JEE, Vol. XIX, No.1, 2014

ISSN 0976-8246

JOURNAL OF EXTENSION EDUCATION

ORISSA SOCIETY OF EXTENSION EDUCATION
Bhubaneswar - 751 003

Editorial

Dear colleagues

Ensuring a thriving agricultural economy is critical for reducing poverty, enabling food security, and managing natural resources in a sustainable fashion. Many observers are concerned that public extension is not doing enough, not doing it well, and is not always relevant. In developing countries, bureaucratic inefficiency and poor program design and implementation have led to poor performance and incoherent links with client farmers and the research sector. As they seek solutions, policymakers must confront clashing views of what extension should to do, and choose among a number of extension priorities, products, mandates, and models. Given fiscal restraint, there is extreme pressure to demonstrate the payoff to investment in extension and explore alternatives to public financing by involving the private sector, local authorities, and producer groups. The generic problems of agricultural extension are bound to its diverse functions, as well as the bureaucratic, political, and social operating environments within which extension systems operate. We believe that focusing on these generic problems-regardless of the management system or approach to extension-highlights the areas that should form the agenda for future directions in extension.

I got immense pleasure to release the current issue of Journal of Extension Education to the community. I am sure the literature shall be a fruitful document for the research in behavioural sciences.

With all my best wishes

Dr. Rabindra K.Raj
Chief Editor

JOURNAL OF EXTENSION EDUCATION

Vol. XIX, No. 1, 2014

CONTENTS

TO OUR ADVERTISEMENT SUBSCRIBERS

Sir/Madam,

I am happy to introduce our society "ORISSA SOCIETY OF EXTENSION EDUCATION" which committed itself to the farmers. The society is also publishing a biannual journal 'Journal of Extension Education' which published only research articles about research conducted at farmer's field, farmer's reaction, acceptance of new product/ innovation and all other aspects reflecting views of the farmers. We are interested to carry your advertisement in our esteemed journal which has circulation to all Agril. Institutes of India, Agril. Universities and leading farm entrepreneurs. We are confident that not only your advertisement will reach the scientists of the agril, but also widely to extension workers who subscribe to the journal maximum. Our rate of advertisement is enclosed for reference.

We look forward for your cooperation,

Yours
R.K. Raj
Chief Editor

Rate of Advertisement:

1.	Back Page	(Full)	Rs. 6,000/-
2.	Inner Pages	(Full)	Rs. 5,000/-
		(Half)	Rs. 2,500/-
3.	Quarter Page		Rs. 1,500/-

N.B: The views and opinion expressed in the research articles are the sole and personal view of the authors(s) and not any way related to the view of the OSEE.

Journal of Extension Education ISSN 0976-8246
Vol. XIX, No. 1, 2014

Adoption of Oil Palm Entreprise in Khammam district of Andhra Pradesh

Dr. B Parasar[1] and P.S.M.Phanisri[2]

[1]Prof & Head, and [2]PG Scholar, Dept. of Extn. Edn. Col. of Agril. OUAT, Bhubaneswar

Abstract

The study was conducted in the Khammam district of Andhra Pradesh with 100 commercial Oil palm Growers to examine the status of oil palm enterprise in Khammam District of Andhra Pradesh and to analyse the extent of adoption with regard to oil palm package of practices.The findings of study revealed that the respondents are cultivating Tenera Hybrid because it can be grown on different agro climatic condition. It was quite interesting to know that 61% of respondents getting themselves involved in oil palm enterprise over 5 -10 years followed by 17% of them are to involve to the same industry less than 5 years again 16% of the respondents having the enterprise functioning more than 10 years. It was revealed that 94% of the respondents rejected the IPM the reason behind it is lack of awareness on pest and disease managements and 6% of the respondents discontinued because the pest from the other plantations are infecting their trees .

***Key Words**: Oil palm enterprise, Adoption*

Introduction

India has been reported to have the largest area under oil seed cultivation in the world but the irony is that the domestic production is not adequate to meet the minimal oil requirements of the population. Factors responsible for this include poor land conditions and the growing population. The demand for edible oil has been growing at the average rate of 5.0% against the average growth rate of 2.0% for oil seeds per annum during the last two decades.Oil palm (*Elaeisguineensis*jacq.) is a high yielding humid tropical crop introduced on a large scale in India since 1992-93. As per the 2010 official statistics , the crop cultivated in an area of 1.64 lakh ha in the country ,

predominantly in the states of Andhra Pradesh , Karnataka ,Tamil Nadu , Mizoram, and Kerala. Out of this Andhra Pradesh alone accounts for 1.06 lakh ha (64.63%).

Objectives

1. To examine the status of oil palm enterprise in Khammam District of Andhra Pradesh.
2. To study the extent of adoption with regard to oil palm package of practices.

Materials and Methods

The study was conducted in the Khammam district of Andhra Pradesh , Khammam district consists of 42 mandals out of which Aswaraopeta, Dammapeta ,Palvoncha , Sathupalli, Vemsoor were selected.The respondents are selected from five mandals , through proportionate random sampling . A total of 100 commercial oil palm growers were selected for the study. Ex post facto and survey design, was employed in the present study as the events have already occurred and design was considered appropriate.

Result and Discussion

1. Status of oil palm enterprise

The information regard to the age of enterprise has collected is presented in the following table.

Table.1 Distribution according to the Age of enterprise

S.no	Category	Frequency	Percentage
1	Upto 5	17	17
2	5 – 10	61	61
3	10 – 15	16	16
4	More than 15	6	6

It was quite interesting to know from the above table that 61% of respondents getting themselves involved in oil palm enterprise over 5 -10 years followed by 17% of them are fortunate to involve to the same industry less than 5 years again 16% of the respondents having the enterprise functioning more than 10 years and less than 15 years category in the study area. Only 5% of the respondents having involvement in oil palm enterprise with more than 15 years in the study area.The result can comfortably indicated that oil palm industry or oil palm enterprise is particularly gaining momentum over a period of time because of its high economic value in entrepreneurial dimensions.

1. Volume on business

There is once saying 'As you sow, show shall you reap' this also holds good in case of oil palm industry. The volume of business as in case of present study is viewed in terms of volume of investment made by concerned oil palm entrepreneur air oil palm grower. Thus the volume of business can definitely foresee or forecast the future scenario of the business

either in terms of total turnoveror in term on self proceeds that one can get out of assured business. The result in this aspect is sincerely collected by research scholar are present below

Table .2 Distribution according to the Volume of business

S.no	Category	Frequency	Percentage
1	10,000 – 15,000	13	13
2	16,000 - 20,000	51	51
3	21,000 – 25,000	34	34
4	26,000 – 30,000	2	2

As revealed from the above table 6.2.2 that 51% of the respondents made an investment between 15,000 – 20,000 for the enterprise followed by 34% to the extent of 20,000 – 25,000, however it is also observed that though very less but still it is good to observe that 2% of respondents invest 20,000 – 25,000 in oil palm business.

3. Extent of adoption with regard to Oil Palm package of practises.

1. Varieties Grown: Commercial available cultivars which are grown presently by farmers. It helps in economic growth by increase in quality, quantity, increase in the yield. Some times varieties which can also be suitable for various climatic conditions.

Table 3: Extent of adoption of varieties grown

Category	Frequency	Percentage
Tenera	100	100
Dura	0	0
Pesifera	0	0

The table above shows that all the respondents are cultivating Tenera Hybrid, because it can be grown on different agro climatic condition. It has higher sex ratio and larger male bunches than dura. So it is preferred by the scientists.

2.Intercropping:

Growing of two or more crops on the same piece of land in distinct row arrangement is termed as inter- cropping.It provides extra source of income to the farmers.

Table 4: Extent of adoption of intercropping

	Frequency	Percentage
Continuing adoption	44	44
Discontinued	26	26
Rejected	30	30

From the above table 44% of the respondents are continuing the intercropping with cocoa and coconut. This might be due extra source of income to the farmers. The leaves and epicarp of cocoa and coconut can be used as mulch and after decomposition they provide nutrients to the trees.

3.Mulching :

Covering with top of the soil with loose extraneous matter is known as mulching.

Table.5:Extent of adoption of Mulching

Category	Frequency	percentage
Continuing adoption	100	100
Discontinued	0	0
Rejected	0	0

From the above table it can be seen that all the respondents follows mulching practise which is one of practise recommended by Scientist. It is very reliable practise after the harvesting of bunches and leaving in the field itself. It helps in conserving of moisture in the soil and supresses the weed growth.

4. IPM adoption: Integrated use of bio control agents and chemical pesticides in order to minimize pest population, below economic threshold level.

Table 6 :Extent of Adoption of IPM

Category	Frequency	Percentage
Continuing adoption	0	0
Discontinued	6	6
Rejected	94	94

From the above table it is revealed that 94% of the respondents rejected the IPM the reason behind it is lack of awareness on pest and disease managements and 6% of the respondents discontinued because the pest from the other plantations are infecting their trees . And according to some farmers usage of pesticides decreases the yield of the oil palm.

5.Planting:

Planting of the oil palm with particular spacing so that the frond does not overlap and trees can get amount considerable amount of sunlight for tree growth.

Table 7: Extent of Adoption of Planting

Category	Frequency	Percentage
Triangular	100	100
Square	0	0
Rectangular	0	0

In the above table it is shown that 100% of the respondents were following triangular system of planting as recommended. The triangular system of planting with the spacing 9 x 9m accommodates 56 plants /acre.

Conclusion

Majority (61%) of the enterprises are found to be 5 -10 years old while 6 per cent of the enterprises are functioning more than 15 years of age, whereas 17 and 16 per cent of the enterprise have age up to 5 years and 10 – 15 years, respectively in regard to their tenure/ duration of function. More than half (51%) of the farmers have income of Rs.16,000 – 20,000, however 34 and 13 per cent of farmers have volume of business of Rs. 21,000 - 25, 000 and Rs.16,000 – 20,000 respectively, whereas only 2% of the farmers have Rs. 26,000 to 30,000 of business. All of the farmers were growing tenera variety which is high yielding and grown at different agro climatic conditions. All (100%) the farmers followed pruning of fronds which will interfere with harvesting and pollination. Majority (44%) of the farmers were continuing intercropping with cocoa, while 26 per cent discontinued and 30 per cent of the farmers rejected. All (100%) the farmers were continuing mulching. Majority (94%) of the farmers rejected IPM practice while 6 per cent of the farmers discontinued. All (100%) of the farmers were following INM practices, Drip irrigation system and planting method in triangular pattern.

