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**GRT** **SPATIAL ANALYSIS OF LIVELIHOODS AND STRATEGIES FOR MAKING THEM SUSTAINABLE: A CASE STUDY OF TWO VILLAGES OF MURSHIDABAD DISTRICT (WEST BENGAL)**

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**Abstract:**-In this paper an attempt has been made to analyse the livelihood patterns and identify the main factors which make livelihood sustainable in two selected villages of Murshidabad district of West Bengal. Sustainable Livelihoods are derived from people's capacity to make a living by surviving shocks and stresses and to improve their material condition without jeopardizing other's livelihood option either now or in the future. This requires reliance on both capabilities and assets for a means of living. A Comparative analysis of the livelihoods of the two villages have been made in this paper .The study reveals that only one third of the households of both the villages (34.8 per cent in Khoshbagh and 32.6 per cent in Majhardiar) have sustainable livelihoods which are achieved by adopting some strategies such as agricultural extensification, agricultural intensification, livelihood diversification, more work and migration. Government also helped the people to improve their livelihoods by providing extra facilities to the BPL card holders through PDS and 100 day guarantee of work to the job card holder needy people. Self Help Group also support people's livelihood by providing them loan at lower interest. People also deposit their saving in the SHG. The study finds that livelihoods are more vulnerable in Majhardiar village (67.6 per cent) due to its flood proneness than the other village Khoshbagh (65.2). Arsenic contaminated ground water and infertile soil are the major hindrances for the sustainable livelihood in Khoshbagh. This paper present a detailed analysis of the five types of assets and also deals with the livelihood strategies adopted by the people for making their livelihood sustainable. It is clear from the study that interrelation of all these five capitals namely human, physical, natural, social and financial lead to sustainable livelihood. Beside regular source of income the more is the diversification of income more sustainable is the livelihoods. The study finds that the households which are solely depend on earning from vendor, daily labour, agricultural worker, bidi worker, van driver are more vulnerable than the other people engaged in government services, business and farming. Due to flood proneness, irregular source of income and lack of Govt job people of Majhardiar are bound to diversify their livelihoods. Desired livelihood outcomes for better level of living, improved food security, more income and more sustainable use of natural resources may be achieved only when the livelihood is Sustainable.

**Keywords:** Sustainable Livelihoods, Food Security, Livelihood diversification.

**INTRODUCTION:**

The issue of livelihood has always been a major cause of concern in India because roughly 70 per cent of the total population of the country lives in rural areas where the main source of livelihood of the people is agriculture and 65 per cent of the total population of India depend on agricultural sector for employment. Still Indian agriculture is considered to be gamble in the hand of monsoon for its larger dependence on monsoon rain for irrigation. Farmers are largely at the mercy of monsoon rain for irrigation because of its uncertain, erratic and unpredictable nature. They often become victims of natural hazards like droughts, floods, cyclones which adversely affect their life and livelihood. It is the poorest of the poor who suffer most because they lack the resources to cope with the vulnerable situation. As a result of insecure and inadequate livelihoods, nearly 225 million people (23 per cent) are undernourished, and 260 million (24 per cent) are below the poverty line (GOI, 2002). Livelihoods are not just “means of living” – but what people possess as resources from which livelihoods are obtained and their

ability to use such resources. In a country like India, with the major proportion of its workforce still dependent on farming and farm related activities, the issue assumes more serious dimensions. It is not just a matter of "proportions" but the sheer numbers of people involved – the millions whose means of living are increasingly becoming precarious. Livelihoods affect not just households but intra-household access to resources and claims for different members within it. The livelihood approach, as opposed to the notion of "employment" is seen as more people centred. It is not enough to have means of living but those means must not be stray windfalls and instead, should endure over time and sustainable without jeopardising livelihoods in the future. To ensure sustainability, policies and relevant institutions must safeguard people's assets and capabilities.

Murshidabad district, the study area is one of the backward district of West Bengal. The rate of unemployment in West Bengal is as high as 7.8 per cent which is more than double the national average of 3.8 percent. Nearly 53.7 per cent population of West Bengal live below poverty line (Tendulkar committee). Though the state is fortunate with its large deltaic area and fertile soil, it is unable to cope with the burden of population growth resulting into high poverty and unemployment rate. Less Industrial development is one of the causes behind this poor situation. In this context an attempt has been made to find out the vulnerable population and making their livelihoods sustainable in villages of Murshidabad District which is the most densely populated district of West Bengal.

A person's livelihood refers to their "means of securing the basic necessities -food, water, shelter and clothing- of life". Livelihood is defined as a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments (both human and material) for meeting the requirements of the self and his/her household on a sustainable basis with dignity. The activities are usually carried out repeatedly. (Oxford Dictionary of English). Livelihood has been defined by Blaikie et al. (1994:9) as "the command the individual, family or other social group has over an income and or bundles of resource that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, land and other physical resources". The poor are themselves a very heterogeneous group, placing different priorities in a finite and therefore highly disputed environment. Compromises are often indispensable. An application of the SLA offers the advantage to be sensitive for such issues in a differentiated manner.

According to Chambers and Conway (1992:9) "a livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." The livelihood is sustainable if it can bear the weight of present activities for a long period or maintain or keep efforts or activities going continuously (Hans –George et al. (1998). Sustainability is important if progress in poverty reduction is to be lasting. Sustainability of livelihoods rests on several dimensions - environmental, economic, social and institutional. Livelihoods are sustainable when they: are resilient in the face of external shocks and stresses; are not dependent on external support (or if they are, this support should itself be economically and institutionally sustainable); maintain the long-term productivity of natural resources; and do not undermine the livelihoods of others or compromise the livelihood options open to others (Ashby and Carney, 1999).

Murshidabad district is one of the most backward and disaster prone districts of India. Almost each and every year one or other part of the district faces flood or drought. Livelihood is more prone to vulnerability as people lose their sources of income. Occurrence of flood is due to overflow of rivers like Bhagirathi, Mayurakshi, Bhairab, Sialmari, Jalangi, Padma and other small tributary of Ganga. Drought is the result of erratic rainfall which leads to crop failure in the areas where agriculture is rain fed. Nearly 7.78 per cent of total population of West Bengal live here. The district is densely populated i.e. 1334 person per sq km (2011 census) which is higher than the state average. High density of population represents over population which is a burden on existing resource and livelihoods. The livelihood status of the rural people is very critical in terms of income earning opportunity. These under developed sections are the boom for our national development. To improve the livelihood status of poor people concept of Sustainable livelihood is increasingly gaining importance. So for a sustainable development a household level sustainable livelihood analysis is necessary to reach and identify the problem of the poor.

#### **DATABASE AND RESEARCH METHODOLOGY:**

The present work is based on both primary and secondary sources of data. Primary data have been collected from field survey which was conducted in the month of January 2013. Due to unavailability of 2011 village census directory, Secondary data have been pulled together from Census of India 2001 and District Statistical Handbook of Murshidabad District 2010-11.

Murshidabad district consists of 26 blocks out of which two were randomly selected. From these two blocks, two villages have been selected on the basis of remoteness and nearness to urban area. Majhardiar is a village which is more than fifty kilometres from the nearest town Berhampore and another village Khoshbagh is only 5 km away from its nearest town Lalbagh and 10 km from Berhampore. From each village 30 households have been selected by systematic random sampling. Simple percentage and cross tabulation methods have been applied to analyse the livelihood of the people.

#### **Aims and Objectives:**

The main objectives of the study of these two villages are as follow

- i. To analyse the patterns of livelihoods and the main factors determining the livelihoods.
- ii. To examine different vulnerability context and coping strategy adopted by the people.
- iii. To find out suitable strategy for making the livelihoods more sustainable.

#### **SOCIO-ECONOMIC PROFILE OF SAMPLED VILLAGES**

Murshidabad District is situated on the eastern periphery of the state of West Bengal and it is the northernmost district of Presidency Division. It forms the eastern international boundary of state bordering Bangladesh. Two villages Khoshbagh and Majhardiar have been selected from the district for livelihood analysis.

