

An Empirical Analysis of Status of Food Security among Vulnerable Rural Classes of Bulandshahr District

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Abstract

The specific objectives of this paper are to ascertain the level of food security among vulnerable rural societies, to identify the coping strategies utilized by the rural households in ensuring food security and to identify the constraints faced by these poor households in ensuring food security. The study is based on primary survey and 225 households from vulnerable classes (64 from small farmers, 45 from marginal farmers, 65 from agricultural labourers, 40 from landless labourers and 16 from rural artisans of ten villages (from of sixteen blocks) were selected for study the level of food security) were selected for survey. The result shows that the level of food security varies according to socio-economic characteristics of the households.

Keywords: Food Security, Accessibility, Affordability, Coping Strategies.

1. Introduction

Food security is described as access by all people all times to the food needed for an active and healthy life. Food security is a situation in which people, at all time, have physical and economic access to the sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Food and Agricultural Organization,1996). Unemployment and poverty is the main cause of food insecurity among the rural households. Poverty exists when there is lack of income, productive malnutrition, illiteracy, inadequate housing, unsafe environment etc. In

2001-03, Food and Agricultural Organization Estimated that more than 850, million people all over the world were undernourished. About 96 percent of such persons were living in developing countries(FAO,2006) the World Bank has identified three pillars determining food security as; food availability, accessibility and utilization.

The concept of food security has been undergoing an evolutionary change during the last fifty years. In the nineteen fifties, food security was considered essentially in terms of production. It was assumed that adequate production will ensure adequate availability of food in the market as well as in the household. In the seventies, it became clear that availability alone does not need to food security, since those who lack purchasing power will not be able to have access to balanced diets. Now it has been evident that even if availability and access are satisfactory, the biological absorption of food in body is related to the consumption of clean and safe drinking water as well as environment hygiene, primary health care and primary education. Finally, even if physical and economic access to food is assured, ecological factors will determine the long term sustainability of food security system (Swaminathan, 2001).

Coping strategies are employed to mitigate the effect of not having enough food to meet the household's need. Off-farm employment, saving and family networks for sharing are the positive coping strategies while reduction in food consumption, selling assets' reduction expenditures on basic services are negative coping strategies (Tall, 1989).

2. Objectives and Database

2.1 The basic objectives of this study are

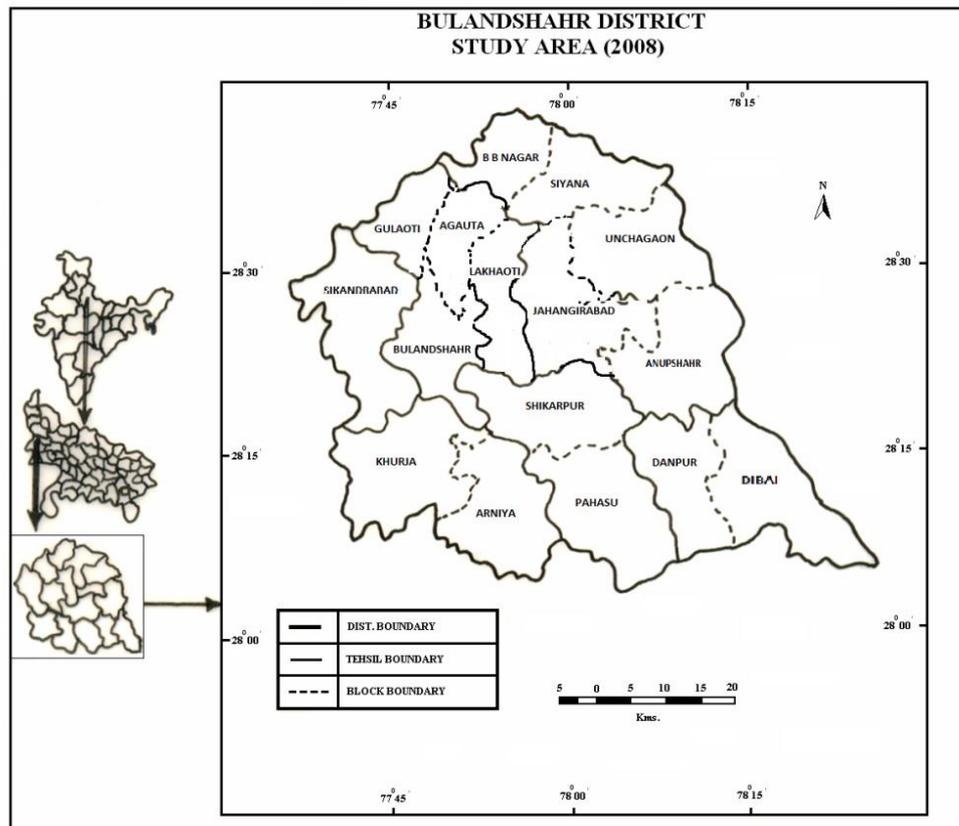
- To explore the type of employment and level of food security of vulnerable rural societies of the study region.
- To identify the relationship food insecurity and socio-economic conditions of the vulnerable rural societies.
- To identify the accessibility and affordability to food items of rural low income groups.
- To find out the coping strategies used by these rural low income groups to ensuring food security.