References

Baindha ,A et al, 2005. Entrepreneurial Behaviour ofMilk Processors in Karnal District of Haryana,Diary Extension Education, National Diary Institute, Karnal, Haryana.

BaswarajPawar, Syed , Sadaqath and J.S Binkadakatt, 2006.Extent of Adoption level of medicinal and aromatic plants growers in Karnataka , Agriculture Update/Vol 6/ p.no 68- 72.

Chidananda, 1996, Influence of socio-economic status on aspiration and work orientation of small farmers. M. Sc. (Agri.) Thesis, University of Agricultural Sciences, Bangalore.

Dannof,C. H., 1949, Observations at entrepreneurship in agriculture change and the entrepreneur. Harvard University Press, Cambridge, pp. 13-18.

Impact analysis of mechanized paddy transplanting on Quality of grain, yield and Net profit of the paddy farmers

Meti, S. K[1]., Sathish, H. S[2] and Sidram, B. Y[3].

[1]Professor and Head, [2]Ph.D student, [3]Assistant Professor, Department of Agricultural extension Education, College of Agriculture, UAS, Raichur (Karnataka) - 584104

Abstract

The present study was conducted purposively in Raichur, Koppal and Bellary districts of Karnataka state coming under the judistriction of University of Agricultural Sciences, Raichur during 2013-2014**.** The study was under taken to know the impact of mechanised paddy transplanting on cost of paddy cultivation, labour efficiency and quality of paddy in TBP area because of transplanting of paddy is labour oriented requiring more labours and high cost cultivation. But now a day there is an acute shortage of farm workers because of migration of farm workers from rural areas to nearby cities seeking employment**.** The data was collected from the 40 respondents using structured pretested interview schedule personally. The collected data was analysed using appropriate statistical tools like mean, frequency, percentage etc. The results of the study revealed that, the machine transplanted paddy was found to be good over manually transplanted paddy with respect to characteristics like seed rate, time required for transplanting, number of tillers, labour requirement, grain yield and net profit. It is also revealed that, seed rate required for machine transplanting and labour requirement is less compared to manual transplanting, yield and net profit is more in mechanized transplanting and also quality of grains is good compared to manual transplanting. It is concluded that, mechanised paddy transplanting requires less labours, less cost of cultivation, more area coverage and high quality of grain with less seed rate. Hence, policy makers and administrators should give more attention for effective dissemination of mechanised paddy transplanting in labour shortage areas.

Key Words*: Diffusion, Efficiency, employment and mechanized paddy transplanting*

Introduction

Paddy (*Oryza sativa .L*) is one of the important cereal crops of the world and is known as "king of cereals". It is the staple food for more than 50 per cent of population. In Asia, India has the largest area under the rice accounting for 28.5 per cent of the global rice area. Among the rice growing countries, India has the largest area under rice in the world (43.97 million ha) with a total production of 104.32 million tonnes during 2011-12.

In India, the highest area under paddy is in Uttar Pradesh (5.95 million ha), followed by West Bengal (5.46 million ha), Andhra Pradesh (4.10 million ha), Odisha (4.02 million ha) and Karnataka (1.39 million ha). The highest yield is observed in the state of Punjab (3741 kg/ha) followed by Tamil Nadu (3423 kg/ha), Andhra Pradesh (3146 kg/ha) and Karnataka (2897 kg/ha) (Anonymous, 2012).

Karnataka is one of the major rice growing states in India. It is grown in an area of 1.39 million ha with an annual production of 4.04 million tonnes. The important rice growing districts of the state are, Haveri, Uttar Kannada, Dharwad, Koppal, Raichur, Mysore, Hassan, and Chitradurga. The area under rice production is increasing over the years. Rice is grown under varied conditions and bulk of the area is under assured rainfall and irrigated conditions of canals.

Transplanting of paddy is labour oriented requiring more labours. But now a day there is an acute shortage of farm workers because of migration of farm workers from rural areas to nearby cities seeking employment. The obvious solution to this is to encourage mechanised paddy farming to overcome shortages of labour. Mechanized paddy transplanter is a recent breakthrough which may be a considered as a potential technology. The adoption of mechanized paddy transplanting is one of the solutions to overcome labour shortage problem. In paddy growing regions of Hyderabad-Karnataka region mechanized paddy transplanting is adopted by farmers. No studies have been conducted to know the perceived performance of mechanized paddy transplanting and manual transplanting and also the impact of mechanized paddy transplanting on farmers. Hence the present study was conducted to know the impact of mechanized paddy transplanting and also to know the farmers' perceptions about performance of machine transplanted paddy and manual transplanted paddy.

Materials and Methods

The present study was conducted purposively in Raichur, Koppal and Bellary districts of Karnataka state coming under the judistriction of University of Agricultural Sciences, Raichur during 2013-2014. List of farmers who have adopted the mechanized transplanting was obtained from the farm power and machinery department of College of Agricultural Engineering, Raichur and all the farmers who adopted mechanized transplanting were contacted personally. The data was collected from the 40 respondents using structured pretested interview schedule personally. The collected data was analysed using appropriate statistical tools like mean, frequency, percentage etc.

Result and Discussion

Perceived performance of mechanized v/s manual transplanted paddy

It is clear from the Table 1 that, cent percent of the respondents indicated less seed rate in machine transplanting and high seed rate in manual transplanting. Less seed rate in machine transplanting is due to the fact that, the seedlings are raised in trays, uniform maintenance of plant to plant and row to row spacing and 2-3 seedlings are placed per hill. But in manual transplanting no specific spacing is followed and more number of seedlings are transplanted per hill. Uniform maintenance of plant to plant and row to row spacing and adjustable plant to plant spacing are

the major strengths of mechanized paddy transplanting (Pankaj Kumar *et al.,* 2012).

Majority (62.50 %) of the respondents indicated that time required for transplanting is less in machine transplanting and cent per cent of them indicated that more time is required for manual transplanting.

With respect to cost of raising nursery, cent per cent of the respondents indicated more cost involved in raising nursery for machine transplanting and medium cost in manual transplanting. It is due to the fact that, the seedlings for machine transplanting are raised in trays with utmost care which requires more labour but in manual transplanting the seedlings are raised in field only.

Majority of the respondents indicated that, medium amount of water is required for both machine transplanted and manual transplanted paddy. There is no difference in the amount of water required in both machine transplanting and manual transplanting.

With regard to number of tillers, majority (72.50 %) of the respondents indicated more number of tillers in machine transplanting. More number of tillers in machine transplanting might be due to more spacing and transplanting of one to two seedlings per hill whereas in case of manual transplanting more number of seedlings are transplanted per hill and spacing followed is less. Pankaj Kumar *et al.,* (2012) also reported that Number of plants per hill are more in mechanised transplanting as compared to traditional method resulting in higher yield.

With respect to intensity of weed, majority of the respondents indicated medium weed intensity in both machine transplanting and manual transplanting. There is no difference in intensity of weed growth in both machine transplanting and manual transplanting.

Cent per cent of the respondents indicated medium fertilizer requirement in both machine transplanting and manual transplanting. There is no difference in the dosage of fertilizer recommended for both machine transplanting and manual transplanting, hence the present finding.

With regard to labour requirement, majority (77.50 %) of the respondents indicated medium labour requirement in machine transplanting and cent per cent of them indicated more labour requirement in manual transplanting. More labour requirement in manual transplanting is due to the fact that, transplanting is done manually which requires more labour but machine transplanting requires limited labour.

With respect to grain yield, majority (82.50 %) of the respondents indicated more grain yield in machine transplanting. In manual transplanting, 75 per cent of them indicted medium grain yield. The number of tillers obtained in machine transplanting is more than the manual transplanting hence more grain yield is obtained in machine transplanting.

Slightly more than fifty (52.50 %) per cent of the respondents indicated medium cost of cultivation in machine transplanting and 77.50 per cent of them indicated more cost of cultivation in manual transplanting. More cost of cultivation in manual transplanting is due to more labour requirement for transplanting in manual transplanting.

With regard to net profit, 87.50 per cent of the respondents indicated more net profit machine transplanting as against 95 per cent of them perceived medium net profit in manual transplanting. Number of tillers per plant is more in machine transplanting than manual transplanting resulting in more grain and straw yield. Also there is considerable saving towards quantity of seeds purchased as very less quantity of them is required for machine transplanting. Savings in seeds and more yields of grains could be the strong reasons for the present finding.

Impact of mechanized paddy transplanting on selected quantitative indicators

It is evident from the Table 2 that, seed rate required for mechanized transplanting is 10-12 kg/acre as against 25 kg/acre in manual transplanting. Less seed rate in machine transplanting is due to the fact that, transplanting is done at specified spacing and limited number of seedlings are placed per hill. But in manual transplanting no specific spacing is followed and more number of seedlings are transplanted per hill.

With regard to savings in labour, 5-7 acres can be transplanted with 5 labours in machine transplanting and manually around 30-35 labours are required to transplant acre area.

Quality of grain is good in mechanized transplanting as against medium quality in manual transplanting. This is because of fewer incidences of pest and diseases in mechanized transplanting due to more spacing and 2-3 seedlings per hill.

With regard to weight of grain per bag, machine transplanted paddy grain bag weighs 85-90 kg as against 75-80 kg in manual transplanted paddy. This is because of bold and good quality grains in mechanized transplanting as compared to manual transplanting.

Yield per acre is also more in mechanized transplanting compared to manual transplanting due to bold and good quality grains, more number of tillers and less fewer incidences of pests and diseases.

Cost of cultivation is less and income is more in mechanized transplanting compared to manual transplanting due to more yield in mechanized transplanting and also savings in purchasing of seeds and less labour requirement in mechanized transplanting.

