Profile of district

Badin

with focus on livelihood related issues

South Asia Partnership-Pakistan

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with focus on livelihood related issues

Developed by
Tahir Mehdi, Tauqeer Mustafa, Rashid Chaudhry,
Shafiq Butt, Asif Hoat, Matloob Ali, Khalid Amin and Shoaib Tariq

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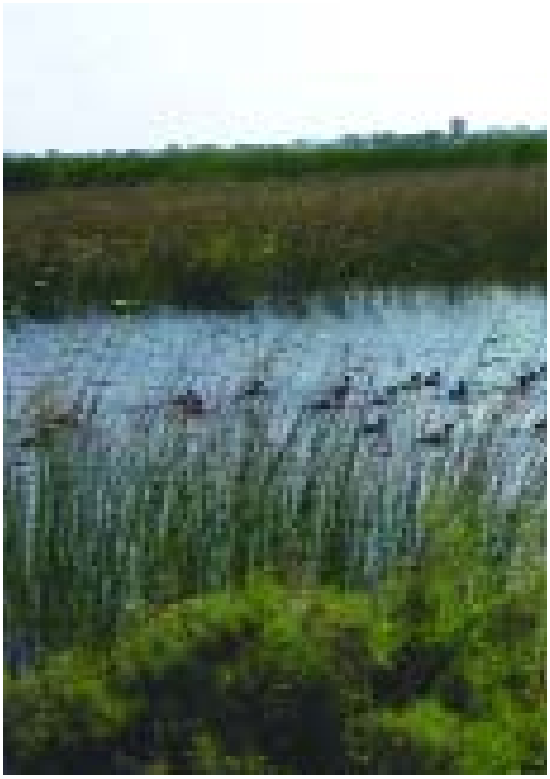
Introduction



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This publication is a result of a research exercise carried out to understand and document the current status of different ways and means of earning livelihoods in a group of selected districts of Pakistan and other factors that have an impact on people's capacity to utilize available resources and that of creating new ones. The study is a part of South Asia Partnership, Pakistan's (SAP-PK) strategy to realize its mission of creating an engendered, critical society in South Asia based on the universal principles of human dignity, justice, democracy and peaceful coexistence. As member of South Asian civil society movement, SAP-Pk is striving to empower marginalized sections of society and working to influence policies in their favor.

Data for the study is collected through secondary as well as primary sources. The secondary data is mostly quoted from Population Census 1998, Agriculture Census 2000, Agriculture Machinery Census 2004, Industry Census 2004, Animal Census 2006, Punjab Development Statistics 2008 and other government sources. Information from some departmental studies like Multiple Indicator Cluster Study by Planning Commission 2003-04 has also been used. The figures have been projected to the latest year using growth rates. But growth rates for some parameters are either not available or are generalized for the national or provincial level as their district break-ups are not available. This may have resulted in not very accurate projected figures for the district. We however believe that this is unlikely to undermine the broader conclusions drawn from these.

Livelihood has very rarely been a subject for any scientific research despite its utmost importance. The need to initiate such work was absolutely necessary, as the traditional livelihood sources are rapidly depleting. This situation has pushed a large portion of population, especially those who have been associated with agriculture and traditional sources of earning in rural areas. They are left stranded as far as their livelihood sources are concerned. This factor contributes substantial rise in poverty. The situation is particularly affecting the landless and the farmers with small land holdings and rural workers. The women farmers and tillers belonging to religious minorities are the worst effected as they were solely dependent on traditional modes of earning.

In this scenario the work in hand is a commendable task undertaken and completed by the writers. It is a wonderful effort in the right direction. The work definitely provides a basis for further research on livelihood sources. There is not only occasional analysis included in the profile but the facts and figures provided also stimulate the reader to build up different analysis. The book very clearly shows how the nature and availability of livelihood sources can have effects on poverty and poor people.

This research work was conducted in 15 districts of all four provinces. The districts selected include

where the South Asia Partnership has been working since its inception for the betterment of poorer sections of the society through various initiatives. The publication gives a detail description of demographic factors such as population of male and female in the district and how these differences denote to discrimination and bias against womenfolk of the country. The research focuses more on female population of the rural areas with stress on maternity health, literacy, enrollment and drop-out ratio among girl students.

The district profile also notes the changes in pattern of livelihood sources. It also deals with the number of issues such as health facilities, transportation and communication, irrigation, pattern of crops, land ownership patterns, livestock and industrial growth in the district. The work includes the politics of international trade agreements and its implications on Pakistan's industrial and agricultural sectors and especially on livelihood sources of the population. All the facts are substantiated by related data which is another quality of this work.

It is in fact a valuable addition in the efforts of South Asia Partnership- Pakistan spanning over the periods of two decades in the field of research especially on the subjects related to poor farmers and rural workers. And of course livelihood stands high in this list.

I want to conclude by removing some misconceptions prevalent in our 'intellectual' brethren about the efficacy and usefulness of written work. They opine that since the South Asia Partnership-Pakistan is working for the peasant and rural workers, the big majority of those are unable to read so the written work will be fruitless. I wonder if one goes with this approach then the publishing and printing of books should be halted at once, for even the big majority of literate population has no tendency towards reading the books especially on serious subjects. The efficacy of the written work cannot be measured by mere number of souls who have actually read it but by the effects the work has generated. To quote an example "DAS CAPITAL" would have been, most probably, read by some thousand people but the effect it produced and still generating is even immeasurable.

This work will definitely be helpful for the policy makers, for the development experts, for non governmental organization in evolving their strategies to coup poverty and deprivation. The research is capable of organizing peasants and workers both rural and industrial around identified issues.

Mohammed Tahseen
Executive Director

Badin is part of the area of Sindh that was the centre of ancient Indus valley civilization that flourished between 3300 and 1900 BC and vanished by 1300 BC. The decline of Indus valley civilization still incites curiosity among archeologists and a number of missions are busy investigating the reasons ranging from climate change to the Aryan invasion from North West of the sub-continent.

The oldest historical record shows that Sindh was attached to the (Persian) Achaemenid Empire under Darius I in the late sixth century BC. Nearly two centuries later, Alexander the Great conquered the region in 325 and 326 BC. After his death Sindh came under the domination of Chandra Gupt Mauria in 305 BC, the Indo-Greek and Parathions in the 2nd - 3rd century BC, and the Scythians and the Kushians rulers from about 100 BC to AD 200.

The important influences shaping the progress of Sindh during this long period of time were the gradual decay of Brahmanical system of religion which in course of time had become excessively sacerdotal and ceremonious and getting out of touch with the feelings of common people. During that period the doctrines of Buddhism and Jainism were established and it is certain that Buddhism for many centuries had a profound influence upon the population of Sindh.

From the 3rd to 7th century AD the area remained under Persian Sasanaids. Before Arabs invasion in Sindh, the area was under the rule of Rai dynasty. During that period Brahmanism revival set in and in the second quarter of 7th century AD Brahmanism and Buddhism were confronting each other.

The Arab conquest of Sindh in 711 AD heralded the entry of Islam into the Indian Sub-continent. Sindh was part of the administration province of "As Sindh" in the Ummayyad and Abbassid empires from

712 to about 900 A.D. With the eventual weakening of central authority in the caliphate, this region came under the control of Ghaznavids.

Sindh saw many invaders and rulers after that, including Sumras, Ghori, Sultans of Delhi and Sammas, till the end of sixteenth century when Akbar the Great established the direct rule of Mughal Empire in Sindh by defeating Mirza Jani Beg, ruler of Thatta. The defeat of Mirza Jani Beg put an end to Tarkhan (Arghun) dynasty and Sindh henceforth became a part of Multan province.

Meanwhile Kalhoras, who began as petty feudal chiefs, became strong enough that they succeeded in getting the control of upper and lower Sindh with headquarters at Bukkur (Sukkur) and Thatta. The struggle of power between Kalhoras and Talpurs continued even during the course of Kalhoras rule and ended in the battle at Halani in 1783 in which the Talpurs emerged victorious and Kalhora dynasty came to an end.

The government of Mirs (Talpurs) was unique. It was a kind of family cooperation with no great interest in anything except keeping Sindh isolated and in collecting the revenue. They continued to rule Sindh until the battle of Miani in 1848 when the forces of the Mirs were defeated and Sindh passed under British rule.

Badin was given the status of district in 1975, before which it has been a part of districts of Hyderabad and Thatta.

Badin district is a part of Lower Indus plain formed by the alluvial deposits of the Indus river. Being a vast alluvial plain, its land is very uniform in character and is not diversified by hills or other rivers. General elevation of the district is about 50 meters above sea level. The southern part of the district is close to the delta of the river Indus and the land surface is, therefore, relatively low as compared to the northern half. The eastern part of the district is connected with the sand dunes of Tharparkar District. The degree of slope in Badin is negligible; the water table has a depth of 8 feet in winter and 5 feet in summer. The drainage system is grossly inadequate and poorly maintained. Consequently, the system does not have the capacity to carry even a nominal increase in precipitation. Flooding is generated by canal and salt water from the irrigation and drainage systems flowing into the area. Natural salts are an important ingredient of the soil that occur in every taluka but are present in greater quantities in the south of the district.