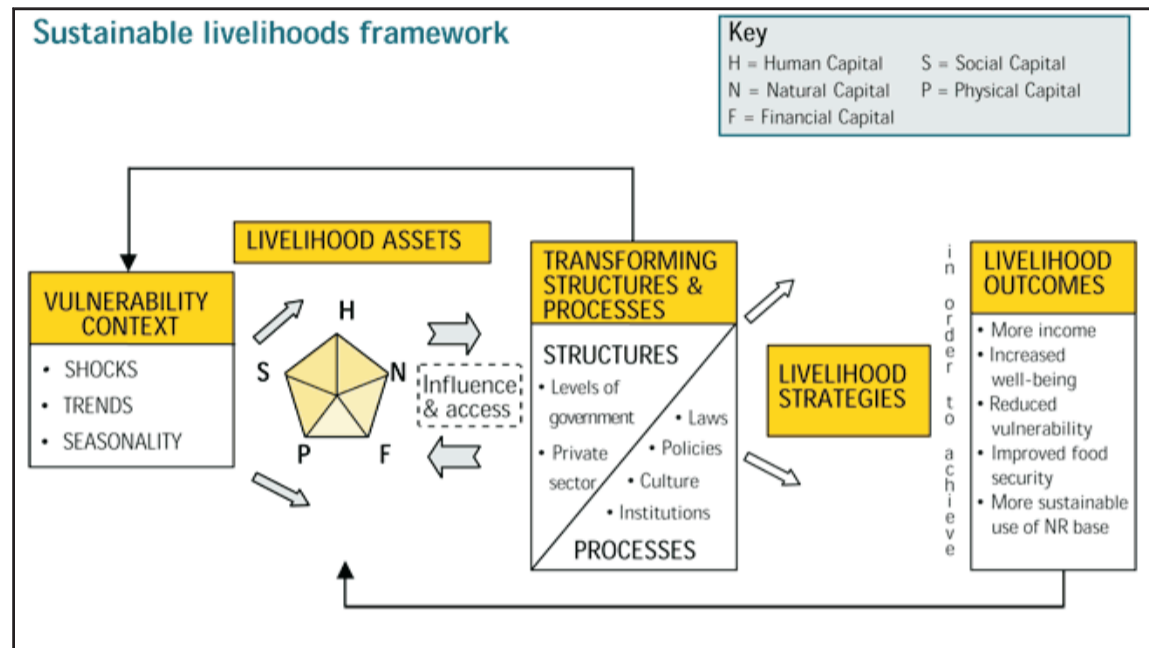
Khoshbagh, the garden of happiness, is a small village comprising only 99.2 hectares of land, situated at the opposite bank of river Bhagirathi on the west in Murshidabad-Jiaganj block. The village is named after 7.5 acres garden build by Nawab Alibardi khan along the lines of jama Masjid of Delhi. Presently here lie the graves of Nawab Alivardi khan, Mother of Alivardi, Siraj-ud-Daulla and his wife Lutf-un-nisa and other members of Nawab family inside a square flat roofed chamber surrounded on all side by a verandah. It is nearly one mile away from the bank of Bhagirathi and a tourist place also. According to 2001 census nearly 1746 people live in 340 households. Hindu and Muslim population live together with approximately 50 percent ratio. As far as caste composition of the village is concerned, nearly 42 per cent of the total population belong to schedule cast category, almost 30 per cent are OBC and remaining 28 per cent belongs to general category. There is no ST population in the village. As the village is very small it depends on nearby Lalbagh and Berhampur towns for most of the facilities. The village is not connected with direct bus services and people communicates with bi-cycle, motor-cycle, three wheeler (lachiman) and by motor boat. Village has one post office and no telephone office. Only 62.5 per cent area of the village is cultivable and 16 per cent land to the total cultivable land is irrigated by tank irrigation. The village is arsenic prone and safe drinking water is not available. Govt hand pump have been provided to tackle with the situation but the target to cover all the population have been failed due to lack of proper maintenance. According to 2001 census one third (33 per cent) of the total population are engaged as workers at different sectors. The working population are categorised into two group, main workers and marginal workers. Approximately 75 per cent of the total working population are main workers and 25 percent are marginal workers. It is clear from the data that more than half of the population to the total working population are agricultural labour (56 per cent), one fourth of the population (25 per cent) are cultivators and 19 per cent population are engaged in other activities.

The other village, Majhardiar is situated at further north eastern part of the district. It is also a disaster prone village of Raninagar II block. This village is situated near the international border with Bangladesh. Sialmari is the river which acts as a water boundary against Bangladesh. There are 982 households comprising 4976 people who live in 912.7 hectares of land (2001 census) in this village. This is a Muslim dominated village, where 90 per cent population are Muslims and remaining 10 per cent is Hindus. Less than 1 per cent population are ST belonging to mostly santhal tribal group. Nearly 70 per cent land of the village is cultivable of which only 37 per cent land is irrigated by tube well irrigation and 64 per cent by shallow machine irrigation run by electricity. Almost every year with incoming monsoon the village is liable to face flood. But due to flood a new layer of khadar soil is spread over the land which is very fertile for Rabi crops like wheat, pulses such as Black grams, Mastered oil seeds, Sesame seeds etc. Jute is also a major cash crop grown in Kharif season. Due to poverty and unemployment in the village and locating near border area people are engaged in illegal smuggling of cow, sugar and different types of drugs. About 74 per cent population to of this village are engaged in different activities and considered as working population in 2001 census. The occupational structure of the village reveals that 85 per cent workers are main workers and 15 per cent are marginal workers. Nearly 52.48 per cent of the total working population are cultivators having high per capita availability of land. One third of the population are agricultural labour (33.72 percent). Household industrial workers comprises only 7.12 per cent who are mainly engaged in puffed rice making, papad making, pottery, embroidery work, biri rolling and silk work locally known as laa kata. Approximately 90 per cent workers are women in the household industries. The raw material for biri and silk is provided home to home in the villages and final product is also collected from them by middlemen who also take some commission from mahajan. Approximately 6.67 per cent population work under different other categories like govt job, small scale business, grocessary shop etc. As the size of the village is large there are two primary schools. Students have to go for secondary and senior secondary education to nearby high school which are all at least 5 to 10 km away. Till now the village is not connected by pucca road. There is one BSF road. Paved and mud road are the only way to connect with the main road. Drinking water is safe but in winter water level goes down. So villagers have to take the water from far places. There is one post office and one telephone office. There is one primary health sub centre with three workers which provide facility to women and children. People prefer to go to local private doctors instead of hospitals because of the distance of nearest hospital; Raninagar is more than 12 km away from the village. The nearest market centres from the village are Kaharpara and Sekhpara.

#### **SUSTAINABLE LIVELIHOOD FRAMEWORK**

Concept of sustainable household is much complex. It is a people centred, holistic and dynamic approach. Sustainable livelihoods perspective has provide insight into the asset "management" at the household level, helping to draw out relationship of it with food security. Sustainable livelihood Frame work given by DFID have been analyse here. Livelihood Assets have been classified into five capitals namely human, Physical, natural, social and financial.