Singh and Rao (2009) reported that the yield realised in traditional method was 4.83t/ha and it was 5.70t/ha in self-propelled paddy transplanting method, the cost of cultivation is also less in self propelled paddy transplanting and also income is more in self propelled paddy transplanting compared to traditional manual transplanting.

Table 1: Perceived performance of mechanized and manual transplanted paddy

Sl. No.	Particulars	categories	Total			
			Machine transplanted		Manually transplanted	
			F	%	F	%
1	Seed rate	More	0	0.00	40	100.00
		Less	40	100.00	0	0.00
2	Time required for transplanting	More	0	0.00	40	100.00
		Medium	15	37.50	0	0.00
		Less	25	62.50	0	0.00
3	Cost of raising nursery	More	40	100.00	0	0.00
		Medium	0	0.00	40	100.00
4	Amount of water required	More	6	15.00	5	12.50
		Medium	34	85.00	35	87.50
5	Number of tillers	More	29	72.50	0	0.00
		Medium	11	27.50	40	100.00
6	Intensity of weed	More	19	47.50	11	27.50
		Medium	21	52.50	17	42.50
		Less	0	0.00	12	30.00
7	Quantity of fertilizer	Medium	40	100.00	40	100.00
		More	0	0.00	33	82.50
8	Labour required (man days)	Medium	31	77.50	7	17.50
		Less	9	22.50	0	0.00
		More	33	82.50	10	25.00

9	Grain yield	Medium	7	17.50	30	75.00
		Less	0	0.00	0	0.00
10	Cost of cultivation	More	19	47.50	31	77.50
		Medium	21	52.50	9	22.50
		More	35	87.50	0	0.00
11	Net profit	Medium	5	12.50	38	95.00
		Less	0	0.00	2	5.00

Table 2: Impact of mechanized paddy transplanting on selected quantitative indicators

Sl. No.	Parameters	Mechanized transplanting	Manual transplanting
1	Input Requirement a. Seeds (Kg/acre)	10-12 kg	25 kg
2	Savings in Labour	5-7 acres can be transplanted with 5 labours	Manually around 30-35 labours are required
3	Quality of grain	Good quality	Medium quality
4	Weight of grain per bag	85-90 kg	75-80 kg
5	Cost of Cultivation	Around 19000	Around 23000
6	Yield (q/acre)	45-50	40-45
7	Income	55000-60000	40000-45000
8	C:B ratio	1:2.89	1:1.73

Conclusion

It is evident from the results that, performance of machine transplanted paddy was found to be good over manually transplanted paddy with respect to characteristics like seed rate, time required for transplanting, number of tillers, labour requirement, grain yield and net profit as perceived by the farmers. Machine transplanting saves seed rate and labour requirement and net profit is more in machine transplanting. It is worth to mentioning here that, the adoption of mechanized transplanting is very less due to high initial investment, small and scattered holdings etc. There is a need to provide subsidy for the purchase of transplanter by the farmers. Hence administrators, policymakers and extension agencies involved in agricultural extension services should take necessary action to create awareness among the farming community and to encourage them through intensive extension education activities for adoption of mechanized paddy transplanting.

References

Anonymous, 2012, Agricultural Statistics at a Glance, Directorate of Economics and Statistics, Department of Agriculture and Co-operation, Ministry of Agriculture, Academic foundation, pp 64-66.

Pankaj Kumar, Kuldeep Singh, Rupinder Chandel and Harjeet Kaur, 2012, Mechanization of Paddy Transplanting Through Cooperative Societies in Jalandhar Distt. of Punjab, Indian Research Journal of Extension Education Special Issue, Volume I: 108-111.

Singh, R. S. and Rao, K. V. R., 2009, Impact of self propelled paddy transplanter in Kerala. http://cigr.ageng2012.org/images/fotosg/tabla_137_C1698.pdf retrieved on 24-05-2014.

Social Exclusion and means to tackle it for reducing poverty in India

Jayasree Datta[1], N R Gangadharappa[2] and J K Das[3]

[1]Ph. D., Dept of Agricultural Extension, BCKV, Nadia, West Bengal-741252
[2]Prof. and Head, Dept of Agricultural Extension, UAS, GKVK, Bangalore-560065
[3] Prof. and Head, Dept of Agricultural Extension, BCKV, Nadia, West Bengal-741252

Abstract:

Social exclusion is a process of being shut out fully or partially from any social, economic, political or cultural systems which determine the social integration of a person in the society. Poverty and social exclusion are closely related but nevertheless distinct phenomena. Social exclusion is a cause or a consequence of poverty. It is a multi dimensional concept. The idea of exclusion can only be judged by comparing the circumstances of some individuals or groups or communities relative to others, in a given place and at a given time. It is a situation where some people are being kept out, and where some people are being included. Thus it leads to higher rate of poverty, hunger, low income, low education, unemployment, ill health, crime, conflict etc. among the affected group. In Indian context, the excluded persons are; Social Groups like dalits/ untouchables/lower castes, tribals/ indigenous peoples, religious and linguistic minorities, the most backward castes etc. and sectoral groups like agricultural labourers, marginalised farmers, child labourers, domestic workers etc. This social exclusion can be tackled by various state led policies/actions, Universalist policies, mean tested targeted transfer, conditional targeting, market based action, community action, private sector action, multi lateral agencies etc. Civil society can also play a major role by increasing accountability and demanding that citizens are protected by the rule of law, influencing policy making, tackling prejudice and changing behavior of people.

Key Words: *Exclusion, Poverty, Discrimination, Society*

Social Exclusion and means to tackle it for reducing poverty in India

Introduction

The idea of social exclusion was rapidly and enthusiastically adopted across the European Union (EU). European interest in social exclusion grew in large part from debates surrounding the EU's antipoverty programmes. From the first programme (1975-80) to the third (1990-94) the name of the social problem of interest shifted from 'poverty' to 'exclusion'. Social exclusion refers to the dynamic process of being shut

out fully or partially from any social, economic, political or cultural systems which determine the social integration of a person in the society **(Walker and Walker, 1997)**. Europeans conceive of social exclusion as distinct from income poverty. Poverty is a distributional outcome, whereas exclusion is a relational process of declining participation, solidarity and access. Exclusion is a broader term encompassing poverty. It is a cause or a consequence of poverty. Poverty and social exclusion are closely related but nevertheless distinct phenomena. It is a common mistake to treat them as if they are synonymous (**Atkinson and Davoudi 2000**). Key differences between poverty and social exclusion concepts and data seems to be in their focus, cultural context, and disciplinary affiliations. Poverty data focuses on individuals and households, which is often easier to capture as statistical data, while social exclusion often revolves around group vulnerabilities and spatial clusters of deprivation with multiple data forms, which makes it more difficult to measure. Poverty is thus a relatively narrow income-based concept, which is amenable to quantification and definition according to specific benchmarks. Social exclusion, on the other hand is a multi-dimensional characteristic, defined according to context, and often assessed in more qualitative ways. An individual is socially excluded if (a) he or she is geographically resident in a society but (b) for reasons beyond his or her control, he or she cannot participate in the normal activities of citizens in that society and (c) he or she would like to so participate **(Burchardt et al, 2002)**. Mainstream economic literature throws more light on discrimination that works through markets and develops the concept of market discrimination with some analytical clarity. In the market discrimination framework, exclusion may operate through restrictions on entry into the market, and/or through "selective inclusion", but with unequal treatment in market and non-market transactions **(Baker 1956).** There are three key features of social exclusion; 1) relativity – the idea that exclusion can only be judged by comparing the circumstances of some individuals (or groups or communities) relative to others, in a given place and at a given time; 2) agency - the idea that people are excluded by acts of some agent(s); and 3)dynamics – the idea that the characteristics of exclusion (and its adverse effects) may only become apparent over time, as an accumulated response **(Atkinson, 1998)**. Amartya Sen draws attention to various meanings and dimensions of the concept of social exclusion and distinctions between the situation where some people are being kept out (at least left out), and where some people are being included (may even be forced to be included) **(Sen, 2000)**. Thus it leads to higher rate of poverty, hunger, low income, low education, unemployment, ill health, crime, conflict etc. among the affected group.

Poverty scenario of EU and India: In 2011, 24.2% of the population (119.6 million) in the EU was at risk of poverty or social exclusion compared with 23.4% in 2010 and 23.5% in 2008. The highest share at risk of social exclusion is in Bulgaria (49%). In EU 17% of the population at risk of income poverty, 9% severely materially deprived, 10% living in households with very low work intensity and 22.7% (14.0 million) of the UK population were considered to be at risk of poverty or social exclusion.

India has world's largest number of poor people living in a single country and 350 to 400 million people are living below poverty line. 75% of the poor people are living in rural areas. One half of the poor people are located at three states of UP, Bihar & Madhya Pradesh. 25% of the Indian's or 236 million people are surviving on less than Rs.20 Per day. Poverty rate in Orissa (43%) and Bihar (41%) are higher than the World's poorest country Malawi. Reason for rural poverty is high population growth, illiteracy, large family, caste system. Reason for urban poverty is slow job growth, failure Public Distribution System.

Who are excluded People? In Indian context, the excluded persons are; Social Groups-Dalits/ untouchables/ lower castes, Tribals/Adivasis/Indigenous Peoples, religious and linguistic minorities, the most backward castes, especially women and children among these social groups and Sectoral Groups-agricultural labourers, marginalised farmers, child labourers, domestic workers, informal workers/unorganized sector workers, contract workers, plantation workers, fisher communities, manual scavengers, rural and forest based communities, vernacular speaking social groups, people with disability etc.

Burchardt et al. (1999) identified five dimensions of social exclusion in terms of the 'normal activities' in which it is important that citizens participate. These dimensions are; 1) Consumption activity: relates to traditional measures of poverty, 2) Savings activity: includes pensions, savings, home ownership, 3) Production activity: defined in terms of 'engaging in an economically or socially valued activity, such as paid work, education or training, retirement or looking after a family', 4) Political activity: defined as 'engaging in some collective effort to improve or protect the immediate or wider social or physical environment', 5) Social activity: defined as 'engaging in significant social interaction with family, or friends, and identifying with a cultural group or community'.

