress. Also planned is the construction of a number of small dams. These will help increase the irrigated area and will also make the irrigation system more broad based.

Table VII-1

DISTRIBUTION OF IRRIGATED AREA BY SOURCE
OF IRRIGATION IN MOHMAND AGENCY

Year	Area irrigated by:								
	All sources: Hectare (=100)	Canal		Tubewell		Lift Pumps		Other Sources	
		Hect.	%	Hect.	%	Hect.	%	Hect.	%
1981-82	6,077	5,100	83.9	57	1.0	-	-	920	15.1)
1982-83	6,260	4,000	63.9	130	2.1	-	-	2,130	34.0
1983-84	6,340	4,000	63.1	150	2.4	-	-	2,190	34.5
1984-85	6,200	4,000	64.5	200	3.2	-	-	2,000	32.3
1985-86	6,200	4,000	64.5	200	3.2	-	-	2,000	32.3
1986-87	6,345	4,000	63.0	500	7.9	-	-	1,845	29.1
1987-88	6,705	4,000	59.7	510	7.6	-	-	2,195	32.7
1988-89	6,800	4,000	58.8	540	7.9	510	7.5	1,750	25.7
1989-90	6,850	4,000	58.4	540	7.9	560	8.2	1,750	25.7

Sources: FATA Development Statistics: 1986-87, 1988-89.
Agricultural Statistics of NWFP: 1989-90

In 1981-82, as shown in Table VII.1, the canal irrigated area was 5,100 hectares and in subsequent years it was 4000 hectares. The NWFP Agriculture Department (extension wing) which compiled these statistics (published in the FATA Development Statistics 1986-87 issue) was contacted to ascertain the reason for the decline in the canal irrigated area, but no explanation was given except that in all probability this was a printing error or incorrect posting. The correct 1981-82 statistics would be: canals 4000 hectares, tubewells 57 hectares, and other sources 2020 hectares.

The area irrigated by canals or by any other sources, can hardly ever be identical two or three years in a row because of the variation in water flows and the change in the cropping patterns and intensity. In Table VII.1, however, the canal irrigated area is shown unchanged at 4,000 hectares throughout the period under review. The most plausible explanation of this figure is, as gathered from the irrigation and agriculture departments' officials, that it is based on Girdawari (a survey by officials of the Revenue Department) of the cropped area in some year before 1981-82. At that time, the total cropped area of 4,000 hectares was irrigated by canals. Since then this figure has been repeated every year. It is thought to err on the high side as further clarified in the explanation to Table VII.2.

Data on the irrigated area and its distribution by source of irrigation for the period beyond 1989-90 have not been published yet. According to unofficial reports, some increase has taken place in the tubewell irrigated area after 1990, but the overall position in 1993 would not be materially different from 1990 in respect to the composition and the total size of the irrigated area.

B. Surface Irrigation

The surface irrigation system comprises the solitary Warsak Left Bank Canal (WLBC), lift irrigation, and water channels. There are no small dams presently in the area, but a number of these are planned.

1. Canal Irrigation

The Warsak Left Bank Canal irrigates the land located in Yakaghund Tehsil. It provides 42 cusecs of water to the Agency, and its total Culturable Command Area (CCA) is 3489 hectares. Water is carried to the fields by seventeen water courses presently, while seven new watercourses are to be completed in the near future (in 1993). The water courses are maintained by the water users themselves. The

area irrigated by WLBC during 1989-92 as well as other introductory data are given in Table VII.2.

Table VII.2

INTRODUCTORY DATA OF, AND AREA IRRIGATED BY, WARSAK LEFT BANK CANAL IN THE MOHMAND AGENCY

Particulars	Unit	Statistics/Information
1	2	3
1. Source of the WLBC	-	Warsak Dam on Kabul River
2. Culturable Command Area (CCA)	Hectares	3489
3. Total water supplied by the canal	Cusecs	42
4. Area Irrigated		
i. 1989 - 90		
a. Kharif	Hectares	1790
b. Rabi	"	1953
c. Total	"	3743
ii. 1990 - 91		
a. Kharif	"	1792
b. Rabi	"	1998
c. Total	"	3790
iii. 1991 - 92		
a. Kharif	"	1782
b. Rabi	"	2028
c. Total	"	3810

Source: Provided (in January, 1993, by Divisional Canal Officer, Warsak Canal, Central Irrigation Circle, Irrigation Department, Peshawar (unpublished).

The statistics on the irrigated area as given above in Table VII.2 don't tally with the canal irrigated area shown in Table VII.1. According to the latter, in 1989-90 the WLBC irrigated 4000 hectares in Mohmand Agency whereas according to Table VII.2, based on data provided by the Irrigation Department, the WLBC irrigated an area of 3743 hectares. The Irrigation Department's officials claim that their figures (3743 hectares) are correct. They are based on the actual record of water supplied to the farms in the canal's command area. The Irrigation Department's officials are of the view that a) either the figure of 4000 hectares is an overestimate, or b) some farmers use their canal water quota to crop more area than it is drawn for, or c) on some farms a third crop in between Kharif and Rabi seasons is also grown and that is counted as canal irrigated crop although the canal water is actually not supplied for the crop concerned. Which of these three explanations is valid? Perhaps all, and most probably the discrepancy is due to factors b and c.

The Agency's farmers pay Abiana (water rate) for the water drawn by them from the canal. The abiana rate varies from crop to crop. The current rates (in force from fiscal year 1986-87) are given in Table VII.3.

Table VII.3
ABIANA RATES IN MOHMAND AGENCY
(Rupees)

Crop	Abiana payable per hectare per annum
1. Sugarcane	203.53
2. Vegetables	132.40
3. Tobacco	106.70
4. Rice	92.87
5. Oilseed	75.09
6. Arher	69.16
7. Maize	59.28
8. Wheat	59.28
9. Masoor	55.33
10. Fodder	43.47

Source: Divisional Canal Officer, Warsak Canal, Central Irrigation Circle, Irrigation Department, Peshawar.

In order to assess the abiana payable by the farmers, the officials of the Irrigation Department survey each farm every Rabi and Kharif season to record the canal irrigated area by crop. The information collected is sent to the Agency's Tehsildar who issues abiana demand notices to the farmers, collects the money, and deposits it in the treasury at Peshawar. Abiana money is collected twice a year after the Rabi and Kharif crops have been harvested. The money collected in 1990, 1991, and 1992 is shown in Table VII.4.

Table VII.4
ABIANA COLLECTED FROM FARMERS IN MOHMAND AGENCY DURING 1990-92
(Rupees)

Year	Season		
	Kharif	Rabi	Total
1990	86,374	61,493	147,867
1991	96,373	62,222	158,595
1992	92,261	N/A	92,261 (kharif only)

Source: Irrigation Department, Peshawar.

2. Lift Irrigation

At a number of places, small reservoirs of water from rain and springs enable lift pumps to operate. Table VII.5 shows the steady increase in the past six years in the number of lift pumps in operation from 275 to 650.

Table VII.5
NUMBER OF LIFT PUMPS IN MOHMAND AGENCY

Y e a r	Lift pumps
1983-84	275
1984-85	447
1985-86	447
1986-87	447
1987-88	635
1988-89	635
1989-90	650

Source: Agricultural Statistics of NWFP: Agri. Dept. NWFP, 1983-84 to 1990-91 (1990-91/1992-93 data not published yet).

3. Irrigation Channels

The farmers have constructed a large number of large and small channels in the Agency to carry water from springs and reservoirs to their fields. These are all privately constructed and managed channels. The bulk of the area shown in Table VII.1 under "other sources" of irrigation is accounted for by this source.

4. Small Dams

At present, there aren't any small dams. However, the FATA DC has surveyed and selected 27 sites for small dams with a command area of 2439 hectares. The cost of these dams is estimated at Rs.278.75 million; see Table VII.6.

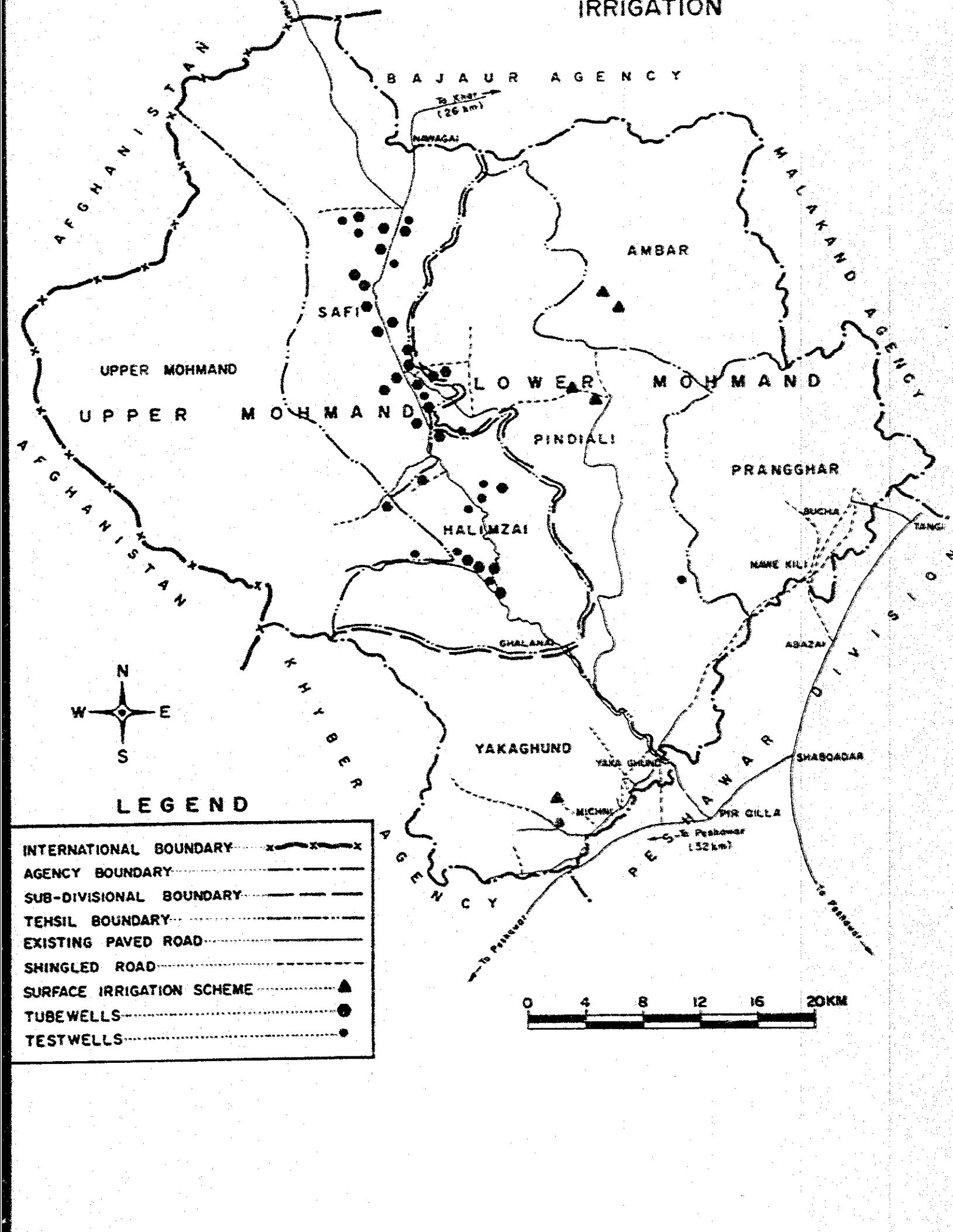

IRRIGATION
BAJAUR AGENCY
AFGHANISTAN
AFGHANISTAN
KHYBER AGENCY
MALAKAND AGENCY
PESHAWAR DIVISION
AMBAR
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
HALIMZAI
YAKAGHUND
SHABQADAR
PIR GILLA
MICHNI
BUCHA
TANGI
NAWE KILI
ABAZAI
GHALANAI
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
SURFACE IRRIGATION SCHEME
TUBEWELLS
TESTWELLS
0 4 8 12 16 20KM

Table VII.6

PROSPECTIVE SMALL DAM SITES IN MOHMAND AGENCY AS DELINEATED BY FATA, DC

S.No	Name of Scheme	Command Land in Acres	Estimated Cost (Rs.in Million)
1.	Pandiali	81	10.00
2.	Tangi Kata	81	10.50
3.	Saqi Kor	101	11.25
4.	Sho Ghundai	91	10.00
5.	Ahmadi Kor	121	13.50
6.	Khapakh Khawar	101	11.25
7.	Tora Tiga	101	11.25
8.	Nawo Kili Turkhel	81	10.50
9.	Umar Banda Khwar	81	10.00
10.	Tarakai Kandao Khwar	81	9.00
11.	Rangina Khawar	81	9.00
12.	Bijang	81	9.00
13.	Tor Dand	77	9.50
14.	Shaker Ghund Khawar	77	9.50
15.	Bara Mana Khawar	81	9.00
16.	Pai Khel Khawar	81	9.00
17.	Zindai Khawar	101	11.25
18.	Laarai Sar Ghazi Bag Khawar	101	11.25
19.	Mundail	81	9.00
20.	Qaldarai	81	9.00
21.	Darwazgai	101	11.50
22.	Shewai	81	9.00
23.	Alinagar	121	13.50
24.	Ocha Jhawara Khawar	101	11.25
25.	Mundi Khel	91	10.50
26.	Gango Kili	101	11.25
27.	Surano Khawar	81	9.00
28.	Total	2439	278.75

Source: Hydrology Section, FATA DC: Unpublished report on small dams sites, 1993.

Out of the 27 possible sites for small dams as shown in Table VII.6, a detailed feasibility study has been prepared for the Pandiali small dam to irrigate 100 hectares. The dam will cost Rs.4.965 million.

The FATA DC plans to survey the entire Agency to locate sites for small dams. As a part of this plan, an investigation has begun for the selection of sites for the following small dams. These are non-perennial channels (Khawars).

1. Taras Small Dam
2. Dag Small Dam
3. Mandoori Khazina Warsak Small Dam
4. Moto Shah Dam in Tarakai Kandao Khawar
5. Sho-Ghundai Small Dam in Garang Area
6. Tangi Small Dam in Lakro Khawar
7. Tanga Dam in Mandoori Khazina
8. Saraghzo Malkana Dam in Khazina Warsak Mandoori Khawar
9. Ahmedi Kor Khawar Small Dam
10. Landai Small Dam
11. Atam Kili Small Dam
12. Tora Khawa small Dam
13. Darwazgai Matin Small Dam

C. Ground Water

Ground water is harnessed for irrigation and drinking through tubewells and dug-wells.

1. Tubewells

The Agency had only four tubewells in 1980-81 and the same number in 1981-82. The number nearly trebled in 1982-83 after which a steady increase was maintained reaching a total of 45 in February 1993.

Table VII.7

TUBEWELLS AND LIFT PUMPS
IN MOHMAND AGENCY

Y e a r	Tubewells (Govt. installed)	Lift pumps (all privately owned)
1980-81	4	-
1981-82	4	-
1982-83	11	-
1983-84	13	275
1984-85	16	447
1985-86	17	447
1986-87	17	447
1987-88	22	635
1988-89	22	635
1989-90	22	650
1990-91	22	660
1991-92	43	N/A
1992-93	45	N/A

Source: 1980-90: Relevant yearly bulletins on Agricultural Statistics of NWFP, Agriculture (Extension) Department, NWFP, Peshawar.

1991-92 & 1992-93: Hydrology Section, FATA DC.

By mid-February 1993, 45 tubewells had been installed by the government in Mohmand Agency. Only 33 out of these 45 tubewells are in operation; see Table VII.8. All the tubewells were initially installed for irrigation purposes, but their water is used also for drinking purposes. Some tubewells not usable for irrigation due to lower discharge are used only for the drinking water supply.

As will be seen in Table VII.8, twelve tubewells have been abandoned. A tubewell by tubewell account of the reasons for abandonment is not available. Instead, the engineer in FATA DC gave three broad reasons: a) most of the twelve tubewells under reference have been abandoned due to a shortage of water; b) a few have been abandoned because drilling was prevented by rocks, c) in

one or two cases, a mechanical breakdown (a boring tube broke and fell while boring was in progress) led to the abandoning of the tubewells.

