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Bulletin No. 22

A model for gender mainstreaming in agriculture for village development

Directorate of Research on Women in Agriculture
(Indian Council of Agricultural Research)
Bhubaneswar 751 003, Odisha

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Under the project on

Technology application and gender mainstreaming in agriculture for developing a model village

Directorate of Research on Women in Agriculture
(Indian Council of Agricultural Research)
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Foreword

Villages are the backbone of Indian economy. Food, nutritional and health security of the people need to be ensured from the infrastructure and support systems being developed in the villages. Various efforts taken up in by development agencies have paved the way in bringing out a significant improvement in the quality of life among the village people. Research studies and available literature indicate the dismal scenario for women in the villages who lag behind their male counterparts in terms of literacy, access to health, safe drinking water, mobility, power and authority. Similarly, women in agriculture also have less access to agricultural knowledge/skill, extension services, technologies, market, institutional farm credit and other essential services. Directorate of Research on Women in Agriculture (DRWA) has been endeavouring to assess and refine technologies in gender perspective and bring out prescriptions to enable gender equality through gender equity interventions. Further, to develop villages as models for rural development, DRWA has undertaken a research project, "Technology application and gender mainstreaming in agriculture to develop a model village" by adopting Giringaput village in Khurda district of Odisha. I appreciate the efforts of Dr. K. Ponnusamy and his team for documenting the results and experiences and in bringing out a publication "**A model for gender mainstreaming in agriculture for village development**" which can serve as a resource material for planners, policy makers, researchers, extension agents and students as well as Non Governmental Organizations for gender mainstreaming efforts.

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Bhubaneswar
March 2014

Contents

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1. Introduction

India has 640867 villages. About two-third (68.84%) of Indian population lives in villages, of which 65 per cent is dependent on agriculture for their livelihood. Development programmes, technological advancements and government interventions have brought transformations in rural India. Eleven Five Year Plans and three annual plans during the last 62 years have vitalized rural economy in the form of infrastructure, education, health & sanitation and employment. The democratic decentralization initiated through 73rd constitutional amendment has made a significant headway in bringing power to the rural people which has facilitated the rural population to enjoy the fruits of democracy. Women have also got 33 to 50 per cent reservation in the elected local bodies in various states. These measures have given new insights, inspiration, aspiration and attitudinal change towards real development among the rural population. The gender gap in literacy has come down from 24.6 to 19.8 in the rural areas and from 13.4 to 9.8 in the urban areas during 2001 to 2011.

Despite strident progress made in all spheres of development in rural areas, sporadic and skewed development is being reported in various publications and media in the form of rural-urban divide. The progress made in the Millennium Development Goals (MDGs) has also highlighted this discriminatory scenario. NSSO Survey (2005) revealed that 40% of farmers were ready to quit farming due to declining profit in agriculture over a period of time.

When the interest of men declines in agriculture they invariably look for opportunities to earn adequate income in non-farming activities leading to out migration from rural areas. This leads to a situation where women have to take over the mantle of agriculture. They remain in villages, looking after children and elders and engage actively in all aspects of agriculture. Since, the gender role transformation is a slow process, women have to be supported with better access to resources and services. In this process, gender sensitization and a pragmatic approach to all round development will pave the way for sustainable farming and progressive mindset of villagers towards farming as a profitable profession.

1.1 Status of rural life situation

Rural societies are very complex and largely heterogeneous. The gender, caste, religion and wealth define the status of people in the society. This complex stratification of rural society still continues despite more than six decades of planned development programmes initiated by the government.

Poverty, hunger, malnutrition, nutritional disorders and diseases are yet to be completely eradicated in the villages. Nearly 80 per cent of children and 50 per cent of women in the country still suffer from hidden hunger caused by deficiency of iron, zinc, vitamin B1 and vitamin B12. Although most of the facilities as available in the urban areas are also found in rural India, access of rural population to safe drinking water, institutional credit, health and sanitation, quality education, formal employment, different ICT tools and road infrastructure is comparatively low. Therefore understanding rural social system, their values and norms would help the developmental workers for taking appropriate initiatives to ensure all round development in the villages. The participatory approach needs to be nurtured among the rural community based on rapport, trust and interpersonal relationship and democratic but structural functioning. Concerted efforts in coordinating the different schemes/projects for rural development are lacking leading to islands of success in few areas, leaving large population untouched behind the development paradigm.

1.2 Causes of poor development in rural India

About two-third of the rural population practise farming as an occupation. Despite increase in prices of almost all farm inputs, the price received by the farmers is paltry for their produce. The dwindling profit margins forces the farming community to sell the farm land for non-farming purposes or keep the land uncultivated.

1.3 Need for integrated approach and ensuring convergence

Several agencies are working for developing rural areas and village people. The development takes place on the basis of quantum of efforts of agencies in their respective areas of jurisdiction. The development is not always uniform. Piecemeal approach, sporadic efforts and casual attitudes of development agencies often lead to skewed growth and development. The visibility of efforts tends to disappear slowly or fastly depending upon the magnitude and quality of work, once the change agents withdraw their involvement. When the women and youth are not involved in the development process, there is no possibility of bringing inclusive growth among the rural segment of the population. Mainstreaming women and village youth can only bring sustainable rural development wherein it is possible to ensure equitable distribution of resources and opportunities. When different agencies work in different directions in meeting the aspirations and expectations of the village people, the focus of attaining sustainable rural development is lost. This results in uneven development. Hence, this calls for an integrated approach involving different stakeholders in ensuring holistic development of villages. This can also lead to development of model villages where

progressive agriculture and empowered village society would be witnessed.

2. Rationale for Gender mainstreaming in rural India

Gender mainstreaming efforts can bring about gender equality in rural society. The following parameters highlight the gender disparity in both rural and urban societies.

2.1 Status of women as per Census 2011

As per Census 2011, the population of India is 1210.19 million comprising 586.47 million (48.5%) females and 623.72 million (51.5%) males. Females have a share of 48.1% in the urban population and of 48.6% in the rural population. The sex-ratio is 940 in 2011 which is better than 927 in 1991 and 933 in 2001. The mean age at effective marriage for females stands at 21.0 years in 2010. Of the 48.7% never married persons in 2010, women had a share of 43.8% compared with 53.5% for men. Out of 150.18 million households in the rural areas in 2004 05, 16.67 million (11.1%) are Female Headed Households. India ranks 134 in 2011 among 187 countries in terms of the UNDP Human Development Index (HDI) and Gender Inequality Index (GII).

2.2 Health of rural and urban women

The Infant Mortality Rate (IMR) was 49 for female and 46 for male with the overall IMR of 47 in 2010. Life Expectancy at Birth (LEB) has increased more among women (64.2years) as compared to men (62.6 years) in 2002 06. The Maternal Mortality Ratio has come down from 254 during 2004 06 to 212 during 2007 09. About 57.4% women in rural areas and 50.9% women in urban areas suffered from anaemia during 2005 06. The awareness about the female sterilization is very high in both urban and rural areas. The rural women are found to be less aware about the traditional methods of contraception (55.5%) compared to the urban women (62.4%). About 2.2% women in India drink alcohol, 10.8% chew paan masala and 1.4% women smoke currently.

2.3 Participation of women in employment, literacy and education

The workforce participation rate in rural sector was 26.1 for females and 54.7 for males in 2009 10 (NSS 64th Round). In the rural sector, 55.7% females were self employed, 4.4% females had regular wage/ salaried employment and 39.9% females were casual labours compared with 53.5%, 8.5% and 38.0% males in the same categories respectively. In 2009 10, the average wage/ salary received by regular wage/salaried employees of age 15 59 years was Rs. 155.87 per day for females compared with Rs. 249.15 per day for males in rural areas. According to the pilot Time Use Survey conducted in 18,620 households spread over six selected States, namely, Haryana, Madhya Pradesh, Gujarat, Odisha, Tamil Nadu and Meghalaya during the period June 1998 to July 1999, women spent about 2.1 hours per day on cooking food and about 1.1 hours on cleaning the households and utensils. Men's participation in these activities was

nominal. Taking care of children was one of the major responsibilities of women, as they spent about 3.16 hours per week on these activities as compared to only 0.32 hours by males.

As per Census 2011, 74.0% of the population is literate comprising 65.5% females and 82.1% males. The incremental increase over Census 2001 of 11.8% for females is higher than 6.8% for males. As per NSS 64th Round, 2007-08, of the currently attending students aged 5-29 years, 69.2% females in primary schools, 65.6% females in the middle schools and 56.8% females in secondary and higher secondary schools were attending Government schools. The share of males is across the board lower at 65.4%, 64.0% and 55.6% in the respective categories. Share of females getting free education/ exemption from tuition fee and receiving different types of incentives is higher than that for males in all the three levels of school education. However, the average annual expenditure for females is lower than that of males. The main reasons of females never attending school are 'expensive cost of education', 'not interested in studies', 'education is not considered necessary' and 'required for household work'.

2.4. Participation in Decision making

As per the National Family Health Survey–III (2005-06) in the rural sector, married women take 26% decisions regarding obtaining health care for herself, 7.6% in case of purchasing major household items and 10% decisions in respect of visiting their family or relatives as compared to 29.7 %, 10.4 % and 12.2 % respectively in urban areas for same categories. In the age group of 15-19 years, 46% of women are not involved in any kind of decision making. About 23.4 % rural females and 13.9% of urban resident females are not involved in any decision making. Similarly, 32.7% illiterate women, 21.6% unemployed women are not involved in any decision making. For the country as a whole, 59.6% women have access to money.

The above data clearly indicate the position of rural women *vis a vis* urban women in terms of a number of developmental parameters which highlights the importance of undertaking initiatives to address the rural-urban divide. Moreover, there is discernable indication about how the women are at a disadvantageous position as compared to men on similar parameters.

