# COASTAL ENVIRONMENTAL MANAGEMENT PLAN FOR PAKISTAN

## ENVIRONMENTAL PROFILE OF COASTAL COMMUNITIES

by
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# Contents


| | | Page |
|---|---|---|
| **A.** | **THATTAH DISTRICT** | |
| 1. | Demographic profile | 1 |
| 1.1 | Administrative divisions | 1 |
| 1.2 | Topography of the coastal areas | |
| 1.3 | Population, surface area and density | 1 |
| 1.4 | Population growth | 2 |
| 1.5 | Literacy | 2 |
| 1.6 | Employment | 2 |
| 2. | Migration | 3 |
| 2.1 | In-migration | 3 |
| 2.2 | Migration abroad | 3 |
| 2.3 | Migration to other parts of Pakistan | 3 |
| 3. | Health | 4 |
| 3.1 | Infant mortality and morbidity | 4 |
| 3.2 | Health-care facilities | 5 |
| 3.3 | Increase in health-care facilities | 5 |
| 3.4 | Observations on the Keti Bunder taluka | 5 |
| 3.5 | EPI coverage | 6 |
| 4. | Socio-economic profile | 6 |
| 4.1 | The traditional order and its demise | 6 |
| 4.2 | Livelihoods: broad divisions | 7 |
| 4.3 | Fishing and related activities | 7 |
| 4.4 | Agriculture and forestry | 10 |

| | | | |
|---|---|---|---|
| | 4.5 | Services sector | 11 |
| | 4.6 | Transportation cost and their effect on cost of consumer goods | 11 |
| 5. | Status of women | | 11 |
| 6. | Housing | | 12 |
| | 6.1 | Materials of construction | 12 |
| | 6.2 | Planning | 12 |
| | 6.3 | Houses of the affluent | 13 |
| | 6.4 | Land in housing | 13 |
| 7. | Water supply and sanitation | | 14 |
| | 7.1 | Water supply | 14 |
| | 7.2 | Sanitation | 14 |
| 8. | Source of cooking fuel and livestock feed | | 15 |
| | 8.1 | Source of cooking fuel | 15 |
| | 8.2 | Source of livestock feed | 15 |
| 9. | Comparison with other districts of Pakistan | | 15 |
| 10. | Description of Keti Bunder | | 16 |
| | 10.1 | Location | 16 |
| | 10.2 | Approach | 16 |
| | 10.3 | Transport to and from Keti Bunder | 17 |
| | 10.4 | Description of the settlement | 17 |
| | 10.5 | Description of the 'jetty' | 17 |
| | 10.6 | Government facilities | 18 |
| 11. | Environmental impact of development activities | | 19 |
| | 11.1 | The building of dams and barrages | 19 |
| | 11.2 | Establishment of the Department of Fisheries | 21 |
| 12. | Cooperative collective efforts | | 21 |

13. Perceptions of the environment 22

**B. LASBELA DISTRICT**

1. Demographic profile 23

1.1 Administrative divisions 23

1.2 Topography of the coastal areas 23

1.3 Population, surface area and density 23

1.4 Population growth 23

1.5 Literacy 23

1.6 Employment 24

2. Migration 24

2.1 In-migration 24

2.2 Migration abroad 24

2.3 Migration within the district and to other parts of Pakistan 25

3. Health 26

3.1 Infant mortality and morbidity 26

3.2 Health-care facilities 26

3.3 Conditions of Damb Bunder 26

3.4 EPI coverage 26

4. Socio-economic profile 27

4.1 The traditional order and the process of change 27

4.2 Livelihoods 28

4.3 Fishing and related activities 28

4.4 Agriculture and forestry 30

4.5 Services sector 30

4.6 Transportation costs and their efect on the cost of consumer goods 30

| | | | |
|---|---|---|---|
| | 4.7 | Food | 31 |
| 5. | Status of women | | 31 |
| 6. | Housing | | 31 |
| | 6.1 | Materials of construction | 31 |
| | 6.2 | Planning | 32 |
| | 6.3 | Houses of the affluent | 32 |
| | 6.4 | Land for housing | 32 |
| 7. | Water supply and sanitation | | 33 |
| | 7.1 | Water supply | 33 |
| | 7.2 | Sanitation | 34 |
| 8. | Source of cooking fuel and livestock feed | | 34 |
| | 8.1 | Source of cooking fuel | 34 |
| | 8.2 | Source of livestock feed | 34 |
| 9. | Comparison with other districts of Pakistan | | 35 |
| 10. | Description of Damb Bunder | | 35 |
| | 10.1 | Location | 35 |
| | 10.2 | Approach | 36 |
| | 10.3 | Transport to and from Damb Bunder | 36 |
| | 10.4 | Description of the settlement | 36 |
| | 10.5 | Government and community facilities | 37 |
| 11. | Environmental impact of development activities | | 38 |
| | 11.1 | The expansion and modernization of the fish industry | 38 |
| | 11.2 | The setting up of industry | 39 |
| 12. | Cooperative collective efforts | | 40 |
| 13. | Perceptions of the environment | | 41 |

## C. GWADAR DISTRICT


1. Demographic profile 42

1.1 Administrative divisions 42

1.2 Topography of the coastal areas 42

1.3 Population, surface area and density 42

1.4 Population growth 42

1.5 Literacy 42

1.6 Employment 43

2. Migration 43

2.1 In-migration 43

2.2 Migration abroad 43

2.3 Migration within the district and to other parts of Pakistan 43

3. Health 44

3.1 Infant mortality and morbidity 44

3.2 Health-care facilities 44

3.3 Conditions at Pasni 44

4. Socio-economic profile 45

4.1 The traditional order and the process of change 45

4.2 Livelihoods 46

4.3 Agriculture and forestry 48

4.4 Services sector 48

4.5 Transportation costs and their effect on the cost of consumer goods 49

4.6 Food 49

5. Status of women 49

6. Housing 50

6.1 Materials of construction 50

6.2 Houses of the affluent 50

6.3 Land for houses 51

6.4 Wages to construction labour 51

7. Water suypply and sanitation 51

7.1 Water supply 51

7.2 Sanitation 52

8. Source of cooking fuel and livestock feed 52

8.1 Source of cooking fuel 52

8.2 Source of livestock feed 53

9. Comparison with other districts of Pakistan 53

10. Description of Pasni 54

10.1 Location 54

10.2 Approach 54

10.3 Transport to and from Pasni 54

10.4 Description of the town 54

10.5 Government and community facilities 56

11. Environmental impact of development activities 57

11.1 The expansion and modernization of the fish industry 57

11.2 Deforestation 57

11.3 Extraction of water 57

12. Cooperative collective efforts 58

13. Perceptions of the environment 58

**D. KARACHI: the hazards of pollution**

1. Marine pollution 59

1.1 Type of effluents that enter the sea at Karachi 59

1.2 Sample tests on sea water and marine life 60

2. Pollution from the open unsurfaced 'nullahs' and solid waste 60

2.1 Open nullahs 60

2.2 Solid waste 61

3. Air pollution 61

4. Manufacture and use of pesticides 62

5. Radiation 62

6. Diseases due to pollution 63

E. CONCLUSIONS AND RECOMME. .TIONS

1. Conclusions 64

1.1 Coastal areas 64

1.2 Karachi 66

2. Recommendations 66

2.1 The coastal areas 66

2.2 Karachi 68

Footnotes 69

Abbreviations 73

Appendix 74

# COASTAL ENVIRONMENTAL MANAGEMENT PLAN FOR PAKISTAN

## ENVIRONMENTAL PROFILE OF COASTAL COMMUNITIES

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## A. THATTAH DISTRICT

### 1. DEMOGRAPHIC PROFILE

#### 1.1 Administrative divisions:

Thattah district is divided into nine 'talukas'(1). Of these Gorabari, Keti Bunder, Kharochan, Shah Bunder and Mirpur Sakro are coastal talukas, while Jati, Mirpur Bathoro, Sujawal and Thattah are non-coastal talukas.

#### 1.2 Topography of the coastal areas:

The coastal talukas for the most part form part of the Indus delta. This area consists of the Indus distributaries which discharge into numerous creeks that criss-cross the shore. All settlements are on the mud flats between these channels. Before the dams and barrages on the Indus were built, fresh river water flushed this area. Now the sea has crept in.

#### 1.3 Population, surface area and density:

According to the 1981 census, the population of the Thattah district is 761,039. 90.5 percent of this population lives in rural areas. The population of the coastal talukas is 312,327, or 41.03 percent of the total district population. Of this 93.41 percent lives in rural areas (2). The coastal talukas constitute almost 50 percent (8599 square kilometres) of the district's surface area of 17.355 kilometres and have a density of 32.53 persons per square kilometer as opposed to 84.45 persons per square kilometre for the non-coastal talukas; 43.9 persons per square kilometre for the district as a whole and 135 persons per square kilometre for the province of Sind. Household size in the district is

6.2 persons, as opposed to 7 for the province, and is identical for the coastal and non-coastal talukas (3).

1.4 Population growth:

Between 1972 and 1981 the population of the district increased by 9.3 percent, (1.03 percent per year) as opposed to a national average of 28.8 percent (3.2 percent per year). Reasons for this lower growth rate could not be ascertained. The growth in the coastal talukas was much higher (3.33 percent per year) as compared to the non-coastal talukas (0.066 percent per year) (4). This higher growth rate is mainly due to either lower infant mortality or a higher birth-rate in the coastal talukas. Another factor is a higher life expectancy in the coastal areas. These conclusions are borne out by a comparison of the 1972 and 1981 census figures which show an increase of 35.2 percent (3.92 percent per year) in the 0 to 9 age bracket in the coastal talukas and a decrease of 0.2 percent (0.022 percent per year) in the non-coastal talukas. Similarly, there was an increase of 1.2 percent (0.14 percent per year) in the 30 to 44 age bracket in the coastal talukas and a decrease of 23.98 (2.66 percent per year) in the non-coastal talukas (5).

1.5 Literacy:

Literacy in the Thattah district, according to the 1981 census, is 17.8 percent as opposed to a national average of 26 percent and a provincial average of 31.45 percent. Male literacy in the district is 26.5 percent and female 7.7 percent. National figures for male and female literacy are 35 and 16 percent and provincial figures are 39 and 21 percent. Between 1972 and 1981, the literacy rate of the Thattah district dropped by 2.5 percent, while at the national and provincial level it increased by 4 and 1.45 percent respectively (6). The reason for these poor figures is a very low attendance at educational institutions. Only 31.9 percent of primary school-age children attend school. Female attendance is appallingly low, with only 10.9 percent of school-age girls attending school (7). The number of girls schools in the district has fallen by 13.2 percent between 1974 and 1983 although the teacher-student ratio in these schools has gone up from 1:18 in 1974 to 1:29 in 1983. Statistics also show that there has been no appreciable increase in educational facilities between 1974 and 1983 (8).

1.6 Employment:

Out of a total population of 761,039 in the district, about

216,945 are employed. Of this 78.9 percent are employed in fisheries, agriculture, forestry and hunting; 0.033 percent in mining and quarying; 5 percent in manufacturing and construction and 15.12 percent in the services sector (9). Separate figures for the coastal and non-coastal talukas are not available. However, it can be safely assumed that a much smaller percentage of population is engaged in manufacturing, construction and in the services sector in the coastal communities than in the non-coastal ones.

## MIGRATION

### 2.1 In-migration:(10)

The 1981 census shows that 2.9 percent of the rural and 7.3 percent of the urban population of Thattah district has migrated to the district from other parts of Pakistan. 48 percent of this migration took place before 1971 and 36.2 percent after March 1976. Over 60 percent of this migration is from within Sind province. However, almost all of this migration is related to agriculture and agriculture-related trade in the rural areas and to the services sector in the urban areas. Although separate figures related to in-migration for the coastal and non-coastal areas are not available, it can be safely said that it has little or no effect on the coastal communities of the district.

### 2.2 Migration abroad:

Again, census figures show that during the last decade 0.01 percent of the rural and 1.1 percent of the urban population of the district has gone abroad and are still residing there. This migration is almost entirely to the Middle East. Separate figures for the coastal and non-coastal areas are not available.

### 2.3 Migration to other parts of Pakistan:

The 1981 census report does not give any figures of migration from the Thattah district to other areas of Pakistan or within the district itself. However, conversations with trading and agricultural communities in Mirpur Sakro and Keti Bunder, and representatives of Fishermen's Welfare Associations in Karachi, show that such migration does take place and is of four varieties.

a) **Migration of agricultural communities for agricultural purposes:**

The agricultural lands in the coastal areas have been badly

affected by waterlogging and salinity (see paragraph 11). Share-croppers on these land have moved to other districts or areas of the district in search of better agricultural land. In the Keti Bunder taluka, residents feel that about 20 percent of the taluka population has migrated due to this reason in the last 20 years.

b) **Permanent migration to Karachi to work in the fisheries:**

Members of both agricultural and fishing communities have migrated to Karachi permanently, along with their families, in search of better incomes. They now work in the fisheries in Ibrahim Hyderi or at the fish harbour in Karachi. According to residents their number is small, no more than 5 to 8 percent of the population.

c) **Seasonal migration to Karachi:**

Between March and June is the prawn catching season. During this period there is a big demand for 'khalasis' (11) in Karachi. It is estimated by the residents of the Keti Bunder taluka that 15 to 20 percent of the adult male population engaged in fishing migrate to Karachi and Ibrahim Hyderi in response to this demand. The extent of this migration falls as one moves Eastwards and it is estimated that only a few families go to Karachi from the Sir Creek on the Indian frontier.

d) **Migration to the creeks:**

Between September to March is the 'gand'(12) season. During this period the sea is calm and almost 60 percent of the population engaged in fishing, along with their families, move to the banks of the creeks near the open sea so as to catch 'gand'.

## HEALTH

### 3.1 Infant mortality and morbidity:

Figures for infant mortality and morbidity, EPI coverage, or for occurrence of various diseases in the district, are not available. However, a picture of health conditions does emerge from a study of the health care facilities available and from what has been observed in the Keti Bunder and Mirpur Sakro area. In addition, the Aga Khan Medical University is carrying out a baseline health survey of the district and its findings are to be compiled in the near future.

## 3.2 Health-care facilities:

Health-care facilities in the Thattah district are well below the Sind average, and apart from certain districts of Baluchistan and the Northern Areas, amongst the lowest in the country. There is one doctor for every 21,141 persons; 1 paramedic for every 10,427 persons; 1 hospital bed for every 3,096 persons and 1 RHC bed for every 12,048 persons. In addition, there is no radiographer for the 3 X-Ray units in the district; no pathological laboratory, and hence no OT or lab assistants. The percentage of population treated in these facilities each year in the district is marginally higher (21.37 percent) than that treated in the province as a whole (20.83 percent)(13). 70 percent of these meagre facilities are in the more prosperous non-coastal talukas, especially the Thattah taluka, which is also the district headquarters.

## 3.3 Increase in health-care facilities:

Between 1974 and 1984, there has been very little real increase in health-care facilities in the district. The change in the number of persons per bed in the RHCs from 71,484 in 1974 to 12,048 in 1984 sounds impressive. However, most of the RHCs are without adequate staff, medicines, or equipment. A number of them exist on paper only. In addition, the ratio of Traditional Birth Attendants (TBA) to the female population has fallen and is now 1:23,809 (14). This is due to the collapse of the old social economy that made it possible for this hereditary profession to continue. However, though trained midwives have increased they have not replaced the TBAs. Their ratio to the female population is a mere 1: 28,398.5.

## 3.4 Observations on the Keti Bunder taluka:

In the taluka there is one BHU. This is the only government facility available and has a "catchment" area of eight miles radius. Mohammad Usman, compounder in the BHU, who has been working here for 5 years, was trained at the Civil Hospital in Thattah town. According to him, 60 percent of all patients are women and another 20 percent children. In summer 15 to 20 patients visit the centre daily, mostly with complaints of diarrhoea and dehydration. In winter, the number is no more than 4 to 5 per day. Delivery infection is common among women but as there is no lady doctor or LHV present it cannot be properly treated. Delivery cases are taken care of by TBAs, of which there are 3 in the Keti Bunder settlement. A totally inadequate supply of ORS is stored at the BHU and since it is not available in the shops either, a number of lives that could be saved are lost

every year. It is worth noting here that although ORS is not available in Keti Bunder, the two shops that stock medicines are full of patent drugs, especially antibiotics. Those who can afford it, send their women to Thattah town or to Karachi for child delivery. Although treatment and medicines at the BHU are supposed to be free, the staff does charge the patients. According to the staff, this is to cover the cost of medicines which the doctor adds to the BHU stock at his own cost. The residents do not seem to object to this arrangement. The doctor at the BHU is irregular and spends a lot of time away from Keti Bunder. There is no traditional hakim (15) in the settlement but the postmaster, Abdul Rahman, is a self-styled doctor. He has a considerable clientele whom he treats with various patent medicines, antibiotics and glucose injections. He claims that kidney stones, guinea and ring worms and skin rash are common, in addition to the diseases mentioned earlier. He charges 5 to 10 rupees per consultation and the patent medicines he prescribes can be purchased in the bazar. The residents agree that the vast majority among the fishing communities do not make use of the BHU or Abdul Rahman's clinic when they fall ill. They just suffer and live, or suffer and die.

### 3.5 EPI coverage:

By all accounts there is no more than 10 percent EPI coverage in the taluka and that too in the Keti Bunder settlement and for the first dose only. In the small coastal settlements, the coverage is zero. The last visit of the EPI mobile team was 18 months ago. They came without any prior announcement and established camp at the "otak" (16) of the Chairman of the District Council. There were no announcements in the neighbouring villages informing residents of the establishment of the camp, and more important still, the residents were not informed of the importance of the vaccination. The camp was wound up after 5 days.

## 4. SOCIO-ECONOMIC PROFILE

### 4.1 The traditional order and its demise:

#### a) Clan affiliations and the means of exchange:

The people of the coastal regions belong to various clans and tribes. Traditionally these clans and tribes had hereditary productive activities. For example, the Khaskhelis were agriculturists; the Jats were pastural people, breeders of camels and suppliers of timber for fuel; the Memons and Shidis were merchants and traders; the Dablas were fishermen. In addition, there were artisans such as

carpenters (wados), barbars (nai), potters (kumaras). These served the clan communities and in exchange were maintained by them. This maintenance involved a house, expenses for social occasions such as marriages and feasts and a seasonal share in the agricultural or fishing produce. All economic relationship between the clans was one of barter. Cash transactions only took place between the sardars(17) and waderas (18), and through them with the outside world. This system guaranteed not only the economic independence of the village but also the supremacy of the feudal class.

b) **Village government:**

The. sardar, along with the major waderas of the area, wielded authority over his people, organized them for maintenance of infrastructure and production, and represented them in their dealings with the state. In addition, he determined their relationship with other clans and with the hereditary artisans and administered justice. Those clans whose productive activities required intensive organization for production and extensive maintenance of infrastructure, were politically stronger and more cohesive, such as the Khaskhelis. Fishing, before the 1960s, was not a major activity and required almost no organization or infrastructure maintenance. As such the Dablas were a weak and exploited community and since they had no clan government of their own they were subservient to the more powerful clans. The vast majority of the population, irrespective of the clan they belonged to, were permitted to live only at subsistence level by their chiefs.

c) **Changes in the social order:**

Major changes have taken place in the social order described above. The authority of the tribal chiefs and landlords has broken down. The artisans are no longer dependent on the village structure for their survival, nor do they receive payments in agricultural produce. Many of them have migrated to the urban areas and since they now work for cash their labour cannot be afforded by the rural population. Clan affiliation no longer determines the productive activity one is engaged in. Poorer Khaskhelis, Jats and Shidis have started working as fishermen, since it is economically more profitable. Memons, however, remain merchants and middlemen. Members of all clans now aspire for education and government jobs, something that was the domain entirely of Memons and Hindu Amils. People see state institutions, inadequate as they are, and the new entrepreneurs who have emerged, as substituting the functions of their sardars and waderas. In addition, cultural changes have also taken place. Traditional singers and dancers, belonging to the Langa casts, do not perform at feasts and marriages. Westernized bands and pop singers from the cities, complete with

furniture and city food, have replaced them. The result is that many Langas, along with Jogis (19),have migrated to the cities or turned to fishing. Similarly, rituals performed at the launching of a boat, birth of a child and on the night of the full moon have been abandoned. The "malakhro", or wrestling competitions, which were held with great fanfare have ceased to be. Instead children play cricket on the mud flats. Although feudal relations have broken down, elected councillors, chairmen of UCs, MNAs and MPAs still belong to the upper-classes of the traditionally more powerful clans.

d) **Reasons for the change:**

The main reason for the changes described above is that the economic independence of the village is no more. Cash has become the principal means of exchange and this has led to the replacement of feudal relations, which were the corner-stone of the old social economy, by crude capital relations. This change has been facilitated by waterlogging and salinity, and by the development of fisheries through government intervention in the 1960s. The former has made agriculture difficult and unprofitable and rendered a large number of peasants jobless. The latter has given incentives to entrepreneurship, provided credit facilities to the people, and made social mobility possible. Roads, mechanized transportation, populist political movements, and the accessibility to the media and the urban areas have also played their role.

## 4.2 Livelihoods: broad divisions

Productive activity in the coastal areas can be divided into 3 broad classifications: Fishing and related activities, in which an estimated 90 percent of the population is involved; agriculture and forestry, in which 8 percent of the population is involved; and the services sector, in which 2 percent of the population is involved.

