

AGA KHAN RURAL SUPPORT PROGRAMME  
BALTIKSTAN



# HIGH ALTITUDE INTEGRATED NATURAL RESOURCE MANAGEMENT

REPORT NO. 7

SOCIO-ECONOMIC SURVEY OF BASHO (PROJECT SITE)

AURANG ZEB ZIA

AKRSP - NLH, DECEMBER 1998



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**HIGH ALTITUDE INTEGRATED NATURAL RESOURCE MANAGEMENT:** This is report No 7 of seven progress reports presenting the activities and preliminary findings of joint research under an institutional cooperation programme between the Aga Khan Rural Support Programme, Pakistan, and the Agricultural University of Norway. The report presents a *Socio-economic survey of Basho (project site)*

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**TEAM MEMBERS**

**AKRSP:** Aurangzeb Zia, Agricultural Economist  
**NLH:** Team members provided inputs to the formulation of the survey questionnaire

**PROJECT REPORTS 1998**

Report No. 1: Summary report  
Report No. 2: Institutions and organisations in pasture and forestry management  
Report No. 3: Pasture, livestock and biodiversity  
Report No. 4: Natural forest inventory  
Report No. 5: Gender, resource management and livelihood security  
Report No. 6: Information and documentation  
Report No. 7: Socio-economic survey of Basho (project site)

More copies of the reports may be obtained from AKRSP, Regional Programme Office, Skardu or Noragric's Library.

## **Preface**

The Aga Khan Rural Support Programme (AKRSP) and the Agricultural University of Norway (NLH) have initiated a cooperation programme on alpine resource management. The programme was planned during mutual visits in 1997 and implementation started in March 1998. The programme is funded by the Norwegian Agency for Development Cooperation (NORAD) as an integrated part of Norwegian support to AKRSP's natural resource management programme in Baltistan. In 1998 the main activity is an integrated study of alpine resource management systems (pasture and natural forest) in the Basho watershed of Skardu District. The project was initiated in the spring of 1998, primarily through joint field research by visiting NLH staff and AKRSP counterparts.

The funding for the cooperation programme 1997 (field planning workshop) - 1998 amounted to NOK 1.807 million. AKRSP has applied for a total of NOK 4.0 million for the continuation of the cooperation project during the period 1999 - 2001, as an integrated part of the application to NORAD for support for the natural resource management programme in the Baltistan Region, with a total frame of NOK 12.337 million (AKRSP, August 1998).



## **Acknowledgements**

*During the first year of implementation participants have enjoyed the opportunity of carrying out field research in the Basho watershed of Skardu District. We thank the people of Basho, including their representative, the Basho Development Organisation (BDO), for a warm reception and permission to work in the area. Men and women of the eight villages of the watershed have contributed of their valuable time and knowledge to joint activities, such as participatory learning exercises, field trips, village meetings and interviews. Local people also made their school available for a researcher and her family. The village organisations and the Basho Development Organisation have shown exceptional hospitality and support. It has been agreed that all maps, reports and other documentation shall be made available to the BDO, when appropriate also for display in local schools.*

*We thank the District Commissioner, Skardu, Haji Sanaullah, and other government officials, for their interest in the collaborative programme and for offering useful recommendations and advice, and in some cases active participation in, the programme. The practical implementation of the field programme was made a lot easier by the generous offer from the Divisional Forest Officer, Skardu, Mr Sharif, that AKRSP and visiting researchers could use the Forest Department Guest House in Basho.*

*We thank NORAD and the Royal Norwegian Embassy, Islamabad, for the continued support and for the consistent good-will towards the cooperating institutions, as well as active interest in the challenges and development potential of Baltistan.*

*AKRSP made excellent arrangements for field research. All Norwegian participants sincerely appreciate the many efforts without which they would not have been able to carry out research in Baltistan.*