Fig: 1 Sustainable Livelihood Framework



Source: DFID guidance sheet, 2002

**ASSET PENTAGON**

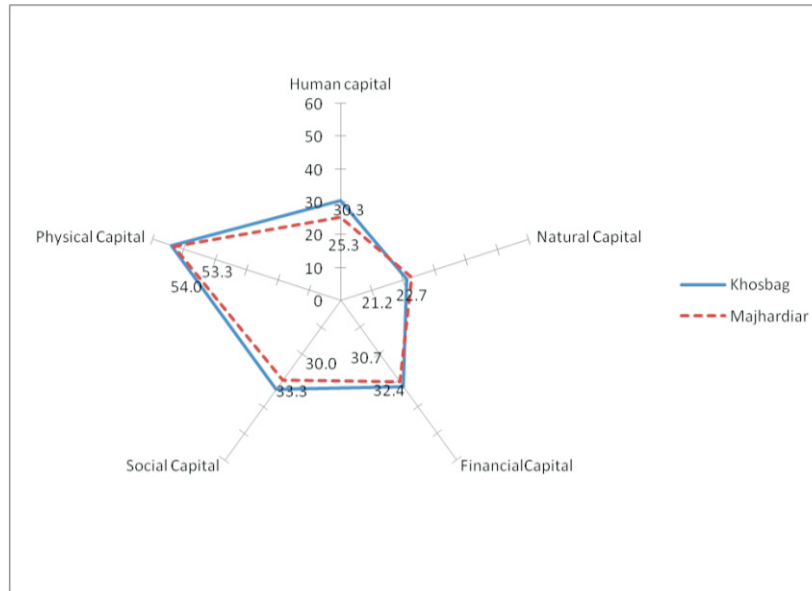
Sustainable Livelihood Approach adopted by different donor agency like DFID, CARE etc has developed five assets base i.e. Human Capital, Natural Capital, Physical Capital, Social and Financial capitals. When all the assets are in proportionate than the livelihood is sustainable. A quick glance of fig 2 representing the asset pentagon indicates that all the assets possession are below 55 per cent that depicts the poor picture of the villages. In Khoshbagh human capital (30.3) is higher than the Majhardiar (25.3). Educational facility is more in Khoshbagh due to its close proximity to Berhampur and Lalbagh towns. In Khoshbagh Natural Capital (21.1) is lower than Majhardiar (22.7) due to non availability of common property resources and small size of land holding. Physical capital is above 50 per cent in both the villages. Nearly one third households of Khoshbagh have access to financial (32.4) and Social (33.3) capital, these are slightly lower in Majhardiar i.e. 30.7 per cent (financial) and 30 per cent (social). On an average it is found that Livelihood asset is more in Khoshbagh than Majhardiar due to its locational advantage of being near close urban areas.

Table: 1 Livelihood assets of Khoshbagh and Majhardiar Village

Capitals	Khoshbagh	Majhardiar
Human capital	30.3	25.3
Natural Capital	21.2	22.7
Financial Capital	32.4	30.7
Social Capital	33.3	30.0
Physical Capital	54	53.3

Source: Based on household level Survey, 2013.

**Fig: 2 Livelihood Pentagon of Khosbagh and Majhardiar Village**



Source: Based on Household survey, 2013.

**CAPITAL ANALYSIS**

To reach the root of the problem a detail analysis of five capital assets are needed. So an attempt has been made for that purpose.

**Table :2: Indicator of Five Capitals**

		Khosbagh	Majhardiar
Human capital	Literacy rate	62.6	53.4
	Dependency ratio	1.4	2.0
	Primary education	30.0	20.6
	Secondary education	23.7	22.9
	Senior secondary education	3.1	7.6
	Graduate and others	5.9	2.3
	Training & traditional skill	26.7	36.7
	No diseases	53.3	26.7
	Normal weight	66.4	55.7
		30.3	25.3
	Natural Capital	land availability	53.0
below 10 katha		20.0	30.0
10.1-20 katha		16.7	7.0
20.1-30 katha		6.3	10.0
above 30 katha		10.0	10.0
Financial Capital		21.2	22.7
	Livestock	70.0	73.3
	Saving	46.0	33.0
	Income generating assets	43.0	39.0
	0-500 (Rs)	6.7	26.7
	501-1000 (Rs)	33.3	46.7
	1001-1500 (Rs)	40.0	10.0
	1501-2000 (Rs)	10.0	10.0
	>2001 (Rs)	10.0	6.7
	32.4	30.7	

Social Capital	relative at vicinity	66.7	50.0
	T.V	36.0	13.3
	Newspaper	15.0	3.3
	Neighbour	43.0	80.0
	Others	6.0	3.3
		33.3	30.0
Physical Capital	Toilet	56.7	50.0
	Pucca houses	46.7	33.3
	Electricity	76.7	50.0
	Safe drinking water	36.0	80.0
		54.0	53.3

Source: Based on household level Survey,2013.

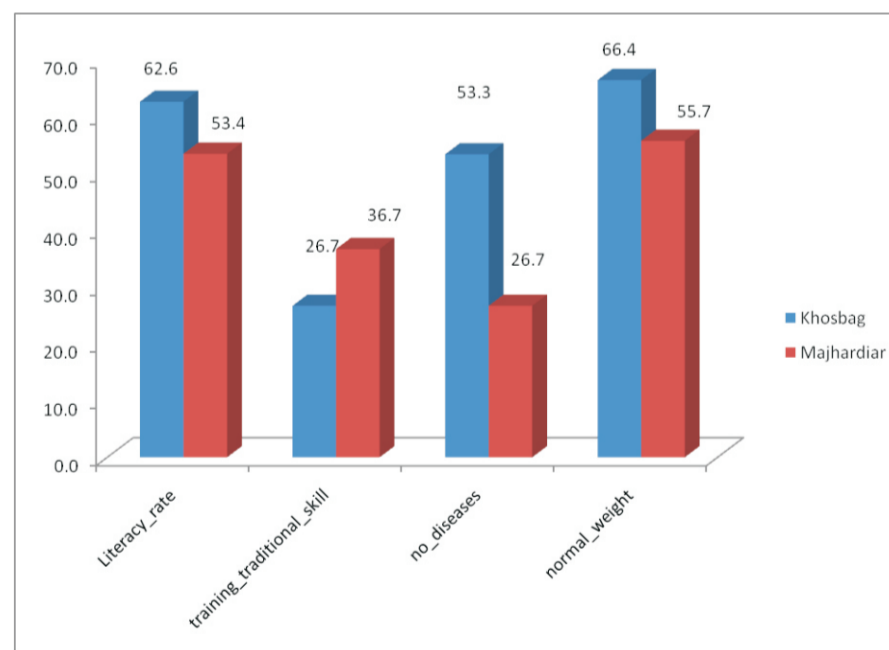
### HUMAN CAPITAL

Human capital is one of the most important and major assets which determines the other assets. Human health, education (primary, secondary, senior secondary, graduate and other), family size, dependency ratio, and training and traditional knowledge in different field etc are considered to be the indicators of human capitals.

#### Education

Education is one of the most important factors which control a livelihood. An educated person has more opportunities of getting jobs and capability to cope with the negative situation. Thus livelihood of an educated family is more sustainable. Literacy rate is fairly good in Murshidabad District as it is 67.53 per cent as per 2011 census. Khoshbagh village has literacy rate of 62.59 per cent while Majhardiar has lower literacy rate of 53.43 per cent. As far as level of educational attainment is concerned it is found that in Khoshbagh only 30 per cent population have primary education, 24 per cent have secondary and 3 per cent senior secondary and 6 percent have graduate and other educational qualification. On the other hand in Majhardiar the level of education is comparatively lower than Khoshbagh as it is 20 per cent in the case of Primary education, 23 per cent in secondary, 7 per cent senior secondary and 2 per cent for graduate and others. It is due to the remoteness of the village Majhardiar where people are not interested to send their children to school. Population in higher education represent more sustainability. So in terms of education Khoshbagh is rather more sustainable than Majhardiar.

Fig: 2 Human Capitals of Khoshbagh and Majhardiar village



Source: Based on household level Survey, 2013.



**Training and Traditional Skill:**

Knowledge about any type of special work such as training like computer, electronics, health training, driving etc or traditional work like mat (pati) work, kantha stich, bamboo work and different type of household activities etc is very helpful to strengthen and diversify livelihoods. Only 26.6 per cent population of Khoshbagh have training and traditional skill mainly of computer, electronics and jute work. 36 per cent population in Majhardiar have knowledge of traditional skills of bamboo work, Date Palm jaggery (gur) making, jute work, fishing etc. As this area is backward, people have diversified their economic activities.

**Health:**

It is said that health is the important wealth. When health of people is not in good condition it is considered to be major threat to the well being. People living in rural areas are less conscious about their health. By measuring weight and height of individual, BMI has been calculated. It is apparent from table 1 that 66 per cent population of Khoshbagh and 55 per cent population of Majhardiar have normal BMI i.e. above 18.5 (given by ICMR). Lower proportion of normal BMI in Majhardiar depict the scenario of poverty and low health standard. In the month of January 2013, the time period for survey, 53 per cent household of Khoshbagh and 26 per cent house hold of Majhardiar were diseases free which indicates that in Majhardiar people are less conscious about their health.