The total area of the district is 6,726 square kilometers and populations density is 169 persons per sq km. The district consists of five talukas: Badin, Matli, Tando Bago, Golarchi and Talhar, Badin being the district headquarter. Revenue units comprise 14 circles, 111 tapas and 535 dehs .The district is bounded on the north by Hyderabad district on the east by Mirpurkhas and Tharparkar districts, on the south by Rann of Kutch which also forms the international boundary with India, and on the west it is bounded by Thatta and Hyderabad districts.

The climate of Badin District is moderate. However, the summer months - April, May and June - are very hot during the day. The mean minimum and maximum temperatures during this period are

TANDO ALLAHYAR
Tando Jam
Balasabad
Qayumabad
Khokhar
Mirwah
KOT GHULAM MUHAMMAD
Sher Khan Bugari
Chambar
MIRPUR KHAS DISTRICT
Shaikh Bhirkio
Kapri Mori
Nuruddin Arain
Goth Ghulab Laghari
DIGRI
Dumbalo
TANDO MUHAMMAD KHAN
Tando Ghulam Ali
Tando Jam Muhammad
Phulkara
MATLI TALUKA
HYDERABAD DISTRICT
MATLI
Goth Buddha Kambrani
Rajo Khanani
Jhudo
Amir Shah
Jado
Gagni
Ghulam Shah
Mori
Dei
Saeedpur
TANDO BAGO TALUKA
Khairpur
BULRI
Tando Bago
Khadahro
Saman Shah
Kario Ghanwar
TANDO BAGO
Pangra
Rip
Khalifo Qasim
Khor Wah
GOLARCHI
Tarai
Khandani Jal
BADIN
Nindo Shahr
Khoski
GOLARCHI TALUKA
Lowari
THARPARKAR DISTRICT
Khark
BADIN TALUKA
Dogach
Garath
Sirani
Kadhan
Ahmad Rajo
Bhadmi
Mara
Rupamari
Rahim Ki Bazar
Kanjar Kot
Area of detail
Badin district
Peshawar
Islamabad
Lahore
Quetta
Multan
Karachi
THATTA DISTRICT
RANN OF KUTCH
I N D I A

25° and 45°C respectively. December and January are the coldest months with maximum and minimum temperatures of 30° and 10°C respectively. The temperature falls abruptly at night. The climate is tempered by the sea breeze, which blows for eight months from March to October, making the hot weather tolerable. The autumn starts in September and lasts for about two months. The maximum recorded humidity at Badin is 76 percent. Rainfall is highly erratic with an average of about 170 mm. The monsoon dominates from July to September. Rainfall is quite unpredictable and years without rainfall are quite common. Sometimes the equivalent of a year's rainfall can fall in one day causing extensive flooding. About 90 percent of precipitation occurs during period July to September. Wind is faster in the summer than in winter, with the highest wind speeds being observed during the monsoon. There is also diurnal variation of wind speed that increases during the day and dies down in the evening. During winter, northerly and north-easterly winds prevail in the morning hours, but for the rest of the year the direction is westerly and south-westerly. The wind speed is 7.4 to 20.5 km/hour during summer, but when tropical pressure depressions are created in the Arabian Sea, fast winds develop in cyclonic storms and bring rains. As a result, high tidal waves sweep over large areas. This phenomenon occurs from June to September.

According to the 1998 national census, the population of Badin was 11,36,040, compared to 7,76,610 in 1981. The population grew by 46.28 percent in 17 years between the two census which

Total population (2007)
Badin District 1,356,863

10 Towns	505 Villages
16.4%	83.6%
Urban 222,737	Rural 1,134,126

Towns	Population
Badin	75,058
Matli	51,249
Talhar	19,633
Golarchi	16,991
Tando Ghulam Ali	16,791
Tando Bago	14,260
Khoski	8,211
Rajo Khanani	7,860
Kadhan	6,949
Kario Ghanwar	5,734

Villages	No	% share
5000 & above	13	8.8
2,000 to 5,000	162	47.4
1,000 to 2,000	246	37.7
Less than 1,000	84	6.1
All villages	505	100.0

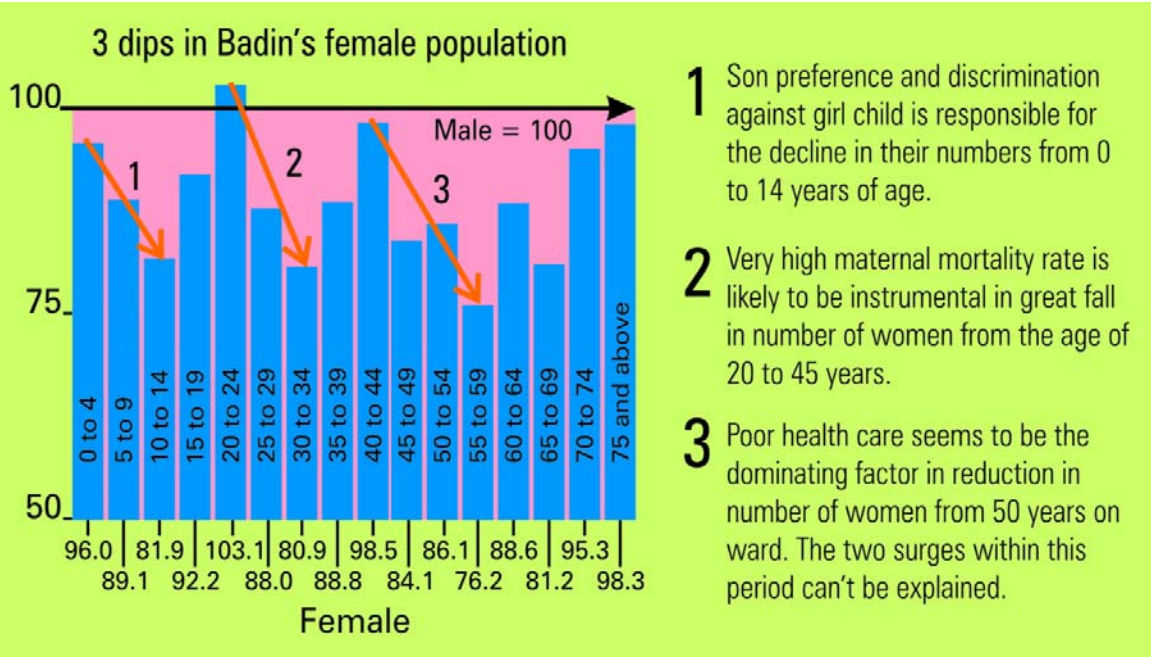
indicates an average annual growth rate of 2.26 percent. Propagated at the national annual growth rate, the population is calculated to be 13,57,000 in 2007. The average household size in the district is 5.3 persons.

The majority of the population of the district (79.4 percent) is Muslim. The percentage for the urban areas is higher at 82.2 percent as compared to 78.9 percent in rural areas. The most important among the minorities are Hindu (Jati) who are 18.85 percent in the district with greater concentration at 19.6 percent in rural areas compared to 15.1 percent in urban areas. Presence of other religious minorities in the district is insignificant.

Sindhi is mother tongue of the majority, spoken by 89.8 percent of the total population in the district. It is predominant in rural areas at 92.2 percent as compared to 77.7 percent in urban areas. The next prominent faction is of Punjabi speakers at 5.6 percent in the district - 11.3 percent in urban areas and 4.5 percent in rural areas. Urdu speaking community is only 1.2 percent of the district population, almost entirely concentrated in urban areas at 4.65 percents of urban population compared with only 0.5 percent in rural areas.

Population of male and female is not and has never been equal in most parts of the globe. Females are naturally more in numbers, for a variety of reasons. United Nations figures tell us that there are more females than males in 119 of the total 191 countries in the world. It is equal in 10 and female population is less than that of males in the rest 62. In the developed countries of Europe, USA, Australia and Japan, there are 105 women against every 100 men. The figure is 102 in the poor continent of Africa as well as in Latin America. In a sharp contrast, number of females is less than that of males in China, South Asia and Middle East.

Pakistan besides falling in the list of countries with



lower female to male ratio is also one of the only four countries where life expectancy of females at birth is less than that of males. In Pakistan, female population per hundred males is 92. Situation is worst in Balochistan where the ratio is 87, while it is 89 in Sindh, 93 in Punjab and 95 in NWFP. Number of female per 100 male population in the Badin district (sex ratio) is 90.1. This is a little higher than the provincial but less than the national average. Rural sex ratio in the district (90.5) is a little better than the urban one that is 88.3. Sex ratio is highest in rural areas of taluka Matli while lowest in urban areas of taluka Golarchi.

If all the districts of Pakistan are arranged in descending order of sex ratio, Badin stands at number 72 among 106 districts. Highest ratio is in Chakwal (109.1) while the lowest is in District Malir of Karachi (78.9). There are ten districts where the ratio is 100 or more, and most of them fall in Potohar area and NWFP. 58 districts of the country have a ratio equal to or better than the national average while the other 48 have lower than it.