2.5 Current agrarian crisis

Indian agriculture which supports around 60% of population for their livelihood is showing slow growth in the recent years due to various challenges such as reduction in the per capita land holding, land degradation, rapid urbanization, migration of rural population to urban areas, rapid industrialization, shift to non agricultural occupation, almost stagnant net sown area for 50 years (around 140 mha), climate change besides others. Under such situation, giving a stimulus to agriculture growth is the

prime focus of the ICAR and the agricultural scientific community. Therefore, there is a need to fine tune the research to address the problems of the farmers especially women and youth in the rural areas. The research should be taken up to meet the requirement of the farming community as well as the consumers and agri based industries.

2.6 Gender mainstreaming-an approach to rural development

The intricate relationship between agriculture and women is well known. On one hand, high growth and sustainable development of agriculture are crucial for prosperity and happiness of farmwomen and their family; on the other hand, capacity building of women and their empowerment, creating efficient service delivery mechanism and gender friendly technological innovations in agriculture have become imperative for inclusive agricultural growth and development. With changes sweeping the agriculture and other sectors, gender issues have become more important and dynamic. Therefore, it is necessary for stakeholders to understand the issue in larger perspective to design more focussed action programmes for enhancing and harnessing the capability of women for bringing all round development in rural areas. It is possible to bring the gender equality through appropriate technological and institutional innovations and thereby improving the rural women's situation in the development process.

3. Initiatives of DRWA towards gender mainstreaming

It is pertinent to highlight the contribution of DRWA in taking up various R & D activities since its inception in 1996.

3.1. Successful efforts of DRWA

Directorate of Research on Women in Agriculture (DRWA) is a premier institution in the country undertaking research on gender in agriculture and allied enterprises. The research outputs and outcomes of DRWA have helped a number of research and development agencies to reorient their programmes for gender equality and gender equity. Particular mention can be made with regard to the development of database on women participation, identification and evaluation of crop production technology/ cropping patterns for reducing work load and addressing the needs of farm women, entrepreneurship models, resource access and benefit sharing; refinement of farm equipments for drudgery reduction; gender sensitive para extension worker model and documentation of women friendly farm enterprises. The para extension worker model of DRWA brought out the salient features of a gender sensitive extension approach and proved its effectiveness in four adopted villages and the model has significant implications for future cost effective extension approach.

3.2. Model Village concept

India lives in villages. Majority of the population depend on agriculture for their

livelihood. However, farming is increasingly becoming unprofitable due to vagaries of nature and human made problems. In order to attain self-sufficiency, rural India needs to be developed in a holistic manner. Moreover, the interest of village youth has to be rekindled and retained in agriculture for meeting the food and nutritional security of the country. Majority of farm operations are being carried out by women in rural areas whose access to resources, credit, power and technology are yet to be addressed in a holistic manner. Thus, future agricultural growth will have to be engendered to tackle the farm problems effectively. Model village can be developed through appropriate interventions in gender perspective which can create a happy and sustainable development and benefit the nation in terms of economic development. The improvement in livelihoods of villagers is also important for sustainable agriculture in the long run.

A holistic rural development can be ensured through integrated approach to various sectors of village economy and participation of both men and women. A village is said to be developed when it attains self-sufficiency in all its requirements in day to day life. Addressing the concerns of villagers with gender focus is a prime requirement for developing a model village as agriculture is increasingly becoming feminised. Involvement of women in farm production is increasing due to male migration resulting in growing number of female headed households. This leads to change in gender division of farm operations. Women need to be recognized as primary producers instead of beneficiaries of developmental projects. There is a need for convergence of different departments and schemes for developing entrepreneurship among women and youth and equipping them with strategies for dealing with climate change and disaster preparedness. Development of appropriate methodologies and approaches for bringing out overall improvement in the livelihoods of villagers is the aim of model village approach. In this process, a village was identified to test the concept of model village through technology application & gender mainstreaming efforts.

3.3 Gender mainstreaming in model village

Rural development cannot take place in isolation. Aspects intimately linked with the rural economy, such as the social issues, education, health, sanitation, etc. also need to be addressed in harmony with each other. Technology Application and Gender Mainstreaming in Agriculture for developing a model village project was started in response to recommendations of various research monitoring bodies for a period of three years (2011-2014). The model village concept is being implemented in Giringaput village keeping in view the resources and manpower availability. A set of parameters were considered before choosing the village for implementing the planned interventions in a smooth manner. It was decided to entertain a set of commodity focused model

farmers comprising both male and female in equal number in the village with a focus on sustaining the interventions even after completion of the project period. The technological interventions are being carried out at the farmers' fields in the mode of on farm trials or verification trials. On the basis of technological and societal need, village women and youth were trained to learn entrepreneurial skills. Ergonomic evaluation of farm operations for drudgery reduction was also taken up as part of the project. The multidisciplinary scientific team has imparted training to the farm families on new interventions being taken up in the village. The moral values were also infused to younger generation of villagers through appropriate activities. Developmental agencies of state government are being involved to take up the success stories to the larger domain of farming community in the state. Efforts have also been made to make a convergence of different departments and schemes to promote profitable farming, in order to equip the women and youth to cope with climate change and natural disasters. Development of gender check list and indicators for measuring gender mainstreaming were also undertaken. Stakeholder consultation meeting was organised before starting the project activities in the village. Concurrent monitoring and evaluation of project activities were undertaken.

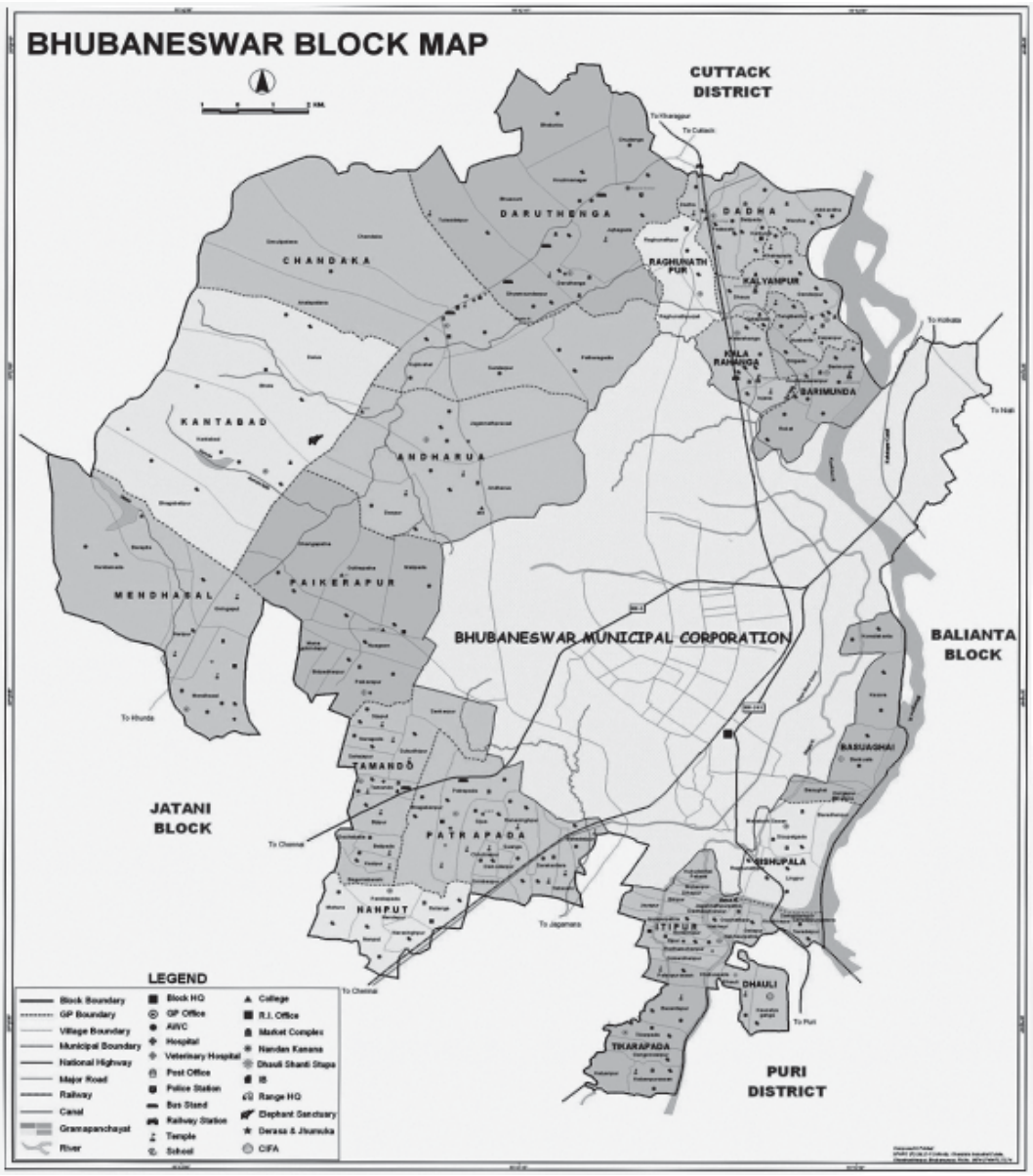
Hence, a conceptual *model village* was proposed where the villagers act as decision makers, partners, and beneficiaries with multi-sectorial, multifunctional and integrated development to achieve the holistic and sustainable development backed up by futuristic and progressive skills leading to higher levels of productivity and overall improvement in the quality of life.

4. Base line information on DRWA's model village

The village 'Giringaput' in Khurda district of Odisha was identified for implementing the model village project after careful consideration of factors like access to village, level of development, impact of urbanization, percentage of weaker sections, interventions of agencies and scope for intervention. The project was initiated with the objectives of developing models for gender mainstreaming in the adopted village through need assessment, capacity building, convergence of various departments and schemes, entrepreneurship development and facilitation of access to resources, skills, knowledge and power.

4.1 Village background

Giringaput is a small village located about 15 km away from DRWA toward southern side of the Bhubaneswar city. It falls under Bhubaneswar block in Khurda district of Odisha and the Gram Panchayat is situated at Mendhasala. There are three hamlets with a total of 350 households in this village.