Table-VII.8

TUBEWELLS/TESTWELLS SCHEMES IN MOHMAND AGENCY: FEBRUARY, 1993

Sr. No.	Location	Drilled depth (Feet)	W.S.L (Feet)	Remarks
1.	Sharif Khan Killi	167	-	Abandoned
2.	Haji Mohammand Umer	310	165	Commissioned
3.	Sharif Khan	355	167	Commissioned
4.	Jamil Khan	290	104	Commissioned
5.	Mohmand Ghat	412	322	Deposit work handedover
6.	Haji Mustafa Kila	325	180	PHE
7.	Shinwari Plain	272	-	Commissioned
8.	Shinwari Plain	385	-	Abandoned
9.	Taru Khel	203	70	Abandoned Deposit work handedover PHE
10.	Pandiali	450	48/72/	Less discharge
11.	Safi plain	424	90	Commissioned
12.	Safi plain	350	215	Commissioned (DWS)
13.	Shah Baig	407	178	Abandoned
14.	Auto Khel	430	- 276	Commissioned
15.	Utamanzai	450	204	Abandoned
16.	Kamalay	450	250	Commissioned
17.	Chinari (Katori Malik)	400	-	Abandoned
18.	Michni Bar Bangli	145	70	Abandoned
19.	Adam Khan Kili	470	255	Commissioned
20	Adin Khel	400	220	Commissioned
21.	Shati Khell	293	150	Commissioned
22.	Shati Khell	292	123	Commissioned
23.	Shati Khell	310	176	Commissioned
24.	Shati Khell	243	162	Commissioned

25.	Hohta	520	240	Commissioned
26.	Safi Plain Dawa Khan	522	265	Commissioned
27.	Chinari/Mohmand Ghat	522	383	Abandoned (Mech: failed)
28.	Shewa, Safi plain	520	246	Commissioned
29.	Hamidullah Kali	518	255	Commissioned
30.	Safi Masood	511	254	Commissioned
31.	Habibzai Chamni Khan Kali	500	165	Commissioned
32.	Utmanzai	368	245	Less Discharge
33.	Surdag Khaphak	540	280	Commissioned
34.	Gurbez	450	325	Less Discharge
35.	Ghazi Baig	284	255	Abandoned
36.	Ghazi Baig	264	255	Abandoned
37.	Ghazi Baig	380	260	Abandoned (Located for
38.	Ghazi Baig	537	292	observation PVC)
39.	Zahir Shah Gurbez	515	270	Commissioned
40.	Auto Khel	400	250	Commissioned
41.	Baro Khel	425	185	Less discharge
42.	Marza Khel	515	250	Commissioned
43.	Haji Mohammad Ali Kali	247	180	Commissioned
44.	Safi Masood			Less discharge; goes dry after 4 minutes
45.	Shams-ur-Rehmand Kali			Data on drilled depth and
	Main Mandi			WSL not available. The
	Autakhel			tubewells have been in
	Autakhel			operation for only a few weeks.

W.S.L. = Water Surface Level

Source: FATA DC: Inventory of completed tubewell schemes In Mohmand Agency (unpublished) Feb., 1993.

2. Test Wells

There are nine test wells in the Agency. Their conversion into tubewells is in progress.

3. Dug-Wells

A plan for the construction of 81 dug-wells is in progress. The expected completion date is June, 1993. The expected distribution by region is:

- Lower Mohmand 13
- Prangghar 50
- Gandahab 18

4. Flood Protection

Neither the FATA, DC, nor any other agency has planned or undertaken any flood protection scheme so far. The proposed small dams will, however, help protect the area from floods, although the dams are not planned specifically for flood protection.

5. Potable Water Supply

The Public Health Engineering Department undertakes potable water supply schemes in the Agency. By June, 1992 a total of 39 schemes had been completed. The completed schemes have cost Rs. 27.314 million (Table VII.9).

Table VII.9

DRINKING WATER SUPPLY SCHEMES COMPLETED IN MOHMAND AGENCY

Period when completed	Schemes completed (number)	Total Cost (Rs/million)
1976-77	3	2.156
1977-78	1	0.133
1978-79	1	0.531
1979-80	nil	nil
1980-81	2	0.581
1981-82	1	0.747
1982-83	2	1.062
1983-84	1	1.169
1984-85	nil	nil
1985-86	2	1.548
1986-87	4	2.183
1987-88	2	1.450
1988-89	7	4.385
1989-90	4	2.499
1990-91	7	6.311
1991-92	2	2.559
Total	39	27.314

Source:- PHED, FATA DC.

According to the PHED supplied statistics (unpublished), the potable water supply was available to 91,763 persons accounting for 41% of Mohmand Agency's total population of 223,407 in June, 1992.

The sources of potable water are tubewells, open wells, and infiltration galleries in that order of importance. The 39 water schemes so far completed in Mohmand Agency are served by 27 tubewells, 23 open wells, and three infiltration galleries. The number of sources of water supply is larger than the number of potable water supply scheme. This is explained by the fact that in some schemes water is drawn from more than one tubewell/open well.

House connections are available only in Ghalani and Lakarai. Community tanks are the major means of the potable water supply followed by stand posts.
Some further information on the location of the potable water supply schemes, the year of completion, source of water, service provided, and completion cost, is given in Table VII.10.

Table VII.10

POTABLE WATER SUPPLY SCHEMES
COMPLETED UPTO JUNE, 1992

Sr. No.	Name of Scheme	Year of Completion	Source of Water	Service Provide	Completion cost (Rs/million)
1.	Yousaf Khel	1976-77	IG	CT	1.193
2.	Ghalani	1976-77	IG	HC	0.570
3.	Lakerai	1976-77	TW	HC/SP	0.393
4.	Provision of gener ating set for Mandi Yousaf Khel	1977-78	TW	-	0.133
5.	Mohammad Khel	1978-79	TW	CT/HC	0.531
6.	Malik Shah Seda Killi	1980-81	OW	-	0.169
7.	Cost: of O.H at Mohd; Gat	-do-	OW	-	0.412
8.	Installation of Addl: TW at Yousaf Khel	1981-82	TW	-	0.747
9.	Instl: of Addl TW at Lakarai	1982-83	TW	-	0.299
10.	Aug: of WSS Ghalanai	1982-83	OW	-	0.763
11.	Imp: of WSS Yakka Ghund	1983-84	OW	-	1.169
12.	Imp: of WSS Mohmand Agency	1985-86	TW	CT	1.048
13.	WSS Kamali Halim-Zai Ghazi Beg	1985-86	TW	CT	0.500
14.	Imp:of WSS Ghalanai	1986-87	TW	HC/CT	0.0009
15.	WSS Hamza Khel Halim Zai	1986-87	TW	CT	0.888
16.	WSS Rawal Koroona	1986-87	IG	CT	0.427
17.	WSS Prangghar	1986-87	TW	CT	0.868
18.	Gogazai Zawgar Killi	1987-88	TW	SP	0.896
19.	Sangar Rasool Kar in Gandab	1987-88	TW	SP	0.554

(Contd.....)

Table VII.10

POTABLE WATER SUPPLY SCHEMES
COMPLETED UPTO JUNE, 1992

Sr. No.	Name of Scheme	Year of Completion	Source of Water	Service Provide	Completion cost (Rs/million)
20.	WSS Kamal Khel Qandari Safi area	1988-89	TW	SP	0.7556
21.	WSS Kor village Darwaagai Bala & Mateen Zone A&B	1988-89	TW	SP/CT	0.9539
22.	WSS Yousaf Khel	1988-89	TW	SP	0.8379
23.	WSS Khan Kor Masud area	1988-89	TW	SP	0.8799
24.	WSS Ghaniari Khazi Khel Haji K=Hakim Faizoori Killi	1988-89	TW	SP	0.7195
25.	WSS Utmanzai	1988-89	TW	SP/CT	0.6882
26.	WSS Pandiali	1988-89	H/PUMP	-	0.3053
27.	WSS Ajab Khan Killi	1989-90	OW	CT	0.8490
28.	WSS Dob Kor	1989-90	TW	SP	0.5280
29.	WSS Shati Khel	1989-90	OW	CT	0.6537
30.	WSS Kirrari	1989-90	OW	CT	0.4680
31.	WSS Hamza Khel Section Kamali Halimza	1990-91	TW	CT	0.9067
32.	WSS Kamali Halimzai	1990-91	TW	SP	1.7254
33.	WSS Qalagai village	1990-91	TW	CT	0.8002
34.	WSS Village Adamzai Ziarat Killi	1990-91	TW	CT	0.8701
35.	WSS Ziarat village SAfi area	1990-91	OW		NA
36.	WSS Barkadi Khel	1990-91	TW		1.0397
37.	WSS Malook	1990-91	TW		0.9697
38	WSS Cohanum Shah	1991-92	TW	CT	1.020
39.	Ground water irrigation Mohmand Agency	1991-92	TW	-	0.844
	Total cost	-	-	-	27.314

(Concluded)

1G = Infilteration gallary
TW = Tubewells
SP = Stand posts
HC = House connection
CT = Community tank
OW = Open Well

VIII. ANIMAL HUSBANDRY

Most of the area of Mohmand Agency is barren. There is a limited area used for agricultural purposes so therefore, animal husbandry activities are also very limited. Sheep and goats appear to comprise the majority of the livestock in Mohmand Agency. They are kept by the owners for milk consumption and are generally not sold for commercial purposes. They graze on wild grass and in winter, feed on the grass that has been stored for fodder purposes. They also feed on maize and wheat stalks. Cattle are raised in sufficiently large numbers second only in number to sheep and goats. Not many buffaloes are raised. Mules are also kept and used for carrying water, goods and firewood. They are also used for construction purposes. In addition, poultry are kept for egg production, and sometimes eggs and chickens are sold within the local community.

A livestock Census was conducted in 1986. The results for Mohmand are presented below in Table VIII.1, although the Census introduction recommends taking the Census Tribal Agency findings with a "grain of salt."

Table VIII.1

1986 ANIMAL CENSUS

Type of Animals	Numbers as of 1986
Cattle	41,131
Buffaloes	5,182
Sheep	48,995
Goats	51,042
Camels	91
Horses	7
Mules	35
Poultry	236,569

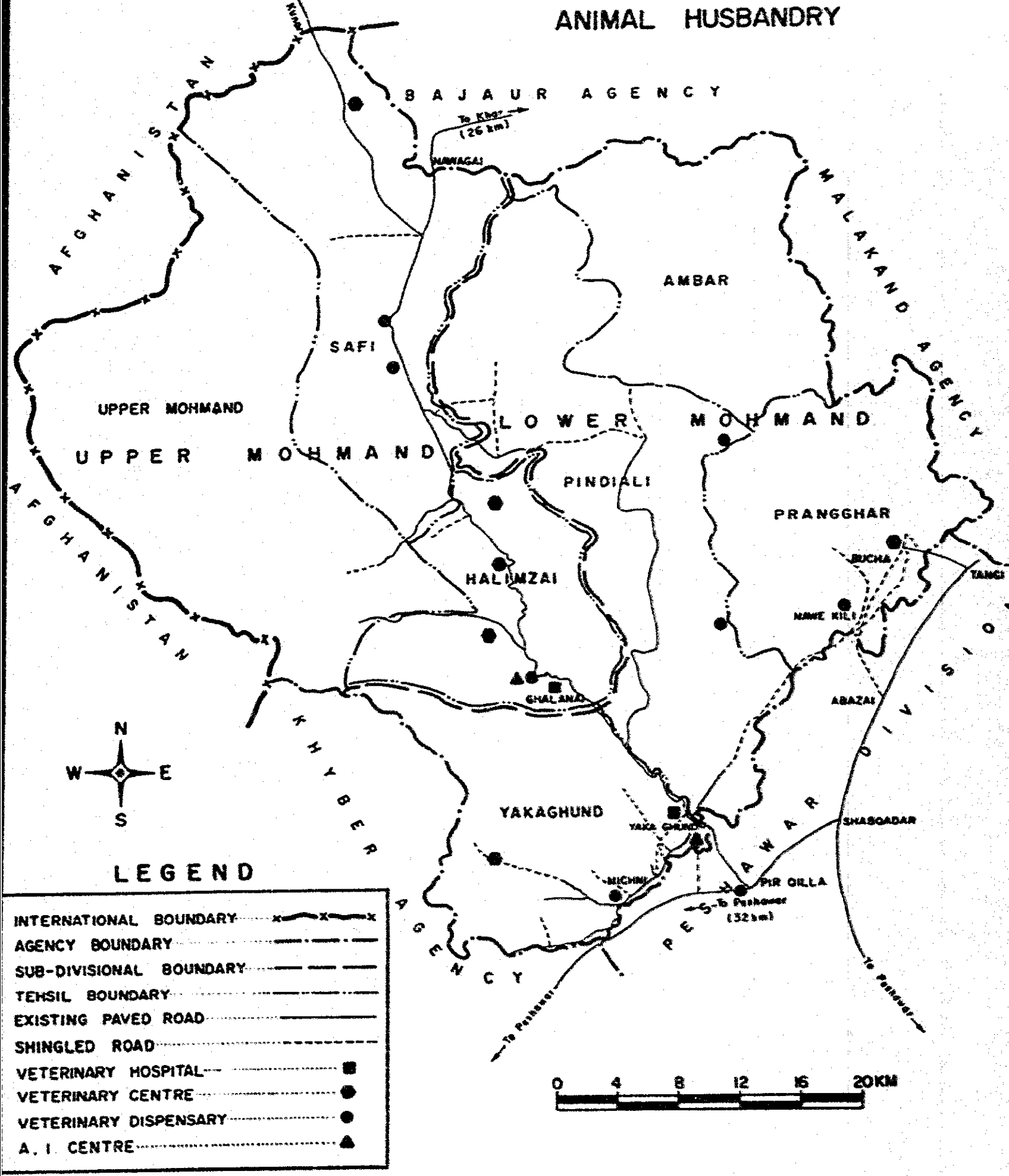
Based on these numbers, there are 18 cattle per square kilometer, two buffaloes per square kilometer, 21 sheep per square kilometer, 22 goats per square kilometer, and 103 poultry per square kilometer in Mohmand Agency. These statistics show a limited number of livestock concentrated in Mohmand Agency.

There are 16 veterinary facilities located in Mohmand Agency. These include two veterinary hospitals, seven veterinary dispensaries and seven veterinary centers. These facilities provide the following services:

1) Curative functions, treatment of animals
2) Vaccination against diseases

A list of locations and staff of these facilities is shown in Table VIII.2.

ANIMAL HUSBANDRY



LEGEND

- INTERNATIONAL BOUNDARY
- AGENCY BOUNDARY
- SUB-DIVISIONAL BOUNDARY
- TEHSIL BOUNDARY
- EXISTING PAVED ROAD
- SHINGLED ROAD
- VETERINARY HOSPITAL
- VETERINARY CENTRE
- VETERINARY DISPENSARY
- A. I CENTRE

Table VIII.2

PLACEMENT OF VETERINARY FACILITIES

Locations	Tehsil	Veterinary Officers	Stock Assistants	Inseminator
Hospitals				
Yakaghund	Yakaghund	2	1	1
Ghalani	Halimzai	1	1	
Dispensaries				
Pirkilla	Yakaghund		1	
Michni	Yakaghund		1	
Gandab	Halimzai	1	1	1
Nawakalli	Prangghar		1	
Pandiali	Pandiali		1	
Lakari	Safi		1	
Danish Kol	Pandiali		2	
Centers				
Ghazi Baig	Halimzai		1	
Sultan Khel	Halimzai		1	
Prangghar	Prangghar		1	
Chamarkand	Safi		1	
Nahqi	Halimzai		1	
Khadi Khan	Safi		1	
Chappari	Yakaghund		1	

Besides these facilities, there are two insemination facilities, one each at Yakaghund and Gandab with an inseminator assigned to each facility. The percentage of veterinary dispensaries and centers on a per tehsil basis is given in Table VIII.3.

Table VIII.3

Percentage Distribution of Animal Husbandry Facilities By Tehsil

Sub-division	Tehsil	Percentage of Agency Population	Percentage of Agency Veterinary facilities
		%	%
Upper Mohmand	Upper Mohmand	30	0
	Halimzai	16	32
	Safi	22	19
Lower Mohmand	Yakaghund	8	25
	Ambar	N/A	0
	Pandiali	14	12
	Prangghar	10	12

There are no veterinary facilities in Ambar and upper Mohmand tehsils. These tehsils have almost 35 percent of the Agency's population and need to be covered.

