

## **Migration of Cholistan People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

**Mariam Abbas Soharwardi<sup>1</sup>, Karamat Ali<sup>2</sup>, Muhammad Arshad<sup>3</sup>**

### **ABSTRACT**

Economy of Cholistan desert totally depends on the ecological conditions prevailing in the area. Purpose of this study is to describe migration pattern adopted by the people of Cholistan. Their income and expenditures in desert areas and irrigated areas are also described to know their problems with regard to household management. Two hundred samples were selected from the people who having agricultural land or without land and they visit to desert area during rainy season. Primary data on economic conditions and house hold strategies of people of Cholistan desert was collected by interview technique. The analysis of data showed that migration of cholistan people is not only for managing Cholistan desert dry lands but it could support to cultivation in the irrigated areas of cholistan. As people move toward desert for the better health of their livestock's and migration towards cultivated areas results to increasing the cultivation of crops.

### **INTRODUCTION**

Total area of Pakistan is 79.6 million hectare, out of which about 11 million hectares are deserts including Thar, Thal, Chagi and Cholistan. Cholistan desert, an extension of Great Indian Desert, is located in southern Punjab, Pakistan, between latitude 27° 42' and 29° 45' north and 69° 52' and 73° 05' east. Large area of Cholistan desert is in Bahawalpur division. It is bound by Bahawalnagar on North East; on North West side by Rahimyar Khan and on South West side by Sukkhar. The length of this desert is about 480 km and breadth varies from 32 km to 192 km with an area of 2.6 million hectares (Akbar et al., 1996; Akbar and Arshad 2000).

Based on topography, parent material, soil and vegetation, the whole Cholistan desert can be divided into two geomorphic regions i.e. Lesser Cholistan and Greater Cholistan. The Lesser Cholistan borders canal irrigated areas to the bed of abandoned river "Hakra" in the desert and covers an area about 7770 km<sup>2</sup>. Greater Cholistan which borders with India in south covers an area of about 18130 km<sup>2</sup> (Akhter and Arshad 2006).

The Lesser Cholistan consists of large saline alluvial flats locally called "dahars" alternating with low sandy ridges. The clayey flats of lesser Cholistan are generally saline or saline-sodic, with pH ranging from 8.2 to 8.4 and from 8.8 to 9.6, respectively. homogenous to a depth ranging

---

<sup>1</sup> Lecturer at the Department of Economics, The Islamia University of Bahawalpur. Email:[ma\\_eco@hotmail.com](mailto:ma_eco@hotmail.com)

<sup>2</sup> Chairman at the Department of Economics, The Islamia University of Bahawalpur.

<sup>3</sup> Director of Cholistan Institute of Desert Studies, The Islamia University of Bahawalpur.

**Migration of Cholistan People from Desert areas toward Irrigated areas:  
Causes and Consequence (A Case Study of Cholistan, Pakistan)**

from 30 to 150 cm. These soils are classified as either The Greater Cholistan is a wind resorted sandy desert and comprised of river terraces, large sand dunes, and less depressions (Arshad et al., 2006).

The total human population of this desert is around 110,000 nomadic pastoralists. The majority of the people live on the periphery of the desert and the interior of the desert is thinly populated. The economy of the region is predominantly pastoral and people have been practicing a nomadic life style for centuries. The nomads own smaller to large herds of camels, cattle, sheep and goats. The interior desert area is not connected by a modern communication system and sandy desert tracks are used for travel by camels or jeeps. Local people use camels as a mode of transportation. Habitations are small and extremely scattered ( Akhtar and Arshad 2006).

The people and their herds return back to the desert around July or August with the news of first monsoon showers. Distance traveled during this migration varies 11 to 150 Km. While in the desert natural vegetation is the main source of feed for the grazing of livestock. Tobas serves as drinking water both for the people and their livestock. Tobas are made in clayey that locally called dahars in catchments area to avoid heavy water percolation. Tobas belonging to the same clan are generally located to each (often 1 Km radius). At the start of the rainy season, livestock graze within one or 2 km radius of each Toba. This distance increase about 15 km as the season progress. During October and November, when water resources become almost totally depleted, each clan moves its herds to semi-permanent centers equipped with a series of traditional (hand-dug and unlined) wells and kunds (usually lined) (FAO 1993).