## 4.3 Fishing and related activities:

Various activities related to the fish industry are described below along with approximate incomes associated with them.

a) **Khalasi:**

Khalasis are fishermen who do not own boats but work as hired hands on the boats of others. The population that migrates seasonally to Karachi and Ibrahim Hyderi consists for the most part of khalasis. After deductions have been

made from the catch for a share of net, boat, engine, share of the owner himself, cost of diesel and food, the remaining proceeds are divided equally among the khalasis. This share is known as "patti". The shares of different elements and persons involved are given below.

- Net 6 pattis
- Boat 2 pattis
- Engine 6 pattis (4 cylinders)
- Owner 1 patti
- Khalasi 1 patti

Average earings of a khalasi in the Keti Bunder area are no more than 6,000 rupees a year. Over 70 percent of the population engaged in fishing are khalasis. Many of them also possess small boats of 6 to 10 feet length which they operate with the assistance of family members. However, with these boats they cannot earn even a subsistence livelihood. One such boat owner, Mohammad Ibrahim, now works for a middleman at 1,000 rupees a month and says that as a result his income has more than doubled. Almost none of the khalasi children go to school or have their health problems attended to.

b) **Boat-owners:**

According to the local population, about 25 percent of the population engaged in fishing own boats larger than 20 feet. These boats require hired hands and in certain seasons go out to the open sea. Boat-owners are of 2 kinds. Those who have built their boats by taking credit from middlemen and are perpetually in debt, and those whose boats are free of debt. The farmers constitute over 90 percent of the boat-owners.

1) **Boat-owners in debt:**

These boat-owners, or 'nakhudas' have borrowed money from middlemen for the construction of their boats and the engines. In exchange they are obliged to sell their produce to these middlemen at prices considerably lower than the market rate. In addition, large mechanized boats, in order to be fully utilized, require large nets, ice for storage purposes if they go into the open sea for several days, and food supplies for the crew. Credit for these is again taken from the middlemen. Thus, the debt is never paid off and in most cases increases with every season. Such boat-owners earn twice as much as the khalasis and have a social status

as they are employers of labour. However, their children do not attend school either and their attitudes to health are similar to those of the khalasis.

2) **Boat-owners:**

Boat-owners who have not borrowed money from middlemen for constructing a boat, belong to the wealthier classes. They do not go out to the sea themselves but engage experienced 'nakhudas' or captains. They are also able to finance nets, ice, diesel for the boat and provisions for the crew. As such, they are free to sell their produce in the open market.

c). **Bayparis:**

Bayparis are middlemen, in this case, in the fishing industry. They purchase the fish from the fishermen and then sell it to the Karachi market. They also make arrangements for providing credit to the boat-owners and supply nets, ice and provisions for the crew. Transportation of the catch, wheather by sea or road, is also arranged by them. All bayparis belong to the area and the majority of the financially powerful ones belong to the Memon clan. Credit for fishermen is given to the bayparis by Karachi entrepreneurs. In exchange the baypari has to sell the fish he purchases from the fishermen at 20 percent less than the market price to the entrepreneur. In addition, he keeps the accounts of the credit and manages the interests of the entrepreneur in the area. Abdul Karim Memon, a baypari of Keti Bunder, gave credit of 250,000 rupees in 1988 to the Dablas of the creeks around the settlement. He does not hope to recover any of it but this investment guarantees him a continued supply of fish at well below market rates. Depending on the scale of their operations, bayparis can earn anything from 120,000 to 720,000 rupees a year. In the Keti Bunder area there are 5 baypari families.

d) **Boat-makers:**

There are only four or five boat-makers left in the Keti Bunder area. Most have migrated to Ibrahim Hyderi and Karachi, where they work for big contractors. Those that are still in the Keti Bunder settlement have little work. This is because it is cheaper to have a large boat constructed in Karachi and cruise it down to the settlement than pay the cost of transportation of timber from Karachi.

4.4 <u>Agriculture and forestry</u>:

According to local accounts, over 85 percent of people engaged in agriculture are 'haris'(20). The rest are small land-owners possessing 4 to 10 acres. The Jats of the

region, in addition to being cultivators, cut timber and sell it for fuel, manufacture matting for roofs and floors of houses, and breed camels. The camels, in most cases, belong to the wealthier among them, with the poorer Jats looking after them. Camel breeding in the Indus delta has increased substantially over the years and delta camels are sold at all the 'melas'(21) and 'urs'(22) in Sind. The earnings of an average 'hari' in the delta are not more than 2,000 rupees a year. However, about 30 percent of his grain needs are taken care of by his share of what he produces.

### 4.5 Services sector:

As mentioned earlier, 2 percent of the population is involved in providing support services to the major activities. The support activity which employs the largest number of people is transportation. Local transportation involves the carting of fish from the creek shores to the high ground for sorting, drying, weighing and transfer to trucks and pick-ups for their journey to Karachi. This is done entirely by donkey-carts. Similarly, water from the water source to the house, where it is not carried by boat or by the women themselves, is carted by donkeys. A pair of donkeys cost 1,000 rupees and eat fodder worth 20 rupees per day. Average savings of donkey-cart operators are 20 to 30 rupees a day. A small number of people are engaged with the transporters that operate pick-up trucks between Keti Bunder and Karachi. These work as labour for loading and unloading, cleaners and record-keepers. Their earnings vary from 800 to 1,500 rupees a month. The pick-ups bring diesel, ice, grain and consumer goods to the delta and take back fish and prawns. In addition, there are shopkeepers, government employees and small-scale contractors. Their number is negligible and they exist only in larger settlements. However, they have considerable influence in the community.

### 4.6 Transportation costs and their effect on cost of consumer goods:

Due to the absence of a proper all weather road net work, cost of all consumer goods in the delta coastal areas is on average 30 percent higher than in those areas of the district which are better connected to Karachi or the district headquarters.

## 5 STATUS OF WOMEN

Women in the delta region are segregated from men outside the extended family or close clan relatives. This deter-

mines their position in society. They look after the house, children and animals and wash and stitch clothes. They gather firewood and water, in cases where it does not mean going too far from their settlement or to areas inhabited by other tribes. Both these activities have declined, as after the drying up of the Indus river, water is not readily available and tamarisk forests have decreased considerably or have been destroyed to make way for agriculture. Previously, a major activity of women was making fishing nets. This is no longer necessary as almost all nets in use now are ready-made nylon ones. In spite of this women have very little spare time to themselves and almost no social life or outing. The old privileged classes and the religious leaders are a major deterrent to women's education and emancipation. Thus, attitudes to women remain fuedal in nature and a change for the better is a long way off, unless economic conditions can be improved.

## 6. HOUSING

### 6.1 Materials of construction:

Almost all housing in the delta is constructed of a 'lai' (23) frame with lattice-work walls of the same material, plastered over with mud. In areas where lai is difficult to acquire, 'timmar'(24) is used instead. The people, however, have a preference for lai as it is easier to work with and is not twisted like timmar. The roof is pitched and finished with reed thatch. The floors are compacted earth covered with mats. In some cases the latticed walls are not plastered over but are covered with reed mats. These mats are made by the Jats and are purchased from their settlements. Due to salinity the earth plaster near the plinth is quickly corroded and the residents complain that the timber frame in the local soil conditions weathers badly.

### 6.2 Planning:

Houses usually consist of one or two rooms and house a nuclear family. The extended family shares an open space around which its sub-families build their huts. In smaller settlements, all residents belong to the same clan. Larger settlements may have a number of clans living in them in which case the settlement is divided on a clan basis into 'mohallas'(25). Cooking is done in a semi-open kitchen. It has low walls to protect the 'choola'(26) from the south-west wind and a roof. Latrines, if they are built at all, are placed far away from the houses. Water is stored in earthenware pots, which were previously built by the local kumaras, but are now imported from the nearest urban

settlement. Plastic water-coolers are also becoming popular. Traditionally, cooking was done in earthenware pots. These are slowly being replaced by city-manufactured aluminium utensils.

## 6.3 Houses of the affluent:

Richer people in the delta have now started to build their houses in cement concrete blocks and asbestos cement roofs. Reinforced concrete roofs are also used but in rare cases. Supports for the asbestos roofing are provided by bamboo poles or steel channels, both imported from Karachi. The houses of the affluent have courtyards, verandahs and latrines, so that greater privacy is ensured, and tend to imitate the style of the houses of the middle-classes in the large urban areas of the province. Cement for these houses is imported from Karachi and costs 98 rupees a bag as opposed to a Karachi price of 79 rupees. Aggregate comes from Jimpir or Thattah, about 40 miles away. Since these concrete structures are badly affected by salinity and rising damp, more and more houses have started using stone foundations and plinth walls. This stone comes from Jungshahi, over 60 miles away, and its cost works out to 50 percent more than for similar cement concrete work. Government buildings in more recent years are built entirely of stone.

## 6.4 Land in housing:

Most of the land in the coastal belt belongs to the government. The people live on the land but do not own it. Permanent settlements like Keti Bunder, are thus katchi abadis or squatter settlements. There is no move to give the people living here tenure rights. In areas where state authority is present, such as Keti Bunder and Shah Bunder, people seek the permission of the local authority or revenue department to occupy land for housing. However, more important than this permission is the permission from the residents of the area where one intends to build the house. Normally residents do not permit other than their clan or family members to live next to them. Some residents, no more than 5 percent, do have a 99-year lease in the Keti Bunder settlement. This was given to them by the Keti Bunder Town Committee before it was dissolved in 1982.

## 7. WATER SUPPLY AND SANITATION

### 7.1 Water supply:

a) **From the river:**

Before the construction of dams and barrages which have dried up the Indus delta, water was easily available from the numerous distributaries of the river. These have now become saline as the sea has crept in. Water in the coastal belt is therefore acquired from those delta channels which are still operative or from the nearest perennial canals. These are many miles from the coastal settlements. Water is brought from these places by boat, in most cases by the users themselves, and is used only for drinking and cooking purposes. In the dry season most river water is highly saline.

b) **Piped water schemes:**

In the early '70s, the government initiated piped water schemes for larger coastal settlements like Keti Bunder and Shah Bunder as the Indus mouths on which these settlements were situated had long since become saline. Water was pumped from perennial canals to surface tanks in the settlements through many miles of pipeline. Most of the settlements along these pipelines have also acquired water connections and many villages have shifted their locations so as to be near the pipeline. However, no more than 15 per-cent of the coastal people receive water from such piped water schemes. These schemes are managed by the District Councils or the PHED. People pay only for house connections at 30 rupees per month. Water from the stand-posts at the surface water reservoirs is free. UNICEF has also been involved in the water sector in the delta. The present water line to Keti Bunder and Shah Bunder were added to by the UNICEF in 1986. However, these piped water schemes do not function efficiently and when they break down people revert to their traditional sources. Even while they function, water from these schemes is inadequate.

### 7.2 Sanitation:

There is no system of excreta or waste water disposal in the coastal settlements. Adults, males and females, excrete in the open, away from the settlements while the children excrete in the settlements. In some settlements families do put up mat walls to enclose a small space near the sea which is used as a latrine. The tide, when it rises, carries the excreta away. In the settlements where piped water has arrived, the disposal of waste water poses problems as there is no drainage system. The result is that these settlements

are full of large stagnant pools of foul water in which flies and mosquitoes breed and children play. The UNICEF tried to introduce its pit latrine system through an extension effort in the area. However, it was unsuccessful as the subsoil water is only 2 to 4 feet below the surface.

## 8. SOURCE OF COOKING FUEL AND LIVESTOCK FEED

### 8.1 Source of cooking fuel:

Traditionally, lai was used as fuel by almost the entire delta region. It was brought to the settlements by Jats on camel-back and exchanged for fish, agricultural produce or cash. The poorer sections of the populations gathered their own firewood from the forests. This pattern for the most part is still the same, except that the Jats now only sell firewood for cash and lai is not easily available everywhere. For this reason, people living near or in the timmar marshes use timmar as a source of fuel. Timmar is more difficult to gather than lai due to marshy conditions and hence very little, as compared to lai can be collected in a day. Cost of timmar in the market is 12 to 15 rupees a maund as compared to 10 rupees for lai, provided it is available. In the Keti Bunder settlement there are only 2 families that gather timmar for sale as compared to over 10 who deal in lai.

### 8.2 Source of livestock feed:

The delta region supports extensive grasses and shrubs which are palatable to buffalo, cows, camels and donkeys. These include 'sohand' (27) grass in the saline creeks and 'pal' (28) grass and the 'lana' (29) shrub where sweet water is available. Sohand and pal is eaten by buffalo and cows, and the lana shrub, along with timmar leaves, are eaten by camels. Buffalo, cows and donkeys, however, require supplementary feeds of "khalli and bhoosa" (30). These are imported from Karachi. A buffalo eats 20 rupees of khalli and bhoosa per day. Figures for cows and donkeys are 15 rupees and 10 rupees respectively. With the decrease of river water in the delta there has been a marked decrease in the quantity and quality of pal and lana. Local people feel that both these species will be extinct with the passage of time. Due to these reasons the quantity of livestock in the coastal areas of the delta has declined, except for camels, who need no supplementary feed and little fresh water.

## 9. COMPARISON WITH OTHER DISTRICTS OF PAKISTAN

In the Sind context, the Thattah district is not the most

backward in the province. However, if one compares it to the Mianwali district of the Punjab, which is one of the 3 most backward areas of that province, Thattah's backwardness becomes apparent. Comparison with Mianwali is also appropriate because fishing, after agriculture, is the biggest source of livelihood for the population. In area Mianwali is smaller than Thattah, but has a higher density of population, 98.4 per square kilometre against Thattah's 43; more kilometre of roads, 862 metalled and 798 non-metalled as opposed to Thattah's 677 metalled and 381 non-metalled; larger percentage of urban population, 17.1 against Thattah's 9.5; higher literacy ratio, 21.4 percent against Thattah's 17.8; better education facilities with a much larger percentage of school-age children going to school, and a higher percentage of migration abroad. In addition, 2.91 percent of the population in Mianwali is involved in manufacturing and 6.2 percent in the services sector, as opposed to 1.42 percent for manufacturing and 4.3 percent for the services sector in Thattah. Health facilities, however, are better in the Thattah district, which has 2370 persons for 1 hospital bed against a Mianwali figure of 3663.

## 10. DESCRIPTION OF KETI BUNDER

### 10.1 Location:

Kati Bunder has a population of 3,000 and is situated on the Ochto mouth of the Indus, which enters the sea through the Hajamro creek, 10 kilometres from the settlement. The area around the settlement consists of mud flats and is criss-crossed with water channels, giving the place the appearance of a marsh. Towards the west of Keti Bunder on the opposite bank of the Ochto, there is some vegetation. This consists mainly of sohand grass and lana shrubs in the immediate vicinity of the settlement and timmar at a distance of 4 to 5 kilometres. Keti Bunder is 50 kilometres from Mirpur Sakro and about 138 kilometres from Karachi.

### 10.2 Approach:

From Karachi to Gahro there is a good metalled road which passes through Mirpur Sakro. After Gharo, the road is bad, and 10 miles from Keti Bunder it turns into a dirt track, passing for the main part through an area which is badly affected by salinity and waterlogging. In the rainy season, or when tides are exceptionally high, the road is either washed away or becomes unusable due to sagging. At such times, the settlement becomes inaccessible by road. To the west, along this dirt track, are a number of small settlements. This is because the water line to Keti Bunder runs

along this track and people have moved here so as to be near a source of water.

10.3 Transport to and from Keti Bunder:

Two buses leave for and two arrive from Karachi every day in Keti Bunder. They are operated by 2 separate families of the settlement. The fare to Karachi is 22 rupees.

10.4 Description of the settlement:

The dirt track enters Keti Bunder from the east. The first buildings one comes across as one enters the settlement are the 2 schools constructed by the government, Union Council offices and a BHU. All 3 buildings are in reinforced concrete construction and in standard government of Sind style. The structures are badly affected by damp and salinity. A couple of dilapidated structures, in colonial style, face these new buildings. Residents say that these housed the Town Committee in the days when Keti Bunder was a large town. Later the road forks into two. One arm leads into the bazar and the other to the 'jetty'. The bazar consists of 16 shops. Of these 2 are tea houses, 5 are general merchants and the rest sell cloth, sweetmeats or are owned by tailors and cobblers. The shops are built of timmar or lai lattice work plastered with mud. The roofs are pitched and finished with thatch. The roads are not metalled. The area around the bazar is divided into mohallas or neighbourhoods. The mohalla of the Memons has concrete block houses with asbestos roofs, whereas the rest of the settlement has dilapidated houses which are similar in construction to the shops. There are 2 concrete surface water tanks with taps in them for water collection. One of these has been out of order for a long time. About 30 per-cent of the population has house connections. Around the surface water tank and in the open spaces, there are stagnant pools of foul water. This is because there can be no gravity flow waste water disposal system in Keti Bunder as the level of the water in the river, at high tide, is as high as the settlement itself. The UC has erected protective 'bunds', by stone pitching, along the river to the west and the swamp to the east, to save Keti Bunder from flooding in the rainy season or through excessively high monsoon tides.

10.5 Description of the 'jetty':

The jetty is just a 1 kilometre road of compacted earth along the bund. To one side of it is the marsh and on the other the Ochto river. A concrete surface water tank

connected to the Keti Bunder water supply system has been erected to serve the people and boats at the jetty. Storage rooms, belonging to various bayparis, have been constructed, along with quarters for their caretakers. These store houses are for diesel, nets, provisions for the sea-going crew and storage of fish in locally manufactured "ice boxes". The construction is of local materials. In the open spaces on the jetty, one finds timmar stocks, which arrive here by boat; vendors of fruit and vegetables; and scales for weighing the catch as it comes in. At high tide the boats can come right up to the bund, but at low tide one has to walk about 20 metres through soft mud to get to the boat. Pick-ups that transport the catch to Karachi and donkeys and donkey-carts which bring the fish from the boat to the drying yards, or to the bayparis store houses, are always visible.

10.6 Government facilities:

a) **Education:**

Keti Bunder has one primary girls school in which 35 girls study. There is one teacher who is a resident of Mirpur Sakro. There is a boys primary school and a boys middle school as well. The former has 65 students and the latter 25. Keti Bunder has 20 to 25 matriculates (high school graduates) who studied in Karachi and Thattah as there is no high school in the settlement. In addition, one resident of Keti Bunder is a doctor and another an engineer. They both graduated from Karachi where they now work. Almost all of the matriculates and both the professionals belong to the Memon clan.

b) **Health:**

Keti Bunder has one BHU with a male doctor and a compounder. However, there is no LHV or midwife although there are 3 TBAs in the settlement.

c) **Water supply, sanitation and electricity:**

The water supply and sanitation situation has been described in para 10.4. There is no electricity in Keti Bunder. However, there are three generators in the settlement, 2 of which rent out electricity to about 12 families. The third generator is at the mosque, and 4 shops, in addition to the mosque, use it. The shopkeepers pay for its maintenance and operation. Garbage is collected and dumped at a central place by a sweeper employed by the UC. He also cleans the few latrines that exist.

d) **Local government and coast-gaurds:**

Keti Bunder is the UC headquarters and the UC chairman lives here. In addition, there is a coastguard station on the entrance to the settlement with 10 to 12 guards stationed in it. The purpose of this post is to prevent smuggling of contraband goods from the sea. The residents, however, feel that this post serves no purpose except to create harassment for the people.

## 11. ENVIRONMENTAL IMPACT OF DEVELOPMENT ACTIVITIES

### 11.1 The building of dams and barrages:

a) **The Indus delta coastal area before the dams:**

Before dams and barrages were built in the Indus valley the delta area was criss-crossed by the distributaries of the Indus. The discharge from the river was large enough to affect the ocean currents upto over a hundred miles from the shore. Due to this enormous quantity of fresh water and the silt the river brought with it, the delta lands were the richest in what is today Pakistan. They supported extensive lai and timmar forests and grasses which were excellent feed for animals. Timber was a major export from the delta to Muscat, Aden and the Kutch peninsula. Charcoal-making and breeding of buffalo were important activities and were the domain of the Jat tribes. Agriculture was seasonal and yields were high. It was carried out when the rivers receded. Rice was the main crop and most of it was exported to the coastal regions of India and the Gulf by boat. The harbours of Keti Bunder and Shah Bunder, as such, were full of boats from Dawarka, Gumti, Muscat and the Persian Gulf ports. Populations of these delta ports were well over 15,000. Fishing was then a minor activity and was carried on only by the Dabla clans.

b) **Dams and the disappearance of fresh water:**

In the 1890s the Punjab irrigation system was established. This harrassed the waters of the four major eastern tributaries of the Indus for perennial irrigation. The impact of this act on the delta was minimal, as these tributaries contributed only 25 percent of the water in the Indus. In 1932, the Sukkur Barrage was built on the river. As a result, fresh water in the Indus distributaries used to disappear for three months of the year and the sea would creep in. In 1958, the Ghulam Mohammad Barrage became operative and whatever water was left in the river was syphoned off to colonize new land and transform the old innundation systems into perennial ones. Thus, fresh water no longer flowed down the Indus delta channels except for a

few weeks in late summer, and that too if the floods were exceptionally high. And also the mouths of the delta became part of the sea. In addition, the Ghulam Mohammad Barrage introduced perennial irrigation in parts of the delta region.

c) **Environmental effects of the disappearance of fresh water:**

Major ecological changes took place as a result of the sea moving into the delta channels. With the disappearance of fresh river water, agriculture in the coastal belt was no longer possible. Fresh water for drinking purposes became difficult to acquire. This affected both human and animal life. The lai forests diminished slowly as they could not grow in sea water or saline soil conditions. The timmar forests also diminished due to the absence of fresh water flushing the marshes. The delta grasses and shrubs, on which the animals fed, were affected as well. They declined both in quality and quantity. These changes forced the agricultural and pastural communities to migrate to the newly-colonized barrage areas in the Sujawal, Jati and Thatah talukas. The 'dowhs'(31) unfolded their sails and left for good, as there was little or no rice left to export and no water to drink. Buffalo, which consume large quantities of fresh water, declined in number. Today, an area which produced a surplus of dairy products till the late fifties, has to depend on imported powdered milk to meet the needs of its rural population. The urban centres declined and Shah Bunder and Keti Bunder are now no more than large hamlets. The Dablas and camels, and the Jats that looked after them, stayed on to force a livelihood out of the saline waters and timmar swamps.

d) **Effects of perennial irrigation:**

After the Ghulam Mohammad Barrage certain areas of the coastal talukas aquired perennial irrigation. Initially, this led to the cutting down of large tracks of forests so as to make way for agriculture. However, developing a proper drainage system for the irrigation channels posed problems because the delta area was far too flat. As a result, waterlogging and salinity set in and ancient orchards perished. Given these soil conditions, people have started to plant coconuts and bananas in large numbers instead of the traditional mango and goava. Sugarcane has also become an important crop. Whether these new crops and plants will be successful or how they will affect the ecology of the area, remains to be seen. They do not, however, affect the fishing communities along the coast or those living on the shores of the saline water channels, except that the perennial canals have become a source for the few piped water schemes that serve some of them.