An account of the type of animal diseases found in the Agency are listed below.

A. Type of Diseases

1. Contagious Diseases

The most prevalent diseases found are foot and mouth (FM), halmorrhagic septicaemia (HS), black quarter (BQ), enterotoxemia in sheep and goats, and pleuropneumonia in goats (a seasonal disease). HS is common in lower Mohmand and the Michni area which is an irrigated area where this disease is usually found.

2. Non-Contagious Diseases

These diseases include indigestion, milk fever, red water piroplasmosis, and mastitis.

Vaccinations are an important part of the work of the veterinary facilities. According to the data provided by the livestock department for the last three years, the trend towards vaccination is on the rise. The data on vaccinations are as follows:

Table VIII.4

Number of Animals And Poultry Vaccinated

Vaccination	1989-90	1990-91	1991-92
Poultry	159,443	188,454	151,090
Animals	12,398	18,230	18,190

The total number of animals treated at Agency facilities for the last three years is as follows:

Table VIII.5

NUMBER OF ANIMALS TREATED

Animals treated	1989-90	1990-91	1991-92
1) Out Patients	45,702	50,483	52,521
2) Number of animals castrated	187	534	644
3) Artificial Insemination	1,182	1,189	1,210

B. Agency Livestock Administration

An Assistant Director of Livestock is in charge of Mohmand Agency operations. His office was established in 1976 at Yakaghund at the Yakaghund veterinary hospital. He has no official transport from the Livestock Department to supervise approximately sixteen veterinary facilities scattered throughout various tehsils of Mohmand Agency. He sometimes uses his own motorcycle, but he has received no travel or daily allowance for 1989 and 1990. The Mohmand Area Development Project has given a vehicle to his office on a temporary basis but he has no telephone in his office. The morale of the veterinary staff is very low due to the extremely limited promotion opportunities.

The Headwuarters office annually distributes around 12 beetle bucks and 12 rams for improved breeding to various people. The Mohmand Area Development project office has also distributed 20 beetle bucks among people having large flocks. The selection of people for the distribution is done both by the Livestock Department and the political authorities. There should be rational criteria for the selection of people for distribution and also a system for monitoring the results.

In both insemination centers at Yakaghund and Gandab, there is a shortage of liquid nitrogen gas, therefore, insemination takes place only a few days a month. Semen is provided by a farm at

Surizai which is called the semen production unit. Semen is kept in nitrogen gas for preservation.

There is a shortage of vaccine due to insufficient funds, especially for black quarter disease. Moreover, enterotexemia disease in sheep and goats (common during the winter season), also causes high mortality because of the shortage of the vaccine.

None of the facilities has indoor arrangements for animal treatment.

The field staff at the dispensaries and centers visit villages only for the vaccination of poultry and animals. All centers occupy rented facilities while dispensaries are located in government-owned buildings. All these facilities have electrical connections.

A description of a few facilities visited by this researcher is given below.

C. Yakaghund Veterinary Hospital

This was the first veterinary facility established in Mohmand Agency in 1963. In 1965 it was upgraded to a veterinary hospital. It is located in a three-room building near Yakaghund Bazaar. Two veterinary doctors are assigned to this hospital, one for treatment and the other for insemination. Similarly, two stock assistants are assigned, one each for treatment and the other for insemination. There are seven residential quarters for the staff of the hospital and headquarters.

Insemination has been virtually stopped because of the shortage of nitrogen gas. There is also an acute shortage of vaccine supply.

Statistics on patient treatment are given in Table VII.6.

D. Animals Treated in Yakaghund Hospital

Table VIII.6

ANIMALS TREATED IN YAKAGHUND HOSPITAL

		1990-91	1991-92
1)	Animals treated	3,326	3,754
2)	Vaccination		
	a) Poultry	21,796	15,356
	b) Animals	1,971	1,335
3)	Artificial Insemination	1,131	835
4)	Castrations	25	93

An analysis of the above figures indicates that the number of animals treated has increased from 1990-91 to 1991-92, but the vaccinations and inseminations have decreased. Doctors attribute this decline to the shortage of vaccine and nitrogen gas.

E. Glalani Veterinary Hospital

This hospital was established at Ghalani in 1989. It is a newly constructed three-room building near Bhalani Bazaar. One veterinary doctor and one stock assistant are assigned to this hospital. Statistics on the performance of this hospital for the last three years are given in Table VIII.7.

Table VIII.7

PATIENT TREATMENT STATISTICS IN GHALANI HOSPITAL

	1989-90	1990-91	1991-92
Animals treated	1,920	3,462	2,451
Vaccination			
a) Poultry	1,800	15,804	17,511
b) Animals	N/A	1,200	1,260

Statistics show that the figures for the animals treated increased from 1989-90 to 1990-91 and declined in 1991-92. Vaccination figures have increased over the years.

There is no insemination facility in this hospital although there is a strong demand from the public to have this facility in the hospital. Because of insemination and improved breeding, the milk and meat production has increased almost fifty percent over the local breeds. Moreover, the selling price of the improved breeds is roughly four times that of local breeds.

F. Michni Dispensary at Nawakali

Currently this dispensary is in a rented mud hut, but a new facility is being constructed nearby. One stock assistant who is assigned to this dispensary was not present on the day of the visit. Medicine and vaccines were available. All the employees of the dispensary belonged to the same family whose premises were rented. The July 1992 progress report indicated that 203 animals were treated and 1000 poultry were vaccinated.

IX. FORESTRY

There are no natural forests in Mohmand Agency. The Forest Department initiated a forestation program in the Agency in 1980. Currently the Department has initiated forestation in the following areas:

Table IX.I

AREAS UNDER FORESTATION

Area	Tehsil	Sub-Division
Lal-o-Rangen	Yakaghund	Lower
Shina & Ghundar	Yakaghund	Lower
By Kur	Yakaghund	Lower
Tamanzai (Danish Kol)	Yakaghund	Lower
Hafizdog	Yakaghund	Lower
Deoghari	Prangghar	Lower
Yusaf Khel	Halimzai	Upper
Qandari	Safi	Upper

The total planted area in the Agency is 6,624 acres. There are two government-owned plantation areas covering 464 acres in the Ghalani area and the Mohmand got Government camp area. The remaining 6160 acres are privately owned.

Most plantations are under the three schemes of FATA, Income Generating Project (IGP) and UNHCR. The coverage of the area under FATA is 2500 acres; under IGP it is 3200 acres and under UNHCR the figure is 450 acres. On a tehsil basis the area under cultivation from 1976-77 to 1991-92 was distributed as follows:

Table IX.2

DISTRIBUTION OF BLOCK PLANTATIONS ON A TEHSIL BASIS

Sub-division	Tehsil	Area Under Block Plantation from (1976-1992) Acres
Upper Mohmand	Upper Mohmand	-
	Halimzai	1998
	Safi	336
Lower Mohmand	Yakaghund	2206
	Ambar	-
	Pandiali	-
	Prangghar	1000
	Total =	5540

The percentage share of forestation activities in Mohmand Agency on a tehsil basis is given in Table IX.3

Table IX.3

PERCENTAGE DISTRIBUTION OF BLOCK PLANTATIONS ON A TEHSIL BASIS

Sub-division	Tehsil	%age share of Agency's Area	%age share of Agency's Population	%age share of of Agency's Block Plantatio
		%	%	%
Upper Mohmand	Upper Mohmand	23	30	0
	Halimzai	9	16	36
	Safi	16	12	6
Lower Mohmand	Yakaghund	11	8	40
	Ambar	11	N/A	0
	Pandiali	19	14	0
	Prangghar	11	10	18

The analysis shows that no forestation efforts have been made in upper Mohmand, Ambar and Pandiali tehsils, while most of the forestation activities have taken place in Halimzai and Yakaghund tehsils.

The Department acquires pieces of land from people on a contract basis for three years. The Government has a standard practice of planting 450 plants per acre. Generally the Forest Department does not acquire land less than 30 acres for plantations. The owner also gets a job as a guard which is allocated for every 15 acres of land. He receives 750 rupees per month from the Forest Department.

The Department takes care of the plantation for three years and later returns it to the owner. Usually a forest is developed in eight to ten years. Normally, eight acres of forest can earn one lakh rupees for the owner. After cutting the trees, it takes six to eight years for the trees to grow again.

The Forest Department usually sows eucalyptus in the plains areas, and kikar and phulai on the mountains. The species which are indigenous to the Agency are phulai, kikar, sanather, bair, gurgora, mananas, toot and bakain.

There are currently six nurseries established in Mohmand Agency. Three are located at Pir Qala and one at Danish Kol.
Details are as follows:

FORESTRY

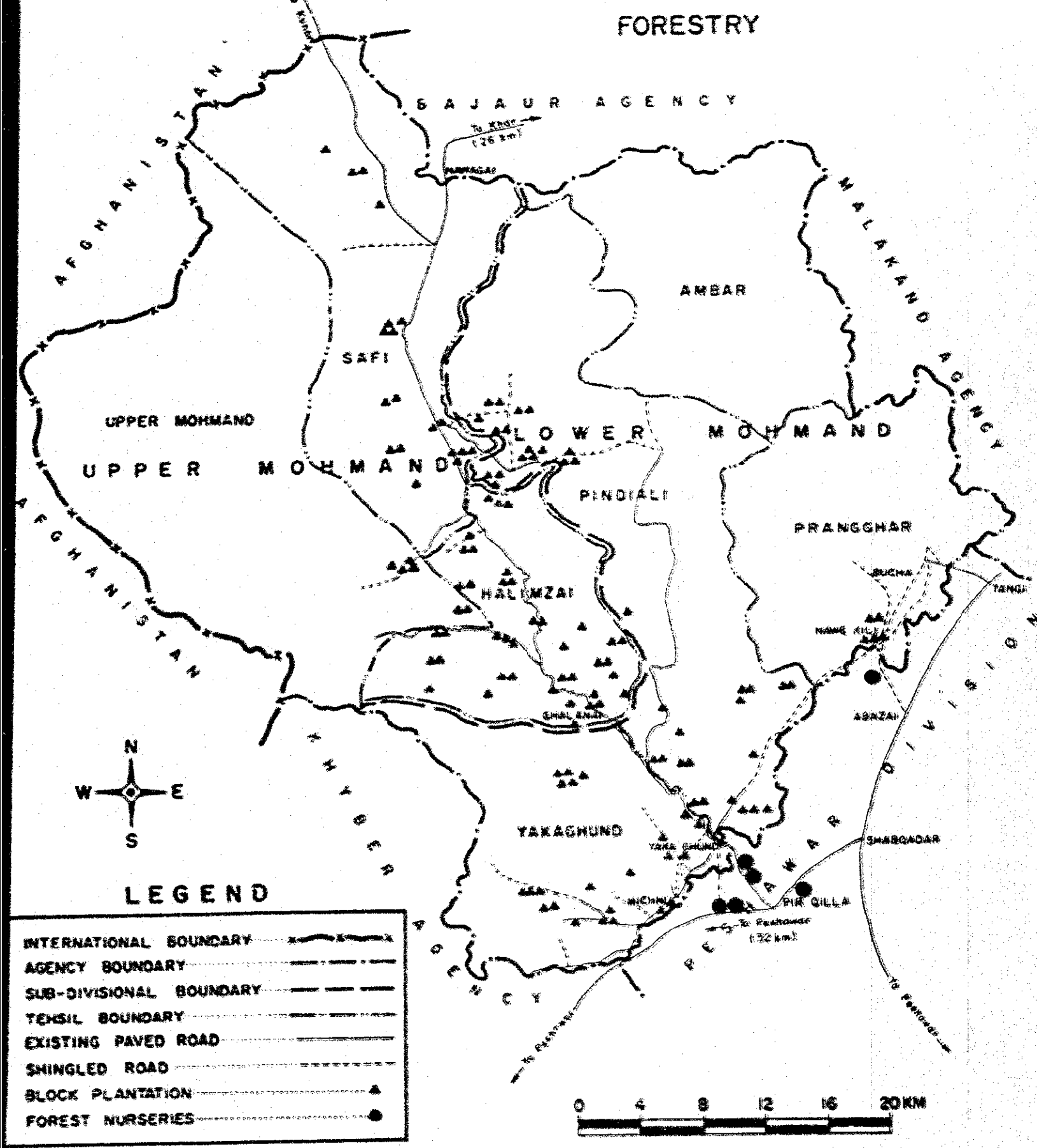

AFGHANISTAN
SAJAUR AGENCY
AMBAR
MALAKAND AGENCY
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
HALIMZAI
BUCHA
TANGI
NAWE KILLI
ABAZAI
YAKAGHUND
SHABQADAR
PIR GILLA
To Peshawar (32 km)
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
BLOCK PLANTATION
FOREST NURSERIES
0 4 8 12 16 20 KM

Table IX.4

STATUS OF NURSERIES

	Location	Species	No of Plants
1.	Srookili road side nursery	Mostly eucalyptus and some other species.	400,000
2.	Pir Qala FATA nursery	Eucalyptus, bakain Ailanthus, Simal etc.	100,000
3.	Pir Qala Energy nursery (Federal Govt.)	Eucalyptus, phulai and kikar.	250,000
4.	Matta Income Generating Project (IGP) Federally Govt. funded	Eucalyptus, Ailanthus Shisham (Dalbersio Sisso)	180,000
5.	Pir Qala Aforestation Mohmand Nursery	Eucalyptus	70,000
6.	Provincial Scheme Nursery at Srookili	Eucalyptus, Ailanthus, Simal	250,000

These nurseries provide plants to their respective schemes under which they were established. The nurseries cover approximately seven acres of area. Approximately 20,000 plants have been sold from 1980 to September, 1992. The Forest Department charges 10 paisas for a bare-rooted plant and 25 paisas for a tubling plant. These nurseries are easily accessible to farmers.

The Agency Forest Officer is located at Ghalani. He is in charge of nine foresters. Each forester covers approximately five to six block plantations for which there is normally one forest guard. Only the Forest Officer has an official car while the foresters use private transport or walk. Although the Forest Officer has responsibility for the financial matters for various schemes under government and foreign funded projects, he doesn't have either an accountant, a typist or a clerk on his staff for this purpose.

SERICULTURE :

At present there is no sericulture scheme in Mohmand Agency.

X. COMMUNICATIONS

A. Roads

Access to Mohmand Agency by road is from both Peshawar as well as Bajaur Agency. From Peshawar, the route to Mohmand Agency is via Warsak road. After travelling 32 kilometers on Warsak road from Peshawar, there is an intersection at a small town called Pir Qila. At the Pir Qila intersection, a road turns left towards Mohmand Agency. The same Pir Qila intersection is also six kilometers from Shabqadar Town and almost 25 Kilometers from Nowshehrah. The first town of Mohmand Agency is Yakaghund which is six kilometers from Pir Qila. It is also one of the main bazaars of Mohmand Agency having around 150 shops. Almost 14 kilometers from Yakaghund is Ghalani which is the headquarters of Mohmand Agency. From Ghalani at a distance of six kilometers, there is a town known as Mian Mundi with approximately 100 shops in its bazaar. Almost 42 kilometers from Mian Mundi is Nawagai which is in Bajaur Agency and is a border town between Mohmand and Bajaur Agency. The residents of Bajaur Agency usually take this route to go to Peshawar.

The Pir Qila-Nawagai road is a main road 71 kilometers long passing through Mohmand Agency. It crosses Yakaghund, Halimzai and Safi tehsils of Mohmand Agency. While going to Nawagai from Pir Qila, Pranggha:, Ambar and Pandiali tehsils are on the right-hand side of the road and upper Mohmand tehsil is on the left-hand side of the road. The road passes through Yakaghund, Halimzai and Safi tehsils.

The Communications and Works (C&W) Department is responsible for the maintenance of roads in Mohmand Agency. It has an Agency office at Ghalani with an Executive Engineer (EXEN) as the head of this office. It also has to maintain some of the roads which are outside Mohmand Agency but which are linked to Mohmand Agency.

As of June 1992, the Agency had 298 kilometers of roads in which 178 kilometers were blacktopped and 120 kilometers shingled. A description of these roads is given in Table X.1 (a,b) and a description of the bridges is given in Table X.2.