For the present study, the data has been collected through primary field survey. For the study 225 household, 64 from small farmers, 45 from marginal farmers, 65 from agricultural labourers, 40 from landless labourers and 16 from rural artisans of ten villages (from of sixteen blocks) were selected for study the level of food security.

2.2 Study Area

Bulandshahr, one of the important district of western Uttar Pradesh, lies between 28°4' to 28° 12' north latitude and between 77° 0' to 78° 0' east longitude and located in upper Ganga –Yamuna Doab (fig 1). The river Ganga separates it from Jyoti Ba Phule Nagar and Badaun districts. The district is bounded by Aligarh in south, Gautam Budh Nagar in west and Ghaziabad in the north. The district has 7 tehsils, 16 blocks, and

covers an area of 4353 Sq. Kms. with a population **34,98,507(2011)**. Wheat, rice, sugarcane, maize and potato are the major crops which are grown in plenty



3. Results and Discussion

Today a food security implies that assuring a sustained supply of adequate food at stable price to feed the population. In India food security is one of the major problems. Here some of the regions are self sufficiency in food while other is facing the food shortage at a severe level. Indian economy is characterized by pervasive poverty, hunger and under nutrition. When this hard fact is taken into account, the goal of food security in India comes out to be still miles away and the country has to labour hard to reach this goal.

Table: 1

PER CAPITA QUANTITY(kg) CONSUMED IN 30 DAYS IN INDIA (2007-08)										
ITEMS	Rice	Wheat	All Cereals	Pulses and Pulses Products	Milk (Ltr)	Eggs (nos)	Fish (Kg)	Goat Meat/Mutton (Kg)	Chicken(Kg)	Edible Oil
RURAL	6.36	4.19	11.67	0.71	3.87	1.01	0.20	0.05	0.05	0.48
URBAN	4.75	4.51	9.68	0.82	5.11	1.72	0.21	0.07	0.09	0.66
AVERAGE PER CAPITA MONTHLY EXPENDITURE ON DIFFERENT GROUPS OF CONSUMPTION FOR INDIA(Rs) 2007-08.										
ITEMS	Cereals and Cereals Substitutes	Pulses and Pulses Products	Milk and Milk Products	Edible Oil	Meat/Fish/Egg	Vegetables	Fruits (Fresh/Dry)	Sugar, Salt and Spices	Beverages, Refreshment and Processed Food	All Food Items
RURAL	125	25	60	33	26	49	14	30	43	404
	16.1%	3.2%	7.8%	4.3%	3.4%	6.3%	1.8%	3.9%	5.6%	52.4%
URBAN	131	33	107	46	39	64	31	37	94	582
	8.9%	2.2%	7.3%	3.2%	2.7%	4.4%	2.1%	2.5%	6.4%	39.6%

Source- NSS 64th Round report No. 530.

If we put a glance and compare the per capita consumption of food in rural and urban India within 30 days, it is clear from the table 1 that per capita consumption of cereals (6.36 kg) is higher in rural households than in the urban (4.75kg).

Reverse to above, the per capita consumption of milk (5.11ltr.) meat/fish/eggs (2.09kg) is higher for the urban households than rural households (1.31). The household insecurity is already there in India but the problem of rural vulnerable societies is very severe. Although, in rural households expenditure is more on the food items (52.6%) rather than urban households(39.6%), their sharing of expenditure is more on cereals(16.1%) rather than pulses(3.2%), milk(7.8%), edible oil(4.3%), meat (3.4%), vegetables(6.3%),etc. while in urban having a good sharing on expenditure on cereals, they also expend on fruits(2.1%) and processed food(6.4%).

