LIVELIHOOD STATUS OF FARM WOMEN IN BHADRAK DISTRICT OF ODISHA STATE

THESIS

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Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
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By

SUBHASHREE MALIK

DEPARTMENT OF EXTENSION EDUCATION
POST GRADUATE INSTITUTE, AKOLA

DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH,
KRISHINAGAR PO, AKOLA (MS) 444 104

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DECLARATION OF STUDENT

I hereby declare that the experimental work and its interpretation of the Thesis entitled **"LIVELIHOOD STATUS OF FARM WOMEN IN BHADRAK DISTRICT OF ODISHA STATE"** or part thereof has neither been submitted for any other degree or diploma of any university, nor the data have been derived from any thesis / publication of any university or scientific organization. The source of materials used and all assistance received during the course of investigation have been duly acknowledged.

Place: Akola

Date: 02/08/2016

(Subhashree Malik)

Enrolment No.MM-2820

CERTIFICATE

This is to certify that the thesis entitled **"LIVELIHOOD STATUS OF FARM WOMEN IN BHADRAK DISTRICT OF ODISHA STATE"** submitted in partial fulfilment of the requirement for the degree of **"Master of Science in Agriculture (Extension Education)"** of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **Subhashree Malik** under my guidance and supervision.

The subject of the thesis has been approved by the Student's Advisory Committee.

Place: Akola

Date: 02/08/2016

Dr. P.P.Wankhade
Chairman,
Advisory Committee

Countersigned

Associate Dean,
Post Graduate Institute,
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

THESIS APPROVED BY THE STUDENT'S ADVISORY COMMITTEE INCLUDING EXTERNAL EXAMINER (AFTER VIVA-VOCE)

1. Chairman (Dr.P.P.Wankhade)
2. Member (Dr.R.T. Katole)
3. Member (Dr.A.S.Tingre)
4. External Member (Dr. N.M. Kale)

(A)

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%	-	Per cent
Agri.	-	Agriculture
Agril.	-	Agricultural
DFID	-	Department for International Development
Educ.	-	Education
Et al.	–	et alia (all others)
Extn.	-	Extension
FAO	-	Food and Agriculture Organization
Fig.	-	Figure
GOI	-	Government of India
ha.	-	Hectare
i.e.	-	That is
J.	-	Journal
No.	-	Number
Res.	-	Research
Rev.	-	Review
Rs.	-	Rupees
Sci.	–	Science
Std.	-	Standard
UN	-	United Nations
Univ.	-	University
Unpub.	-	Unpublished
Viz.	-	Namely
Vol.	-	Volume

(D) THESIS ABSTRACT

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b) Name of student	:	Subhashree Malik
c) Name and Address of Major Advisor	:	Dr. P.P.Wankhade Assistant Professor, Department of Extension Education, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.)–4441004.
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j) Signature, Name and Address of forwarding Authority	:	(DMMaoker) Head, Department of Extension Education, Dr.Panjabrao Deshmukh Krishi Vidyapeeth, Akola. (MS)

ABSTRACT

A study on Livelihood status of farm women in Bhadrak district of Odisha state was undertaken during 2015-16. Sample consisted of 100 respondents were selected proportionately from randomly selected from Dhamnagar and Bhandaripokhari tahsil of Bhadrak district Odish state. The data was collected by personal interview method using pre-tested interview schedule.

The distribution pertaining to age of the respondents indicate that higher proportion of respondents (62.00%) belong to middle age category. It was found that 42.00 per cent of the respondents were illiterate. The family size clearly explains that nearly two-third of the respondents (64.00%) had possessed large family size i.e. above 7 members. Vast majority of the respondents (97.00%) were noticed in marginal land holding category. Maximum (42.00%) number of the respondents had medium farming experience. Majority of the respondents (59.00%) had occupation of farming only. Nearly two - third of the respondents (63.00%) had annual income comes under category of Rs. 50589.49/- to Rs. 86382.10/-. Nearly three-fourth of the respondents (71.00%) comes under medium expenditure pattern category (Rs.42543.30/- to Rs.61333.50/-). Above three- fourth of respondents (79.00%) had medium economic motivation. Nearly three-fourth of respondents (73.00%) had employment generation up to 200 days.

Above two third (67.00%) of the respondents had medium human capital. Majority (82.00%) of the respondents had low physical capital. Two – third (65.00%) of the respondents had low natural capital. Majority (82.00%) of the respondents had low social capital. Majority (84.00%) of the respondents had low financial capital. Three – fourth (71.00%) had low livelihood status.

It is vivid from the study that among the personal, socio-economic and psychological characteristics out of 10 selected variables, annual income and expenditure pattern shows positive and significant correlation with overall livelihood status of farm women at 0.01% level of probability and variables such as family size, land holding and occupational status, also showed positive and significant correlation with overall livelihood status of farm women at 0.05% of probability.

In case of other variables like age, education, farming experience, economic motivation and employment generation are non-significant relationship with livelihood status of farm women.

CHAPTER I

INTRODUCTION

1.1 Background information

"Just a bird could not fly with its one wing only,
A nation could not march forward if women are left behind "

- Swami Vivekananda

Agriculture is the backbone of Indian economy in terms of income, employment generation and ensuring food and nutritional security. It is economically and socially vital for India as it contributes 23 per cent to GDP, feeds a billion people and employs 66 per cent of the workforce.

However, the status of the vast majority of the farming communities filled with misery, illiteracy, socio-economic backwardness, vagaries of monsoon, increasing input costs, lack of timely credit and unfavorable market condition has deprived them of their livelihood securities. This unfavorable trend and livelihood threat needs to be halted and efforts must be made to expand farm women access to livelihood resources. By enabling farm women to have increased access to resources (physical, natural, human, social and financial) the present situation can be remedied. Sustainable livelihood approach envisaged that people should not merely participate, but be in charge of their own development. Lifelong learning attempts to provide this expanded access to livelihood resources by adopting livelihood approach. This livelihood insecurity reduces their bargaining power in all spheres of their life especially in the sphere of financial institutions and markets and also exposes them to vulnerabilities like poverty, malnutrition, increased debt etc. This, in turn leads to loss of entitlements creating increased livelihood insecurity and heightened powerlessness.

It is historical truth that women have been neglected to their position in the family. It is established beyond doubt that farm women plays an important role in agriculture production, but not much attention has been paid by the society and particularly social research workers in studying their

problem in crop production, dairy management, decision making and problems in transferring technology.

Singh *et al.* (2003) studied participation of women in agriculture and found that rural women play a significant role in agricultural activities such as seeding, transplanting, weeding, fertilizer application, plant protection, harvesting, processing, storage, etc. Several of these operations were exclusively carried out by women only. Thus, they directly or indirectly influenced the course of agriculture by participating all above agricultural activities.

Concept of Livelihood

Livelihoods are dynamic and people adapt and change their livelihoods with internal and external stressors. Ultimately, successful livelihoods transform assets into income, dignity, and agency, to improve living conditions, a prerequisite for poverty alleviation (Sen, 1981).

Livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. It is deemed sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities, assets and activities both now and in the future , while not undermining the natural resource base. (Scoones, 1998).

The farm families who have suffered direct losses of their productive, economic, financial, and social assets, through natural disaster or conflict, have the right to protect, recover, improve and develop their livelihoods. Livelihood contributes to food security, prevent dependency, reduce vulnerability, enhance self-reliance and can develop or build a set of specific skills during displacement which may have a positive impact on their well-being and future opportunities. It is the role of a government to work to prevent negative coping strategies amongst the rural population. The development of livelihood opportunities can also impact positively on the security within a farm woman. Employment and the constructive focus which

can arise from it can help to reduce boredom, frustration and levels of criminal activity and violence.

In recent years the Indian government has made huge investments in development of infrastructure like roads, telecommunication, agricultural development etc. It has also passed legislation to benefit rural citizens. For example, under universal service obligation, each village should have a village public telephone installed and maintained by the service providers. Also, the "Right to Information Act" passed was to make the government system accountable to the citizens. However, civil society organizations are often unaware of such legislation and they fail to leverage the benefits. Corporate houses, private business houses and largely urban citizens are making effective use of the provisions. Thus, the benefits are inequitably distributed between the rural and urban areas. This rural-urban divide in accessing infrastructure services coupled with inability of civil society organizations to utilize the existing provisions has contributed to the slow growth of livelihood opportunities in rural areas.

Initial poverty eradication efforts in India concentrated on supply of agricultural technologies, inputs and services that were often 'production' orientated. However, they were not targeted towards the poor or were largely inappropriate to the needs of the poor and the benefits were mostly captured by the wealthy. Later, the approach changed towards 'capacity-building' in sector organizations to equip people and organizations with the skills and resources to do a better job but, overall little has changed since the new skills are not used. All these approaches tended to be sectoral and supply-driven and the results were not very encouraging. The concept of livelihoods and livelihoods analysis emerged in the mid nineties - closely associated with poverty reduction strategies.

Understanding the livelihood systems of the poor is crucial to effective poverty reduction. Livelihoods of the poor can never be understood in any one-track logic - be it economic, social, technical, cultural or political. The livelihood systems are made up of very diverse elements which - taken together - constitute the physical, economic, social and cultural universe

wherein the families live (Hogger, 2006). Thus, the livelihood system is more than just a set of physic economic precondition for continued existence. It also encompasses psychosocial dimensions of experience of living. The livelihoods approach puts households of the poor as its central focus. It takes holistic consideration of things that the poor might be vulnerable to assets and resources that help them thrive and survive policies and institutions that impact their livelihoods, how the poor respond to threats and opportunities and what sort of outcomes the poor aspire to agriculture and allied activities support livelihoods of nearly 70 per cent of India's rural population. In recent years, land based livelihoods of small and marginal farmers are increasingly becoming unsustainable, since their land has not been able to support the family's food requirements and fodder for their cattle. As a result, rural households are forced to look at alternative means for supplementing their livelihoods.

Evolving a methodology for livelihood mapping at micro level in the vulnerability context helps in preparation of suitable strategies and policy interventions. An investigation of livelihood strategies may reveal a wide range of alternatives and options.

As P. Sainath (2004), puts it: "Seldom has policy been so forcefully implemented as in the 1990s. For ten years, governments have assaulted the livelihoods and food security of the poor. That security does not lie in mountains of grain but in millions of jobs and workdays for people". Food security at the national, state or district level does not automatically ensure food security at the household level.

Food security is a subjective concept defined as an individual farm women's own perception as to whether she has been able to support the family's food and fodder requirements adequately round the year using all resources under her control (Hiremath, *et al.* 2004).

Food security is only one (although extremely important) element of livelihood security. But since farm women never make their own decision in a one-track logic, it seems possible that the one-track security based on food alone would have to be enlarged to the more holistic notion of

security of livelihood, or speaking even more simply - life-security. Livelihood security encompasses food security, social security and psychic security. Each one of them has some basic minimum threshold level to achieve and maintain and also must be pursued in a balanced way.

The status of farm women in our society cannot be raised until better opportunities of employment and income are thrown open to them. The fundamental challenges that women's development now faces is to ensure economic empowerment is being sought to be achieved through the instrumentality of women's vocational training and more sophisticated training in technical institutions. In this field, however although a tremendous amount of work has been done, women are still having an unequal opportunity of employment as compare to men.

Women plays a significant and crucial role in agricultural development and allied fields including main crop production, livestock production, horticulture, post harvest operations, agro social forestry, sericulture and fisheries etc. is a fact long taken for granted but also long ignored. The nature and extent of women's involvement in agriculture no doubt varies greatly from region to region.

In recent times the women are playing important role in agricultural occupation as a manager, decision maker and skilled farm worker. Every woman is an entrepreneur as she manages organized and assures responsibilities for running her house.

The GOI ushered in new millennium by declaring the year 2001 as 'women's Empowering Year' to focus on a vision, 'where women are equal partners like men'. The status of women in India has been subjected to many changes over the past few millennia.

National Research Center for Women in Agriculture (NRCWA) has been functioning at Bhubaneswar, Odisha for developing methodologies, for improving livelihood status, for identification of gender implications in farming systems approach and to develop women specific technologies under different production system.

According to Mishra (1980) farm women perform the function of financial management while preparing and following the domestic budget marketing function.

1.2 Importance and need of the study:

A critical analysis of the sustainable livelihood of the farm women and their status in society provide an insight in to the strengths and weakness of the farm women in their endeavour and commitment for enhancing their livelihood options and combating for improvement of livelihood activities through proper policy advocations.

Agriculture is basically family enterprises in which women are fully involved. She is cultivar, she involves in many operational activities but their labor force is neglected as compare to men so it is essential to recognize the current position, their status in society, different problem faced by them and suggestion to improve their livelihood status.

The study results will bring in, it's unique and pioneer recognization that various livelihood assets/ capitals and individual farm women possess and it reveals various livelihood options of the farm women. The present study will be yields variable data on the socio – economic and psychological characteristics of the farm women.

Above all, the problems and suggestions expressed by the respondents will help the planners and policy makers in changing the existing conditions and procedures and other requisites for future challenges of farm women poverty elevation and to design a suitable strategy at micro level for farm women in Odisha.

Farm women's engaged in different activities in farming, still they are neglected. In order to carry out study, a costal district of Odisha named Bhadrak was selected as sample district because of the availability of women agriculture farmers. In Bhadrak total number of cultivators is 150632. Number of female agricultural farmers is 32,312, which comprises of 29.44% of total agricultural farmers in the district. So that present investigation was

carried in Bhadrak district of Odisha state was undertaken with the following specific objectives

1.3 Objectives of study

1. To study the personal, socio-economic and psychological characteristics of farm women.
2. To assess the sustainable rural livelihood status of farm women.
3. To find out the relationship between selected independent variables and livelihood status.
4. To study the problems encountered by farm women in their livelihood.
5. To invite the suggestions by the farm women for better livelihood.

1.4 Hypothesis or Assumptions

Considering the findings of various research studies, the assumed nature of relationship between variables was worked out and following research hypothesis was framed on various aspects of study in accordance with the objectives of the study. The hypothesis framed was presented in null form (Ho) as below.

Ho = There is no significant relationship between selected personal, socio-economic and psychological characteristics of respondents with livelihood status.

1.5 Scope and limitations of study:

Being student research, time and money are the main constraints, which limit the coverage of area and number of respondents to be interview. The study will be restricted to Bhadrak district of Odisha state. As the study will be limited to farm women and the data will be collected from 100 respondents. Therefore limited size of sample may be limitation of study.

As it is true of any scientific investigation, being an academic study conducted by a single investigator, this study had the limitation of time, resources and other facilities. Besides these usual limitations, this study also

suffered from publicity of literature, since previous research studies available in this area are scanty. Despite all the constraints, every care was taken to make the study as objective as far as possible.

CHAPTER II

REVIEW OF LITERATURE

Research is a continuous process for any scientific investigation, previous findings provide basis to the research. The review of literature is one of the important aspects in the research process. It helps the researcher to keep his work going in right and appropriate direction. Hence, an attempt has been made to review the researches and the same have been presented in the following sequence. Similarly, the hypotheses framed and conceptual model developed have also been delineated, as below:

2. A Independent Variables

2.1 Age:

Vanita *et al* (2004) revealed that age of women had non-significant relationship with employment generation.

Bimla *et al* (2004) reported that majority of the women (76.5 per cent) were middle aged.

Varsha Rathod (2006) concluded that majority of farm women in farming belongs to middle and young age category i.e. 30 to 50 years (46%) and up to 35 years (34%) respectively.

Swati Gawande (2007) observed that an overwhelming majority of respondents (85.21%) belong to young age group, (75.49%) middle and old age (60.72%) respectively.