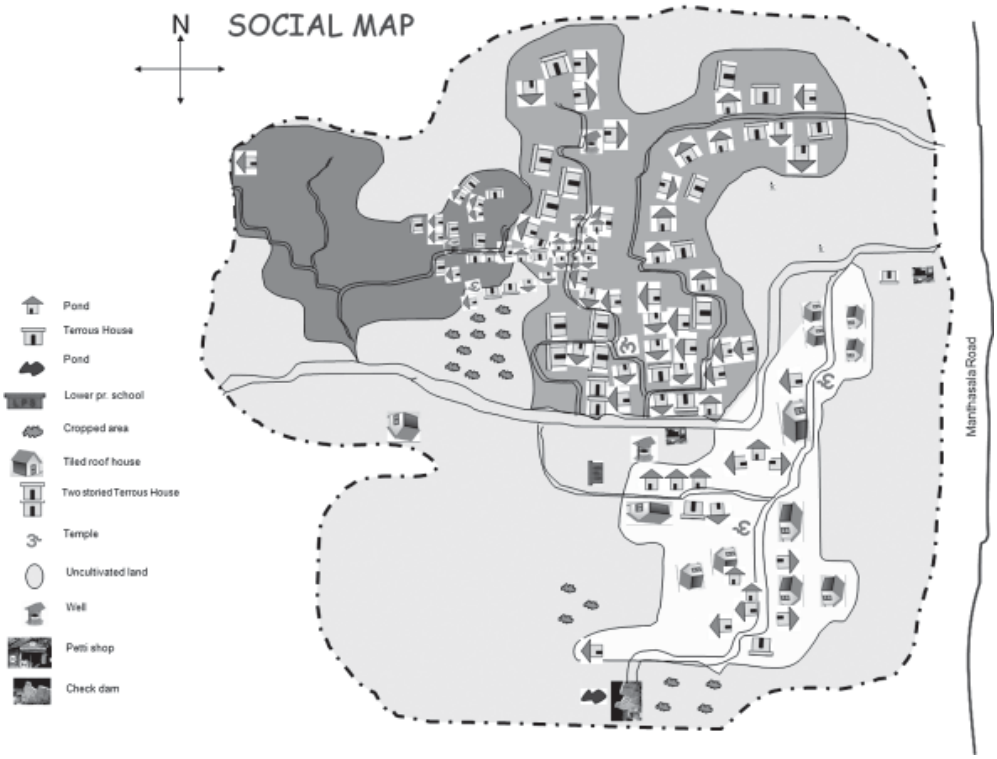


There are few families who live in semi pucca and pucca houses. This village has a glorious past because, once upon a time it was under the suzerainty of Maharaja Mukunda Dev, the then king of Khorda gada. This village is about 300 years old. The primary school was established 100 years ago, but people have access to electricity only since 20 years ago. Most of the houses in this village are kachha houses. The first pucca house in the village was built in 1960 by Mansingh family. Earlier there were wells for drinking water. Villagers started getting drinking water from tube well since 1995.

There are two hamlets of Sabar caste people, who planted cashew nuts in the waste land owned by government in the year 2000, from which they get about Rs. 40,000/- profit per year. For the first time, 11 women formed a Self Help Group and started saving small amount of money in the year 2005-06. Later this group also brought auto from the money saved by them.

4.2 Social fabric of the village

Out of three hamlets, one is dominated by general caste people with 200 households who mostly belong to Khandayata caste. Another hamlet with about 100 households belong to scheduled caste (SC) communities. Different castes co-exist and maintain cordial relation among themselves in the village. Communication facility to this village is quite good because it is located along the main road and there are pucca and kachha roads inside the village. There are also number of socio-cultural and educational institutions which included temples, library, community hall, Bhagawata hall, festival ground, playground, primary school, anganwadi centre, common grain storage place and grocery shops. The people of the village are very simple and they follow their traditional practices to preserve their culture. Most of the SC community do not possess any land and they cultivate in the land of general caste people by taking them on lease. There are five bore wells, four wells and two ponds for daily use by the villagers.



4.3 Agriculture in the village

Farmers have option to get access to water from Deras dam situated 10 km away from for cultivation of crops, mainly paddy. They also depend upon on rainwater for cultivating vegetables. Paddy is cultivated in more than 400 acres of land in Kharif and Rabi season and vegetables like brinjal, potato, pumpkin, bitter gourd, green leaves, beans, cowpea, green chillies, cucumber cauliflower and cabbage are produced throughout the year. The village is also rich in plant biodiversity with different trees like mango, coconut, custard apple, subabul, neem, moringa, papaya, banyan, palm, dates, cashew nut etc. The total animal population is about 1000 of which half of them are goats. The rest of the animals are cattle and poultry birds. All the animals belong to non-descript breeds.

There is no presence of NGO mediated development so far in this village. There are two SHG's in both the hamlets. In the smaller hamlet the people mostly belong to Sabar caste. About four years ago, women from 40 households came forward and united themselves into SHG called Maa Mangala SHG. They started cashewnut cultivation in a wasteland nearer to their hamlets by collecting rice grains from each family, selling them in market and purchasing seeds from the sale proceeds. They followed the same practice for four years to maintain this garden. The male members of their family supported them and also helped them. They leased this garden for harvesting cashew nuts. They organized religious festivals out of the profit generated. Another SHG group named 'Sriya' was formed with 20 members. There is an ASHA worker who takes care of the health of pregnant and lactating mothers and also the children belonging to upto six years of age. They used to go Khurda and Bhubaneswar for treatment when they fell ill. They celebrate different festivals together in both the hamlets. The residents use library for reading books and gather in Bhagawat hall for listening Gita and Ramayan.

Table 1. Land resources of Giringaput village

Sl.No	Particulars	Area
1	Cultivated Area	338Ac.949Dcm
2	Pasture (Gochara) Land	124Ac.735Dcm
3	Fallow (Anabadi)	250Ac.890Dcm
4	Other Lands (Ponds,Roads & Gharabari)	90Ac.601Dcm

Source: Revenue Inspector, Mendhasal

Table 2. Animal Resources of Giringaput village

Hamlet	Cows	Bullock	Goats	Poultry birds	Buffalo
Sana Sabar Sahi	22	28	82	24	-
Bada Sabar Sahi	44	24	76	17	4
General Sahi	70	50	20	30	-
Total	136	102	178	71	4

5. Gender analysis

Gender differences persist in the Indian society over a long period. Men and Women tend to have differential access to resources, extension, services, credit and market. These prevailing perceptions need to be documented through gender analysis for formulating appropriate gender based action plans.

5. 1. Gender disaggregated activity analysis

The gender disaggregated activity analysis was conducted through focus group discussion to identify the men and women dominated activities in different farm enterprises. This will help the development workers to work out and implement gender based interventions.

Table 3. Gender disaggregated farm activities in rice cultivation

Sl. No	Women	Men	Both
1	Transplantating	Land preparation	Harvesting
2	Weeding	Seedling preparation	Transportation
3	Harvesting	Irrigation	Threshing
4	Storing of seeds for next paddy cultivation	Manuring, pesticide broadcasting	-
5	Parboiling	Winnowing	-
6	Drying	Milling	-
7	Dehusking	Transporting	-
8	Cleaning and Storing	Marketing	-
9	Value addition		

Table 4. Gender disaggregated livestock activities

Sl. No	Women	Men	Both
1	Cowshed cleaning	Labourer appointment for gracing and management	Milking
2	Feeding and watering	Transportation of cow dung manure to farm	Selling the milk
3	Cow dung pit aintenance	Cattle health care/disease management/ vaccination	-
4	Milk processing for household purposes	Collection of paddy straw to feed the animal	Collection of green fodder
5	Care of new born calf	Purchase of feeds from markets	-

Table 5. Gender disaggregated household activities

Sl. No	Women	Men	Both
1	Cleaning and managing the house	Purchasing things for household management	Education for children
2	Washing of cloths and utensils	Money management	Marriage for children
3	Fetching water	Property management	Budgeting
4	Fuel wood collection	Decision making on home and farm activities	-
5	Food management	-	-
6	Child and elderly care	-	-
7	Informing the need to purchase things for house	-	-

Table 6. Gender disaggregated activities in vegetable cultivation

Women	Men	Both
Sowing of seeds	Ploughing of the field	Cleaning of stubbles for land preparation
Weeding	Transportation of manure to field	Spreading manure to the field
Application of fertilizer	Irrigation	Nursery bed preparation
Application of fertilizer to plants	Application of Pesticides to plants	Earthing up of the plants
Harvesting of vegetable	Marketing of vegetables	
Grading & sorting of vegetable before marketing		
Collection & storage of seeds for next crop		

Table 7. Gender disaggregated activities in Cashew cultivation

Women	Men	Both
Collection of nuts	Ploughing of field	Cleaning of stubbles & land preparation
Transport of nuts from field to house	Spraying of plant protection materials	Digging of pits for planting of seedlings
Grading & sorting of nuts before marketing	Training /Pruning & cutting of diseased & senile branches	Planting of seedlings
	Marketing of nuts	Watering /Irrigation of the plantation
		Weeding & cleaning of stubbles before nut collection

5.2 Identification of gender issues through various PRA tools

PRA techniques were employed to identify the gender issues relating to rural life situation in general and agriculture in particular. These techniques are described as under:

5.2.1 Access to resources, health and sanitation

Access to various resources by both men and women vary according to perceived gender roles in the society, educational level of village people, impact of mass media, level of intervention of development agencies and political awareness in the village.