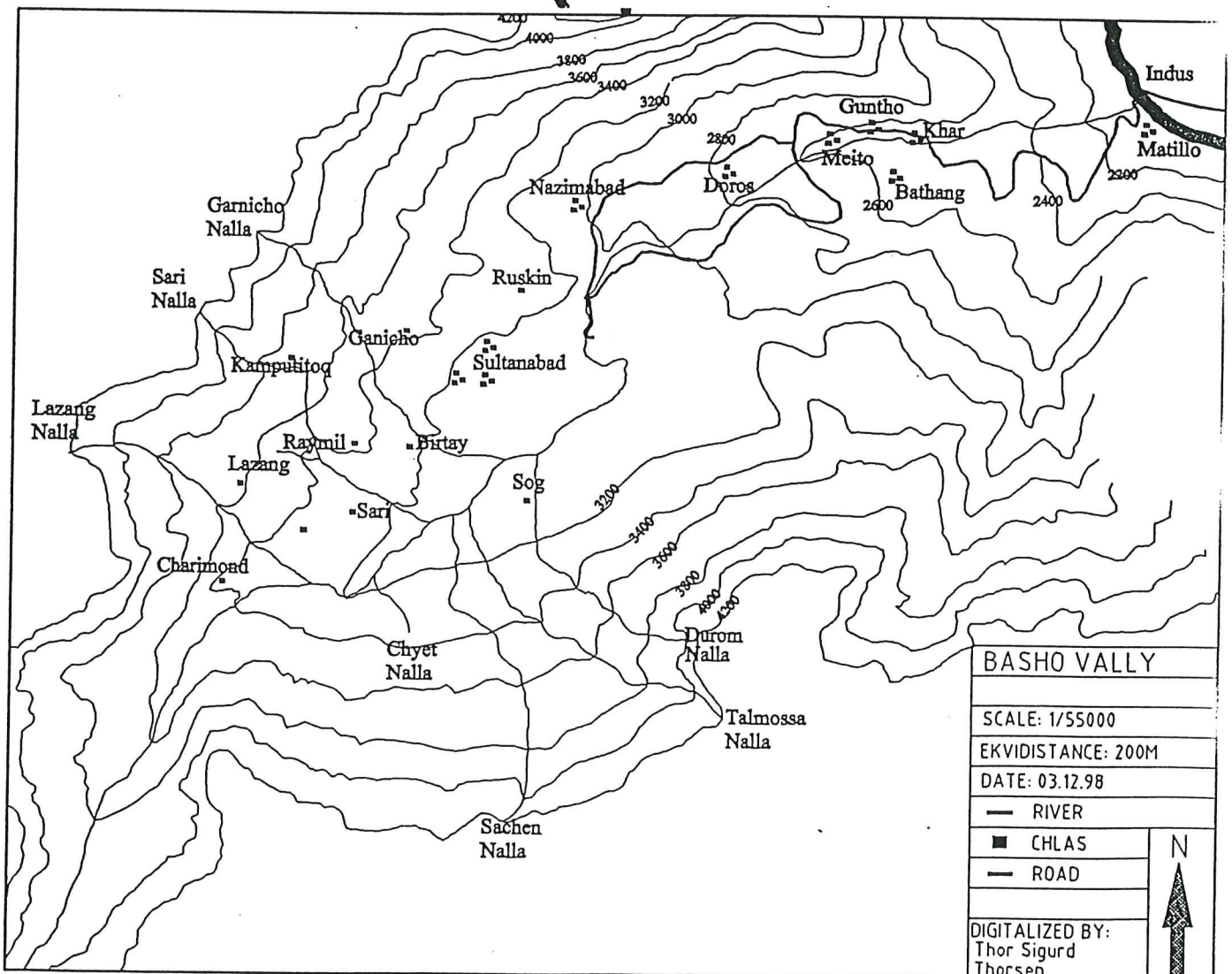
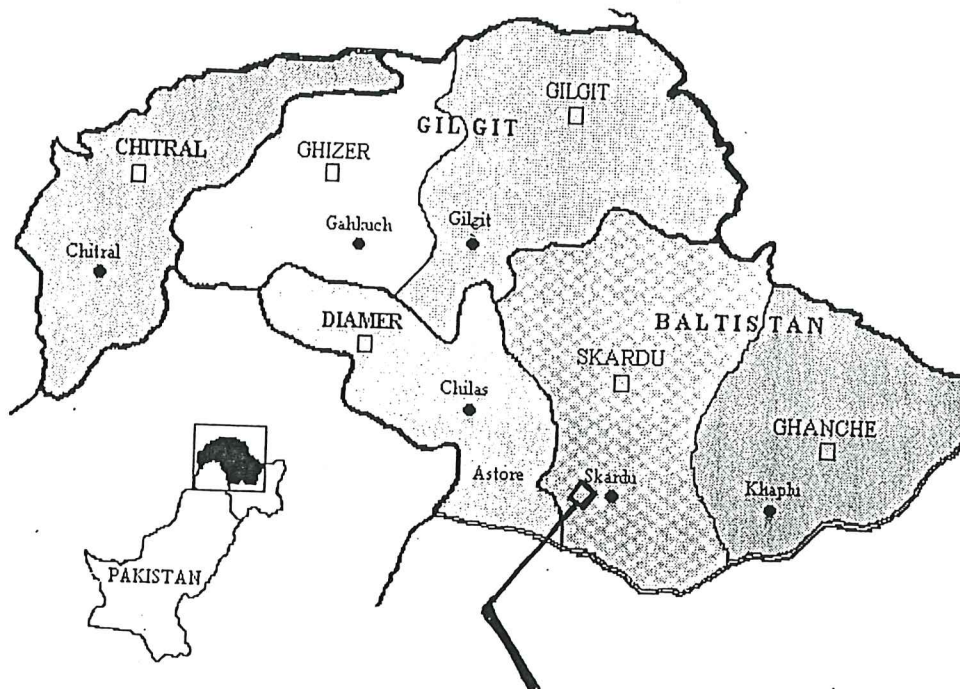
*Support by local people, government institutions and the donor agency will remain a condition for the project to achieve its goals. The partners appreciate with humility the good relations and many contributions they have enjoyed so far. We hope that the linkage programme may continue and grow to the benefit of local people, the co-operating institutions and relevant government authorities.*