11.2 Establishment of the Department of Fisheries:

In the early sixties the Government of Pakistan established the Department of Fisheries. This department introduced new nets, provided small loans for boat-building and motors, and gave incentives to people to involve themselves in this industry. This move coincided with the development of large-scale poultry farming in the Karachi area and led to the establishment of chickenfeed factories. These factories now turn enormous quantities of fish into chiken feed. In the late '60s, a demand for Pakistani prawn, lobster and fish was established in the international market and has grown ever since. These factors led to the creation of middlemen in the regions where traditionally fishing took place. As a result, large mechanized boats that could go out into the open sea replaced the traditional sail-boats; new nets and fishing techniques were introduced and the people employed in fishing increased enormously (32). These changes have had profound social and economic effects on the coastal belt. They have created seasonal job opportunities for the fishing communities in Karachi. They have raised the awareness level of the people engaged in this trade and badly mauled an already disintegrating social order. On the environmental side, the residents of the coastal settlements feel that fish life is being depleted by the Karachi trawlers who drag their nets a few miles from shore and carry off all fish, irrespective of age and size. The unwanted fish is thrown back into the sea and its stench drives away other fish from the area.

## 12. COOPERATIVE COLLECTIVE EFFORTS

Although the most important aspects of the old clan order and village government have broken down, no new grassroot or state institutions have sprung up to replace them. In this state of social anarchy, cooperative efforts are almost never attempted without motivation from some external source; and if they are, they are seldom successful. The same is true for the coastal belt of the Thattah district. Collective efforts for infrastructure maintenance through the local government are not uncommon. However, these are managed by the councillors and chairman, who are usually members of the affluent community, in a patriarchal manner. Thus, we see in Keti Bunder, the management and operation of a water supply and garbage collection system with no participation in the process by the poorer section of the population. However, at the initiative taken by the UC chairman, the entire settlement of Keti Bunder last year contributed labour or money for strengthening the protective bunds along the approach road. It is unimaginable that this work could have been done if the UC chairman had not been an affluent Memon businessman with close family ties with the

## LASBELA DISTRICT

### DEMOGRAPHIC PROFILE

#### 1.1 Administrative divisions:

Lasbela district is divided into four sub-divisions. Of these Bela and Hub are coastal subdivisions and Dureji and Kanraj are non-coastal.

#### 1.2 Topography of the coastal areas:

For the most part the coast is hilly, barren and uninhabited. At the estuaries of the mountain streams there are small fishing hamlets. The larger streams are the Hub, which divides Sind from Baluchistan; the Hingol and the Polari. Of these, the first two are perennial. The Polari discharges into an enormous marsh known as Miani-Hor. Around this marsh the major coastal settlements of the district, apart from Gadani, are located.

#### 1.3 Population, surface area and density:

According to the 1981 census, the population of the Lasbela district is 188,193. 83.33 percent of this population lives in the rural areas. The population of the coastal sub-division is 156,200 or 83.02 percent of the total district population. Of this, 80 percent lives in the rural areas. The total area of the Lasbela district is 12,574 square kilometres and the household size is 5.9 (33).

#### 1.4 Population growth:

Between 1972 and 1981 the population of the district increased by 39.6 percent (4.4 percent per year) as opposed to a national average of 3.2 percent per year. Separate figures for coastal and non-coastal sub-divisions cannot be worked out as there have been new delimitations of the sub-divisions since 1972 (34).

#### 1.5 Literacy:

Literacy in the Lasbela district according to the 1981 census, is 6.4 percent, as opposed to a national average of 26 percent and a provincial average of 8.87 percent. Male literacy in the district is 10.3 percent and female 1.4 per-cent. National figures for male and female literacy are 35

and 16 percent and provincial figures are 13.46 and 3.22 percent. Between 1972 and 1981 the male literacy rate increased from 9.0 to 10.3 percent and the female dropped by 0.1 percent (35). In 1985, 32 percent of school-age children were attending primary school as opposed to 13.1 percent in 1974. This increase in a decade has been 28.5 percent for male students and 8.23 percent for female students. Secondary education, however, has declined, with a fall of 0.12 percent in secondary school-age children attending school. The reason for the increase in primary education is not due to any appreciable increase in schools but in the teacher-student ratio (36). An encouraging sign is the increase in female teachers between 1974 and 1985. In 1974, there was one teacher to 223.9 girl students. In 1985, the figure was 1 to 51 students.

### 1.6 Employment:

Out of a total population of 188,193 in the district, 61,651 were employed in 1981. Of this, 76.5 percent are employed in fishing, hunting and agriculture; 0.85 percent in mining and quarrying; 2.8 percent in manufacturing and construction and 19.8 percent in the services sector (37). It can be safely assumed that the population engaged in the services sector are from the coastal belt and those engaged in mining are from the non-coastal areas.

## 2. MIGRATION

### 2.1 In-migration:

The 1981 census shows that 0.06 percent of the rural and 19.9 percent of the urban population of the district has migrated to the area from other districts of the country. Separate figures for the coastal and non-coastal subdivisions are not available. However, almost all of this in-migration has obviously taken place in the coastal region where settlements, especially Gadani and Hub, have increased due to industrial expansion (38).

### 2.2 Migration abroad:

Again, the 1981 census figures show that 11.8 percent of the rural and 0.7 percent of urban population of the district has gone abroad. This migration is almost entirely to the Middle East (39). Although separate figures for the coastal and non-coastal subdivisions are not available, one can, given the sociology of the district, safely assume that this migration has taken place from the coastal belt.

## 2.3 Migration within the district and to other parts of Pakistan:

The 1981 census does not give any figures of migration from the district to other parts of Pakistan or within the district itself. However, conversations with residents of Damb Bunder, Gadani, and representatives of a fishermen's welfare associations in Karachi, show that such migration does take place. It is permanent in some cases, and seasonal in most.

### a) Permanent migration:

Permanent migration, from and within the district, has taken place only to Karachi and the Hub Industrial Estate. In Karachi, the immigrants work at the fisheries and acquire residential land in settlements where their other clan members live. At the Hub Industrial Estate the immigrants work as unskilled labour. Families from the inaccessible parts of the Baluchistan coast have also moved to more accessible areas like Damb Bunder and Gadani. For instance, there are 3 extended families from Hingol who have settled in Damb Bunder. It is generally agreed that this migration is far too small to warrant any attention.

### b) Seasonal migration:

#### 1. From Lasbela to Karachi:

Between June and August the sea is far too rough for boats, other than trawlers, to go into the open sea. For this reason fishing communities from Damb Bunder, Gadani and the Hingol estuary go to Karachi and work as khalasis on trawlers. The same happens during the prawn season between March and June. Damb Bunder residents estimate that about 35 percent of the male population goes to Karachi in these seasons.

#### 2. Within Lasbela:

Due to the growth of fishing activity on the Lasbela coast the demand for boat hands and transport facilities have increased in the coastal settlements. At Damb Bunder, over 40 percent khalasis come from Uthal, Bela, Lyari and Lakhra. The donkey-cart operators at the beach are almost entirely from Bela. They are agriculturists in over there and go back between May and September. This period coincides with the slack period in fishing and is also the sowing season for millet and corn. The true extent of this seasonal migration cannot be estimated through the information available.

## 3. HEALTH

### 3.1 Infant mortality and morbidity:

Figures for infant mortality and morbidity, EPI coverage and for the occurrence of various diseases are not available. However, some understanding of health conditions does emerge from statistics of health-care facilities in the district and from what has been observed at Damb Bunder and Gadani.

### 3.2 Health-care facilities:

Health-care facilities in the district are among the poorest in Pakistan. There is only one 12-bed hospital in the district and between 1974 and 1985 the number of persons per hospital bed has gone up from 11,226.4 to 15,678.6. The number of beds in the RHCs, however, have increased from 4 in 1974 to 30 in 1985. This increase is of much less value than it sounds because almost all RHCs are without adequate staff, medicines, or equipment. In the district, in 1985, there was 1 doctor for every 13,438.5 persons; 1 paramedic for 37,627.8 persons; 1 TBA for every 3,135.7 females and no X-Ray units or pathological laboratries (40).

### 3.3 Conditions at Damb Bunder:

There is a government dispensary at Damb Bunder. It has a post for a doctor but for the past few months this post has been vacant. Even when there is a doctor he is usually away from the settlement. At present a compounder is managing the dispensary which has a chronic shortage of medicines, no sterilization equipment, no ORS stock and no LHV or midwife. For all serious illnesses people go to the Civil Hospital at Uthal, 40 kilometres away, or to Karachi. A qualified compounder, Mohammad Hasan Baluch, has been working as a private practitioner in Damb Bunder for the last 28 years. He prescribes patent medicines which can be purchased in the bazar. According to Baluch, the most common diseases are stomach worms, diarrhoea, kidney stone, polio and jaundice. There is also a midwife in the settlement. She is 80 years old and leaves behind no professional heir.

### 3.4 EPI coverage:

One year ago, for the first time, an EPI team visited the settlement. After a couple of days it left. It has never returned since. Residents estimate that no more than 5 percent of the children were vaccinated.

## 4. SOCIO-ECONOMIC PROFILE

### 4.1 The traditional order and the process of change:

#### a) Clan affiliations:

The people of the coastal region of the Lasbela district belong to various tribes. They are Alyasanis, Rajputs, Mandra, Khashkhelis and members of other Baluch sub-tribes. In other areas of the district these tribes would follow different professions and have their separate clan organizations. In Lasbela, however, due to a lack of agricultural activity, clan groupings have never been organizationally strong, and since agriculture here depends on highly erratic and meagre rainfall, all the clans have been involved in fishing. Thus, there has been constant interaction among the different clans and marriages between their members are not uncommon. Agriculture, whenever possible, however, was carried out by traditionally agriculturist clans such as the Khaskhelis and Rajputs. Few artisanal skills were needed in such a society and these were limited to the making of small boats, carts and primitive agricultural implements. Previously each clan had a leader, or 'jam' whose main function was to settle disputes between clan members or families. The position of the jam was ensured by his comparatively greater prosperity, which was the result of his control over large tracts of usually barren rain-fed agricultural land. Contacts with the outside world were almost non-existent as was government involvement in the area. This state of affairs, and the almost universal poverty that accompanied it, created a fairly democratic and egalitarian social order.

#### b) The process of change:

After the establishment of the Fisheries Department by the Government of Pakistan, Karachi and Mianwali entrepreneurs became active in the area. Initially they used their own boats and nets for fishing and employed the local population as khalasis. Thus mechanized boats and new techniques of fishing were introduced to the people. However, these entrepreneurs found it difficult to manage their affairs on the coast. This led to their appointing middlemen from the area to be go-betweens between them and the khalasis and they disinvested in their boats and nets. Credit is now given to the coastal people by the middlemen who were originally fishermen themselves, for purchase of boats, motors and nets. In exchange the middlemen buy the catch from the boat-owners at half the market price. Many of the middlemen have now become principals of fishing companies and still live in their old settlements. These middlemen are the new 'jams' or 'waderas', and since they are the economic

power in the area, the old hereditary system of leadership and the democratic society that went with it have ceased to be. The people of Damb Bunder, for instance, have no love for these company owners and middlemen and consider them exploiters. Since the previous society was not economically a class-ridden one, social mobility in the coastal area of Lasbela was not too much of a problem. Thus, there are many boat-owners who have boats of their own which they have purchased from loans taken from the Agricultural Development Bank. Similarly, there are local truck-owners who transport the catch to Karachi. In some instances, such as in Gadani, loans are given for boats and nets on a commission of 12 to 15 percent of the value of every catch till twice the value of the loan is repaid. Easy access to Karachi, especially for the Hub sub-division, has also been a major factor in a change of attitudes among the people. For instance, many of the elected councillors and organizers of political parties, in both Damb Bunder and Gadani, do not come from the new affluent class or the old privileged one. Some of them are openly critical of the manner in which fishing is organized and would like to see the emergence of a more equitable system.

c) **Cultural effects of the change:**

The introduction of loans for fishing has increased the productivity and incomes of the population and finished off whatever little involvement they had with agriculture. It has also increased demands for, and dependence on, city-produced consumer goods and a growing involvement in local government affairs and politics. In these changed conditions, it is natural that the people have abandoned a number of old rituals. For example, music, song and dance were common on all festive occasions. The performers were local. Now such festivities are rare, except on marriages, and performers are hired from Karachi for this purpose. Wandering minstrels no longer roam the countryside and collective visits to the tombs of saints seldom take place.

## 4.2 Livelihoods:

Except for a small number of people engaged in forestry, the entire coastal belt is in some way or the other involved in fishing or related activities.

## 4.3 Fishing and related activities:

Various activities related to the fishing industry are described below along with incomes associated with them.

a) **Khalasis:**

An estimated 80 percent of the coastal population owns its own boats. However, 70 percent of these boats are small and cannot go out into the open sea. These small boat-owners and those without boats, work as khalasis on larger boats, when there is a demand. They get a share of the value of the catch, as in the case of the Thattah coastal area, after deductions for the boat, net, provisions, diesel, engine, the owner, have been made. The average earnings of a khalasi in Damb Bunder is between 7,500 to 9,000 rupees per year.

b) **Boat-owners:**

Almost all boat-owners have borrowed money from middlemen for the purchase of their boats, engines and nets. In Damb Bunder they are forced to sell their produce to these middlemen at half the market price. Every year they borrow money again for the purchase of nets, ice, provisions, diesel and repairs. It is estimated that a 30-feet boat earns 100,000 rupees a year and costs, with an engine, the same amount. The owner, after paying the khalasis, overhead expenses and about 1,800 rupees per year for himself, will need an additional 100,000 rupees for the next year to keep the boat in operation. In Gadani, as mentioned earlier, loans are available on a commission of 15 percent of the value of each catch until twice the value of the loan is paid off. In this case, the loan on a boat is paid off in 6 to 7 years but by that time the engine needs to be over-hauled and a new loan may be needed for that. Earnings of people who have taken loan on commission can be as high as 36,000 to 48,000 rupees a year.

c) **Bayparis:**

As in the Indus delta, bayparis purchase fish from the fishermen for the Karachi market. They give loans for boat-making, purchasing of nets, engines, provisions, ice and diesel. In the Lasbela area most bayparis have registered companies through which they operate and are not dependent on Karachi entrepreneurs and businessmen for financial support as in the Indus delta. Earnings of the larger companies can run into millions per year.

d) **Boat-makers:**

Boat-making is common both in Gadani and Damb Bunder. Timber for this work is imported from Karachi and as the road is good this importation poses no problems. The boat-makers are local and have been trained 'on site'. They employ apprentices who will carry on this tradition. In Damb Bunder there are four boat-makers and they always have orders from

the settlement itself. It is estimated that they earn anything from 40,000 to 60,000 rupees a year. Their skilled helpers earn a daily wage of 80 to 90 rupees per day and the unskilled ones 40 to 50 rupees.

### 4.4 Agriculture and forestry:

Cultivation in the coastal belt is rainfed, and very meagre. Often the rains fail and there is no crop. Agriculture is carried out by the Jats and the Sheikh clans. The main crop is 'bajara' (41) and 'jawar' (42). Apart from agriculture, they also cut timber from the forests along the seasonal torrents and sell them as firewood at the coastal settlements. These forests, in some cases, are over 40 kilometers from the coast and so the firewood has to be transported on camel-back. These camels are used for ploughing the land whenever agriculture is possible. Supplying firewood in the Lasbela district is a more reliable source of income than agriculture, and the average earning of a family engaged in this work is about 25,000 rupees a year.

### 4.5 Services sector:

A number of activities provide support to the fishing industry in the coastal belt. Donkey-carts carry fish from the boats to the store-houses of the fishing companies and provisions for boat crews from ration shops to the boats. Where donkey-carts cannot operate due to excessive sand, as in Gadani, this work is done by daily wage labour. Loans of upto 4,000 rupees for the purchase of a pair of donkeys and a cart are available from Hindu banias in Sonmiani. Donkeys and camels also carry water from distant water sources to the coastal settlements. In a season (September to March) donkey-cart operators in Damb Bunder earn upto 3,000 rupees per month. Trucks and pick-ups bring ice from Vindar, wheat and rice from Karachi and carry back fish across the Hub river. They employ drivers, cleaners and loaders. The people who perform these functions are entirely from the Lasbela district. Earnings of the population employed in this sector vary from 800 rupees for a cleaner or caretaker to 1,500 rupees per month for a driver and a record-keeper.

### 4.6 Transportation costs and their effect on the cost of consumer goods:

A good road links the major coastal settlements of the district with Karachi. Thus, transport costs are not high and an increase of only 7 to 10 percent over the Karachi price takes place on major consumer items such as cement, cigarettes and timber for boat-building.

### 4.7 Food:

The people of the coastal area eat fish with all their meals. Cereals are wheat and rice, which are imported from Karachi. Vegetables are eaten not more than once a month and are also supplied from Karachi. Meat is consumed only once a year, on 'Bakra Id' (43), or on the weddings of the more affluent residents.

## 5. STATUS OF WOMEN

Women in the Lasbela coastal belt are segregated from men outside the extended family or close clan relatives. This determines their position in society. They look after the house, children and animals and wash and stitch clothes. They gather firewood and water, in cases where it does not mean going too far from their settlements or to areas inhabited by other tribes. Gathering of firewood and water are declining as more and more people purchase firewood from Jats and Sheikhs and as the government introduces piped water schemes. Previously, a major activity of women was making fishing nets. This is no longer necessary as almost all nets in use now are ready-made nylon ones. In spite of this women have very little spare time to themselves and almost no social life or outing. Although girls are still seldom sent to school, there is a consciousness that education other than the traditional reading of the Koran is necessary for them. This is borne out by figures given in paragraph 1.5. 'Imams' (44) and 'maulvis' (45) are the main deterrent to a change of attitudes towards women.

## 6. HOUSING

### 6.1 Materials of construction:

Almost all houses in the Lasbela district, except in Gadani, are constructed of a lai frame, with lattice-work walls of the same material, plastered over with mud. In areas where it is more easily available, timmar is used instead of lai. But even there people have a preference for lai as it is easier to work with and is not twisted like timmar. The roof is pitched and finished with mats made from fine branches of shrubs. The floors are compacted earth covered with mats. In some cases, no lattice walls are raised and mats, with appropriate lai or timmar supports act as the walls. In recent years, the slightly more affluent have started using bamboo as a structural member for the roofs. This bamboo is imported from Karachi. Left-over of timber planks and shavings from ship-building activity are increasingly used for wall construction. Most of the recent houses have been built in this manner. Near Gadani, there is

a large ship-breaking yard and in the town an intensive ship-building activity. A number of houses in Gadani reflect this reality. Scrap from the ship-breaking yard, including lights, steel sheets, and channels, and discarded timber from ship-building have started to dominate domestic architecture in the town.

## 6.2 Planning:

Houses usually consist of one or two rooms and house a nuclear family. The extended family shares an open space around which its sub-families build their huts and in which animals, mostly goats, are housed. Cooking is done in a semi-open kitchen. It has low walls to protect the choola, from the South-West wind, and a roof. Latrines, if they are built at all, are placed far away from the houses. Water was stored in earthenware pots but now plastic containers from old ships are increasing used. Traditionally cooking was also done in earthenware pots. These have been replaced, in the accessable settlements, by city manufactured aluminium utensils.