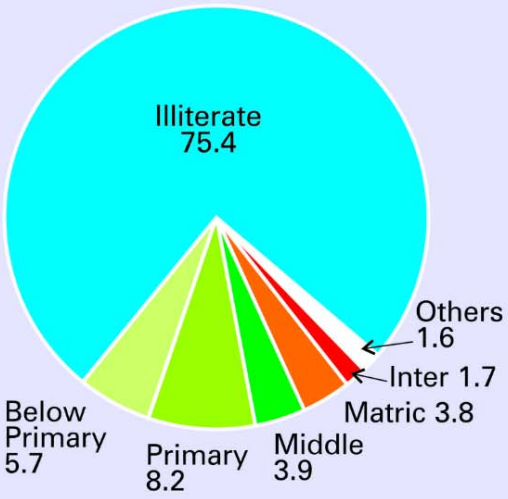
The age wise breakup of sex ratio in Badin district lays bare three troughs in female life that are typical for all parts of the country. The first decline starts right from the birth and lasts till the age of 15 years as the nutritional and health care requirements of the girl child are not taken care of by the families that prefer sons over daughters.

Girls and young women play a very important role in subsistence economy. There are numerous house and farm chores that are considered solely the job of women. Women in Badin are mainly involved in looking after livestock, making rillies (patch work mats), embroidery and domestic tasks. As they cross puberty, their 'productive value' increases and the ratio improves dramatically. This is also their reproductive age. In Badin, the number of women of age 20 to 25 compared with 100 men is the highest for any age group in the district.

But the good luck of the female population starts and stops in the same age group. They start bearing children and suffer heavily from maternal health problems. This is also the age when they become victims of honor related crimes and discriminations. As the graph shows their numbers tumble sharply till the age of 40. The female population gets a brief respite at the end of reproductive age and their number again climbs up. But this relief is also short lived and their

Educational Attainment

Percent of population 10 years and above
1998 Census



There are no signs suggesting any major change in the educational profile of the district over last ten years

High and low of literacy in males

Taluka Matli, urban

Taluka Badin, rural

Taluka Golarchi, rural

In females

Taluka Tando Bago, urban

Taluka Badin, rural

Taluka Golarchi, rural

number again takes a downward slide.

At around the age of 50, generally the daughters-in-law take over the charge and the old women's role in the family shrinks to marginal and complementary jobs. They don't have any social security resources to draw upon for their health care. They neither have ownership of any resources like land. In comparison old men are more likely to be enjoying some pension or might be in possession of a property which makes them a better candidate for their children's attention when it comes to expenditure on health care and taking care of other old age needs. The last crest in the graph shows that the ratio increases in the favor of women once again after reaching the age of seventy, which is a little more than the average age in Pakistan. This may be purely due to natural reasons since women generally live longer than men.

There are sharp differences in the sex ratio for the rural and the urban populations. For example, the number of females aged 20 to 24 in rural Badin is 104.3 that means more women than men. But in urban areas their number is only 96.8.

The literacy rate of the district was 24.6 percent according to the district census report of 1998. There are sharp differences in the literacy rates segregated by sex and area. The male literacy rate is nearly three times higher at 35 percent than that for the females that is 12.9 percent. The rate in the urban areas is more than double at 44.8 percent as compared to 20.5 percent in the rural areas. In the rural areas male literacy is more than three times higher at 30.7 percent compared to female literacy rate that is only 9.2 percent. It is 56.2 percent for males and 31.3 percent

for females in the urban areas. Badin stands at number 18 among the 21 districts of Sindh with respect to overall as well as male literacy rate. (There were 21 districts in the province at the time of last census. Many new districts have since then been created.) It ranks a bit higher in terms of female literacy that is 16th in 21 districts. Compared with all the districts of country, Badin stands at number 74 among the 106 districts. Its ranking with regards to male literacy is 75 while in respect of female literacy it is 67.

Enrollment ratio was 17 three years ago for the district which is alarmingly low. This being lower than the literacy rate indicates that there has not been any improvement during the recent past and the sector needs extensive interventions. Of the 21 districts of Sindh province, only three other districts: Shikarpur, Thatta and Tharparkar have an enrollment ratio less than that of Badin. Enrollment of the rural females is extremely low at 8.6 percent, only half that of rural male and one fifth of the ratio for urban boys.

The 'District Vision Document' prepared by the District Government Badin in 2006 in collaboration with The Conservation Union (IUCN) has made following observations regarding the availability of education facilities in this district.

- 735 settlements in remote coastal areas comprising of at least 200 individuals each do not have primary schools.
- 111 settlements of more than a thousand individuals each do not have middle schools for boys. 117 such settlements do not have middle schools for girls.
- In Badin and Golarchi talukas, there is no middle school for girls in rural settlements of up to 500 individuals.
- Out of 134 settlements of more than a thousand inhabitants, 132 do not have high schools for girls and the rest have no female hostel facilities, hence rural girls are unable to receive high school education.

The general health of the population in district Badin is very poor, as mentioned in the socioeconomic study carried out by the World Bank in 2005. It states that the fundamental cause of ill-health is lack of clean drinking water. Dirty water brings with it a variety of water-borne diseases. Saline water harms the human body and may affect brain as well. The health facilities available to mitigate this situa-

to the 1998 population census, there was one hospital for 227,208 persons. This number had increased to 240,020 persons per hospital by 2000. There were only 360 beds in district hospitals, dispensaries, RHCs and BHUs in Badin in 2000. On average, there were 3,156 and 3,334 persons per bed in the district in 1998 and 2000 respectively. There is immense pressure on the present weak health infrastructure.

In the public sector, the sanction are far less than sufficient.

According to the office of EDO (Health), as mentioned in the district vision document prepared by the District Government Badin in 2006, the health infrastructure includes one civil hospital, three taluka hospitals, 12 Rural Health Centers (RHCs), 38 Basic Health Units (BHUs), one mother and child healthcare (MCH) centre with 20 beds and 69 government dispensaries in addition to 28 experimental dispensaries. There are 317 sanctioned male medical officers, 60 female medical officers, 15 lady health visitors and 44 female health technicians. The medical staff in place is, however, much less than the sanctioned strength. The number of persons to be served by one doctor was calculated to be 5,428 in 2001. BHUs provide primary health care services in rural areas. Around 85 percent of the district population is living in rural areas and the disease burden is also higher here. There were only 33 BHUs in 1998 with an average patient population of 29,271. According to the public sector, the sanctioned staff strength is not in place and many of the staff positions are vacant. Even where staff is recruited, there is a high degree of staff absenteeism and medicines and supplies are not available. In December 2005, Project Preparatory Technical Assistance team of Asian Development Bank (ADB) observed that many medical centers were completely non-functional and closed. The report quotes, "it is almost certain that no qualified medical staff reside in the area. Perhaps the nearest doctor or mid-wife is in Thatta, but that is by no means certain". This has created room for a lot of quacks and untrained practitioners posing as health care providers who deliver an uncertain quality of service. In these circumstances, it is not surprising that the overall physical condition of the population is extremely poor. Ill-health has rendered the population paralyzed and one cannot expect that they can on their own to make efforts to come out of chronic poverty.

Sindh's successful movement to get their province separated from Bombay presidency was followed by the enactment of 1935 India Act and the announcement of elections in the province in 1937. The modern political history of Badin district dates back to this decade of last century. By then, the political environment of the province was essentially anti-British, but with the beginning of constitutional politics, the communal color started dominating.

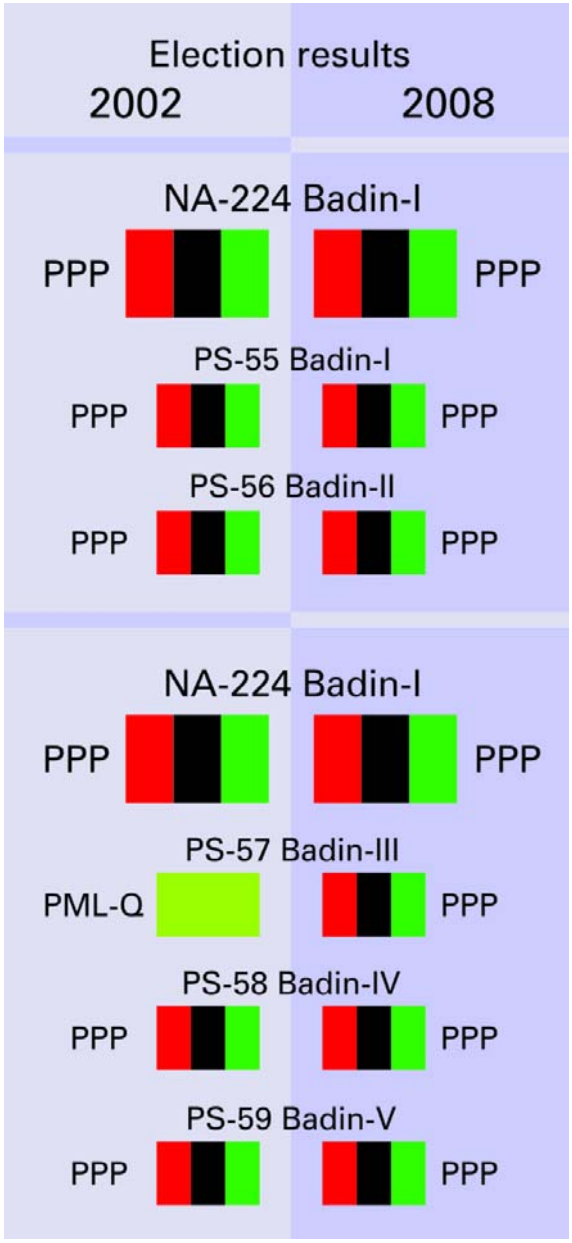
In the elections of 1937, G M Sayed's United Party had won 22, Hidayatullah's party 3 and Sheikh Abdul Majeed's Azad Party 3 seats. Congress won 7 and the remaining 25 by independent Muslim and Hindu candidates in the 60-member House. None of the seats was won by Muslim League.