*Ås/Skardu,*





Map of the Basho Watershed and its location within Pakistan





## **Introduction**

Institutional collaboration between AKRSP and Noragric started in 1997. The title of the collaboration was, *High Altitude Natural Resource Management: Applied research and capacity building through institutional cooperation between the Agricultural University of Norway (NLH) and AKRSP*. Project components along with major themes are given below:

### **PROJECT COMPONENTS:**

#### **1) Institutions and organisations in pasture and forestry management**

In this component property rights and other formal and informal institutions are interpreted as the rules for behaviour. Here organisations and other actors are looked within the institutional framework.

#### **2) Pasture, livestock and biodiversity**

In this component, the dynamics of high pasture management, grazing patterns, grazing rights, pasture classification, animal population, habitat classification, animal grazing behaviour and Ibex monitoring is looked in detail.

#### **3) Farm forestry and natural forest assessment**

In this component, main emphasis is on forest and tree resources assessment and regeneration evaluation. Analysis will be done for supply and demand of forest products. Linkages between farm-forestry practices and natural forest, vegetation mapping and identification will be done. Soil sampling will also be conducted.

#### **4) Gender in natural resource management**

Attempt will be made to describe dynamics of changes in women's and men's use of natural resources. Access to and control over resources, and effects of changes on household food security will also be looked into.

#### **5) Information and documentation**

This components aims to creating a common information resource base relevant to all project sub-themes. Exchange of information will be facilitated between project counterparts in Baltistan and Norway.

#### **6) Socio-economic survey in Basho**

The survey aims to do analysis of socio-economic situation and its trends in the area. The information collected can be used by different components and it will be a data base for Basho.

### **Need for the Socio-economic Survey**

The first phase of collaboration was successfully completed by the visits of researchers from NLH. They visited project site Basho and contributed a lot in their respective fields. But in short visits there were numerous queries which remained unanswered. So counterparts of each component felt the need for a detailed socio-economic survey which could cover major thrust and could provide detailed basis for a database of the project site Basho. Counterparts of different components gave their requirement as well as input regarding the information they wanted to have from Basho. So keeping in view the efficacy of the survey and possibility for continuation of the collaboration for next three years as the proposal for 1999-2001 has been submitted, the underlying survey was conducted in Basho during September 1998.

### **Methodology**

The survey was conducted in Basho valley using a pretested questionnaire. There are eight villages in Basho. A sample of 100 household was drawn. The households were selected randomly. An effort was made to select the households each from small, medium and large landholdings while maintaining the randomness. The distribution of the sample is given in Table 1.