**Dependency Ratio**

How many family members are dependent on one earning members is represented by dependency ratio. A high dependency ratio with low income leads to poverty while a low dependency ratio as a positive indicator for assets development. In Khoshbagh the dependency ratio is 1:1.45 i.e. approximately 1.45 person depends on one income earning member. Majhardiar show a higher dependency ratio i.e 1:1.97. Nearly two people depends on one earning member because of large family size and large number of child population.

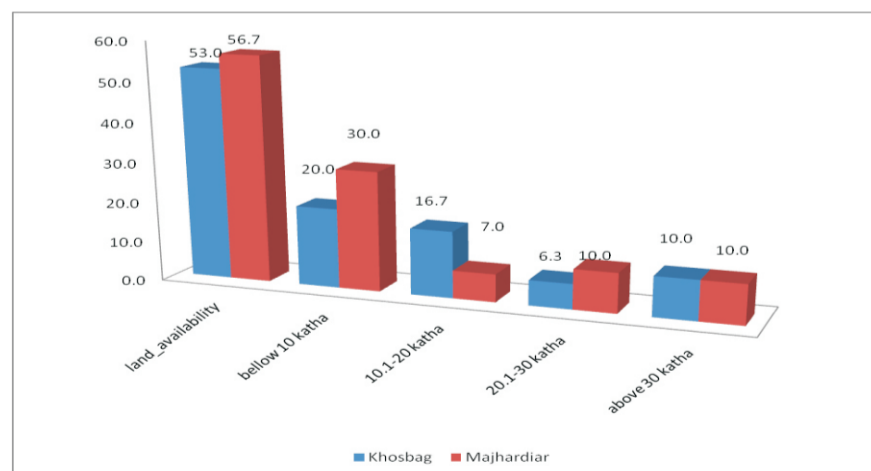
**NATURL CAPITAL**

Natural capital is the term used for the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, etc.). Availability of land and size of land holding have been taken into consideration to indicate natural capital.

**Land Availability:**

Land is the most important indicator to represent natural as well as financial capital because land is an asset which can be sold at the time of emergency and used for some productive activity to generate income. Household which poses land have better financial condition. In both the villages slightly more than half of the household have land. Nearly 53 Per cent households in Khoshbagh and 56.6 per cent in Majhardiar have land.

**Fig: 3 Natural Capitals of Khoshbagh and Majhardiar village**



Source: Based on household level Survey, 2013.

**Size of land holding:**

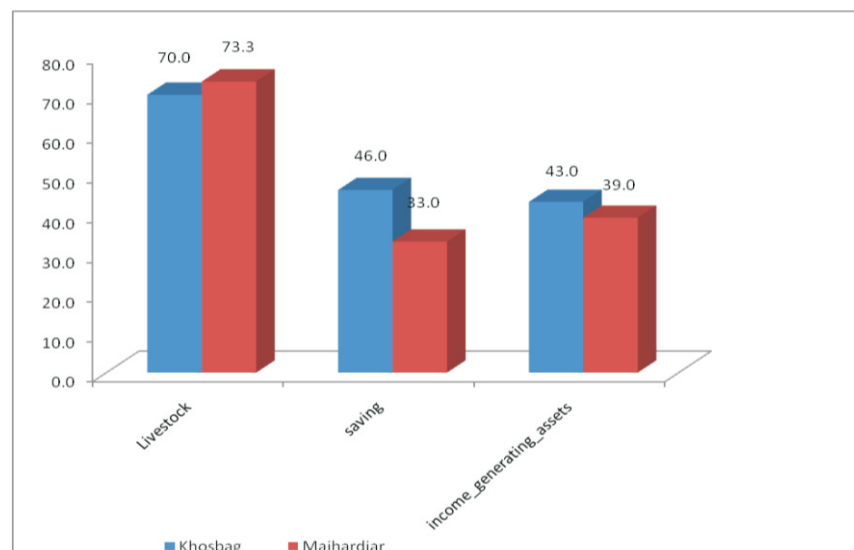
Availability of land dose not presents the real picture of economic status of the households. It is analysed in terms of size of landholding. In Khoshbagh 20 percent households have below 10 katha land (20 katha=1 bigha, 60 katha=1 acar and 150 katha= 1 hectare),16.6 per cent households have 10.1-20 katha land,6.3 percent household have access to 20.1 to 30 katha of land and 10 per cent households have access to above 30.1 katha of land. The household with more than 30 katha of land represent fairly enough land resource for meeting the basic need of a family.

In Majhardiar Per capita land holding depicts a slightly different picture where 23 per cent households have less than 10 katha of land, where 7 per cent households have 10.1 to 20 per cent of land holdings, 10 per cent households have access to 20.1 to 30 katha of land. Only 10 per cent households are similar as Khoshbagh have above 30 katha of land.

**FINANCIAL CAPITAL**

Financial capital represents the financial resource that people use to achieve their livelihood goals. It may be livestock, saving in the form of cash, jewellery, property etc, or income generating assets like machinery, ponds, trees, garden, van, rickshaw etc and most importantly per capita income. Financial asset is the most important assets which determine the other assets. But it is not necessary that financial asset should always be positively related with other assets at the time of survey because it may be used for education ,dowry, health, housing etc .So only different type of saving have been taken into account. However, it is also the asset that tends to be the least available to the poor.

**Fig:4 Financial Capitals of Khoshbagh and Majhardiar village**



Source: Based on household level Survey, 2013.

**Liquidity of Saving:**

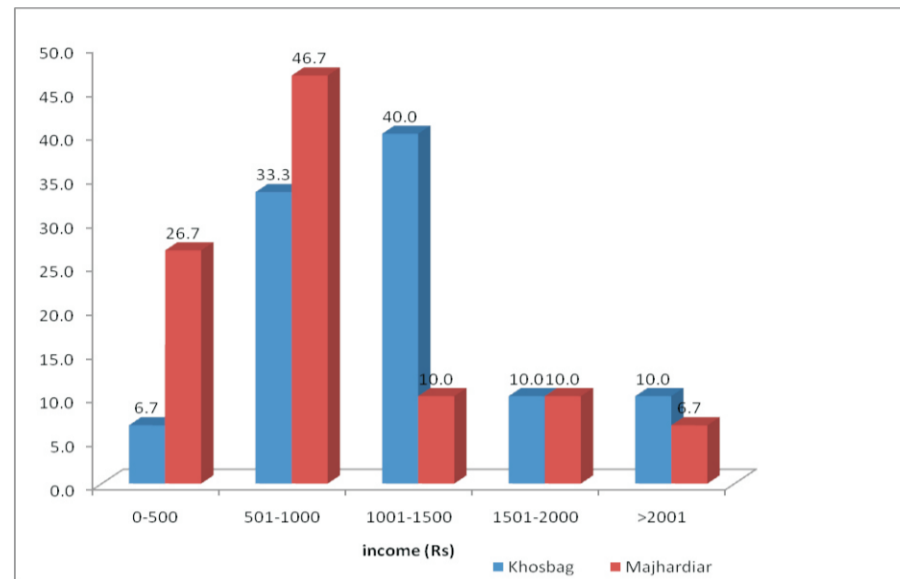
Saving is a type of stock. The more is the saving the less is the liability of reliance to others. Saving may be of different form like cash in hand, Bank deposit, jewellery, livestock and property. About 70 per cent household in Khoshbagh and 73 per cent in Majhardiar have livestock like buffalo, cow, goat and poultry .Goats and poultry are reared in the home yard. Nearly 46 per cent in Khoshbagh and 33 per cent households in Majhardiar save as cash on hand or deposit in SHG, as the amount of saving is low it is not deposited in the Banks.

**Income:**

Income is regular inflow of money either in the form of earned income, pension or remittances. In Khoshbagh nearly two fifth of the households (40 per cent ) have per capita income below Rs 1001, half of the households have per capita income Rs 1001 to 2000 and only 10 per cent have per capita income more than Rs 2001.

On the other hand in Majhardiar the situation is some how different. Most of the households i.e. nearly 73 per cent have per capita income less than Rs 1000. 20 per cent households have income between Rs 1001 to 2000 and only 7 per cent have income more than Rs 2001.