Mir Bandeh Ali Khan Talpur of Tando Ghulam Ali was amongst some major political personalities of Sindh who not only won from his native Badin constituency, then part of Hyderabad district, but also played a major role in forming a big pressure group namely Mir group of assembly members. The group has been instrumental in making and breaking successive governments in the next decade. He belonged to Manikani branch of Talpur Balochs, who were the last rulers of Sindh before the province was annexed to British India in 1843. He enjoyed cabinet slots in almost all the Sindh ministries from 1937 to 1946 besides enjoying a brief term as Chief Minister in 1941. Bandeh Ali won 1946 elections on Muslim League platform and also in the first post-partition elections of 1953 as well.

He preferred the provincial turf while the federal politics remained the sphere of Tando Muhammad Khan's Talpur family led by Ghulam Ali Talpur who was member of the first and the second constituent assembly as well as the first national assembly of 1962.

Sindh's traditional political scenario changed out of blue with the inception of Pakistan People's Party in mid 60's but the Talpurs of Badin proved to be wise enough to join this popular party and avoid losing their share of power.

In 1970 elections the entire present-day Badin was allotted one national seat called NW-122 Hyderabad-IV. People's Party made its best bet in Badin constituency by fielding its chairman Zulfiqar Ali Bhutto while Council Muslim League fielded Najmuddin Leghari to compete Bhutto. The result was obvious that Bhutto won by obtaining 65 thousand votes while Leghari could not surpass the 30,000 mark. Badin was declared a district in 1975 and in 1977 elections two national constituencies were allotted to this new district namely NA-171 and NA-172. Tando Bago and Matli Talukas (tehsils) were included in NA-171 while Golarchi and Badin talukas were part of NA-172. In these elections two new political figures replaced the old faces of the Badin politics. Najmuddin Khan was elected unopposed on PPP platform from NA-171 while on the other seat Abdullah Halipota of PPP defeated Ali Mir Shah of National Alliance by a huge margin of over 44,000 votes. In the 1985's non-party elections, which were boycotted by PPP Abdullah Halipota took part to win the seat against Ali Akbar Nizamani. On the other seat of the district, Bashir Ahmed defeated Ghulam Ali Khan. The only difference was that Abdullah contested elections from Matli and Tando Bago con-



stituency this time and could register a narrow win by just 1800 votes. The turn out was low too. Mir Ali Ahmed Talpur was defeated on a Hyderabad seat by Kazi Abdul Majeed Abid. Talpur was defense minister in Zia's cabinet.

PPP came back with a big bang in 1988 to reclaim its traditional stronghold. Both the winners of 1985 non-party elections Abdullah Halipota and Bashir Ahmed had joined PPP by then and succeeded in getting nominations by the party to easily win over their rivals Najmuddin Leghari and Haji Muhammad of IJI. Both the PPP candidates registered victory by a margin of over 25,000 votes.

There was no change in the electoral scene of Badin in 1990. Constituency demarcation, the winning candidate and the winning party remained same. What actually changed were the runner-up and the victory margins. IJI fielded Bashir Ahmed Leghari and Ghulam Ali Nizamani against Halipota and Bashir Ahmed, only to face another defeat. Halipota won by a margin of 28,000 votes while Bashir 24,000 votes. It was the hat-trick win of Abdullah Halipota.

The 1993 elections brought some thrill in rather dull one-sided politics of Badin. Abdullah had defected to PML-N during the party's 1990-93 government and contested against Abdussattar of PPP. The opponents of PPP had, for the first time, got a strong three-time winner candidate against his erstwhile own party but Halipota could not make it to the parliament and fell short by 14,000 votes. His defeat proved that the constituency was a stronghold of PPP and not of any influential political personality. On the other constituency of Badin, the situation was more interesting where Mir Murtaza Bhutto, the head of his own faction of PPP, was in field against a new PPP entrant Dr Zulfiqar Ali Mirza. The charisma of Bhutto's son could not also deter the voters of Badin from PPP and Mirza won the elections with a huge lead of over 26,000 votes.

Although PML-N could not succeed in breaching this PPP fort in 1997 election but it did perform very well. On NA-172 Ghulam Ali Khan Nizamani of PML-N was

fielded against Abdussattar of PPP. PML-N candidate conceded a lead of just 7,000 votes to become runner-up against PPP contender. On the second seat, the present NA Speaker Fehmida Mirza was the candidate, who edged past PML-N candidate Syed Allah Bux Shah with just over 3,000 votes.

In the new demarcations of 2002, the number of Badin constituencies for national legislature was not enhanced. The 2002 general elections saw the same result as both the 1997 winners of same party won the elections. Dr Fehmida won with a margin of 38,000 votes against a PML-Q contender from Halipota family while Nizamani had to fight hard against an independent candidate of his own clan Muhammad Akram Nizamani. The winner-runner-up difference was 4,000 votes only.

The 2008 elections were the action replay of the 2002 elections. However, the runner-up on Ghulam Ali Nizamani seat was PML-F's Ali Akbar Nizamani who conceded a lead of about 50,000 votes. PML-Q came up with a female candidate Bibi Yasmeen Shah against Dr Fehmida Mirza. Ms Shah could secure only 24,000 votes against Mirza's 89,000.

Badin's national politics saw three main periods. First era is characterized by the dominance of traditional Talpur and other political families of pre-independence era followed by the emergence of new political players thanks to the popularity of PPP. New players included hitherto less-known faces like Bashir Ahmed and Abdullah Halipota. The third phase is characterized by the increased role of Nizamanis and the emergence of Mirza family. Political influence of Mirza couple grew further in 2008 as Dr Fehmida Mirza became the speaker of NA and Dr Zulfiqar Mirza, the home minister of Sindh.

Contrary to the national-politics scene the district's provincial politics is still the forte of the traditional Talpur and other families. Nizamani, Talpurs, Halipota, Bhurgris, Pirzadas, Rahus and Mirzas are main faces of provincial politics in the district. The incumbent MPA Hassan Khan Talpur is the son of Mir Bandeh Ali Khan Talpur.

From 1988 to 2008, only three provincial seats, one each in 1990, 1997 and 2002 were conceded by the PPP in the district. In the 1988, PPP won all four provincial seats while in 1990 elections, three seats were won by PPP and one by the independent Ismail Rahu who defeated Sikandar Ali of PPP. Fazil Rahu's area is the only problematic region for PPP in the district. In 1993 elections, all the four seats were again won by PPP with Sikandar Ali avenging the 1990 defeat by overpowering Ismail Rahu with a margin of 4,500 votes. In 1997 elections, three seats were won by PPP while Ismail Rahu, on the platform of PML-N managed to defeat PPP contender Qazi Amjad Abdi Abbasi with a lead of over 5,000 votes.

Badin district was allotted five provincial seats in the new demarcations before 2002 general elections. In 2002 elections PPP managed to clinch 4 of 5 provincial seats. However, one seat was won by Syed Ali Bux Shah of PML-Q who defeated PPP's Abdul Karim Bhurgri with a margin of huge 11,000 votes. In 2008, all the five seats were easily clinched by the PPP with Dr Zulfiqar Ali Mirza being elected to the provincial legislature from PS-57.

The district of Badin is one of the richest districts in terms of its natural resource base but one of the poorest in terms of human development. It produces more than 30,000 barrels per day of crude oil, which constitutes 45 percent of the total crude oil production in Pakistan. However, the district government does not benefit from this natural resource, as it does not collect royalties. The local communities do not also benefit from the employment generated by this industry as only about 5 percent of the permanent and tenure track employees come from the local communities.