Table 8. Mapping of resource use and its control

S.No	Usage and control of resources		
	Type of Resources	Men	Women
A.	**Agriculture**		
a.	Land	*****	**
b.	Tools and implements	*****	****
c.	Domestic animals	**	****
d.	Fish pond	**	***
B	**Common resources**		
a.	Village pond	**	****
b.	Road	****	****
c.	Waste land/grazing land	**	****
d.	Community well	**	****
e.	Community hall	*****	**
	Veterinary clinic	***	**

C	Health, nutrition and sanitation		
a.	PHC	*	***
b.	ASHA	*	****
c.	Anganwadi Centre	*	****
d.	PDS	**	*****
e.	Toilet facility	**	**

*Indicates least use and control of resources; ***** indicates most use of control of resources

The Giringaput village is well connected with NH.-5 bypass road connecting Bhubaneswar, Khurda, Cuttack and other important towns in the vicinity. People commute to these places for various purposes for purchase of family and farm requirements. Three hamlets of Giringaput are connected through both concrete (200 m) and semi-pucca road (≃ 3km). The village roads are taken care of by the village panchayat. The village roads need to be well laid out for hassle free travel and transport of agriculture commodities. Eighty percent of villagers have the habit of tobacco chewing and spitting on the public places such as road, school walls and places in front of school and temples. Even though a NGO promoted the individual household toilets, majority (70%) of them abandoned the use of toilets due to water scarcity, unavailability of adequate construction materials for completion of toilet and cultural factors. Hence, open defecation is largely prevailing in the village although a section of the general caste people have their own toilet facilities. In general, old villagers prefer open defecation while younger ones especially females find it very difficult to go for open defecation. In the event of heavy downpour, water gets easily drains out due to the location of the village at an elevated place.

Table 9. Utilization of power sources in the village (No. of households)

Sources	General Sahi No.	Sana Sabara Sahi No.	Bada Sabara Sahi No.
Electricity	106	43	42
Wind power	-	-	-
Solar	-	-	-
Biogas	-	-	-
Inverters/UPS	3	-	-

Table 10. Drinking Water Supply (No. of Households)

Particulars	Gen. Sahi No.	Sana Sabara Sahi No.	Bada Sabara Sahi No.
Piped Water Supply	-	-	-
Water Purifier	3	-	-
Open Wells	4	2	1
Bore wells / Tube wells	3	2	1

Table 11. Health infrastructures and status of women and children in the village

Details	General Sahi	Sana Sahi	Bada Sahi	Total
PHC	-	-	-	
ASHA	1	-	-	1
Anganwadi Centre	1	-	1	2
Health indicators				
Anemia	50%	50%	50%	
Night bliendness	-	1		
Malnourished i. Severe ii. Moderate	 - 2	 - 6	 1 4	
Infant mortality rate	1	-	-	
Mother mortality rate	-	-	-	
Still birth	1	-	-	
Immunization	Full	Full	Full	
Commonly prevailing diseases				
Malaria	5%	7%	10%	
Diarrhoea	-	-	-	
Dengue	-	-	-	
Measles	-	-	-	
Arthritis	30%	35%	40%	

- PHC is situated 3km away from Girngaput
- Health status of men and women
- There is apparently no clear-cut relationship between income and energy intake. Increase in income does not necessarily reflect in increase in energy intake. Moreover, there seems to have no relationship between energy intake and nutrition security. However, there is a clear relationship between hygiene, sanitation, infectious disease, malnutrition and mortality. The 12th five year plan also emphasizes on the

Table 12. Gender in relation to health status in Giringaput village

Sl	Parameters	Current Status	Desired Status (2015)	Intervention
1	IMR	86.9 - 2011	Nil	
2	Still Birth	1 - 2011	Nil	
3	MMR	-	Nil	
4	Diseases Prevalence	Skin diseases (33%), arthritis (66%), blood pressure (33%), dental caries (12%), headache (96%), deaf (10%), ear (10%), night blindness (3%), anemia (10%)	Reduce to 50%	Awareness camp, Interface with the health & women & child development department, working with NGOs to promote healthy livelihood
5	Toilet facilities	13% have toilet	Enhancement to 50%	Converging concerned line departments to promote / establish toilets

importance of convergence between livelihood and access to food, ecosystem, human health, improved agricultural technology for enhancing rural incomes.

- While good nutrition depends on food, care, health and knowledge; nutrition outcomes depend on household income and expenditure patterns, women's income, women's time and work load, decisions on intra-household dietary allocation and intake.

5.3 Decision making pattern of men and women in farm related activities

The head of the family, usually the male member initiates selection of farm enterprise, assortment of crops/enterprises, resource allocation, investment decision in farm, labour engagement and purchase of farm inputs. Although, both male and female participates in these activities and implement them, the decision making still rests with men in majority of the activities. On the other hand, women take considerable lead in managing family finance, saving, purchase of family consumption items, cooking items for the day, health check up of family members and spending for elders in the family which reflects stereotype gender roles in the rural society. Such analysis help in identification of activities for gender sensitization and opportunities for gender mainstreaming.

Table 13. Gender involvement in decision-making & implementation in agriculture

S. No	Activities	Who Initiates	Who Participates	Who decides	Who implements
1	Selection of farm enterprise	M	B	M	B
2	Assortment of crops/enterprises	M	B	B	B
3	Resource allocation	M	B	F	B
4	Investment decision in farm	M	B	M	M
5	Labour engagement	M	B	B	M
6	Purchase of farm inputs	M	B	M	B
7	Timing of farm operations	B	B	M	B
8	Borrowing and repayment of loan	B	B	B	B
9	Maintenance of family finance	F	B	B	B
10	Engagement of farm machinery	M	M	M	B
11	Harvesting	B	B	M	B
12	Farm loan and its payment	M	B	M	B
13	Marketing of farm produce	B	B	B	M
14	Saving	F	B	F	B
15	Purchase of family consumption items	F	B	F	F
16	Cooking items for a day	F	B	F	F
17	Health check up of family members	F	M	B	B
18	Participation in social gathering	B	B	B	B
19	Recreation	M	B	M	B
20	Arrangement of social events like marriage	B	B	B	B
21	Participation in training	M	B	B	B
22	Spending for elders in the family	F	B	B	F

M-Male; F-Female; B-Both male and female

5.4. Access of extension services and pattern of preference of extension services

Table 14. Access to extension services

Sl. No.	Extension services	Male	Female
1.	Demonstration	***	*
2.	Training	***	**
3.	Awareness campaign	**	*
4.	Study tour	*	*
5.	Exhibition	**	*
6.	Personal visit	***	**
7.	Mobile advisory	**	-
8.	Kisan call centre	*	-

*Indicates least access to extension services; *** indicates better access to extension servicesWomen have less adoption rate of technologies and lower productivity then men due to their lower access to extension services.

When women have command over productive assets and their own earnings, households allocate more income to food, health care, clothing and education of children. This would create multiplier effect bringing attitudinal changes and mind set in younger generations. Lack of ownership of land by women is reflected in higher gender inequality, while global efforts have created observable impacts in health and education, it is not so significant in agriculture. As most interventions are project-based and externally funded, little effort was made to institutionalize the project gains into organizational structure. Moreover, with impacts of interventions varying from one country to another, scope for generalization of results has been limited and many of the activity-based interventions lacked the strategic element to create a real change in the lives of women (largely limited to awareness raising). Other significant factors that perpetuate inequality in accessing resources and services by women are: limited awareness of new platforms, frameworks, tools and techniques and skills in undertaking gender-based participatory methodologies among important stakeholders. Unsustainability of technical, institution-related interventions aimed at reducing gender inequalities, limited fund allocation to gender focused programs and lack of commitment from local leaders are some of the other reasons.

Table 15. Preference of method of extension services

S. No.	Method of extension services	Male	Female
1	**Contact method**	-	-
a.	Individual	****	**
b	Camp	***	****
c	Mass Contact	****	**
2	**Contact time**	-	-
a	Morning	****	**
b	Evening	***	****
c	Mid day	**	**
D	Any time	**	**
3	**Place of contact**	***	****
a	Home	***	****
b	Farm	****	**

c	Both	****	**
4	**Internal contact**	-	-
a	Within week	**	**
b	Within fortnight	***	****
c	Within one month	***	**
d	More than	**	**
5	**Effective extension agent**	-	-
a	Female	**	****
b	Male	****	**
c	No choice	***	**
6	**Effective group method**	-	-
a	Training	****	***
b	Focus group discussion	***	**
c	Demonstration	**	****
d	Study tour	****	**
7	**Place of meeting**	-	-
a	Village common place	****	***
b	House of president/secretary	***	***
c	Neighbouring village	**	*
d	Any place	***	**

*Indicates least preferred method of extension services; ***** indicates most preferred method of extension services

Women showed interest in taking extension messages in the group contact while men evinced enthusiasm in all the three methods. This might be due to existing socio-cultural environment. Evening time was found to be more suitable for women to interact with the developmental agents. Women preferred home as better place of contact whereas men wished to meet extension agents at farm. Interaction once in fifteen days was found to be suitable for both the gender to access the extension services. Gender differences were also found in choosing male/female extension workers. Extensive responsibilities in the household and heavy work load in field limit the women's involvement in spending their time on own productive assets which can otherwise ensure prosperity of them.

5.5 Access to farm credit services

Men and women work in different spheres of farm enterprise leading to different levels of productivity and earnings. These are driven by deep seated gender differences in time use, in rights of ownership and control of resources. Gender gaps disappear when access to productive inputs is equalized. Structures of social networks are different for both men and women and networks are important assets for women.