Biradar (2008) reported that, majority (55.83%) of the respondents belonged to middle age group, followed by 34.17 per cent and 10 per cent of respondents belonged to young age and old age categories respectively.

Ereneus (2010) reported that 47.40 per cent of the Tibetan rehabilitants had primary school education.

Kale *et al* (2012) reported that age was non-significant to livelihood status.

Madiwalar (2012) reported that age was non-significant to livelihood status.

Pandey *et al* (2012) observed that majority of farm women belong to the 26 – 52 year age group.

Raksha *et al* (2012) reported that majority of respondents belonged to middle age group (48%), followed by young (46%) and old (6%) age group respectively.

Megha Thakare (2013) concluded that majority of the farm women belonged to middle and young age category i.e. 36 – 50 years (45.00%) and up to 35 years (36.00%).

Lakshmi *et al* (2015) reported that 60 per cent of respondents belong to a middle age group (36 -55 years) as compared to a very less percentage (1.30%) under old age group. The remaining 38.70% belonged to young age group.

2.2 Education:

Chaitnyakumari (2003) reported that education had negatively significant relationship with the income generation activities among tribal women.

Vidya Gunjkar (2005) found that nearly one third of the respondents farm women 32.00 per cent were illiterate.

Varsha Rathod (2006) concluded that majority of respondents *women* had education up to primary level.

Renuka Budihal (2007) observed that 43 per cent of respondents were illiterate, followed by 41.3 per cent being educated up to *primary* and secondary levels (15%).

Swati Gawande (2007) found that majority of the respondents were illiterate (33.82%), primary (39.61%), middle school (47.22%) and high school (57.90%), respectively.

Rathod *et al* (2011) study revealed that 53.33 per cent of farm women were literates while 46.67 per cent of the farm women were illiterates.

Bihari *et al* (2012) reported that 62.00 per cent of respondents were found to be illiterate. Only 12.00 per cent had education above 8^{th} *class.*

Kale *et al* (2012) observed a significant relationship between education and livelihood status at 0.01% level of probability.

Madiwalar (2012) concluded that education was non-significant to overall livelihood status.

Tekale (2012) observed that the relatively higher proportion of respondents (39.00%) had education up to high school level, followed by over one fourth of respondents (29.00%) had primary school *education.* The meagre per cent of respondents (05.00%) were illiterate.

Megha Thakare (2013) concluded that majority (46.00%) of the farm women in secondary education level, followed by 17.00 per cent have primary education.

Lakshmi *et al* (2015) reported that majority of respondents (94.70%) were illiterate and equal percentage of them (2.00%) attended middle and high school each followed by primary school (1.30%).

2.3 Family size:

Purnima (2004) found that 56.25 per cent of the respondents had nuclear family type and 43.75 per cent were living in joint family.

Sarah Kamala (2004) concluded that majority of the farm women beneficiaries (62.22%) live as independent nuclear family where as 37.78 per cent still live in joint family system.

Bharathi (2005) reported that majority of respondents (57.5%) belonged to nuclear families and 42.5 per cent belong to joint families.

Joseph *et al* (2006) revealed that 61.54 per cent respondents belonged to the medium size (4-6 members) and 28.21 per cent belonged to the large size (above 7) of *family*. The mean size was computed as 5.87 per cent.

Varsha Rathod (2006) observed that majority of the Banjara farm women (56.67%) had medium size of family (4 to 6 members).

Islam *et al (2007)* found that, majority (60.40 %) of the respondents belonged to the family consisting of 5-8 members. The members in family below 5 *members were* 31.68 per cent and more than 9 members were 7.92 per cent.

Rathod (2007) observed that majority slightly more than half of the farmers (66.67%) had low family size, followed by medium (18%) and large (15.33%).

Renuka Budihal (2007) observed that small family size was dominant (41.25%), followed by large family size with more than eight members (34.38%) among the selected households.

Biradar (2008) reported that, majority (60.83%) of the beneficiaries belonged to small family (5 and below members) and remaining 39.17 per cent belonged to large *family* (above 5 members).

Ereneus (2010) in his study on livelihood activities of Tibetan rehabilitants of mundgod-a socio-economic analysis in Karnataka state reported that more number of them belong to medium level of family size (55.56%).

Kale *et al* (2012) observed a non-significant relationship between family size and livelihood status.

Madiwalar (2012) concluded that family size was significant to overall livelihood status at 0.01% level of probability.

Megha Thakare (2013) concluded that majority of farm women (54.00%) had medium size of family (4 to 6 members).

Lakshmi *et al* (2015) reported that 48.60 per cent of the respondents belong to medium (5 to 7 members), followed by small (43.33%) and remaining 8.00 per cent belonged to large families (above 7 members).

2.4 Land holding:

Baswarajalah (2001) observed that 43.33 per cent of the respondents were *small farmers,* followed by with a little variation of (marginal (30.00%) and medium farmers (25.83%), while negligible per cent (0.84%) of big farmers.

Rangi *et al.* (2002) reported that about two-third of the respondents did not own any land whereas about one third had their own land. The latter comprised only of small and marginal farmers.

Reddy Prasad (2003) revealed that majority of the rice growers were in the medium category (53.06 per cent) followed by small (29.79 per cent) and big farmers category (17.14 per cent).

Sarada (2004) found that majority of the farm women were small (40.67 per cent), followed by marginal (30.00 per cent) and big (23.33 per cent) farmer categories.

Devalatha (2005) reported 30.83 per cent of the SHG members were landless, 28.33 per cent belong to marginal *farmers (*<2.5 acres*)* 20.83 per cent belonged to small farmers i.e., (2.5-5 acres) and 20.0 per cent belonged to big farmers (>5 acres).

Swati Gawande (2007) found that majority of the respondents (33.67%) were possessed land up to 1.00 ha.

Biradar (2008) reported that, 40.83 per cent of respondents were landless, followed by 19.17 per cent were small farmers and 18.33 per cent belonged to marginal land holding category, whereas, 13.33 per cent and

8.33 per cent of respondents had semi-medium and medium land holding respectively.

Kale *et al* (2012) observed a non-significant relationship between land holding and livelihood status.

Madiwalar (2012) concluded that land holding was significant to overall livelihood status at 0.01% level of probability.

2.5 Farming experience:

Chatterjee (2000) observed that 66.67 per cent of the respondents had medium level of farming experience, followed by low (18.33%) and high (15.00%) levels of farming experience.

Baswarajaiah (2001) indicated that 29.17 per cent of respondents had low farming experience, followed by medium (45.00%) and high (25.83%).

Reddy Prasad (2003) found that majority of rice growing farmers (71.00 per cent) fall under the categories of medium farming experience, followed by high (19.00 per cent) and low (9.40 per cent) categories.

Rathod (2007) observed that majority of the respondents had possessed the medium farming experience (66.00%), followed by high (25.23%) and low (8.67%) farming experience.

Madiwalar (2012) concluded that farming experience was non-significant to overall livelihood status.

2.6 Occupational status:

Nirmala *et al* (2004) found that 42.00 per cent of the respondents should have occupation like agriculture, dairy and poultry and 58.00 per cent of them has occupation like food and beverages, manufacturing, own shop and service. Majority of the respondents prefer more regular employment providing farm and non - farm activities.

Purnima (2004) found that 47.50 per cent of the respondents had labor + subsidiary occupation, followed by (21.25 %) subsidiary + Agriculture (19.58 %) and labor + subsidiary + Agriculture (11.67 %).

Rathod (2007) observed that nearly three fourths (73.3%) of the respondents belonged to farming + wage earners category, followed by farming + livestock (8.66%), farming alone (6.67), skilled wage earners (4%), farming + business (2.66%), farming + services (2.66%) and wage earners (2%).

Parihar *et al* (2010) observed that 43.50 per cent respondents were doing agriculture as a main occupation, followed by agriculture and business (20.50%) and agriculture and service (21.00%) and caste occupation (15.00%).

Kale *et al* (2012) reported that over half (56.67%) of respondents were engaged in agriculture plus farm labour while 13.34 per cent received Niradhar allowance Rs. 600/- per month plus agriculture and wage earning. Whereas 6.66 per cent engaged in own land plus Anganwadi service and 16.67 per cent were engaged in their own farm plus farm labor and milch animals.

Madiwalar (2012) concluded that occupational status is significant to overall livelihood status at 0.05% level of probability.

2.7 Annual Income:

Suresh (2004) reported that most of the respondents belonged to medium income group with 80.33 per cent, followed by high and low income groups i.e. 15.00 and 4.17 per cent, respectively.

Kale *et al* (2012) reported that 45.00 per cent of farm families had annual income between Rs. 25,001 to 40,000. Whereas 31.67 per cent having upto Rs. 20,000, followed by 18.00 per cent had annual income between Rs. 40,001 to Rs. 60,000 and remaining 5.00 per cent farm families had annual income above Rs. 60,000.

Kale *et al* (2012) observed a significant relationship between annual income and livelihood status at 0.05% level of probability.

Madiwalar (2012) found that slightly more than one third of farmers (34.67%) comes under annual income ranging from Rs.33626/- followed by (24.67%) had income up to Rs.33625/-, (23.33%) comes under income above Rs.64625/- and (17.33%) comes under income category between Rs. 49126/- to Rs.64625/-.

2.8 Expenditure pattern:

Velugu (2001) reported that a total annual expenditure of Rs.11750/- and Rs.16100/- were observed in rural households of Srikakulum and Mahboobnagar districts of AP respectively.

Brewer *et al* (2006) observed that expenditures are thus supposed to better reflect "long-term" or "permanent" income and are from this point of view considered to be a better measure of economic well-being and respective inequalities "if spending is maintained at a more constant level over time even while incomes are fairly volatile, it may be that spending is a better representation of an individual's average income. If so, then disparities in expenditure tell us something about permanent inequalities in living standards and well-being that variation in income cannot"

Rathod (2007) reported that only (3.33%) had the lowest annual expenditure of Rs. 8640/- and the highest expenditure was Rs.48500/- by farm women (10.67%). Majority of respondents come under medium expenditure category (Rs. 9701/- -19400/-), moderately high (20.00%) with an expenditure of Rs. 19401-29100/-, about 10.67 per cent were in high expenditure category (Rs.29101 -38.800/-), 3.3% with low expenditure (<Rs.9700/-) and very high (2.67%) with an expenditure of Rs.38801/- The study also revealed that average mean monthly expenditure pattern of the respondent in 2005-06, which clearly shows mean expenditure during the year is Rs. 1803.22/- with minimum expenditure is Rs.950/- and maximum expenditure Rs.5100/-.

Kale *et al* (2012) observed that the expenditure on food had higher share contributing were one third (34.97%) and expenditure on crop cultivation (agriculture) contributed (27.81%) share, health (7.96%), Marriage (13.38%), festivals (4.50%), and education (4.24%). The share of clothing and housing have very negligible share.

Madiwalar (2012) observed a significant relationship between expenditure pattern and livelihood status at 0.01 % level of probability.

2.9 Economic motivation:

Rathod (2007) observed that majority (64.67%) of the respondents had low economic motivation followed by medium economic motivation (28.00%) and high economic motivation (7.33%).

Swati Gawande (2007) found that majority of the respondents (62.33%) were in medium level of economic motivation.

Biradar (2008) reported that, 40.00 per cent of the respondents had medium economic motivation, whereas 32.50 per cent and 27.50 per cent of them had high and low level of economic motivation, respectively.

Ereneus (2010) reported that majority of respondents belongs to medium level economic motivation (51.12%).

Madiwalar (2012) observed a significant relationship between economic motivation and livelihood status at 0.01 % level of probability.

2.10 Employment generation (in mean woman days)

Mehar (2002) found that the average number of employment per year among ST and SC people during the implementation phase of watershed development projects in Orissa were 117.64 and 96.47 man days in case of males and females respectively.

Nirmala *et al* (2005) found that the employment status for farm households in watershed area and non- watershed area were 270.39 and 243.43 respectively in Rangareddy district of Andhra Pradesh.

Phelan (2005) observed that the employment status of the farm women was positively and significantly associated with the sustainable livelihoods in Ireland.

Vidya Gunjkar (2005) found that the number of women days employment per year was negatively and non significantly correlated while the remaining variables age and family size were positively correlated with livelihood status at 0.05 % level of probability.

Rahman *et al* (2006) reported that the employment and income generation in Social Forestry played a significant role on women's empowerment in Jessore district of Bangladesh.

Reddy *et al* (2006) concluded that the major proportion of labour force in rural north east region of India was unemployed and needs appropriate employment generation measures to tackle it. The share of employment in agriculture and allied activities was higher as compared to manufacturing (mining and quarrying, construction, trade, hotels *etc.*) and service (finance and insurance, public and private community services) sectors but a shift from farm to non-farm sector is profound in the rural areas of north east region of India.

Koshti *et al* (2007) found that the employment status of male and female agricultural laborer were 222.35 and 202 man days in Akola district of Maharashtra state.

Kumar (2009) found that the rural employment status among farming households was 219.47 man days/annum in eastern India

Thakur *et al* (2009) concluded that the total number of available man days per households were 1209, 1224, 1413 and 1614 among marginal, small, medium and large size of land holding respectively. Among all households together, the total available man days worked out as 1365. The percentage of man days utilized in all the agricultural, non-agricultural and necessary activities were 66.00, 73.87, 87.84 and 91.85 among the marginal, small, medium and large size of land holding respectively. Among all the households together, the percentage of man days utilized in all these activities

worked out to 80.96. Hence, the percentage of unemployment man days worked out as 34.00, 26.13, 12.52 and 8.27 among marginal, small, medium and large size of land holding respectively. Among all the households together, the percentage of unemployment man days worked out as 19.04.

Kale *et al* (2012) found that the shares of each livelihood source in total mean man days employment of selected families shows that labor/ wages earning occupied more than half (55.45%) share, followed by farming (33.33%), milch animals (6.83%) and service (4.72%) respectively.

2. B Dependent variables

A. Livelihood status of the farm women

Sharma (2004) advocated that the theory of under development views poverty as product of the vicious circle of low per capita income, low savings, and consequently low capital formation and productivity and so on. In rural areas, this is mainly due to unemployment, under employment, unsustainable livelihoods and ultimately resulting into low earnings.

I. Human capital

Sharma (2004) explained that development of social infrastructure for the components of human capital like education, skill, and training is crucial, so as to enable rural people to be gainfully employed, besides paying special attention to encourage self employment on a large scale through provision of micro credit. Hence, poverty alleviation is the trust area in India's special emphasis in the provision of basic Minimum Service (BMS).

Rathod (2007) observed that 52.67 per cent of the respondents had low human capital followed by medium (27.67%) and high (20.67%) human capital.

Kale *et al* (2012) found that majority (45.00%) of the families had medium human capital where as only 5.00 percent of the families had high human capital.

II. Physical capital

Madiwalar (2012) found that fifty per cent of respondents (50.00%) had low physical capital followed by medium (36.66%) and high (13.34%) physical capital.

Kale *et al* (2012) observed that majority (88.33%) of the families had low physical capital and 11.67 per cent comes under medium physical capital, not a single family have high physical capital.

III. Natural capital

Kale *et al* (2012) reported that majority (85.00%) of the suicidal families had low natural capital and 15.00 per cent comes under medium physical capital. Non of a single family have high natural capital.

Madiwalar (2012) found that higher proportion of the respondents (56.00%) had low natural capital followed by medium (34.00%) and high (10.00%).

IV. Social capital

Kale *et al* (2012) revealed that majority (86.67%) of the families had low social capital and 10.00 per cent comes under medium level of social capital where as 3.33 per cent families have high social capital.

Madiwalar (2012) found that relatively higher proportion of the respondents (57.33%) had low social capital followed by medium (30.67%) and high (12.00%).