**Table 1: Sample distribution in Basho**

S.No.	Name of the Village	Type of Village	Total no. of hhs	Sample hhs
1	Sultan Abad	VO	28	13
2	Nazim Abad	VO	32	13
3	Doris	VO	26	12
4	Maito	VO	45	12
5	Ghunto	VO	36	12
6	Khar	VO	35	12
7	Bathang	VO	40	13
8	Matlo	Non VO	55	13
		<b>Total hhs</b>	<b>297</b>	<b>100</b>

## Results and Discussions

### Family Structure

The average family size in Basho was 8 members per household. It ranged from a minimum of two to twenty two family members. Fifty percent of the households have family members in the range from six to ten. Table two shows the details of the family structure in Basho.

**Table 2: Family structure in Basho**

Family Members	Percentage
Upto 5	31
6-10	50
11-15	16
> 15	3
<b>Total</b>	<b>100</b>

About one-third households have upto five family members and only sixteen percent households have family members between 11 to 15. It indicates the concentration of the households in Basho is centred around 6 to 10 family members per household.

### Education

Basho valley has three primary schools and one middle school for boys. There is no school for the girls. From one hundred households interviewed, the educational qualification of the family members was also enumerated. Ironically, all the women in

the sample were uneducated. Eighty six percent of the family members both male and female were uneducated. Ten percent have education upto primary level. Only two percent have middle level education. One percent were matriculate and one percent were above matric. The detail is given in Table 3.

**Table 3: Educational status in Basho**

<b>Education Level</b>	<b>Percentage</b>
Uneducated	86
Up-to Primary	10
Middle	2
Matric	1
Above Matric	1
<b>Total</b>	<b>100</b>

#### **Basic Profession of the people in the Area**

From the sample households seventy two percent of the people were engaged with the agriculture as their basic profession. Twenty two percent were employed and only six percent were students. It may be reminded that from every household only ten years old and above were enumerated. So the number of students may be more than six percent as described above.

Different occupations were also enquired from those people engaged in employment to earn their livings. From the sample households it was observed that seventy percent of the people who do some work were engaged in non-agriculture labour. Twenty one percent had some sort of permanent employment. Only seven percent were engaged in business. Detail of basic professions is given in Table 4.

**Table 4: Different occupations in Basho**

<b>Basic Profession</b>	<b>Percentage</b>
Business	7
Employment	21
Agriculture Labour	2
Non-agriculture Labour	70
<b>Total</b>	<b>100</b>

### Annual Income

The sampled households have average income of Rs. 16500 per annum. Maximum 30 percent have annual income upto Rs. 5000. Lowest 9 percent have the annual income between Rs. 20,000 to Rs. 30,000. Different ranges of income are given in Table 5.

**Table 5: Income groups in Basho**

Annual Income (Rs.)	Percentage
Upto 5000	30
5001-10000	24
10001-15000	9
15001-20000	11
20001-30000	9
> 30000	17
<b>Total</b>	<b>100</b>

Almost one-fourth have the income in the range of Rs. 5000-10000 per annum. Similarly seventeen percent have annual income greater than Rs. 30000.

### Landholdings

There were three types of landholdings in the area viz. cultivated land, grazing land and barren land. In cultivated land crops and vegetables are grown. In grazing land only grass both traditional as well as alfalfa is grown. The barren land is not fit for any crops or even grass. There are few shrubs and very little grass. In Basho valley average cultivated, grazing and barren land was 11, 10 and 11 kanals per household respectively. Average total land which included cultivated, grazing and barren land was 24 kanals. Table 6 shows distribution of total land into different categories.

**Table 6: Land distribution in Basho**

Categories (kanals)	Percentage
Up-to 10	29
11-20	34
21-30	16
31-40	10
> 40	11
<b>Total</b>	<b>100</b>

It can be seen from the above table that one-third of the households in Basho have the landholdings between 11-20 kanals. Twenty nine percent have landholdings less than ten kanals. So altogether more than fifty percent of the households have landholdings up-to 20 kanals. So simple majority make their livings from one hectare of land or less.

### **Major crops and their production**

Major crops grown in Basho valley were wheat, barley, buckwheat, inferior millet, and maize. Turnip and potato which are vegetables but grown as a full crop in the area. The barley is the only crop grown both in the valley as well as at the 'Broq'. Average land reserved for wheat is 6 kanals, whereas average land for barley is only three kanals. Average wheat production in the area was 1.8 monds per kanal. Similarly average barley production was about 1.5 monds per kanal. It has been observed that wheat is mainly grown for cereals whereas barley is grown for its short duration. One of the major advantages of barley is that it matures early and leaves enough time for the second crop to mature. Average yield of wheat straw was 3.3 monds per kanal and that of barley was 2.2 monds per kanal. After harvesting first crop, either maize is grown for fodder or turnip is grown.