## 6.3 Houses of the affluent:

Richer people in the coastal settlements have now started to build their houses in cement concrete blocks and with asbestos cement sheet roofs. Reinforced concrete roofs are also used but in rare cases. Support for the asbestos roofing is provided by bamboo poles, left over timber from ship-building or steel channels from the Gadani ship-breaking yard. The houses of the affluent have courtyards, verandahs and latrines, so that greater privacy in ensured. They tend to imitate the style of middle-class houses in the large urban centres of Pakistan. Cement for these houses is imported from Karachi and costs 86 rupees a bag at Damb Bunder, as opposed to a Karachi price of 79 rupees. Aggregate comes from the bed of nearby hill torrents and seasonal rivers.

## 6.4 Land for housing:

The major part of almost all the coastal settlements are technically speaking, 'katchi abadis'(46), as most residents do not have tenure rights. This is especially true of the expansion that has taken place since the 1960s, which per-force had to take place illegally on state land, as private land was too expensive to purchase and impossible to encroach upon. There is no government move to regularize these encroachments although there are statements of intent to that effect. Nor are there any schemes to subdivide state

lands for housing purposes. If anyone needs land to build a house he encroaches on an area, provided his neighbours-to-be do not object. So as to prevent eviction for illegal squatting he then has to pay a bribe to the 'tehsildar' (47) at the relevant tehsil headquarters. This illegal gratification, at Damb Bunder, is normally between 2,000 to 10,000 rupees, depending on the location, size and the paying capacity of the squatter. Both in Gadani and in Damb Bunder, the demand for regularization of occupation has been an issue in recent local body elections.

## WATER SUPPLY AND SANITATION

7 7.1 Water supply:

a) **Traditional water collection systems:**

As mentioned earlier, most of the coastal settlements are situated at or near the esturaries of seasonal hill torrents. Earth dams are built at regular intervals in the torrents to catch some of this water. It is from wells dug in the beds of these channels that most of the settlements receive their water. If the wells are not more than 5 or 6 kilometres away from the settlement, women carry water from there to their homes on their heads or on donkeys. If the wells are farther than that, water is carried back on donkeys or camels, often by professional water vendors. If it does not rain for a couple of years, the wells become saline, in which case the population simply puts up with having to drink brackish water.

b) **Piped water schemes:**

The Government of Baluchistan has initiated a number of piped water schemes in the district. These consist of pumping water from improved locations in the beds of the hill torrents to surface water tanks in the settlements, and sometimes to an overhead water reservior. A number of persons acquire house connections, although this means paying a charge of 30 to 40 rupees a month. This is considerably cheaper than paying a water vendor. The system, both in Damb Bunder and Gadani, is inoperative 15 to 20 times a year for 3 to 4 days at a stretch. During such periods people revert to their traditional sources of water. Water schemes are managed by District and Union Councils and Town Committee. The councillor, Mohammad Ismail of Damb Bunder, gets 30,000 rupees year as a grant from the UC. He spends almost all of this on maintenance and operation of the water scheme in the settlement and the small length of road that exists in this area.

## 7.2 Sanitation:

Generally there is no system of latrines and waste water disposal in the settlement. People excrete in the open, some distance from their houses. However, a few affluent families have built latrines. For example, in Damb Bunder, 8 families have proper pit latrines and another 30 have bucket latrines. In large settlements, such as Gadani, where densities are high and it is not easy to excrete in the open without being watched, over 20 percent of the houses have stated to use bucket latrines. A scavenger cleans out these latrines every few days. There is no solid waste management in the settlements with the result that they are littered with plastic bags, tin containers, used nets and other inorganic materials. Luckily, waste water disposal does not pose a major problem as yet, as the soil is sandy and the water seeps through easily.

# 8. SOURCE OF COOKING FUEL AND LIVESTOCK FEED

## 8.1 Source of cooking fuel:

Lai and 'Babar' (48) trees grow along the hill torrents or in depressions where rain-water gathers. Often these trees are planted and looked after by clans, such as the Jats, who are also engaged in seasonal agriculture. The branches of these trees are cut and carried to the coastal settments on camel back. If the distance to the settlement is too far for a daily journey, entire camel carvans, carrying enough fuel to last a month, come and camp outside the settlement. People purchase their stock on a daily or weekly basis from these camelmen. Sometimes local middlemen purchase parts of the stock and sell it to their fellow villagers at a higher price. In certain coastal areas there are 'devi' (49) forests or clumps near the settlement. Many of these have been planted by the forest department to protect the new metalled roads from sand drifts. Women, of families who can not afford to purchase fuel from the Jats, collect firewood from this source. Devi however, burns poorly. In more recent years, Pathan (50) settlers in Vindar have started making charcoal out of Devi. This is sold to the coastal settlements and is cheaper than lai or babar firewood.

## 8.2 Source of livestock feed:

Since there is no natural vegitation that can sustain animals, except goat and camels, there are very few cows and no buffalo in the Lasbela coastal settlements. In Damb Bunder for instance, for a population of 2,000, there are only 100 goats and about 10 cows. Since the natural vegitation is not nourishing enough, the goats give much

less than normal milk. The cow-owners import corn and fodder for their animals from Vindar, the tehsil headquarters. The people in Damb Bunder and Gadani estimate that it is cheaper by 50 percent to use powdered milk than feed milk-producing cows. In the Sonmiani tehsil, at Naka Kharai, there is a colony of dairy farmers who keep buffalo. Feed for these animals comes from Karachi. All tea-shops in Damb Bunder and Sonmiani purchase milk from here.

## 9. COMPARISON WITH OTHER DISTRICTS OF PAKISTAN

Lasbela is one of the most backward districts of Pakistan. It is, therefore, interesting to compare it to Thattah, which in the context of Pakistan is also a backward district, as made obvious in para A - 9. In addition, Thattah like Lasbela, has a large coastal belt. In area Lasbela is much larger than Thattah, but has a lower density of population, 14.9 per square kilometre as against 43.9 for Thattah; a much smaller population, 188,193, as opposed to Thattah's 761,039's; a larger percentage of urban population, 16.3 percent, as opposed to 9.5 for Thattah; a lower literacy rate, 6.4 percent, as opposed to 17.8 percent for Thattah; poorer education facilities with only 9.3 percent females of primary and 0.10 percent of secondary school-age attending school as opposed to Thattah figures of 10.9 and 0.72 percent respectively. In addition, Lasbela has no degree colleges and vocational institutions. 2.8 percent of the population in Lasbela is involved in manufacturing and 19.8 percent in the services sector, as opposed to 1.42 and 4.3 respectively for Thattah. Again, health facilities in Lasbela are far poorer than in Thattah, with one hospital bed for every 15,678 persons, as opposed to the Thattah figure of 2,370. However, Lasbela's small population, weaker traditional leadership, and its coastal area's economic dependence on Karachi make it more open to change (51).

## 10. DESCRIPTION OF DAMB BUNDER

### 10.1 Location:

Damb Bunder has a population of 2,000, and is situated on the main creek of Miani Hor, a large marsh, which is the estuary of the Porali river. Damb Bunder is in the Vindar tehsil. The area around the settlement consists of alternating sand dunes and flats, with clumps of Devi shrubs. The opposite side of the marsh is visible and contains mangrove forests. Being on the shore of a creek, Damb Bunder is protected from the open sea, so that in the stormy season during the South-West monsoon, boats can be left in the water and remain operative,unlike in settlements

on the open sea.

10.2 Approach:

From the RCD highway, about 80 kilometres from Karachi, one turns South-West towards the sea. This metalled road takes one through Sonmiani to Damb Bunder, a distance of about 20 kilometers from the RCD highway. Sonmiani was the original port, famous in history, but physical changes in the coast-line, due to erosion by the sea, forced the Sonmiani fisher-men to move to Damb Bunder. The road between Sonmiani and Damb Bunder runs in the most part along the Miani Hor. On either side of the road, from the RCD highway to Sonmiani, there are Devi plantations developed by the forestry depart-ment to protect the road.

10.3 Transport to and from Damb Bunder:

Four buses ply between Sonmiani and Karachi. The bus fare is 12 rupees. People from Damb have to walk or take a donkey-cart ride to Sonmiani to catch the bus.

10.4 Description of the settlement:

The road from Sonmiani ends at the creek. Its last 300 meters is the Damb Bunder Bazar. It consists of 10 tea-houses of which 4 also serve food, provision stores, cloth-shops and a barbers establishment. Open air storage space for firewood is also a part of this bazar. Most of the tea-houses belong to people from Sonmiani and are open 24 hours of the day, as they cater to fishermen whose boats come and go at all times of the night and day. Towards the North of the bazar, there are a few dilapidated concrete structures. These are the dispensary, the girls primary school and the boys middle school. A mosque, also in concrete, is the most impressive structure in the settlement. Further North, beyond these structures, are concrete block houses which belong to the more affluent Damb Bunder residents. Towards the South and East of these structures, nearer the sea, are the houses of the fishermen. These houses are in clusters with large open spaces in-between. Each cluster contains an extended family of 6 to 7 nuclear families. Almost all these houses have timber board walls and thatch roofs. Some have GI sheet roofs, and a few, absestos sheet roofs. Still nearer the sea are the homes of migrant khalasis and daily wage labourers. These are made of timmar or lai skeletons with mat walls and roof. Some have used tin, carboard, or plastic sheets for walls and for roofs as well. In the space between these clusters are store houses of the companies and middlemen. 20 such establishments exist and consist of a

verandah, with a large terrace in front of it, where the fish is weighed; a store house and a small office. The older structures are of board and the newer ones are of concrete blocks and asbestos sheets. Piles of fish, used nets, plastic bags and damaged cardboard containers litter the water front. The present settlement is in danger of being destroyed by the action of the sea which is eroding the shore. It has already effected the middle school building. At exceptionally high tides the water now comes right into the settlement. The bazar is safe as the road there is raised well above the level of the shore. The settlement has shifted twice in the last 30 years because of the action of the sea. To the South of the bazar, there is a large natural depression where all the garbage gets collected and since the surface water supply tank is also here, there are large pools of stagnant water. There are four boat-makers on the beach and their stocks of timber lie in the open. A lot of materials, in the form of containers, timber, furniture from old ships, purchased or acquired from the ship-breaking yard in Gadani, are in use in the settlement, including fibre-glass boats. 30 years ago Damb Bunder was a small settlement of 30 to 40 houses. These were made of timmar lattice-work and mud infill. The present expansion of the village, and the hectic activity one sees here, is the result of the expansion of the fish industry which has extended mechanized boats, new types of nets, and credit facilities for the local fishermen.

10.5 Government and community facilities:

a) **Education:**

In the settlement there is one Government middle school and a primary school for girls. The boys school has 150 students and 8 teachers of which 3 are locals. The girls school has only 1 teacher and 30 students. The Khateeb (52) of the Jamia Masjid (53), Haji Ibrahim Baluch, gives religious education, free of cost, to boys, and to girls of below 13 years of age.

b) **Health:**

There is one Government dispensary, without a doctor, LHV or midwife. It has inadequate medicines and equipment and is physically in a decrepit condition.

c) **Water supply, sanitation and electricity:**

1. **Water supply:**

There is a water pipeline from Vindar with 5 standposts in Damb Bunder. The richer people, about 15 in number, have

taken house connections and collect water in underground storage tanks. Water supply is erractic and last year failed at least 20 times for 4 to 5 days each time. The people at such times fall back on their traditional source of water which is shallow wells about 8 kilometers from the settlement.

2. **Sanitation:**

There is no waste water disposal system in Damb Bunder. However, waste water does not easily form into large stagnant pools as the soil is sandy. About 40 houses have latrines. Of these about 30 are bucket and the rest pit latrines. There is one scavenger who cleans the bucket latrines at 60 rupees a month. The rest of the population excretes in the open, generally near the sea shore. There is no garbage collection system either. Solid waste collects to wherever the wind carries it. The sea shore is especially badly effected with inorganic materials partly buried in the sand.

3. **Electricity:**

Damb Bunder has no electricity. The middlemen and company-owners have diesel generators. They have given connections to the hotels and tea-houses at 8 rupees per day for 1 tube light. The rest of the population uses kerosene lanterns. One lantern consumes about 20 rupees per month if it is used for 4 hours each day.

## 11. ENVIRONMENTAL IMPACT OF DEVELOPMENT ACTIVITIES

### 11.1 The expansion and modernization of the fish industry:

The introduction of mechanized boats, nylon nets and credit facilities for the fish industry since 1960, coupled with a local demand for poultry feed and an international demand for Pakistani catch, has had a profound impact on the environment. As a result of these actions populations in the coastal settlements increased considerably as a large number of people turned to fishing. In 1960, 15,785 persons were involved in fishing on the Baluchistan coast. By 1970, this figure had increased to 28,600. Sail-boats declined and were almost entirely replaced by mechanized craft between 1980 and 1985. Apart from raising incomes, this expansion established closer links with Karachi. Migration, seasonal and permenent, related to work in the fisheries started to take place. Boat-building industry has also expanded, and with it diesel and oil requirements, which have resulted in the beginnings of marine pollution. These factors have brought about major changes in attitudes. Agriculture and

forestry have declined, although people are consuming larger quantities of grain and firewood as compared to, say, 10 years ago. This is leading to deforestation and a growing dependence on Karachi for food supply. Physical changes in the settlements have also taken place. The houses are now seldom made of lai or timmar with a mud infill and thatch roof. Walls are constructed of left over planks and wood shavings from boat-construction and the roofs are of GI and asbestos sheets, thus reflecting the new economic realities. Plastic bags, PVC crates and containers, nylon nets, rubber tyres, litter the beaches. There is, however, no solid waste management anywhere along the coast. Stagnant pools of waste water are a common site where piped water schemes have been implemented, and since the settlements have increased in area, it is increasingly difficult to go into the wilderness to excrete. The operation of trawlers from Karachi, off the Lasbela coast, are a source of anxiety to fishermen. According to the fishermen they denude the coast of all fish life, including baby fish and fish eggs. They feel that due to this the quantity of fish is decreasing. The trawlers also dump dead unwanted fish back into the sea, creating pollution which drives away other fish life. By law, the operation of trawlers cannot take place within 12 miles of the Baluchistan coast. The residents of Damb Bunder, however, are definate that this law is constantly violated.

## 11.2 The setting up of industry:

### a) The Hub Industrial Estate:

The Hub Industrial Estate in the Lasbela district has attracted a lot of labour from other parts of Pakistan, especially Karachi, and has thus changed the ethnic composition of the Hub subdivision. It has also led to considerable air pollution and farmers in the neighbourhood complain that not only has agriculture been adversely effected, but also their health. As an example of the effects of pollution, people point to the case of Bela Chemicals, 5 miles from Vindar. Chlornic gas emissions from the factory have completely destroyed fruit gardens and plants. Local residents have had to move from its vicinity as there was no grass left for their animals. People in Damb Bunder have also mentioned that labourers faint regularly in the factory.

### b) Gadani ship-breaking yard:

Employment activities provided by the ship-breaking yard at Gadani have not attracted the people of the district. Labour at the yard is almost all Pathan and Punjabi. The locals, however, do operate animal transport. Still,

materials from the destroyed ships, as described in paragraph 6, have had an effect on domestic architecture of the coastal belt. Fibre-glass life-boats from the ships, suitably mechanized, are also in use for fishing purposes. However, fishermen feel that these boats are more suitable for transport than for fishing. In either case they are cheaper, (25,000 rupees for a 30 feet boat as against 80,000 rupees for a similar sized timber one) require less maintenance and are more stable in high seas than the traditional timber boats.

c) **The Hub Dam:**

The Hub Dam, on the river Hub, has reduced the flow of water in the river below Lang Laharani, to no more than a trickle. The water from this dam is used for Karachi. The effect of the drying up of the Hub on the coastal communities down-stream of Lang Laharani could not be properly ascertained. However, according to the population at Gadani, agriculture on the river banks has declined and the settlements at the estuary no longer have adequate drinking water. It seems that wells dug by the people near the river estuary now become dry long before the rainy season.

## 12. COOPERATIVE COLLECTIVE EFFORTS

There have been efforts by the fishing community, both in Damb Bunder and in Gadani, to come together to try and tackle their problems. The Mahegir Faleh-o-Bahbood Anjuman (54) was formed in Damb Bunder in 1986. It had 140 members. Its aim was to pressurize the companies and middlemen to accept the system of deducting commission from the value of a catch rather than purchasing the catch at less than market rates, from their creditors. However, the companies and the middlemen put economic pressure on the members of the Anjuman, along with threats of violence, and the organization had to wind up. The organization had the backing of the Pakistan People's Party's local organization. The Party in those days was in the opposition, unlike today. There are no moves afoot to revive this Anjuman. In Gadani, an organization is in the process of being born. Its name is Baluch Yakmusht Welfare Association (55). Its president, Abdul Khaliq, is the owner of a tea-shop and its secretary is a compounder in the government dispensary in Gadani. The aim of the Association is to involve people in discussion and debate on the conditions in Gadani and then to organize the community in seeking solutions to the problems of the town. It is important to note that the initiative for setting up these organizations, both at Damb Bunder and Gadani, has not come from the previously privileged classes or the new economically powerful ones, and nor does it have their involvement.

## 13. PERCEPTIONS OF THE ENVIRONMENT

The residents of both Damb Bunder and Gadani, who were interviewed, had not only an understanding of the environmental issues that were effecting their lives, but a willingness to do something about those that were effecting them economically. They understood the repercussions of deforestation; the role of trawlers in destroying fish live; and the problems created by piped water schemes and the Hub Dam. They knew and were concerned about the environmental problems being created by Bela Chemicals, and had sent press releases to various newspapers regarding this issue.

## C. GWADAR DISTRICT

### 1. DEMOGRAPHIC PROFILE

#### 1.1 Administrative divisions:

Gwadar is divided into two sub-divisions. These are the Gwadar sub-division and the Pasni sub-division. Both these subdivisions are coastal.

#### 1.2 Topography of the coastal areas:

Gwadar district stretches from the Iranian frontier in the West to the boundry of Lasbela district in the East. As in the case of Lasbela, habitation is normally found where hill torrents or rivers meet the sea. Major rivers are Dasht, with Jiwani at its mouth, and Shadi with Pasni near its estuary. For the most part the coast is barren and uninhabited and has no metalled roads at all linking it to other areas of the province or to Karachi.

#### 1.3 Population, surface area and density:

According to the 1981 census, the population of Gwadar district is 112,385. 38.48 percent of this population lives in urban areas. This figure is 29.6 percent for the Gwadar subdivision and 47.7 for the Pasni subdivision. One of the reasons for this is that there is comparitively more rainfall in the Gwadar subdivision and hence more agriculture and forestry. The total area of the district is 15,216 square kilometres, density per square kilometre is 7.4, and the household size is 6.3 (56).

#### 1.4 Population growth:

The boundries of the district changed between the 1972 and the 1981 census. However, if one works out the increase of population, between 1972 and 1981, of those areas of the district which still form a part of it, then there has been a growth of 26.19 percent or (2.9 percent per year) as opposed to a national average of 3.2 percent per year. The urban population has increased by 1.96 percent per year, and the rural by 3.62 per year (57).

#### 1.5 Literacy:

Literacy in the Gwadar district as per the 1981 census is

6.1 percent, as opposed to a national average of 26 percent and a provincial average of 8.87 percent. Male literacy is 10.8 percent and female 0.9 percent. National figures for male and female literacy are 35 and 16 percent and provincial figures are 13.46 and 3.22 percent. In 1984 there was 1 teacher to every 252 female students, and 1 to every 92.6 male students.

### 1.6 Employment:

Out of a total population of 112,385 in the district, 57,454 were employed in 1981. Of this 82.1 percent are employed in fishing, hunting and agriculture; 0.2 percent in mining and quarying; 5.7 percent in manufacturing and construction and 11.9 percent in the services sector (58). It can be saftly assumed that the population engaged in the services sector are from the urban settlements.

## 2. MIGRATION

### 2.1 In-migration:

The 1981 census shows that 0.25 percent of the rural and 1.16 percent of the urban population of the district has migrated to the area from other districts of the country.

### 2.2 Migration abroad:

Again, the 1981 census figures show that 6.2 percent of the urban and 0.06 percent of rural population of the district has gone abroad (59). This migration is almost entirely to Muscat and Oman where the people of the district have been serving in the army for many generations. Before it was stopped, about 1,000 persons from the district used to be recruited for the Gulf armies and police every year. In Pasni, it is estimated by the people, that 20 percent houses have 2 to 3 persons each, working in the Gulf.

### 2.3 Migration within the district and to other parts of Pakistan:

The 1981 census does not give any figures of migration from the district to other areas of Pakistan or within the district itself. Conversations with people in Gwadar, Pasni and Sur show that there is no major movement of this nature except to Karachi, where seasonally 5 percent of male adults seek jobs in the fisheries. People in small numbers from the Quetta and Pishin areas of the province do come and work as 'tandoor' (60) operators, agricultural and construction

labour and for trade purposes.

## 3. HEALTH

### 3.1 Infant mortality and morbidity:

Figures for infant mortality and morbidity, EPI coverage and for the occurrence of various diseases are not available. However, some understanding of health conditions does emerge from statistics of health-care facilities in the district and from what has been observed at Pasni, Gwadar and Sur.

### 3.2 Health-care facilities:

Health-care facilities in the district, as in Lasbela, are among the poorest in Pakistan. There is no hospital in the district at all. There are 3 RHCs with 30 beds. Thus, there is 1 bed for every 3,746 persons. Similarly, there is 1 doctor for every 8,645 persons; 1 paramedic for 22,477 persons, and 1 TBA for every 3,534.9 females. There are no X-Ray facilities and no pathological laboratory (60).