Table X.1(a)

BLACKTOPPED ROAD STATISTICS AS OF JUNE 30, 1992

S.NO	Name of Road	Tehsil	Length in Kilometers
1)	Pir Qila-Nawagai road		
a)	Yakaghund-Ghalani Section	Yakaghund	14.000
b)	Ghalani-Darwazgai Section	Halimzai	23.000
c)	Darwazgai-Nawagai Section	Safi	27.000
2)	Michni Malatia Camp Road (Qabuli Kili to Malitia Camp)	Yakaghund	8.897
3)	Michni to Kas Kore via Khatiki Sharif up to Banda	Yakaghund	4.489
4)	Dadu Kandao to Ziarat	Yakaghund	1.207
5)	Mohmand Periphery Road (Yakaghund-Haji Dalil Road)	Yakaghund (8.5Km) Pandiali (10.35Km)	18.850
6)	Pandiali Grang Kota Trap Road	Pandiali	30.800
7)	Habibzai to Attaulla Kore	Pandiali	2.992
8)	Tor Qila Head to Issa Baba Ziarat via Prangghar	Prangghar	6.500
9)	Mian Mandi Khappakh Road	Halimzai	6.547
10)	Internal Roads of Ghalani Colony	Halimzai	2.816
11)	Mohmand Gat-Kuz Charkand Nawa Pass Road	Safi	21.400

Table X.1 (b)

SHINGLED ROAD STATISTICS AS OF JUNE 30, 1992

.No	Name of Road	Tehsil	Length in Kilometers
)	Rawal Kore to Gurguri via Sapari	Yakaghund	15.50
)	Michni Kore to Zarif Kore BalaRoad	Yakaghund	4.988
)	Qila Shah to Akrab Dog Road	Yakaghund	4.827
)	Dando Pul to Angoor Korana	Yakaghund	4.396
)	Darwazgai to Yakaghund	Yakaghund	4.392
)	Michni Fort to Kado Kore	Yakaghund	4.136
)	Dab Kore to Bangalow Road	Yakaghund	3.128
)	Aman Tabar to Ghllo Ghund	Yakaghund	2.492
)	Subhan Khwar Link Road	Yakaghund	2.414
0)	Michni Khawar Road	Yakaghund	1.207
1)	Mansuka Link Road	Yakaghund	0.548
2)	Kirah to Rang Mina via Nawakili	Prangghar	9.413
3)	Hakim Khan Korana to Prangghar	Prangghar	9.380
4)	Abazai to Prangghar Road	Prangghar	8.045
5)	Mohmand Blockade Road (Munsuka to Munda Head)	Prangghar	6.063
6)	Dando Kandao to Ziarat	Prangghar	1.207
7)	Danish Kol-Yakhdand Road	Pandiali	12.067
8)	Garang-Kota Trap Road	Pandiali	4.574
9)	Habibzai-Yakhdand Road	Pandiali	7.078
0)	Ato Khel Got Warsak	Halimzai	5.229
1)	Mian Mandi-Khapakh Road	Halimzai	2.560
2)	Mohmand Got-Matikagapand Road	Safi	5.229
3)	Shewa Sheikh-Ismail Road	Safi	0.804
		Total =	119.677

able X.2

INVENTORY OF BRIDGES

.NO	Name of Road	Name of Bridges/ Location	Length of clear span (meters)	Width of road way (feet)
)	Yousaf Khel-Nawagai Road	Ghulo Kandao in KM.11.46	30	22
)	Yousaf Khel-Nawagai Road	Darwazgai in KM.11.70	30	22
)	Yousaf Khel-Nawagai Road	Kacha Kandao in KM.19	30	22
)	Yousaf Khel-Nawagai Road	Gul Rehman in KM.19.31	30	22
)	Pir Qilla-Yousaf Khel Road	Inzar Kolai KM.8	87	28
)	Pir Qilla-Yousaf Khel Road	Chandra KM.9	87	28
)	Pir Qilla-Yousaf Khel Road	Lail Miana in KM.10	87	28
)	Pir Qilla-Yousaf Khel Road	Dhand in KM.12	98	28

The percentage share of each tehsil from the overall Agency road network is given in Table X.3.

Table X.3

PERCENTAGE SHARE OF AGENCY'S ROAD NETWORK ON A TEHSIL BASIS

ıb Division	Tehsil	%age share of Agency's Area %	%age share of Agency's Population %	%age share of Black Topped Road Network %	%age shar of Shingle Road Networ %
)per)hmand	Upper Mohmand	23	30	0	0
	Halimzai	9	16	19	6
	Safi	16	22	29	5
)wer)hmand	Yakaghund	11	8	22	40
	Ambar	11	N/A	0	0
	Pandiali	19	14	26	20
	Prangghar	11	10	4	29

An analysis of the above table indicates that upper Mohmand and Ambar tehsils are currently not covered by the Agency road network although these tehsils have more than 30 percent of the Agency's population and 39 percent of the Agency's area. The road network coverage is dependent not only on the population of the tribesmen, but also on tne availability of funds, communication as a priority of the government, the willingness of the people, and other technical reasons. The U.S. Narcotics Program has planned two roads in these tehsils. In upper Mohmand tehsil, the Chamarkand-Bedmani road will be 14 kilometers. Another, the Danish Kol-Chargola road is planned for Ambar tehsil and will be 31.5 Km long. The design work has been completed and the construction work on these roads will be started in May 1993. These two roads will be completed within two years of the construction starting date.

Prangghar tehsil is not even connected to the Agency road network and residents of this tehsil have to go outside the Agency and come back to Ghalani via the Pir Qila-Ghalani road. Prangghar has mostly a shingled road network which comprises almost 30 percent of the Agency's shingled roads.

Pandiali tehsil has a larger 26 percent share of the Agency's blacktopped road network. It has a central road starting from the Orangpull gate intersection five kilometers from Ghalani at Ghalani-Yakaghund road. It goes to Kotatrap which is at the boundary of the Pandiali and Ambar tehsils. It has a stretch of 22.5 kilometers from the Orangpull gate intersection to Garang and another section of 10.35 kilometers from Garang to Kotatrap. Danish Kol town is 29 kilometers from the Orangpull gate and has a population of around four thousand. The same road from Danish Kol will be extended to Chargola which is at the border of Ambar tehsil and Bajaur Agency. This road when it is ready, will on the one hand, open inaccessible Ambar areas and on the other hand, provide another short road link from Peshawar to Khar in Bajaur Agency.

Yakaghund tehsil has a fairly good road network. It was the first area in Mohmand Agency to be opened, therefore it is quite developed. With only eight percent of the Agency's population and 11 percent of the Agency's area, it has 22 percent of Mohmand Agency's blacktopped and 40 percent of its shingled road network.

The road network in Safi tehsil is also good. It has a larger portion of the Agency's central road, i.e., the Pir Qila-Nawagai road. It is also linked with the adjacent Pandiali tehsil. Moreover, through Chamarkand road, it is linked with Nawapass road in Bajaur. The Chamarkand-Bechmani road, currently under construction, will connect Safi tehsil as well as Bajaur with upper Mohmand tehsil.

Halimzai tehsil also has a 23 kilometer section of the main Pir Qila-Nawagai Road. It has Ghalani as its tehsil headquarters with some roads inside the colony boundary. Gandab area in this tehsil is connected to the Agency's main road via the Mian Mandi-Khapokh road.

XI. EDUCATION

A. Primary Level

Most primary schools offer classes one to four. A few offer class five, but we have counted class five enrollment as a part of the middle school enrollment since the majority of class four students would have to switch to a middle school if they wanted to attend class five.

1. Girls' Primary Education

The first girls' primary school was opened in September 1971 in Yakaghund Tehsil at Dubar and was later upgraded to a middle school in 1975. There were a total of 55 girls' primary schools in August 1992.

The number of girls' primary schools in each tehsil in 1992 is as follows:

Table XI.I

NUMBER OF GIRLS' PRIMARY SCHOOLS BY TEHSIL

ub-Division	Tehsil	Percentage of Agency's Population %	Percentage of Agency's Area %	Number of Schools	Percentage of Agency girls' Primary schools %
pper	Upper Mohmand	30	23	0	0
ohmand	Halimzai	16	9	24	46
	Safi	22	16	4	7
ower	Yakaghund	8	11	19	29
ohmand	Ambar	N/A	11	0	0
	Pandiali	14	19	4	9
	Prangghar	10	11	4	9
			Total:	55	

Upper Mohmand sub-division has 68 percent of the Agency's population and has 24 girls' primary schools. Lower Mohmand subdivision has 32 percent of the Agency's population and has 21 girls' primary schools. Halimzai has most of the schools in upper Mohmand subdivision and Yakaghund in the lower subdivision. There is a strong need and justification for opening new girls' primary schools in upper Mohmand tehsil which has 30 percent of the Agency's population and no school. Ambar tehsil is in a similar position with a need to open new girls' schools.

Table XI.2 shows enrollment by class for the past 12 years. These data also include the enrollment for the primary sections of the middle and high schools.

Table XI.2

GIRLS' PRIMARY LEVEL CLASS ENROLLMENT

Year	1st Jr:	1st Sr:	2nd	3rd	4th	Total
1980-81	105	40	35	17	10	207
1981-82	118	79	37	20	12	266
1982-83	135	106	68	25	18	352
1983-84	148	129	101	39	23	440
1984-85	188	140	120	43	25	516
1985-86	228	181	125	47	27	608
1986-87	276	211	130	53	28	708
1987-88	316	251	135	56	26	784
1988-89	356	300	140	61	28	885
1989-90	405	354	142	63	29	993
1990-91	436	399	150	68	31	1,084
1991-92	484	411	156	71	33	1,155
1992-93	555	459	386	201	132	1,733

The enrollment figures above indicate a very high drop-out rate from the lower classes to the higher classes. Although with the passage of time, the number of students enrolled in the first class (1st Yr.) has increased eight times from 1980-81 to 1992-93, the dropout rate has also increased drastically from the first class to the fourth class. Only one girl in ten makes it to fourth class.

The reasons for this sharp drop-out rate are:

1) The age at which girls enter school is high because of the lack of schools at earlier ages. As they get older, they are married because early marriages are common in the Tribal Areas.

2) When girls are younger they enjoy going to school and when they get older, parents don't allow them to go to school because of religious and cultural pressures.

3) Parents don't send then to school when they get older as they can work at home.

4) Teacher's absenteeism in some schools.

Female teachers are mostly non local and belong to Peshawar, Tangi, Charsada or Shahbazgarhi. For the most part, they commute daily because only five schools have residential quarters for teachers. All teacher's positions are filled. Except for one school which has 68 students, all the other schools have less than 40 students in each school. There is an average of 25 students in each girls' primary school. There is a rising trend of opening new girls' primary schools in different areas. Children under five years of age who are unadmitted also sit in some schools.

2. Boys' Primary Education

The first primary school for boys' was opened in 1958 at Ghalanai. As of 1992, there were 168 primary schools for boys.
The number of boys' primary schools in each tehsil is given in Table XI.3.

Table XI.3

BOYS' PRIMARY SCHOOLS BY TEHSIL

Sub-Division	Tehsil	Percentage of Agency's Population %	Percentage Agency's Area %	Number of Agency Schools	Percentage Agency's boys' Primary Schools %
Upper Mohmand	Upper Mohmand	30	23	2	1
	Halimzai	16	9	56	33
	Safi	22	16	43	26
Lower Mohmand	Yakaghund	8	11	27	16
	Ambar	N/A	11	0	0
	Pandiali	14	19	29	17
	Prangghar	10	11	11	7
			Total:	168	

Among the tehsils, the major concentration of boys' primary schools is in upper Mohmand subdivision and in Halimzai and Safi tehsils. There is a strong need to open future new schools in upper Mohmand tehsil which has only two schools but has 30 percent of the Agency's population. In Lower Mohmand sub-division, future new schools are needed in Ambar tehsil.

Table XI.4 shows the enrollment figures from 1980-81 to 1992-93.

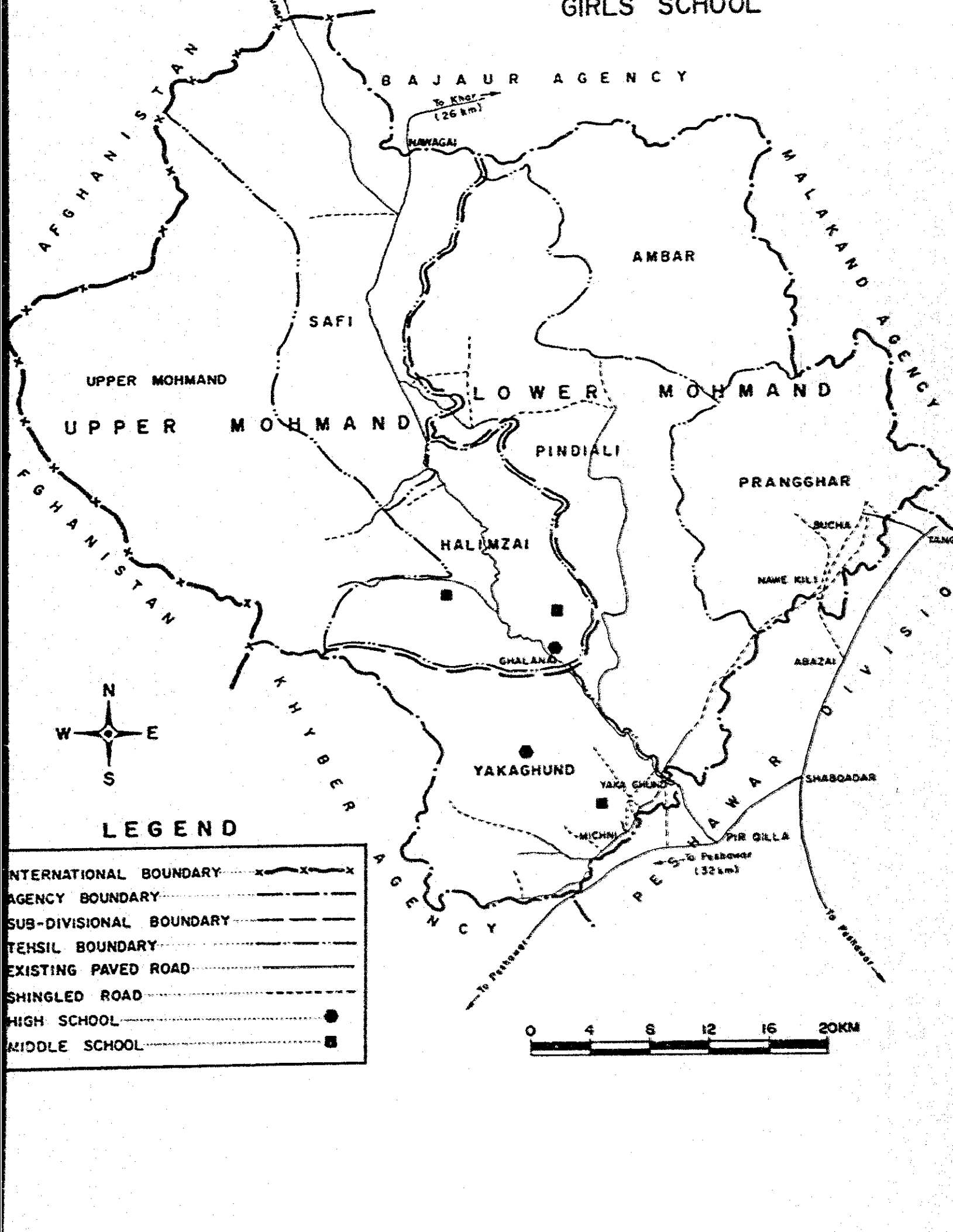

GIRLS SCHOOL
BAJAUR AGENCY
To Khar (26 km)
NAWAGAI
AFGHANISTAN
HALAKAND AGENCY
AMBAR
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
BUCHA
HALIMZAI
NAWE KILI
GHALANAI
ABAZAI
KHYBER AGENCY
YAKAGHUND
YAKA GHUND
SHABQADAR
MICHNI
PIR QILLA
To Peshawar (32 km)
PESHAWAR DIVISION
To Peshawar
To Peshawar
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
HIGH SCHOOL
MIDDLE SCHOOL
0 4 8 12 16 20KM

Table XI.4

BOYS' PRIMARY ENROLLMENT

Year	1st Jr:	1st Sr:	2nd	3rd	4th	Total
1980-81	703	698	636	615	494	3,146
1981-82	798	699	690	623	600	3,410
1982-83	895	787	697	675	620	3,674
1983-84	1,003	890	733	685	669	3,980
1984-85	1,201	1,000	879	725	665	4,470
1985-86	1,478	1,198	988	865	720	5,249
1986-87	1,715	1,469	1,192	980	858	6,214
1987-88	1,899	1,709	1,460	1,180	960	7,208
1988-89	2,399	1,890	1,520	1,299	1,042	8,150
1989-90	2,817	2,010	1,567	1,375	1,122	8,891
1990-91	3,250	2,165	1,689	1,476	1,205	9,785
1991-92	3,622	2,354	1,844	1,613	1,262	10,695
1992-93	4,132	2,723	2,092	1,930	1,569	12,446

From 1980-81 to 1991-93, there has been an increase in enrollment of almost four times which shows a healthy trend. The drop-out rate of around 34 percent from the lower classes to the higher classes is not as alarming as in the case of girls' primary education. Only two out of three students who begin the first class make it as far as the fourth class.