Table 2: Per Capita Requirement of Food (Gm/Day) at the National Level.

Food Items	Physiological Requirement
Cereals	396
Pulses	43
Leafy Vegetables	58
Other-do-	45
Roots & tubers	40
Milk	200
Fats & Oils	31
Sugar/Jaggery	31

Source: <http://www.fao.org/docrep/X0172E/x0172e02.htm>

3.1 Characteristics of Respondent of Bulandshahr District

Table one is showing that of the total sampled households; the head of the house hold were female in the category of small (53.61%) and marginal farmers (64.4%) while most of the male were head in the classes of agricultural labourers (66.7%), landless labourers (86.3%) and rural artisans (61.4%). Caste wise distribution shows that most of the small farmers (66%) belonged to upper caste, followed by backward castes (26.1%) and schedule castes (8.0%). However the majority of the other back ward classes belonged to marginal farmers (55.1) and rural artisans (79.6%). Similarly, the majority of agricultural labourers(58%) and landless labourers(58.2%) belonged to the schedule caste. The educational status of the vulnerable rural societies is not satisfactory (Table 4).

Table 4: Personal Characteristic of the Sampled Households in Bulandshahr District in Percent.

Sex/Category	Small Farmers N=60	Marginal Farmers N=64	Agricultural Labourers N=45	Landless Labourers N= 40	Rural Artisans N=16
Male	47.4	35.6	66.7	86.3	61.4
Female	53.6	64.4	33.3	13.7	38.6
Age Wise Distribution (Age in Years)					
25-35	32.0	44.5	22.3	38.0	48.5
36-45	40.2	26.8	40.0	10.7	17.3
46-55	19.0	15.6	28.0	27.1	18.2
56-65	7.2	10.5	5.2	19.2	14.0
66-75	1.6	2.6	4.5	5.0	2.0
Caste Wise Distribution					
Schedule Caste	8.0	17.3	58	58.2	18.0

Other Backward Cast	26.1	55.1	31	26.4	79.6
Upper Caste	66	27.6	11	15.4	2.4
Educational Status					
Illiterate	25.5	42.0	65.4	80.7	82.7
Primary	52.7	31.0	16.3	12.7	10.3
Secondary	21.8	27.0	18.3	6.6	7.0
Family Size					
1-5	8.0	45.7	32.2	23.5	39.3
6-15	13.0	34.3	49.5	49.3	39.4
above 15	79.0	20.0	18.3	27.2	21.3

Source- Field Survey October 2010

Note- All Figures are in Percentage

N== Number of Households.

The literacy factor is directly related to their economic activities because it provide better employment to the people. The family size of the small farmers 1-5 years is only 8 percent, it is highest in the category of marginal farmers (45.7%0, followed by rural artisans(39.3%), agricultural labourers(32.2%), and landless labourers(23.5%). However , the family size between 6-15 age group was highest in category of agricultural labourers(49.5%) and landless labourers(49.3%), while the family size above 15 was highest in category of small farmers(79.0%), and was small in the category of agricultural labourers(18.3%)(Table:4)

Table 5: Economic Characteristics of the Vulnerable Rural Societies in Percent.

Occupation/Category	Small Farmers N=60	Marginal Farmers N=64	Agricultural Labourers N=45	Landless Labourers N= 40	Rural Artisans N=16
Agriculture	96.8	87.3	66.4	75	9.4
Non-Agriculture	3.2	12.7	33.6	25	90.6
Extent of Employment in Agriculture					
3 Months	17.6	12.1	52.7	57.3	16.8
6 Months	58.2	26.2	34.5	34.7	78.2
12Months	24.2	61.7	12.8	8.0	5.0
Average	128 days	217 days	117 days	96 days	87 days
Monthly Income From All Sources					
1000-2000	12.2	7.3	18.0	36.5	18.5
2100-3000	48.4	19.5	32.2	36.4	28.3
3100-4000	20.3	54.2	24.3	15.1	34.2
4100-5000	11.1	13.0	16.2	9.0	13.0
5000 and above	8.0	6.0	10.3	3.0	6.0

Indebtedness					
Under debt	41.8	61.0	25.5	28.8	68.6
Without Debt	58.2	39.0	74.5	71.2	31.4