### 3.3 Conditions at Pasni:

There is one RHC at Pasni with 2 qualified doctors, both residents of the town. 150 patients visit the dispensary daily. There is an X-Ray unit but no technicians to operate it and no pathological laboratory. An LHV, from the Punjab, is available to assist in deliveries. Absence of a lady doctor does pose problem for the female population. The 'catchment' area of the RHC is a radius of 60 kilometers. This area is large because the only other dispensary in the subdivision is at Kalmat, about 75 kilometers away. Common diseases are anaemia, due to mal-nuitition; TB; hypertension among women and eye diseases. Dioarrhea is also common and the RHC has an adequate supply of ORS for the limited needs of its patients. There is also an EPI office, the only one in the Pasni subdivision, and it keeps proper records. In 1988, only 164 children were fully immunized here. This figure is low because out reach activities cannot be carried out because the office has no disposalable syringes, vehicles or proper refridgeration facilities for vaccines. In addition, the councillors and the Chairman of the Town Committee and the various UCs are not involved in this programme.

## 4. SOCIO-ECONOMIC PROFILE

### 4.1 The traditional order and the process of change:

#### a) Clan affiliations:

As in the case of the Lasbela district, tribal and clan organizations in Gwadar district were never very strong. This was because agriculture was meager and depended solely on erratic and insufficient rains. Further North, in Makran, there are large streams such as the Kech and Dasht, which have substantial water in them at certain times of the year. Along these streams fairly extensive agriculture and fruit farming has been carried on since times immemorial. The produce of these activities has been exported, not only to the coast, but also to the Gulf. Thus these farmers with their stronger clan organizations came to politically dominate the coastal belt and appointed 'Nazims'(61) to govern it. Tradition has it that the original fishermen were Kalmatis, who lived around the Kalmat basin. Today, however, people of all tribes participate in fishing activity.

#### b) The process of change:

##### 1. Connections with the Gulf:

The Makran coast has had constant contacts with the Persian Gulf, and through the Muscat - Oman maritime empire, with Africa. A sizeable part of the population is decended from African slaves, hired soldiers and traders. These factors made it difficult for the Baluch tribal system to fulfill its traditional functions on the coast. From the eighteenth century onwards these factors were supplemented by central control of the coast from either the Sultanate of Oman or the Baluch Confederacy at Kalat. Another factor which has contributed to the changes that have taken place is employment in the Gulf. As mentioned earlier, it is estimated that between 1960 and 1985 about 1,000 persons from the district were recruited as soldiers and policemen by the Gulf Governments every year. The money they remitted home increased wages; changed the nature of houses people lived in; resulted in a decline of agriculture as cheap labour for it was no longer available; introduced consumer goods; expanded the services sector, especially transportation and made social and economic mobility possible. It also resulted in the import of food from Karachi, especially wheat. These changes have created a society in which, as an old Pasni resident put it, all are now 'azad' (62).

2. **Government intervention:**

Makrans wealth in fisheries is enormous. Its exploitation really began with the introduction, by the FAO for demonstration purposes, of mechanized boats and out-board motors. By 1985, the whole picture had changed with sail-boats declining in number from 1639 to 327, and mechanized boats and gill netters increasing from 846 to 2,206 and from 21 to 159, respectively,(63) in a period of 5 years. Along with this development, 'seths' (64) emerged on the same pattern as the bayparis in Lasbela and Thattah and ice factories sprung up as ice was required to protect the fish from rotting during its long journey to Karachi. The demand for diesel, spare parts for engines, timber for the increasing number of under-construction boats, mechanics for repairs increased with all this activity. For the most part this demand is now met by imports, by road, from Karachi. As the road to Karachi is bad, organizing this activity requires considerable managerial skills. At Pasni 3 to 4 trucks arrive from Karachi every day. They bring diesel, fodder, vegetables, kerocine and other necessities. They take back sharks, tuna, prawns, lobsters and pomfrets, all in ice boxes.

c) **Cultural effects of the change:**

The cultural effects of the change are similar to the changes that have taken place in the Lasbela district.

4.2 <u>Livelihoods</u>:

a) **Khalasis:**

It is estimated by the residents of the areas visited that 50 percent of the coastal families are khalasis. Many of these khalasis also have small boats of 6 to 10 feet which do not go into the open sea, and hence they cannot survive on incomes from them. Khalasis earn about 15,000 rupees a year. This is higher than in the Labsela or Thattah districts, but given the high cost of living it does not mean much.

b) **Labour for seths, shipping companies and ice factories:**

Drying of fish is a major activity on the Makran coast. This drying saves the seth the cost of ice required to preserve fish during its journey to Karachi. The fisheries department has constructed drying yards which are used by the seths on payment of a commission to the government. A number of people work as loaders, unloaders, packers, cleaners of fish and caretakers at these yards. Average earnings of a person employed in this activity is about

1,500 rupees per month. Fishing companies, which bring wheat to Pasni and Gwadar, also employ a large number of loaders and unloaders for their cargo. Since this supply runs into 200,000 to 300,000 bags of wheat a year, and since the ships anchor 5 or 6 kilometers from the shore, this is a very major excercise. Labour gets paid, at an average, 50 rupees per day for this work. In addition, all sail-boats are chartered to carry the wheat bags from the ship to the shore. A small number of people also work in the ice factories in Pasni and Gwadar.

c) **Boat-owners:**

Boat-owners, as in Thattah and Lasbela districts, are in debt to the seths. However, in Gwadar district, the relationship between the seths and the boat-owners is a far more unequal one than in the other two coastal districts. This is beacuse of bad road conditions between Karachi and the district, and hence the greater dependence of the boat-owners on the seths for supply of provisions, nets and other necessities for fishing activities.

d) **'Dallals':** (65)

In coastal settlements, where the seths cannot function directly, the dallal system operates. Dallals auction the catch of the fishermen to the agents of the seth or the fishing company. 5 to 10 percent of the value of the catch is taken by the dallal. Fishermen agree to this arrangement because at times they have to borrow money from the dallal for financing their fishing operations. These loans are paid off in cash on a yearly basis.

e) **Seths:**

Due to logistic problems created by the distance and lack of road facilities to Karachi, seths in the district seldom operate as individuals. They register companies, have partnerships and enroll a large number of support staff. Most of them belong to the Ismaili and Khoja communities, who have been traders and shopkeepers on the coast for many generations. Both these communities send their children to Karachi for education. In recent years many of them have moved their entire families to Karachi as they do not feel that conditions on the coast are "what they used to be".

f) **Boat-makers and mechanics:**

1. **Boat-makers:**

A very large number of boats are made in the Gwadar district. This is because, unlike the Thattah district, it is not possible to build boats in Karachi and float them

down. Most of the timber for boat-making comes from Karachi. However, with the establishment of a saw mill in Gwadar, local timber is also being used. There are over 70 to 80 'ostas' (66) in Pasni alone, working as boat-makers. According to Osta Amjad Baluch, about 12 launches of over 50 feet length and 80 of 20 to 30 feet length, are manufactured in Pasni each year. Ostas get paid between 80 to 150 rupees per day.

2. **Mechanics:**

Again, due to the lack of a good communication system with Karachi, boat enginges cannot be sent there for repairs or a mechanic asked to come from there to make the repairs. Therefore, out of demand, mechanics have established themselves in the major settlements and import spare parts from Karachi. These mechanics have been trained in the Gulf and in Karachi. The fisheries department operates a maintenance workshop in Pasni. People working there as apprentices will eventually open their independent businesses. Mechanics, in Pasni, who are employed in workshops earn about 150 rupees per day.

## 4.3 Agriculture and forestry:

An increasingly large number of people in the district have taken to fishing or gone abroad. This has created severe labour problems for the agriculture sector. Coupled with a recent cycle of drought, this has led to large scale importation of grain and vegetables from Karachi. As in Lasbela district, most agriculturists planted trees on their lands or along the torrents and sold this timber as firewood to the coastal settlements. This process still continues. Jats, Negwars (67) and Raykhani Baluch (68) bring this timber on camel back. Although these clans are not traditionally fish eaters, they have now started to buy fish from the settlements. Recently urban entrepreneurs have also started to go the forests to buy timber from the Jats. They transport it to the settlements by truck, thus reducing costs. It is no longer possible for agriculturists, or the suppliers of timber, to exist on earnings from their traditional work and they have to supplement their incomes from some other source. Almost invariably, this source is fishing.

## 4.4 Services sector:

Due to the fact that the Gwadar district has comparitively large urban populations, considerable capital, and that its road link with its principal market is poor, the services sector in the district is very large. Transportation of

fish to Mund, Tomb and Turbat, on the one hand, and to Karachi on the other, provides jobs to people as drivers, cleaners, loaders and unloaders. Donky-carts, and labourers where the beach is too sandy for the carts to operate, transport catch from the shore to the auction platforms or to the store houses of the seths. Similarly, ice has to be loaded, transported, sometimes over long distances, by truck, and unloaded again. Hotels, tea-houses and vendors to cater to this activity have also sprung up. Earnings of people employed in these activities are be between 1,000 rupees per month for loaders and upto 2,500 rupees for drivers. In addition, inter-city transport has also developed. A large number of pick-ups, financed by Gulf earning, ply between Turbat, Gwadar, Pasni and Ormara. These pick-up owners earn between 6,000 to 10,000 rupees a month.

### 4.5 Transportation costs and their effect on the cost of consumer goods:

Due to a lack of good roads in the district and poor links with the rest of the country, prices of consumer goods, including food stuffs, are 30 to 50 percent higher than Karachi. Similarly, fish is acquired by seths at less than half its Karachi value.

### 4.6 Food:

The people of the coastal area eat fish with all their meals. Cereals are wheat and rice, which are imported from Karachi. Vegetables are not eaten more than once a month and are also supplied from Karachi. Meat is consumed perhaps only once a year, on Bakra Id, or on the weddings of the more affluent residents.

## 5. STATUS OF WOMEN

Women in most of the Gwadar coastal belt, as in the Thattah and Lasbela districts, are segregated from men outside the extended family or close clan relatives. This determines their position in society. They look after the house, children and animals and wash and stitch clothes. Among the agriculturists they also manufacture mats. They gather water, and if they do not belong to fishing communities, firewood as well, provided it does not mean going too far from their settlements or to areas inhabited by people not known to them. Both these activities, however, are declining as firewood sources are becoming farther away from settlements and as the government introduces piped water schemes. Previously, a major activity of women was making fishing nets. This is no longer necessary as almost all

nets in use now are ready made nylon ones. In spite of this women have very little spare time to themselves and almost no social life or outing. Girls are still not sent to schopl and nor is a there a consciousness, apart from the Ismailis, the Khojas, and some of the youth, that education other than the traditional reading of the Koran is necessary for them. This is borne out by figures given in paragraph 1.5. Imams and maulvis, and above all Baluch traditional values which still survive, are the main deterrents to a change of attitudes towards women. In Gwadar, due to its close link with Muscat and also because it has an old urban culture, women do come out of their houses to shop and meet neighbours and friends. However, they have to be appropriately covered.

## 6. HOUSING

### 6.1 Materials of construction:

Most houses in the coastal settlements are constructed of a lai skeleton plastered over with mud. Timmar, apart from the Dasht estuary, is not available in any substantial quantity in the district. The roof is pitched and finished with mats made of branches of the "gaz" (69) plant. Mats of are also made out of the branches of the "peeche"(70) tree, are are of 2 kinds. One is made by men and is called 'gorpath'. It is used for the roof and sells at about 2 rupees per square foot. The other is made by women and is called "tagird". It is used for flooring and sells at 5 rupees per square foot. Often, the houses of the poor just have mat walls instead of lai lattice-work with earth infill. All these materials of construction are brought on camel back to the settlements from sparsely forested areas along or near the torrents by the same people who supply fuel wood. In recent years, structural elements of bamboo have also started to be used. Bamboo is imported from Karachi and costs 50 percent more than the Karachi price. However, it is still cheaper than lai branches of over 10 feet length and is easier to use. Cement in the Gwadar district comes from Karachi and costs 115 rupees in Pasni and 130 rupees in Gwadar. The Karachi price is 79 rupees. Aggregate is available in the torrents and in the hills. Stone in mud motar is used in the plinths of most traditional construction, and sometimes even in new concrete construction, so at to prevent rising damp.

### 6.2 Houses of the affluent:

Previously, affluent people built their homes of sun dried mud brick and date palm rafters. The bricks were used in thick walls and plastered over with mud mixed with straw.

The rafters, imported from Turbat, formed the roof structure. They were finished with gorpath and 18 inches of earth. This form of construction does not take place anymore. The thick mud walls have been replaced by 6 inches concrete blocks and the rafters by bamboo or steel sections. Gorpath is still used over this structure, but it is increasingly being replaced by corrugated sheets and reinforced concrete slabs. The new houses of the rich are copies of middle-income housing in Pakistan's larger cities and of government domestic architecture in the district. They have wash-rooms, pit-latrines and sometimes underground water tanks.

### 6.3 Land for housing:

Most coastal settlements are built on CBR land. Theoritically speaking, one should be able to get allotment of land from the CBR. However, in practise it is a long and difficult procedure. Consequently, as in the Lasbela district, people occupy land, if their neighbourers-to-be have no objection, and then come to some illegal financial settlement with the relevant state officials so as to prevent eviction or harassment.

### 6.4 Wages to construction labour:

Wages for construction labour in Gwadar district are much higher than in other districts of Pakistan, except perhaps Turbat. A mason earns 150 rupees a day and an unskilled worker 75 rupees a day. In other areas of Pakistan, a mason is seldom paid more than 100 rupees per day and an unskilled worker 50 rupees.

## 7. WATER SUPPLY AND SANITATION

### 7.1 Water supply:

**a) Traditional water sources and collection system:**

Traditional water sources and collection systems in the Gwadar district are identical to those in the Lasbela district's coastal areas, except that since settlements here are larger, water is in shorter supply, except perhaps in the Dasht estuary.

**b) Piped water schemes:**

The Government of Baluchistan has initiated a number of piped water schemes in the district. These consist of pumping water from improved locations in the beds of the

hill torrents to surface water tanks in the settlements, and sometimes to an overhead water reservior. A number of persons acquire house connections, although this means paying a charge of 30 to 40 rupees a month. This is considerably cheaper than paying a water vendor. This system, in the larger settlements, runs into problems because of the inadequacy of water at the source. Sometimes sea water has to be mixed with it to fulfill the requirement of the population. In Gwadar, there is a small desalinization plant, which points perhaps to a solution of this problem. Often, due to lack of proper management and over-pumping at the source, fresh subsoil water gets depleted and the wells become brackish. Water schemes are managed by District and Union Councils, Town Committees and the PHED, with no involvement of the people.

### 7.2 Sanitation:

Generally there is no system of latrines and waste water disposal in the settlements. People excrete in the open, some distance from their houses, except in large settlements where densities are high. However, a number of affluent families have built latrines. Most of these latrines are pit-latrines and follow the UNICEF model promoted by BIAD. There is no solid waste management in the settlements either, with the result that, where populations are large, settlements are littered with all forms of garbage. Even in a settlement like Pasni, which has a population of 18,000 and considerable revenues, no waste management programme exists.

## 8. SOURCE OF COOKING FUEL AND LIVESTOCK FEED

### 8.1 Source of cooking fuel:

Lai and babar trees grow along the hill torrents or in depressions where rain-water gathers. Often these trees are planted and looked after by clans, such as the Jats, Negwars and the Raykhani Baluch, who are also engaged in seasonal agriculture. The branches of these trees are cut and carried to the coastal settlements on camel back. If the distance to the settlements is too far for a daily journey, entire camel carvans carrying enough fuel to last a month, come and camp outside the settlements. People purchase their stock on a daily or weekly basis from these camelmen. Sometimes local middlemen purchase parts of the stock and sell it to their fellow villagers at a higher price. In certain coastal areas there are devi forests or clumps near the settlement. These have been planted by the forest department to protect the shingle roads in the district from sand-drifts. There is no evidence so far that local

populations have started cutting them down for firewood or for turning them into charcoal.

### 8.2 Source of livestock feed:

Since there is no natural vegetation or fresh water that can sustain animals, except goat and camels, there are very few cows and no buffalo in the Gwadar coastal settlements. In Sur for instance, for a population of over 3,000, there are only 200 goats and about 6 to 10 cows. Since the natural vegetation is not nourishing enough, except after the rains, the goats give much less than normal milk, with the result that the demand of the population of Sur cannot be met. The cow and donkey-owners import fodder and straw for their animals from Turbat and Karachi, or when it rains, from the nearby agricultural settlements. The people in Sur and Pasni estimate that it is much cheaper to use powdered milk than feed milk-procuding cows. Fodder costs in Gwadar are almost twice as much as in Lasbela or Thattah districts.

## 9. COMPARISON WITH OTHER DISTRICTS OF PAKISTAN

Like Lasbela, Gwadar is one of the most backward districts of Pakistan. It is therefore interesting to compare it with Tharparkar, which in the context of both Pakistan and Sind is a backward district. In addition, like Gwadar, Tharparkar has few metalled roads. The area of Gwadar is much smaller than that of Tharparkar: 15,216 square kilometers, as opposed to Tharparkar's 28,170. Density again is much lower than Tharparkar's: 7.4 as opposed to 53.3, and hence a much smaller population, 112.385 as opposed to 1,501,882. Literacy in Gwadar is 6.1 percent, as opposed to Tharparkar's 16.4. Female literacy in Gwadar is 0.9 percent and in Tharparkar it is 7.9. In Gwadar there are no intermediate or degree colleges: in Tharparkar there are 7. There are no hospitals or MCHs in Gwadar, while in Tharparkar there are 9 hospitals and 9 MCHs. In Gwardar there is 1 RHC bed to every 15,678 persons, while in Tharparkar this figure is (hospital and RHC together) 2,554. Gwadar has almost no inter-town metalled roads while Tharparkar has 358 kilometers of them. Gwadar district has 36 telephone connections, 9 post offices and one telegraph office while Tharparkar has 157 post offices, 1 telegraph office and 2362 telephones. Gwadar district is linked to the Gulf, Karachi, Turbat and Quetta through 3 airports. The sea links with Karachi and the Gulf can be further strengthened. In spite of this backwardness, Gwadar has a far greater potential for development, because of its smaller size, enormous marine resources and because there is no vestage left of a traditional and retrogressive clan or fuedal system as in the case of Tharparkar.

## 10. DESCRIPTION OF PASNI

### 10.1 Location:

Pasni has a population of about 20,000. It is situated on the Makran coast about 500 kilometers west of Karachi and 130 kilometers east of Gwadar. It is on the open sea and so large boats have to anchor for away from the shore, and in the stormy season in summer, they cannot go into the sea. After the under-construction fish harbour is completed, this major problem will be overcome. A seasonal river, Shadi Kaur (71) flows near the town and has traditionally been the settlements' main source of water.

### 10.2 Approach:

Pasni is linked by road to the East with Ormara and Karachi, to the West with Gwadar and to the North with Turbat. All these links are through earth roads that get badly affected whenever it rains. The area around the town is barren, hilly and uninhabited. Some agriculture does take place in the bed and on the banks of Shadi Kaur but cannot even cater to the needs of those engaged in it. To protect the earth roads from sand drifts, the forest department, in the vicinity of Pasni, has planted devi trees on either sides of these approach roads.

### 10.3 Transport to and from Pasni:

Pick-ups and buses link Pasni with Karachi, Gwadar, Ormara and Turbat. There are 3 buses a week to Karachi and the journey takes 2 days. The Pasni airport links the town to Turbat, Gwadar, Quetta, Panjgur, Karachi and the Gulf. The sea link with Karachi, especially for transportation of cargo would be very beneficials to the coastal population as it would lower transportation costs considerably. However, customs restrictions and more so the manner in which they are applied, have so far prevented this mode to transport from developing.

### 10.4 Description of the Town:

Pasni can be divided into four distinct areas. These are the bazar and the old settlement; the government area; the government employees housing colony and the beach.

**a) Bazar and the old settlement:**

The bazar consists of two near parallel streets. The larger one is about half a kilometer while the smaller is no more

than 250 yards. A number of buildings in the bazar are old and made of mud brick and thatch. They have verandahs with arches and round columns in front of them. The new buildings are of cement concrete blocks but with traditional roofing. In the bazar there are a number of hotels and tea houses; fruit and vegitable vendors and sweetmeat merchants; video hire and sound cassette shops; provision stores; cloth and grain merchants; jewellers and every variety of consumer goods. Off the bazar there is an open piece of land where firewood, mats and timber for construction from the countryside are stored and sold. The camels and the men who bring these materials also camp in this space. On three sides of the bazar are the houses of the population. Most of them are of lai lattice-work with earth infill. However, almost all of the under construction ones are of concrete blocks. The offices of the Town Committee and the schools are also in this part of town. Between the government area and the bazar is the truck "adda" (72). There are always trucks, buses and pick-ups at the adda, with people loading, unloading or cleaning the vehicles. On a hill nearby is the old, and now uninhabited, mud house belonging to the Nawab of Makran.

b) **The government area:**

This contains the offices of the revenue, health and education departments; the fisheries; the RHC; the EPI office and the under construction fish harbour. All buildings here are of concrete construction, although some of them do have asbestos sheet roofs. These structures are linked to each other and to other parts of the town, with poorly surfaced metalled roads.

c) **Government employees housing colony:**

Not far from the beach is the housing made for government employees. It is of reinforced concrete, has running water, flush latrines but no roads, paths or pavements, and no storm drainage. It resembles government housing in any district of the country.

d) **The beach:**

Along the beach there are 2 government owned fish drying yards, an ice factory, store houses of the seths and dallals, boat-makers' yards, mechanics establishments and weighing platforms for fish. Pick-ups who carry the catch to Karachi, are constantly being loaded and sent off. Along the beach, on the shore, stand hundreds of boats, all of them mechanized. The beach is littered with dry or rotting fish, nylon nets, cigarettes and dirt.