Ahmed (1976) described some aspects of pastoral nomadism in the Sudan. The tent and household goods of a Humr woman belong to her, are inherited by her if her husband dies, and are usually remained if she is divorced; Humr women be paid small amounts of cash for their households by selling dairy products and other locally produced and woman help water animal in the hot, dry season because water then must be drawn from well. Haald and Lyche(1990) studied between the desert and sown: pastoralists of Western India through the centuries to deal with equally with the place pastoralists live in and engaged in the real and the symbolic landscape of the region. He looks briefly at some substitute strategies implemented by pastorals and ex-pastorals communities in this situation. Leybourne (1991) studied the changes in migration and nourished patterns among semi-nomadic pastoralists in northern Syria. The changes which were taking place in the semi-nomadic bedou in flocks' feeding and migration patterns. Arshad (1999) described the pattern of nomadic migration in cholistan desert. The authors elaborated the seasonal responses and graze able periods along with the migration of nomads of cholistan desert during pre-monsoon (summer), post-monsoon (autumn), winter and spring with in the desert. Ahmad (2006) characterized Pastoral system mass migrations of animals and people throughout the year in search of water and feed. The start of monsoon and the distribution of rainfall mainly utter the pattern of movement of nomadic herders. Livestock are the main source of their survival and a number of cultural customs are linked with the animals. Ahmad (2002) evaluated the drought mitigation in Pakistan and focusing on existing status and options for future. The authors

### **Migration of Cholistani People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

described the existing system of observing droughts and their impact on various sectors is weak. The distribution and sharing the available information to the civil society and between and across government departments and with organizations outside government system are limited. Dribe (2003) examined the extent to which migration could be used as a measure to deal with economic stress by sending individual family members away, or relocating the entire family. The results showed that landless people did not move in response to economic stress, most likely because of the lack of available alternatives and prohibitively high costs of long-range migration. Thus, migration does not appear to have been an effective way of dealing with economic stress in this preindustrial rural community. Migration occurs because individuals search for food, sex and security outside their usual habitation. Idyorough, 2008 is of the view that towns and cities are a creation of the human struggle to obtain food, sex and security. Migration occurs because individuals search for food, sex and security outside their usual habitation. To produce food, security and human reproduction of its species, human beings must, out of necessity, move out of their usual habitation and enter into indispensable social relationships that are cooperative or antagonistic. Human beings also develop tools/equipment to enable them interact with nature to produce the desired food and security. The improved relationship (cooperative relationships) among human beings and improved technology further conditioned by the push and pull factors all interact together to cause or bring about migration and higher concentration of individuals into towns and cities. The higher the technology of production of food and security and the higher the cooperative relationship among human beings in the production of food and security and in the reproduction of the human species the higher would be the push and pull factors in the migration and concentration of human beings in towns and cities. Countryside, towns and cities do not just exist but they do so to meet the human basic needs of food, security and the reproduction of the human species. Therefore, migration occurs because individuals search for food, sex and security outside their usual habitation. Social services in the towns and cities are provided to meet these basic needs for human survival and pleasure.

## **RESEARCH QUESTION**

Economic Status of Cholistan people is highly affected by environmental changes in Cholistan desert that force people to adopt different types of household strategies to save their life. Movement of people from desert areas towards irrigated areas and from irrigated areas towards desert areas showed two basic reasons.

- i. To earn more income
- ii. To save their own life and life of their livestock

People earn more income in irrigated areas as compared to desert areas of Cholistan. People endure more expenditure in irrigated areas as compared to desert areas of Cholistan desert. Now question is that why people move towards desert, why they do not stay permanently in irrigated areas.

## **MATERIALS AND METHODS**

### **Migration of Cholistan People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

Two hundred household was selected from Cholistan desert for economic analysis to determine the Causes and consequences of migration from desert areas toward cultivated areas. In the present study an attempt is being made to describe the economic analysis of Cholistani people during their migration from irrigated areas towards desert areas and desert areas towards irrigated areas in Cholistan. Economy of nomads in Cholistan desert is totally depends on the ecological conditions prevailing in the area

Probability sampling technique was selected for present study. As the peoples in Cholistan desert predominantly engaged in grazing their livestock and in search of fodder and drinking water they keep on moving from ,Toba' to 'Toba' and irrigated areas. Therefore, the exact information about population and number of household in Cholistan desert is very lacking. The population density is very low in Cholistan (1, 10,000) and there is no well developed infrastructure.