Table 16. Access to credit for agriculture

S. No.	Credit services	Male	Female
1.	Awareness on agricultural credit	****	***
2.	Access to formal credit	***	*
3.	Access to informal credit	****	*****
4.	Membership in cooperatives	*	-
5.	Bank saving	**	*
6.	Borrowing size (limit)	****	**
7.	Kisan credit card	**	*

5.6. Ergonomic studies in crop and animal enterprises

- Assessment of grip strength, postural discomfort, heart rate and head load of farm women working in different activities
- Awareness camps
- Popularization of drudgery reducing tools and implements

Table 17. Perceived drudgery of men and women in different farm enterprises

Sl. No.	Activities	Drudgery of Women	Drudgery of Men
A	Crop enterprises 1. Paddy 2. Vegetables 3. Cashew nut	 ****** ***** **	 ****** ** **
B	Animal enterprises 1. Cows 2. Goat 3. Poultry	 **** *** *	 ** *

5.7. Management prioritization of farm enterprise

- It is important to understand how linkages among landscape level components and neighboring farms influence the criteria and incentives for technology adoption and thereby enhancing the technological innovation at farm level.
- There is a need to move beyond farmer preference criteria for different technological options to consider social and biophysical compatibility criteria especially at household level or farming

system, thereby addressing integrated livelihood and system concerns.

- The end goal is not to enhance the productivity of a particular commodity *per se*, but to enable synergistic effects among components and actors.
- By working toward system-wide goals within different components or disciplines, greater gains may be realized at community & landscape levels.
- Enhancing ecological and economic integrity of the system at large by addressing component specific component (Obaa *et al*, 2005).

The enterprise selection guidelines are based on key attributes considered to be important for the various enterprises. The attributes are weighted according to their perceived relative importance. Below are the attributes with their weightings in parenthesis.

1. Meeting farm and family needs (6). Factors considered under this attribute are the extent of meeting family consumption needs from farm output and market disposal.
2. Profitability of the enterprise (5)

   Factors considered under this attribute are costs of production, consumer demand for the product, yields, scale of production and efficiency of resource use.
3. Availability of the market, including size and requirement of markets (4)

   Factors: Location, infrastructure, processing skills and climate
4. Low risks (3)

   Ecological & climatic requirements

   Conflict trends

   Elasticity of demand, storage requirements, perish ability and availability of inputs
5. Low financial outlay (2)

   Initial capital needs (including land) variable production costs craw materials, hired labour, etc.) and market research
6. Farmers production knowledge (1):

   Farmers' necessary practical experience was taken into consideration.

The total score for each enterprise is calculated by (a) multiplying the number of farmers who mention the attribute by weight of that attribute and (b) totaling these weighted attributes.

The enterprises are then ranked in order of their total scares.

The priority enterprises are subjected to an additional analysis to identify major constraints for each one using guidelines.

Table 18. Enterprise selection process matrix (number and score)

Enterprise	Meeting farm & family needs (wt=6)	Profitability high (wt=5)	Ease of market (wt=4)	Low risk (wt=3)	Low finance Outlay (wt=2)	Production Knowledge (wt=1)	Total score
Paddy	132 (22)	40 (8)	60 (15)	42 (14)	18 (9)	12 (12)	304
Brinjal	120 (20)	105 (21)	60 (15)	33 (11)	16 (8)	13 (13)	347
Bitter gourd	90 (15)	45 (9)	60 (15)	27 (9)	28 (14)	12 (12)	262
Cucumber	72 (12)	50 (10)	60 (15)	36 (12)	26 (13)	14 (14)	258
Snake gourd	78 (13)	45 (9)	48 (12)	39 (13)	20 (10)	14 (14)	244
Tomato	66 (11)	40 (8)	36 (9)	24 (8)	22 (11)	13 (13)	201
Cow	78 (13)	35 (7)	32 (8)	27 (9)	12 (6)	7 (7)	191
Poultry	84 (14)	65 (13)	52 (13)	27 (9)	30 (15)	11 (11)	269
Local goat	138 (23)	90 (18)	96 (24)	45 (15)	40 (20)	14 (14)	423
Maize	114 (19)	45 (9)	60 (15)	33 (11)	18 (9)	7 (7)	277
Beans	120 (20)	110 (22)	68 (17)	57 (19)	22 (11)	12 (12)	389

The analysis of enterprise selection process matrix based on the interaction with farm families indicated that small ruminant viz. goat is found to have more value followed by beans, brinjal and paddy. Being small holder/land less, the major preference went for farm and family needs followed by profitability of farm enterprise. Hence, there is a greater degree of propensity of farm families towards farming system approaches although the level of awareness and knowledge on integrating available farm enterprise components was considerably low.

Engagement of women in certain farm enterprises can only improve production and income generation which can trap them in low-value/ low-growth products. Their engagement in agricultural markets has limited impact on women's incomes and does not strengthen their assets and decision-making capacity.

Women often feel more comfortable and safe in women-only groups and do not meet the criteria that often define small holder farms. There are certain farm enterprises whose production process is mostly controlled by women. Women's roles vary from one context to another. In order to plan and implement gender activities local level assessment of gender relations is imperative to suggest practical action adopting a holistic approach to gender. Socio-cultural and family responsibilities are the most important factors limiting women's mobility and access to market in developing countries. Therefore their reach is limited to local markets only, which do not offer remunerative prices to them. Women's participation in labour

market is also restricted due to poor mobility. Women have limited understanding of agricultural markets because of lack of information, education and exposure.

5.7.1 Criteria for identifying major constraints in selected enterprises

The farmers were guided to list the problems related to each enterprise. It may be necessary to group the problems into themes such as soil, water, pests & diseases production process, post-harvest, marketing, etc. and the farmers are helped to discuss and link the problems to identify their root causes.

Table 19. Enterprise analysis for extension and social issues

Parameters	Paddy	Brinjal	Cucurbits	Cattle	Poultry	Goatery	Beans
Access to information	3	4	5	3	3	5	3
Access to inputs	4	4	3	2	2	3	3
Increase employment	4	4	4	3	2	3	2
Increase access to market	5	4	4	2	3	4	4
Reduce risk & uncertainty	4	3	4	3	5	5	4
Reduce drudgery	3	3	2	1	3	3	3
Suitability to women	2	5	5	1	4	3	4

0 ⟶ will not address the issue and 5 ⟶ strongly address the issues

Involvement of women in marketing activities in case of field crops was very limited. Due to social, cultural and religious barriers, except in some women headed families, women rarely go to market places for selling outputs or buying inputs. Women mostly sell their products to the neighbors as well as to the retailers who buy the products from farmer's residence. In order to sell agricultural commodities produced at homestead, women sometimes contact the traders who have permanent space in the market places through mobile phones. However, women have a prominent role in preparing/ processing as well as sorting and grading of the agricultural products for marketing.

Table 20. Income Generation pattern

Type of occupation	Involvement by	Average monthly income	
		F	M
Farming	M+F		3000/-
Labour	M+F	3000/-	4500/-
Private Jobs in city	M	2500/-	4000/-
Govt. Jobs	M	20,000/-	20,000/-
Entrepreneurs	M+F	3000/-	6000/-

5.8. Time issues

5.8.1 Seasonal calendar for men and women

The magnitude and value of work contribution by both men and women vary depending upon the agricultural seasons. Seasonal analysis is also called as seasonal calendar. This is a calendar, which indicates month wise activities, specialities, threats, problems, abundance, and shortage with regard to agriculture in a diagrammatic way. The items included in seasonal analysis were of those items, which really affect the agriculture. This analysis explore seasonal constraints and opportunities by diagramming changes, month by month throughout the year.

Seasonal Activity Calender (Crops)

Table 21. Gender and seasonal calendar activities (crops)

Particulars	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Rice	LP,F, N ←	TP	F,W1	W2,F,P	H1	H2,Ir	Th, Cl →	LP,F, Ir ←	TP,Ir	F,W1	W2,F,P	H →
Cashewnut	FYM, ←	F		F,P					P,F		H	Pr →
Vegetables	LP,F, N ←	TP,S	W,F,P	F,P	H1	H2	H3 →					
Men' role	Land preparation, sowing, fertilizer application, pesticide application, harvesting, nursery, Irrigation, Threshing, Prunning, cleaning											
Women's role	Land preparation, nursery, sowing, fertilizer application, transplanting, harvesting, threshing, cleaning											

LP-Land preparation, S-sowing, G-germination, F-Fertilizer application, P- Pesticide Application, H-Harvesting, H1& H2- First and second phase of harvesting, N-Nursery, TP-Transplanting, W-weeding, w1&w2- First and second phase of weeding, Ir-Irrigation, Th-Threshing, Cl-Cleaning, Pr-Prunning

Seasonal Activity Calender (Livestock)

Table 22. Gender and seasonal calendar activities (livestock)

Particulars	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
CATTLE	V ←		G									NS →
GOAT	←		G									NS →
POULTRY	←		F									BP →
PROBLEMS												
CATTLE	**FMD, Worm, Bloat**											
GOAT	**FMD, PPR, Worm**											
POULTRY	Ranikhet disease, Flu											
Men' role	Grazing											
Women's role	Grazing, Feeding poultry											

V- Vaccine, G-Grazing, NS- Natural service, FMD- Foot and Mouth disease, BP- Back yard poultry, PPR = Peste-des Petitis Ruminitis, F- Feeding

5.9. Wealth ranking

Wealth ranking exercise was carried out by the local key informants (KI) based on their own criteria such as income, assets, employment status and other local measures of well being. The purpose of this exercise was to investigate perceptions of wealth differences and inequalities in community, discover local indicators and criteria of wealth and to establish relative economic position of households in community. It shows the percentage distribution of village population into different wealth classes. It helps in understanding socio-economic disparities and also to know the stratification of people. Wealth differences influence coping behaviours and also help further study & policy making.

The key informants from three different hamlets and from different wealth classes were interviewed for this exercise. The key informants were asked to categorize three different hamlets of the village into different wealth classes. All the key informants from Bada Sahi (General Street), Bada Sabar Sahi and Sana Sabar Sahi categorized the farm families inti rich, medium and poor/very poor farmers. They were asked to make wealth class categories based on their own perception. The key informants from three hamlets agreed certain criteria for classification into wealth categories.