10.5 Government and community facilities:

a) **Education:**

Pasni has a number of schools. There are 4 primary schools and 1 middle school for boys. There is a girls middle school in which there are 181 students. The boys high school has 1,200 students. Women teachers for the girls school are all locals.

b) **Health:**

Health conditions at Pasni have been explained along with the facilities in paragraph C-3.3.

c) **Water supply and sanitation:**

1. **Water supply:**

A piped water scheme supplies water to the town. It is managed by the PHED. From the stand-posts at surface water tanks, donkey-carts carry water to peoples' houses. A number of houses have their own underground tanks and house connections. Most of such houses belong to traders, shop-keepers or to families whose relatives are working in the Gulf. Water from the piped system is insufficient for Pasnis' population and is brackish. In early summer, it becomes undrinkable.

2. **Sanitation:**

There is no waste water disposal system in Pasni. In places people have dug 'nalis' (73) which discharge into depressions, creating large pools of stagnant water. A number of houses in the bazar, and all the houses in the government colony, have latrines conntected to soak-pits of some sort or the other. However, the fishermen living off the beach excrete in the open. There is no garbage collection system either. The wind carries garbage and human and animal excreta away after it is dry, and it collects around the devi shrubs and whatever other little vegitation there is.

c) **Electricity:**

Electricity is provided to the government area, the government residential colony, and a very small area of the old settlement, by WAPDA operated diesel generators. This electricity is provided only in the evening for 4 hours. However, there are a large number of small generators in Pasni which take care of the needs of the bazar and of the more affluent sections of the population. The rest of the population uses kerosene lanterns.

## 11. ENVIRONMENTAL IMPACT OF DEVELOPMENT ACTIVITIES

### 11.1 The expansion and modernization of the fish industry:

Due to the expansion and modernization of the fish industry, major social, economic and physical changes have taken place. In social terms, the nuclear family is in the process of becoming independent of the extended family and clan; there is considerable social mobility; groups engaged in agriculture and forestry are taking to fishing and dependence on, and involvement with, state institutions and local bodies is increasing. In economic terms incomes have increased, new jobs have been created and the service sector has expanded. The economic benefits of this are counter-balanced by the high cost of living and the burden of debts that the fishing communities have to bear. In physical terms, settlements have expanded and now need sewerage, water, health and road infrastructure which for the most part are missing. This is creating rapid degradation of the built environment and effecting health adversely. The catching, loading, unloading, packing of fish and the storage of ice, diesel, salt, all create a considerable amount of solid waste, much of it inorganic in nature. In the absence of any garbage collection system, this litters the beaches, and by all accounts is increasing in quantity. Again, in the absence of a seasonal ban on the operation of trawlers, and because of their fishing methods, there are indications that fish life is being depleted.

### 11.2 Deforestation:

The increase in urban population and better incomes, has led to greater consumption of firewood. In addition, forestry and agriculture are being increasingly neglected as people take to fishing and related occupations. The subsistence barter economy, that made these two activities economically viable, is now dead. Another factor is the growing use of local timber in the manufacturing of boats. In a Gwadar saw mill 6 to 7 truck loads of timber are brought in every month and are exclusively used for boat-making. Two years ago the quantity of timber brought to the mill was less than half of what it is today. The owner, Bashir Ahmed, says that a boat made with local timber is half the price of a boat made by timber imported from Karachi. He also feels that as no new trees are being planted, and as tamerisk and babar grow very slowly, the sparse Markan and Gwadar forests will soon be extinct.

### 11.3 Extraction of water:

The piped water schemes are extracting water from the rain-fed acquifer in and around the vicinity of seasonal

torrents. This acquifer is of a limited quantity. Traditionally, it also partially fulfilled the needs of agriculture. With the present method of adhoc extraction, residents fear that this acquifer, which disappears seasonally, might soon disappear altogether. It seems that existing water sources cannot serve large settlements through piped water schemes, let alone cater to agriculture, forestry and dairy farming as well.

## 12. COOPERATIVE COLLECTIVE EFFORTS

No organizations were encountered which involved cooperative effort of any nature. However, at Gwadar and Sur, fishermen mentioned that attempts to create organizations that could protect fishermen from the exploitation of seths and dallals, had been made. These attempts failed due to the lack of an acceptable leadership, opposition from the agents of seths and dallals, and a lack of faith on the part of the members that things could change. In the recent national and provincial elections, all parties, especially the PNP and the BNA, raised issues relevant to the fishing communities. Such issues have been raised in all previous elections as well. However, social relations in the district are far too anarchic to lead to the creation of any joint action unless it is fostered from some external source.

## 13. PERCEPTIONS OF THE ENVIRONMENT

Two environmental issues are well understood by the fishing communities in the Gwadar district. One is the denuding of the coast by Karachi trawlers, and the other the problems that are arising from over-taxing existing water sources. The communities also understand that a good road link to Karachi will result in their having a more equitable relationship with the seths and the Karachi fish companies.

## D. KARACHI: the hazards of pollution

### 1. MARINE POLLUTION

Almost all of Karachi's sewerage flows untreated into the sea through a number of 'nullahs' (74). These nullahs eventually join 2 seasonal rivers, the Lyari to the west and the Malir to the east. The Lyari flows out into the sea through the China Creek and the Malir through the Korangi Creek. A recent study commissioned by the IUCN (75) has identified and analysed the various effluents that go into the sea through the Korangi Creek. In ansother study, also commissioned by the IUCN (76) an analysis of samples of sea water have been carried out. A summary of the findings of these 2 studies is given below.

#### 1.1 Type of effluents that enter the sea at Karachi:

**a) From cattle colonies and domestic use:**

There are a large numbers of cattle colonies in and around Karachi with tens of thousands of animals, mainly buffalo. The effluent from these colonies has a very high organic load. However, given the high tidal range in the Arabian Sea, local deoxygenation does not take place. Water exchange and mixing, as a result of this tidal variation, helps in increasing the productivity of the creeks and the mangrove system. Domestic effluent, on the other hand, carries with it effluent from small workshops and tanneries and hence contains a high level of toxic metals. Along with effluent from the cotton industry, domestic effluent comprises 80 percent of the total effluent of 59,000 X 103 M3 PA that flows out through the Korangi Creek.

**b) Tanneries and the cotton industry:**

Effluent from the tanneries contains a higher pollution load of oil than the effluent from the oil industry itself. In addition, it contains chromium and other toxic metal salts that are used in the tanning process, such as chlorides and sulphates of sodium and potassium. There is no on-site treatment of this effluent, not even the removal of suspended solids. The effluent from the cotton industry, though high in organic contents, is less noxious than the outflow from the tanneries. However, it does contain traces of chromium and copper.

**c) Thermal effluents:**

1,354 million M3 of sea water is processed for cooling purposes for the major industrial units and heated water is

sent back into the creek. The intake naturally kills all the planktonic organisms in the water, and such a large volume of heated water entering the sea is bound to put many organisms in the sea under stress.

d) **Effluent from industrial units:**

Large industrial units discharging into the Korangi Creek system are the steel mill, oil refinery and Sind Alkalies. The main discharge from the steel mill is particulate iron. This is not particularly harmful to the environment as it is an inert material. Refineries on the other hand produce a very small portion of the total water load. Sind Alkalis prdduce Ca Cl2, which is a natural constituent of sea water and it is estimated that tidal exchange would assure that its effect would be of only a local nature.

1.2 Sample tests on sea water and marine life:

a) **Sample tests on sea water:**

Tests revealedd that sea water was contaminated by petroleum hydrocarbon residues, chlorinated hydrocarbons which include chlorinated pesticides and biphenyles; and trace metals. However, with the exception of a high level of mercury pollution, values are not high enough to pose a threat to the marine environment in the forseeable future. Studies to determine organo-mercury levels were not carried out and as such the threat that large mercury traces pose cannot be evaluated nor eleminated.

b) **Sample tests on marine life:**

No strong evidence of contamination was discovered in marine life, and pollution levels in the Korangi Creek area were of a lower range that other polluted areas in the world. However, dry fish meal samples had a very high level of contamination. This contamination was also found, but of a very low level, in chicken who feed on this fish and in the eggs they produce.

## 2. POLLUTION FROM THE OPEN UNSURFACED 'NULLAHS' AND SOLID WASTE

2.1 Open nullahs:

For the most part, Karachi's sewerage flows through unsurfaced, slow moving, open nullahs. Solid waste is thrown into these nullahs as well and often consists of residues from tanneries and dyeing operations. When the nullahs clog they overflow and the contaminated water gathers in open areas. To make the nullah flow again, it is

partially desilted and the sediment is pilled on its banks. This creates a breeding ground for flies, misquotes and rats and the possibility of contaminating subsoil acquifers through seepage into them. This will effect those areas of Karachi, like Malir, where subsoil water is used both for drinking and for agriculture. A lot of vegetable and animal fodder farming, using water from the nullah, is carried out in Karachi. Livestock also feed on grass growing along these nullahs. This definately has an effect on the health of humans and animals that feed on this agricultural produce. Handling of affluent or contact with it cannot be prevented either as people have to desludge the nullahs and children play in the stagnant pools they create.

## 2.2 Solid waste:

Much of the solid waste is carried to the sea through both the Korangi and Malir rivers. A lot of it consists of polythene bags, cigarette containers, polystirene pieces and other inorganic materials. Through tidal action these get semi-buried in the sand on the beach between the Korangi and the China Creek and is a major source of environmental pollution. Both organic and inorganic waste are raising the levels of the nullahs with the result that their frequency of overflowing is rapidly increasing. This also results in flooding when it rains, with large scale damage to the colonies of the poorer sections of the population who live along the two rivers and their tributaries.

# 3. AIR POLLUTION

### a) Findings of an IUCN commissioned study:

An IUCN commissioned study (76) has dealt with air pollution in the Korangi/Phitti Creek area of Karachi. The major pollutants identified are So2, Co, particulates, Nox and hydrocarbons, in that order. The pollution that has an impact is produced by burning solid waste in public places and neighbourhoods. This waste contains oily wastes, plactics and tannery wastes, which contain metals and other toxic materials. Casual soap manufacture, on vacant plots, is another source of pollution. This involves the burning of tannery wastes in large iron pans of sodium hydroxide. This study shows that although most of the pollution is produced by the major industries in the area (steel mill, oil refineries and power plants), it does not have a significant impact on the environment or human health. This is because this pollution is emitted from high stocks.

b) **Cement factories:**

People living in a large affluent residential area which has a cement factory in it have been lobbing for years to get it shifted. They complain of respiratory deseases, and skin and eye irritation. There are large settlements in the vicinity of other cement factories in Karachi, but since they belong to the poorer sections of the population there has been no agitation from them.

c) **Emissions from vehicles:**

Carbon monoxide emissions from vehicles in Karachi are exceptionally high. In the congested areas in the city center they are considered to be among the highest in the world. This is because of a lack of control on old smoky cars, diesel buses and trucks, and the plying of motor rickshaws without filter to their exhausts.

d) **Effect of air pollution on environment:**

The major industrial and vehicle emmitted pollutants damage plants and buildings. Some interfere with plant photo-synthesis; create leaf injury and stunt plant growth, resulting in major ecological damage. Others corrode metals, building materials, textiles, rubber, paints and dyes (77).

## MANUFACTURE AND USE OF PESTICIDES

Many type of pesticides are manufactured in Karachi. Proper safty measures are taken in the factories during manufacturing and packing. These pesticides are used in Karachi as anti-malarial sprays or for plants in the parks maintained by the KMC. The main anti-malarial pesticide used is DDT which has been banned in many countries of the world because of its ill affects on health. The KMC staff do not wear gloves or masks while they uses these pesticides. Animals eat the vegetation that grows along the stagnant DDT sprayed pools of water and children play in them. Scavengers, mostly children, pick paper, cloth and inorganic materials from pesticide sprayed garbage dumps. The KMC's anti-malarial and plant protection spraying excercise is a very major one and especially affects the low-income areas where most garbage dumps, mosquotes and flies are.

## RADIATION

There is one nuclear energy power plant in Karachi. It is on the coast west of the city. It is officially stated that it produces no radiation effects that could be harmful to

health. However, Pervaiz Hoodbouy, a leading scientist of Pakistan, in a published article (78) has mentioned that the plant safty systems were unreliable and that there could be a major catastrophe, much larger than Bhopal, as a result of the malfunctioning of the plant.

## 6. DISEASES DUE TO POLLUTION

Research has firmly established the relationship between a number of diseases which are becoming increasingly common and various industrial and vehicle emitted pollutants. Respiratory diseases; irritation of the eyes and skin; impairment of visibility, contribution to cancer; cardio-vascular diseases; malignant masothelioma; increased mortality and coronary mortality rates; reduced tolerance for excercise, and impairment of learning and intelligince in school children (79), are some of the diseases that this type of pollution produces. In Karachi the incedence of respiratory and cardiovasclur diseases have become especially high during the last two decades. Irritation of the eyes and skin is common as in evident from long lines of patients at skin disease clinics. Reported cancer cases have also gone up, and only in Karachi. Malignant masothelioma, however, is still rare.

## E. CONCLUSIONS AND RECOMMENDATIONS

### 1. CONCLUSION

#### 1.1 Coastal areas:

a) **The death of the old social order:**

In all the coastal areas of Pakistan the old social order is dead. No new institutions have taken its place. In areas where it was better organized and more productive, like the Thattah district, its values and relationships still linger on and retard social change and progress. In areas where it was weak and unproductive, and where communications with the outside world are better developed, it has disappeared altogether. This lack of institutionalized relationships, especially in the absence of effective local government, have created conditions of social anarchy which prevent people from working together, although there are no tangible external or internal factors which are stopping this from happening.

b) **The emergence of fishing as a major industry:**

Fishing has emerged as a major industry and it is expanding. However, the real benefit of the exploitation of this enormous resource, does not go to the people. They remain poor and in constant debt. At the same time their needs increase as the traditional relations of production get replaced by the middleman economy and the services sector it fosters. It can safely be said that at present the middleman and his principals completely control the coastal economy.

c) **Physical changes:**

Settlements have expanded, especially in the Gwadar district (80), and along with activity related to fishing, this expansion is generating a number of problems. These are listed below.

1. **Water:**

Apart from Thattah district, where water can be acquired, though from considerable distances, from the irrigation system, there is no reliable and adequate water source available along the coast.

2. **Sewerage and solid waste management:**

As settlements grow the disposal of waste water and excreta becomes a problem. This is further compounded by the

generation of large quantities of solid waste due to fishing activities. UCs and TCs, who do not have adequate technical, managerial or financial resources, cannot take care of this aspect of development. The peoples involvement, which could be of assistance to a solution and in the O & M of systems established by them, is missing as there are no effective village institutions left who can play this role.

3. **The problem of O and M:**

Total O & M requirement in Pakistan for water schemes is 215 million rupees a year. Of this only 70 million are generated. By 1993, the O & M requirement will have increased to over 600 million rupees. Therefore, it is necessary to develop O & M capacity, financial, technical and managerial, at the local level.

d) **Fuel:**

Due to a change in cultural and social attitudes, the demand for and the consumption of firewood has increased considerably. However, with more and more people going into fishing, and in the Thattah district due also to ecological reasons, forestry and agriculture are declining. As a result, people spend about 20 percent of their incomes on fuel for cooking. Gas cylinders, even at twice the Karachi price, reduce the cost of fuel by half. However, there is an acute shortage of gas cylinders in addition to the problem of having to deposit an initial 1,000 rupees as cost of the replaceable empty cylinder.

e) **Communications:**

Throughout the coastal areas, except for a part of the Lasbela district, the road network is poor. This results in strengthening the already unequal relationship between the middlemen and the fishermen as it makes the latter even more dependent on the former. It also raises the cost of transportation, thus increasing the cost of consumer goods imported from other areas, and lowering the sale price of fish.

f) **The operation of trawlers and the depletion of fish:**

People all along the coast feel that fish life is being depleted by the action of the trawlers and as such their manner of operation must be changed.

g) **People's main concern:**

The coastal people's main concern is in improving their incomes and in becoming free from debt. They are willing to work towards this end. The other larger environmental

issues, at this stage, do not really seem to matter to them. The increase in their incomes and freedom from debt will make it possible for them, given the right motivation and incentives, to involve themselves in major environmental issues.

### 1.2 Karachi:

Karachi's environmental problems are the result of the failure of the administration to enforce existing legislation; develop sustainable sewerage and solid waste management systems, and to involve people in these activities; or alternatively to generate adequate resources and managerial skills for their instalation and O & M. This failure is the result of framing laws and developing policies that do not take into consideration the constraints imposed by sociology, technical limitations and existing awareness levels regarding these problems. In addition, the way Karachi is administered makes its development agencies and local government susceptible to bullying by powerful and deeply entrenched commercial and political vested interests.

## 2. RECOMMENDATIONS

### 2.1 The coatal areas:

a) **Recommended government initiatives:**

1. **Road building:**

The government should develop metalled roads along the coast. These roads would open up the area for investment in fish related industries. The cost of these roads could easily be recovered by an octroi tax on fish or fish products. If electricity could be made available as well, there is every reason to believe that poultry feed industry would develop in the coastal areas. This is because labour in the smaller settlements would be cheaper than in Karachi and it would be less costly to transport tinned poultry feed instead of raw fish. In addition, the sale price of fish would go up and the price of nets, timber for boat-making, motors and other related materials would fall.

2. **Incentives for setting up industries:**

Incentives should be provided to local entrepreneurs and to fishermen's cooperatives (if possible) to invest in the setting up of sea food packing and poultry feed plants in the smaller settlements. These incentives should include a tax holiday, soft loans, no duties or thermal power generators for industrial use, and on locally manufactured plants.

3. **The development of fish harbours:**

Fish harbours should be developed in all those settlements which are not protected from the open sea. This would make it possible for the fishermen to go out to sea during the stormy months of June to August, thus raising their yearly incomes by at least 25 percent.

4. **Alternative source of fuel:**

There is a great demand for gas cylinders in the rural areas of Pakistan. People pay twice or even three times their market price and still find them cheaper than firewood. However, their total production today does not fulfill even 5 percent of the demand. There is need to study the possibility of increasing production, may be by tapping new sources; lowering the initial cost of the cylinder; and developing a sound system of supply. This would prevent deforestation, except where they are being destroyed for other reasons than over-use.

5. **Desalinization:**

The government should encourage research on the manufacturing of simple, cheap and easy to operate and maintain desalinization plants for water supply. These could be installed for smaller coastal settlements, thus overcoming the problems and the ecological damage associated with tapping inadequate subsoil water sources.

6. **Priorities:**

Priority in the government's programme should be given to roads, incentives for development of electric power and the setting up of industry. Better incomes, health, education, and transport are bound to follow soon because of the coastal areas' proximity to Karachi and its freedom from traditional social ties.

b) **NGO/semi-government initiatives:**

A research and extension organization, which initiates a pilot project should be set up in a typical coastal area covering not more than 20 to 30 settlements. The purpose of this organization would be to:

(i) **Social and economic research:**

Carry out social and economic research to understand the relationship between the middlemen and the fishermen and to see how the fishermen could become financially independent of the middlemen. If this is not possible then to see how a more equitable relationship between these 2 actors in the

coastal drama could be established.

(ii) **Extension and training:**

On the base established by implementing 1, social and technical action research, along with extension and training, should be carried out so as to assist the fishing communities to part-finance, develop, maintain and operate their own water supply, sewerage and solid waste management systems and/or other programmes that the community identifies. This effort should be linked to local government schemes at an appropriate time. To understand the philosophy and operation of a research and extension programme, training could be had at the Orangi Pilot Project in Karachi and the Aga Khan Rural Support Programme in Gilgit. Both programmes are similar to what is being proposed and have the involvement of Dr. Akhter Hameed Khan in them.

(iii) **Replication of the programme:**

Once a demonstration area has been created and a methodology evolved, the programme can be replicated in other coastal areas, with minor variations to cater to local conditions.

2.2 Karachi:

The major environmental issues in Karachi are related to the disposal and treatment of sewerage and the development of an efficient solid waste management system. Both these problems are being looked at by the Karachi Special Development Plan, the Katchi Abadi Directorate and NGOs like the Orangi Pilot Project. However, a programme of general awareness raising regarding environmental and health issues could lead to the involvement of people in general, and of action groups in particular, in this sphere.

Footnotes:

1. taluka: the district is broken up into smaller administrative units. These are known as talukas in Sind and as tehsils in other provinces.