During the survey duration of the cereal and straw produced at the farms was also enquired. It was noted that on an average, cereals were enough for about four months per household and straw was sufficient for about five months. The duration of the cereal is quite alarming as there is more dependency on down country and in case of road blocks or other unforeseen circumstances it can and does pose serious problems.

### **Fodder**

Fodder is the basic requirement of every household as large number of livestock is kept by each household. The rural economy is centred around collecting the grass during autumn and storing it for long winters. During the summer times animals are taken to the 'Broqs'. On an average each household has about nine kanals of land for grass. Almost three-fourth of the households rely on traditional grass whereas seventeen percent opt for maize as grass.

Average production of fodder per kanal has been 4.5 monds. Each household on an average collect and store thirty monds of grass per year. It has been estimated that the



grass produced by each household has been sufficient for 5.5 months. Obviously these include the winter months when this stored grass is stall-fed to the animals.

## Vegetables

There has been increasing trend in growing the vegetables in the area. Each household grows vegetables for home consumption. Major vegetables grown in the area were, cabbage, cauliflower, spinach, lettuce, peas, carrot, reddish, turnip, onions, tomatoes, and chillies. Although the vegetable production is still at subsistence level, still the commercial production is in offing. On an average four months of vegetables are produced per household and it lasts hardly for about three months. It indicates the increased dependency for the rest of the year on external sources for vegetables.

## Family and exchange labour in crop and vegetable production

There has been no precedent noted for any sort of hiring the labour for production practices of crops and vegetables in Basho valley. Regardless the landholding whether it is small or large both family and exchanged labour is used for all the cultural practices involved from preparation of land to threshing. Both men and women of the family contribute to different tasks. Similarly in exchange labour both men and women work for each other at different times. Table 7 explains average contribution of male and female workers both family and exchange in crop and vegetable production.

**Table 7: Contribution of family and exchange labour**

Activities	Family Labour		Exchange labour		Family Labour		Exchange Labour	
	Av.no. of men	Av.no. of days	Av.no. of men	Av.no. of days	Av.no. of women	Av.no. of days	Av.no. of women	Av.no. of days
Land preparation	2	2	3	2	2	2	2	3
Transfer and spread of FYM	2	2	5	2	2	2	3	2
Repair of water channel	2	2	5	2	2	2	3	2
Irrigation	1	26	-	-	2	19	-	-
Hoeing and weeding	-	-	-	-	2	5	5	5
Harvesting	2	3	3	3	2	3	3	3

It can be seen from the above table that in all major activities both family and exchange labour is used. For irrigation purposes only family labour is used and no exchange labour is used. Threshing has not been included in above table because mostly thresher is used for this purpose. On an average more than Rs. 600 are spent on threshing by each household.

### **Use of fertiliser**

Soil fertility is retained by use of farm yard manure (FYM). The quantity of FYM is directly related to the number of animals per household. One of the major activities in spring before sowing season starts is transfer and spread of FYM in the fields. For this purpose both family and exchange labour is used. It has been calculated that on an average each household uses 228 mounds of FYM in the fields. Similarly, chemical fertiliser is also used in the fields. On an average more than Rs. 700 are spent on chemical fertiliser by each household.

### **Fruit production**

As in other parts of Baltistan, various fruits are grown in Basho. The villages at higher elevations do not have fruit trees at all but other villages are abundant in fruit production. Major fruits in the area are apricot, apple, mulberry, grapes, almond and walnut. It has been calculated that on an average each household has twenty-two fruit trees. From these fruit trees on an average fifteen have been found fruit bearing. Looking at production of the fruit, it was noted that average production of each tree was about fifty kgs. Average fruit available to each household has been twenty mounds. Fresh fruit is consumed at home and there was no marketing of these fruits.