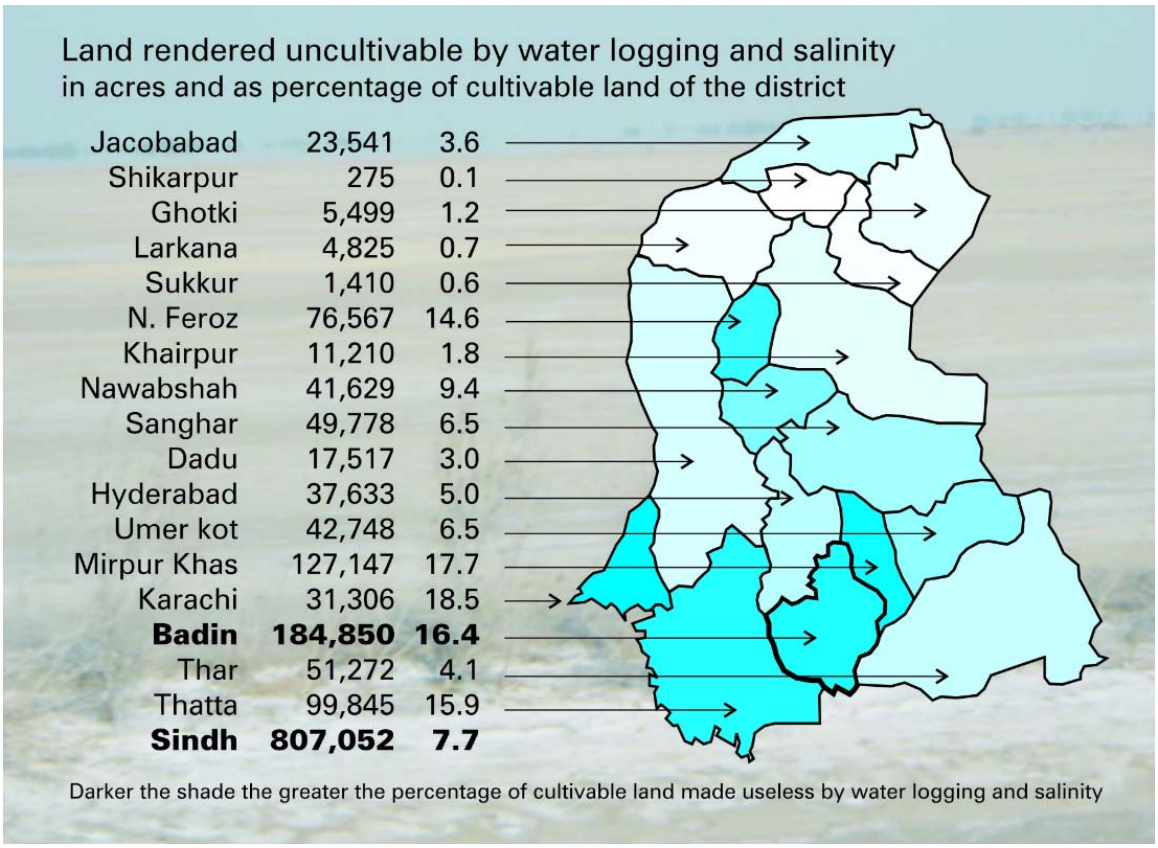
People of this district have traditionally been relying on a multiple of livelihood resources. A stretch of Taluka Badin of the district shares borders with Rann of Kutch which offers opportunities for low quality fishing. The sea water lakes that are part of the marsh land extending up to the Arabian Sea are called Dhand in local language. Similarly inhabitants of Taluka Golarchi find access to marine fish in creeks that pass through District Thatta and lead up to Arabian Sea. Northern talukas of Tando Bago and Matli depend more on cultivation and livestock. However, with the reduction in fresh water flow, major ecological changes have taken place in the area. The decrease in water availability and increase in salinity has had negative impact on all the diverse resources of livelihoods.

About 85 percent of the population of Badin district lives in rural areas. For the most part, the density of human habitation is sparse. Agriculture, followed by forestry and fisheries, is the main land use in the rural areas of Badin. Land utilization for agricultural purpose is on a sharp decline, mainly due to the lack of fresh water. According to the Agriculture census 2000 a total of 812,193 acres of land were cultivated while 315,850 acres of culturable lands were wasted for various reasons. A later study in 2002-03 found that the cultivated area had reduced to

531,265 acres. It is apparent from the data that not only there is substantial under-utilization of cultivable land but the wasted land is continuously increasing. Land wastage in the district is due to a multiple of reasons. Badin has the highest number of acres suffering from water logging and salinity in Sindh. According to the Agriculture Census 2000, 184,850 acres of culturable land in the district were suffering from this problem. This was 23 percent of all the 807,000 acres of water logged and saline land of the entire province. There is no evidence to believe that the situation since then has not worsened.

The other factor responsible for rising land wastage is the heavy dependence of the area on canal water. Underground water in most parts of Sindh is not fit for irrigation making it entirely dependent on canal water. Only 17 percent of the total cultivated area of Punjab is dependent entirely on canal water, while the ratio is 82 percent for Sindh. This dependence is even severe for Badin district where 90.5 percent of the total cultivated area is dependent upon canal only for irrigation. Only 0.07 percent of the cultivated area is irrigated through tube-well while the rest is irrigated through a combination of both of these sources.

The district is irrigated by the Sukkur and Kotri barrages. The area fed by Kotri Barrage is divided into perennial and non-perennial systems of irrigation. The irrigation network mainly comprises of Phuleli canal, Akram Wah (lined canal), Nasir Canal, Guni Canal and Pinyari canal with a total length of 300 km. Akram Wah is the only perennial canal provid-



ing water to the area in Rabi and Kharif seasons. The other canals irrigate mainly during the kharif season. Till 1991 the average outfall to the sea below Kotri was of the order of 36.3 MAF in Kharif and 2.4 MAF in Rabi. The outflow also varied over a wide range between a high outfall of 91.8 MAF in 1994-95 and a low of 0.7 MAF in 2000-01. Since then it has been on decline.

Land ownership patterns in Badin are no different than the general trend in the Sindh province where major portions of land are owned by a small number of landlords. This is obvious from the fact that 44 percent of the cultivable land of Badin district is owned by only 9 percent of the farming families while 34 percent of the farming families have access to only 9 percent of the total land.

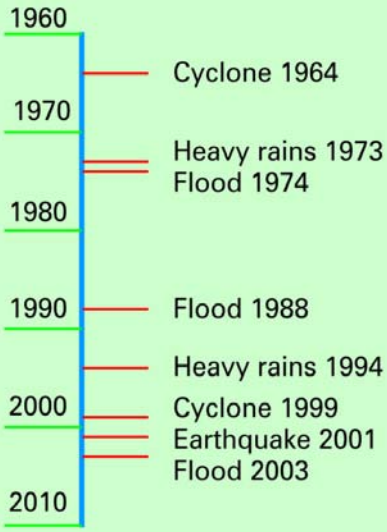
Like in the rest of Pakistan, there are two main agricultural seasons: Rabi and Kharif. About 76 percent of the total cropped area is sown in the Kharif season and about 24 percent in the Rabi season. Rice, sugarcane, cotton, barley, chilies, wheat and sunflowers are the major crops of Badin. Minor crops include onions, pulses, tomatoes and banana. Agricultural activity in areas close to the coastal dhands (sea water lakes) is very limited due to water logging and salinity. As one moves away from the coast, the scale of agriculture picks up and there is adaptation and diversification towards crops that are salt water tolerant. A comparison of the area under different crops between 1998 and 2002 in Badin District shows that the cultivation of rice, sugarcane and wheat has gone down while the area under cotton has increased, prompted by the higher market prices. Sugarcane is the biggest crop in terms of production, followed by rice and wheat. A fifth of the total sugarcane production of Sindh province comes from Badin. During the season 2006-07, District Badin topped both in terms of area and production of sugarcane in the whole province. The district's contribution in the national production of sugarcane has been over 5 percent.

Sunflower is staging a come-back in the cropping pattern after about two decades. In the saline coastal areas, sunflower has become a major crop, replacing sugarcane that demands a lot of fresh water. District stands first in the production of sunflower in the whole country. In 2005-06, it produced 56 percent of the total sunflower production in the

province and 36 percent of that produced in the country. The district has full potential to develop into an oil-seed estate to the same extent that it is recognized as the sugarcane estate in Sindh.
Vegetables from Badin, especially tomatoes, fetch better prices because of their availability in the months when the supplies from other parts of the country are short. District is ranked at the top in production of vegetables excluding potato, in the Sindh province. Chilies are another mentionable produce of Badin. It produced 26 percent of the total chillies in the country in 2005-06.

In Badin district, most farmers traditionally keep few heads of livestock, ranging from bullocks for draft to cattle for milk and poultry for eggs and meat. There have been many traditional communities in the coastal areas exclusively dependent on livestock for their subsistence. However, the importance of livestock as source of income has declined over the years. A household survey carried out by the World Bank in 2005 indicated that there is a considerable degree of concentration in livestock ownership. It is assessed that 68 percent of the coastal communities have no livestock. About 29 percent of the households own between 1 to 10 large animals while 3 percent own more than 11 cattle. Poultry is reared in small commercial farms and also kept at home in small flocks.
Livestock in the district have suffered from shortage of fodder crops. This has led to an overall decrease in the herd size owned by a typical household. According to the livestock census 2006, 90 percent of the families that owned small herds of 6 milch animals or less (cows and buffaloes). Only 0.5 percent of total families owned a large herd of 20 or more milch animals. During the period 1996-2006, percentage growth in the population of milch cattle and buffaloes was 8 percent and 40 percent respectively as against 22 percent and 80 percent during the period 1986-1996.