Four different bases of social exclusion can be identified as prevalent in contemporary Indian society. The first, of course, is the universally observed case of gender based discrimination. Caste system presents the second basis of social exclusion under which groups identified as 'low' caste (Scheduled Caste – SCs) in the hierarchy of Hindu society have been placed at disadvantaged social, economic and political position through ages. Cultural and spatial isolation has kept certain ethnic groups (Scheduled Tribes – ST) away from the mainstream and thus socially excluded from many important spheres of the modern Indian economy. And, religious minorities, especially Muslims have also lagged behind in most social and economic spheres. Middle caste Hindus, categorised as Other Backward Classes (OBCs) have also claimed and achieved the 'disadvantaged' status for the past few decades getting the entitlement for affirmative action on the lines of SCs and STs.

Active exclusion and Passive exclusion: Active exclusion is the deliberate exclusion of people from opportunities through government policies or other means. Passive exclusion works through the social process in which there are no deliberate attempts to exclude, but nevertheless, may result in

exclusion of people from a set of circumstances **(Sen, 2000)**.

Group exclusion and individual exclusion: In case of "group exclusion", all persons belonging to a particular socio-cultural group are excluded based on their group identity and not necessarily due to their individual attributes. Where as in case of exclusion of "individual", individuals (both from excluded and non-excluded group) often get excluded from access to economic and social opportunities for various reasons specific to them (and not merely because of their group social/cultural identity). For instance, individuals may be excluded from employment due to lack of required educational qualifications and skills **(Thorat, Aryama and Negi 2005)**.

Caste-based and untouchability based Social Exclusion: In India, exclusion revolves around the societal inter-relations and institutions that exclude, discriminate, isolate and deprive some groups on the basis of their group identity like caste, ethnicity and religion **(Thorat and Louis 2003)**. The organisational scheme of the caste system is based on the division of people into social groups in which the civil, cultural and economic rights of each individual caste are pre-determined or ascribed by birth and made hereditary. The assignment of civil, cultural and economic rights is, however, unequal and hierarchical. The most important feature of the caste system, however, is that it provides for a regulatory mechanism to enforce social and economic organisation through the instruments of social ostracism **(Lal 1988)**. In the traditional scheme of caste system, the untouchables who are at the bottom of the caste hierarchy suffered the most from unequal assignment and entitlement of rights. They are denied the right to property, occupation. One of the unique features of the caste system, namely hierarchical or graded entitlement of rights implies that every caste, except the one at the top of caste hierarchy - the Brahmin, suffered from exclusion in terms of denial of some rights although the type of rights denied vary depending on the social location of caste in the caste hierarchy **(Ambedkar 1987, Thorat and Mahamallik 2006)**. Thus, like other lower castes, the untouchables also suffered from social exclusion and discrimination involving the denial of certain rights, which include civil, cultural, religious and economic rights. Besides this, the untouchables also suffered from the notion of "untouchability", which is unique to the untouchable caste only.

The practice of caste and untouchability-based exclusion and discrimination thus necessarily involves the failure of access and entitlements, not only to economic rights, but also to civil, cultural, religious and political rights. It involves what has been described as "living mode exclusion" **(UNDP 2004)**. Incomplete citizenship or denial of civil rights (freedom of expression, rule of law, right to justice), political rights (right and means to participate in the exercise of political power), and socioeconomic rights (economic security and equality of opportunities) are key to impoverished lives **(Zoninsein 2001)**. A case of western Rajasthan shows that 97 percent villages practice some form of discrimination in personal/private sphere. This is based on the belief that whoever comes in contact with dalits will be polluted. In cultural religious sphere, 93 percent of

villages, the non-dalits invite dalits in marriages and other occasions. However, dalits in 97 percent of these villages reported that they were served last after all non-dalits were finished eating. In case of economic sphere, 85 percent of people in rural western Rajasthan are engaged in caste-based traditional occupations. Low wage paying manual labour and service to non-dalits are the most likely livelihood options for dalits. Dalits are prohibited from selling milk, opening shops, tea stalls and hotels and performing religious activities. In political sphere, the dalit elected panchayat representative are many a times dummy candidates. Only 17 percent of panchayat secretaries, 37 percent of patwari and 23 percent of rozgar sahayak were from dalit community. Study showed discrimination to be existent in 63 percent of gram panchayat offices (**Annonymous, 2012**). Study shows that in UP half the difference in per capita consumption between SC/ST households and others was due to differences in assets, while the other half was due to differences in returns to those assets **(Kozel and Parker 2003)**. A study by **Gang et al. (2002)** decomposed differences between the poverty rates of SC, ST and non SC/ST households, and found half of the difference is caused by the difference in characteristics of groups (education, occupation, demographic, location), and the other half by the effect that these characteristics have on the probability of being poor. **Dreze and Kingdon (2001)** show that in education SC and ST children were less likely to go to school, even after controlling for the wealth of the household, quality of the school, and parents' education and motivation.

According to estimates for 2009 10, STs have the highest incidence of poverty at 32.2 per cent followed by SCs at 30.3 per cent, as compared to 17.7 per cent among other castes (Table 1) Muslims have higher incidence of poverty than Hindus though they seem better off than SCs and STs. It, may also be noted that poverty has declined most among Muslims, followed by other Hindu castes but least among STs, followed by SCs.

Table 1: Incidence of Poverty by Social Groups (%) (Expert Group Method)

Group	1993-94	1999-2000	2009-10
Scheduled Castes (SC)	48.6	37.9	30.3
Scheduled Tribes (ST)	49.6	43.8	32.5
Others	30.7	22.7	17.7
All Hindus	35.1	26.9	21.7
Muslims	45.9	35.5	25.1
All	35.9	27.5	21.0

Source: **Thorat and Dube (2012)**

Gender Based Discrimination

The Indian labour market is notoriously unfriendly to women. Women constitute almost one half of the population, but less than one third of the workforce. In the organised sector as a whole – both public and private together – only 20 per cent of workers are women, while in the total – organised and unorganised sector – employment women constitute about 30 per cent. Only 11 per cent of women workers as against 19 per cent of men have regular jobs. A woman's chance of getting a regular job in the organised sector is 0.67 of a male worker; and, a woman worker, on an average, earns 60 per cent of the wage of a male worker **(Papola and Sahu 2012)**. Urban labour markets are specially unfriendly to women. As against over one third of rural workers, only 18 per cent of urban workers are women. In larger cities their share is still lower around 12 to 15 per cent. Workforce participation rate is as low as 14 per cent as against 55 per cent for men in urban areas, the two rates are 29 and 55 respectively in rural areas **(CSO, 2010)**.

That women have a lower chance of getting jobs than men and employers clearly discriminate against women in hiring, wage fixing and promotion is demonstrated by several field studies, a study of recruitment in a sample of enterprises over a period of two years in the city of Lucknow in Uttar Pradesh, during 1980s found that selection to application ratio with similar qualifications was 0.034 among men, but lower at 0.025 for women candidates **(Papola, 1986).**

Labour Market Discrimination

Poverty and Levels of living are, of course, a function of income which is derived by households from land and capital and from participation in the labour market. In terms of participation in the labour market, the scheduled castes and scheduled tribes are not found to be worse off than others, though Muslims tend to have a relatively lower participation. Table 2 gives an idea of the relative representation of these groups in employment. SC and ST groups have a higher worker to population ratio; but that among Muslims is lower.

Table 2: Participation in Workforce by Social Group

	Share in population (%)	Share in workforce (%)	
		Total	In regular jobs
Scheduled Castes	16.2	20.1	13.6
Scheduled Tribes	8.2	9.6	8.1
Muslims	13.4	10.9	14.6
Others	62.2	59.6	19.2

Source: Estimated on the basis of data from Census of India, 2011 and NSSO survey on Employment and Unemployment 65th Round (2009 10).

In 1997 the Government put in place a new agenda to tackle both the causes and consequences of social exclusion, aimed at improving social justice, strengthening communities and supporting long-term economic growth.

Identity Politics and Social Exclusion in India's North-East

Drivers of social exclusion: According to SEU, 2004 drivers are factors that cause social exclusion. The association between drivers and social exclusion is not a simple one: there are difficulties in understanding the direction of the relationship between drivers; they interact and overlap; and there are problems in determining the underlying cause.

Past drivers of social exclusion:

Demographic factors: The key demographic factors have been large youth chorts, ageing and increased dependency ratios, and family change, particularly the increase in lone parent families.

Labour market factors: The key labour market factors have been unemployment, flexibility in the labour market, the dispersion of earnings and the concentration of work. **Policy issues:** Social exclusion was also driven by policy issues. Particular problems included where benefits had not been up-rated in line with the growth of earnings, the abolition of some benefits, a more regressive tax system and cuts in expenditure on some services.

Current drivers of social exclusion:

Low income: It is associated with a range of poor outcomes; many of these are long term. Income poverty is mainly driven by/ associated with family type and employment circumstances. **Unemployment:** Inability to participate in the labour market is generally considered a key indicator of social exclusion. Unemployment can be caused by other drivers of social exclusion such as ill-health, low educational attainment and lack of skills. **Education:** Education has a pivotal role in the intergenerational transmission of social exclusion. In general, attainment has been rising but a significant proportion still leave school without attaining qualifications and basic skills, and the attainment gap may be growing. **Ill health:** Ill health is associated with social exclusion in a variety of ways. Health status is a determinant of social position. Unhealthy behaviour can drive social exclusion, and social exclusion itself and the other drivers of it can result in poor health. **Housing:** Here, social exclusion was treated as covering those sleeping rough or staying in temporary and insecure forms of accommodation. **Transport:** Lack of affordable, reliable and safe transport can restrict access to work, education, services, food shopping and socio-cultural activities. **Crime:** The most powerful drivers of crime are community deprivation and income inequalities resulting from unemployment. Crime is spatially concentrated and associated with homelessness, poor health, parenting factors, drugs and alcohol misuse, school exclusion, leaving care and prison. **Fear of crime:** Fear of crime varies by neighbourhood and individual characteristics, with a strong association with age, gender and ethnicity. However, poor people are more likely to fear crime **(SEU, 2004).**

Causes of Social Exclusion:

Social exclusion causes the poverty of particular people, leading to higher rates of poverty among affected groups. It hurts them materially – making them poor in terms of income, health or education by causing them to be denied access to resources, markets and public services. So, even though the economy may grow and general income levels may rise, excluded people are likely to be left behind, and make up an increasing proportion of those who remain in poverty. **Social exclusion reduces the productive capacity of a society as a whole.** It impedes the efficient operation of market forces and restrains economic growth. Some people with good ideas may not be able to raise the capital to start up a business. Discrimination in the labour market may make parents decide it is not worthwhile to invest in their children's education. Socially excluded groups often do participate but on unequal terms. **Social exclusion makes it harder to achieve the Millennium Development Goals.** These Millennium Development Goals are Poverty and hunger, Universal primary education, Gender equality, Combating HIV/AIDS, malaria and other diseases. **Social exclusion is a leading cause of conflict and insecurity in many parts of the world.** Excluded groups that suffer from multiple disadvantages may come together when they have unequal rights, are denied a voice in political processes and feel marginalised from the mainstream of their society. Peaceful mobilization may be the first step, such as marches, strikes and demonstrations. But if this has no effect, or if governments react violently to such protests, then groups are more likely to resort to violent conflict if they feel there is no alternative.