V. Financial Capital

Nirmala *et al* (2004) confirmed that nearly half of the respondents had received loan up to Rs.50, 000/- from SHGs.

Rathod (2007) observed that that the farmers had low financial capital (52.67%) followed by medium (27.33%) and high (20.00%) financial capital.

Kale *et al* (2012) observed that majority (80.00%) of the suicidal families had low financial capital and 20.00 per cent comes under medium level of financial capital. Not a single family has high financial capital. This might be due to the facts that have about cent per cent (98.33%) families not having savings.

Overall Livelihood Status:

Waddington *et al* (2003) explained that another important determinant of poverty and vulnerability as well as migration choice is geographical condition. Those with limited access to environment capital including natural and common property resources, or who live in risky natural environments, may be compelled to undertake migration as a livelihood diversification strategy poor people in geographically remote communities may be particularly vulnerable to external shocks where they have limited access to alternate livelihood strategies as migration, due to being confronted with higher costs of travel to destination and lack of established social networks with destination communities.

Kale *et al* (2012) observed that the majority 71.67 per cent families of suicidal farmers of Vidharbha had low rural livelihood sustainability and over one fourth (28.33) per cent families had medium rural livelihood sustainability. The results also clears that not a single family have high rural livelihood sustainability. The mean rural livelihood sustainability index computed to 31.23.

Madiwalar (2012) found that above fifty per cent of the respondents (51.33%) had low livelihood status fallowed by 40.00 per cent of respondents had medium livelihood status and only 8.67 per cent of respondents had the high level of livelihood status.

Conceptual model of the study:

During the course of investigation the researcher has to assume relations amongst study variables develop a conceptual model and use the same during the research. A model helps in critical and logical thinking about the research problems. Conceptual model depicted in Fig.1.

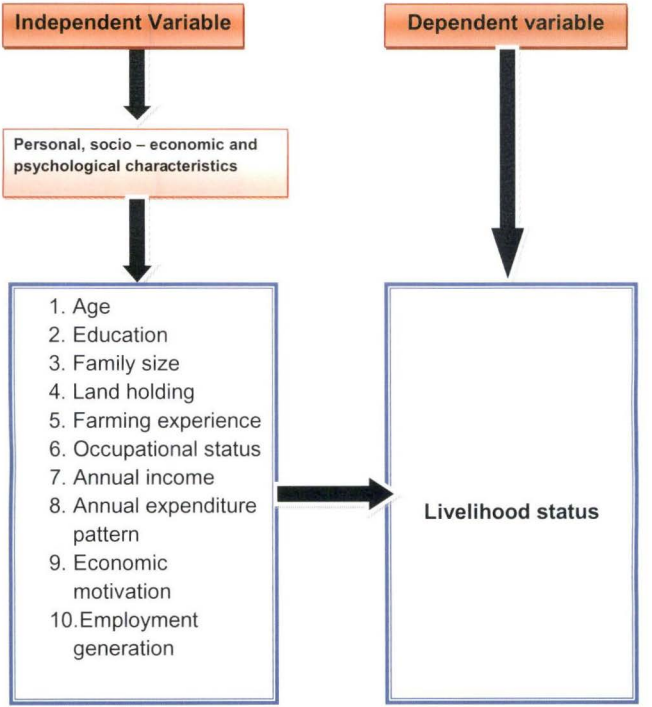

Fig. 1: Conceptual model

CAPTER III

METHODOLOGY

Research methodology deals with description of the research methods and procedures used in the present study. Detailed methodology was developed for studying all aspects in line with specific objectives and has been explained in this chapter. This chapter attempts to describe and explain the locale of the study, the procedure followed in the selection of respondents and designing of interview schedule.

Considering the importance of research methodology, it has been divided into important sub-sections, so as to enable logical presentations as definitions, concepts, methods, procedures and techniques used for present study. The methodology and procedure to be followed for present study was as follows:

3.1 Research design
3.2 Locale of the study
3.3 Sampling procedure
3.4 Preparation of interview schedule
3.5 Pretesting of interview schedule
3.6 Collection of data
3.7 Variables and their measurements
3.8 Problem faced by farm women
3.9 Data Analysis and Statistical methods used

3.1 Research Design

The *ex-post facto* design of social research was used for the study.

An *Ex-post-facto* research design is the most systematic empirical enquiry in which the researcher does not have direct control over independent variables as their manifestation has already occurred or as they are inherent and not manipulative. These inferences about relations among variables were made without intervention from concomitant variation of dependent and independent variables.

3.2 Locale of study:

Bhadrak district of Odisha state was purposively selected for the present study about the livelihood status of farm women.

3.3 Sampling procedure:

The sampling plan adopted for this research study has been delineated in the succeeding paragraphs.

3.3.1 Selection of Tahsil:

From Bhadrak district two tahasils viz, Dhamnagar block and Bhandaripokhari block were selected purposively where more number of farm women possessed land holding.

3.3.2 Selection of villages

Among selected two tahsils 5 villages were selected from each tahsil, where large number of farm women possessed land under cultivation of crops.

3.3.3 Selection of respondents

A list of farm women of the selected villages was obtained from the concerned tahsils. From each village 10 respondents who possessed and cultivated land under crop cultivation were selected randomly so that 100 respondents from 10 villages were constituted as total sample of study.

Table1: List of selected Villages and number of respondents for the study.

Sl. No.	Tahsils	Villages	No. of Respondents
1)	Dhamnagar	1)Asurali	10
		2)Kothar	10
		3)Kakudigadhia	10
		4)Lenjara	10
		5)Torubontia	10
2)	Bhandaripokhari	1)Sarsada	10
		2)Barikpur	10
		3)Kenduapada	10
		4)Manjiroad	10
		5)Nalang	10
Total	2 Tahsils	10 villages	100

3.4 Preparation of interview schedule

The interview schedule was constructed by formulating relevant questions, in accordance with the study objectives. The schedule was developed in English and Odia.

3.5 Pre testing of interview Schedule

In order to detect the mistakes and short falls and to achieve clarity and practicability of the schedule, it was pre tested with 5 farm women and 5 non-farm women. These respondents were not included in sample.

The data collected from them were thoroughly examined; necessary modification was incorporated in the schedule. The nature of some questions was modified and thus, the selected schedule was finalized and requisite copies were cyclostyled for collecting data from respondents.

3.6 Collection of data

The personal interview method used for collection of data. For easy approach to farm women, the help of Sarpanch, Mahila Mandal and the Extension personnel were sought. Before actually procuring the information, the researcher introduced herself and explained about the objectives and purpose of present study.

3.7 Variables, their operational definitions and empirical measurements:

The operational definitions, procedure adopted for scoring and categorization of both independent and dependent variables are explained in the sub section.

Table2: Variables and their measurements

Sl. No.	Name of Variables	Measurement procedure
A) Independent variables		
1.	Age	Procedure as followed by Madiwalar (2012).
2.	Education	Procedure as followed by Madiwalar (2012).
3.	Family size	Procedure as followed by Madiwalar (2012).
4.	Land holding	Total hectares of land possessed by an individual respondent at the time of interview.
5.	Experience in farming	Procedure as followed by Madiwalar (2012) with suitable modification.
6.	Occupational status	The respondent's occupation to generate income as a means of livelihood. Scoring and categorization procedure adopted for measurement of occupation by Thakare (2004) was used.
7.	Annual income	The total income of the respondents from all the sources in one year and expressed in terms of rupees. Scoring pattern based on mean ($\pm$) SD
8.	Annual expenditure pattern	The annual expenditure of an individual respondent on food, education, housing, clothing, health, electricity, and religious functions was considered. Respondents were categorized as low, medium and high expenditure pattern based on mean ($\pm$) SD.
9.	Economic motivation	scale developed by Supe (1969)
10.	Employment generation	Procedure followed by Vidya Gunjkar(2005).
B) Dependent variable		
1.	Overall livelihood status	Procedure followed by Kale *et al.* (2012)

Plate1: Interaction with farm women during collection of data

Plate 2: Farm women plucking green gram pod

3.7.1 Independent variables.

1. Age.

Age is operationally defined as the number of completed years of an individual respondent at the time of investigation. The numerical score of 1 was assigned for each completed year. The respondents were grouped into following categories.

Sl. No.	Age	Years
1	Young	Up to 35
2	Middle	36 – 50
3	Old	Above 50

2. Education.

Education is defined as level of formal schooling passed by the individual from Primary school to university degree. One score was given for each standard passed and it was considered as the score of education and following categories was made.

Sl. No.	Category	Standard
1	Illiterate	No schooling
2	Primary school	1^{st} - 4^{th}
3	Middle school	5^{th} – 7^{th}
4	High school	8^{th} – 10^{th}
5	High secondary school	11^{th} -12^{th}
6	College	Above 12^{th}

3. Family size.

Family size operationally defined as the number of members living together in a family of respondent possessed.

The total score was obtained by the addition of number of the family members. One score was given for every member. Based on their total

score, family size was classified as small, medium and large as follows on the basis of equal interval method.

Sl. No	Category	Members
1	Small	Up to 5
2	Medium	5 to 7
3	Large	Above 7

4. Land holding.

It is operationally defined as the total hectares of land possessed by an individual respondent at the time of interview. Considering the size of the land owned and cultivated by each of the respondent's family, the categorization of the land holding was done as given below

Sl. No.	Category	Land holding(ha)
1	Marginal	Up to 1.00
2	Small	1.01 – 2.00
3	Semi-medium	2.01 – 4.00
4	Medium	4.01 – 10.00
5	Big	Above 10.00

5. Farming experience :

It was defined as the number of years of experience possessed by an individual respondent in cultivation of crops.

For measuring this variable, a score of one was assigned for each completed year of experience. Then the respondents were grouped into three categories as follows based on equal interval method.

Sl. No	Farming experience categories	Years
1	Low experience	Up to 10
2	Medium experience	11-20
3	High experience	Above 20

6. Occupational status.

Occupational status is defined as the respondent's occupation to generate income as a means of livelihood.

The scale developed by Thakare (2004) was used with suitable modifications. The score assigned for various occupations was as fallows.

Sl. No	Category	Score
1	Farming + Labor	1
2	Farming Only	2
3	Farming + Business	3
4	Farming + Service	4
5	Farming + Allied occupation	5

7. Annual Income.

Annual income of the respondents was determined by considering the total income of the respondents from all the sources in one year and expressed in terms of rupees. Based on total annual income of the respondent, they were categorized into groups by pattern based on mean ($\pm$) SD.

Sl. No	Annual Income (Rs)	Score
1	Up to Rs.50589.49/-	1
2	Rs. 50589.49/- to Rs. 86382.10/-	2
3	Above Rs. 86382.10/-	3

8. Expenditure Pattern.

It was operationally defined as the annual expenditure of an individual respondent on food, education, housing, clothing, health, electricity, and religious functions was considered.

One score for each item was assigned. Later on scores of each item was summed up and respondents were categorized as low, medium and high expenditure pattern based on mean ($\pm$) SD.

Sl. No	Category	Score
1	Low	< Mean – 1 SD
2	Medium	Mean $\pm$ SD
3	High	>Mean + 1 SD

Plate1: Interaction with farm women during collection of data

Plate 2: Farm women plucking green gram pod

9. Economic motivation.

Economic motivation was operationally defined, as the degree to which an individual respondent is oriented towards profit maximization in main occupation and the relative valued placed by the respondent on economic ends.

The scale developed by Supe (1969) was used. The scale consists of six statements. The responses was measured on a five point continuum i.e. "strongly agree" "agree" "undecided" "disagree" and "strongly disagree". The scoring pattern adopted was 5, 4, 3, 2, and 1 for the positive statement and for negative statement reverse scoring was adopted. The respondents were categorized as low, medium and high by using mean ($\pm$) SD.

Sl. No	Category	Score
1	Low	< Mean – 1 SD
2	Medium	Mean $\pm$ SD
3	High	>Mean + 1 SD

10. Employment generation (in women days)

It was defined as the total number of working days employed in a year.

The categorization was done as per the procedure followed by Vidya Gunjkar (2005).

Sl. No.	Category
1	Up to 200 days
2	201 to 300 days
3	Above 300 days

3.7.2 Dependent variable.

1. Livelihood status

Livelihood was defined as the ways and means of living to meet the basic minimum necessities of the individual farm women as well as the family. Employment per year was computed.

Rural livelihood was defined as the different livelihood activities (occupational activities) taken up by the farm women as a ways and means of employment generated per year of various means of livelihood activities.

In present study various livelihood activities were listed out, their corresponding mean women days of employment per year were computed.

An index developed by Kale *et al.* (2012) was used to find out livelihoods on human capital, physical capital, natural capital, social capital and financial capital for which sub indices were computed and summed up to arrived as the livelihood index.

The concept of livelihood was studied by using broad philosophy of livelihood of DFID, UK (Department of International Development) with some modifications.

The livelihood status was studied under the following livelihoods capital assets such as.

1. Human capital

Human capital was operationally defined as the good health facilities, education and training (s) institutions and availability to labor facilities important for the successful pursuit of different livelihood options.

i. Health:

Health was operationally defined as the various medical facilities availability and their accessibility in terms of distance and means of transport in case of emergency situations.

A. Medical treatment availability

Sl. No.	Medical treatment sources	Score
1.	No availability	0
2	Private clinic	1
3	PHC	2
4	Rural hospital	3

a. **Access to health facilities (in kms)**

Sl. No.	Distance to medical facilities in kms	Score
1	>10	1
2	5-10	2
3	<5	3

b. **Means of transport in case of emergency**

Sl. No.	Transport means	Score
1	Bullock cart	1
2	Tractor / Auto	2
3	Ambulance / Any Car	3

ii. **Education:**

This variable was operationally defined as the formal education an individual respondent received (Immediate family head). The educational status was quantified based on the following scores.

Sl. No.	Category	Score
1	Illiterate	1
2	Functionally literate	2
3	Primary school	3
4	Middle school	4
5	High school	5
6	College education	6

iii. **Trainings Received:**

It was defined as an intensive learning activity for a group of respondents, assisted by the competent trainers to understand and practice the skill required.

The training activities were conducted at a place, where appropriate facilities exist and at a time and duration which are considered suitable to the respondents. These activities were mainly meant for increasing

their incomes a livelihood by enhancing their productive output in their respective occupations.

Training received was operationally measured by the total number of trainings received, weightage of one score was given for each training undergone to compute training score.

Sl. No.	Training received	Score
1	Yes	1
2	No	0
3	If Yes Number	

iv. Labor availability:

Labor availability is defined as the extent of use of own labor as well as hired labor and the quality of work they performed.

A weightage of '2' score was assigned for 'yes' and '1' for no type of response, the scoring pattern followed was as fallows.

Sl . No.	Labor availability	Score
1	Engagement of family labor	Yes-2,No-1
2	Engagement of hired labor	Yes-2, No-1
3	Adequacy of labor	Adequate-3, Partial adequate-2,Inadequate-1
4	Labor wages out side	More-2, Less-1
5.	Skill fullness of labor engaged	Highly skillful-3,Moderately skillful-2 Less skillful -1

The scores obtained by the respondent in items I.II, III, and IV were summed up to obtain the human capital score. The score was converted to Z-scores.

The human capital index is the ratio of actual score obtained by the respondent and maximum possible score.

The formula is as follows.

$$\text{Human capital index (HCI)} = \frac{\text{Actual score obtained}}{\text{Maximum possible score}} \times 100$$

Distribution of respondents according to Human capital will categorized as follows

Sl. No	Level	Index
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

A. Physical capital :

Physical capital was defined as the infrastructural facilities like affordable transport facilities, type of house where respondent lives, adequate water supply and sanitation, affordable source of energy for domestic purpose, information sources and materials possessed by the respondent at the time of investigation.