All teachers are local and most of them are trained. None of the schools has residential quarters for the teachers. Most of the schools don't have electricity or potable water. Some of the schools are overcrowded and some have very few students. On the average, there were 64 students per primary school for boys in Mohmand Agency. In almost all schools, children under five years of age sit unregistered. A comparison of boys' primary education facilities and enrollment in seven Tribal Agencies is given in Table XI.5.

Table XI.5

COMPARISON OF BOYS' PRIMARY SCHOOL ENROLLMENT OF ALL TRIBAL AGENCIES

Agency	No. of Primary school in 1992	Enrollments 1992-93	Estimated Population in 1992	Area Sq Km
Kurram	204	20,058	422,533	3,380
SWA*	210	18,100	432,885	6,619
NWA*	228	19,857	334,253	4,707
Orakzai	163	11,207	518,203	1,583
Bajaur	182	22,185	393,491	1,290
Mohmand	168	12,446	230,000	2,396
Khyber	162	22,557	410,027	2,576

* South Waziristan Agency and North Waziristan Agency

B. Middle Level

The fifth class is counted with the middle level enrollment in this assessment. We consider middle level to include the fifth class through the eighth class.

1. Girls' Middle Education

Very few girls have the opportunity to extend their education beyond the fourth class. As of July 1992, there were four middle schools for girls functioning in Mohmand Agency. These were upgraded from primary schools. All teacher positions are filled with non-local teachers. Three of these schools are located at Yakaghund tehsil and one at Ghalani. There is a strong need to upgrade primary schools in Safi, Pandiali and Prangghar tehsils, as they have no girls' middle schools. All these schools have electricity and potable water connections. Three of these schools have residential quarters. Enrollment figures from 1980-81 to 1992-93 are given in Table XI.6.

Table XI.6

GIRLS' MIDDLE SCHOOL ENROLLMENT

Years	5th	6th	7th	8th	Total
1980-81	9	10	2	1	22
1981-82	10	13	2	2	27
1982-83	12	15	3	4	34
1983-84	14	10	10	5	39
1984-85	15	12	10	6	43
1985-86	16	14	11	8	49
1986-87	16	13	12	6	47
1987-88	17	14	13	9	53
1988-89	14	16	10	6	46
1989-90	17	19	12	10	58
1990-91	19	25	14	13	71
1991-92	21	29	16	14	80
1992-93	126	76	45	33	280

The drop-out rate for the girls' middle class is not as sharp as in the primary classes. The under utilization of schools is a serious problem. In 1991-92, there were only 80 students in the four middle sections with only 20 students per middle section. There is a strong need to increase the enrollment for cost effective utilization of these schools.

2. Boys' Middle Education

As of July 1992, there were 22 middle schools for boys operating in Mohmand Agency. All of these schools have primary sections. The number of boys' middle schools in each tehsil is given in Table XI.7.

Table XI.7

BOY'S MIDDLE SCHOOLS BY TEHSIL

Sub-Division	Tehsil	Percentage of Agency's Population %	Percentage of Agency's Area %	Number of boys middle schools	Percentage of boys middle schools %
Upper Mohmand	Upper Mohmand	30	23	0	0
	Halimzai	16	9	4	23
	Safi	22	16	7	32
Lower Mohmand	Yakaghund	8	11	3	13
	Ambar	N/A	11	0	0
	Pandiali	14	19	5	23
	Prangghar	10	11	2	9
			Total:	22	

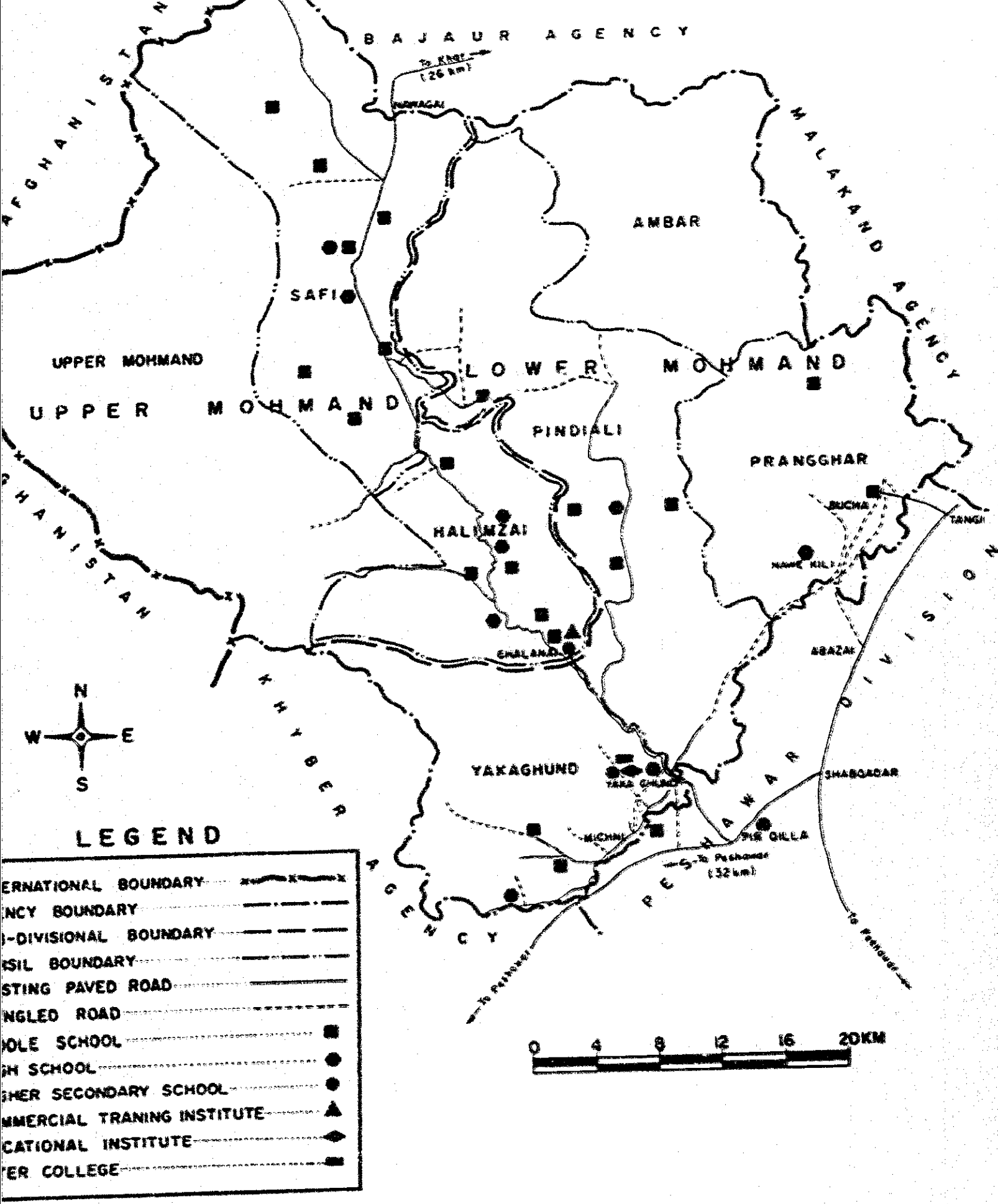
In the above table, Upper Mohmand tehsil and Ambar tehsil are again, highly neglected in terms of boys' middle schools while having a sizeable population. Currently two primary schools operating in Upper Mohmand tehsil should be upgraded.

All teachers are trained and are both locals and non locals. Most of the schools don't have residential quarters for teachers. Middle school enrollment for boys is given in Table XI.8.

Table XI.8

BOYS' MIDDLE SCHOOL ENROLLMENT

Years	5th	6th	7th	8th	Total
1980-81	201	287	200	119	807
1981-82	213	299	205	126	843
1982-83	221	315	245	140	921
1983-84	267	335	295	179	1,076
1984-85	307	345	305	194	1,151
1985-86	357	360	317	210	1,244
1986-87	388	372	430	219	1,409
1987-88	428	381	438	239	1,486
1988-89	458	399	440	258	1,555
1989-90	489	405	445	270	1,609
1990-91	514	413	449	293	1,669
1991-92	549	427	451	315	1,742
1992-93	1,353	956	905	645	3,859


BAJAUR AGENCY
AFGHANISTAN
MALAKAND AGENCY
AMBAR
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
HALIMZAI
BUCHA
TANGI
ABAZAI
SHABQADAR
YAKAGHUND
MICHNI
PESHAWAR DIVISION
KHYBER AGENCY
N
W
E
S
0 4 8 12 16 20KM
LEGEND
ERNATIONAL BOUNDARY
NCY BOUNDARY
-DIVISIONAL BOUNDARY
SIL BOUNDARY
STING PAVED ROAD
NGLED ROAD
OLE SCHOOL
H SCHOOL
HER SECONDARY SCHOOL
MMERCIAL TRANING INSTITUTE
CATIONAL INSTITUTE
ER COLLEGE

The drop-out rate is around 30 percent from the fifth to the eighth class. There are roughly 80 students per middle section for boys which is still under utilization, but some schools may have many and some schools in remote areas may have a few students. A comparison of boys' middle schools facilities in Mohmand Agency with other Tribal Agencies is as follows:

Table XI.9

COMPARISON OF BOYS' MIDDLE SCHOOLS IN DIFFERENT TRIBAL AGENCIES

Agency	No. of middle Schools & Sections in 1992	Enroll-ment 1992-93	Estimated Population in 1992	Area sq.Km.
Kurram	25	5,623	422,533	3,380
SWA*	37	3,791	432,885	6,619
NWA*	40	5,330	334,253	4,707
Orakzai	14	2,042	518,203	1,538
Bajaur	17	5,266	393,491	1,290
Mohmand	22	3,859	230,000	2,396
Khyber	17	5,622	410,027	2,576

* South Waziristan Agency and North Waziristan Agency

C. Secondary Level

Secondary schools include the ninth and tenth classes. Three high schools also offer primary sections but all have middle sections attached to them. Here we include high school enrollment as being class nine and class ten enrollment.

1. Girls' Secondary Education

There were three girls' high schools operating in Mohmand Agency in 1992, one at Ghalanai, one at Yakaghund Tehsil, and one at Pir Qila. Most of the teacher's positions are filled with trained non-local teachers. Enrollment figures for girls' secondary classes are given in Table XI.10.

GIRLS' SECONDARY CLASS ENROLLMENT

Year	9th	10th	Total
1980-81	-	-	-
1981-82	1	-	1
1982-83	-	1	1
1983-84	2	1	3
1984-85	1	1	2
1985-86	3	2	5
1986-87	4	2	6
1987-88	5	3	8
1988-89	8	5	13
1989-90	10	7	17
1990-91	14	7	21
1991-92	20	22	42
1992-93	28	13	41

There are only 44 students in three high schools which is an under-utilization of these facilities. There are certain problems such as the lack of proper transportation as well as cultural problems. Still there is a need to motivate people to send their girls for education. Two schools have residential quarters. Electricity and potable water connections are also available in these schools.

2. Boys' Secondary Education

In 1992, there were ten high schools for boys operating in Mohmand Agency. All schools have primary and middle sections. The number of boys' high schools by tehsil is given in Table XI.11.

Table XI.11

BOYS' HIGH SCHOOLS BY TEHSIL

Sub-Division	Tehsils	Percentage of Agency's Population %	Percentage of Agency's Area %	Number of boy's High Schools	Percentage of boy's high schools %
Upper Mohmand	Upper Mohmand	30	23	0	0
	Halimzai	16	9	3	30
	Safi	20	16	2	20
Lower Mohmand	Yakaghund	8	11	3	30
	Ambar	N/A	11	N/A	-
	Pandiali	14	19	1	10
	Prangghar	1	11	1	10
			Total:	10	

The major concentration of high schools is in Halimzai and Yakaghund tehsils. Potable water and electricity connections are available in all the schools. Five schools have residential quarters for teachers. All the teachers are trained and represent both locals and non locals. The enrollment figures from 1980-81 to 1991-92 for ninth and tenth classes are given in Table XI.12.

Table XI.12

BOYS' SECONDARY SCHOOL ENROLLMENT

Year	9th	10th	Total
1980-81	103	70	173
1981-82	105	72	177
1982-83	113	77	190
1983-84	155	143	298
1984-85	175	193	368
1985-86	200	253	453
1986-87	219	290	509
1987-88	226	348	574
1988-89	250	392	642
1989-90	286	445	731
1990-91	299	488	787
1991-92	317	512	829
1992-93	361	529	930

The enrollment figures indicate a three-fold increase in enrollment from 1980-81 to 1992-93. Another strange phenomenon is the number of students in the tenth class which is consistently higher than the ninth class from 1984-85 to 1991-92. The only possible explanation may be the transfer of students from other high schools outside the Agency to the tenth class in the Mohmand schools. There are roughly 83 students in each high school section which is normal.

A comparison of the Mohmand Agency secondary school facilities with other Agencies in given in Table XI.13.

Table XI.13

COMPARISON OF BOYS' SECONDARY SCHOOLS AMONG THE TRIBAL AGENCIES

Agency	No. of Secondary School in 1992	Enrollments 1992-93	Estimated Population in 1992	Area (Sq.Km)
Kurram	20	1,289	422,533	3,380
SWA*	19	719	432,885	6,619
NWA*	15	1,176	334,253	4,707
Orakzai	12	485	518,203	1,538
Bajaur	12	980	393,491	1,290
Mohmand	10	930	230,000	2,396
Khyber	16	1,247	410,027	2,576

* South Waziristan Agency and North Waziristan Agency

D. High Secondary

There is one higher Secondary School for boys at Ghalani which offers 11th and 12th classes. This school was started in 1990. Enrollment figures for 1991-92 are as follows:

Table XI.14

HIGHER SECONDARY ENROLLMENT

Year	11th	12th
1991	9	10

All the teacher positions are filled with trained teachers.

E. Alternate Education

1. Mohallah and Mosque Schools

Mohmand Agency has six mohallah schools for girls with one part-time teacher assigned to each school. There are 177 students enrolled in these schools. There are 18 mosque schools for boys. In each mosque school one trained and one theology teacher are assigned on a part-time basis.

2. Industrial Homes

There are three Industrial Homes for girls operating in Mohmand Agency which are all located in Yakaghund Tehsil. There are 85 students enrolled in all three Industrial Homes. Generally there are two teachers assigned to each Industrial Home.

3. Women's Educational Centers

There are five women's educational centers in Mohmand Agency. Each center is assigned a part-time teacher who is paid Rupees 250/ per month. In these centers, women are taught tailoring, knitting and other skills. Currently, 78 women are enrolled in these centers.

F. Administration of Agency Education

The Agency Education Office is located at Ghalani in a beautiful building. The Agency Educational officer (AEO) is in charge of Agency education operations. There are three (AEO) Assistant Education Officers, two for the males and one for the females. There is one Literacy Supervisor who supervises mosque and mohallah schools. There is also one physical training supervisor. There is one vehicle which is not sufficient for all the staff, therefore, the staff travel by private vehicles and spend their own money which is reimbursed later.

There are also serious problems for the female Assistant Educational Officer who can't travel and inspect schools without an official vehicle.

G. Vocational Training:

There is one Commercial Training Institute at Ghalani and one Vocational Institute at Yakaghund. Both are affiliated with the Board of Technical Education, Peshawar.