Keeping in view these difficulties and problems prevailing in the study area, simple random sampling and stratified sampling techniques were not appropriate for the data collection. Therefore, the cluster sampling, form, area sampling techniques were more appropriate, less expensive and time saving. The present study involves households, which can be identified with the geographical area of Cholistan. Sampling frame consists of following Chaks named as 121 DNB, 131 DNB, 132 DNB, 135 DNB, 3 DRB, 21 DRB, 141 DRB, 142 DRB, 131 DB, and 133 DB. These villages fall in the Union Councils of Chanan Pir, Darawar Fort and Merana. Detail list of areas of Cholistan desert from which these chaks are selected.

A household survey was conducted in the months of April to September 2007 in the areas of Cholistan of Bahawalpur district. Since, the areas of Cholistan are characterized by the scattered population and most of the household are migrant of one area to another of the same region. Hence the efforts have been made to avoid the non sampling errors within the circumstances and financial conditions. Descriptive and simple statistical techniques are used to analyses the reason and consequences of this migration by using SPSS.

## **RESULTS AND DISCUSSION**

### **Migration towards Irrigated Areas:**

Cholistani people's household migrated towards irrigated areas faced there by rising temperature in the desert and lack of water resources. The incentives for this movement include temporary employment opportunities within the irrigated farming community, grazing of livestock on wheat stubbles, drinking water for migrated people and their livestock. Farmers in the irrigated areas in turn obtain sufficient labor for crop harvesting and other farming operations and animal fertilizers to enhance soil fertility through campsite of livestock on fallow fields

In the present study Sources of income along with income generated from these sources by people of Cholistan in irrigated areas are incorporated in table 1.

### **Migration of Cholistani People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

Table: 1 Sources and annual income (Rs.) in irrigated areas of Cholistan desert.

| Sr. No. | Sources of Income(Rs.) | Average Income(Rs.) | Maximum Income(Rs.) | Minimum Income(Rs.) |
|---------|------------------------|---------------------|---------------------|---------------------|
| 1       | Crops                  | 78113.6             | 685000              | 200                 |
| 2       | Livestock              | 81805.7             | 888000              | 1000                |
| 3       | Embroidery             | 7895.01             | 150000              | 0                   |
| 4       | Other Sources          | 11739.5             | 100000              | 0                   |

Source: Survey October 2009

The results showed that there are three major sources of income in irrigated areas of Cholistan desert i.e. crops, livestock and embroidery. Other sources included jobs in different sectors, like teaching in schools or in government institutes, labor with the farmer or in some factories etc. Maximum average annual income is earned from livestock, crops and other sources and minimum average annual income is generated by embroidery and worked in small cottage industries. So far as range of average annual income is concerned, the income from livestock ranged from Rs.1000/- to Rs.8,88,000/-, from crops range of income was Rs.200/- to 6,85,000, from embroidery the annual average income was Rs.0.00 to Rs.1,50,000/- and from other sources the average annual income ranged from Rs.0.00 to Rs.1,00,000/- .

Livestock in irrigated areas include cattle, buffaloes, sheep, goats and camels. Populations in of livestock in irrigated areas are described in table 2. Maximum numbers of animals (500) were recorded by sheep and goats and minimum (40) by camels, whereas population of animals recorded by cattle was 150 and buffaloes 170.

Table 2: Number of Livestock in Irrigated areas

| Sr. No. | Livestock | Maximum | Minimum | Average |
|---------|-----------|---------|---------|---------|
| 1       | Cattle    | 150     | 0       | 6       |
| 2       | Buffalos  | 170     | 0       | 6       |
| 3       | Sheep     | 500     | 0       | 17      |
| 4       | Goats     | 500     | 0       | 34      |
| 5       | Camels    | 40      | 0       | 1       |

Source: Survey October 2009

### **Migration of Cholistani People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

People of Cholistan desert generate income from different products of livestock like milk, wool, goat hairs, and meat. Marketing values of these products is described in table 3. During the drought period (environmental stress) the nomads of Cholistan desert sell almost half of their livestock for the safety of their income.