1) Affordable transport:

It was defined as the affordability of the respondent for using the transport facilities for various purposes.

Sl. No	Transport means	Score
1	Bullock cart	1
2	Public transport	2
3	Jeep/autos	3
4	Own vehicle	4

2) Type of house :

It was the house where the respondent is living at the time of investigation.

Sl. No	Type of house	Score
1	Katcha	1
2	Pucca	2
3	Tiled	3
4	Building	4

3) Adequacy of water supply and sanitation

It was the supply of drinking water for household purpose and disposal of sewage water. The scoring pattern for the items was as follows.

Sl. No	Items	Score
1	Source of drinking water	Tank-1, Dug well/ Boar-well-2 Panchayat-3
2	Regularity of water supply	Yes-2, no-1
3	Frequency of supply of drinking water	Daily-4, once in 2 days-3 Once in 3 days-2, once in 4 days-1
4	Disposal of sewage water by canal	Yes-1, No-0

Distribution of the respondents according to the adequate water supply and sanitation

Sl. No	Adequate water supply and sanitation	score
1	Poor	< Mean – 1 SD
2	Average	Mean $\pm$ SD
3	Good	>Mean + 1 SD

4) Sources of energy:

It was defined as the source of energy for domestic purposes like cooking and lighting etc.

Sl. No	Energy source	Score
1	Firewood	1
2	Kerosene	2
3	L P Gas	3

5) Sources of Information :

It was operationally defined as the respondent accessibility to seek information related to either farm or non-farm activities from various sources.

Sl. No	Information sources	Score
1	Neighbors	1
2	Local leaders	2
3	Panchayat/society officials	3
4	News papers	4
5	Radio	5
6	Television	6
7	Cinema/film shows	7
8	Dealer	8
9	VEO/AEO/AO	9

6) Material possession :

The term referred to the material and animal wealth possessed by the respondent. This was quantified and classified as under.

Sl. No	Materials possessed	Scores
1	None	1
2	One animal or material (bullock/buffalo/cow/ bicycle/furniture)	2
3	Two farm animals or materials(bullock cart/radio)	3
4	Three farm animals or material(improved implements /PP equipment/ TV)	4
5	Five to ten farm animals or materials (Gobar gas/spraying equipment/motor cycle)	5
6	More than ten farm animals or materials (tractor/Car/Jeep)	6

The scores obtained by the respondent in item 1, 2, 3, 4, 5, and 6 were summed up to obtain the physical capital score and converted into Z-scores.

The Physical capital index is the ratio of actual score obtains by the respondent and maximum possible score. The formula is as fallows

$$PCI\ (\%) = \frac{\text{Actual score obtained}}{\text{Maximum possible score}} \times 100$$

Distribution of the respondents according to Physical Capital:

Sl. No	Physical Capital	Index
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

B. Natural capital:

Natural capital operationally defined as the natural resource base available such as type of land, status of soil, irrigation facilities for various types of cultivation, through various crops, cropping systems and different farming systems which operate in complex ecosystems for income generation, profit maximization and enhancing the livelihood capabilities.

a) Type of land :

Type of land respondent possessed for farming was scored as follows.

Sl. No	Type of land	Score
1	Rich fertile	3
2	Moderate fertile	2
3	Poor/Warkas	1

b) Irrigation facilities:

It refers to the sources available such as well, tube well, canal etc. for irrigation with the respondent and scoring was as follows.

Sl. No	Irrigation sources	Score
1	No source	0
2	River	1
3	Well	2
4	Canal	3

c) Type of cultivation :

It was defined as the type of cultivation practiced by the respondent depending upon the rainfall and irrigation facilities and the scoring was as follows.

Sl. No	Type of cultivation	Score
1	Rainfed	1
2	Irrigated	2

d) Type of crop:

The type of crop under cultivation by the respondent and the scoring was as follows

Sl. No	Type of Crop	Score
1	Cereals/ millets	1
2	Pulses	2
3	Oil seeds	3
4	Cash crops	4
5	Fruits and vegetables	5
6	Flower crops	6
7	Medicinal and aromatic	7

e) Cropping system :

It was defined as the cropping pattern followed by the respondent on a farm based on farm resources, other farm enterprises and available technology. The scoring for cropping system was as follows

Sl. No	Cropping pattern followed	Score
1	Mono – cropping	1
2	Double cropping	2
3	Multiple cropping	3

f) Farming system:

Farming system was operationally defined as an appropriate combination of farm enterprises viz., cropping system, livestock, poultry, apiary, sericulture and fisheries to raise them for increasing income and profitability. The scoring was as follows.

Sl. No	Farming system	Score
1	Crop-crop	1
2	Crop-dairy/poultry/piggery/sericulture/fishery	2

g) Livestock composition:

It was the number of farm animal possessed by the respondent at the time of investigation. Number of animal possessed was the score of livestock composition.

The score obtained by the respondent in items I,II,II,IV,V,VI,VII and VIII was summed up to obtain the natural capital score and was converted in to Z scores.

The natural capital index is the ratio of actual score obtained by the respondent and maximum possible score.

Natural Capital Index (NCI) $= \frac{\text{Actual score obtained}}{\text{Maximum possible score}} \times 100$

Distribution of the respondents according to availability of Natural capital

Sl. No	Natural Capital	Index
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

C. Social Capital:

Social capital was operationally defined as the combination of respondent's socio political participation which forms an effective social safety network for improving one's livelihoods.

a. Socio-political participation :

Sociopolitical participation was operationally defined as the degree of involvement of respondents in number of social and political organizations. The following items and weightage was used to quantify the socio-political participation.

Sl. No	Socio- political participation	Score
1	No participation	0
2	Participated in social political institutions	1
3	Participated without any position in sociopolitical organization	2
4	Official position in one or more formal organization.	3
5	Official position in socio and political organization	4
6	Financial contribution or raised funds for	5
7	community work	6
8	Active office bearer	7
9	Involved in community work	8

a. **Extent of Trust** :

It was defined as the degree to which the respondent possess belief or confidence in other members of the village, local/opinion leaders, input Agents / dealers and various functionaries of line departments.

Sl. No.	Extent of trust	Score
1	To a very great extent	5
2	To a great extent	4
3	Moderate extent	3
4	To a small extent	2
5	To a very small extent	1

The scores obtained by the respondent in items I and II was summed up to obtain the social capital score and converted into Z-scores. The social capital index was the ratio of actual score obtained by the respondent and maximum possible score. The formula is as follows

$$SCI\ (\%) = \frac{\text{Actual score obtained}}{\text{Maximum possible score}} \times 100$$

Categorization was done on the basis of equal interval method as follows

Sl. No	Social Capital	Index
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

D. Financial capital:

Financial capital was defined as the capital base (cash), credit/debt, savings, and other economic assets, which are essential for the pursuit of any livelihood strategy.

1. **Debts** :

It was the total loans (debts) taken by the respondent from various sources during the study year i.e. 2015- 2016.

Sl. No	Total loans (in Rs.)	Score
1	Not availed	0
2	Up to Rs. 20,000	1
3	Rs. 20,001- 40,000	2
4	Above Rs. 40,000	3

2. **Savings** :

It was operationally defined as the amount of the money left after deducting expenditure and loans from the total annual income of the respondent at the time of investigation for the study year.

Saving(in Rs.)= Total annual income – [(Expenditure/year) + Debts/loans cleared, if any]

The scores for savings were as follows:

Sl. No	Saving (in Rs.)	Score
1	Nil	0
2	Up to Rs. 20,000	1
3	Rs. 20,001- 40,000	2
4	Above Rs. 40,000	3

Financial Capital Index (FCI) $= \frac{\text{Actuall score obtained by respondent}}{\text{Maximum score obtained}} \times 100$

Categorization was done on the basis of equal interval method as follows

Sl. No	Category	Index
1	Low	Up to 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

Rural livelihoods Sustainability Index (RLSI) (Includes overall five components)

$$RLSI\ (\%) = \frac{\text{Sum of (HCI + PCI+NCI+SCI+FCI)}}{5} \times 100$$

Categorization of the respondents was done on the basis of equal interval method

Sl. No	Livelihood Status Category	Index
1	Low Livelihood Status	Up to 33.33
2	Medium Livelihood Status	33.34 to 66.66
3	High Livelihood Status	Above 66.66

3.8 Problem faced by farm women:

In the present study, a problem refers to the difficulties was faced by the farm women in sustaining their livelihood. Constraint found during data collection as expressed by an individual respondent was classified in the different categories. The frequency and percentage of each constraint was worked out for the interpretation.

3.9 Data Analysis and Statistical methods used

Following statistical techniques was used in the present study for analysis of data.

1) Arithmetic mean (X)

It was calculated by summing all the score and dividing it by number of respondents.

$$\bar{X} = \frac{\Sigma X}{N}$$

Where,

$\bar{X}$ = Arithmetic mean
ΣX = Sum of respondent score
N = Number of respondents

2) Standard deviation

It is measure of variability calculated around mean. The usual symbol of the Standard deviation is SD.

$$\sigma = \sqrt{\frac{\Sigma (X - \bar{X})^2}{N}}$$

Where,

σ	-	Standard deviation
ΣX^2	-	Sum of square of X series
$(\Sigma X)^2$	-	Square of sum of X series
N	-	No. of respondents

3) Coefficient of correlation

The relationship between independent and dependent variables was calculated with the help of following given formula.

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where,

r	-	Coefficient of correlation
ΣX	-	Sum of the score of variable X
ΣY	-	Sum of the score of variable Y
ΣXY	-	Sum of products of 'X' and 'Y' variables
ΣX^2	-	Sum of the square of 'X' variable
ΣY^2	-	Sum of the square of 'Y' variable
N	-	Total number of respondents

CHAPTER IV

SOCIO-ECONOMIC FEATURES OF BHADRAK DISTRICT

On 1st April 1936 officially Orissa became a separate province. In 2011 Orissa renamed as Odisha. According to Census 2011 the total population of Odisha is 41,947,358 out of which male and female are 21,201,678 and 20,745,680 respectively. In 2001, total population in Odisha was 36,804,660 in which males were 18,660,570 while females were 18,144,090. The population of Odisha forms 3.47 percent of India in 2011. Literacy rate in Odisha has seen upward trend and is 73.45 percent as per 2011 population census. Of that, male literacy stands at 82.40 percent while female literacy is at 64.36 percent. The population density of Odisha is 269 per sq km which is lower than national average 382 per sq km. Sex Ratio of Odisha is 978 i.e. for each 1000 male, which is below national average of 940 as per census 2011. The Scheduled Tribe (ST) population of the State of Odisha is 8,145,081. This constitutes 22.1 percent of the total population of the State and 9.7 per cent of the total tribal population of the country. Malkangiri district has the highest proportion of STs (57.4 per cent) followed by Mayurbhanj (56.6 per cent), Rayagada (55.8 per cent) and Nabarangapur (55 per cent). Puri district has the lowest by proportion of STs (0.3 per cent). Out of sixty two (62) STs, living in odisha Khond is the most populous tribe followed by Gond. The other major tribals living in odisha are Santal, Kolha, Munda, Saora, Shabar and Bhottada,Bhumij, Bhuiya, Oraon, Paroja and Kisan. Languages spoken by them are different from Odia though many of the tribals now understand Odia.

On 1 April 1993, this district was carved out from the Balasore District and became a separate entity.

Agriculture is the main income of the district. But many people in the sea cost area (Dhamara, Chudamani of Basudevpur and Chandabali area of Chandabali Block) have depending upon the Fishing. Some people in the NAC and Municipality area have sound business of hotels and restaurants.

4.1 Location of Bhadrak district

It is the one of district among thirty district of Odisha. Located between 21.0667 and 21° 4' 0 North Latitude and 86.5000 and 86° 30' 0 East Longitude covering a landmass of 1721 Sq.km., Bhadrak is one of the important coastal districts of Orissa . It is flanked by the districts of Kendujhar to its west, Balasore to its north and Jajpur and Kendrapara to its south, while the Bay of Bengal formed its eastern border. The district was carved out of the undivided Balasore region on 1st April 1993.

4.2 Topography and soil

Bhadrak district is naturally divided into two well-designed tracks (a) the salt tracks along the coasts which is not arable and (b) the arable track, which is called the granary of the state having river like Baitarani, Salandi, Gamei, Kansabans, Mantei, Kochila, Genguti, Reba and Kapali.

As per the agro climatic condition of the district the areas may be divided into four zones. a) Rain fed Zone, b) Perennial irrigated Zone, c) Flooded Zone d) Saline Zone.

Bhadrak district is divided in to three zones according to its soil condition i.e. Saline Soil, Alluvial Soil and Sandy Soil. Due to presence of river basins soil are most fertile in nature.

4.3 Climate and rainfall

The climate of Bhadrak district is generally hot with high humidity. May is usually hottest month. Occurrence of a large number of fire accidents is a regular feature of the district during summer. December is the coldest month of this district. The average minimum and maximum temperature extremities observed throughout the year was 17°C to 48°C respectively. Monsoon generally comes during the month of June. The rainfall during June to October constitutes at least 75% of the actual rainfall of this district. Tornadoes are a common feature during the monsoon and rainfall coupled with heavy thunder showers are a common feature. Average rainfall of the district is 1427.9mm (56.22 in).

4.4 Land use pattern

The geographical area of the district is 2,46,529 ha. of which 1,85,970 comes under cultivable area. The paddy is grown as the main crop in Kharif covering 1,70,000 ha, which constitutes 94% of this total cultivable area. During Kharif season about 47% of cultivable area is rain fed and likely to remain exposed to the gambling monsoon and natural calamity. 9% of the cultivable area is up-land, 36% is medium land and 55% is low land.

Table 3: Land use pattern of Bhadrak district

Sl. No	Types of Land area	In Ha.
1	Cultivable Area	185970
2	Total Paddy Area	175080
3	High Land Paddy Area	9800
4	Med. Land Paddy Area	62153
5	Low Land Paddy Area	103127

4.5 Irrigation potential

Table 4: Irrigation potential of Bhadrak district

Sr. No	Source	Kharif Area in Ha.	Rabi Area in Ha.
1	Salandi Irrigation	48810	28485
2	HLC	19445	300
3	MI Project	1420	500
4	LI Project	5556	4700
5	ST Wells	7347	5323
6	Dug Wells	-	32
7	Million Wel	-	I 29
8	Creeks	5618	4968
9	Other Sources	7920	9883
10	Total	96120	54220

4.6. River System and Dams

The major part of the district come under the river system of the Baitarani, Salandi, Gamei, Kansabans, Mantei, Kochila, Genguti, Reba and

Kapali. The rivers are seasonal and during the rainy season they spate and create havoc for the people of the district and the countryside crop. So the Govt. machinery frequently remains alert and busy in rescue and relief operation. The table below indicates the information on the River Gauges.

Table 5: River System and Dams of Bhadrak district

Sl. No	Name of the Rivers	Location	Warning Level	Danger Level
1	Baitarani	Akhuapada	50.00 Ft	58.50 Ft. (17.83 Mtr.)
2	Salandi	Rajghat	8.50 Ft.	10.00 Ft
3	Genguti	Gandhighat	10.85 Mtr.	11.15 Mtr.

4.7 Input supply

Agricultural inputs like seed, manure, fertilizers, insecticides, pesticides etc. are required by the farmers are made available to them through number of agricultural service centers established at district level and block level.

Some private seed companies supply the quality seeds to the farmers. The farm inputs are made available to the farmers by co-operative societies and nationalize banks functioning at block level, panchayat samiti also provide inputs to the farmers. Co-operative society supply input against the loan sanctioned by the District Central Co-operation Bank to individual cultivator.