Source- Field Survey October 2010

Note- All Figures are in Percentage

N== Number of Households

The occupational characteristics of the vulnerable sampled households show that, almost 96.8% of the small farmers were engaged in the agricultural activities. Similarly 87.3 % of the marginal farmers were engaged in agricultural activities as primary occupation and only 12.7% were engaged in non-agricultural activities (Table 5). Except rural artisans which are engaged in non-agricultural (90.6%) occupation, more than 50% households of study area i.e. agricultural labourers(66.4%) and landless labourers(75%) were engaged in agricultural activities. Agricultural being seasonal activity, the agricultural labourers and non agricultural labourers do not find employment all the year round in agricultural sector.

It is clear from the table 5, that neither agricultural sector nor non agricultural sector provide full employment to the rural vulnerable societies. They do any kind of work which provides them income for their livelihood. As most of the small farmers (58.3%) were engaged for 6 months in agricultural sector and only 24.2% were engaged up to 12 months in agriculture while the marginal farmers find more (61.7%) employment to 12 months in agricultural sectors because they are engaged in vegetables farming which provide them good income all year round. Agricultural labourers(52.7%), and landless labourers(57.3%) find more employment only for three months in peak season of agriculture and 34% get employment for 6 months, in rest of the year they remain unemployed. Their employment is for, 117 days of agricultural labourers and 96 days of landless labourers.

The income of these vulnerable rural societies is very low , as 48.4% of small farmers had monthly income between 2100 to 3000, 54% marginal farmers had their income between 3100 to 4000, 32% of agricultural labourers had their income between 2100 to 3000 (36.5%) and 34% rural artisans had their income between 3100 to 4000 only(Table 5).Low income range is between 1000 to 2000 which is acquired by 12.2% small farmers, 7.3% marginal farmers, 18% agricultural labourers, 36.5% landless labourers and 18.5% rural artisans.

The indebtedness is another factor which also reflects the status of food security and insecurity in any region. It is clear from the table 5 that in Bulandshahr district, the extent of indebtedness was highest rural artisans(68.6%) and marginal farmers(61%) followed by small farmers(41.8%), landless labourers(28.8%) and agricultural labourers(25.5%). The households belonged to the farmer's category whether small and marginal, take debt for their agricultural purposes from rural banks or private people. But the households, like agricultural labourers, landless labourers and rural artisans take debt for the marriage purpose, buying livestock, making a set of room for their living, for treatment of their diseases etc.

3.2 Food Accessible To the Vulnerable Societies-

As we know that after the introduction of Green revolution, food availability in India is not a major problem, but the real problem is the accessibility of food i.e. food security is the function of availability as well as the accessibility i.e. purchasing power of the people.

As crop farming and animal husbandry is the main occupation of small and marginal farmers in the study area, it is clear from the table 6, that vegetables(89.7%), grains(98.9%), milk(93.8%), were always accessible to small farmers. Similarly, vegetables (91.0%), grains (91.5) and milk (93.0%), were always accessible to the marginal farmers, because instead of having very small piece of land, they are able to getting enough food because; they are engaged in the cultivation of vegetables and rearing livestock. But , almost above 36% of the small and marginal farmers occasionally borrowed fruits , meat and egg and rest of the small and marginal farmers can never accessible to these items. Among agricultural labourers, only 70.3% were always accessible to vegetables, 82% to grains and only 20% to milk, while fruits, meat, fish and eggs were occasionally accessible or never accessible to the majority of the agricultural labourers, and landless labourers.

Among landless labourers, above 60% of the people were never accessible to fruits, meat, fish and eggs, only 65.8% were always accessible to vegetables, 66.5% to grains and 62.9% to milk (Table 6)

Table 6: Accessibility to the Food Items in the Sampled House Hold in Percent.