Badin is prone to a host of natural disasters from earthquakes to cyclones to torrential rains. Here is the timeline of major natural disasters that hit Badin over last 50 years.



A large number of the fishing communities are settled along the coastal creeks of the Indus Delta in many small and big villages. While not all families own boats, the people get together in small groups of five to ten and hire the boat that belongs to one of them or is owned by a local seth (lord). The fishing catch is divided between the owner of the boat and each crew member. The seth receives a share not only for the boat but also for the engine and the net.

The captain receives one or two shares and each of the Khalasis (fishermen) working on the boat receive one share each.

Out of the annual marine fish exports of Pakistan worth US$ 100-200 million, about 10 percent originate from Badin. From the total fish production of 80,659 metric tons in Sindh in 2002 about 14,512 tons or 17.5 percent was supplied by this district. The brackish water fishing resources are quite significant in Badin District. There are 100 public water areas in the district comprising of a network of 28 canals/distributaries, 39 drains and sub-drains, 24 dhands and dhoras and 9 major depressions. In addition, 21 water areas with key potential for fish, prawns and lobster were under the possession of the Sindh Rangers. There are 370 recorded fish ponds on a total acreage of about 16,500 acres. Many fish farms illegaly established by influential land lords on government land, natural depressions and lakes are not reflected in these figures. One carp fish hatchery was established on 14 acres by the Government of Sindh in 1998. However, this hatchery has held few training courses for fish farmers and has provided only 30,000 fish seedlings on subsidized rates.

Natural disasters and shortage of water has not only harmed the farming communities, it also had a direct negative impact on other sources of livelihood. A large number of people, especially those belonging to Jat communities, earned their livelihood by crafting small daily use items using bushes, grasses and other fibrous plants as raw materials. These items were sold in the urban centers of Sindh. These plants have vanished with the depletion of water resources rendering a large number of people resourceless. Joblessness and poverty in agriculture has diminished economic opportunities resulting in a sharp fall in wages. In some cases, wages have fallen by more than one-half during the past decade. This in turn has led to increased indebtedness. Chronic indebtedness is one of the key problems in rural Sindh. In many instances, the indebted families have ended up as bonded labor which is a virtual form of slavery.

The extent of the bondage varies with the size of the loan advanced by the landlord, usually ranging form Rs 20,000 to more than Rs 100,000. The common pattern is that a small initial debt inevitably grows because the cash equivalent of the crop share received by the hari or the fish catch is by and large insufficient to maintain a family and there is a significant amount of inaccuracy in the attribution of production costs to the hari or fisherman. Thus the debt that may have started with a small

advance increases over time. Some other factors also help the landlords to entrap the borrowers into permanent bondage. Residence on the property of the landlord is one such major factor. Landlords can keep on adding the rent for the residence to the hari's account. Landlords have less control over haris who have settled on village land than over those living on their property. The latter category of hari is often not allowed to search for wage labor or any other kind of gainful work.

Many industrialists have taken advantage of the close proximity of the large market and port facilities in Karachi and located themselves in Badin district. Industry in Badin is mostly agro-based. The district is reputed to be a sugar estate. Presently there are six large scale sugar mills which provide employment to over 6,000 persons. The sugarcane prices are not stable and the industry never misses an opportunity to deny the farmers their due. For example, the net take home of the farmers falls sharply in a season when the crop is bumper and the industry does not fear a shortage in sugarcane supply. Furthermore, the sugar industry is one of the main polluters in the area. In addition to sugar mills, there are about 70 rice husking and milling units in Badin district as well.

Livelihood issues of the area have some additional implications for women. While they carry a major share in work, they have no assets, little income and poor access to social services. Women in fishing communities today play an active role in post harvest activities although they are not engaged in fishing directly. Fishing was traditionally considered a family enterprise with the whole family contributing in different ways. Fishing nets were almost exclusively made by women and were an important source of income for them. However with the commercialization of fisheries women were slowly and gradually pushed out of the fishing activities. The traditional nets were replaced with those made of nylon and other artificial fibers by the early 1970s. The present generation of the fisherfolk has vague memories of their women as skilled, paid craftswomen, fashioning fishing nets. With a reduced role in the main livelihood activity, the status of women in the fishing communities has also declined.

Up-stream irrigation works and Left Bank Outfall Drain spell disaster for Badin

At the fag end of irrigation system

Sources of livelihood for those living in district Badin have continuously been shrinking for more than two decades now. These people had many options till 1980s: agriculture, fishing and livestock being major among them. Most of the households had adopted more than one and it was enough, if not surplus, for their needs. Then the tide turned, almost entirely for man made reasons. Options started squeezing and a battle for survival started. Those who were not fit had to migrate. All those reason that have brought this population to a hand to mouth situation today, can broadly be categorized under two headings: decreased fresh water availability and Left Bank Outfall Drain (LBOD).

The first diversion of livelihoods from crop and live-stock farming towards the fishing sector coincided with the decrease in the fresh water flows in the Indus Delta after the commissioning of various bar-rages, reservoirs and dams on the Indus River. Before the construction of these dams and barrages, the delta area was crisscrossed by the distributaries of the Indus. The discharge from the river blocked the ocean currents incursion into land. Due to large vol-ume of fresh water and the silt brought by the river, the delta was good agricultural land. Rice was the main crop and there was surplus production that was exported to the coastal regions of India and the Gulf. Before partition of India, there was only one barrage, the Sukkur barrage, on the River Indus built in 1932. 62 years later there are 19 barrages and 43 canal systems with 48 off-takes on the Indus River System in Pakistan, creating world's largest contiguous man made system of 61,000 km of canals and 105,000 water courses, irrigating 14 million hectares of land.

Three storage reservoirs were also built, Mangla on River Jhelum and Tarbela and Chashma on River Indus, with total storage capacity of 20 million acre-feet (MAF). Additionally, 12 link canals were built to transfer water from western rivers to eastern rivers or the tributaries of the River Indus.

Total availability of water is not enough in the system to entertain the luxury of so many projects on the Indus River System. The flow pattern of Indus System Rivers is highly erratic. Annual average water availability during the period 1922-2003 has been 138.09 MAF. Super floods occur approximately once in five years. This may increase the average to a respectable 137.27 MAF per year but in the remaining 4 years availability of water is 123.59 MAF. In 1991, the Indus Water Accord was approved for allocation of the Indus system waters among provinces. The agreement left Kotri downstream water discharge to the sea unresolved subject to further investigations; however, it allocated 10 MAF in the interim for discharge to the sea. Ever since the 1991 Water Accord, Sindh has never received its fair share of Indus water, the study for outflow to the sea has not been conducted, and the water outflow to sea has never been as allocated.

The Indus water discharge to the sea keeps the sea water at bay and does not let it intrude too much into the inland surface and subsurface water resources. Pakistan National Institute of Oceanography and National Science Foundation have established that salt water intrusion into the plains of lower Sindh is directly related to the decrease of flow in River Indus. Salt-water intrusion has been witnessed inland up to 100 kilometers north of the sea. The rising salt content of the groundwater has also made it unsuitable for irrigation and salt depositions in the land have affected their yields and overall production. A research study at Sindh University has revealed Total Dissolved Solids in Indus at levels as high as 42,750 ppm below Kotri as opposed to 1,500 ppm WHO limit. The increase in the salinity levels in the ground water aquifers has also hit the Katcha area downstream of the Kotri Barrage as well as the areas where a perennial irrigation system is in practice. The lands that once were grazing areas, have turned into uncultivable wastelands.

Livestock has been very badly affected as a result of the degradation of the Indus delta. The deltaic districts of Thatta and Badin were considered as the best grazing grounds for cattle due to their fertile land, green pastures and mangrove forests. Herds of camel were left to browse on the many mangrove islands along the coast. Due to fresh water decline and salinity prevailing in the Delta region, vegetation around lakes and mangrove forests are either lost or have degraded. Underfed livestock became weak and were attacked by various diseases. The majority of the livestock died while the villagers, due to growing poverty, sold the remaining livestock. Sindh Government reports that population of 38 percent of cattle, 45 percent of buffalos, 40 percent of sheep, 37 percent of goats, 40 percent of camels, 57 percent of horses, 35 percent of donkeys' were reduced during the period 1991 to 2000.

Mangrove forests were also gravely affected by this shortage of fresh water and the pollution of the Indus waters. Mangrove forests are an important productive ecosystem of the coastal areas. They give shelter to

The mangrove forests of Pakistan once considered sixth largest in the world reduced by 38 percent between 1977-90 only and the degradation continued afterwards

and serve as nurseries and breeding grounds for prawns, crabs and many species of fish. They provide habitat for certain species of birds and mammals as well. They also provide a range of valuable forest products such as wood, fuel-wood and fodder. They prevent flooding, bind silt, accrete shorelines and halt erosion. The mangroves act as windbreakers and prevent storms from reaching inland and keep at bay the sea waves. The delta is an important flyover for migratory birds. During the winter, millions of waterfowl, including pelicans and flamingos, stop over in the delta for feeding and breeding. Millions of people are directly and indirectly dependent upon mangroves in the delta.