4.8 Markets

For the marketing of agricultural produce, agricultural produce market committees are functioning in the district. All seven tahsil having facilities of regulated markets functioning in the Bhadrak district. These sub-markets are connected with roads and having facilities of banking, electricity etc. every village has hatta according to different days according to their convenient. In Bhadrak local market, is available called hatta which is available every day, district market also present.

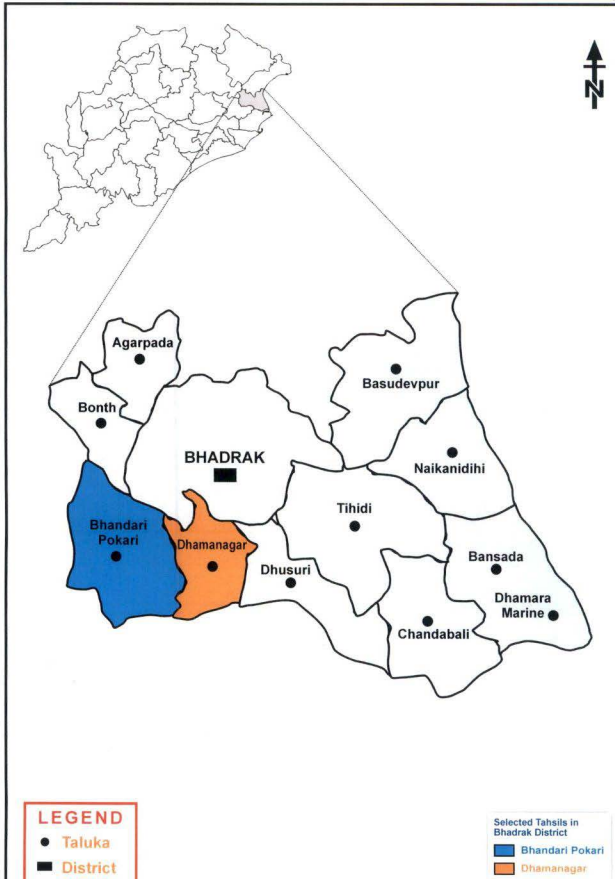

Fig. 2. Map of Bhadrak District of study area

CHAPTER V

RESULTS AND DISCUSSION

The data collected by adopting the procedure presented earlier in the methodology. The results obtained from the analysis of the data in accordance of the study objectives along with logical discussion have been given to interpret the observed phenomena. The data were subjected to statistical technique and the results have been presented in this chapter. The results of the study are presented under the following suitable sub headings.

5.1 Distribution analysis

5.2 Livelihood status of farm women

5.3 Relational analysis

5.4 Problems faced by respondents in their livelihood

5.5 Suggestions given by respondents for better livelihood

5.6 Empirical model of research

5.1 Distribution analysis

The distribution of the respondents according to their personal, socio-economic and psychological characteristics has been presented in this section. Distribution of respondents according to the independent variables studied as age, education, family size, land holding, farming experience, occupational status, annual income, expenditure pattern, economic motivation, employment generation and livelihood status was studied as a dependent variable.

5.1.1 Distribution of respondents according to their independent variables

The study of personal, socio-economic and psychological characteristics were made with reference to the independent variables studied as age, education, family size, land holding, farming experience, occupational

status, annual income, expenditure pattern, economic motivation and employment generation.

The results pertaining to distribution of respondents on these variables have been presented under this section.

1. Age

The data in Table 6 revealed that nearly two-third of the respondents (62.00%) belonged to middle age group, followed by 32 per cent of respondents belonged to old age category and only 6 per cent of the respondents belonged to young age category. Thus, it can be concluded that majority of respondents belonged to middle age category.

Table 6: Distribution of the respondents according to their age.

Sl. No	Category	Age (Years)	Respondents (n=100)	
			Frequency	Percentage
1	Young	Up to 35	06	06.00
2	Middle	36 – 50	62	62.00
3	Old	Above 50	32	32.00
Total			**100**	**100.00**

From these observations it was concluded that maximum number of respondents (62.00%) belonged to middle age group category. Because middle age group categories actively participated in farming.

The results of the study were in line with the findings reported by Varsha Rathod (2006).

2. Education

From the data depicted in Table 7, it was found that 42.00 per cent of the respondents were illiterate, whereas, 39.00 per cent of the respondents had attended primary schooling. 9.00 per cent of respondents attend middle and high school each. Only 1.00 per cent of the respondents had attended higher secondary school level education. Not even a single respondent was found under the category of college level education.

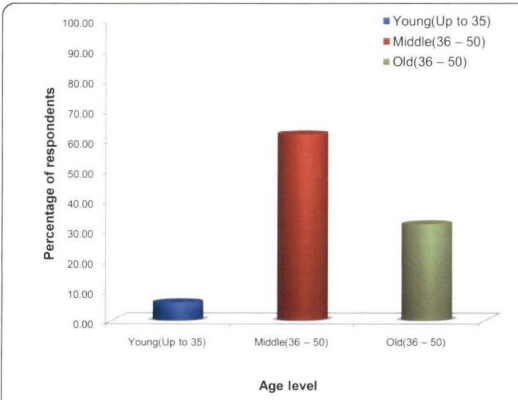

Fig. 3. Distribution of the respondents according to their age

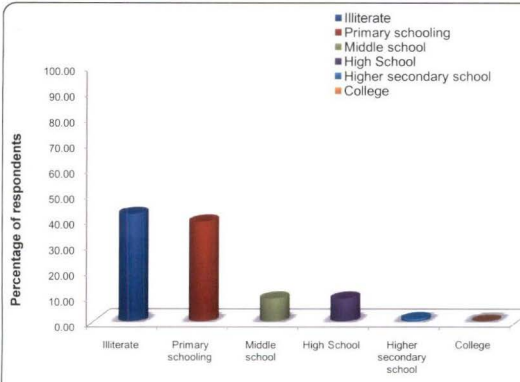

Fig. 4. Distribution of the respondents according to their education

Table 7: Distribution of the respondents according to their education

Sl. No	Education(Category)	Respondents (n=100)	
		Frequency	Percentage
1	Illiterate(No schooling)	42	42.00
2	Primary schooling (1^{st} - 4^{th})	39	39.00
3	Middle school (5^{th} – 7^{th})	09	09.00
4	High School (8^{th} – 10^{th})	09	09.00
5	Higher secondary school (11^{th} – 12^{th})	01	01.00
6	College (Above 12^{th})	00	00.00
Total		**100**	**100.00**

It is therefore, concluded that maximum (42.00%) number of the respondents were illiterate, because it might be in that time education facilities was not sufficiently available and also they might not be interested about their studies.

Similar findings observed by Swati Gawande (2007).

3. Family size

It was observed from the Table 8 that nearly two-third of the respondents (64.00%) had possessed large family size i.e. above 7 members, followed by medium family size (38.00%). Only 7.00 per cent respondents belonged to small farming size.

Table 8: Distribution of the respondents according to their family size.

Sl. No	Category	Respondents (n=100)	
		Frequency	Percentage
1	Small (Up to 4)	07	07.00
2	Medium(5-7)	39	39.00
3	Large(Above 7)	64	64.00
Total		**100**	**100.00**

It is therefore, concluded that maximum (64.00%) number of the respondents were had large sized family, because large family size will reduce the involvement of hired labour and the cost for hired labour also reduced.

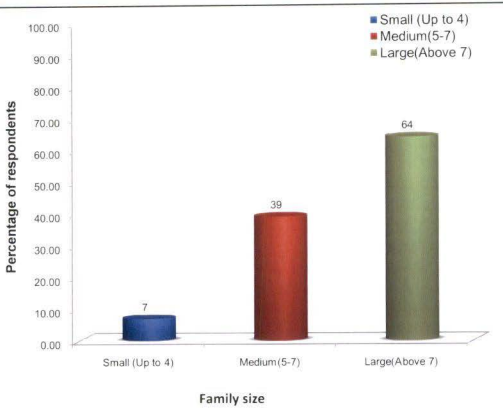

Fig. 5. Distribution of the respondents according to their Family size

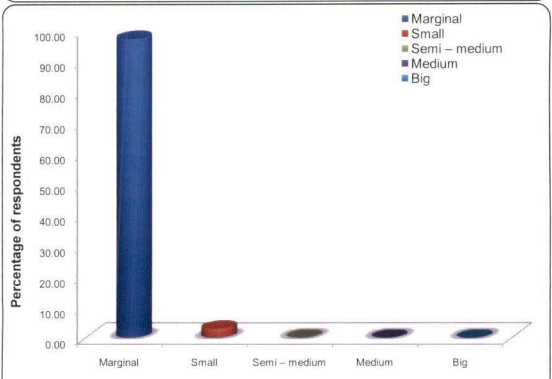

Fig. 6. Distribution of the respondents according to their Land holding

The similar results were noticed by Lipishree Das (2015).

4. **Land holding**

It was observed from the Table 9 that vast majority of respondents (97.00%) were noticed in marginal land holding category, whereas least percentage (3.00%) of respondents were observed under small category of land holding. It was surprisingly to notice that none of respondents were found under medium, semi – medium and large land holding categories respectively.

Table 9: Distribution of the respondents according to their land holding.

Sl. No	Category	Landholding (ha)	Respondents (n=100)	
			Frequency	Percentage
1	Marginal	Up to 1.00	97	97.00
2	Small	1.01 – 2.00	03	03.00
3	Semi – medium	2.01 – 4.00	00	00.00
4	Medium	4.01 – 10.00	00	00.00
5	Big	Above 10.00	00	00.00
Total			**100**	**100.00**

It has been concluded from Table 9 that, vast majority (97.00%) of the respondents in the study area were grouped in marginal category of land holding. It might be due to most of the land holdings are in the names of male members of the family.

The similar results were found in the study of Lipishree Das (2015).

5. **Experience in farming**

It was observed from Table 10 that 42.00 per cent of the respondents had medium i.e. 11 to 20 years of experience in farming. Little more than one third (38.00%) had experience up to 10 years, whereas 19.00 per cent of the respondents had above 20 years experience in farming.

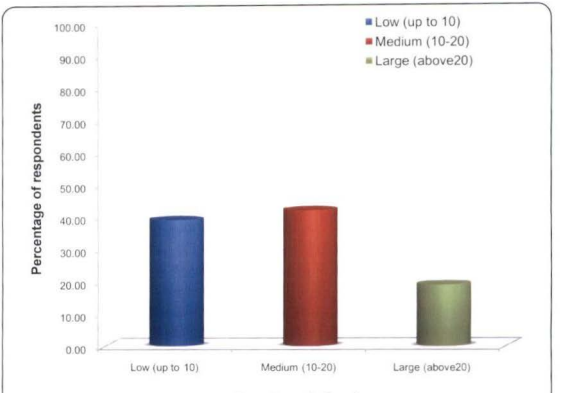

Fig. 7. Distribution of the respondents according to their Experience in farming

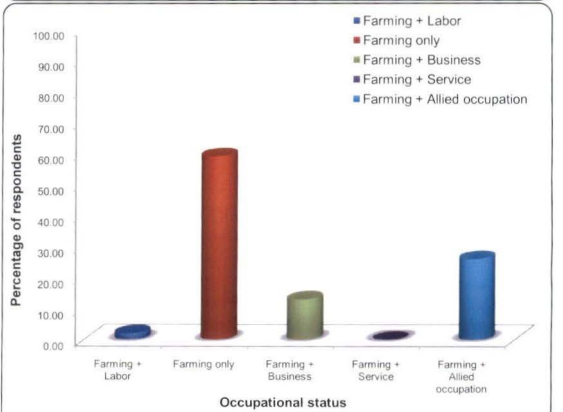

Fig. 8. Distribution of the respondents according to their Occupational status

Table 10: Distribution of the respondents according to their experience in farming

Sl. No	Farming experience Category	Years	Respondents (n=100)	
			Frequency	Percentage
1	Low experience	Up to 10	39	39.00
2	Medium experience	11-20	42	42.00
3	High experience	Above20	19	19.00
Total			**100**	**100.00**

It is therefore, concluded that maximum (42.00%) of the respondents had medium farming experience. This long time experience will help to facilitate an increase in their knowledge and skill level hence it will increase their productivity.

The similar findings were also noticed in the studies of Baswarajaiah (2001), Reddy Prasad (2003) and Rathod (2007) respectively.

6. Occupational status

It was observed from Table 11 that majority of the respondents (59.00%) had occupation of farming only. Whereas 26 per cent of the respondents having farming + allied occupation, followed by 13 per cent of farming + business and very negligible (2%) of respondents having farming + labor as occupation. No one of them had the occupation of farming + service.

Table 11: Distribution of the respondents according to their occupational status

Sl. No	Category	Respondents (n=100)	
		Frequency	Percentage
1	Farming + Labor	02	02.00
2	Farming only	59	59.00
3	Farming + Business	13	13.00
4	Farming + Service	00	00.00
5	Farming + Allied occupation	26	26.00
Total		**100**	**100.00**

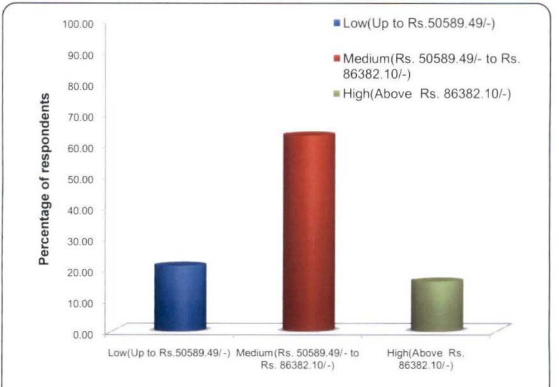

Fig. 9. Distribution of the respondents according to their Annual income

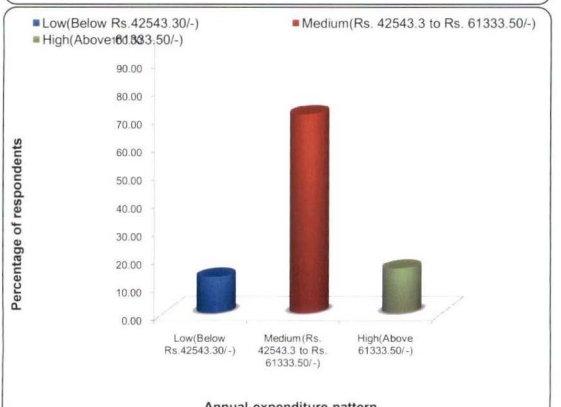

Fig. 10. Distribution of the respondents according to their Annual expenditure pattern

It is therefore, concluded that majority (59.00%) of the respondents had only farming as occupation because most of the farm women engaged in farming as for their livelihoods.

The similar results were also noticed in the study of Parihar *et al* (2010).

7. Annual income

It was observed from Table 12 nearly two – third of the respondents (63.00%) had annual income comes under category of Rs. 50589.49/- to Rs. 86382.10/- followed by 21 per cent comes under annual income up to Rs.50589.50/- and 16 per cent above Rs. 86382.10/-.

Table 12: Distribution of the respondents according to their annual income

Sl. No	Annual Income (Rs)	Respondents (n=100)	
		Frequency	Percentage
1	Up to Rs.50589.49/-	21	21.00
2	Rs. 50589.50/- to Rs. 86382.10/-	63	63.00
3	Above Rs. 86382.10/-	16	16.00
Total		**100**	**100.00**

Mean= 68485.8 **SD= 17896.30**

It is therefore, concluded that majority (63.00%) of the respondents had annual income comes under category Rs. 50589.50/- to 86382.10/- . From this result one can infer that agriculture is a lucrative venture and has the potential to meet food security for demanding population.