Table3 Market Values of livestock products in Cholistan desert (Rs.)

| Products  | Prices  |
|-----------|---------|
| Milk      | 16/Kg   |
| Wool      | 5/Sheep |
| Goat Hair | 5/Goat  |
| Meat      | 150/Kg  |
| Beef      | 100/Kg  |

Source: Survey October 2009

Cholistani people sale these livestock products in local markets at very low cost and prices are very low as compare to markets located in cities. For examples sell milk less than Rs. 16/- per kg, meat 150/kg and beef Rs. 100/kg. Whereas wool of sheep and goat hairs are sold as Rs. 5/- per sheep or goat.

Market values of different crops which are commonly grown in irrigated area are shown in table 4. These prices are close to the prices prevailing in other markets situated in cities. Therefore people there get almost better profits by the production of crops but due severity of irrigation water and less fertile soils the yield production of these crops is less as compared to livestock keeping.

### **Migration of Cholistani People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

Table: 4 Market prices of different crops in study area (Rs.)

| Sr. No. | Crops     | Prices/40Kg  |
|---------|-----------|--------------|
| 1       | Wheat     | 400          |
| 2       | Mustard   | 1000         |
| 3       | Cotton    | 1100         |
| 4       | Sugarcane | For self Use |

Source: Survey October 2009

### Migration towards Desert (Greater Cholistan)

During rainy season people move towards desert with their livestock for better health of livestock. Number of livestock is near to same as in irrigated areas but number of camels is large in desert as compared to irrigated areas as shown in table 7. In desert areas free grazing attracts people to move towards desert and health of livestock is better as compared to irrigated areas. Sometimes migration towards desert showed just follows as traditionally to their forefathers. But mostly people showed their number of livestock wrong due to taxes that are why it is very difficult to analyze correctly number of livestock in desert as showed in table no. 5.

During the July and August, majority migrated Cholistan people move towards desert areas for free and medicinal grazing for their livestock. For their stay at desert they build up temporary shelters for their animals and construct tobas for the drinking of their own and for their livestock.

Table: 5 Number of livestock in Desert

| Sr. No. | Livestock | Maximum | Minimum | Average |
|---------|-----------|---------|---------|---------|
| 1       | Cattle    | 150     | 0       | 4       |
| 2       | Buffalos  | 140     | 0       | 2       |
| 3       | Sheep     | 500     | 0       | 2       |
| 4       | Goats     | 500     | 0       | 8       |
| 5       | Camels    | 120     | 0       | 1       |

Source: Survey October 2009

Table: 6 Economy of nomads Cholistan Desert

| Economy of Irrigated Areas(12 Months) | Economy of Desert ( Six Months) |
|---------------------------------------|---------------------------------|
|                                       |                                 |

### Migration of Cholistan People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)

| Statistics | Total Income | Total Exp. | Exp. on Livestock | Exp. on Household | Total Income | Total Exp. | Exp. on Livestock | Exp. on Household |
|------------|--------------|------------|-------------------|-------------------|--------------|------------|-------------------|-------------------|
| Average    | 133600       | 45000      | 8035              | 28050             | 40000        | 3550       | 1500              | 1500              |
| Minimum    | 600          | 4260       | 0                 | 2180              | 0            | 150        | 0                 | 100               |
| Maximum    | 2751100      | 1551700    | 125150            | 800000            | 1100000      | 87600      | 62000             | 60000             |

Source: Survey October 2009

During rainy season people move towards desert with their livestock for better health of livestock. Number of livestock is near to same as in irrigated areas but number of camels is large in desert as compared to irrigated areas as shown in table 6.

Table 6 showed that people stay six months at desert areas of cholistan for the better health of their livestock and their families stayed at cultivated areas of cholistan. Analysis of their income and expenditures showed that they earn more income in irrigated areas of cholistan that's why they migrated from desert areas of cholistan toward irrigated areas. Only one person of the family move toward the desert areas along with livestock during rainy season July to November. Expenditures in irrigated areas also depend on total land holding by respondent, total number of months spends in irrigated areas and total number of livestock. Rather than income in desert areas is highly effected by total number of livestock in desert and financial support given from government during drought years.