**Fig: 5 Per Capita Income of Khosbagh and Majhardiar**

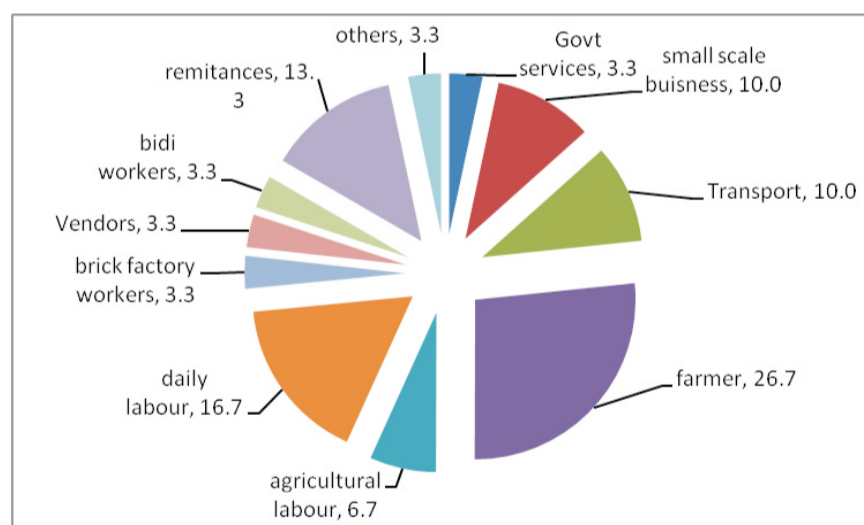


Source: Based on household level Survey, 2013.

**Sources of Income:**

An analysis of source wise income indicates the degree of both sustainability of livelihoods as well as vulnerability. Households which earn from regular and permanent sources are more secure than the others who depend upon their irregular sources of income.

**Fig:6 Sources of Livelihoods in Khosbagh**



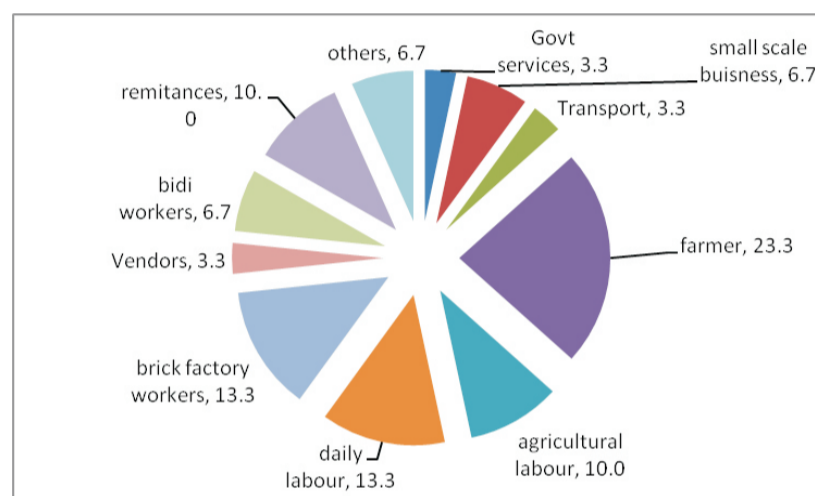
Source: Based on household level Survey

In Khosbagh more than one fourth (26.7) of the households are engaged in agricultural activities as farmers, 16.7 per cent households work as daily labour, 10 per cent households have small scale business of grocery shops, vegetable shops, poultry farms etc, 10 per cent households are engaged in transportation sector like Rickshaw pulling, Van pulling, Driving other cars etc. Very low proportion of households have their main occupation as Govt Services (3.3), Brick factory workers, vendors (3.3), bidi workers (3.3) and other activities (3.3) including fishing, livestock rearing, private company jobs, tuition etc. About 13.3 per cent households depends on remittances sent by their male members who migrated for better income opportunities, as a main source of livelihoods.

The occupational structure of Majhardiar (fig 7) is slightly different from Khosbagh. In this village only 23.3 per

cent households are engaged in agriculture as farmers and 10 per cent as agricultural labours. Livelihoods of Brick factory workers (13.3) and daily labour (13.3) in different constructional activities are not sustainable who always feel anxiety for food for next day because the income is not secure. Most vulnerable livelihoods are the livelihoods of those people who have their main source of livelihoods as Vendors (3.3), Bidi workers (6.7), remittances (10), Small scale business (6.7) like grocery shops, Egg suppliers, Tendu leaves (for bidi making) suppliers, silk material suppliers, bamboo business, jute business and puffed rice business etc. Other activities (6.7) which include fishing, bamboo work, embroidery work etc are higher than Khoshbagh. Only 3.3 per cent people are engaged in govt services which is the most secure livelihoods.

Fig: 7 Sources of Livelihoods in Majhardiar



Source: Based on household level Survey, 2013.

#### Income generating assets:

Income generating assets comprises of different type of assets like machines ,gardens, Trees etc. which are used for earning Khoshbagh has higher proportion of household (43 per cent) to with income generating assets. As the land is not fertile in Khoshbagh there are large mango gardens. In Majhardiar only 39 per cent people have income generating asset. These assets varied from vans, rickshaws, rented land, sewing machines, agricultural implements, to fruits gardens, trees of seasonal fruits and vegetables like drumstick, lemon, pomelo (batabi lebu), papaya, Date tree etc.

#### SOCIAL CAPITAL

Social Capital is the source of social resource to which people can rely at the time of scarcity. Relative at the neighbour and neighbourhood relationship is an important social resource. Positive social capital builds a positive network of contact.

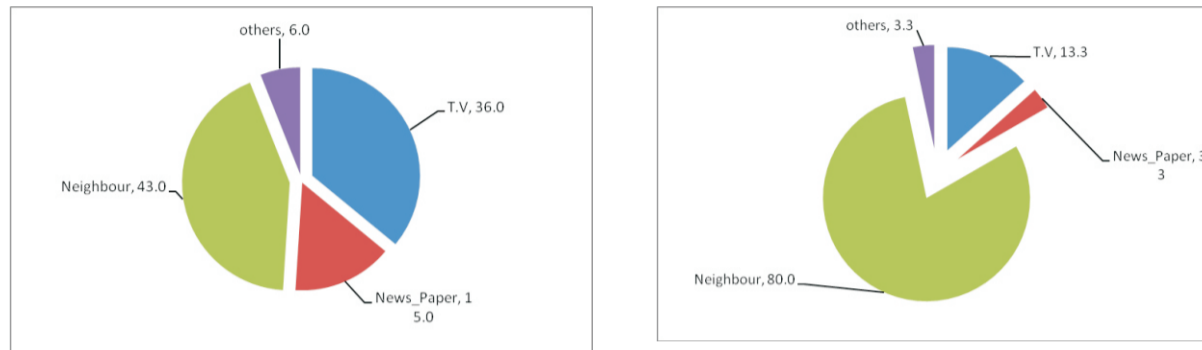
#### Relative at Neighbour

Relatives either blood relatives or marital relatives always help people to build the other assets and cope with scarcity situation. If these relatives live at neighbourhood area, they are of great help. In Khoshbagh 67 per cent households have relatives at their neighbour while in Majhardiar it is half of the households (nearly 50 per cent where relatives live at the neighbourhood. It is due to displacement of households by regular floods in Sialmari and erosion of Padma River. People are compelled to migrate in bhangar area.

#### Source of Information

This is another indicator to analyse the contact of the households to the outside world. People get information about the market price, weather forecast and other govt schemes and its opportunities. sources. This sources has been broadly divided into four categories as TV, news paper, friends and relatives and others. In Khoshbagh about 36 per cent households have TV as a source of information, nearly 43 per cent get information from neighbour, friends and relatives, only 15 percent have newspaper readership which represent a very low level of educational and economic development (fig 8). Almost 6 percent households collect information from other sources like radio, school teacher, and village head, ration shop, tea stall etc.

**Fig:8 Source of Information in Khoshbagh and Majhardiar Village**



Source: Based on household level Survey, 2013.

In Majhardiar the situation is different only 14 percent households get information from TV. Though about 43 per cent households have TV sets but they did not watch the news channel, TV has been kept as source of entertainment. 80 per cent households have reported that they came to know about market price and different govt schemes from neighbour and friends and at the tea stall. Only 3 per cent population have news paper readership and remaining 3 per cent collect information from other sources.