The following steps were followed:

- Identified representative KIs from different socio-economic status
- Listed all households
- Made cards with head's name and identification number and mixed cards thoroughly
- Prepared card piles with category label
- Then asked KIs to sort cards representing wealth categories
- Recorded card number of each category and criteria used by each KI
- Identified categories by consensus
- Listed common criteria, calculated average number of categories
- Recorded score of households for each KI and calculate average score
- Calculated Cumulative (CF) Frequency (Max - Min score) Wealth categories & arrange households according to wealth categories

As per the guidelines finalized by experts and key informants from the farm families three different hamlets/streets were categorized into different categories such as rich, medium, poor and very poor, respectively. Possession of land, own house, pucca house, tractor, vehicles, advanced farm implements, good

irrigation facility, advanced electronic equipments, cattles, sheep and goats were the criteria used by the KIs. Besides these, data were also collected from village Panchayat office. It was found that the farmers who were having monthly income < Rs. 2500, Rs. 2500-3999, Rs. 4000-7000 and more than Rs 7000 were categorized.

Nearly 63.5 percent of the families were found to belong to very poor category followed by poor (29%) medium (3.5%) and four percent of the families were found to be in rich category.

Wealth Ranking Formula

Si = (n+1- Ci) / n x 100

Si = Score of household as per KI

n = Total no of categories

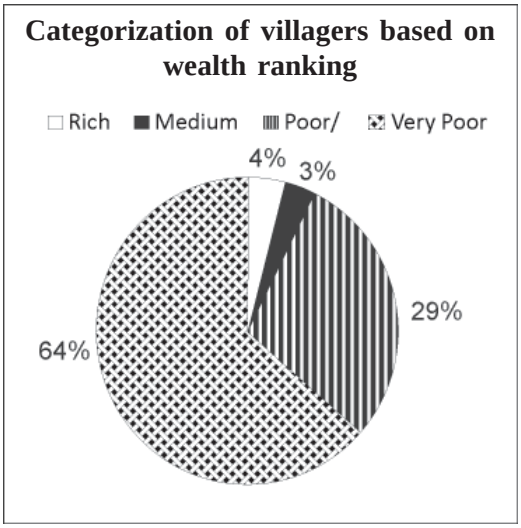
Ci = Category of household given by KI

Wealth Categories = Average of all KIs

CF = (Max - Min score)/Wealth categories

Table 23. Wealth ranking categories

Category	No. of Houses	Criteria
Rich	12	Land holding >8 acre, monthly income > Rs.7000/-Pucca House, Tractor, Advanced farm implements, vehicles, possession of cattles etc.
Medium	11	Land holding more than 2 acre, monthly income Rs.4000/ - Rs.7000/, employment in private sectors, Pucca/ Semi pucca house, farm implements, vehicles, have 1 or 2 cattle etc.
Poor	92	Land < 2 acre, monthly income Rs. 2500- Rs. 3999/- alternate source of livelihood, possession of few goats, poultry birds
Very Poor	201	Landless, monthly income < Rs. 2500, daily workers, number of livestock

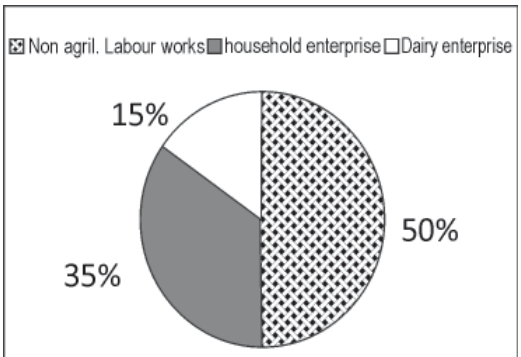


5.10. Livelihood Analysis

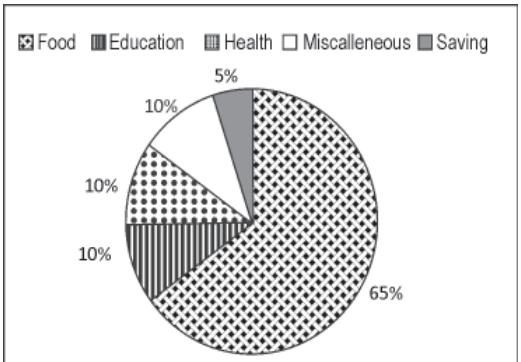
Female headed family

Few women headed farm families were identified in Giringaput. Females had to take a major role in household income, expenditure and management of family finance management as well as family resource management. The male counterpart of the family normally went to the nearby places for non agriculture related works like construction of roads

and building of houses. In some houses, the female or the housewife of the family were involved in household enterprises like tailoring and papad making with additional income from dairy enterprises to supplement the family income. It was observed that these families spent a major part of their income on food followed by education, health etc. They saved upto 5 percent of their income in post office to meet the future needs of the family. The family members cooperated each other for solving various problems and issues.



Income pattern of women headed family



Expenditure pattern of women headed family

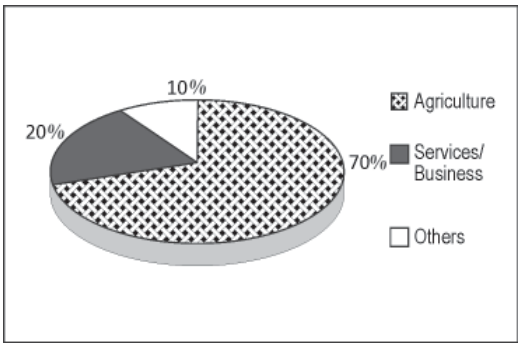
Male headed farm family

KIs (Sana Sabar Sahi): Hadu Majhi, Draupadi Majhi, Paramananda Majhi, Nira Majhi, Bichitra Nayak, Dilip Behera, Narendra Bagsingh, Dinabandhu Jena, Rama Swain

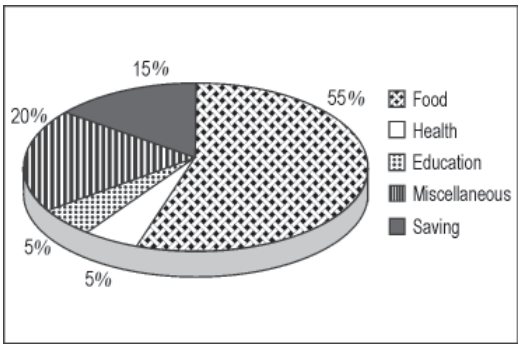
Livelihood analysis shows the percentage distribution of income pattern and expenditure pattern of village population for different wealth classes like large farmers, medium farmers, poor farmers. The key informants from different wealth classes from the three hamlets were interviewed for livelihood analysis. There were a total of 350 household in Sana Sabar Sahi of Giringaput village. The key informants were asked to mention their annual income and the amount they spend in different heads according to the needs of family members. Among large farmers the major source of income was agriculture and they spent more wages to the labourers and purchasing agricultural inputs as compared to other expenditures like food, education, etc besides they also saved about ten percent of their income. The medium farmers worked mainly as daily wage earners depending on the agriculture and some of them were engaged in government and private sectors. They spend more amount on food items as compared other expenditures like health, education etc and there was very limited scope for saving, as the entire income was spent on meeting the essential requirements. Besides this, they also spent major part on buying agricultural inputs for farm operations. The poor farmers belonged to landless class and they struggled to meet

both the ends in their life. They worked as labourer on others' field and in the lean season in construction industry. They earned meagre amount & felt difficult to sustain their livelihood. More than half of the income was diverted for food and the rest was equally divided into health and agricultural inputs. This resulted in abject poverty and forced them to take loan from rich farmer for sustenance and livelihood.

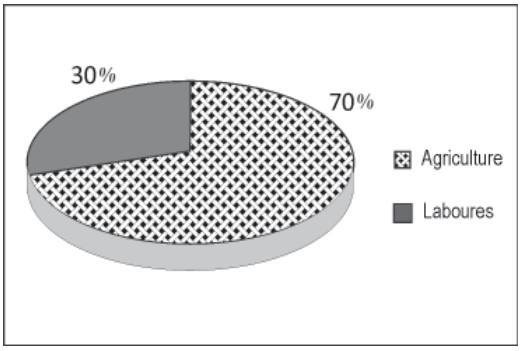
Income and expenditure pattern of three different classes of households in Giringaput village



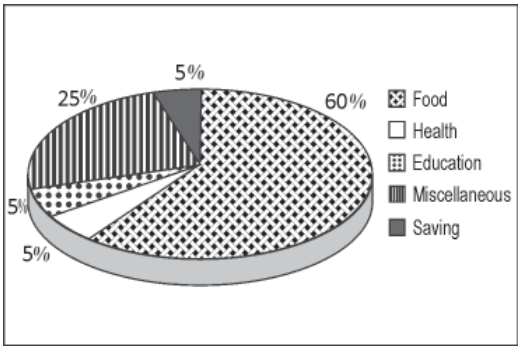
Income pattern of rich family



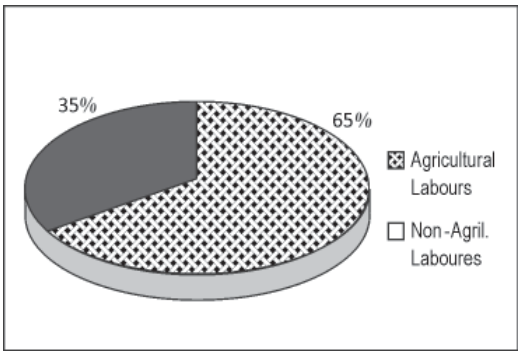
Expenditure pattern of rich family



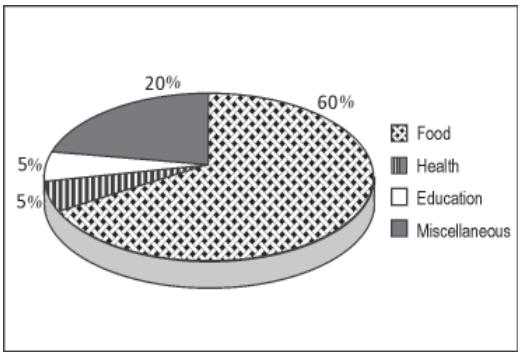
Income pattern of medium class family



Expenditure pattern of medium class family



Income pattern of poor family



Expenditure pattern of poor family

There is evidence that income under the control of women is more likely to be used to improve family welfare including family food consumption, education, child nutrition, etc. Women are significantly excluded from markets and opportunities for them to move from subsistence to market-oriented agriculture are much less. Therefore, linking women farmers to market is a critical pathway to women's economic empowerment. However, their participation in markets does not always lead to economic empowerment of women. Approaches such as contract schemes, group based approaches, cooperatives, etc. have their advantages and disadvantages for women. There was high participation of women in the sale of eggs and milk, but very low participation in sale of livestock cattle, sheep, and goats. Due to poor access of women to markets, constraints in time, mobility and transport, they more often sold their products at farm gate resulting in lower prices but higher share in income as compared to when sold at village markets or delivered to traders. Women's share in income and income management depended on who sold the products and the total income from the sale.