2. see appendix table - 1

3. see appendix table - 2

4. see appendix table - 1

5. see appendix table - 3

6. see appendix table - 16

7. see appendix table - 4

8. see appendix table - 4

9. see appendix table - 17

10. see appendix table - 18

11. 'khalasi': member of a boat crew, hired boat labour

12. 'gand': literally means dirt. In this case it applies to small fish

13. see appendix table - 5

14. ibid

15. 'hakim': traditional doctor who uses herbal medicines

16. 'otak': guest-room or guest-house

17. 'sardar': head of the tribe

18. 'wadera': landlord

19. 'jogis': snake charmers. They also sing and play music

20. 'hari': serfs, peasants

21. 'melas': festive gatherisngs

22. 'urs': celebration to mark the birthday of a saint

23. 'lai': plant: botanical name tamerisk

24. 'timmar': mangrove

25. 'mohalla': neighbourhoods

26. 'choola': cooking stove

27. 'sohand': special type of grass; botanical name?

28. 'pal': type of grass; botanical name?

29. 'lana': a type of shrub; botanical name?

30. 'khalli' and 'bhoosa': beans and straw

31. 'dowhs': type of sail-boat used in the Indian occean for longsea voyages. The word is of Arab origin

32. see appendix table - 19

33. see appendix table - 7

34. see appendix table - 6

35. see appendix table - 16

36. see appendix table - 9

37. see appendix table - 17

38. see appendix table - 18

39. ibid

40. see appendix table - 10

41. 'bajra': millet

42. 'jawar' : botanical name?

43. 'Bakra Id': feast to celebrate Arabians sacrifice of his son

44. 'imam': religious leader

45. 'maulvi': Muslim priest

46. 'katchi abadis': squatter settlements

47. 'tehsildar': head of the revenue collection department of a tehsil. A district or its subdivision is made up of 'tehsil'

48. 'babar': tree, botanical name?

49. 'devi', also known as 'kikar': tree, botanical name?

50. 'pathan': member of an ethnic group from the North West Frontier Province

51. see 1981 Mianwali census

52. 'khateeb': the one who address; in this case the priest at the mosque

53. Jamia Masjid: the Friday mosque, or the main mosque

54. Mahegir Falah-o-Bahbood Anjuman: Fishermens Social Welfare Association

55. Baluch Yakmusht Association: Baluch Unity Association

56. see appendix table - 12

57. see appendix table - 11

58. see appendix table - 17

59. see appendix table - 18

60. see appendix table - 15

61. 'nazim': one who enforces law

62. 'azad': free

63. see appendix table - 19

64. 'seth': a rich businessman

65. 'dallal': a go-between

66. 'ostas': carpenters

67. 'Negwar': a Baluch tribe

68. 'Raykhani': a Baluch tribe

69. 'gaz': a plant; botanical name?

70. 'peeche': a plant; botanical name?

71. 'kaur': river in the Baluchi language

72. 'adda': stand; in this case truck and bus stand

73. 'nalis': drains

74. 'nullah': creek or gulley

75. Rapid Assessment of the Industrial Pollution in Korangi/ Phitti creek, Karachi, Pakistan: July 1987

76. Marine Pollution Baseline Survey in the Korangi/Phitti creek, Pakistan: November 1987

77. ibid

78. taken from table 10 from "Rapid Assessment of the Industria Pollution in Korangi/Phitti creek, Karachi, Pakistan: July 1987

79. Pervaiz Hoodboy in an article in the Herald

80. see appendix table - 20

81. General Manager, Fon Gas, in a conversation with the author

## Abbreviations

| | | |
|---|---|---|
| TBA | : | Traditional Birth Attendant |
| RHC | : | Rural Health Centre |
| LHV | : | Lady Health Visitor |
| ORS | : | |
| EPI | : | Expanded Programme of Immunization |
| UC | : | Union Council |
| MNA | : | Member of National Assembly |
| MPA | : | Member of Provincial Assembly |
| PHED | : | Public Health Engineering Department |
| BHU | : | Basic Health Unit |
| OT | : | Operation Theatre |
| CBR | : | Central Board of Revenue |
| BIAD | : | Baluchistan Integrated Area Development |
| MCH | : | Mother and Child Health Clinic |
| WAPDA | : | Water and Power Development Authority |
| GI | : | Galvanized Iron |
| KMC | : | Karachi Municipal Corporation |
| O & M | : | Operation and Management |
| TC | : | Town Committee |

# APPENDIX

## CONTENTS


1. THATTAH DISTRICT

   Table - 1 : Population

   Table - 2 : Surface area and density

   Table - 3 : Population by age

   Table - 4 : Educational facilities

   Table - 5 : Health facilities

2. LASBELA DISTRICT

   Table - 6 : Population

   Table - 7 : Surface area and density

   Table - 8 : Population by age

   Table - 9 : Educational facilities

   Table - 10 : Health facilities

3. GWADAR DISTRICT

   Table - 11 : Population

   Table - 12 : Surface area and density

   Table - 13 : Population by age

   Table - 14 : Educational facilities

   Table - 15 : Health facilities

4. ALL COASTAL DISTRICTS

   Table - 16 : Literacy

   Table - 17 : Employment

Table - 18 : Migration

Table - 19 : Details of fishing industry

Table - 20 : Urban localities

Table - 21 : Places visited - people met

TABLE = 1

THATTAH DISTRICT: POPULATION
(Source: Census reports of the Government of Pakistan)

1972

| District/ Coastal & non-coastal talukas | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male | Female | Total | Male | Female |
| THATTAH District | 695,861 | 87,083 | 48,285 | 38,798 | 608,778 | 316,519 | 292,259 |
| a) Coastal Talukas | 239,885 | 39,040 | 23,213 | 15,827 | 200,845 | 119,239 | 81,606 |
| i) Ghorabari | 68,993 | - | - | - | 68,993 | 36,189 | 32,804 |
| ii) Keti Bunder | Keti Bunder was a part of Ghorabari taluka | | | | | | |
| iii) Kharo Chan | Kharo Chan was part of Shah Bunder taluka. | | | | | | |
| iv) Shah Bunder | 69,708 | 15,273 | 8,319 | 6,956 | 80,973 | 42,893 | 38,080 |
| v) Mirpur Sakro | 101,184 | 23,767 | 14,894 | 8,873 | 77,417 | 49,157 | 37,260 |
| b) Non-coastal talukas | 455,976 | 55,455 | 29,305 | 26,150 | 400,521 | 207,410 | 193,120 |
| i. Jati | 105,855 | 9,734 | 5,023 | 4,711 | 96,121 | 49,688 | 46,453 |
| ii. Mirpur Bathoro | 104,352 | 11,340 | 5,909 | 5,431 | 93,012 | 47,340 | 45,672 |
| iii. Sujawal | 96,248 | 15,275 | 8,319 | 6,956 | 80,973 | 42,893 | 38,080 |
| iv. Thatta | 149,521 | 19,106 | 10,054 | 9,052 | 130,415 | 67,480 | 62,935 |

1981

| District/ Coastal & non-coastal talukas | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male | Female | Total | Male | Female |
| THATTAH District | 761,039 | 72,699 | 37,919 | 34,780 | 688,340 | 353,939 | 334,401 |
| a) Coastal talukas | 312,327 | 20,559 | 10,554 | 10,005 | 291,768 | 149,347 | 142,421 |
| i. Ghorabari | 74,149 | - | - | - | 74,149 | 37,399 | 36,750 |
| ii. Keti Bunder | 21,190 | - | - | - | 21,190 | 10,448 | 10,742 |
| iii. Kharo Chan | 16,903 | - | - | - | 16,903 | 8,628 | 8,275 |
| iv. Shah Bunder | 66,921 | 8,709 | 4,373 | 4,336 | 58,212 | 29,655 | 28,557 |
| v. Mirpur Sakro | 133,164 | 11,850 | 6,181 | 5,669 | 121,314 | 63,217 | 58,097 |
| b) Non-coastal talukas | 448,712 | 52,140 | 27,365 | 24,775 | 396,572 | 204,592 | 191,980 |
| i. Jati | 84,666 | 4,956 | 2,520 | 2,436 | 79,710 | 40,550 | 39,160 |
| ii. Mirpur Bathoro | 104,556 | 10,699 | 5,607 | 5,092 | 93,857 | 47,523 | 46,334 |
| iii. Sujawal | 88,753 | 14,961 | 7,896 | 7,065 | 73,792 | 38,732 | 35,060 |
| iv. Thattah | 170,737 | 21,524 | 11,342 | 10,182 | 149,213 | 77,787 | 71,426 |

TABLE = 2

THATTAH DISTRICT: SURFACE AREA AND DENSITY
(Source: Census reports of the Government of Pakistan)

| | Area sq.km | Population density per sq.km | Urban population | Household size |
|---|---|---|---|---|
| THATTAH District | 17,355 | 43.00 | 9.5 | 6.2 |
| Coastal talukas | 8,599 | 32.53 | 4.36 | 6.2 |
| - Ghorabari | 1,018 | 72.8 | - | 6.4 |
| - Keti Bunder | 771 | 27.5 | - | 6.1 |
| - Kharo Chan | NA | - | - | 6.2 |
| - Mirpur Sakro | 2,958 | 45.0 | 8.8 | 5.6 |
| - Shah Bunder | 3,852 | 17.4 | 13.0 | 6.9 |
| Non-coastal talukas | 8,756 | 84.45 | 11.35 | 6.2 |
| - Jati | 3,489 | 24.3 | 5.8 | 6.1 |
| - Mirpur Bathoro | 698 | 149.8 | 10.2 | 6.4 |
| - Sujawal | 746 | 119.0 | 16.8 | 7.0 |
| - Thattah | 3,823 | 44.7 | 12.6 | 5.8 |

TABLE = 3

THATTAH DISTRICT: POPULATION BY AGE
(Source: Census reports of the Government of Pakistan)

1972

| Talukas/ District | Total | 0 - 9 | 10 - 29 | 30-44 | 45-above |
|---|---|---|---|---|---|
| 1. Thattah | 695,861 | 237,618 | 241,226 | 121,695 | 95,322 |
| a) Coastal | 239,885 | 82,117 | 75,508 | 41,497 | 40,763 |
| i. Ghorabari | 68,993 | 25,967 | 22,535 | 11,602 | 8,889 |
| ii. Keti Bunder | Included in Ghorabari | | | | |
| iii. Kharo Chan | included in Shah Bunder | | | | |
| iv. Mirpur Sakro | 101,184 | 32,837 | 37,169 | 17,376 | 13,802 |
| v. Shah Bunder | 69,708 | 23,313 | 15,804 | 12,519 | 18,072 |
| b) Non-coastal | 455,976 | 155,501 | 138,644 | 91,271 | 70,560 |
| i. Jati | 105,855 | 35,248 | 37,605 | 18,816 | 14,186 |
| ii. Mirpur Bathoro | 104,352 | 37,425 | 35,535 | 17,308 | 14,084 |
| iii. Sujawal | 96,248 | 34,230 | 32,595 | 16,786 | 12,637 |
| iv. Thattah | 149,521 | 48,598 | 32,909 | 27,290 | 40,724 |

1981

| Talukas/ District | Total | 0 - 9 | 10 - 29 | 30 - 44 | 45-above |
|---|---|---|---|---|---|
| 1. THATTAH | 761,039 | 263,453 | 236,839 | 123,238 | 137,573 |
| a) Coastal | 312,327 | 111,103 | 105,663 | 49,622 | 46,002 |
| i. Ghorabàri | 74,149 | 27,301 | 24,809 | 11,926 | 10,113 |
| ii. Keti Bunder | 21,190 | 7,892 | 6,941 | 3,290 | 3,067 |
| iii. Kharo Chan | 16,903 | 5,767 | 5,820 | 2,629 | 2,687 |
| iv. Mirpur Sakro | 133,164 | 46,327 | 46,556 | 20,924 | 19,357 |
| v. Shah Bunder | 66,921 | 23,816 | 21,537 | 10,790 | 10,778 |
| b) Non-coastal | 448,712 | 152,350 | 131,176 | 73,615 | 91,571 |
| i. Jati | 84,666 | 28,731 | 27,908 | 14,340 | 13,687 |
| ii. Mirpur Bathoro | 104,556 | 35,219 | 35,653 | 16,905 | 16,779 |
| iii. Sujawal | 88,753 | 30,992 | 29,896 | 14,440 | 13,425 |
| iv. Thattah | 170,737 | 57,408 | 37,719 | 27,930 | 47,680 |

TABLE = 4

THATTAH: EDUCATIONAL FACILITIES
(Source: Development Statistics, Sind, 1986
Bureau of Statistics,
Government of Pakistan)

A. Number of schools:

| Year | | Primary schools | Secondary schools | Inter-mediate | Vocational |
|---|---|---|---|---|---|
| 1974 | Total | 761 | 47 | 1 | - |
| | Male | 648 | 35 | 1 | - |
| | Female | 113 | 12 | - | - |
| 1984 | Total | 783 | 50 | 1 | 2 |
| | Male | 685 | 38 | 1 | 2 |
| | Female | 98 | 12 | - | - |
| Increase | Total | 2.89% | 6.38% | - | - |
| | Male | 5.70% | 8.5% | - | - |
| | Female | -13.2% | - | - | - |

B. Students per 1 teaching staff:

| | 1974 | | | 1984 | | | Increase | | |
|---|---|---|---|---|---|---|---|---|---|
| | T | M | F | T | M | F | T | M | F |
| School | 19.9 | 20.2 | 16.0 | 28.6 | 28.6 | 29.1 | 8.7 | 8.4 | 11.1 |
| | 6.32 | 6.93 | 3.70 | 18.3 | 17.2 | 22.3 | 11.98 | 10.27 | 18.6 |

T : Total
M : Male
F : Female

C. School going children:

| | 1974 | | | | 1984 | | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | | Secondary | | Primary | | Secondary | |
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| Total | 27,564 | 22.6 | 2,364 | 2.75 | 43,839 | 31.9 | 7,661 | 8.08 |
| Male | 24,218 | 38.4 | 2,101 | 4.23 | 36,400 | 54.4 | 6,439 | 11.22 |
| Female | 3,346 | 5.69 | 1,992 | 0.72 | 5,669 | 10.9 | 1,992 | 4.5 |

1. Number of children

2. Percentage of school-age going children that go to school

D. Percentage increase in number of school-going children between 1974 and 1983:

| | Primary | Secondary |
|---|---|---|
| Total | 9.3 % | 5.33 % |
| Male | 16.0 % | 6.99 % |
| Female | 5.2 % | 3.78 % |

TABLE - 5

THATTAH DISTRICT: HEALTH FACILITIES
(Source: Development Statistics, Sind, 1986
Bureau of Statistics,
Government of Pakistan)

A. **Number of facilities/beds:**

| | 1974 | | 1984 | | Population per bed | |
|---|---|---|---|---|---|---|
| | No | Bed | No | Bed | 1974 | 1984 |
| Hospital | 2 | 150 | 4 | 246 | 4,615 | 3,096 |
| Dispensary | 1 | - | 4 | - | | |
| RH Centres | 2 | 8 | 12 | 68 | 71,428 | 12,048 |
| TB Clinics | 1 | - | 1 | - | | |

B. **Medical staff: 1983**

Doctors : 1 for every 21,141.65 persons

Paramedies : 1 for every 10,427.52 persons

(these include LHVs, midwives, Lab and X-Ray technicians)

Dais (TBAs) : 1 for every 23,809 females

C. **X-rays, pathological laboraties and staff: 1986**

| | Unit | Radio-grapher | Assistant | Lab | OT assistant | Lab assistant |
|---|---|---|---|---|---|---|
| Sind | 62 | 17 | 147 | 152 | 39 | 147 |
| Thattah | 3 | Nil | 7 | Nil | Nil | Nil |

D. Patients treated: 1986

| | Hospitals/ dispensaries | | RHC | Total | % of total population |
|---|---|---|---|---|---|
| | Indoor | Outdoor | | | |
| Sind | 173,939 | 3,145,171 | 645,628 | 3,964,738 | 20.83 |
| Thattah | 4,726 | 115,614 | 42,348 | 162,688 | 21.37 |

TABLE - 6

LASBELLA DISTRICT: POPULATION
(Source: Census reports of the Government of Pakistan)

1972

| District/ Coastal & Non-coastal | | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Male | Female | Total | Male | Female |
| | LASBELLA District | 134,717 | 9,024 | 4,841 | 4,183 | 125,693 | 60,520 | 59,173 |
| a) | Coastal Tehsils | 38,916 | - | - | - | 38,916 | 20,968 | 17,948 |
| i. | Hub sub Tehsil | 17,495 | - | - | - | 17,495 | 9,549 | 7,946 |
| ii. | Somiani sub Tehsil | 16,210 | - | - | - | 16,210 | 8,645 | 7,565 |
| iii. | Liari sub Tehsil | 5,211 | - | - | - | 5,211 | 2,774 | 2,437 |
| b) | Non-coastal | 86,347 | 9,024 | 3,741 | 4,183 | 77,323 | 64,508 | 36,736 |
| i. | Kanraj | 4,477 | - | - | - | 4,477 | 2,439 | 2,038 |
| ii. | Dureji Tehsil | 15,389 | - | - | - | 15,389 | 8,057 | 7,332 |
| iii. | Bella | 32,705 | 6,728 | 3,555 | 3,173 | 25,977 | 13,590 | 12,387 |
| iv. | Uthal | 19,146 | 2,296 | 1,286 | 1,010 | 16,850 | 8,942 | 7,908 |
| v. | Lakhra | 14,630 | - | - | - | 14,630 | 7,559 | 7,071 |

1981

| District/ Coastal & Non-coastal | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male | Female | Total | Male | Female |
| LASBELA | 188,139 | 31,371 | 18,042 | 13,329 | 156,768 | 82,297 | 74,471 |
| a) Coastal S/D. | 156,200 | 31,371 | 18,042 | 13,329 | 124,829 | 65,909 | 58,920 |
| i. Bela S/D. | 115,142 | 27,122 | 15,655 | 11,467 | 88,020 | 46,706 | 41,314 |
| ii. Hub S/D. | 41,058 | 4,249 | 2,387 | 1,862 | 36,809 | 19,203 | 17,606 |
| b) Non-coastl S/D | 31,939 | NA | NA | NA | 31,939 | 16,388 | 15,551 |
| i. Dureji S/D. | 25,652 | NA | NA | NA | 25,652 | 12,853 | 12,799 |
| ii. Manraj S/D. | 6,287 | NA | NA | NA | 6,287 | 3,535 | 2,752 |

S/D : sub division

TABLE - 7

LASBELA DISTRICT: SURFACE AREA AND DENSITY
(Source: Census reports of the Government of Pakistan)

| | Area sq.km. | Population density | Urban proportion | Household size |
|---|---|---|---|---|
| LASBELA District | 12,574 | 15.0 | 16.6 | 5.9 |
| Coastal Subdivision | NA | NA | 16.9 | 5.7 |
| Bela | NA | NA | 23.5 | 6.1 |
| Hub | NA | NA | 10.3 | 5.4 |
| Non-coastal Subdivision | NA | NA | NA | 5.3 |
| Dureji | NA | NA | NA | 6.1 |
| Kanraj | NA | NA | NA | 4.5 |

TABLE - 8

LASBELA DISTRICT: POPULATION BY AGE
(Source: Census reports of the Government of Pakistan)

1972

| District/ Tehsil | Total | 0 - 9 | 10 - 29 | 30 - 44 | 45-above |
|---|---|---|---|---|---|
| LASBELA | 134,717 | 40,795 | 45,108 | 25,312 | 23,501 |
| a) Coastal tehsils | 38,916 | 12,046 | 12,821 | 7,338 | 6,711 |
| i. Hub S/T. | 17,495 | 5,472 | 5,879 | 3,309 | 2,835 |
| ii. Liari S/T. | 5,211 | 1,488 | 1,696 | 1,006 | 1,021 |
| iii. Sommiani S/T. | 16,210 | 5,086 | 5,246 | 3,023 | 2,855 |
| b) Non-coastal Tehsils | 86,347 | 26,374 | 29,256 | 15,889 | 14,825 |
| i. Kanraj Tehsil | 4,477 | 1,363 | 1,510 | 878 | 726 |
| ii. Dureji Tehsil | 15,389 | 5,065 | 5,291 | 2,655 | 2,378 |
| iii. Bela Tehsil | 32,705 | 9,767 | 11,309 | 6,014 | 5,615 |
| iv. Lakhra Tehsil | 14,630 | 4,273 | 4,787 | 2,838 | 2,732 |
| v. Uthal | 19,146 | 5,906 | 6,362 | 3,504 | 3,374 |

S/T : sub-tehsil.