Tackling social exclusionary process

State led policies/actions: Several 'theories of change' (not necessarily mutually exclusive) are identified by Social Exclusion Knowledge Network in state led policies **(Annonymous, 2008)**:

Universalist policies: It reflecting theories concerning the value of social solidarity and collectivisation of risk, these policies extend rights to publicly funded services, typically to all citizens with no fee or only a small fee at the time of use. Free universal education

services and the state provision of housing are contributing to exclusionary process. For example, in England much public housing has been sold into private ownership leaving the poorest quality stock still in the hands of local authorities who are now required to divest themselves of their responsibility for housing, transferring responsibility to civil society organisations. In England fees have also been introduced for university education alongside new forms of financial assistance involving both universal loans (with no or low interest) and means tested benefits in an attempt to maintain access for those on lower incomes. **(Clarke 2004**; **Sassen, 2000)**

Means tested targeted transfers: It reflecting theories concerning the value of targeting scarce resources on groups most in need; these policies involve transfers (in cash or kind) dependent on an eligibility test. The provision of social grants is the South African government's biggest poverty relief programme, with annual cash transfers in the region of R50-billion (US$7.14 billion) to over

nine million South Africans. These include old-age pensions and grants for child support, disability, care dependency and foster-care. Non-contributory and income tested social assistance grants are provided to groups judged unable to provide for their own minimum needs, such as the disabled, the elderly and young children in poor households **(Woolard, 2003)**. Research suggests that this social assistance programme is helping to reduce poverty, contributing to social cohesion and having a positive impact on the economic opportunities of households **(IRIF 2006)**. It has been estimated that a 10% increase in the take-up of old-age pensions reduces the poverty gap by 3.2%, while full take-up reduces the poverty gap by 6.2% **(Masango, 2004)**.

Conditional targeting: It reflecting theories concerning the 'irresponsibility' of poor people and the need for them to be 'incentivised' to adopt socially-valued behaviour; these policies provide transfers in cash or kind dependent on pre-defined reciprocal behaviour on the part of recipients. PBF (Programa Bolsa Familia) is a very large scale national conditional cash transfer programme focused on low income families with dependent children, established in Brazil in 2003. Bolsa Família operates in all urban areas; the stipend is means-tested and consists of cash payments for each pregnant or breastfeeding woman and for each child aged 6 - 16 in households meeting the income criteria, with an additional payment for the poorest households. At the beginning of 2007 Argentina had around 1.5 million people in receipt of conditional cash transfers through two national schemes: the Plan Jefas y Jefes de Hogar Desocupados (PJJDH), and the Plan Familias por la Inclusión Social (PFIS). It aimed to establish the right to social inclusion for families initially through the award of unconditional cash transfers of 150 Argentinean Pesos (US$ 47.68 at December 2007) **(CELS, 2003)**. The Female Secondary School Stipend Project (FSP) in Bangladesh18 is another largescale CCT programme – as the name suggests it is targeted at girls of secondary school age in rural areas but unlike the CCT progammes considered so far this is not meanstested. The programme involves the payment of secondary school tuition fees for girls up to class 10 living in rural areas and a monthly stipend to their families paid regardless of household income **(Schurmann A. 2007)**

Market based actions: This is reflecting the social management of risk approach, theories underpinning these policies are concerned with the need to build self-reliance and consumerism to support people out of poverty. These policies typically promote market-based solutions, such as private insurance schemes, and typically involve private sector 'for profit' partners. Some cash transfer programmes are also underpinned by consumerist approaches structuring demand subsidies to draw poor people into market relationships.

Developing and co-ordinating policies: reflecting an understanding of social exclusion as multi-dimensional, best addressed through joined-up working across different government departments, professional groups and/or sectors. These policies typically seek to promote greater partnership working across departments/ sectors and attempts to change mainstream

provision so it better meets the needs of disadvantaged people and communities, rather than providing new dedicated services.

Non-governmental Organisations (NGOs) and community action: Three main types of action are included under this heading: autonomous action by communities in pursuit of social, economic, political and/or cultural rights (ranging from small scale action by community groups to large scale social movements); community engagement in policy/action decision-making commonly facilitated by other actors such as the state, NGOs or the private sector; and the direct provision of services or other support by NGOs

Private sector action: For the purpose of the SEKN work, private sector action has been divided two types: service provision, such as insurance, health care or education – discussed in this report in the context of state led policies and actions – and actions broadly labelled corporate social responsibilities. The latter actions, which include the activities of private corporations as employers and activities on a broader front, are discussed in a separate chapter.

Multi-lateral agencies: These include global agencies such as the various UN agencies, the World Bank, and pan-regional agencies such as the Union. As noted above the action of these agencies have been appraised only in so far as they work with or influence other actors, notably national governments. However, as many of the SEKN appraisals highlight, the theories of change underpinning the work of some of these agencies have had a profoundly negative impact on action aimed at tackling social exclusion. This is perhaps most obvious in relation to the widespread influence of neoliberal theories and theories relating to the social management of risk strongly espoused by the World Bank. These theories call for a reduction in the role of the state in welfare provision, emphasis on targeting and conditionality rather than universal approaches to meeting basic needs, and reliance on market-based approaches to addressing poverty and inequality.

Global and regional Initiatives for policy development and co-ordination

CEPAL/ECLAC,Contract for Social Cohesion: The Economic Commission for Latin America and the Caribbean (CEPAL/ ECLAC) has developed a proposal for addressing social exclusion and poverty which centres on a new collective and political 'Social Cohesion Contract'. The central elements of the Social Cohesion Contract proposed by CEPAL/ECLAC are: 1) "Labour flexi-security": i.e. "to move labour protection from the employment to the person", 2) Education for increasing capabilities, including promoting values of multiculturalism and democracy,3) Financial strategies that promote social solidarity through universal social protection systems;4) Progressive structure of taxation; Local multi-sectoral programs targeting disadvantaged groups, 5) All these strategies would be implemented within a framework recognising the respective rights and duties of states, civil society, markets and individuals.**(CEPAL, 2007)**

The ILO strategy: The International Labour Organisation (ILO) is promoting two principal strategies for addressing social exclusion: the extension of universal social protection,

particularly in social security and healthcare, and the development at local level of an integrated model for action against social exclusion. The concept of "decent work" i.e. "productive work in conditions of freedom, security and human dignity" is central to these strategies. The ILO approach rejects the use of public resources to fund conditional cash transfers to increase consumption, favouring instead the transfer of such resources to informal productive units to support their transition to modernity through higher productivity and better income for their workers (Levaggi, 2006).

The UNDP Poverty Strategies Initiative and the Framework for unified UN Action:

In response to a commitment made at the 1995 World Social Development Summit (WSDS) the United Nations Development Programme (UNDP) launched the Poverty Strategies Initiative (PSI). With US$20million from multiple funders this programme aimed to assist countries in analysing and raising public awareness of the extent, distribution and causes of poverty, creating political space for debate on national priorities and formulating national policies and strategies to fight poverty (**Grinspun, 2001**).

Role of civil society: According to DFID Civil society plays an important role in four main ways (Annonymous, 2005):

Increasing accountability and demanding that citizens are protected by the rule of law: Civil Society Organizations (CSOs), such as faith groups and charities, can help excluded groups to exercise their rights and obtain redress where this is not happening. In South Africa, for example, the Treatment Action Campaign in 2002 challenged the government on its constitutional obligations and secured the right for people living with HIV and AIDS to have access to anti-retroviral treatment. They achieved this through a combination of active participation by people living with HIV and AIDS and strong alliances with key civil society groups, such as trade unions, churches and the media.

Influencing policymaking: CSOs also have a role in advocating increased representation and voice for excluded groups and giving them a say in policy- and decision-making. They can link grassroots work to national and international policy processes. But some governments may be threatened by the voice of civil society, and may try to undermine or prevent CSOs from playing this advocacy role. In such cases, other avenues should be explored. International alliances are increasingly important in linking CSOs campaigning for groups like women and girls, children and young people, disabled people and older people. Organisations like Help Age International, for example, have developed effective alliances to gain commitments by UN member states to improve public services and provide social protection for older people.

Delivering services where the state will not: In fragile states where public institutions are extremely weak or even non-existent, CSOs can also play a crucial role in delivering services to excluded groups who have no access to public services. But there are also many other countries where some services are simply not reaching excluded groups. In Bangladesh, large local CSOs, such as the Bangladesh Rural Advancement Committee (BRAC) and Proshika, play a key role in

delivering education and health services in urban slums. The Self-Employed Women's Association in India, a trades union for women in the informal sector, has had a major impact on the lives of these women by providing direct services such as primary healthcare, savings and insurance. It combines these with advocacy for policy change at municipal, state, national and global levels, challenging rules that discriminate against the women's interests (such as registration of trade unions).