#### PHYSICAL CAPITALS

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods. Affordable transport, secure shelter and buildings, adequate water supply and sanitation, cleaner, affordable energy are considered to be most important in the physical asset building. Infrastructure such as roads, rails and telecommunications are key to the integration of the remote areas where many of the poor live. Not only people are able to move between rural and urban areas more easily if the transport infrastructure is good, but they are also more likely to be better informed about opportunities in areas to which they are thinking of migrating, either temporarily or permanently. In household survey only privately owned infrastructure and basic needs have been considered as physical capital.

#### Shelter:

Shelter is one of the basic needs of every human being. It is an indicator of the socio-economic condition of the people. In Khoshbagh nearly half of the households have pucca rooms (46.6 per cent) and remaining 53.4 per cent have kachcha and thatched houses. The households having pucca rooms mostly belong to rich people. In Majhardiar only 33.33 per cent households have pucca houses. These belong to mainly large farmers, businessmen and persons related to illegal smuggling activities. The remaining 66 per cent households are kachcha made up of jute stick, mud walled, tin, bamboo thatched etc.

#### Sanitation facilities:

Sanitation facilities mainly represent the availability of toilet facility. In Khoshbagh only 56.6 per cent households have toilet facility including kachcha, pucca and neighbour's toilet. In Majhardiar half of the households have toilet facilities at their home and remaining half use open field. As a result of govt sponsored Total Sanitary Programme toilet facilities have been increased. Sanitation is a good indicator of health condition of the people. Use of open field and kachcha toilet lead to many infectious diseases which drain other capitals.

#### Electricity

Nowadays electricity is so important that without it human life and activities become standstill. There is a close link between development and power supply (electricity). Nearly three fourth households in Khoshbagh are connected with electricity whereas in Majhardiar half of the households are connected by electricity. Though Government provides electricity connection at lower cost, people are so poor that they are unable to bear the minimum connection cost and its maintenance. Hooking is practiced to avoid the electricity bill.

#### Safe Drinking water

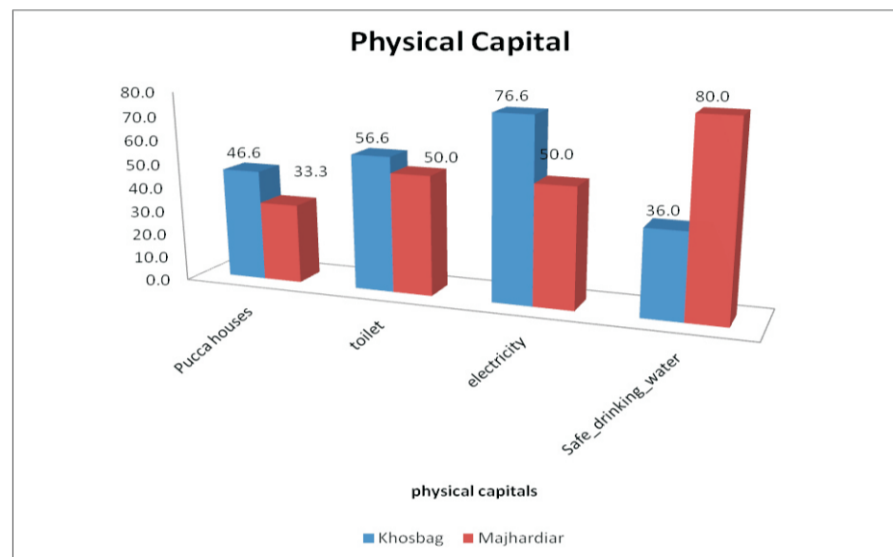
Safe drinking water is necessary for sustenance of life, without water we can not live. Infected and contaminated

water causes many water borne diseases which lead to loss of health as well as other capital also. Khoshbagh is arsenic affected village and only 36 per cent households have access to safe drinking water and remaining depends on Govt hand pump which is also not maintained properly. On the other hand, almost 80 per cent households of Majhardiar have access to safe drinking water.

**Per Capita Room:**

Per capita room is an indicator of the availability of personal space which shows the socio economic status of people. Two villages depict slightly different picture of per capita room availability. In Khoshbagh on an average per capita room is 0.33 which means one room is share by three persons while in Majhardiar it is 0.45.

**Fig: 9 Physical Capitals of Khoshbagh and Majhardiar Village**



Source: Based on household level Survey, 2013.

**Vulnerability Context:**

When Chambers (1989) define vulnerability, he distinguishes between two side of vulnerability,an external side which means exposure to stress,shocks and risks and an internal side which means the capacity of the people to successfully cope with these risk,stress and shocks.In present household level analysis natural disaster,shocks and seasonality have been considered as the external side of vulnerability.Internal side of Vulnerability is good measure to analyse the sustainability of the livelihoods because it is the ability of the people to cope with the bad situation.Vulnerability is always negatively related with sustainability.The more is the vulnerability the lower is the sustainability.Vulnerability may be natural and man made.Drought,flood,storms etc are natural hazards which adversely affect life and livelihood of people.It is the poor who suffer the most due to less availability of assets and lower scope of coping strategy for them.Here two villages,Khoshbagh and Majhardiar,being located at two different location,face two different type of natural hazards.Khoshbagh is affected by drought and Majhardiar is by flood.Loss is more or less similar in the two villages.Nearly 76.6 per cent households in Majhardiar are affected by disasters mainly floods(50 per cent).In comparison to Majhardiar Khoshbagh has proportionally lower population suffering from vulnerability (30 per cent).In Majhardiar mainly the loss is property loss,livestock loss and crop loss like jute.As this village is lying at the border of bangladesh livestock are mostly stolen by poachers.

**Structure and Process:**

Structure is over all situation and socio-politico-economic background of the area where people live.It has a great importance because social and political structures determine the level of development and capability of the people to cope with the vulnerability situation.Policies and programmes of different level of govt such as central govt,state govt ,local self govt,NGOs,microfinance groups play a vital role in mitigating the disasters. In this context three indicators like self help group,BPL population and job card holders have been taken into account.

### Members of SHG

Self Help Groups help people in different ways. One of the major works done by them are they provide loan to the needy poor people. People join SGH because of the need of getting support for diversification of livelihood. In other words it can be said that it is a major step towards livelihood diversification which help people to cope with vulnerable situation. In Khoshbagh only 13.3 per cent households are part of SHG like Bandhan and Sania. In comparison to Khoishbagh, Majhardiar have more household i.e one fifth of the total household is under SHG because of the fact that people face more problems and need help from SHG.

**Table:2 Structure and Process and Disasters**

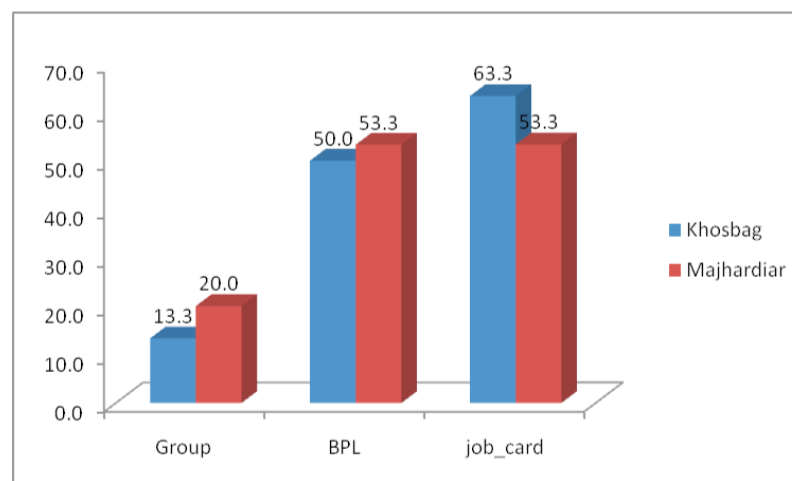
	Khoshbagh	Majhardiar
SHG	13.3	20
BPL	50	53.3
job card	63.3	53.3
Average	42.2	40
Disaster	36.6	76.6

Source: Based on household level Survey, 2013.