Similar findings were observed by Madiwalar (2012).

8. Annual expenditure pattern

It was observed from the Table 13 that nearly three-fourth of the respondents (71.00%) comes under medium expenditure pattern category (Rs.42543.31/- to Rs.61333.50/-), 16.00 per cent comes under high expenditure pattern category (Above Rs.61333.50/-), and 13.00 per cent comes under low expenditure pattern category (Below Rs.42543.30/-)

Table 13: Distribution of the respondents according to their Annual expenditure pattern

Sl. No	Category	Range(Rs)	Respondents (n=100)	
			Frequency	Percentage
1	Low	Below Rs.42543.30/-	13	13.00
2	Medium	Rs. 42543.31 to Rs. 61333.50/-	71	71.00
3	High	Above Rs. 61333.50/-	16	16.00
Total			**100**	**100.00**

Mean= 51938.4 **SD= 9395.146**

It has been concluded from Table 13 that nearly three – fourth (71.00%) of the respondents had medium annual expenditure pattern i.e. Rs. 42543.31 to Rs. 61333.50/- because most of the respondents had greater expenditure on food, education, followed by housing, clothing, health, electricity and religious activities.

Similar findings were observed in the study of Rathod (2007).

9. Economic motivation

It was observed from the Table 14 that majority of respondents (79.00%) had medium economic motivation, whereas 14.00 per cent and 7.00 per cent of them had low and high level of economic motivation, respectively.

Table 14: Distribution of the respondents according to their economic motivation

Sl. No	Category	Range	Respondents (n=100)	
			Frequency	Percentage
1	Low	Below 19.72	14	14.00
2	Medium	19.72 to 25.17	79	79.00
3	High	Above 25.17	07	07.00
Total			**100**	**100.00**

Mean= 22.45 **SD= 2.724283**

Therefore, it has been concluded from Table 14 that maximum (79.00%) number of the respondents had medium economic motivation level.

It might be due to lack of knowledge about HYV, high milk yield breeds and modern technology of cultivation.

Similar findings were reported by Swati Gawande (2007) and Madiwalar (2012).

10. Employment Generation

It was seen from the Table 15 that nearly three-fourth of respondents (73.00%) had employment generation up to 200 days, followed by 27.00 per cent of the respondents had 201 to 300 days for employment. None of the respondent was found in the category of above 300 days employment generation.

Table 15: Distribution of the respondents according to their employment generation

Sl. No	Category	Respondents (n=100)	
		Frequency	Percentage
1	Up to 200 days	73	73.00
2	201 to 300 days	27	27.00
3	Above 300 days	00	00.00
Total		**100**	**100.00**

It could be concluded from above findings that majority of the respondents (73.00%) generated mean women days up to 200 days which is not as per the norms of GOI. It can be further concluded that it is not sufficient for sustainable livelihood.

Similar findings were observed in the studies of Meher (2002) and Madiwalar (2012).

5.2 Livelihood status of farm women

For the present study the dependent variable livelihood status of farm women was studied as cumulative outcome of five livelihood capital assets such as human capital, physical capital, natural capital, social capital and financial capital.

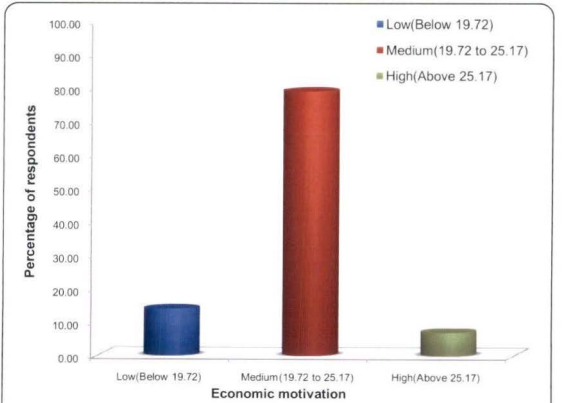

Fig. 11. Distribution of the respondents according to their Economic motivation

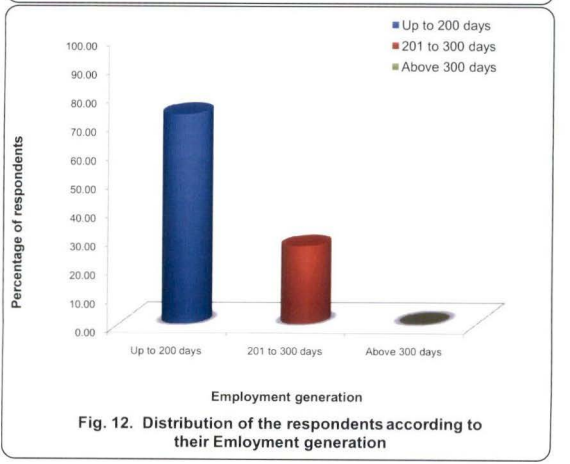

Fig. 12. Distribution of the respondents according to their Emloyment generation

The findings pertaining to distribution of respondents on these five livelihood capital assets and overall livelihood status have been presented in this section.

1. Human capital

Results pertaining to human capital components such as good health facilities, education and training institution and availability of labor facilities were presented under this section.

Table 16: Distribution of the respondents according to the Indicators of the human capital

1. Health			
Sl. No.	**A. Medical treatment sources**	**Frequency**	**Percentage**
1	Non availability	00	00.00
2	Private clinic	07	07.00
3	PHC	83	83.00
4	Rural hospital	10	10.00
	Total	**100**	**100.00**
i.	**Access to health facility**		
Sl. No.	**Distance to medical facilities (kms)**	**Frequency**	**Percentage**
1	>10	30	30.00
2	5-10	47	47.00
3	<5	23	23.00
	Total	**100**	**100.00**
ii.	**Means of transport in case of emergency**		
Sl. no	**Means of transport**	**Frequency**	**Percentage**
1	Bullock cart	00	00.00
2	Tractor/auto	86	86.00
3	Ambulance/ any car	14	14.00
	Total	**100**	**100.00**

2. Education(Category)		Frequency	Percentage
1	Illiterate(No schooling)	42	42.00
2	Primary schooling (1^{st} - 4^{th})	39	39.00
3	Middle school (5^{th} – 7^{th})	09	09.00
4	High School (8^{th} – 10^{th})	09	09.00
5	Higher secondary school (11^{th} – 12^{th})	01	01.00
6	College (Above 12^{th})	00	00.00
Total		**100**	**100.00**
3. Training received		**Frequency**	**Percentage**
1	Yes	00	00.00
2	No	100	00.00
3	If Yes Number	00	00.00
Total		**100**	**100.00**
4. Labor availability		**Frequency**	**Percentage**
1	Poor (Upto-33.33)	00	00.00
2	Average (33.34-66.66)	59	59.00
3	Good (Above 66.66)	41	41.00
Total		**100**	**100.00**

From the above Table 16 it was concluded that great majority (83.00%) of respondents avail the facility of Public health center, followed by rural hospital (10.00%) and private clinic (7.00%) respectively. Nearly (47.00%) of respondents had the accessibility within 5 to 10 kms, followed by more than 10 kms (30.00%) and less than 5 kms (23.00%). Great majority (86.00%) of respondents depends on auto for transportation followed by ambulance or any car (14.00). respectively.

Majority (42.00%) of respondents were illiterate, followed by primary schooling (39.00%), middle school (9.00%), high school (9.00%) and higher secondary school (1.00%) respectively.

Labor availability was average (59.00%), followed by good (41.00%) respectively.

Table 17: Distribution of the respondents according to human capital index

Sl. No	Human capital Level	Frequency	Percentage
1	Low (Up to 33.33)	00	00.00
2	Medium(33.34 to 66.66)	67	67.00
3	High (Above 66.66)	33	33.00
Total		**100**	**100.00**

The Table 17 vividly concluded that above two third (67.00%) of the respondents had medium human capital, followed 33.00 per cent of the families had high human capital index and not a single respondent had found in low human capital index. The majority (67.00%) of the families have medium human capital index it might be due to the average availability of health facilities, low educational level, not received any training (100.00%) of respondents for better livelihood opportunities, and average labor availability (59.00%) with majority of the respondents in study area.

Similar findings were observed by Kale *et al.* (2012).

2. Physical capital

The findings with regards to physical capital in terms of the infrastructural facilities such as affordable transport, type of house, adequate water supply and sanitation, affordable source of energy, information sources and materials possessed by the respondents were presented in the following subsequent paragraphs.

The data depicted in the table 18 revealed that majority of respondents prefer public transport (61.00%) as means of transport followed by jeep / autos (27.00%) and own vehicle (12.00%), respectively. Nearly two third (65.00%) respondents possessed katcha type of house followed by pucca (22.00%), tiled (12.00%), building (1.00%), respectively. Nearly cent per cent (99.00%) of respondents had average adequacy of water supply and sanitation and very negligible (1.00%) had high adequacy of water supply.

Nearly three-fourth (75.00%) of respondents had firewood as the source of energy, followed by kerosene (13.00%) and LPG (12.00%). Majority (41.00%) of respondents depend on neighbors for collection of information

followed by panchayat/society officials (23.00%), local leaders (16.00%), news papers (11.00%), television (6.00%) and radio (1.00%).

Nearly half (45.00%) of respondents possessed three farm animals or material (improved implements/pp equipment/ TV), followed by more than ten farm animals or materials (tractor/Car/Jeep) (24.00%), five to ten farm animals or materials (Gobar gas/spraying equipment/motor cycle) (14.00%), two farm animals or materials (bullock cart/radio) (11.00%), one animal or material (bullock/buffalo/cow/bicycle/furniture) (4.00%).

Table 18: Distribution of the respondents according to the Indicators of the Physical capital

1. Transport means	Respondents (n=100)	
	Frequency	Percentage
a. Bullock cart	00	00.00
b. Public transport	61	61.00
c. Jeep/autos	27	27.00
d. Own vehicle	12	12.00
Total	**100**	**100.00**
2. **Type of house**		
a. Katcha	65	65.00
b. Pucca	22	22.00
c. Tiled	12	12.00
d. Building	01	01.00
Total	**100**	**100.00**
3. Adequacy of water supply and sanitation		
a. Poor (Upto-33.33)	00	00.00
b. Average (33.34-66.66)	99	99.00
c. Good (Above 66.66)	01	01.00
Total	**100**	**100.00**
4. **Energy source**		
a. Firewood	75	75.00
b. Kerosene	13	13.00
c. L P Gas	12	12.00
Total	**100**	**100.00**
5. **Information sources**		
a. Neighbors	41	41.00
b. Local leaders	16	16.00
c. Panchayat/society officials	23	23.00
d. News papers	11	11.00
e. Radio	01	01.00
f. Television	06	06.00
g. Cinema/film shows	00	00.00
h. Dealer	00	00.00

i. VEO/AEO/AO	02	02.00
Total	**100**	**100.00**
6. Materials possessed		
a. None	02	2.00
b. One animal or material (bullock/buffalo/cow/bicycle/furnitu re)	04	4.00
c. Two farm animals or materials (bullock cart/radio)	11	11.00
d. Three farm animals or material (improved implements/PP equipment/ TV)	45	45.00
e. Five to ten farm animals or materials (Gobar gas/spraying equipment/motor cycle)	14	14.00
f. More than ten farm animals or materials (tractor/Car/Jeep)	24	24.00
Total	**100**	**100.00**

Table 19: Distribution of the respondents according to physical capital index

Sl. No	Physical Capital Level	Frequency	Percentage
1	Low (Up to 33.33)	82	82.00
2	Medium (33.34 to 66.66)	18	18.00
3	High (Above 66.66)	00	00.00
Total		**100**	**100.00**

The data in above Table 19 concluded that majority (82.00%) of the respondents had low physical capital and only 18.00 per cent comes under medium and not a single respondent had high physical capital. The medium physical capital index was observed with the majority (96.00%). The reason might be due to the medium score of maximum indicators of physical capital with majority of the families. These indicators are Katcha type of house (65%), firewood as energy of source for domestic purposes (75.00%), low information sources and low level of material possession with majority of the respondents.

Similar findings were observed in the study of Kale *et al* (2012).

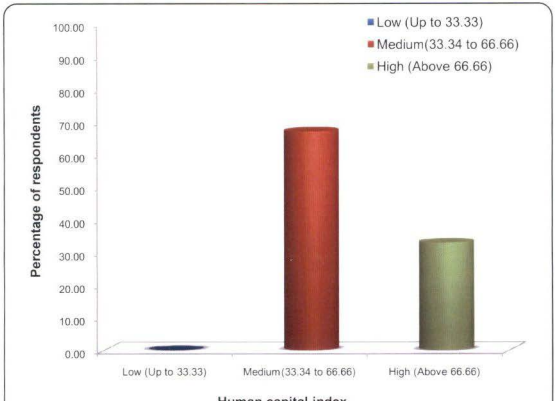

Fig. 13. Distribution of the respondents according to their Human capital index

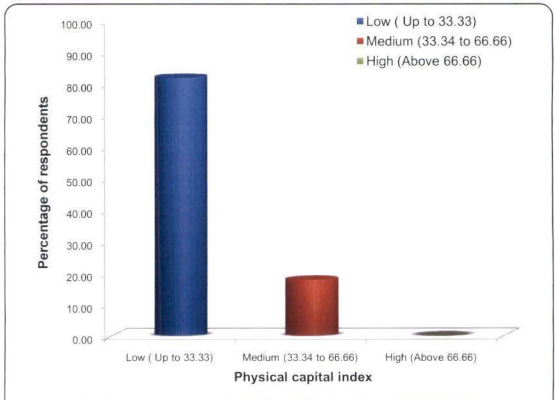

Fig. 14. Distribution of the respondents according to their Physical capital index

3. Natural capital

In these section findings with regards to the component wise of natural capital have been furnished in Table 20. The same have been interpreted and discussed, as follows.

Table 20: Distribution of the respondents according to the Indicators of the natural capital

i. Type of land		Respondents (n=100)	
Sl. No	Type of land	Frequency	Percentage
1	Rich fertile	26	26.00
2	Moderate fertile	59	59.00
3	Poor/Warkas	15	15.00
ii. Irrigation facilities:			
1	No source	02	02.00
2	River	81	81.00
3	Well	05	05.00
4	Canal	12	12.00
iii. Type of cultivation			
1	Rainfed	16	16.00
2	Irrigated	84	84.00
iv. Type of crop			
1	Cereals/ millets	78	78.00
2	Pulses	09	09.00
3	Oil seeds	02	02.00
4	Cash crops	11	11.00
5	Fruits and vegetables	00	00.00
6	Flower crops	00	00.00
7	Medicinal and aromatic	00	00.00
v. Cropping pattern followed			
1	Mono – cropping	12	12.00
2	Double cropping	51	51.00
3	Multiple cropping	37	37.00
vi. Farming system			
1	Crop-crop	57	57.00
2	Crop- dairy/ poultry/ piggery/ sericulture/ fishery	43	43.00
vii. Livestock composition			
1	Nil	01	01.00
2	1 to 3	54	54.00
3	4 to 6	41	41.00
4	Above 6	04	04.00
Total		100	100.00

The data depicted in Table 20 revealed that more than half per cent of respondents (59.00%) had moderately fertile land, followed by rich fertile (26.00%) and poor / warkas (15.00%), respectively.

Above three fourth (81.00%) of respondents had availability of rivers as the source of irrigation facilities, followed by canal (12.00%), well (05.00%) and no sources (02.00%), respectively.

Above three fourth (84.00%) of respondents had irrigated type of cultivation whereas only (16.00%) of respondents had rainfed type of cultivation.