Food Items	Accessibility in Percent														
	Small Farmers No = 60			Marginal Farmers No = 64			Agricultural Labourers N = 45			Landless Labourers N = 40			Rural Artisans N = 16		
	A	O	N	A	O	N	A	O	N	A	O	N	A	O	N
Grains	98.9	4.1	-	91.5	8.5	-	82	16.8	1.2	66.5	29.3	4.2	88	12.0	-
Vegetables	89.7	10.3	-	91.0	9.0	-	70.3	28.0	1.7	65.8	34.2	-	77.7	22.3	-
Milk	93.8	6.2	-	93.0	7.0	-	20.7	23.3	56.0	62.9	31.1	6	24.1	58.3	17.6
Fruits	17.2	55.8	27	4.2	54.7	41.1	-	84.3	15.7	-	20.8	79.2	20	72.0	8
Meat	16.6	56.6	26.8	7.0	21.8	71.2	-	5	95	-	12.3	87.7	8.2	42.8	49
Fish	13.7	26	60.3	2.3	14.7	83	-	8.9	91.1	1.2	14.8	84	-	13.9	86.1
Eggs	32.4	57	10.6	5.0	69	26	3.8	49	47.2	7.7	42.3	50	3.2	41.4	55.4

Source- Field Survey

Note= A= Always, O= Occasionally, N= Never

In case of rural artisans, only 77.7 percent rural artisans were having their accessible to vegetables, 88.0% to grains and 24.1% to milk. Fruits were occasionally accessible to 72% people and 49% rural artisans were never accessible to meat, 86.1% to fish, 17.6% to milk and 55.4% were never accessible to eggs (Table 6).

3.3 Food Affordability of the Sampled Peoples

Affordability of food refers to the price of a particular food and the relative price of an alternative or substitute foods. Affordability of food is also influenced by the budget constraint faced consumer.

Table 7: Affordability to the Different Food Items of the Sampled Vulnerable Societies in Percent.

Food Items	Accessibility in Percent														
	Small Farmers No = 60			Marginal Farmers No = 64			Agricultural Labourers N = 45			Landless Labourers N = 40			Rural Artisans N = 16		
	A	O	N	A	O	N	A	O	N	A	O	N	A	O	N
Grains	94.4	5.6	-	78.2	21.8	-	18	32	50	9.9	21.1	69	58.7	29.3	12
Vegetables	97	3.0	-	80.6	19.4	-	27	34.5	38.5	11.4	30.2	58.4	85.2	10.3	4.5
Milk	82	18	0	66.6	33.4	-	12.3	43.2	44.5	10	38.1	51.9	17.5	72.5	10
Fruits	7.8	48.2	44	3.2	93.8	3	-	30.3	69.7	8	5.7	86.3	6.2	86.7	7.1
Meat	10.7	54.3	35	7.3	72.7	20	-	2.2	97.8	-	13	87	1.6	66	32.4
Fish	2.4	45.6	52	1.7	54	44.3	-	1.4	98.6	2.2	44.3	53.5	0.4	72.4	27.2
Eggs	33	62.7	4.3	6.5	46.5	47	-	14	86	-	11.2	88.8	8	71	21

Source- Field Survey

Note= A= Always, O= Occasionally, N= Never

Table 7 reveals, that vegetables, grains and milk were the most affordable food items to small farmers because of its ease of accessibility while the respondents occasionally afforded other food items, while fish was not able to 52% and eggs was not affordable to 4.3% of the small farmers. Vegetables, grains and milk were only affordable items for the marginal farmers, and most of the households occasionally afford fruits, meat, fish and eggs. Nearly 18.7% of the marginal farmers never afford fruits, fish, meat and egg. Among the agricultural labourers, above 65% never affordable to fruits and above 80% never affordable to meat, fish and egg. It has been noted that accessibility are generally higher than affordability.

Only 18% agricultural labourers can always afford grains, 27% vegetables and 12.3% milk. Grains were never affordable to 50% of agricultural labourers, 32% occasionally afford it occasionally.

The conditions of affordability of food was very worse in case of agricultural labourers. Grains were never affordable to 69% of agriculturable, 21.2 % were afford it occasionally and only 9.9% were always accessible to grain always. Similarly, vegetables were never affordable to 58.4% people, milk 51.9%, fruits 86.3%,meat 87%, fish 53.55 and egg 88.8% people were never affordable. So a large portion of landless labourers never affordable to protine and energetic food(Table 4).

The condition of rural artisans was better than landless labourers. Most of the rural artisans were occasionally affordable to all food items because of their year round earning power. 58.7% of the rural artisans were always affordable to grains, 85.2% to vegetables, 17.5% to milk, 6.2% to fruits, 1.6% to meat, 0.4% to fish and 8% to egg. While, 29.3% of rural artisans were occasionally affordability to grains, 10.3 % to vegetables, 72.5% to milk, 86.7% to fruits, 66% to meat, 72.4% to fish, and 71% to egg. Rest of the rural artisans(12% to grain, 4.5% to vegetables, 10% to milk, 7.1% to fruits, 32.4% to meat, 27.2% to fish and 21% to egg) were never affordable to these items(Table 4).