### **Dried fruit:**

Apricot, mulberry and grapes are dried in the area and people sell these products as well. It was noted that on an average eighty kgs. (two mounds) of apricot is dried by each household. Similarly on an average every household was having 33 and 41 kgs. of dried mulberry and grapes respectively. Kernels of apricot are consumed at home and sold as well. The average sweet kernel by each household was 15 kgs. On an average 4 kgs are consumed at home and 11 kgs. are sold. The average apricot oil by each household was six kgs. There is still lot of potential to explore the possibilities of strengthening and

enhancing marketing of dried fruits and their products. Wastage of fresh fruit in abundant quantity is observed during the season which can be avoided by appropriate measures.

### **Forestry**

Basho valley is rich in natural forest. Although there has been extensive extraction from that natural forest in the past, still dense patches of forest can be seen. Forest department, Basho Development Organisation (BDO), a local LDO and AKRSP in close collaboration with Agricultural University of Norway are striving hard to save this remaining forest. There is growing awareness among the communities to safeguard this natural resource as well.

In the valley, more forest plants are being planted to reduce the stress on natural forest. Poplar and willow are the main species planted in the valley. On an average 130 trees of poplar were found by each household. The same figure for the willow was 90 plants per household.

Wood is used for timber, fire and fuel. Fuel wood is used throughout the year whereas firewood is used mostly during the winter months. So in winter the consumption of wood increases manifold. Based on the data collected from Basho it was estimated that each household on an average uses 96 monds of fire and fuel wood during a year. On the other hand the fire and fuel wood collected from common property has been 63 monds per annum. Forest trees are also rich source of fodder. It was estimated that on an average 12 monds of fodder is also collected by each household from the forests.

### **Livestock**

As in other parts of Baltistan, livestock is very important component of rural economy of the households of Basho. Livestock is source of cash at hand. Basho has more than fifty small and large 'Broqs'. So there is enough grass and grazing areas during summer. Average number of different livestock is given in Table 8. It can be seen from the table that every household in Basho has on an average two cows, one bull, one zo, two zomo, seven goats and eight sheep. There is a custom of keeping shared animals in Basho as well. On an average two cows, one zo and two zomo are kept as shared animals. Mostly ghee is shared as a product.

**Table 8: Average number of livestock in Basho**

Average no. per hh	Own	Shared
Cows	2	2
Bull	1	-
Zo	1	1
Zomo	2	2
Goat	7	-
Sheep	8	-

Ghee is a major product achieved from the livestock. On an average each household was having eighteen kgs. of ghee per year. There is even distribution of ghee by households in the area. Twenty three percent were having the ghee up-to 5 kgs., twenty eight percent have between 6 to 10 kgs., twenty five percent have between 11 to 20 kgs. and twenty four percent have 20 kgs.

### **Poultry**

The number of poultry birds in Basho was found to be very low. On an average each household was having only three hens. This number is quite low keeping in view the number of family member in each household. It was also noted that there is custom of keeping only the local flock of poultry. So there is need for introducing improved breed of poultry and to encourage the people to keep more number of poultry per household.

### **Income and Expenditures**

It is a common observation that income is always understated and expenditure is always overstated. Basho was no exception to that. But effort was made to cross question and dig out the exact figures. As described earlier that the sampled households have average annual income of Rs. 16500 per annum. Cereal production is only at subsistence level. Same is true with fruits and vegetables. There is no commercial marketing of any of the agricultural products. A few households market dried fruits especially apricot, mulberry and grapes. An expensive variety of grapes called 'Zarishk' is produced, dried and marketed in Basho. It fetches more than Rs. 200 per kg. This can be expanded with proper supervision and encouragement. Forest resources fulfil domestic needs and there is ban on cutting of the natural forest. Livestock is another source of income which contributes to the income of the households. Employment is also another source of income. But limited opportunities of employment are available. Non agricultural labour

contributes substantially to household income. Seventy percent of the employed people in Basho are engaged in this sector.

On expenditure side major expenses are incurred on food items. Details of some main expenses is given the Table 9.

**Table 9: Main items of expenses in Basho**

<b>Average monthly expenses</b>	<b>Rs.</b>
Wheat flour	500
Cooking oil	250
Sugar	317
Tea	280
Kerosene oil	40
Oil and soap	71
Travelling	370
Health medicines	108
Clothes, shoes	265
Religious ceremonies	155
<b>Total</b>	<b>2356</b>

Average monthly expenses are much more than the average monthly income. Income can be enhanced by increasing the output of cereals, marketing the fruits and by reducing the expenditure on items such as sugar and tea.