### BPL Card Holders

BPL population is a good indicator of poverty. The new poverty estimates for 2011-12, by the Commission's affidavit in the Supreme Court in October is the BPL cap was pegged at an expenditure of Rs. 32 and Rs. 26 by an individual in the urban and rural areas respectively at the going rate of inflation in 2010-11. (the Hindu, 20th March 2012). In Khoshbagh about half of the households have BPL card, whereas in Majhardiar Bpl households are about 53.3 percent. There are many households which are actually living below poverty line but do not get the facility of BPL as they have no BPL card.

**Fig:10 SHG, BPL and Job card holder in Khoshbagh and Majhardiar Village**



Source: Based on household level Survey, 2013.

### Job card Holders

The National Rural Employment Guarantee Act (NREGA), which was introduced in 2006 with the objective of providing hundred days of employment in every financial year to adult members of any rural household willing to do unskilled manual work at the wage rate fixed by the act, has been extended to the entire rural area of India. With the enrolment, the household member get a job card and it is their right to get atleast 100 days work. In Khoshbagh nearly 63.3 per cent households have job card and in Majhardiar it is about 53.3 per cent which is lower than Khoshbagh. It appears that poverty is low in Majhardiar but it is not so. People need the job card but are unable to get it due to unawareness and illiteracy.

### **Livelihood Strategies Adopted**

Livelihood Strategies comprise the range and combination of activities and choices that people undertake in order to achieve their livelihood goals. They have to be understood as a dynamic process in which people combine activities to meet their needs at different levels and times. Their direct dependence on asset status and transforming structures and processes becomes clear through the position they occupy within the framework. A changing asset status may faster or hinder other strategies depending on the policies and institutions at work. On the basis of their personal goals, their resource base and their understanding of the options available, different categories of households – poor and less poor develop and pursue different livelihood strategies. These strategies include short term considerations such as ways of earning a living, coping with shocks and managing risk, as well as longer-term aspirations for children's future and old age. Livelihood strategies can be positive, helping households become more resilient and less vulnerable, or negative when they result in the further erosion and decrease of the asset base. Thus Livelihood Strategies are as important as the livelihood itself. It determine the sustainability of the livelihoods. The more diversitive is the strategies the more sustainable are the livelihoods.

### **Long Term Strategies**

Long term strategies consists of some time taking coping strategies which are helpful against vulnerability. About 29.4 per cent household in Khoshbagh have practiced long term coping strategy as against 33.3 per cent in Majhardiar. A detailed analysis of the strategies adopted are given below.

#### **Agricultural Intensification:**

To cultivate more crop under same land is known as agricultural intensification. It may be multi cropping and animal husbandary together. In Khoshbagh one third of the households (33.33) practiced agricultural intensification by different crop combination for example potato is cultivated with different type of vegetables like ladies finger, kumro, etc. In Majhardiar 36 percent households practiced agricultural intensification. A unique feature of only found in Bengal is that in each and every household there are some drumstick and Banana trees may it be at the road side or backyard. People also use their house roof to climb some vegetables mostly chhal kumro (use for making bari), surjo kumro. In roadside or backyard trees jhinga is cultivated.

#### **Agricultural Extensification:**

Extensification means more and more area should be brought under cultivation. As land holding size is very small and per capita availability of land is very low, agricultural extensification is limited in Khoshbagh where only 23 per cent households practice agricultural extensification by cultivating Mango in large scale and converting waste land into Banana cultivation. In Majhardiar agricultural extensification is practiced only by 3.3 percent households. This is because agriculture is intensively cultivated here and low proportion of land remains fallow due to high fertility of land. Only some land have been put under extensification along the river side.

#### **Income Diversification:**

Income diversification plays an important role in supporting the livelihood of people. Income diversification means household members able to do more than one activities. Knowing more than one work is like an asset because when there is crisis of main occupational activities people may earn from the other activities or sources. In Khoshbagh 40 per cent households have the capability of diversifying their livelihoods. It is more in Majhardiar i.e. nearly 43.3 per cent. There is also seasonal variation of income earning activities. For example In Summer season a person in Majhardiar sell ice cream and in winter he work as daily labour or rag seller. The most important diversification in winter is making of jaggary from date palm (locally known as Khejur Gur). In summer season people work as daily labour in brick field and other small scale buisness also.

Migration:  
Migration is an important coping strategy. People migrate to other place when they have lost everything due to environmental hazards like river erosion, flood, drought etc. or for better opportunities. People from 16.6 per cent household in Khoshbagh have migrated to Kolkata and Kerala as a daily labour for better income opportunities. In Majhardiar the percentage of out migration is as high 46.6 percent which indicate a poorer situation of the village and less income earning oppertunities there.

#### **Work More:**

To cope with the food insecurity and food shortage people work more which means they increase the working hours to generate extra income. It is mainly the daily laboures, biri workers, and brick factory workers who work more for the better livelihoods. In Khoshbagh 33 per cent households work more as against 43 per cent in Majhardiar. It is due to the fact that prevalences of poverty is more in Majhardiar as compared to Khoshbagh.



### Loan From Micro finance

Every people need some money when his income is not enough to meet basic needs or when livelihood is lost due to environmental hazards. Though there are banks to provide loans to needy people but loan is not easily available to the poor people. Hence Micro finance play a positive role in such situation. An important Micro finance is Bandhan which reaches to people to provide loan on easy basis. Most of the loan is taken for health purpose. Sometime it is taken for purchasing livestock. Nearly 30 per cent households in Khoshbagh and 20 per cent households in Majhardiar have taken loan from micro finance.

### Short Term Strategy

Short term Strategies include those strategies which people adopt at the time of insecurity like shortage of food and emergency need of money. In Khoshbagh near about 33 per cent households take fewer meal, 26 per cent households prefer to take less preferred variety of food items, 23 per cent households take less nutritious food which is locally available, 63 per cent households borrow cash to fulfill the immediate needs. On the other hand in Majhardiar nearly 50 per cent households take fewer meal, 40 per cent prefer less preferred varieties, 33 per cent prefer to take less nutritious diet and 76 per cent borrow cash from micro finance and relatives to maintain existing livelihoods in the time of crisis.

**Table:3 Livelihood Strategies adopted by the people**

	Strategy	Khoshbagh	Majhardiar
Long term Strategies	Agricultural intensification	33.3	36.7
	Agricultural Extensification	23.3	3.3
	Income diversification	40.0	43.3
	Migration	16.7	46.7
	Work More	33.3	43.3
	loan from micro finance	30.0	20.0
Short term strategies		29.4	32.2
	Fewer meal	33.3	50.0
	Less preferred variety	26.7	40.0
	Less nutritious diet	23.3	33.3
	Children sent to relatives	6.7	10.0
	Moving to cheaper food	26.7	40.0
	sell non food crops	20.0	33.3
	sell assets	26.7	30.0
	Borrow cash	63.3	76.7
	Postpone debt payment	26.7	30.0
	Reduce non food spending	16.7	33.3
	Remittances	23.3	30.0
	Begging	3.3	6.7
	food aid from neighbour	16.7	20.0
		24.0	33.8

Source: Based on household level Survey, 2013.

### Livelihood Outcomes

Livelihood outcomes are the achievements of livelihood strategies, such as more income (e.g. cash), increased well-being (e.g. non material goods, like self-esteem, health status, access to services, sense of inclusion), reduced vulnerability (e.g. better resilience through increase in asset status), improved food security (e.g. increase in financial capital in order to buy food) and a more sustainable use of natural resources (e.g. appropriate property rights). Outcomes help us to understand the 'output' of the current configuration of factors within the livelihood framework, they demonstrate what motivates household's members to act as they do and what their priorities are. They might give us an idea of how people are likely to respond to new opportunities and which performance indicators should be used to assess support activity. Livelihood Outcomes directly influence the assets and change dynamically their level - the form of the pentagon -, offering a new starting point for other strategies and outcomes.

Livelihoods outcome is the desired quality of livelihoods which vary from household to household on the basis of socio economic background. Outcome depict the picture of the quality of livelihoods. Outcome may be positive or negative. In

the present study for analysing sustainable livelihoods positive indicators such as food security, food storage and Insurance have been taken into consideration.