Tackling prejudice and changing behavior: A strategy to tackle exclusion has to challenge deep-seated attitudes and prejudices. Facing such attitudes can affect people's self-confidence. When people feel they are being judged on the basis of who they are, they may perform less well. The expectation of prejudice can undermine the motivation to achieve. Civil society can play an important role in helping to change attitudes. The media, in particular, while they have the potential to reinforce prejudices, can also play an important role in changing attitudes and behaviour.

Conclusion

Social exclusion is a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole. To tackle these exclusionary process individual action cannot bring change, different policy actions has to be taken by the Govt. and NGOs at regional, national and global level. Civil society also should demand the rule of law to protect the citizens, deliver services to excluded group, should change the attitude and behavior of people etc. Autonomous action should also be taken by communities in pursuit of social, economic, political and/or cultural rights.

References

Ambedkar, B.R. 1987. "Philosophy of Hinduism". In Dr. Babasaheb Ambedkar Writing and Speeches, Vol.3, ed. Vasant Moon, 194. Dept. of Education, Government of Maharashtra.

Annonymous, 2004, The drivers of social exclusion: A review of the literature for the Social Exclusion Unit in the Breaking the Cycle series, SEU

Annonymous, 2005, Reducing poverty by tackling social exclusion-A DFID policy paper, Department For International Development.

Annonymous, 2008, Understanding and Tackling Social Exclusion- SEKN final report 2008, Social Exclusion Knowledge Network.

Annonymous,2012, Caste based discrimination and social exclusion- study to understand caste based discrimination in western Rajasthan, Unati-Organisation for development education, GOI-UNDP, India.

Atkinson R. and Davoudi S. (2000), The concept of social exclusion in the European Union: context, development and possibilities, Journal of common market studies, vol. 38, n. 3, pp. 428

Atkinson, A.B. (1998a), 'Social Exclusion, Poverty and Unemployment', in A.B. Atkinson and J. Hills (eds.), Exclusion, Employment and Opportunity, CASE paper 4, Centre for the Analysis of Social Exclusion, London School of Economics, 1-20.

Becker, Gary S. 1957. The Economics of Discrimination. Chicago: University of Chicago Press.

Burchardt, T., Le Grand and Piachaud, 2002, 'Degrees of social exclusion: Developing a Dynamic, Multidimensional Measure', in J. Hills, J. Le Grand and D. Piachaud (eds) Understanding social exclusion, Oxford: Oxford University Press, pp 30-43.

Burchardt, T., Le Grand, J., & Piachaud, C. (1999). Social exclusion in Britain 1991-1995. Social Policy and Administration. 33/3: 227-44

CALAP/ECLAC (Comisión Económica para América Latina y el Caribe) (2007) Cohesión social. Inclusión y sentido de pertenencia en América Latina y el Caribe. Santiago de Chile: CEPAL-Naciones Unidas.

Centro de Estudios Legales Y Socioales (2003). Plan Jefes y Jefas ¿Derecho social o beneficio sin derechos? Buenos Aires: CELS.

Clarke J. (2004) Changing welfare, changing states: New directions in social policy; Sage: London.

CSO (2010), Women & Men in India 2010, New Delhi,Government of India Central Statistical Office.

Dreze, J., and G. Kindon, 2001, 'School Participation in Rural India', Review of Development Economics, Vol.5, No.1, pp.1-24.

Gang, I.N., K. Sen, M-S Yun, 2002, 'Caste, Ethnicity and Poverty in Rural India', IZA Discussion Paper 629, Bonn (www.iza.org)

Grinspun A. (ed.) Choices for the Poor: Lessons from National Poverty Strategies, UNDP, 2001.

Inter-Regional Inequality Facility (IRIF) . (2006). Social Grants: South Africa. Policy brief 1. London: Overseas Development Institute.

Kozel, V., and B. Parker, 2003, 'A Profile and Diagnostic of Poverty in Uttar Pradesh', Economic and Political Weekly, Vol.38, No.4, pp.385-403.

Lal, Deepak. 1988. Hindu Equilibrium, Cultural Stability and Economic Stagnation, Vol. I. Oxford: Clarendon Press.

Masango D.(2004). Social grants are working: study. Retrieved May 27, 2007 from http://www.southafrica.info

Ministerio de Desarrollo Social (2007). Programa Familias para la Inclusión Social. Buenos Aires; Presidencia de la Nación

Papola T. S. (1986), 'Women Workers in the Formal Sector of Lucknow, India', in Richard Anker and Catherine Hein (eds), Sex Inequalities in Urban Employment in the Developing World, Hampshire and London, MC Millan and Geneva, International Labour Organisation.

Papola, T.S. and Partha Pratim Sahu (2012) Growth and Structure of Employment: Long Term and Post Reform Performance and Emerging Challenges, New Delhi, ISID, Occasional paper Series, 2012/1.

Sassen S. (2000) New frontiers facing urban sociology at the Milennium. British Journal of Sociology 51 (1): 143-159.

Schurmann A. (2007) Review of the Bangladesh Female Secondary School Stipend Project Using a Social Exclusion Framework. Background paper for Social Exclusion Knowledge Network. ICDDR,B Working Paper. ICDDR,B: Dhaka, Bangladesh.

Sen, Amartya. 2000. Social Exclusion: Concept, application and scrutiny, social development paper no1, June, Bangkok: Asian Development Bank.

Thorat Sukhadeo and Amaresh Dubey (2012), 'Has Growth Been Socially Inclusive during 1993 94/2009 10?' Economic and Political Weekly, March 10.

Thorat, S.K. And Motilal Mahamallick. 2006. Caste, Labour and Occupation Discrimination in Rural Area, IIDS study.

Thorat, Sukhadeo and Prakash Louis. 2003. Exclusion and Poverty in India: Scheduled Castes, Tribes and Muslims (overview paper). New Delhi: DFID.

Thorat, Sukhadeo, Aryama and Prashant Negi. 2005. Reservations and Private Sector, India. Delhi: Rawat.

UNDP. 2004. Human Development Report 2004: Cultural Liberty in Today's Diverse World. New Delhi: Oxford University Press.

*WALKER, A. AND WALKER, C., 1997, Britain divided: The growth of social exclusion in the 1980s and 1990s, British Medical Journal, **315**(105): 153-170.*

Woolard I. (2003). Impact of government programmes using administrative data sets: Social Assistance grants. Pretoria: Human Sciences Research Council.

Zoninsein, Jonas. 2001. "GDP gains and long-term discrimination against blacks: The inverse relationship" In Beyond Racism: Race and Inequality in Brazil, South Africa and the United States, ed. Charles V. Hamilton, et al. Boulder: Lynne Rienner.

Farm Women's Access to Farm Information: A study in Bolpur Sub-division

Suparna Bose[1] and Sarthak Chowdhury[2]

PGT (Economics), Dept. of Human Resource Development, Jharkhand
Professor (Agricultural Extension), Dept. of EES, PSB, Visva-Bharati

Abstract

This study investigates the information needs and information-seeking behaviour of rural women residing in Bolpur sub-division of West Bengal. The sources of information used included radio, television, print media and exhibition in the study area, but radio and television were most available and accessible; and serves as the major sources of agricultural information to the farm women.

Keywords: *Farm women, communication media, socio-economic attributes.*

The flow of information is vital to the smooth functioning of such systems. Without information about likely markets and prices, the producer cannot make decisions about what crops to grow and when to buy and sell. Without information about the location and size of a crop or the quality of produce, the processor cannot plan how much finished product to supply to consumers. In order to compete with each other and to maintain production in a sometimes hostile environment, producers need information about new technologies, most often developed by researchers at universities, research institutes, and private companies. Communication media such as print media and mass media has been considered as potential agency for development of people primarily because their reach is very wide. It is catalytic agent that motivates people to take right decision at the right time.

Vashishtha and Kunwar (2004) found that favourable mass media exposure had positively affected overall knowledge as well as adoption of modern practices of agriculture of the farm women. Ani (2007) stated that extension services use

mass media because of the high speed and low cost with which information can be communicated over a wide area. Osuala (1987); Shinawatra et al. (1987) Nindi (1993) and Leckie (1996) in their study explained that although women are actively engaged in agriculture, they were often denied information on modern agricultural practices, so most of the female farmers had an inadequate knowledge of farming practice.

Keeping these in view the present study was undertaken with the following set of objectives:

Objectives:

%To assess the exposure of the respondents to various communication media.

%To assess the credibility of the communication media as perceived by the respondents.

%To examine the crucial socio-economic traits

of the respondents that are influencing the access to farm information.

Research Methodology

The present study was undertaken in randomly selected two blocks; i.e. Bolpur-Sriniketan Block and Illumbazar Block of Bolpur subdivision of Birbhum District. For the present study 250 farm women were selected by the use of simple random sampling technique. Afterwards five villages were selected randomly from the selected two blocks and twenty five farm women of each village were further selected by using equal size sampling technique. The data were collected with the help of a pre-tested structured interview schedule by personal interview method.

Result and Discussion

Ownership of electronic media

The table 1 explains the possession of electronic media by the respondents, here it is noted that 60.8 percent of them had radio and only 30.4 of them had television sets at their places and about 14.8 percent did not possess any radio or T.V. sets.

Table 1: Distribution of respondents according to ownership of electronic media

n=250

Name of Media	Number of respondents	%age
Radio	152	60.8
Television	76	30.4
None	37	14.8

Exposure to various communication media

The study examined the effectiveness of mass media formats viz., radio, television, print and exhibition in influencing the behaviour of rural women. The various mass media were being utilised to produce and transmit programmes covering wide spectrum of topics in agriculture and allied fields for bringing the latest information and knowledge to the farming community.

Table 2: Distribution of respondents according to exposure to various communication media

n=250

Sl. No.	Name of Media	Extent of Exposure				Total Score	Rank
		Regularly (3)	Often (2)	Sometimes (1)	Never (0)		
1.	Radio	24	27	42	00	168	I
2.	Television	16	11	27	00	97	II
3.	Print Media	03	05	05	00	24	III
4.	Exhibition	00	02	09	00	13	IV

The present table 2 shows the exposure of various mass media sources the respondents. Here radio got first rank with a score of 168 and television got second rank with a sore of 97. Educated respondents used print media and it obtained third rank and 24 score; and lastly exhibition acquired fourth rank with 11 score.