Table 24. Resource control/supervision in farm enterprises

Sl.no	Farm enterprises	Resource control/supervision	
		Male	Female
	Crops		
1	Rice	*****	**
2	Vegetable Crops	***	*****
3	Cashewnut	***	**
4	Fodder Crops	**	****
	Animals		
1	Goat	**	****
2	Cow	**	****
3	Poultry	*	*****

6. Identification of technology gaps in farm enterprises

Table 25. Technology gaps in farm enterprises with yield and income

Sl. No	Farm enterprises	Technology gaps	Output	
			Yield	Net Income (Rs.)
	Crops			
1	Rice	Non/poor adoption of improved rice varieties, seed treatment, nursery management, planting techniques, INM, IPM, tools and implements and post harvest	1t/acre	2000/acre
2	Vegetable Crops	Low yielding varieties, poor adoption of improved package of practices and market linkages	Range of 3-4 tonnes/acre for different vegetables	10000/acre

3	Cashewnut	Poor canopy management, Poor adoption of improved package of practices and market tie-ups	3 kg/tree	80/tree
4	Fodder Crops	Lack of space, awareness on green folder feeding and water constraint	Only grazing	-
	Animals			
1	Goat	Non-descript breeds, feeding, vaccination and marketing	6 kg in 6-7 months	1000/goat/ cycle
2	Cow	Poor feed and health management	1.5 litre/day	20/day
3	Poultry	Storage of birds, market tie ups, feed & disease management	120 eggs/year	500/annum

7. Scope for technological and social interventions

The possible technological and social interventions that can ensure gender mainstreaming in the farming were worked out through group interactions and are furnished in the following table.

S. No	Gender issue	Problem identified	Possible interventions
1.	Access to technology	Less exposure to scientific knowledge in paddy, vegetables and cashewnut	Line planting and SRI method, mechanical weeding and herbicidal use, integrated nutrient management, in rice cultivation and and implements used in harvesting, cleaning and grading IPM with focus on biological pest control methods. Rejuvination of the old and senile orchard of Cashew (Pruning of old and unproductive shoots, Pasting of pruned area with copper oxichloride and Integrated Nutrient Management in Cashewnut) Training Exposure visit
2.	Access to schemes	Inadequate information about many schemes with target population Gaps in implementation of programmes	Evaluation of identified government schemes. Coordination with 4-5 prioritised schemes useful for villagers
3.	Drudgery of farm women	Body pain & discomfort Time consuming Long working hours	Ergonomic assessment/studies in improved parboiling units, paddy and vegetable cultivation Introduction of women friendly farm tools Exposure visits
4.	Access to nutrition health & sanitation	Less access / knowledge about nutritious crops / technologies	Introduction of elephant foot yam Insect trap for storage pest control Promotion of kitchen garden Training Convergence with departments & NGOs
5.	Extension delivery	Poor contact with extension system	Capacity building of one male / one female for each enterprise from each of 3 hamlet for supporting
6.	Access to income generating livelihood opportunities	Less aware about improved technologies / enterprises	Promotion of scientific goat and backyard poultry enterprises Assessment of existing groups for farming and non-farming activities, Group solidarity and cooperation, Group constraints, Assessment of scope for income generating activities, Bee-keeping, Vermi composting, Mushroom cultivation, Value addition to vegetables, Fruit preservation, Value addition to rice and Value addition to mushroom

8. Gender focused intervention points

Based on the lessons learnt from earlier rural development approaches and other model villages adopted by different agencies, it was assumed that focused attention and pumping of resources, commitment and sincerity and vision of the organizations played significant roles in ensuring the success. In this background, the scientists of DRWA identified the following themes on the basis of interaction with Giringaput villagers for implementing various need based interventions.

- Technology application
- Gender mainstreaming
- Model village-convergence of schemes
- Access to food, nutrition, health
- Increasing gender participation
- Drudgery alleviation
- Income generating activities

9. Participatory action plan

The model village concept was planned to be implemented in one of the identified villages keeping in view the resources and manpower availability. A set of parameters were considered before choosing the village for implementing the planned interventions in a smooth manner. Accordingly, Giringaput village was identified. The project is being implemented with the help of gender specific para workers in the village with a focus on sustaining the interventions even after completion of the project period. The technological interventions will be implemented in the farmers' fields in the mode of 'on farm trials' or 'verification trials'. On the basis of technological and societal need, village women and youth are being trained to learn entrepreneurial skills. Ergonomic evaluation of farm operations for drudgery reduction was also taken up as part of the project. The multidisciplinary scientific team imparts training to the farm families on new interventions being taken up in the village. The moral values are also being infused to younger generation of villagers through appropriate activities. Developmental agencies of state government are to be involved to take up the success stories to the larger domain of farming community in the state. There will be a convergence of different departments and schemes to promote profitable farming, to equip the women and youth to deal climate change and natural disasters. Development of gender check list and indicators for measuring gender mainstreaming are undertaken. Stakeholder consultation meeting were being organised before starting the project activities in the village. Concurrent monitoring and evaluation of project activities are being undertaken. Following tools were employed to implement the proposed project.

Table 27. Tools used for gender analysis and project implementation

S.No.	Name of the activity	Research tools
1.	Village identification	Expert opinion and literature review
2.	Rapport building	Interaction with local leaders and key informants
3.	Resource assessment	Village map, social map, resource map, focused group discussion
4.	Need assessment	Group interaction, problem cause diagram
5.	Prioritisation of needs	Ranking techniques
6.	Convergence of different departments and schemes	Extension methods
7.	Preparation of action plan with gender focus	Technology matrix, stakeholder meeting
8.	Implementation of action plan	Training module preparation as per the prioritised needs, formation of producer groups and linkages with different interest groups
9.	Technological interventions	On farm trials / verification trials
10.	Evaluation of progress	PRA techniques, semi-structured interview schedule
11.	Impact evaluation for gender mainstreaming	Development of gender check list
12.	Revision of action plan	Stakeholder interaction meeting
13.	Carrying out revised plan	Interventions at technology, input, marketing, knowledge and skill domains
14.	Popularisation of success stories	Extension methods
15.	Extrapolation of success stories	Stakeholder workshops and publications in peer reviewed journals and magazines

10. Gender mainstreaming strategies

- Identification of 2 persons (M+F) in each of 3 hamlets for each theme as coordinators for our interventions
- Hands on training on the theme, liaisoning them with line departments
- Group formation for each commodity-paddy, brinjal, kitchen garden, dairy, goat and farm machinery

- Group stabilisation through motivation training, demonstration and market linkage
- Groups as intermediaries for all activities, linking them with commodity groups /private entrepreneurs
- Formation of gender sensitive commodity groups
- Demonstration of prioritized technological problems (Farmer's practice, technology option and performance indicators)
- Capacity building of groups based on gender issues
- Leveraging backward and forward linkages for knowledge management and marketing of farm produce

11. Convergence of schemes and agencies for sustainable rural development.

Table 28. Government Schemes for village development

S. No.	Name of the Scheme	Objectives of Scheme	Beneficiary Identification	Mode of operation
1	Swarnajayanti Gram Sworozgar Yojana (SGSY) - 1999	Sustainable income through micro enterprises	SHG Rural poor (SCs/ST-50%, Women-40%, Disabled – 3%)	• Social mobilization • Training & capacity building • Income generating assets • Financial assistance to groups
2	Rastriya Krishi Vikash Yojana (RKVY) - 2007	To Achieve 4% annual growth in Agriculture, through technological interventions	Integrated development of major food crops such as paddy wheat, minor millets, pulses etc. focus on resource poor farmers	• Availability of certified HYV seeds. • Small tools & implements • Soil health card • Micronutrient demonstration • Organic farming demonstration • Soil Amendment • IPM- Farm, Field School • Study tour for farmers
3	Special Projects for placement linked skill Dev. Of Rural youths under Aajeevika (NRLM) 2004-2005	Skill dev. Of rural youth so as to equip them in the industry or pursue sustainable self employment opportunities through micro enterprises	Unemployed BPL Rural Youths	• Through Short duration training (up to 100 days)

S. No.	Name of the Scheme	Objectives of Scheme	Beneficiary Identification	Mode of operation
4	Mahila Kisan Sashaktikaran Pariyojana (MKSP) 2010-2011	To empower women in Rural Agriculture women.	Only women farmers	NGOs will identify the potential women farmers for training and demonstration
5	Indira Gandi National Old Age Pension Scheme (IGNOAPS) – 2012-2013		BPL Family members age more than 65 years	Monthly financial support of Rs. 400, for above 80 years – Rs. 500/month
6	National Family Benefit Scheme (NFBS) - 1998		Age group of 18-64 irrespective of male/ female	Family benefit of Rs. 10,000 to the bereaved household in case of primary bread winner, death in naturally or accidentally it is given to the nominee of bread earner
7	Indira Gandi National Widow Pension Schemes (IGNWPS) – Aug. 1995		Age group of 40-64, BPL family She shall get till the age of 65 or she get remarriage. After 65 she will get (IGNOAPS)	Monthly Assistance of Rs. 400/-. Pradhan of Gram Panchayat Shall review the list of the widows regularly and report any case of re-marriage
8	Annapurna Scheme – April 2000	Providing food security	To meet the requirement of those senior Citizens who though eligible have remained uncovered under the NOAPS	10 Kg. food grains/month at the free of cost.
9	Aam Admi Bima Yojana - 2007	Provide life insurance poor of rural health sector Premium shared by 50% central & 50% state Govt.	Head of the landless poor or one earning member of age group between 18-59	On of the head/ earning member Rs. 30000/- to nomine on accidental death Rs. 75000/- permanent total disability due to accident loss of one eye or one limb in an accident Rs. 37500/-