**Food Storage:**

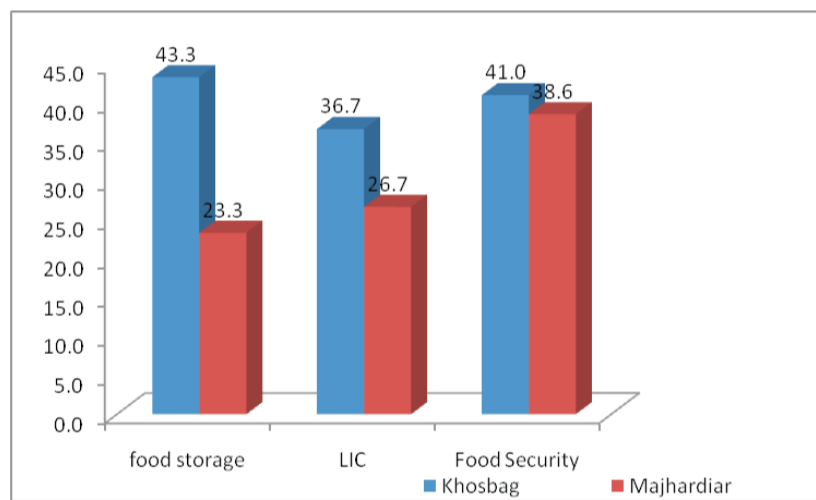
Food storage indicate the level of saving and self dependency. Storage of food items like cereals and pulses have been taken into consideration. Nearly 20 per cent households in Khoshbagh save food for atleast one month as against 15 per cent households in Majhardiar. Storage of food is very low as people have low per capita income.

**Table 4: Livelihood outcomes in Khoshbagh and Majhardiar Village**

Outcomes	Khoshbagh	Majhardiar
Food storage	20	15
Insurance	36.7	26.7
Food Security	41.0	38.6

Source: Based on household level Survey, 2013.

**Fig:11 Livelihood Outcomes in Khoshbagh and Majhardiar Villages**



Source: Based on household level Survey, 2013.

**INSURENCE**

People get insure their life and property by depositing some amount of their annual income in insurance company which guarantee to give risk against loss. The insurance company then pay sum insure to the policy head or his nominee. Thus people minimise the risk of their vulnerability against disaster which is an important stumbling of sustainability. However this insurance policy is an indicator of sustainability and concern for future. Mostly educated people have insurance policy in these two villages. Approximately 36.7 per cent households in Khoshbagh and 26.7 per cent households in Majhardiar have insurance.

**Food Security**

Food security refers to the availability of food and one's access to it. A household is considered food-secure when its occupants do not live in hunger or fear of starvation.

Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (1996 World Food Summit).

Food security is one of the most important livelihood outcomes in rural areas where the people work to assure daily food accessibility. Family of daily wage labour depends on day to day working. Household dietary intake of cereals, pulses, fish, meat, milk, and vegetables have been analysed to find out the per capita per day calorie intake. Households

which consume above 2400 per capita per day calorie have been considered as food secure. In Khoshbagh 41 per cent households are food secure. In Majhardiar it is 38 per cent households which are considered to be food secure.

To know the seasonal variation of food security frequency of feeling anxiety for next day food have been analysed which indicate a variation. Only 27 percent in Khoshbagh and 17 per cent in Majhardiar never feel anxiety for food. It indicates that these households are in well off condition than the remaining.

#### SUGGESTION FOR MAKING LIVELIHOOD SUSTAINABLE

The livelihood analysis of two villages depicts a poor condition. Different types of problems arise in the different villages due to its different location. To achieve sustainable livelihood different strategies have been put forward for the two villages.

**Table:5 Composite index of Sustainable Livelihoods**

Livelihood index	Khoshbagh	Majhardiar
Capitals	32.1	30.3
Structure and process	42.2	40.0
Outcomes	40.3	29.5
Strategy	24.6	30.7
Sustainable livelihoods	34.8	32.6

Source: Based on household level Survey, 2013.

The above table reveals that there is slight difference in terms of Capitals, structure and processes in both the villages. Livelihood strategies are more diversified in Majhardiar (30.7) than Khoshbagh (24.6). As far as livelihood outcome is concerned it is found that Khoshbagh has more households with positive livelihood outcomes indicating a more developed situation than Majhardiar which has only 29.5 per cent households with positive outcomes. Overall only livelihoods of 34.8 per cent households in Khoshbagh and 32.6 per cent in Majhardiar are sustainable. It means that livelihoods of more than two-thirds of the households are vulnerable. To cope with this unsustainable livelihoods, some suggestions have been put forward. Khoshbagh, though situated at the bank of river Bhagirathi, does not face flood. It is mainly a drought-prone village. This village has also poor road network connectivity with nearby towns. Soil is also not fertile so people have to work hard to produce from the field. Mainly Rice, wheat, mustard and vegetables are cultivated. Agricultural fields have been converted to Mango garden as it is not labour and capital intensive and people are engaged in other activities.

On the other hand Majhardiar, a remote village, faces much more problems than Khoshbagh. This village has been facing problems of Flood since 50 to 60 years. People who have agricultural land to the Bangladesh border are prevented from cultivating jute for security purposes. As jute is the important cash crop farmers have to face economic loss. Therefore the livelihoods are more vulnerable in this village. People try hard to arrange daily bread.

#### CONCLUSION AND SUGGESTION

The present study provides an in-depth assessment of livelihoods and its different aspects to find out whether the livelihood is sustainable or not and suggest some strategies for making them sustainable of two economically backward villages of Murshidabad district of West Bengal. The study reveals the dependence of the poor people and different assets and coping capacity of the rural people.

A livelihood can be classified as sustainable, when it is resilient in the face of external shocks and stresses, when it is not dependent upon external support, when it is able to maintain the long-term productivity of natural resources and when it does not undermine the livelihood options of others. An in-depth analysis of the study reveals that both the villages under investigation are very poor in terms of infrastructural facilities. On an average only one-third of the households (33.7 per cent) of study area are sustainable. In this context the situation of Khoshbagh is slightly better than Majhardiar. Nearly 34.8 per cent households of Khoshbagh and 32.6 per cent in Majhardiar can cope with vulnerable situations. It is clear from the foregoing analysis that both the villages have their own problems. The major hindrances in achieving sustainable livelihood to the people of Khoshbagh are its drought-proneness, arsenic-contaminated ground water, less fertile soil and out-migration of income-earning people. Livelihood of Majhardiar is more vulnerable because of its flood-proneness.

The World Bank estimated recently that around 75 per cent of the world's poor people reside in rural space. Rural poor are the most vulnerable community and they need secure access to productive ecosystems as well as the security of a healthy environment in order to create and sustain their livelihoods. The sustainable livelihood framework is a very useful instrument for unpacking the macro-meso-micro policy linkages.

The central theme of sustainable livelihoods is lesser resilience on others, it is only possible when people's livelihood is

supported by five type of capitals strongly. As rural people generally have lower purchasing power Government should take steps to build up the financial capital and ensure regular flow of income first as it is the most important assets which strengthen other assets. To make the livelihood sustainable most important is to make the livelihood resilient to vulnerability. Sustainable livelihoods for common people will only become reality when Govt. will take initiative and people will actively take participate in educational and other developmental activities.

Some ideas have been put forward for the development of this village and making livelihood sustainable.

- i. Majhardiar is located along the river course and affected by recurrent flood which adversely affect the life and livelihood of the people, therefore flood control measure should be the top priority for attaining sustainable livelihood.
- ii. As the river water exceed its limit and flooded the nearby area in rainy seasons, if the extra water is stored in a tank than that water would be used for irrigation purpose at the lean seasons and pisciculture would be developed.
- iii. Government incentives should be provided for Rain water harvesting and dig well method which are two important measure to provide naturally arsenic free water to the villagers of Majhardiar.
- iv. As Khoshbagh is a historical village with the cemetery of Nawab Alibardi Khan and Siraj-ud-dullah, proper infrastructural facilities such as pucca road, school, hospitals etc. should be developed for expanding itself as a tourist spot.

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