Expenditures in desert are affected by total number of livestock. Respondent holding more number of livestock bear higher expenditures as compared to others, who have less number of expenditures.

## CONCLUSIONS

Sources of income in irrigated areas are more like Crops production, livestock production, embroidery, job in different sector etc. But in desert areas the people have only two sources of income i.e.' Khar' Production and livestock production. Livestock production is the same source of income by which the people benefits, either they are in irrigated areas or in desert areas. There all the income of nomads in irrigated areas is better than that of desert areas and expenditures are higher as shown in table 7. As main source of income in irrigated areas is livestock and for free grazing of livestock Cholistan people move towards desert their livestock on highly nutritious grasses and shrubs. When these are at irrigated areas they fed fodder crop and become a bigger source of income and boost the economy of nomads staying at irrigated areas. Whereas when they are in the desert area they just sell their livestock when they need money for their expenses.

## Migration of Cholistan People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)

No doubt the income of nomads of Cholistan desert is less when they are in the desert but at the same time they have less expenditure for their household management.

The people with more number of livestock have more income in Cholistan desert, as livestock is a big source of income and for the better production of livestock the peoples have adopted nomadic life style for the search of fodder and water for their animals.

## **POLICY RECOMMENDATIONS**

As concluded above that people with more number of livestock have more income in Cholistan desert, as livestock is a big source of income and for the better production of livestock the people have adopted nomadic life style for the search of fodder and water for their animals and most of households are permanently shifted to irrigated areas, to minimize this migration different schemes should be initiated to improve the water supplies, to reduce water losses, to make more efficient use of available water and to develop new water resources. With the availability of water supply and improvement of available water resources the income of the desert dwellers could be enhanced which ultimately will help in better household strategies. Similarly in the irrigated areas cultivation of crops is effected by the shortage of water and most of the cultivated lands are far from the water reserves. Availability of water should be ensured to those villages where water is not enough for the cultivation of crops.

Government policies should be focused on the expansion of national health, education, population and nutrition programs that include services to the population of Cholistan desert and a focus on primary services.

## **REFERENCES**

- Ahmad, F. (2002). *Socio-economic dimensions and ecological destruction in Cholistan*. Ph.D. Thesis,
- Ahmad, F. (2006). *Agro-pastoral Systems in Cholistan*. [http://www.isdehs.com/html/2006\\_098.html](http://www.isdehs.com/html/2006_098.html).
- Ahmed, A. and M. Ghaffar 1976. Some Aspects of Pastoral Nomadism in the Sudan. Khartoum, Sudan: Sudan National Population Committee/The Economic and Social Research Council.
- Ahmed, F. (2005). Agro-Pastoral Systems in Cholistan. *Pakistan Geographical Review*, 60(2), 65-69.
- Akhter, R, and M. Arshad. 2006. Arid rangelands in the Cholistan Desert (Pakistan). *Secherese*, 17(1): 210-

## **Migration of Cholistani People from Desert areas toward Irrigated areas: Causes and Consequence (A Case Study of Cholistan, Pakistan)**

Arshad, M.; Roa, A.R. and Akbar, G. (1999). Master of disaster in cholistan desert, Pakistan: Patterns of Nomadic migration. *UNEP Desertification Control Bulletin*. 35, 33-38.

Department of Geography, University of Karachi, Pakistan

Khan, A. and Anania, R. (1996). Productivity Constraints of Cholistani Farmers. *The Pakistan Development Review*, 35(4).

Roshan, M. (2003). Corporate Agriculture Farming: Damaging interests of small farmers. *SDPI Research and News Bulletin*, 10(2).

Sharif, C.I. (2003). *An Empirical Analysis of the Determinants of Rural Poverty in Pakistan: A case study of Bahawalpur District with special reference to Cholistan*. Ph.D. Thesis, Bahaddun Zakriya University, Multan.

**Migration of Cholistani People from Desert areas toward Irrigated areas:  
Causes and Consequence (A Case Study of Cholistan, Pakistan)**