1) Government Commercial Training Institute Ghalani:

The Government Commercial Training Institute at Ghalani was established in October, 1978. It offers two courses, one a certificate in commerce (C Com) and the other a diploma in commerce (D Com). Both are one-year courses each and are offered after passing a high school certificate. The students are trained in accounting, commerce and secretarial services. Class enrollment for each section is as follows:

Classes	1991-92	1992-93
C Com	16	22
D Com	16	7

This facility is underutilized. According to the teachers, the students of Mohmand Agency prefer to go to general education colleges after passing nigh school. There is one principal, four instructors and two junior instructors on the staff. There are four classrooms and a hostel in addition to three residential quarters for teachers.

2) Government Vocational Institute, Yakaghund:

This Institute was established in September 1991. It offers courses in electrical work, welding, carpentry and steel fabrication/masonry. The course for electricians is of two-year's duration and the remaining courses are each of one year's duration. There were only 26 students in the 1992-93 session out of which 20 were in electrician trade courses and six in the electric wireman courses. There were no students in the rest of the trades. There is one principal, one senior trade instructor, two trade instructors and one junior instructor. The facility is highly underutilized, especially in the trades other than electrical. According to the Principal, people do not have the tendency to be trained in these trades despite their appeal.

H. Colleges

There is one Government Inter-College at Yakaghund which was established in 1977. It offers class 11 and 12 after high school in both arts and science subjects. In the 1992-93 session 205 students obtained admission for the first year. On the average, a class contains 90 students for which there are 18 teachers.

The general tendency of the students is more towards general education than technical education which currently needs to be channeled. On the one hand, the technical education centers are highly underutilized and on the other hand, the general education college is overcrowded.

I. Field Observations:

This researcher visited three schools in Pandiali tehsil. The high School in Pandiali was in good shape and had appropriate facilities. It had 110 students from class 5 to class 10. There are also three middle schools within a three square kilometer area, therefore enrollment is low. This enrollment will decrease further when the high school at Danish Kol starts functioning.

The middle school at Hiati Kore, Pandiali, is in bad shape with no proper furniture, mats, electrical fittings or potable water. There are a total of 136 students out of which 77 are in the primary section. There are 12 teachers assigned to this school. According to the teachers, only 25 percent of the eligible school-going children of the area attend school and others cannot due to poverty.

The girls' primary school at Illam Khan Kilay, had 31 students enrolled with three teachers (one present). There was no proper furniture or mats for the teachers and the students. The female teachers face problems, and because of this, they have jointly arranged transportion for which they contribute 200 rupees per month. With the passage of time, the girls' enrollment is increasing.

The Pandiali area of Pandiali tehsil is a classical example of having a disproportionate number of facilities for a limited population. There is one high school, three middle schools and 13 primary schools for a population of roughly ten thousand people. This unjustified distribution of schools which is underutilized and represents a low enrollment, results in wastage of facilities and increased recurrent staffing costs.

XII. HEALTH

Mohmand Agency is provided with the following facilities:

2	Civil Hospitals
1	Rural Health Center
23	Basic Health Units
3	Civil Dispensaries

Some of the facilities have Expanded Program of Immunization (EPI) centers with designated staff including mobile and outreach teams.

The Agency Surgeon and his Field Senior Medical Officer (FSMO) are stationed at Ghalani and are responsible for supervising the above-mentioned facilities. The Agency Surgeon's office is responsible for 1) curative functions 2) the Expanded Program for Immunization (EPI) and 3) malaria control.

Owing to the considerable distance, lack of security and the lack of government funding for transportation, it is difficult to supervise these remote facilities. Medical professionals do not want to be posted in these areas due to a shortage of basic civil facilities and an absence of opportunities for private practice. Out of 27 residential quarters for health staff at Ghalani, 20 are occupied by the staff of departments other than the health department.

Another reason which makes the Tribal Areas posting unpopular is the difficult living conditions and the uncertain law and order situation.

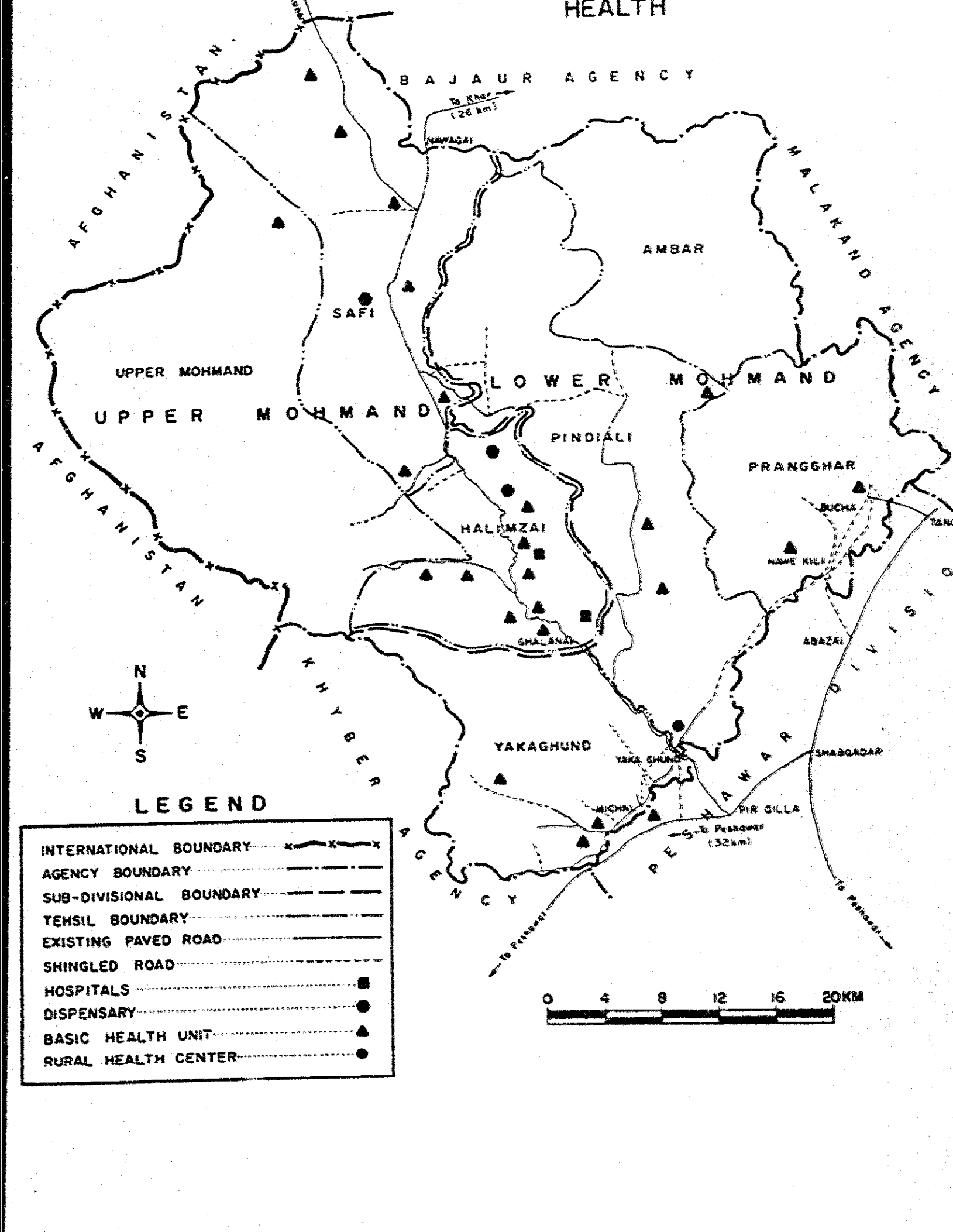
The problem is not restricted to staff recruitment and posting, but also includes a lack of professionalism. Staff absenteeism is high.

Case load statistics for the Agency are given as follows:

Table XII.1

CASE LOAD STATISTICS OF MOHMAND AGENCY FROM 1988-1991

Year	Male	Female	Male Child	Female Child	Total
1988	11,860	10,321	8,900	6,760	37,841
1989	13,054	11,384	7,998	7,998	41,454
1990	13,404	12,570	8,666	9,494	44,134
1991	18,510	24,100	10,510	10,970	64,090


HEALTH
BAJAUR AGENCY
AFGHANISTAN
AMBAR
MALAKAND AGENCY
SAFI
UPPER MOHMAND
LOWER MOHMAND
UPPER MOHMAND
PINDIALI
PRANGGHAR
HALIMZAI
ABAZAI
KHYBER AGENCY
YAKAGHUND
SHABQADAR
PIR GILLA
PESHAWAR DISTRICT
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
AGENCY BOUNDARY
SUB-DIVISIONAL BOUNDARY
TEHSIL BOUNDARY
EXISTING PAVED ROAD
SHINGLED ROAD
HOSPITALS
DISPENSARY
BASIC HEALTH UNIT
RURAL HEALTH CENTER
0 4 8 12 16 20KM

A. Hospitals

There are two hospitals in Mohmand Agency. These are staffed and located as follows:

1. Agency Headquarters Hospital at Ghalani.

Table XII.2

STATUS OF STAFFING

Name of Post	Sanctioned Positions	Occupied Positions	Vacant Positions
Medical Officer	12	5	7
Women's Medical Officer	3	2	1
Compounder	6	6	-
Lady Assistant	-	-	-
Radiographer	2	2	-
Operation Theater Assistant	1	1	-
Anesthesia Assistant	1	1	-

Number of beds in the male ward = 23
Number of beds in the female ward = 23
Number of beds in private rooms = 10
Total number of beds = 56

There are also two female doctor's sanctioned positions of which one is filled. According to the Civil Surgeon, patients are admitted on a 24-hour basis.

During a visit to the hospital, it was observed that the blood bank was not operational. Only the technicians were available. In the dental section, most of the equipment was out of date. There were no patients in the ward and the private rooms were occupied by the hospital staff for residential purposes. In the laboratory, equipment was available. There is also an acute problem of potable water. Three doctors were present on duty in the hospital.

Overall, most of the facilities and staff are available at the hospital but the hospital is under-utilized.

2. Civil Hospital Nawakillay at Gandab.

This hospital is not a hospital in terms of facilities or services available. It lacks adequate equipment and staffing. This hospital has a staff of one medical officer, one compounder and has eight beds which are not utilized.

B. Rural Health Center (RHC) Yakaghund

This Center was established as a Basic Health Unit (BHU) and was converted to a RHC in 1988. It is a ten-bed hospital. The case load statistics both indoor and outdoor are given as follows:

Year	Patients treated
1990	6305
1991	6420
1992 (August)	2875

The decline in the number of patients was attributed to the departure of the Afghan refugees in 1992. There are two refugee camps in Yakaghund and the RHC also serves the refugees of these camps. Three Medical Officers including one female, are assigned to this Center. Two male Medical Officers were present on the day of the visit on September 8, 1992. There is also one medical technician, two dispensers and one Lady Health Visitor. Patients are admitted to this hospital in an emergency. An X-ray plant, dental clinic and laboratory facilities are not available.

This Center also has a malaria program with a Malaria Supervisor in charge of it. An EPI center is also attached to the RHC with a staff of six technicians. The EPI Program has two outreach teams. This is a very clean, neat and organized center. The Medical Officer lives in the residential quarters attached to the RHC. The staff, however, have serious problems connected with their children's schooling as well as residential problems.

C. Basic Health Units (BHU)

There are 23 BHUs in Mohmand Agency. A description of each BHU is given in Table XII.3.

Table XII.3

STAFFING AND CASE LOAD

	Location	Staff	Case load (1991)
1)	BHU Nawa Killi Prangghar	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	960
2)	BHU Prangghar	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	810
3)	BHU Michni Yakaghund	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	1101
4)	BHU Pandiali	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	879
5)	BHU Danish Kol Pandiali	2 Medical technician 1 Lady Health Visitor	730
6)	BHU Qandari Safi	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	991
7)	BHU Autokhel Safi	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	799
8)	BHU Lakaro Safi	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	1088
9)	BHU Mohammad Gate Safi	2 Medical technicians 1 Lady Health Visitor	739

10)	BHU Chamarkand Safi	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	905
11)	BHU Yousaf Khel Halimzai	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	872
12)	BHU Kassi Mandi Halimzai	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	931
13)	BHU Hamza Khel Halimzai	2 Medical technicians 1 Medical technician 1 Lady Health Visitor	999
14)	BHU Sultar Khel Halimzai	1 Medical Officer 2 Medical technicians 1 Lady Health Visitor	790

Only six of the BHUs described above have electrical connections, none have potable water connections, and there are no residential quarters attached to any BHU. There are also nine BHUs whose buildings are complete but the staff has not been assigned yet. These are described below:

	Name	Tehsil
1)	BHU Dab Kore	Yakaghund
2)	BHU Babi Khel	Halimzai
3)	BHU Sangar	"
4)	BHU Baro Khel	"
5)	BHU Akrab Dag	Yakaghund
6)	BHU Sapari	"
7)	BHU Sheikh Baba	Safi
8)	BHU Musa Khel	Upper Mohmmand
9)	BHU Lagham Ghundi	Pandiali

D. Civil Dispensaries:

There are three dispensaries in Mohmand Agency described below: Table XII.4

Table XII.4

DESCRIPTION OF CIVIL DISPENSARIES

	Location	Staffing	Case load
1)	Kamali Halimzai	1 Medical Officer 2 Dispensers	983
2)	Shah Beg Halimzai	1 Medical Officer 2 Dispensers	874
3)	Masoud Safi	1 Medical Officer 2 Dispensers	893

None of the civil dispensaries have been equipped with potable water connections or residential quarters.

Table XII.5

DISTRIBUTION OF HEALTH FACILITIES BY TEHSIL

Sub-division	Tehsil	Number of Facilities Description	Total # in each tehsil
Upper Mohmand	Upper Mohmand Halimzai	1 BHU 2 Hospitals 7 BHUs 2 Dispensaries	1 11
	Safi	7 BHUs 1 Dispensary	8
Lower Mohmand	Yakaghund	1 RHC 4 BHUs	5
	Ambar	-	-
	Pandiali	2 BHUs	2
	Prangghar	2 BHUs	2
		Total =	29

The percentage share of health facilities on a tehsil basis is as follows:

ble XII.6

PERCENTAGE SHARE OF HEALTH FACILITIES ON A TEHSIL BASIS

bdivision	Tehsil	%age Share of Agency Area %	%age Share of Agency of Population %	%age Share Health Facilities %
per Mohmand	Upper Mohmand	23	30	4
	Halimzai	9	16	38
	Safi	16	22	28
wer Mohmand	Yakaghund	11	8	17
	Ambar	11	N/A	0
	Pandiali	19	14	6
	Prangghar	11	10	7

The table above shows that Ambar and upper Mohmand tehsil have virtually none of the Agency's health facilities while Halimzai has a concentration of these facilities.

E. EXPANDED PROGRAM FOR IMMUNIZATION (EPI)

The following EPI supervisory staff are available in Mohamand Agency. The staff strength is listed as of 1991-92.

Table XII.7

EPI STAFFING POSITION

S.NO	Positions	Sanctioned	Available
1.	Field Senior Medical Officer (FSMO)	1	1
2.	Superintendent Vaccination	1	1
3.	Field Superintendent Vaccination (FSV)	2	2
4.	Assistant Superintendent Vaccination (ASV)	1	1
5.	Senior Clerk	1	1
6.	Junior. EPI Technician	15	14
7.	Senior. EPI Technician	9	9

All staff members are based at Ghalani. There are ten fixed EPI centers attached to Basic Health Units with all the required facilities such as EPI kits, vaccines, refrigerator, deep freezer etc. There are also 12 teams for outreach programs, each team consisting of one or two persons. These teams go to nearby villages by foot, by bicycle or by motorcycle. For remote areas, there is a mobile team with an automobile equipped with all required facilities. EPI centers are attached to the following health facilities in Mohmand Agency.

1) Civil Hospital, Ghalani
2) Rural Health Centers, Yakaghund
3) BHU Michni (Ashia Kore), Yakaghund
4) BHU Akrab Dag, Yakaghund
5) BHU Pandiali
6) BHU Kasi Mandi, Halimzai
7) BHU Qandari, Safi
8) BHU Lakaro, Safi
9) BHU Mohammad Gat, Safi
10) BHU Prangghar

Every Agency EPI office is given annual as well as monthly targets which they try to achieve. Statistics on targets and achievement are as follows:

1992 Yearly Target - 8169
Monthly Target - 681

Table XII.8

Months	Achievements		
	B.C.G %	OPV/DPT-III %	Measles %
January	89.7	78.9	73.1
February	68.4	58.4	57.6
March	56.7	49.5	71.7
April	62.6	58.3	50.1
May	99.4	69.9	77.1
June	80.0	61.2	59.1
July	102.2	70.0	69.0
August	86.0	72.2	63.0
September	73.2	71.0	59.1
October	47.0	59.0	52.2
November	52.1	56.0	49.1

A Comparative analysis of seven Tribal Agencies in terms of achievements for the months of April 1992 is as follows.