S. No.	Name of the Scheme	Objectives of Scheme	Beneficiary Identification	Mode of operation
10	Janashri Bima Yojana	Insurance scheme helpful to the rural & urban poor below poverty line and marginally above poverty line	• Age group of 18-59 years • BPL or marginally above poverty line • A Member of any of the approved vocational occupation groups	One of the head/ earning member will get Rs. 30000/- to nomine on accidental death Rs. 75000/- to permanent total disability due to accident Loss of one eye or one limb in an accident Rs. 37500/- Vocation/ occupation is required to be approved by the LIC & State govt
11	Health Insurance Scheme for Handloom Weavers – Nov. 2005		Family members of weaver male/female whose at least 50 % of total earning comes from weaving	A weaver, his wife & 2 children will cover under this scheme for treatment of all pre-existing and new diseases. The maximum of coverage per family is Rs. 15000/- per annum out of which the OPD cover is Rs. 7500/- Premium Rs. 1000/ yr. of which Rs. 200/- to be paid by the weaver.
12	Raj Rjeswari Mahila Kalyan Bima Yojan a		All sections of women of age 10-75 years	Policy covers death, permanent and total disability due to accident the beneficiary will get Rs. 25000/- for loss of one limbor one eye Rs. 1250/- for total disability Rs. 500/- month the premium is Rs. 23/Women
13	Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) - 2005	Enhancing Livelihood Security to rural households.	Rural ST/SC/BPL male female, youth who volunteer to do unskilled manual work	Through 100 days works like land development of SC/ST/BPL/IAY/Land reform beneficiaries, rural Connectivity
14	Indira Awas Yojana (IAY) 1985-86	Providing homestead Sites to those rural, BPL Households	SC,ST, Freed bonded labourers, minorities BPL Category	Rs. 45000 & Rs. 48500 in difficult areas Rs. 15000 for up gradation

S. No.	Name of the Scheme	Objectives of Scheme	Beneficiary Identification	Mode of operation
15	Madhubabu Pension Yojana (MPY) - 2008	To provide pension to disabled male and / female windows above 60 years. No age restriction for leprosy patients	• Groups above the age of 5 years whose family income is less than Rs. 11000/- per annum. Complete blind people, more than 40% physically Challenged male or female more than 40% mentally retarded male or female	Rs. 200/-month on the 15th of every month at panchayat office will be given
16	Rastriya Swasthya Bima Yojana (RSBY)- 2007	Provide insurance to poor people	BPL family members	Health facility upto Rs. 30,000/- will be given
17	Gopabandhu Gramin Yojana - 2006	Additional developmental assistance to the 11 districts which are not covered under the Back ward Regions Grant Fund (BRGF) in electrification roads & water supply to every revenue village in the identified 11 dists.	To the every Revenue village of the selected 11 districts	Through GP, having a financial sanction 5 lakh for a village having population> 1000, 3lakh for population >500<1000. 2lakh for population <500 All expenditures will be made through Gram Panchyat.
18	National Rural Livelihood Mission (NRLM) - 2011	To create efficient & effective institutional platform of the rural poor (this scheme would ensure sustainable livelihood through social and financial inclusion)	Women SHGS & their federation of unemployed rural youth	• Formation of a SHG Rs. 10,000 in Back ward poverty stricken blocks of Odisha. • Revolving fund Rs. 10,000 – 15,000 per SHG • Capital Subsidy Rs. 2.5 lakh SHG

S. No.	Name of the Scheme	Objectives of Scheme	Beneficiary Identification	Mode of operation
19	Pradhan Mantri Gram Sadak Yojana (PMGSY) - 2000	To provide connectivity by way of an all weather roads to the eligible unconnected habitations in the rural areas in such a way that all un connected habitations with population of 1000 & above	All interior villages including tribal villages where population is more than 250 numbers	The schemed is implemented through department of panchayati raj and rural development
20	National Rural Health Mission (NRHM) - 2005	• To strengthen and improve the whole public health delivery & health of rural sector • To improve the monitoring & planning process within health care • To bring private sector to help in the rural health	Rural women new born babies adolescent girls	• Through ASHA • JANANI Express • JSY (Janani Surakhya Yojana). The incentive for institutional Delivery • JKS(Gaon Kalyan Samiti).
21	Kutir Jyoti scheme	• Extending single point light connections to households of rural BPL families	Applicable to tribal beneficiaries having Annual Income below Rs.11000/- . Applicant will get connection free of cost. Beneficiaries will get connection with one point wiring, meter and one bulb in the Huts.	• Rs.65 for 30 units of electricity has to be paid.

12. Strategies for empowerment rural society through gender mainstreaming approach

Ensuring equal access to productive assets, inputs and services is believed to boost the farm yield by 20-30 percent and thereby reducing hunger and poverty and increasing women's income. The constraints and opportunities faced by women in agriculture tend to vary across the regions/villages depending on the socio-cultural and agro-ecological contexts. With changes sweeping agriculture and other sectors of Indian economy, gender issues are emerging as more important and dynamic which needs to be given adequate attention for enhancing and harnessing the capability of women in agriculture. The following strategies are proposed for bringing out overall improvement in quality of life and further harnessing the full potential of women in agriculture.

1. The farm women commodity groups need to be channelized to better access training, extension, information, credit inputs, marketing and other services at all levels.
2. Specially focused capacity building programmes for women in agriculture need to be formulated to refine skills with appropriate technologies.
3. Ergonomically designed farm tools and machines should be developed and popularized which can reduce drudgery of farm women from production to post production stages.
4. Special fund should be created at the national level to address gender specific issues in agriculture.
5. Well articulated gender policy is essential to empower women in agriculture in order to improve the livelihoods, remove the barriers of opportunities and minimize the intensity of hunger and poverty.
6. Sensitization efforts are required at village level to make women's equal rights in decision making a social norm and this requires a change in attitude of male members.
7. Women have enormous traditional agriculture knowledge which needs to find appropriate place in the change process under the fluctuating bio-physical environment.
8. Ensuring access to food, health and improved health care is a basis requirement for creating a well nourished healthy people who form the human capital in agriculture.
9. Adoption of strategic approach involving gender awareness, more human and financial resources, reforms for gender integration at local level, institutional approach, sustainable involvement and economic empowerment is crucial for women to realize and harness their potential.
10. Creation of institutional framework to accommodate voice of women in policy and decision making is an effective option for collective action.

11. Efforts should be made to make women's work visible, freeing time and energy from women's budget for resting and learning and investing in social dialogue which can further facilitate women empowerment.

12. Extension programs should identify women as an integral part of their target audience and focus should be on promotion supply of women friendly tools and implements at village level.

13. Establishing technology resource centers in village's clusters are required for making technologies available to women on a custom hiring basis.

14. Home based, post-harvest production and marketing activities should be supported by providing market information, linking them with local/ distant traders, improving transportation and storage facilities, improving processing and packaging techniques and enhancing credit facilities.

15. Building the capacity of women farmers to understand markets financial literacy, negotiation skills, explore greater choice and new opportunities and collectives for ensuring benefits to them. This will facilitate wider economic and social empowerment.

16. There should be an explicit process to identify market opportunities for women producers to gain new roles and power in agricultural market chains. This requires engagement of different stakeholders in the value chain. Market development should be followed by institutional changes to aggregate small-scale production and increase access of women producers to the markets.

17. Development and application of methodology to generate evidences and database on multiple pathways for nutrition security, changing societal roles and norms and leveraging men's support and exploring the possibility of making ICT available to women to facilitate community monitoring need strong support from policy makers and planners.

18. Regular gender trainings, replication of best practices in extension systems, scaling up advocacy and create of a platform for knowledge sharing among R & D institutions would further promote gender equality.

19. It is important to track the changing gender issues and priorities in different social, economy, technological, agro-ecological and policy environments for better designing and targeting of interventions based on informed knowledge.

20. Local contexts including agriculture situation and gender issues should go into developing micro level and regional policies for food and nutritional security.

13. Conclusions

More awareness need to be created about prevailing gender inequality, inability of women to express specific demands, inability to dialogue in mixed

groups, poor institutional capacity such as lack of facilitation competencies and leadership for women to improve their access to farm innovations. These impediments can be overcome by undertaking appropriate gender analysis, participatory planning, implementation of gender responsive interventions and facilitating convergence of different schemes and programmes. This will ensure sustainable village development through profitable farming and healthier livelihood wherein women will leverage the development process.

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Educating women farmers on use of pheromones

Explaning use of pheromone traps to male farmers

Raising pulse as bund crop in of paddy fields

Training on Mushroom Cultivation

Discussion with farmers

Glimpse of line planting in paddy field

Woman raising mixed cropping in brinjal field

Woman collecting fuel wood for household use

Raising ridge gourd in trellies

DRWA scientists interacting with a farmer

Pheromone trap use in paddy field

Training on Fruit & Vegetable Preservation

A Village View

Men undertaking repairing of village hut

Woman lopping subabul as feed for goat

Women tending cattle for grazing

Woman drying paddy under sun

Women preparing cow dung for fuel use

PRA exercise in Giringaput village

Gender analysis exercise with villagers

Gender roles in using farm tools

Woman preparing comfortable size of fuel sticks for household use

Woman practising parboiling of paddy by using improved parboiling unit

Random planting of paddy by women