Table 8: Coping Strategies Used by the Vulnerable Societies of Bulandshahr District for Food Security in Percent.

Coping Strategies	Accessibility in Percent														
	Small Farmers No = 60			Marginal Farmers No = 65			Agricultural Labourers N = 45			Landless Labourers N = 40			Rural Artisans N = 16		
	A	O	N	A	O	N	A	O	N	A	O	N	A	O	N
Borrowing money	8.7	45.4	45.9	65.8	28.2	6	23.0	63.5	14.5	43	49	7	27	37.8	32.2
Public Distribution	33.4	45	21.6	72.2	21.8	7	89.0	9.8	2.2	94.2	5.8	-	93.8	6.2	-
Skipping meal(Once in a Day)	-	-	100	-	0.8	99.2	-	7.9	92.1	-	78	22	-	-	100
Coarse Grains(only)	-	-	100	22.4	73.6	3.0	78	15.8	6.2	89	11	-	79	21	-
Reduction in food quantity in Served	-	-	100	-	-	100	11.2	22.6	65.2	53	29	18	-	12	88
Skipping Meal for Whole Day	-	-	100	-	-	100	-	10.8	89.2	-	87	13	-	-	100
Animal Husbandry	98.7	2.3	-	100	-	-	87.7	12.3	-	69.7	29.3	-	73	20	7
Child Labour	4.1	12	83.9	78	14	8.0	98	2	-	100	-	-	89	11	-

Source- Field Survey

Note= A= Always, O= Occasionally, N= Never

If we put a glance on the coping strategies used by the vulnerable rural societies for adopting food security, it is clear from the table 8 that to ensure food security, 8.7% of small farmers always borrow money, 33.4% always take help of public distribution (purchase food items at subsidize rate), almost 99% engaged in animal husbandry and 4.1 percent take help from child labour. While, 45.4% occasionally borrow money, 45% from public distribution, 2.3% animal husbandry and 12 percent occasionally take help of child labour. Nobody in the category of small farmers skipping meal even once in a day and reduce the quality of food they consume in a day.

Similarly, to ensure food security of about 72.2% of marginal farmers always use public distribution as a coping strategy to ensure food, 22.4 percent always use coarse cereals for food and 28.2% occasionally borrowed money for food. Agricultural labourers and landless labourers almost used all type of coping strategy. They always depend on public distribution system and purchase food items on fairly subsidized rates. About 89% of agricultural labourers always used public distribution. 94.3% of landless always used public distribution system as a coping strategy. The agricultural labourers, landless labourers and rural artisan have to purchase grain from market and hence they always try to use this facility in order to get the grain at subsidized rate.

4. Conclusion and Suggestions

In the above study, an attempt has been made to show the status of food security among vulnerable rural societies such as small farmers, marginal farmers, agricultural labourers, landless labourers and rural artisans which shows that most of the households of these societies were not secure and occasionally afforded the nutritive food like milk, meat, fish and eggs while partially access to other food items. Increasing in the food prices make unable the poor people of the rural areas to purchase these items. The severity of food insecurity was higher in agricultural labourers, and landless labourers. Because small and marginal farmers were getting enough money for their livelihood in engaging the vegetable farming and animal husbandary, but the condition of agricultural labourers and landless labourers was severe. Most of the agricultural labourers and landless labourers engaged in the non agricultural activities with the help of their children for supplement their income to ensure food.

So the main strategies to ensure food and nutritional security for rural vulnerable societies-

- Small and marginal farmers should be encouraged to value added farming to ensure their year round employment, and a needed credit at small interest should be provided by the government to them.
- Family possessing assets like land, livestock, fish pond, should have to be assisted to enhance the productivity of their resource endowment on an environmentally and economically sustainable basis.
- Timely available fair prices of the commodities of rural people should be given.

- Nearly 75% of women of these vulnerable societies earn their employment from their domestic animals. They should have to be enable to take the skill of nonfarm employment through micro enterprises support by micro credit.
- The skills of rural artisans working in the secondary section of economy have to be mobilized to enhance the competitiveness of agriculture through value addition of primary and diversification of livelihood.

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