Table XII.9

Agency	Percentage achievements of Target						
	OPV/DPT				T.T		
	B.C.G	I	II	III	Measles	I	II
Mohmand	69.34	70.48	58.53	61.19	55.61	14.30	13.57
Bajaur	87.11	86.05	74.93	67.73	59.97	21.78	17.49
Khyber	109.06	108.83	92.50	83.96	82.52	27.59	21.62
Kurram	71.23	67.69	57.93	56.95	59.79	37.90	25.17
Orakzai	58.85	70.33	73.15	59.51	62.39	22.50	24.01
W.North	114.79	116.83	101.91	106.91	111.11	86.20	71.81
W.South	93.00	97.77	105.68	65.62	81.05	16.30	10.89

EPI MOHMAND YEARLY PROJECTED POPULATION TARGETS AND ACHIEVEMENTS PERFORMED FOR CHILDREN 0-11 MONTHS AND WOMEN

Table XII.10

Year	Projected Popul.	0-11 months	B.C.G.	Poliomyelitis			D.P.T.			T.T. (PL+CBA)			Measles
				I	II	III	I	II	III	I	II	III	
1988	208000	7500	7095	6894	6185	6221	6894	6185	6221	4678	3914	5173	5054
1989	213900	7700	7425	7372	6306	6393	7372	6306	6393	3616	3309	4047	5581
1990	220530	7940	6726	6520	5630	6115	6520	5630	6115	3609	3151	4373	5456
1991	227366	8185	6726	6526	5639	6115	6526	5639	6115	3607	3151	2409	5464

children 0-11 months = 3.6% of total population
PL (Pregnant Ladies) = 4.5% of total population
CBA (Child Bearing Age) (15-45 Years) = 16.5% of total population
DPT Stands for Diphtheria, Pertussis, Tetanus
DT Stands for Diphtheria, Tetanus
T.T Stands for Tetanus Toxoid

The above table shows a chart of children of (0-11 months) and the treatment provided. The table contains the population of Mohmand Agency and estimated 3.6 percent of population between the age of 0-11 months (a GOP standard). BCG is given against tuberculosis (one complete dose). Three doses of poliomyelitis and DPT are given against Polio and tetanus respectively. The 45 percent target group consist of ladies of child bearing age between 15-45 years. This group is given Tetanus Toxoid. In the same way, a certain number of patients is given doses against measles.

XIII. ELECTRIFICATION

A. Extent of Electrification

According to the Agency Electricity Office based at Ghalani, fifty percent of the villages (300 villages) were electrified in Mohmand Agency as of June 1992. The Agency is supplied electricity through a grid station at Ghalani with a capacity of 66 Kilo volts (KV). This grid station has a transformer of 13 Mega Volt Amperes (MVA). There are four feeders going to different areas of the Agency. One feeder feeds the Ghalani area, the second feeder goes to Yakaghund area, the third feeder goes to the Usaf Khel area and the fourth feeder goes to the Lakaro area.

The number and break-down of connections as of June 30, 1992 are as follows:

Legal domestic connections	=	8,129
Legal commercial connections	=	393
Industrial connections	=	156
Tubewell connections	=	556
Number of illegal connections	=	8,556

Information on the average monthly electrical consumption from July 1991-June 1992 is as follows:

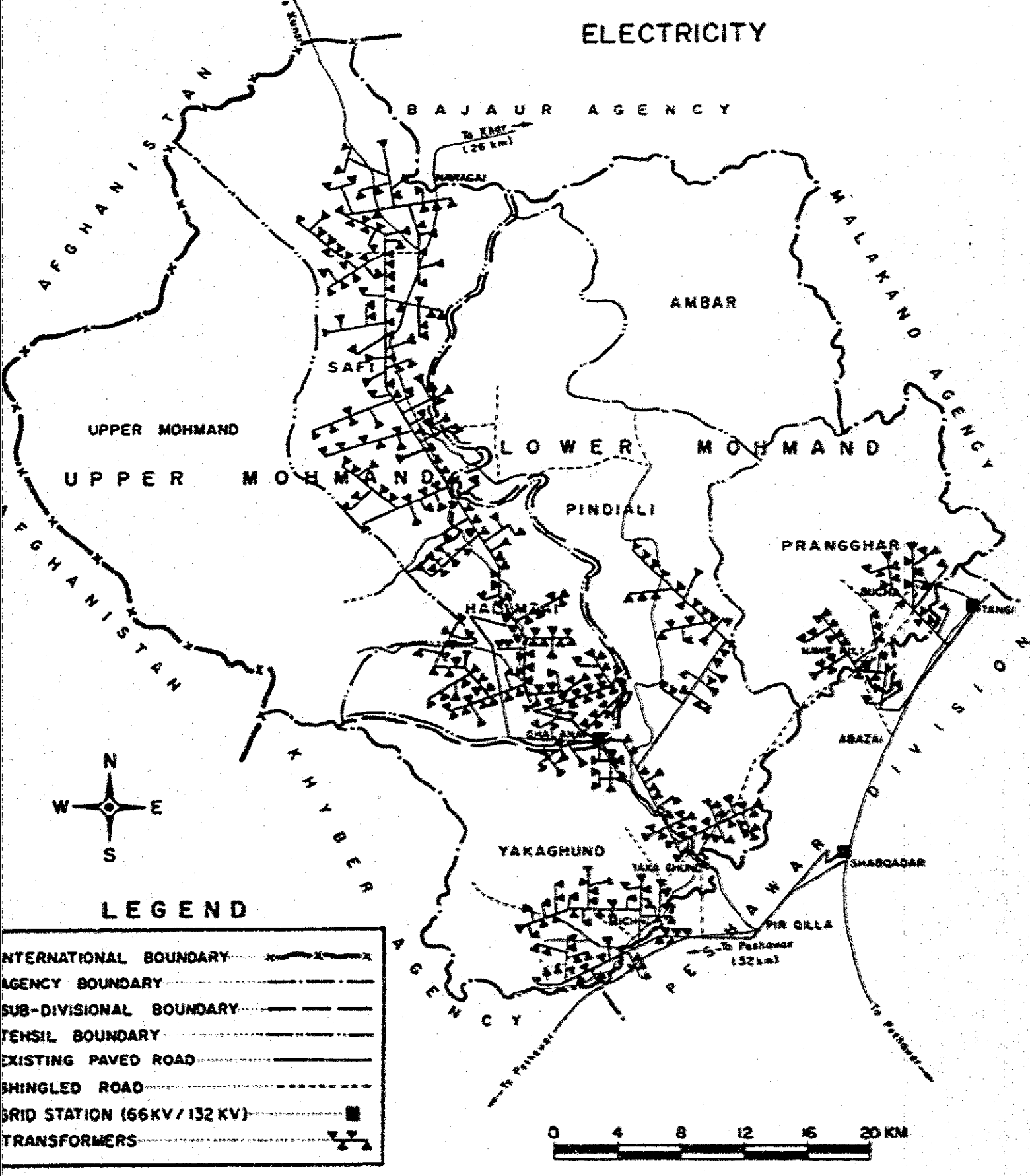
- Average monthly household consumption = 1050 Kilowatt hours (KWh)
- Average monthly tubewell consumption = 1060 Kilowatt hours (KWh)
- Average monthly commercial consumption= 105 Kilowatt hours (KWh)
- Average monthly consumption of industrial users = 1060 Kilowatt hours (KWh)

B. Administration

A sub-divisional officer is in charge of the Mohmand electrical operations. He is responsible for all tehsils except Prangghar tehsil which is under the jurisdiction of the Tangi Sub-division of Shabqadar (settled area). Some areas of Yakaghund tehsil are also controlled by Shabqadar sub-division. The Sub-Divisional Officer is assisted by three Line Superintendents-1 (LS-1) and two Line Superintendents-2 (LS -2). All the Line Superintendent positions are vacant except for one LS-2.

There are seven complaint centers each one at Yakaghund, Ghalani, Mian Mandi, Lakaro, Mohmand Gat, Darwazgai and Pandiali. These are all located in accessible areas.

ELECTRICITY



LEGEND

- INTERNATIONAL BOUNDARY
- AGENCY BOUNDARY
- SUB-DIVISIONAL BOUNDARY
- TEHSIL BOUNDARY
- EXISTING PAVED ROAD
- SHINGLED ROAD
- GRID STATION (66 KV / 132 KV)
- TRANSFORMERS

C. Problems

There is a Rs 90 flat rate charged per month for a residential electrical connection regardless of how much is used. This amounts to a subsidy. For tubewells and industrial connections, the charges are the same as in the settled areas and theoretically depend upon consumption. Tribesmen generally complain that they are too poor to pay their bills. According to the Sub-Division office, individual consumers don't pay bills; payment to WAPDA is made by the Political Authorities from their own funds. Electrical payments for tubewells are made by FATA D.C and the Public Health Engineering offices.

XIV. INVESTMENT IN DEVELOPMENT

A. Allocation Process in FATA:

The Federal Government allocates funds to Federal Government Institutions such as FATA DC and to the Provincial Government for the execution of schemes through the government of NWFP Departments. In addition, each Senator and Member of the National Assembly is allocated five million rupees for development schemes in their respective areas.

1. FATA DC Allocation Process

The Steps in the allocation process for FATA DC are as follows:

- Field officers of each Tribal Agency prepare development schemes for the following year.

- The proposed schemes are approved by the concerned Political Agent.

- The proposed schemes are sent to the respective sections of FATA DC where they are consolidated for all the Tribal Agencies.

- The consolidated schemes are then sent to the planning and development section of FATA DC where a proposed Annual Development Plan (ADP) for FATA DC is prepared and sent to the Ministry of Frontier Regions in Islamabad. This Ministry gets its allocation through the Federal Ministry of Finance and Planning.

- The actual allocations by the Federal Government are sent to FATA DC where the proposed ADP is changed into a new ADP according to the actual financial allocations.

- This ADP is revised by the chairman of FATA DC and approved by the Board of FATA DC and printed.

2. Provincial Government Allocation Process.

The steps in the allocation process for the provincial government are as follows:

- Field offices of each Concerned Provincial Department prepare schemes for the following year. These are approved and priorities are given by the Political Agents.

- The consolidated proposed ADP of all the Tribal Agencies are sent to the FATA section of the Planning Environment and Development (PE&D) Department, Government of NWFP. The proposed ADP schemes are discussed at the (PE&D) FATA section and then sent to the Governor of NWFP.

- The Governor discusses the ADP in a meeting with the heads of all concerned departments and approves the final ADP.

3. MNA/Senator Allocations:

Each Senator and MNA prepares schemes worth 5 million rupees in his area. These schemes are given to the Federal Local Government and Rural Development Department. After approval, these schemes are executed by the LG&RD Department.

B. Analysis of Investment Allocations from 1973-74 to 1992-93:

The total investment allocations for Mohmand Agency from 1973-74 to 1992-93 were Rs. 758.605 million. Mohmand Agency ranks last among all seven Tribal Agencies in terms of total allocations. Table XIV.1 shows FATA DC, PE&D Department and MNA/Senators allocations. In 1973-74, schemes were started in the irrigation sector. The following year, schemes were started in the agriculture, power, health, education and potable water sectors. The initial investment allocations in 1973-74 were 8.6 million rupees which rose to Rs. 26.838 million in 1979-80. From 1981-82, the allocations gradually rose from Rs 30.247 million to Rs 67.729 million in 1987-88 but dropped to Rs. 47.93 million in 1992-93.

Figure XIV.1 shows allocation trends over time. Figure XIV.2 shows allocations by sector from 1973 to 1993. An analysis of all these sectors shows that in the mineral, forestry, irrigation, agriculture and rural development schemes, the allocations almost remained the same or had insignificant changes over 21 years despite inflation. In the power sector, allocations gradually rose to a high level in 1992-93 from a low base in 1974-75. In the communications, health, education, housing and potable water sectors, the initial investment changed variably in 21 years. In the industrial sector, a glass factory was established at Ghalani in 1977 and was closed down in 1979 due to losses.

In the irrigation sector, Mohmand Agency is at the bottom in terms of allocations among all Tribal Agencies. The irrigation sector was initiated in 1973-74 at a cost of 8.6 million rupees. For the next seven years, there were no allocations for the irrigation sector. From 1981-82 to 1992-93, the irrigation sector's share ranged from five percent to 18 percent of the total Agency allocations. The gradual decrease of allocations year by year suggests that either there is less potential for implementing irrigation schemes or this sector is ignored.

In comparison with all the Tribal Agencies, the investment in agriculture in Mohmand Agency is in sixth position. In 1974-75, the agriculture sector was initiated with 0.207 million rupees which amounts to only two percent of the total Agency allocations for that year. From 1974-75 to 1992-93, the agriculture sector allocations ranged from two percent to six percent of the total allocations. Low allocations for the agriculture sector indicate a low priority of this sector in terms of allocations. The agriculture allocations are comprised of agriculture extension, animal husbandry, agriculture research and agriculture engineering components.

In Mohmand Agency, the allocations for the agriculture extension component were 0.50 million rupees in 1986-87 and 0.627 million rupees in 1987-88. From 1988-89 to 1991-92 there were no allocations and in 1992-93 only 0.1 million rupees were allocated. The animal husbandry component of the agriculture sector had an allocation of Rs. 0.286 million rupees in 1986-87 which rose to Rs. 0.748 millions in 1992-93. Within the agriculture components, the agriculture extension activities receive comparatively fewer funds than other agricultural components.

The forestry allocations were included in the agriculture allocations in the Annual Development Program (ADP) until 1988-89. In 1986-87, 1.722 million rupees were allocated to the forestry sector. The following year, 2.067 million rupees were allocated which rose to Rs. 3.01 million in 1992-93. Comparing forestry allocations with agriculture extension and animal husbandry suggests that forestry is a higher priority of the Government.

In the power sector, Mohmand Agency allocations stand in seventh position when compared with other Tribal Agencies. The power sector was started in 1974-75 with an initial allocation of 1.600 million rupees. This amount gradually rose to Rs 9.340 million rupees in 1983-84. This large amount might have been used for capital expenditures for the establishment of grid stations and transmission lines. From 1985-86, when the allocations were 3.5 million rupees, the rise in the allocations for the power sector again reached Rs. 9.374 million rupees in 1992-93. In terms of the percentage share for the power sector out of the total allocations, the percentage ranges from seven percent to 23 percent. For most of the years, the percentage remained more than ten percent of the total Agency's allocations. This high capital investment and greater percentage share for the power sector signifies the importance of the power sector for the Government of Pakistan in Mohmand Agency.

In communications, Mohmand Agency ranks sixth among all Tribal Agencies. Investment in this sector was initiated in 1976-77 with an amount of 7.7 million rupees. This amount rose to 11 million rupees in 1979-80. Later on there were variations in the allocations until they reached 20 million rupees in 1986-87. It

again gradually dropped to around 8.729 million rupees in 1992-93. The percentage share of the communications sector out of the total Agency allocations was always high. It ranged from 16 percent to 61 percent. For most of the years, allocations remained more than 30 percent of total yearly Agency allocations. It shows that the construction of roads for the opening of inaccessible areas was always a high priority of the Government of Pakistan.

The total health allocations in Mohmand Agency rank sixth among all the Tribal Agencies. In 1974-75 allocations for the health sector were 0.230 million rupees. This amount gradually rose to 5 million rupees in 1987-88 and dropped to 1.5 million rupees in 1992-93. The percentage of health allocations out of the total Agency allocations ranged from one percent to 11 percent.