1981

| District/ Coastal & Non-coastal | Total | 0 - 9 | 10 - 29 | 30 - 44 | 45-above |
|---|---|---|---|---|---|
| LASBELA | 188,139 | 56,690 | 66,942 | 32,002 | 29,505 |
| Coastal S/D. | 156,200 | 48,774 | 5,610 | 26,254 | 25,062 |
| Bela S/D. | 115,142 | 35,942 | 41,289 | 19,494 | 18,417 |
| Hub S/D. | 41,058 | 12,832 | 14,821 | 6,760 | 6,645 |
| Non-coastal Subdivisions | 31,939 | 10,916 | 10,850 | 5,392 | 4,781 |
| Dureji S/D. | 25,652 | 8,744 | 8,873 | 4,518 | 3,517 |
| Kanraj S/D. | 6,287 | 2,172 | 1,977 | 874 | 1,264 |

S/D: subdivision

TABLE - 9

LASBELA DISTRICT: EDUCATION FACILITIES
(Source: Development Statistics Baluchistan 1986,
Bureau of Statistics, Government of Baluchistan)

A. Number of schools:

| Year | | Primary | Secondary | Intermediate | Vocational |
|---|---|---|---|---|---|
| 1974 | Total | 148 | 20 | 1 | - |
| | Male | 135 | 18 | 1 | - |
| | Female | 13 | 2 | - | - |
| 1984 | Total | 168 | 34 | 1 | - |
| | Male | 148 | 30 | 1 | - |
| | Female | 20 | 4 | - | - |

B. Students per 1 teachning staff:

| | 1974 | | | 1984 | | | Increase | | |
|---|---|---|---|---|---|---|---|---|---|
| | T | M | F | T | M | F | T | M | F |
| All schools | 39.1 | 29.2 | 223.9 | 45.0 | 44.3 | 51.0 | 5.9 | 15.1 | 172.9 |

T : Total
M : Male
F : Female

C. School-going children:

| | 1974 | | | | 1985 | | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | | Secondary | | Primary | | Secondary | |
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Total | 53,993 | 13.1 | 44,773 | 4.64 | 21,844 | 32.00 | 17,066 | 4.52 |
| Male | 29,281 | 22.8 | 26,549 | 7.79 | 11,679 | 51.30 | 9,348 | 8.17 |
| Female | 24,712 | 1.6 | 18,224 | 0.06 | 10,165 | 9.83 | 7,718 | 0.10 |

1. Number of children
2. Percentage of school-age going children that go to school

D. Percentage increase in number of school-going children between 1974 and 1985:

| | Primary | Secondary |
|---|---|---|
| Total | 18.9 | - 0.12 |
| Male | 28.5 | 0.36 |
| Female | 8.23 | 0.04 |

TABLE = 10

LASBELA DISTRICT: HEALTH FACILITIES
(Source: Development Statics Baluchistan 1986,
Bureau of Statistics, Government of Baluchistan)

A. Number of facilities/beds:

| | 1974 | | 1985 | | Population per bed | |
|---|---|---|---|---|---|---|
| | No. | Bed | No. | Bed | 1974 | 1985 |
| Hospital | 1 | 12 | 1 | 12 | 11,226.4 | 15,678.2 |
| Dispensary | 18 | - | 13 | - | - | - |
| R.H. Centre | 1 | 4 | 3 | 30 | 33,679.2 | 6,271.3 |
| T.B. clinic | - | - | 1 | - | - | - |

B. Medical staff: 1985:

Doctors : 1 for every 13,438.5 persons

Paramedics : 1 for every 37,627.8 persons

Dias (TBAs) : 1 for every 3,135.7 females

X-Ray facilities, labs and technicians : Nil

TABLE = 11

GWADAR DISTRICT: POPULATION
(Source: Census reports of the Government of Pakistan)

1972

| District/ Costal & Non-Coastal | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male | Female | Total | Male | Female |
| Areas that now Gwadar district | 89,058 | 36,881 | 19,471 | 30,161 | 52,177 | 45,734 | 38,543 |
| a) Coastal Tehsils of old Makran district | 89,058 | 36,881 | 19,471 | 30,161 | 52,177 | 45,734 | 38,543 |
| i. Gwadar Tehsil | 27,473 | 15,794 | 8,377 | 7,417 | 11,679 | 6,384 | 5,295 |
| ii. Pasni Tehsil | 32,610 | 15,737 | 8,360 | 7,377 | 16,873 | 9,290 | 7,583 |
| iii. Ormara Tehsil | 9,454 | - | - | - | 9,454 | 4,965 | 4,489 |
| iv. Jiwani Tehsil | 19,521 | 5,350 | 2,734 | 2,616 | 14,171 | 7,914 | 6,257 |

Note: In 1972, what is today Gwadar district was part of the old Makran district.

| District/ Coastal & Non-coastal | Total | Urban | | | Rural | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male | Female | Total | Male | Female |
| GWADAR District | 112,385 | 43,253 | 22,404 | 20,849 | 69,132 | 36,957 | 32,175 |
| a) Coastal Tehsils | 112,385 | 43,253 | 22,404 | 20,849 | 69,132 | 36,957 | 32,175 |
| i. Gwadar Tehsil | 33,404 | 17,000 | 8,713 | 8,287 | 16,404 | 8,732 | 7,672 |
| ii. Pasni Tehsil | 39,810 | 17,988 | 9,469 | 8,519 | 21,822 | 12,309 | 9,513 |
| iii. Ormara Tehsil | 15,215 | 8,265 | 4,222 | 4,043 | 6,950 | 3,774 | 3,176 |
| iv. Jiwani Tehsil | 23,956 | - | - | - | 23,956 | 12,142 | 14,514 |

TABLE = 12

GWADAR DISTRICT: SURFACE AREA AND DENSITY
(Source: Census reports of the Government of Pakistan)

| | Area sq.km. | Population density per sq.km. | Urban proportion | Household size |
|---|---|---|---|---|
| GWADER District | 15,216 | 7.4 | 38.4 | 6.3 |
| Gwadar S/D. | NA | NA | 29.6 | 6.3 |
| Pasni S/D. | NA | NA | 47.7 | 6.4 |

S/D : sub-division

TABLE - 13

GWADAR DISTRICT: POPULATION BY AGE
(Source: Census reports of the Government of Pakistan)

1972

| Talukas/ District | Total | 0 - 9 | 10 - 29 | 30-44 | 45-above |
|---|---|---|---|---|---|
| a. Gwadar S/D. | 46,994 | 15,632 | 17,892 | 7,209 | 6,261 |
| b. Pasni S/D. | 42,064 | 12,913 | 15,620 | 7,772 | 5,759 |

1981

| Talukas/ District | Total | 0 - 9 | 10 - 29 | 30-44 | 45-above |
|---|---|---|---|---|---|
| a) Gwadar S/D. | 57,360 | 21,644 | 19,743 | 8,364 | 7,609 |
| b) Pasni S/D. | 55,025 | 20,411 | 19,479 | 8,539 | 6,596 |
| LASBELLA | | | | | |
| a. Hub S/D. | NA | NA | 12,821 | NA | NA |

S/D : sub-division

TABLE = 14

GWADAR DISTRICT: EDUCATIONAL FACILITIES
(Source: Development Statistics Baluchistan 1986,
Bureau of Statistics, Government of Baluchistan)

A. **Number of schools:**

| Year | | Primary | Secondary | Intermediate | Vacational |
|---|---|---|---|---|---|
| 1974 in old Makran district | Total | 248 | 43 | 2 | NA |
| | Male | 213 | 41 | 2 | NA |
| | Female | 35 | 2 | NA | NA |
| 1984 in present Gwadar district | Total | 51 | 14 | NA | NA |
| | Male | 49 | 12 | NA | NA |
| | Female | 2 | 2 | NA | NA |

B. **Students per 1 teaching staff:**

| 1974: old Makran district | | | 1984: Gwadar district | | |
|---|---|---|---|---|---|
| T | M | F | T | M | F |
| 17.8 | 17.7 | 19.3 | 100.9 | 92.6 | 25.2 |

T : Total

M : Male

F : Female

C. School-going children:

| | 1974: old Makran district | | | | 1984: Gwadar district | | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | | Secondary | | Primary | | Secondary | |
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Total | 31,287 | 25.5 | 23,701 | 4.6 | 21,999 | 32.9 | 15,862 | 12.2 |
| Male | 15,944 | 43.9 | 13,249 | 7.4 | 11,342 | 40.4 | 9,006 | 11.7 |
| Female | 15,343 | 6.5 | 10,452 | 1.1 | 10,657 | 24.9 | 6,856 | 0.4 |

1. Number of children

2. Percentage of school-age going children that go to school

Note: In 1974, what is today Gwadar district was part of the old Makran district.

TABLE - 15

GWADAR DISTRICT: HEALTH FACILITIES
(Source: Development Statistics Baluchistan 1986,
Bureau of Statistics, Government of Pakistan)

A. Number of facilities/beds:

| | 1974 old Makran district | | 1984 Gwadar district | | Population per bed | |
|---|---|---|---|---|---|---|
| | No. | Bed | No. | Bed | 1974 | 1984 |
| Hospital | 1 | 36 | Nil | Nil | 8,444.7 | - |
| Dispensaries | 43 | 12 | 1 | Nil | 25,334 | - |
| RH Centres | 3 | 12 | 3 | 30 | 25,334 | 3,746.1 |
| T.B. Centres | 1 | Nil | Nil | Nil | - | - |

B. Medical staff: 1984:

Doctors : 1 for every 8,645 persons

Paramedics : 1 for every 22,477 persons

(These include LHVs & midwives)

Dias (TBAs) : 1 for every 3,534.9 females

C. Patients treated: 1986:

| | Hospital | |
|---|---|---|
| | Indoor | Outdoor * |
| Baluchistan | 218,536 | 294,651 |
| Gwadar | NA | NA |

* Includes patients treated in dispensaries, RHCs, etc.

## TABLE = 16

COASTAL DISTRICTS: LITERACY (10 Years and above)
(Source: Census reports of the Government of Pakistan)

### Literacy

| | District | 1972 T | 1972 M | 1972 F | 1981 T | 1981 M | 1981 F |
|---|---|---|---|---|---|---|---|
| 1. | Thattah | 20.3 | 29.7 | 9.1 | 17.8 | 26.5 | 7.7 |
| 2. | Lasbella | 5.6 | 9.0 | 1.5 | | | |
| 3. | Gwadar | Not Relevant as Gwadar was part of the old Makran district | | | 6.10 | 10.8 | 0.9 |

### Matriculates

| | District | 1972 T | 1972 M | 1972 F | 1981 T | 1981 M | 1981 F |
|---|---|---|---|---|---|---|---|
| 1. | Thattah | NA | NA | NA | 0.7 | 1.24 | 0.2 |
| 2. | Lasbella | NA | NA | NA | | | |
| 3. | Gwadar | Not relevant as Gwadar was part of the old Makran district | | | 0.09 | 0.12 | 0.01 |

### Graduates

| | District | 1972 T | 1972 M | 1972 F | 1981 T | 1981 M | 1981 F |
|---|---|---|---|---|---|---|---|
| 1. | Thattah | NA | NA | NA | 0.25 | 0.44 | 0.05 |
| 2. | Lasbella | NA | NA | NA | | | |
| 3. | Gwadar | Not relevant as Gwadar was part of the old Makran district | | | 0.008 | 0.01 | 0.007 |

T : Total
M : Male
F : Female

TABLE - 17

COASTAL DISTRICTS: EMPLOYMENT
(Source: Census reports of the Government of Pakistan)

| | District | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1. | Thattah | 173,274 | 72 | 10,859 | 32,812 |
| 2. | Lasbela | 19,625 | NA | NA | NA |
| 3. | Gwadar | 21,126 | 128 | 3,283 | 6,872 |

1. Agriculture, forestry, hunting and fishing.
2. Mining and quarying.
3. Manufacturing and construction.
4. Services sector.

TABLE = 18

MIGRATION
(Source: Census reports of the Government of Pakistan)

| | Thattah | | | | Lasbella | | | |
|---|---|---|---|---|---|---|---|---|
| | 1972 | | 1981 | | 1972 | | 1981 | |
| | Rural | Urban | Rural | Urban | Rural | Urban | Rural | Urban |
| Inmigration | NA | NA | 21,631<br>2.8% | 5,341<br>7.3% | | | | |
| Outmigration | NA | NA | NA | NA | | | | |
| Gone abroad | NA | NA | 7,277<br>0.01% | 801<br>1.1% | | | | |

| | Gwadar | | | |
|---|---|---|---|---|
| | 1972 | | 1981 | |
| | Rural | Urban | Rural | Urban |
| Inmigration | Not relevant as Gwadar was part of the old Makran district | | 290<br>0.25% | 1,165<br>% |
| Outmigration | | | - | - |
| Gone abroad | | | 76<br>0.06% | 2,699<br>% |

TABLE - 19

COASTAL AREA: DETAILS OF FISHING INDUSTRY
(Source: Handbook of Fisheries Statistics, Marine Fisheries Department, Ministry of Food and Agriculture, Government of Pakistan, Vol. 14-1985)

| | | 1957 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|---|---|
| A. | **Population employeed** | | | | | | | |
| 1. | Karachi & Sind Coast | 32,938 | 44,438 | 52,153 | 61,000 | 73,500 | 54,896 | 65,835 |
| 2. | Baluchistan Coast | 12,588 | 15,785 | 17,961 | 28,600 | 25,200 | 19,625 | 23,361 |
| B. | **Type of fishing crafts** | | | | | | | |
| 1. | Karachi & Sind Coast | | | | | | | |
| a. | Trawlers | 3 | 86 | 258 | 443 | 1,098 | 1,296 | 1,631 |
| b. | Gill Netters | 70 | 146 | 490 | 659 | 752 | 888 | 1,090 |
| c. | Mech/sail boats | - | - | - | - | 230 | 487 | 2,211 |
| d. | Sail boats | 1,030 | 1,100 | 2,794 | 3,339 | 3,978 | 4,220 | 2,785 |
| 1. | Baluchistan Coast | | | | | | | |
| a. | Trawlers | Nil | Nil | 2 | Nil | Nil | Nil | Nil |
| b. | Gill Netters | 2 | 14 | 20 | 48 | 63 | 21 | 159 |
| c. | Mech/sail boats | Nil | Nil | Nil | Nil | Nil | 846 | 2,206 |
| d. | Sail boats | 1,550 | 1,961 | 1,993 | 2,004 | 2,249 | 1,639 | 327 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| C. | **Catch** | | | | | | | |
| a. | Karachi & Sind Coast | NA | NA | 72,138 | 102,418 | 113,000 | 175,255 | 229,220 |
| b. | Baluchistan | NA | NA | 17,694 | 37,385 | 41,124 | 57,688 | 94,110 |

TABLE = 20

COASTAL SETTLEMENTS
(Source: Census reports of the Government of Pakistan)

| | | POPULATION | |
|---|---|---|---|
| | | 1972 | 1981 |
| 1. | THATTAH DISTRICT | | |
| - | Takári | 1,230 | 1,873 |
| - | Bambhore | | |
| - | Juna Shah | NA | NA |
| - | Goth Katiar | NA | NA |
| - | Miranwali | NA | NA |
| - | Jhol (Jhaloo) | 307 | 1,031 |
| - | Keti Bunder | 452 | 512 |
| - | Achu | | |
| - | Wasnjo Kharo Chan | NA | 16,903 |
| - | Kharochan | | |
| - | Shah Bunder tehsil | 451 | 92 |
| 2. | LASBELA DISTRICT | | |
| - | Kandracho | 129 | |
| - | Dhak | NA | |
| - | Kandennri | NA | |
| - | Gagu | NA | |
| - | Damb | 831 | |
| - | Sonmiani | 2,218 | |
| - | Naka Kharai | 1,887 | |
| - | Gadani | 24 | |

| 3. | GWADAR DISTRICT | 1972 | 1981 |
|---|---|---|---|
| - | Ras Shunal Bunder | NA | 372 |
| - | Jiwani | 5,350 | 8,853 |
| - | Peshkan | 3,422 | 6,440 |
| - | Gwadar | 15,794 | 17,000 |
| - | Sur | 2,444 | 3,106 |
| - | Kapar | 1,665 | 836 |
| - | Chur | 491 | 792 |
| - | Ras Jaddi | NA | NA |
| - | Pasni | 15,737 | 17,980 |
| - | Rambra (Rumbada) | 223 | 245 |
| - | Astola Island | NA | NA |
| - | Gursunt | 695 | 628 |
| - | Jafri | 211 | 224 |
| - | Ormara | 1,137 | 8,265 |
| - | Had | 701 | 687 |

TABLE - 21

PLACES-VISITED, PEOPLE-MET

LASBELA DISTRICT

| Date | Time | Place | Persons interviewed |
|---|---|---|---|
| 15-01-89 | 1700 | Karachi Arif Hasan's office | Hasan Babawala, member of the Baba Island Fishermen's Welfare Association |
| 16-01-89 | 1900 | Karachi Baba Island | Mohd. Yousef, President of the Baba Island Fishermen's Welfare Association |
| 18-01-89 | 0845 | Left Karachi for Damb Bunder | |
| | 1045 | Arrived Damb Bunder | |
| | 1115 | PPP's office in Damb Bunder | 1. Mohd. Abbas: General-Secretary, PPP |
| | | | 2. Abdul Karim: 60 year old Khalasi, resident of Dam Bunder |
| | | | 3. Mohd. Hashim: boat builder |
| | | | 4. Haji Ibrahim Baluch: Katib Jamia Masjid |
| | | | 5. Bachoo: Labourer at the Bunder |
| | | | 6. Mohd. Ismail: Councillor |
| | | | 7. Dr. Mohd. Hussain Baluch: doctor in private practise |
| | | | 8. Faiz Mohd: donkey-cart owner |
| | | | 9. Abdul Majid: donkey-cart owner |

| | | | |
|---|---|---|---|
| | | | 10. Jumma Khan: Khalasi |
| | | | 11. Conversation with employees of the fishing companies |
| | 1530 | Arrived Sommiani | Discussions with shopkeepers in the main bazar |
| | 1730 | Arrived Gadani | 1. Abdul Khaliq: PPP office bearer and president of the Baluch Yakmusht Association |
| | | | 2. Allah Bux Baluch: boat owner |
| | 2000 | Arrived Karachi | |

## THATTAH DISTRICT

| | | | |
|---|---|---|---|
| 22-01-89 | 1000 | Left Karachi | |
| | 1400 | Arrived at Keti Bunder | 1. Abdul Aziz Memon: Chairman Union Council |
| | | | 2. Abdul Latif: Khalasi |
| | | | 3. Abdul Karim Memon: biggest 'baypari' of Keti Bunder |
| | | | 4. Mohd. Ayub: Marwari shopkeeper |
| | | | 5. Mohd. Siddique: donkey-cart water supplier |
| | | | 6. Mohd. Usman: sweetmeat shopkeeper |
| | | | 7. Mohd. Haroon Memon: owner of diesel depot on Jetty |
| | | | 8. Mohd. Amin: Captain of fishing boat at the Bunder |

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| | | | 9. | Abdul Rahman: ex-school teacher, now post master |
| | | | 10. | Mohd. Usman: Compounder at RHC |
| | | | 11. | Ghulam Rasool Memon: Fish merchant now settled at Ibrahim Hyderi |
| 25-01-89 | 1000 | By boat from Keti Bunder to Hajamro creek. Stopped at nameless settlements on the way | 12. | Abdul Karim Memon: baypari |
| | | | 13. | Ibrahim Dhago: Khalasi |
| | | | 14. | People working on the creek shore |
| | 1330 | Back in Keti Bunder | | |
| | 1530 | Arrived at Rah Phutto | 15. | Mohd. Rahim: Khalasi and agriculturist of Mehri cast |
| | 1900 | Arrived at Karachi | | |

## GWADAR DISTRICT

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|---|---|---|---|---|
| 04-02-89 | 1500 | Left Karachi by plane | | |
| | 1700 | Arrived at Pasni | 1. | Asadullah Megal: timber and reed merchant |
| | | | 2. | Yasin: owner of an eating place in the bazar |
| 05-02-89 | | Pasni | 3. | Inayatullah: Inspector of fisheries |
| | | | 4. | Zaman: mechanic in fisheries workshop |
| | | | 5. | Amjad: boat builder |
| | | | 6. | Nawab Ali: Councillor |

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|---|---|---|---|
| | | | 7. Bayjar Baluch: correspondent of daily "AMAN" |
| | | | 8. Khuda Mohd. Asghari: Chairman Town Committee |
| | | | 9. Dr. Habibullah: Basic Health unit, Pasni |
| | | | 10. Dr. Barkatullah: Basic Health Unit, Pasni |
| | | | 11. Ellahi Bux: Vaccinator at EPI centre |
| | 1400 | Lunch in Pasni Bazar | 12. Liaquat Ali: Vaccinator at EPI centre |
| | | | 13. Mohd. Yasin: owner of jewellers shop |
| | | | 14. Pindal: donkey-cart operator |
| | | | 15. Samboo: worker at fisheries yard in Pasni |
| | | | 16. Sohlan: clerk of Seth Sadru, fish merchant from Karachi |
| | | | 17. Luqman: agent of shipping company which transports wheat from Karachi to Gwadar district |
| | | | 18. Khalasis, labour working at the bunder in Pasni |
| | | | 19. Mir Rahmat Kalmati: ex-chief of Pasni |
| 26-02-89 | 1030 | Left for Gwadar | |
| | 1300 | Arrived at Gwadar | |
| | | | 20. Bashir Ahmed: owner of sawing mill |
| | | | 21. Sadruddin: Government contractor |

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| | | | 22. Ibrahim: fisherman at the Bunder |
| | | | 23. Hussain: fisherman |
| | | | 24. Fishermen, Khalasis and labours at the Bunder |
| 07-02-89 | 1130 | Left Gwadar for Sur Bunder | |
| | 1215 | Arrived at Sur | 25. Allah Bux: school teacher |
| | | | 26. Rahim Bux: school teacher |
| | | | 27. Ghulam Rasool: fisherman |
| | | | 28. Kanda Shaban: Councillor |
| | | | 29. Abdul Karim: general store owner |
| | | | 30. Abdul Majid: boat-owner |
| | | | 31. Shahdad Raykhani: timber supplier |
| | 13:45 | Left Sur | |
| | 14:30 | Arrived at Pasni | |
| | 15:30 | Left Pasni for Karachi Fokker plane flies along the coast | |
| | 17:30 | Arrived at Karachi | |

* Israr Rana /*

March 1989