The mangrove forests of Pakistan were once considered sixth largest in the world. But unfortunately these are on sharp decline. Total area of mangrove forests has reduced from 263,000 hectares in 1977, to 158,500 hectares in 1990, showing reduction of 38 percent and the remainder is continuously degrading. The water, nutrients and silt deposited by the Indus when it discharges into the sea, sustains the mangroves. Due to dams and water diversion upstream, the water outflow has been reduced significantly. As water does not flow in sufficient quantity below Kotri for most part of the year, the mangrove forests continue to vanish due to loss of nutrients and silt from the fresh water outflow, increase of salinity in the soil-pore water due to seawater, and rising sea levels. Decreased flow of fresh water and resultant intrusion of sea in sweet water channels have forced the agricultural and pastoral communities to shift their livelihoods to fisheries, resulting in greater pressure on this sector. Besides these additional mouths to feed, the fishery sector is also facing the wrath of LBOD (Left Bank Outfall Drain). The drain was though built with positive intentions yet it proved to be a disaster in the long run for local people of Badin.

Irrigation in Sindh province has a history of several thousand years. Without irrigation there would be virtually no agriculture in the province. The key challenges in Sindh's agriculture sector are water logging and salinity. Nearly 30 percent of irrigated lands in Sindh are threatened by salinity and water logging that depress crop yields and in some cases makes the land uncultivable. In a normal, non-drought year, the extent of water logging (a condition in which the water table is within about 1.6 m of the soil surface) in Sindh varies from about 1.5 to over 2 million hectares. On average, nearly 43 percent of the 5.1 million hectares of irrigated land is waterlogged, about 32 percent is affected by salinity, and about 70 percent of groundwater is unusable for irrigation because of high salinity.

In the early 1930s, when the construction of the Indus River barrages in Sindh began to enable large-scale expansion of irrigated agriculture, it was recognized that drainage to control water logging and salinity would eventually be needed. But at that time, the

water table was still very deep and the problem layed in the future. Up to the 1960s, the problem was addressed locally wherever water logging or soil salinity became especially acute. In the mid 1960s, the Lower Indus Project study proposed that a drain should be constructed from the Rann of Kutch, located in the coastal zone, northward through the irrigation command area. This "spinal drain" would collect drainage water from the various sub-basins and convey it to the coastal zone and the sea. This was designed as the first dedicated structure to carry salt out of Sindh.

This approach became the cornerstone of Sindh's strategy to address the problem of salinity and water logging. This later led to a project known as the Left Bank Outfall Drain (LBOD) Project which in total comprised not only the LBOD but the rehabilitated Kadhan Pateji Outfall Drain (KPOD) and a new Tidal Link canal to deliver the salt water to the sea. It was completed with a cost of US$1,021 million with about 60 percent financed by a group of eight donors (IDA with US$141 million, ADB, Canadian-CIDA, UK-ODA, Saudi Arabia-SFD, Swiss-SDC, OPEC Fund, and IsDB) and the balance financed by the Government of Pakistan. The LBOD Project was referred to as LBOD Stage I because it was planned at that time to extend the spinal drain northward to serve several areas in upper Sindh that would need enhanced drainage in the future.

LBOD was designed to lower the water table and remove salinity in 1.27 million acres in Mirpurkhas, Sanghar, and Nawabshah Districts. It consists of a combination of surface drains, tube wells, and subsurface type drains (depending on soil and water table conditions) connected directly or through interceptor drains to the spinal drain. In addition to lowering the water table and removing salinity, the scheme provides limited storm drainage for these agricultural lands. It was decided to connect the spinal drain to a new canal that would run southwestward slicing between the Sindh dhands and the Rann of Kutch to a tidal creek on the coast. This was done by connecting the spinal drain to an older interceptor drain, the KPOD, whose capacity was increased and strengthened, and then connecting KPOD to the new Tidal Link canal. The entire outfall system, from the spinal drain to KPOD and the Tidal Link canal was designed to carry saline drainage water and storm water downstream passing through Badin District directly to the sea.

Left Bank Outfall Drain passing through Badin was designed to lower water table and remove salinity in 1.27 million acres in Mirpurkhas, Sanghar, and Nawabshah Districts

Local people understood and tried to convey that the route of the outfall system, especially the Tidal Link canal, was in an unnatural direction toward the coastal zone and southwestward of the Rann of Kutch instead of continuing in a natural southeastward direction. Unfortunately, efforts to meet with local people and explain the project and its functioning, and to make adjustments and changes that people felt necessary did not begin until after construc-

Dhands are the vital fishing reservoirs of Badin. They are not effectively protected against a backlash from Left Bank Outfall Drain, especially in rainy days

tion was completed. The tidal link, which is the last link discharging the effluent into the Arabian Sea, has been aligned in the south-western direction from which winds blow from the sea towards the land for most part of the year. Constant blowing of wind against the incoming water creates waves, which in turn are washed against the northern embankment of the tidal link that has caused widespread erosion of the whole northern bank and its collapse in a number of places. The effluent, which is supposed to flow into the sea, now finds its way into adjoining agricultural fields, fertile crops, fresh water fish ponds, lakes and eco-region resulting in whole scale devastation in a very large area.

Tidal Link Canal passes through a few biggest and most important dhands of Badin district. These dhands are an important fishing resource as well as its value as wintering, nesting, and resting sites for migratory waterfowl. Where the LBOD Tidal Link passes through the dhands, physical and mathematical model studies showed that a weir should be built to isolate the dhands from excessive tidal influence and drainage that could occur if they were openly connected to the Tidal Link canal. The 4.5 ft high and 1800 ft wide Cholri Weir was built to control fluctuations in water level in the dhands and maintain the existing hydrologic pattern in these wetlands.

In 1999, two years after the project closed, a monsoon cyclone struck the coastal zone of Sindh causing extensive damage to the Tidal Link and destroying the Cholri Weir. Fifty-four breaches were identified in the TL canal banks, and there was evidence of canal bed scour, erosion of the protective berm, and widening of the channel at several places.

In July of 2003, over 80 percent of a normal July rainfall fell in five days. It was the time when irrigation and drainage canals which serve most part of Badin were full, as were depressions and low lying areas where excess rainfall normally gathers. This was caused in part by a delay in halting the diversion of water at the Kotri Barrage into the irrigation canals that serve the Badin area. Meanwhile, farmers under pressure from the storm started cutting canal and drain banks to release water from their fields.

LBOD was not designed to carry the flood waters from such an extraordinary storm. The inlets to the spinal drain were limited in size and number to ensure that waters from storms that exceed the design rainfall do not enter and threaten the drain. But this became out of control with the huge flows of water from literally all directions. It was coming down from Kotri, back from the sea and dropping from the skies. This is where the wrong choice of the direction of disposition played. Water couldn't run into the sea against the huge currents and the level started rising and moving backwards in the channels comprising the LBOD system. Finally it did spill out of the spinal drain through 12 cuts and breaches, as documented

by Sindh Irrigation and Drainage Authority (SIDA). The flood killed at least 50 villagers, inundated 75 villages and displaced about 50,000 locals. Because of high salinity in the ground water, drinking water became scarce across the region.

In 2005, the World Bank investigated the program failures at the request of local leaders. Its inspection panel concluded in a July 2006 report that the bank violated six safeguard policies and in the process caused heavy damage in the coastal areas.

"Throughout design, construction and operation of LBOD and NDP," the investigators wrote, "social and environmental aspects were largely overlooked or downplayed. In particular, the Panel found that the Project paid inadequate attention to the people and environment downstream of the irrigation and drainage system in southern Sindh."

Perhaps most damning was the finding that significant technical mistakes were made during the design of the Tidal Link. To avoid crossing into Indian territory, the designers routed the tidal link in a southwesterly direction, towards the Indus Delta and the Arabian Sea. In doing so they went against the natural slope of the land - south-southeast to the Rann of Kutch - and routed the drain across the dhands and into the powerful monsoon winds. Devised by Mott MacDonald, a British engineering consultancy contracted by the World Bank, and implemented by the government of Pakistan, this directional shift is at the root of the trouble caused by the LBOD.

This is, unfortunately, only one side of the trouble and has acute implications only. There is another face which is persistent and hence more damaging. This is the increased pollution of the Indus and LBOD that

> Water pollution coupled with the decrease in fresh water flow to the area have destroyed fishing - the most important livelihood resource for Badin's poor

has substantially decreased the fish. Fishing communities of Badin, which now include previous agriculturists and many others, have three major sources available for fishing: marine fishing, lakes fishing, and fish farming. The coastal waters of Pakistan are bestowed with a variety of fish and shrimp resources. Commercially important marine fish resources of Pakistan consist of 350 species. Then there is a huge network of lakes that serves as source of livelihood for a big part of the fishing community. Fish farming is more common in areas that are away from coast. Farms are also fed by canals.