Nearly three fourth (78.00%) of respondents had cultivated cereals type of crop, followed by cash crop (11.00%), pulses(09.00%), oil seeds (02.00%) and not a single respondent cultivate remunerative crops like fruits, vegetable, flowers, medicinal and aromatic crops.

Nearly half (51.00%) of respondents had double cropping pattern, followed by 37.00 per cent of multiple cropping pattern and 12.00 per cent had pattern of mono cropping. Majority (57.00%) of respondents had crop to crop type of farming system, whereas 43.00 per cent had Crop-dairy/poultry/piggery/sericulture/fishery type of farming system.

Nearly half (54.00%) of respondents had possessed one to three livestock, followed by 41.00 per cent had four to six livestock, only 4.00 per cent had above six livestock and negligible (1.00%) of respondent not possessed any livestock, respectively.

Table 21: Distribution of the respondents according to natural capital index

Sl. No	Natural Capital Level	Frequency	Percentage
1	Low (Up to 33.33)	65	65.00
2	Medium (33.34 to 66.66)	27	27.00
3	High (Above 66.66)	08	08.00
Total		**100**	**100.00**

Nearly two – third (65.00%) of the respondents had low natural capital, 27.00 per cent respondent comes under medium natural capital and 8.00 per cent comes under high natural capital. The reason might be due to availability of the maximum indicators of the natural capital with the respondents such as moderately fertile land (59%) , availability of irrigation sources of water i.e. river (81%), irrigated type of cultivation (84.00%), double type of cropping pattern (51.00%), non availability of remunerative crops like fruits, vegetables, flower, medicinal and aromatic crops (100.00%).

Similar findings were reported by Kale *et al* (2012).

4. Social capital

The study of social capital was made with references to socio - political participation and extent of trust. The data have been furnished as below.

Table 22: Distribution of the families according to the Indicators of the social capital

1. Socio- political participation			
Sl. No	**Socio- political participation**	**Frequency**	**Percentage**
1	No participation	85	85.00
2	Participated in social political institutions	01	1.00
3	Participated without any position in sociopolitical organization	13	13.00
4	Official position in one or more formal organization.	00	00.00
5	Official position in socio and political organization	00	00.00
6	Financial contribution or raised funds for	00	00.00
7	community work	00	00.00
8	Active office bearer	00	00.00
9	Involved in community work	09	09.00
Total		**100**	**100.00**

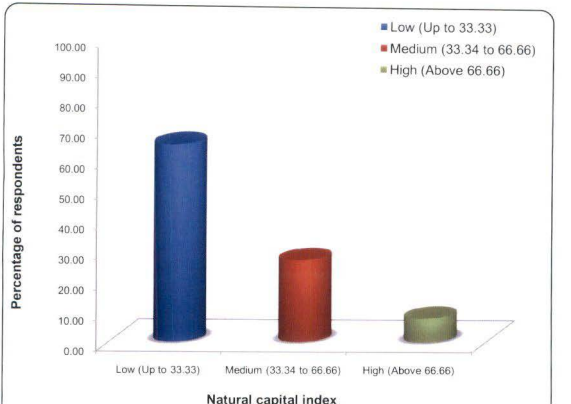

Fig. 15. Distribution of respondents according to Natural capital index

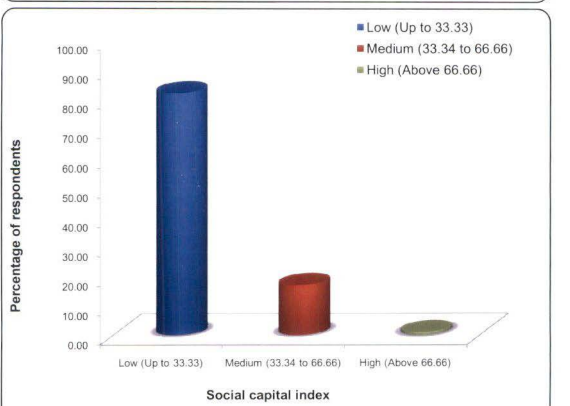

Fig. 16. Distribution of respondents according to Social capital index

2. Extent of Trust :			
Sl. No.	**Extent of trust**	**Frequency**	**Percentage**
1	To a very great extent	00	00.00
2	To a great extent	12	12.00
3	Moderate extent	43	43.00
4	To a small extent	44	44.00
5	To a very small extent	01	01.00
Total		**100**	**100.00**

The result from the Table 22 clearly revealed that majority (85.00%) of respondents had not participated in any socio political institute, followed by 13.00 per cent of respondents participated without any position in socio-political organization, only 9.00 per cent of respondents involved in community work and negligible (01.00%) participated in socio-political institute.

Majority (44.00%) of respondents had small extent of trust in other members of the village, followed by 43.00 per cent had moderate extent of trust, very negligible (01.00%) of respondents had a very small extent of trust, respectively.

Table 23: Distribution of the respondents according to the social capital index

Sl. No	**Social Capital Level**	**Frequency**	**Percentage**
1	Low (Up to 33.33)	82	82.00
2	Medium (33.34 to 66.66)	17	17.00
3	High (Above 66.66)	01	01.00
Total		**100**	**100.00**

The results from the Table 23 about social capital concluded that majority (82.00%) of the respondents had low social capital and 17.00 per cent comes under medium physical capital. Whereas, negligible i.e. 1.00 per cent respondents had high social capital. The reason for low social capital with majority of the respondents might be due to no socio-political

participation (85.00%) and small extent of trust (44.00%) of the respondents in other members of the village.

Similar findings were observed by Kale *et al* (2012).

5. Financial capital:

Financial capital was measured on the basis of debt and savings pattern of the respondents. The data in this regard have been furnished in Table 24.

Table 24: Distribution of the families according to the Indicators of the financial capital

1. Debt			
Sl. No	**Loans availed (in Rs.)**	**Respondents (n=100)**	
		Frequency	**Percentage**
1	Not availed	38	38.00
2	Upto Rs. 20,000/-	53	53.00
3	Rs. 20,001/- to 40,000/-	06	06.00
4	Above Rs. 40,000/-	03	03.00
Total		**100**	**100.00**
2. Savings			
Sl. No	**Total savings (in Rs.)**	**Respondents (n=100)**	
		Frequency	**Percentage**
1	Nil	50	50.00
2	Upto Rs. 20,000/-	23	23.00
3	Rs. 20,001/- to 40,000/-	20	20.00
4	Above Rs. 40,000/-	07	07.00
Total		**100**	**100.00**

Above half (53.00%) of the respondents availed the loan up to Rs. 20,000/-, followed by 38.00% per cent of respondents not availed any loans, 6.00 per cent availed the loan of Rs.20,001/- to Rs.40,000 /-, and 3.00 per cent availed the loan above Rs.40,000/-, respectively.

Half (50.00%) of respondents don't had any savings, whereas 23.00 per cent respondents had saving up to Rs. 20,000/- followed by 20.00 per cent had savings of Rs. 20,001/- to Rs. 40,000/- and only 07.00 per cent had savings above Rs. 40,000/-, respectively.

Table 25: Distribution of the respondents according to the financial capital index

Sl. No	Financial Capital Level	Frequency	Percentage
1	Low (Up to 33.33)	84	84.00
2	Medium (33.34 to 66.66)	16	16.00
3	High (Above 66.66)	00	00.00
Total		**100**	**100.00**

The results about the financial capital from Table 25 concluded that, majority (84.00%) of the respondents had low financial capital and 16.00 per cent comes under medium level of financial capital. Not a single family had high financial capital. This might be due to the fact that near about fifty per cent (50.00%) of respondents does not have savings and nearly half (48.00%) respondents had not availed the debts during the study year. The reason might be that 48.00 per cent respondents were defaulters and hence they are not eligible for availing the institutional loans.

Similar findings were observed in the study of Kale *et al* (2012).

C. Overall livelihood status index (includes five components)

The data from Table 26 revealed that nearly three – fourth (71.00%) had low livelihood status and above one – fourth (29.00%) respondents had medium livelihood status. The result also clearly shows that none of the respondents have high livelihood status.

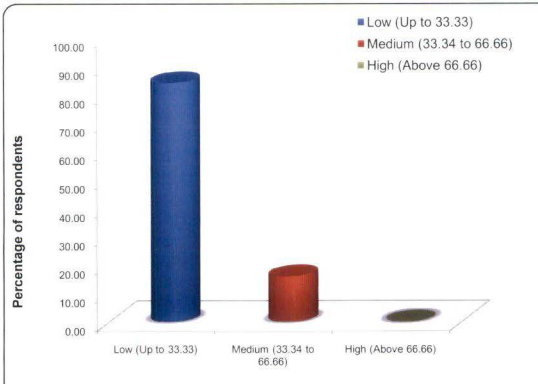

Fig. 17. Distribution of respondents according to Financial capital index

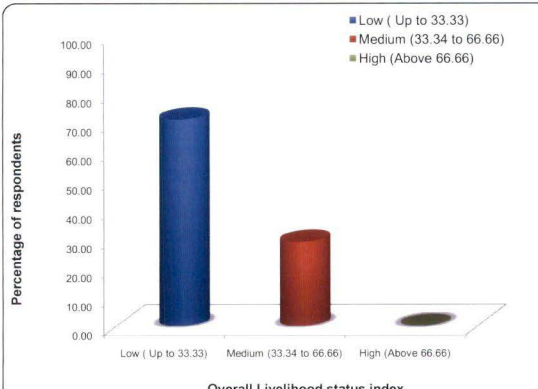

Fig. 18. Distribution of respondents according to Overall Livelihood status index

Table 26: Distribution of the respondents according to overall livelihood status index (Includes overall five components of livelihood status)

Sl. No	Livelihood Status Level	Respondents (n=100)	
		Frequency	Percentage
1	Low (Up to 33.33)	71	71.00
2	Medium (33.34 to 66.66)	29	29.00
3	High (Above 66.66)	00	00.00
Total		**100**	**100.00**

The low livelihood status found to attribute in 71.00 per cent of the respondents due to low physical, natural, social and financial capital assets even though human capital is on increasing.

The present findings are go in line with similar findings reported by Kale *et al.* (2012) who found that majority (71.67%) of respondents had low rural livelihood sustainability index.

5.3. Relational analysis

A correlation analysis was carried out to find out as to whether the selected characteristics had any association with livelihood status of farm women. The coefficients of correlation of the personal, socio – economic and psychological variables with livelihood status of farm women have been furnished in Table 27.

Table 27: Correlation Coefficients of independent variables with livelihood status

Sl. No	Name of Independent variables	'r' values
1	Age	0.1158^{NS}
2	Education	0.1363^{NS}
3	Family size	0.2249^{*}
4	Land holding	0.2225^{*}
5	Farming experience	0.0983^{NS}
6	Occupational status	0.1986^{*}
7	Annual income	0.5259^{**}
8	Expenditure pattern	0.3915^{**}
9	Economic motivation	0.0912^{NS}
10	Employment generation	0.1761^{NS}

* = Significant at 0.05% level of probability
** = Significant at 0.01% level of probability
NS = Non significant

The perusal of the data displayed in Table 27 clearly indicated that annual income and expenditure pattern are positively and significantly correlated with livelihood status of farm women at 0.01% level of probability, whereas family size, land holding and occupational status had positively and significant correlated with livelihood status of farm women at 0.05% of probability. It means by increasing annual income, expenditure pattern, family size, land holding and occupational status by the respondents there is increasing livelihood status among the respondent. Therefore the null hypothesis was rejected for these variables and concluded that these variables were significantly correlated with livelihood status of farm women.

Similar findings were observed by Madiwalar (2012).

Whereas age, education, farming experience, economic motivation and employment generation had shown non-significant relationship with their livelihood status of farm women. It means by increasing or by decreasing the facilities of variables like age, education, farming experience, economic motivation there would not be any change in livelihood status. Therefore the null hypothesis was accepted for these characteristics stating that these characteristics exists non-significant relation with livelihood status.

Similar findings were reported by Madiwalar (2012) and Kale *et al* (2012).

5.4 Problems faced by respondents in their livelihood.

The problems faced by farm women in their livelihood were tabulated and revealed in Table 28.

The results were presented in Table 28 concluded that majority (87.00%) of respondent faced the problem of dominance of male member during decision making, unavailability of inputs (78.00%), unavailability of market (78.00%), problem of transportation (78.00%), poor returns of investment (77.00%), high illiteracy (77.00%), lack of modern farming knowledge technology (75.00%), drudgery during cultivation and harvesting (73.00%), health hazards (68.00%), and unavailability of storage facility (68.00%), respectively.

Table 28: Distribution of respondents according to problems faced in their livelihood

Sl. No	Problems	Frequency	Percentage
1	Drudgery during cultivation and harvesting	73	73.00
2	Health hazards	68	68.00
3	High illiteracy	77	77.00
4	Poor returns of investment	77	77.00
5	Unavailability of market	78	78.00
6	Unavailability of storage facility	68	68.00
7	Problem of transportation	81	81.00
8	Lack of modern farming knowledge technology	75	75.00
9	Unavailability of inputs	78	78.00
10	Dominance of male members during decision making	87	87.00

Some of the similar type of problems had identified by Vidya Gunjkar (2005).

5.5. Suggestions given by respondents for better livelihood.

The suggestions given by farm women to overcome these problems for their better livelihood were tabulated and depicted in Table 29.

Table 29: Distribution of respondents according to suggestions given by respondents for better livelihood

Sl. No	Suggestions	Frequency	Percentage
1	Need of training for modern technology	75	75.00
2	Information about Government scheme and policies	71	71.00
3	Availability of storage facilities	79	79.00
4	Availability of farm inputs	71	71.00
5	Guidance for availability plant protection chemicals	74	74.00

It is depicted from Table 29 that three – fourth (79.00%) of respondents suggested made availability of storage facilities, need of training for modern technology (75.00%), guidance for availability plant protection chemicals(74.00%), information about government scheme and policies (71.00%), and availability of farm inputs (71.00%), respectively.

5.6. Empirical model of research

Considering the empirical relations amongst the independent variables and dependent variables the empirical model was prepared and relationship has been depicted in Figure 19. The empirical model shows that the observed relation of independent variables as age, education, family size, land holding, farming experience, occupational status, annual income, expenditure pattern, economic motivation, employment generation and livelihood status of farm women were studied as a dependent variable.

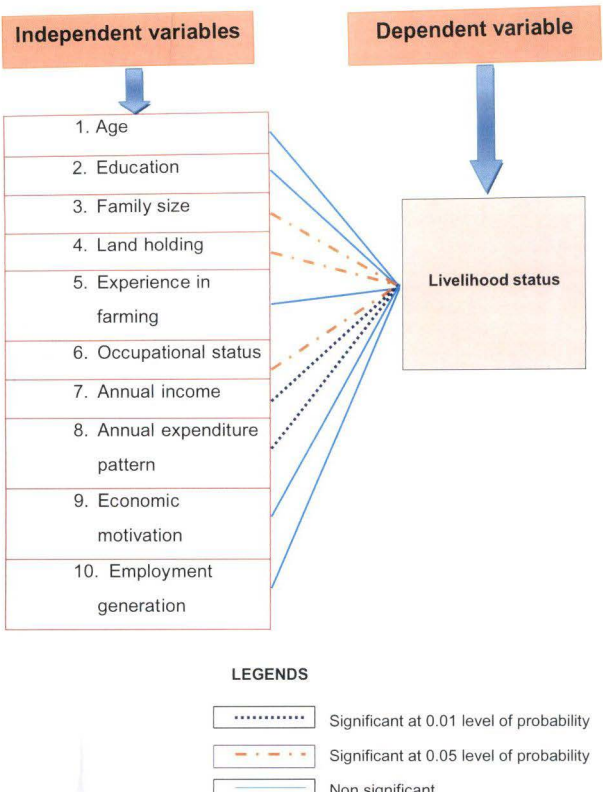

Fig.19. Empirical model of the research study

CHAPTER VI

SUMMARY AND CONCLUSIONS

The study entitled "Livelihood status of farm women in Bhadrak district of Odisha state" was planned and carried out in Dhamnagar and Bhandaripokhari tahsil of Bhadrak district of Odisha state. A list of farm women of the selected villages was obtained from the concerned tahsils. From each village 10 respondents who possessed and cultivated land under crop cultivation was selected randomly so that 100 respondents from 10 villages was constituted as total sample of study. Data was collected with the help of specific interview schedule by personally interviewing the respondents.