Credibility of the radio

The table 3 shows the credibility of radio among the respondents regarding farm information sources. As majority of the respondents who had got in touch with (22.8 percent) told that it was efficient in providing agricultural programme. Among rest of the respondents, 12.4 percent said it was highly efficient and 1.6 percent expressed that it was inefficient in dissemination of agricultural programmes.

Table 3: Credibility of the radio as perceived by the respondents

n=250

Extent of Credibility	Number of respondents	%age
Highly Efficient	31	12.40
Efficient	57	22.80
Inefficient	4	01.60
Highly Inefficient	1	00.40
No Comments	157	62.80

Credibility of the television

The table 4 gives a picture of credibility standing of television as an agricultural information source. The majority of the respondents who had any contact with expressed the view that television was efficient (13.2 percent), 5.6 percent said that it was highly efficient and rest of them stated either it was inefficient (2.4 percent) or it was highly inefficient (0.4 percent).

Table 4: Credibility of the television as perceived by the respondents

Extent of Credibility	Number of respondents	%age
Highly Efficient	14	05.60
Efficient	33	13.20
Inefficient	6	02.40
Highly Inefficient	1	00.40
No Comments	196	78.40

Credibility of the print media

The table 5 illustrates the credibility position of print media, it is apparent from the table that 3.2 percent of the respondents put this at highly efficient category. 1.2 percent conveyed that print media was efficient, 2.4 percent said that it was inefficient and only one respondent (0.4 percent) said that print media was highly inefficient. It is also interesting to note from the data that almost 90 percent were unaware to make comment. This was mainly because of poor literacy status of the respondents.

Table 5: Credibility of the print media as perceived by the respondents

n=250

Extent of Credibility	Number of respondents	%age
Highly Efficient	8	03.20
Efficient	3	01.20
Inefficient	1	00.40
Highly Inefficient	1	00.40
No Comments	237	94.80

Credibility of the exhibition

The table 6 explains the credibility status of exhibition as source of information for the respondents, about 1.6 percent of the respondents said that it were highly efficient, 1.2 percent expressed that it were efficient and 0.8 percent of them told that it were inefficient. 0.4 percent said that it were highly inefficient.

Table 6: Credibility of the exhibition as perceived by the respondents

n=250

Extent of Credibility	Number of respondents	%age
Highly Efficient	4	01.60
Efficient	3	01.20
Inefficient	2	00.80
Highly Inefficient	1	00.40
No Comments	240	96.00

From the above discussion it is amply evident that the respondents were highly non-committal about exhibition. This is mainly because in this locality there is only one exhibition in Sriniketan Magh-Mela and in the mela respondents were mainly busy in entertainment purpose.

Stepwise multiple regression analysis between socio-economic traits and access to farm information sources

In the table 7 it is noted that R^2 was 0.8192 which indicates that 81.92 percent variation in access to farm information sources was explained by the five variables put together.

Table 7: Stepwise multiple regression analysis between socio- economic traits and access to farm information sources

Sl. No	Independent Variable	Beta weight of Standardised partial regression coefficient	Regression Coefficient	't' value of partial regression
1.	Education	0.1740	18.6915	3.8163**
2.	Farm income	0.2170	15.8299	3.2022**
3.	Transportation and Communication items	0.0670	6.3557	1.324**
4.	Size of holding	0.1407	3.6751	1.7931**
5.	Social Participation	0.0794	10.1351	1.8318**

R^2 =0.8192

**Significant at 1%

Conclusion

The study depicted that radio, television, print media and exhibition are available mass media in the study area, but radio and television were more available and accessible, hence serves as the major sources of agricultural information to the respondents.

References

Ani, A.O. 2007. Mass Media Methods. Agricultural Extension: A Pathway for Sustainable Agricultural Development. Apani Publishers, Kaduna, p. 25.

Leckie, Gloria J. (1996). Female Farmers and the Social Construction of Access to Agricultural Information. *Library & Information Science Research,* Vol. 18, pp. 297-321.

Nindi, Benson(1993). Agricultural Transformation in Sub-Saharan Africa: The Search for Viable Options. *Nordic Journal of African Studies* Vol. 2(2), pp. 142–158.

Osuala, Judith D. C. (1987). Extending Appropriate Technology to Rural African Women. *Women's Studies International Forum*, Vol. 10, Issue 5, pp.481-487.

Shinawatra, B., Tongsiri, B., and Pitackwong, J. (1987). *Differential Roles of Men and Women in the Farming Systems of Amphoe Phroa*. Changwat Chiang Mail Chiang Mai University, Thailand.

Vashishtha, Priya and Kunwar, Neelma (2005). Pshycological impact on Farm Women by Using Mass Media in Kanpur District. . *Rural India*, January February Issue, pp. 15-18.

Watershed Development Programme and involvement of the tribal people - An analysis

S. R. Dash[1], S.D. Mukhopadhyay[2] and R.K. Raj[3]

1. Ph.D Scholoar, Visva Bharati, Shantiniketan, 2. Asst. Professor, Agril-Extension, Visva Bharati, Shantiniketan, 3.Professor, Extension Education, OUAT, Bhubaneswar

Abstract

Community participation is necessary for successful implementation of the watershed development programme. The basic requirement of successful implementation is the active involvement of the watershed people. The findings of the study revealed for the poor involvement of the tribal people in decision making process, programme formulation and implementation, fund utilization, monitoring and evaluation. It may be due to the poor understanding of the people about the guideline as well as their responsibilities and involvement failing which the end results of the programme could not be achieved. The findings therefore suggested that the project authorities have to sufficiently exposed the tribal people to the guideline for their clear understanding about duties and responsibilities so that they will effectively involved in the process of programme implementation for achieving the end results.

Key word *- Watershed, people, development, programme, implementation*

Introduction

The sustainable agricultural development in the present changed context can only be achieved with conservation of soil and water coupled with the human resource development to meet the new challenges of the 21st century. The Government of India has implemented nationwide massive and nicely designed Watershed Development Programme incorporating all possible factors towards effective implementation for the all round development of the watershed. The programme has been designed in participatory mode with bottom–up planning approach. It has been realized that active involvement of the watershed people are lacking for which the programme could not be implemented effectively. A study was therefore designed to assess the extent of involvement of the watershed people in the programme.

Materials and Methods

The study was undertaken in Nuapada and Kahahandi, tribal dominated districts under western undulating zone of Odisha. Six watersheds from two blocks of each district were selected for the purpose of investigation. Watershed president, secretary, chairman, six from user group, three each from landless and women category and one from watershed committee of each watershed were selected as the respondents with total sample size of 192. The data were collected personally with a semi structured schedule pre-tested earlier. Information collected on scale point of fully, partially and not involved over the framed statements were analysed with score value of 2,1 and 0 respectively. The statistical tests of mean score, gap percentage and multiple regression were employed to reveal the results.

Result and Discussion

Emphasis has been given to incorporate the experience, aspiration and moralities of the watershed people while formulating action plan. The watershed beneficiaries are to be actively involved in all the phases of the implementation programme. Their involvement in the decision making process are more valuable and worthwhile for effective implementation to achieve the end results. It is observed from

Table-1: Involvement in decision making process

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Need identification	1.37	1.43	4.20	1.40	30.00
2	Programme development	1.29	1.27	1.55	1.28	36.00
3	Programme implementation	1.27	1.08	14.96	1.18	41.00
4	Fund utilization	0.91	0.91	0.00	0.91	54.50
5	Constraint analysis	1.16	1.22	4.92	1.19	40.50
6	Selection of farmer's representative	0.89	0.77	13.48	0.83	58.50
7	Selection farmers for training	0.93	0.78	16.13	0.86	57.00

(Table-1) that the respondents were better involved in need identification, programme development, constraints analysis and programme implementation. The watershed people should be actively involved in selection of farmers representative, farmers' for training and fund utilization. Poor involvement of the respondents obtained on these aspects may affect effective implementation of the programme and suggested for maintaining transparency for their involvement in all these aspects of decision making process.

Participation in agro-ecological survey, problem diagnosis, prioritization and programme design felicitate for developing feasible programme for each family in the watershed area. As observed from the

Table-2: Involvement in programme formulation

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Participation in PRA exercise	1.27	1.28	0.78	1.28	36.00
2	Assessing needs of people	1.36	1.34	1.47	1.35	32.50
3	Problem diagnosis	1.27	1.15	9.45	1.21	39.50
4	Problem prioritization	1.29	1.09	15.50	1.19	40.50
5	Assessing interventions	1.03	0.79	23.30	0.91	54.50
6	Developing own programme	1.46	1.30	10.96	1.38	31.00
7	Programming for Govt. land	0.92	0.96	4.17	0.94	53.00
8	Preparing consolidated watershed plan	1.16	1.13	2.59	1.15	42.50

Tabel-2, considerable percentage of gaps of 31.00% to 53.00 % indicate that the respondents were not actively involved in programme formulation and more particularly on programming in govt. land, assessing interventions, preparing consolidated watershed plan, problem prioritization and problem diagnosis. It may be apprehended that the programme formulated may not be from the people's perspective and suggested for their active involvement in all the processes of designing action plan.

The guideline has clearly depicted that each individual families have to prepared their own action plan with time and cost estimates, operational procedure and implement the programme approved. As observed from Table-3, the respondents had not actively involved in all the stages of programme

Table-3 : Involvement in programme implementation

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Undertaking activities as approved	1.28	1.33	3.76	1.31	34.50
2	Arranging required inputs	0.88	1.08	18.52	0.98	51.00
3	Timely reporting the progress of work	0.61	0.89	31.46	0.75	62.50
4	Reviewing progress time to time	1.03	1.09	5.50	1.06	47.00
5	Evaluation of the programme	1.28	1.08	15.63	1.18	41.00
6	Conflict management	0.94	0.71	24.47	0.83	58.50
7	Refinement/modification of approved programme	0.38	0.51	25.49	0.45	77.50
8	Maintaining records of activities	1.10	1.04	5.45	1.07	46.50
9	Discussion on post project activities	0.81	0.74	8.64	0.78	61.00

implementation. Poor involvements observed on refinement and modification of approved programme, discussion on post project activities, timely reporting the progress work, conflict management, arranging required inputs, reviewing progress time to time ,maintaining records of activities and evaluation of the programme, indicated for the passive involvement of the respondents. It also indicated that the guideline has not been properly followed and suggested for necessary steps by the project authorities to ensure active involvement of the tribal people in programme implementation.