Water pollution has adversely affected all sources of fishing. Pollution itself has not previously been a problem but this, coupled with the decrease in fresh water flow to the area, has become a major issue. With the reduced flows in the River Indus, its natural assimilative capacity diminished. It receives raw sewage from 20 - 25 million people living in about 40 cities and hundreds of small towns and villages, untreated industrial wastewater from hundreds of industrial facilities, and irrigation returns from the millions of acres of agricultural lands spread along the riverbanks. Pakistan uses 25,000 tons of chemical nutrients and pesticides in a year. Levels of oxygen in

Indus water are lowering while organic contaminants from sewage, toxic compounds from industrial discharges, and pesticides and chemical nutrients from irrigation returns are increasing. All these pollutants are also carried by LBDO. Resultantly many aquatic species have declined in number and diversity.

Shad or Pallo fish, Barramundi fish, Dangri fish, and shrimps are threatened to become extinct due to lack of water outflow to the sea and destruction of the deltaic mangrove forests. Inflow to the sea provides a channel for the migratory fish to swim upstream for spawning in the lower Indus basin. The annual catch of shrimps in Sindh was 27,541 tons, or 97 percent of national total, but now has been reduced to 92 percent. Other species like river turtle, frogs, birds, and bees have also been hampered. Migratory fish, such as Pallo and Barramundi, have registered a significant decline. The annual production of Pallo fish has declined from 5,000 tons in 1951 to just 500 tons in 1990s, besides marked reduction in its size. The catch of Barramundi has declined from 2,000 tons per year in the 1980s to about 200 tons per annum in the 1990s. These ruinous effects are observed in marine, lake as well as sweet water fishing.

Then there are a number of regulations implemented by the government on fishing. Marine fishing is divided in different zones. Territorial waters extend from the coast to the 12-nautical-mile line. This is the zone where most of the local fishermen operate. Although they are allowed to operate till 35 miles yet they don't have facilities to explore this zone. Beyond 35 till 200 nautical miles, the zone is declared as Exclusive Economic Zone (EEZ) and fishing in this area is subject to a license from the government. This is area where big trawlers of mostly foreign companies operate, though they are sometimes seen fishing in the zone II (below 35 miles) as well.

The contract system was introduced in Badin district on the inland sea in 1977 and was intended to cover the areas close to the Indian Border. Under the contract system the fishermen were obliged to sell their catch to powerful middlemen who had bought contracts from the Rangers. The Rangers were meant to pay back to the Sindh Fisheries Department, but apparently they did not. Contractors paid as little as 7 percent of the retail value of the product (usually small shrimp). The system was enforced by the Rangers. This system was seen a very unjust and following agitation by the Pakistan Fisherfolk Forum the system was abolished in 2005. But this was too little too late as the fish catch itself has been decreased to the below subsistence level.

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The case of the poorest district of sindh Pakistan
Haroon Jamal, Hari Ram Lohano, June 2008
Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan; World Bank, April 25, 2005

SAP-Pk partner in district

Jaago Development Society (JDS)

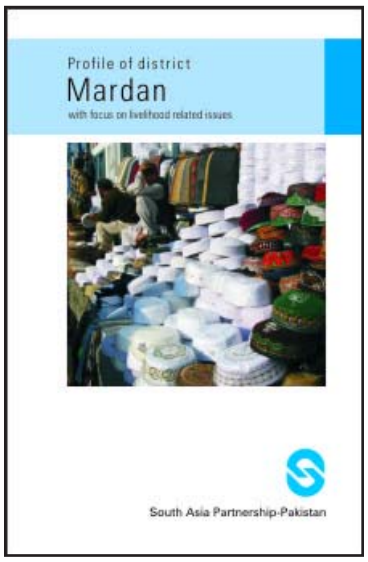
With about 83 % population residing in rural areas, Badin is the farthest district of Sindh province, touching its tip with Arabian Sea. This province is also important because of the presence of good numbers of Hindu community, who are estimated to be close to 20 % of the total population. Wheat, cotton and rice are two major crops that peasants in Badin cultivate which did not do much though, to change the conditions of the poor farmers. And it was the political, social and economic context of poverty and deprivation which forced Jaago Development Society (JDS) to give a call of awakening to the people so that they initiate a struggle for equality.

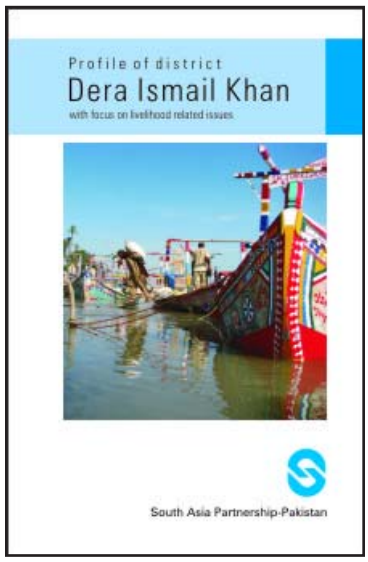
The word 'Jaago' refers to the social and political awakening. The organization got registered in 2003. Since its beginning it has been organizing different activities in the area, aiming to create awareness among the masses. The organization also capacitates rural CBOs, peasants and religious minority groups so that they can transform into viable and sustainable pressure groups.

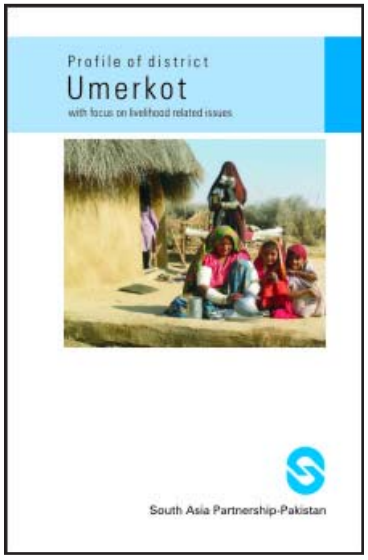
SAP-PK and JDS are partners since late nineties when the latter graduated the yearlong Resource Development Program of the former. Later, SDGP in 2005 and PACFREL in 2008 provided both organizations an opportunity to work on long-term basis. JDS also has the history of working with Aurat Foundation and is therefore respected for its extensive outreach across the district. With its strong presence among the people, JDS is known for its vibrant role in land rights campaign and preservation and development of resources. In so doing, Corporate Social Responsibility (CSR) is one of the main themes of the organization's interventions.

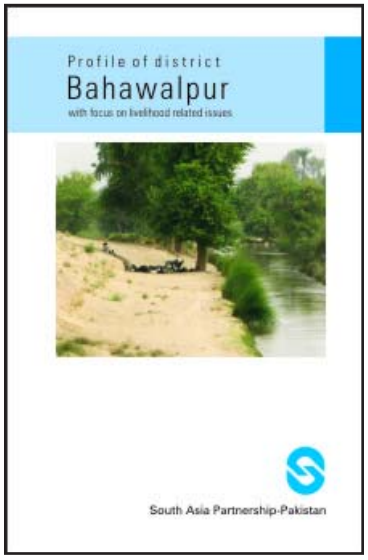
JDS enjoys the input of about 5 staff and more than 20 volunteers. It has its office situated at Tehsil Golarchi.

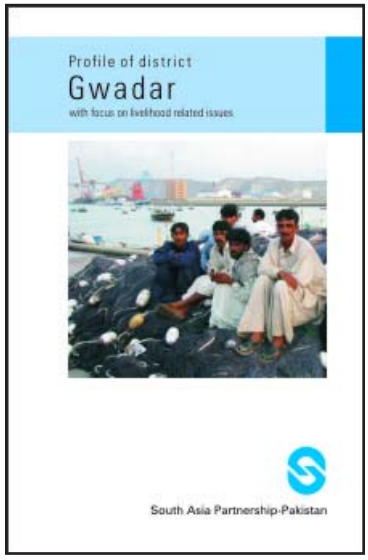
Other publications in this series

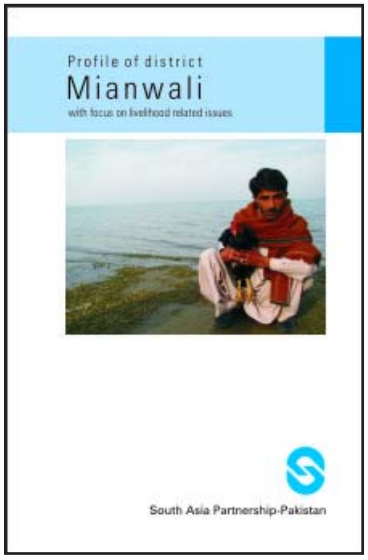


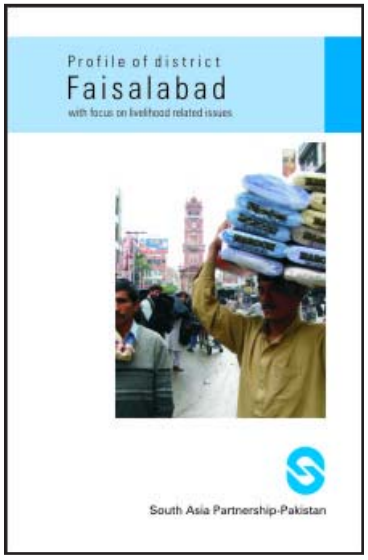












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