The present study was therefore undertaken with fallowing specific objectives.

1. To study the personal, socio-economic and psychological characteristics of farm women.
2. To assess the sustainable rural livelihood status of farm women.
3. To find out the relationship between selected independent variables and livelihood status.
4. To study the problems encountered by farm women in their livelihood.
5. To invite the suggestions by the farm women for better livelihood.

The ex-post-facto design of social research was used for the present investigation.

The sample was drawn from Dhamnagar and Bhandaripokhari tahsil of Bhadrak district of Odisha state. Dhamnagar tahasil 5 villages were selected and from Bhandaripokhari 5 villages were selected on the basis of random sampling. From the list, 10 farm women were selected randomly from each village by disproportionate random sampling method. Thus, 100 farm women constituted the sample for the study. Data were collected by

personally interviewing the respondents with help of pre-tested and structured interview schedule. The data collected were tabulated and the statistical tools namely mean, standard deviation, percentage, frequency, coefficient of correlation analysis were employed for interpretation of the findings. Null hypothesis set for the study were tested for its acceptance or rejection.

The characteristics of the farm women namely age, education, family size, land holding, farming experience, occupational status, annual income, annual expenditure pattern, economic motivation, employment generation as independent variable and livelihood status of farm women were studied as a dependent variable.

6.1 Personal, socio-economic and psychological characteristics of respondents.

The following are the salient findings emerged out of study:

1. The distribution pertaining to age of the respondents indicate that higher proportion of respondents (62.00%) belong to middle age category.
2. The distribution pertaining to education of the respondents indicates that it was found that 42.00 per cent of the respondents were illiterate.
3. The distribution pertaining to family size clearly explains that nearly two-third of the respondents (64.00%) had possessed large family size i.e. above 7 members.
4. Vast majority of the respondents (97.00%) were noticed in marginal land holding category.
5. Maximum (42.00%) number of the respondents had medium farming experience.
6. Majority of the respondents (59.00%) had occupation of farming only.
7. Nearly two - third of the respondents (63.00%) had annual income comes under category of Rs. 50589.49/- to Rs. 86382.10/-.

8. Nearly three-fourth of the respondents (71.00%) comes under medium expenditure pattern category (Rs.42543.30/- to Rs.61333.50/-).

9. Above three- fourth of respondents (79.00%) had medium economic motivation.

10. Nearly three-fourth of respondents (73.00%) had employment generation up to 200 days.

6.2 Assessment of sustainable rural livelihood status of farm women.

1. Above two third (67.00%) of the respondents had medium human capital.

2. Majority (82.00%) of the respondents had low physical capital.

3. Two – third (65.00%) of the respondents had low natural capital.

4. Majority (82.00%) of the respondents had low social capital.

5. Majority (84.00%) of the respondents had low financial capital.

6. Three – fourth (71.00%) had low livelihood status.

6.3 Relationship between personal socio-economic and psychological characteristics with livelihood status

It is vivid from the study that among the personal, socio-economic and psychological characteristics out of 10 selected variables, annual income and expenditure pattern shows positive and significant correlation with overall livelihood status of farm women at 0.01% level of probability and variables such as family size, land holding and occupational status, also showed positive and significant correlation with overall livelihood status of farm women at 0.05% of probability.

6.4 The problems faced by farm women in their livelihood.

Majority (87.00%) of respondent faced the problem of dominance of male member during decision making, unavailability of inputs (78.00%), unavailability of market (78.00%), problem of transportation

(78.00%), poor returns of investment (77.00%), high illiteracy (77.00%), lack of modern farming knowledge technology (75.00%), drudgery during cultivation and harvesting (73.00%), health hazards (68.00%), and unavailability of storage facility (68.00%), respectively.

6.5 Suggestions given by respondents for better livelihood.

Three – fourth (79.00%) of respondents suggested made availability of storage facilities, need of training for modern technology (75.00%), information about government scheme and policies (71.00%), availability of farm inputs (71.00%), and guidance for availability plant protection chemicals(74.00%), respectively.

CHAPTER VII

IMPLICATIONS

The implications based on the findings of the present study, following suggestions in the form of implications are offered. The implications are presented into two parts viz., implications for action and implications for future research. Implications with regards to research are based on experiences during course of investigation and will be useful for guidelines and suggestions for further research on same topic. Action implications may useful for extension personnel, policy makers, administrators, NGO's personnel and other related personnel, engaged in agricultural development.

7.1 Implications for action

After assessing the livelihood status of the farm women in Dhamnagar and Bhandaripokhari tahsils of Bhadrak district it was revealed from the study that overall livelihood status was low possessed by 71.00 per cent of respondents, followed by 29.00 per cent was observed in medium level of overall livelihood status. It means that, in this study area there is need to improve the livelihood status of farm women. It tends to implies that Government should make available the facilities for improvement of all indicators of livelihood status i.e. human capital, physical capital, natural capital, social capital and financial capitals.

It was also observed that majority (73.00%) of the respondents were engaged themselves in work for their livelihood up to 200 mean women days, followed by 27.00 per cent of respondents were having mean women days in range of 201 to 300 days. Therefore, it is implicated that Government should provide year round employment guarantee schemes in the agricultural slack seasons which ultimately helps to improve their livelihoods and it will help to avoid the social evils which may occur in leisure time.

It was also observed that respondents were faced number of problems in their livelihood amongst which the major problem expressed by farm women was about problem in transportation (81.00%) so Govt. should

provide every facility about transportation, followed by unavailability of inputs is also a major problem of 78.00 per cent of respondents so Govt. interventions should be there in making availability of agricultural inputs in time and at reasonable cost.

Most of the farm women facing problem about drudgery during cultivation and harvesting (73.00%), health hazards (68.00%) so Govt. should provide medical facilities for them.

Lack of knowledge about modern farming technology was the problem expressed by 75.00 per cent of the respondents so state department of agriculture should provide training on different technology to the farm women.

Unavailability of storage facilities was the problem expressed by 68.00 per cent of farm women. So Government should take a step towards establishment of storage units.

7.2 Implications for future research

The implications emerged from the present study suggest some measures for future research. They are as follows,

1. The research covering large area, higher population and greater number of other than selected characteristics should be carried out.
2. An exploratory study can be taken up on the impact of SHG's and commodity growers associations in alleviation of problems in better livelihood with respect to farm women.
3. Multi–location studies may be conducted on livelihoods so that generalization of findings on a wide range would be possible.
4. There is also a wide scope to study some intrinsic and extrinsic factors that contribute the livelihood status.
5. A feasibility study can be extensively done on the impact of agri-processing industries and value addition for better livelihoods.

CHAPTER VIII

LITERATURE CITED

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APPENDIX – I

INTERVIEW SCHEDULE

Title of Research Work: Livelihood status of farm women in Bhadrak district of Odisha State

Name of Researcher : Miss. Subhashree Malik
M.Sc. (Agri.) II year
Department of Extension Education
Dr. PDKV, Akola.

Part A: Independent variables

I. General Information:

1) Name of Respondent: _____
2) Village: _____ 3) Taluka: _____ 4) District: _____

II. Personal, socio- economic, communicational and psychological characteristics:

1) Age: _____ Years
2) Education: _____ Std.
3) Family size:
   Male: _____ Female: _____ Children: _____ Total:
4) Land holding:

Sl. No.	Type of Land	Hectare
1.	Rainfed	ha.
2.	Irrigated	ha.
3.	Total	ha.

5) Experience in farming: _____ Years
6) Occupational status

Sl no	Occupation of Family Head	Score
1	Farming + Labor	1
2	Farming only	2
3	Farming + Business	3
4	Farming + Service	4
5	Farming + Allied occupation	5

7) Annual income:
   i) Main source: _____ Rs.
   ii) Subsidiary source: _____ Rs.
   iii) Total: _____ Rs.

8) Expenditure pattern (Mean monthly expenditure (in Rs) on the following items)

A) Food _____ B) Education _____ C) Housing _____

D) Clothing _____ E) Health _____ F) Electricity _____

G) Religious_____

9) Economic motivation (Scale develop by Supe (1969))

Sl no	Statements	SA	A	UD	DA	SDA
1	A farm woman should work towards more income generation from agriculture, livestock and others for more profits for increasing standard of living. (+ve)					
2	A farm woman should try new technology practices on agriculture or livestock or any others which may earn her more money, so that it improves the livelihoods and generate more income. (+ve)					
3	A successful farm woman is one who makes the most profit. (+ve)					
4	A farm woman should cultivate HYV & high milk yielding breeds to produce more quantity of produce to increase the monetary benefits in comparison with the old & traditional crops and practices. (+ve)					
5	It is difficult with the children to make a good start unless be provided them with economic assistance. (-ve)					
6	A farm woman must learn her means of living but the most important thing in life, but it cannot be defined in economic terms. (+ve)					

SA- Strongly agree, A- Agree, UD- Undecided, DA- Disagree, SDA- Strongly disagree

10)Employment generation

Sl No	Agricultural operations	Months											
		Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
A)	Land preparation												
1.	Removal of stubbles												
2.	Ploughing												

3.	Removal of crop residue											
4.	Preparation of ridge & furrows											
B)	Manuring											
C)	Pre sowing preparation											
1.	Sowing of seeds with seed drill											
2.	Dibbling of seeds of crop											
D)	Interculture											
1.	Thinning & gap filling											
2.	Hoeing											
3.	Weeding											
4.	Irrigation											
5.	Top dressing of fertiliser											
E)	Plant protection											
1.	Spraying / Dusting											
F)	Harvesting											
G)	Threshing											
1.	Winnowing											
I)	Grain storage & marketing											

PART B- MEASUREMENT OF LIVELIHOOD

1. **Human capital**

   I. **Health**

   A. Medical treatment availability

   a) no availability b) private clinic

   c) Public health center d) Rural hospital

   B. Access to health facilities (kms)

   a) >5 b) 5-10 c) >10

   C. Means of transport in case of emergency?

   a) Bullock cart b) Tractor / auto c) Ambulance/ any car

II. **Education**

a) Illiterate ( ) b) Functionally literate ( ) c) Primary school ( )

d) Middle school ( ) e) High school ( ) 6) college education ( )

III. **Training Received**

a) Did you received any training organized by state department of agriculture or KVK (yes / No) , if yes then

Sl. No	Name of the programme	Duration	Place & time	Topic on which training received

IV. **Labor availability**

1. Do you engage own labor? Yes/ No, if any
   - i) How many family members are engaged?
   - ii) How many man days per year are engaged?
   - iii) Do you engage children for farm work? Yes / No
2. Do you engage hired labor?
   - i) How many members?
   - ii) Wage rate (in rupees / day)
   - iii) Are they locally available yes / No, if No
   - a) From which place labor inflows are more _____
   - b) Is the labor adequate for farm work when ever needed?
     Adequate/ partially adequate/ inadequate
   - c) Does the labor wages are more for outsiders? Yes / No
   - d) Are they skillful in carrying out the farm work?
     Highly skillful/ moderately skillful/ less skillful
   - e) How many mandays
   - f) Wage rates (In Rs / daya) male _____ female _____
   - g) Working hours in a day

2. Physical capital

I) Affordable transport:

A) Bullock cart B) Public transport C) Jeep/autos D) Own vehicle

II) Type of house Katcha / Pucca / Tiled /Building

III) **Adequacy of water supply**

1. Source of drinking water tank/ dug well/ bore well/ panchayat

2. Are you getting drinking water regularly? Yes/ No

If no then please give the reasons_____

3. Frequency of getting drinking water

I) Daily, ii) once in 2 days iii) Once in 3 days iv) once in 4 days
4. Is there any facility for disposal of sewage water by canal? Yes/ No

IV) Source of energy

i. Fire wood ii.Kerosene iii. LPG

V) Sources of information

i) Neighbors ii) Local leaders iii)Panchayat/society officials

iv)News papers v)Radio vi)Television

vii) Cinema/film shows viii) Dealer ix) VEO/AEO/AO

VII) Material possession

i) None

ii) One animal or material (bullock/buffalo/cow/bicycle/furniture)

iii) Two farm animals or materials(bullock cart/radio)

iv) Three farm animals or material (improved implements /PP equipment/ TV)
v) Five to ten farm animals or materials (Gobar gas/spraying equipment/motor cycle)
vi) More than ten farm animals or materials (tractor/Car/Jeep)

3. Natural capital
I) Type of land : Poor/Warkas , Moderate fertile, Rich fertile

II) Type of soil: black/ red/ alluvial/sandy loam

III) Type irrigation facility:

1. No 2.River 3. Wells 4. Canals

IV) Type of cultivation: Rain fed/ irrigated

V) Type of crops: cereals/ millets/pulses/oilseeds/cash crops/ fruits/ vegetables/ flower crops/ Medicinal & aromatic plants

VI) Cropping system: mono cropping, double cropping, multiple cropping

VII) Farming system: crop – crop, crop- dairy/ poultry/ piggery/sericulture/fishery

VIII) Livelihood composition:

Type of Animal	No of Animals	Local/ hybrid
Cow		
Buffalo		
Bullock		
Sheep		
Goat		
Poultry		
Pigs		
Others		

4) Social capitals

A. Socio – political participation

1. No participation

2. Participated in social political institution

3. Participated without any position in sociopolitical organization

4. Without any position in sociopolitical organization

5. Official position in one or more formal organization

6. Official position in SHGs or poverty alleviation programmes

7. Financial contribution or Raising funds for community work

8. Active office bearer

9. Involvement in community work

B. Extent of trust

1. To a very great extent

2. To a great extent

3. Moderate extent

4. To a small extent

5. To a very small extent

5. Financial capital

A) Indebtedness

Sl. no	Sources	Purpose	Amount borrowed
1	Thrift/ credit societies		
2	Nationalized banks		
3	PACS/ cooperative societies		
4	Private money lenders		
5	Friends & neighbor		
6	Any others		

B) Savings: Net savings (in Rupees) _____

PART – C

1. Enlist the problems associated with livelihoods among the farm women

a)

b)

c)

d)

e)

2. Enlist the suggestions for better livelihood of the farm women

a)

b)

c)

d)

e)

VITA

1.	Name of Student	:	**Miss. Subhashree Malik**
2.	Date of Birth	:	12-05-1993
3.	Name of the College	:	Department of Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth,Akola
4.	Residential address along with Mobile No.	:	At-Asurali, Post- Asurali, Via-Asurali Dist.- Bhadrak (Odisha) Pin Code: 756137. Mobile No. :-09778529323/ 07873697093 Email id :- malik.subhashree01@gmail.com

5. Academic qualification :

Sl. No.	Degree	Year	Division/ Class	University	Subjects
i.	B.Sc. (Agri)	2014	First	OUAT, Bhawanipatna, Odisha	Agriculture

6. Research paper published : None

7. Field of Interest : Agricultural Extension Education, Administration.

Place: Akola

Date: 02/08/ 2016.

(Subhashree Malik)

Signature of Student