The education sector investment in Mohmand Agency was in sixth position when compared with other Tribal Agencies. In 1974-75, the education sector was initiated with an allocation of Rs. 1.35 million. This amount rose gradually to 15.33 million rupees in 1987-88 and dropped to 5.878 million rupees in 1992-93. The percentage share allocated to education has ranged from five percent to 29 percent. For most of the time, education gained more than 15 percent of the total investment. The amount invested in recent years and the share of the total investment devoted to education indicates that the education sector is a high priority of the Government. Within the education sector, the general education component received 5.518 million rupees in 1989-90 while technical education only received 0.600 million rupees the same year. In 1990-91, general education received 8.568 million rupees while technical education received only 0.505 million rupees. In the following two years, there were no allocations for technical education. It appears that technical education is not given much emphasis compared to general education in Mohmand Agency.

The potable water and housing sector was initiated in 1974-75 with 5.081 million rupees and in 1992-93 it rose to 10.356 million rupees. The percentage share in terms of total allocations ranged from seven percent to 60 percent. For most of the 18 years, the percentage allocations remained below 20 percent.

In rural development schemes, Mohmand Agency stands in sixth position among all the Tribal Agencies. The percentage share of investment in small rural development schemes of the total Agency allocations has ranged from one percent to five percent.

Mineral exploration development was initiated in 1985-86 at a cost of 0.1 million rupees. Later on 0.530 million rupees were allocated in 1987-88, 0.308 million rupees in 1988-89 and 0.5 million rupees in 1989-90. There is enough mineral potential in Mohmand Agency, but allocations have been very negligible.

In the industrial sector, only one factory, Mohmand Glass Factory, was established by FATA DC at a cost of 19.72 million rupees in 1977. Allocations for the factory were stopped in 1977-78 as it was closed down because of losses. The losses of this factory were due to the remote area and the cost of transportation of the finished goods, as well as the poor quality product and the fact that industrial skills were not available locally.

FATA-DC, PE&D DEPARTMENT AND MNA/SENATOR YEAR/SECTORWISE ADP ALLOCATION AGENCY: MOHMAND (IN MILLION RUPEES)

YEAR/ SEC	AGRI	POWER	COMM	HEALTH	EDUC	POT-WATER &HOUSING	INDUST	RUR-DEV	PE&D	IRRIGATI	FOREST	MINERA	TOTAL
73-74										8.600			8.600
74-75	0.207	1.600		0.230	1.350	5.081							8.468
75-76	0.532	1.785		0.221	0.891	5.516	6.700						15.645
76-77	0.235	1.500	7.715	0.679	0.819	3.559	1.595						16.102
77-78	0.483	1.500	7.904	1.677	3.536	2.104	1.551						18.755
78-79	0.685	3.298	11.528	2.118	3.169	2.278		0.656					23.732
79-80	1.152	4.595	11.287	2.162	5.628	1.994							26.838
80-81	0.813	3.533	6.200	0.729	5.463	1.844							18.582
81-82	1.200	3.495	10.652	2.432	4.859	2.184		1.315		4.100			30.247
82-83	0.900	5.000	8.302	1.032	3.774	7.104		1.420		3.034			30.566
83-84	2.663	9.340	10.975	2.900	7.369	4.605		1.763		1.395			41.010
84-85	2.369	7.529	15.265	3.139	8.981	3.963		1.492		3.000			45.748
85-86	1.680	3.500	14.290	3.982	12.399	7.176		1.198	3.110	4.000		0.100	51.435
86-87	2.552	6.600	20.599	5.000	13.561	11.682		1.198	3.110	2.696			66.998
87-88	3.709	6.405	19.034	5.000	15.331	9.847		1.272	3.109	3.492		0.530	67.729
88-89	2.884	7.700	13.166	4.001	9.470	9.474		0.706		2.348		0.308	50.057
89-90	0.661	5.998	14.583	5.496	6.118	6.129		0.777		9.015	2.019	0.500	51.306
90-91	0.818	8.272	8.026	5.629	9.073	7.167		0.855		7.464	3.318		50.643
91-92	0.763	8.936	11.470	2.300	9.649	7.589		1.349		3.092	2.342		47.490
92-93	0.848	9.374	8.729	1.500	5.878	10.356		1.035		7.194	3.011		47.925
TOTAL	25.154	99.960	199.745	50.240	127.338	108.672	9.846	15.036	9.329	59.430	10.690	1.438	717.878

Source:

PE&D Department (FATA Section)

FATA-DC (Irrigation, mineral-industries)

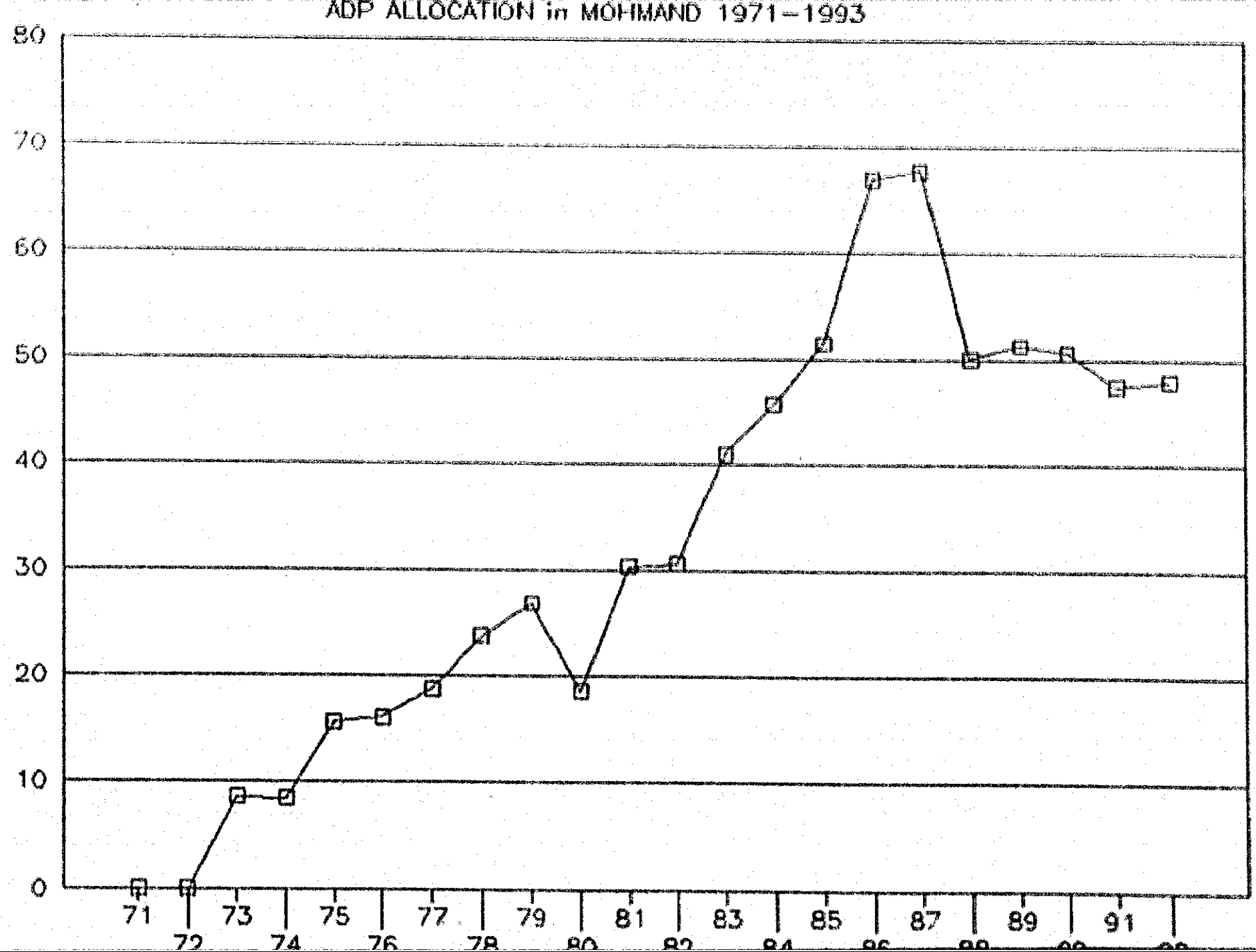
SECTOR WISE ALLOCATION FOR ALL TRIBAL AGENCIES FROM 1971–1993 (IN MILLION RUPEES)

NCY	AGRI	POWER	COMM	HEALTH	EDUC	POT-WATER &HOUSING	INDUST	RUR-DEV	PE&D	IRRIGAT	FOREST	MINERAL	TOTAL
r	52.994	126.194	242.481	67.852	139.533	155.908	27.131	17.449	10.000	133.850	20.716	3.505	997.713
ır	31.699	119.763	178.817	77.781	148.365	145.173	37.590	17.612	0.589	119.432	19.206	2.590	898.617
nand	25.156	99.960	199.745	50.240	127.338	109.672	9.846	15.036	9.329	59.430	16.690	1.438	723.878
ai	27.164	146.011	276.118	79.563	151.436	142.787	0.090	17.662	9.968	73.912	23.912	5.777	954.400
ni	56.421	122.471	326.403	83.672	186.038	139.267	14.592	29.326	9.996	237.971	20.069	9.154	1235.580
ai	32.202	108.431	280.597	70.807	125.065	146.033	29.918	14.229	10.000	198.729	13.017	26.673	1055.592
i	23.340	137.465	332.984	89.606	154.437	129.720	24.983	16.873	5.849	229.080	17.613	0.000	1161.450

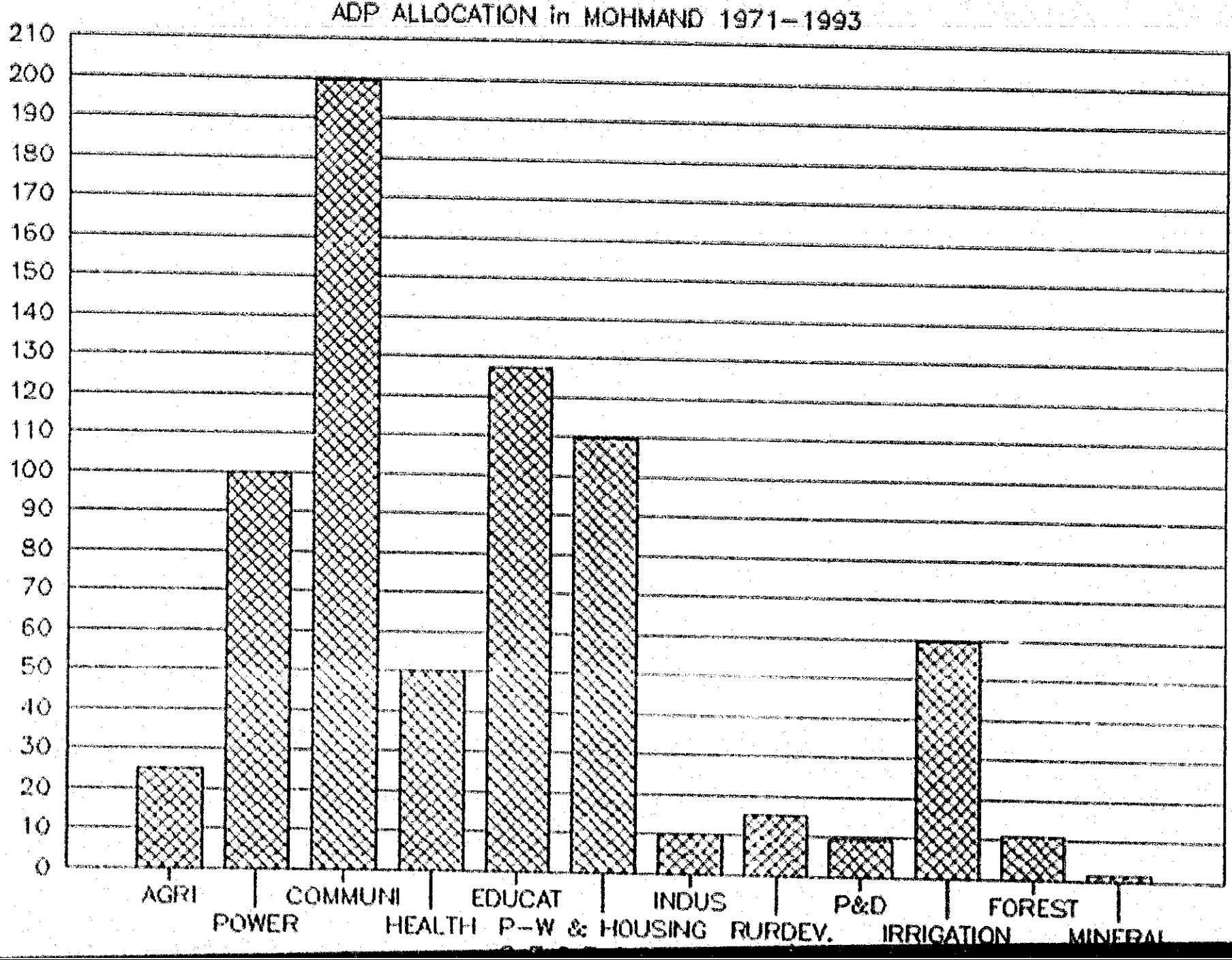
PE&D Department (FATA Section)

FATA-DC (Irrigation, mineral-industries)

FATA-DC,PE&D DEPT & MNA/SENATOR PROGRAM



FATA--DC,PE&D DEPTT& MNA/SENATOR PROGRAM



A P P E N D I X - 1

ANNOTATED BIBLIOGRAPHY FOR THE SOCIO-ECONOMIC PROFILE*

SECTIONS	SOURCES OF INFORMATION	COMMENTS ON ACCURACY
Geography	1. Directorate of FATA Agriculture 2. Metrological Dept. Govt. of Pakistan 3. Geology Section, FATA-DC	This information is generally accurate because climate, rainfall data and geographical features are based on scientific observations.
Administration Economy	1. Office of Political Agent 2. General public	Accurate information about administration. General observations of local area experts are roughly accurate.
Population	1981 Population Census	Population Census figures are mostly controversial because of political, methodological and inaccessibility issues.
Refugees	Commissionarate of Afghan Refugees	These figures are generally accurate and are based on actual registration of refugees.
Land use and Agriculture	1. Agriculture Statistics of NWFP 2. Pakistan Census of Agriculture, 1972 3. Directorate of FATA Agriculture	Estimates given in each source are different from others and are not accurate.
Irrigation, Flood Protection and Potable water	1. FATA-DC 2. Local Government and Rural Development	These statistics relating to schemes are accurate because these are based on factual positions in the field, but beneficiary and acreage covered estimates are doubtful.
Animal Husbandry	1. Pakistan Census of Livestock, 1986 2. Livestock Dept. Govt. of NWFP	Animal count statistics are not accurate because of inaccessible areas. This information is more reliable than Census data.

SECTIONS	SOURCES OF INFORMATION	COMMENTS ON ACCURACY
Forestry	Forestry Department, Govt. of NWFP	These statistics are based on facts and are generally accurate.
Communications	Communication and Works Department, Govt. of NWFP	These statistics are accurate.
Education	Education Department, Govt. of NWFP	Enrollment figures are not very accurate because various sources give different figures.
Health	Health Department, Govt. of NWFP	The number of patients treated is generally not accurate.
Electrification	Water and Power Development Authority	These are generally accurate as they are based on recorded facts.
Investment and Development	1. Investment Report, FATA-DC 2. PE&D Department, (FATA Section)	These figures show actual allocations and are correct.

* The annotations are based on the sources listed, or interviews and unpublished documents provided by source officials.

BIBLIOGRAPHIC RESOURCES

Agriculture Statistics of NWFP, Agriculture Statistics Wing Agriculture (Ext) Department, NWFP, Peshawar, 1983-84, 1989-90, 1990-91.

Ahmad, Akbar S., Pukhtoon Economy and Society, Routledge & Kegan Paul, London, 1980.

Annual Development Programme 1992-93, Federally Administered Tribal Areas, Planning and Development Department, FATA Section, Government of NWFP.

FATA Development Statistics, Bureau of Statistics, Planning and Development Department, Government of NWFP, 1986, 1987, 1988, 1989, 1990.

Inventory of Completed Tubewell Schemes in Mohmand Agency FATA- DC, February, 1993.

Land Use Survey of NWFP, Geography Department, University of Peshawar, 1988-89.

Pakistan Census of Agriculture, 1980, Volume III. Department of Agriculture Census, Islamabad

Population Census, 1981, Department of Census, Government of Pakistan, Islamabad

Total Investment in FATA (TIF): Year-wise Allocation of P&D, FATA-DC, MNA/Senator Program, Federally Administered Tribal Areas Development Corporation (FATA-DC) Peshawar, 1989.