Specific norms have been clearly spelled out in fund utilization. The individual beneficiaries will receive funds for the watershed Association, utilize properly document all accounts and submit the expenditure statements. Hence, fund utilization in exclusively in the domain of the concerned beneficiaries. Analysis of data reflected in Table-4 revealed that the respondents had poor involvement in fund utilization except contribution for development fund. Significant gaps observed on utilization of development fund (70.50%), purchasing required inputs and materials (73.00%), placing demand for fund release (67.50%), mode of repayment of loan (58.00%), sending expenditure statements (57.00%), availing credit (54.50%). Hence, transparency in fund utilization found to be doubtful and suggested for active involvement of people on these aspects of fund utilization.

Table-4 : Involvement in fund utilization

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Placing demand for fund release	0.58	0.71	18.31	0.65	67.50
2	Utilizing the money properly	1.01	1.24	18.55	1.13	43.50
3	Purchasing required inputs/ materials	0.47	0.60	21.67	0.54	73.00
4	Maintaining accounts	0.95	1.08	12.04	1.02	49.00
5	Sending expenditure statements	0.77	0.95	18.95	0.86	57.00
6	Contribution for development fund	1.43	1.67	14.37	1.56	22.00
7	Availing credit	1.02	0.80	21.57	0.91	54.50
8	Mode of repayment of loan	0.96	0.73	23.96	0.84	58.00
9	Utilization of development fund	0.49	0.45	8.16	0.47	76.50

The guideline envisages proper monitoring and evaluation of the day-to-day progress of work to ensure the end results. It will also facilitate to solve the problems and difficulties at field situation. But, the analysis of data (Table-5) indicated that the respondents were not actively involved in all the process of programme implementation as mentioned in the table. Significant gaps were observed on arranging

Table -5 : Involvement in monitoring and evaluation

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Consultation with WDT	1.02	1.08	5.56	1.05	47.50
2	Arrangement of additional inputs	0.59	0.66	10.61	0.63	68.50
3	Planning for crop diversification	0.93	1.03	9.71	0.98	51.00
4	Introduction of new technologies	0.80	1.01	20.79	0.91	54.50
5	Record maintenance	0.79	0.80	1.25	0.80	60.00
6	Evaluating progress of work	0.81	0.76	6.17	0.79	60.50
7	Giving suggestions	0.98	0.93	5.10	0.95	52.50

additional inputs (68.50%), evaluating progress of work (60.50%), record maintenance (60.00%), introduction of new technologies (54.50%), giving suggestions (52.50%), planning for crop diversification (51.00%) and consultation with watershed development team (WDT) members (47.50%) indicated for the casual implementation of the programme deviating the guideline.

Comparative analysis of the involvement of the tribal people on various aspects of the implementation of the watershed development programme indicated (Table-6) that

Table-6: Comparative analysis of the development

Sl. No.	Involvement	Mean Score		Diff (%)	Pooled mean score (N=192)	Gap (%)
		Nuapada district (N=96)	Kalahandi district (N= 96)			
1	Watershed activities	1.20	1.13	5.83	1.16	42.00
2	Decision making process	1.12	1.07	4.46	1.09	45.50
3	Programme formulation	1.22	1.13	7.38	1.18	41.00
4	Programme implementation	0.92	0.94	2.13	0.93	53.50
5	Fund utilization	0.84	0.92	8.70	0.89	55.50
6	Monitoring and evaluation	0.85	0.90	5.56	0.87	56.50
	Average	1.03	1.02	0.97	1.02	49.00

Significant gaps were observed on all the aspects of the implementation of the watershed development programme covered under study. Moreover, the deficiency observed in terms of gap percentage on various aspects was almost at par. The findings lead to conclude that the tribal people were not actively involved in the process of implementation of watershed development programme.

Further attempt was made to assess the influence of socio-economic variables accelerating involvement of the tribal people in the watershed development programme. As observed from Table-7

Table- 7 :-Regression Analysis of socio economic variables on Involvement

Variable	Un standardized Co-efficient		Standardized Co-efficient		T value	Probability
	Beta	Std. Error	Beta	Std. Error		
Age	0.015	1.901	0.000	0.032	0.008	0.994
Education	-0.995	1.144	-0.067	0.045	-0.869	0.386
Family type	2.212	2.538	0.055	0.021	0.872	0.385
Family size	-1.354	2.510	-0.034	0.033	-0.539	0.590
Social participation	-0.236	0.566	-0.025	0.061	-0.418	0.677
Cosmopoliteness	0.259	0.404	0.046	0.074	0.640	0.523
Extension contact	2.137	0.406	0.407	0.042	5.266	0.000
Communication materials use	1.296	0.510	0.218	0.023	2.540	0.012
Type of House	2.296	1.817	0.101	0.041	1.264	0.208
Land holding	3.964	1.612	0.210	0.056	2.458	0.015
Occupation	-6.636	2.092	-0.186	0.052	-3.173	0.002
Annual Income	-1.152	1.683	-0.064	0.033	-0.684	0.495

R^2 :0.480 Adj.R^2 =0.445 S.E:14.227

the best fitted regression equation could explain 48 % of the total variance in accelerating involvement of the people. Among the twelve variables ,extension contact ,use of communication materials , type of house ,holding size and occupation helps in exhibiting significant influence for the involvement of tribal people in the Watershed Development Programme

Conclusion

The findings of the study conclude that the respondents were not actively involved in the implementation of the Watershed Development Programme, significant gaps observed on decision making process, programme formulation, programme implementation, fund utilization, monitoring and evaluation indicated that the guideline have not been followed properly and deviating from the objectives of the project. The tribal people were kept in dark about their responsibilities and involvement. The findings therefore suggested that the project authorities have to sufficiently exposed the tribal people for a clear understanding of the guideline enabling them to actively involved in all the process of programme implementation and succeed in all-round development of the watershed.

Reference

Dadheech B.S., Sisodia S.S. and Sharma C (2008), Factors affecting Farmer's Participation in Watershed development activities Indian Res. J. Ext. Edu. 8 (1), January 2008 : 69-70

Joshi, P. K., Pangare, V., Shiferaw, B., Wani, S. P., and Scott, C., 2004, Watershed development in India: Synthesis of past experience and needs for future research.Ind. J. Agric. Econ. 59(3): 303-319

Nagabhusan, K. (2001) People's participation in watershed development. Abstract volume of National symposium on development communication in rural sector, 2001, Palli Sikha Bhawan; Viswa Bharati: P 37.

Mahesh Kumar, M., Pradhakar, K.S., Pandurangaiah K., Badarinath, M.S., Batagurki, S.B. and Ganesh, H.V. (2005) Remote sensing techniques on Land use planning and water resources Development in palar river left bank watershed, kolar district. Mysore journal of Agriculture Science, 39 (1), 81-85.

A Comparative Study on the Decision Making Behaviour of Tribal & Non Tribal Farm Women of Odisha

B.P.Mohapatra and R. K Raj

Dept. of Extension Education, Col. of Agril. OUAT, Bhubaneswar

Abstract

The present research study entitled "A Comparative Study on the Decision Making Behaviour of Tribal & Non Tribal Farm Women of Odisha" was undertaken in Ganjam (non-tribal) and Jharsuguda (tribal) districts of Orissa State. A total number of 240 farm women equally from each district covering 8 villages from 4 blocks were interviewed personally by the researcher to find out the level of decision making of the tribal and non-tribal farm women for the empowerment of farm women. Regarding decision making role it was observed that the farm women in both the districts had good role in family decision making process. The farm women of the tribal district had better decision role in family decision, procurement, marketing and financial aspects where as the non-tribal farm women had better decision making role towards asset creation. Age, cosmopoliteness, occupation, social & economic traits had positive and significant relationship in the decision making process of tribal farm women. In non-tribal district, age and education had positive relationship with decision making role with respect to family affairs, procurement and negatively with marketing and asset creation.

Key words: *Farm women, decision making*

Introduction

In the agricultural production process, end users or farmers are very important. The farming community comprises three district groups – farmers, farm women and young farmers including boys and girls. Participation of women in agriculture in developing countries has been silently appreciated without much recognition and recording their contributions. They have not been prepared for active involvement in the development process. By and large, they are remained as invisible workers. Since 1970s, a global concern for the emancipation of women in general and farm women in particular has been expressed in so many ways aiming at improving the working environment of women and raising their standard of living.

In the process of agricultural modernization, major attention so far has been devoted to the farmers overlooking the role of farm women. However, there is an increasing realization in recent years regarding the central role the farm-women plays in agricultural production. She can make significant contribution not only through farm operations she performs directly but also through many farm decisions in which she assists. Yet, the status of farm women in general is much lower than that of their male counterparts largely because of the customary male dominance in the society, inherent shyness of women, lack of opportunities and poor accessibility to modern technology. The role of farm-women as producer of farm commodities remained almost completely neglected. Therefore, there is a direct need to create congenial atmosphere in social, economic and cultural spheres for their development through empowerment.

Objective

To compare the decision making behavior of tribal and non-tribal farm women of Odisha.

Materials and Methods

The study was conducted in Jharsuguda and Ganjam districts of Odisha with a comparative sample of 120 tribal and 120 non-tribal farm women. Random sampling was applied for selection of villages and respondents. The design of the study was ex-post facto survey research with the help of primary and secondary data review.

Results and Discussion

Involvement in decision making is related with empowerment. A person having decision making power or a partner in decision making process will definitely feel elevated and enthusiastic. Moreover, as decisions lead to action, family development needs sound and rational decision for which role of farm women is essential. But review of literature concludes that the role of farm women in decision making on non-monetary aspects is somewhat visible only. Therefore, the researcher felt it necessary to make an analysis of the decision making role of sample respondents. Five important areas such as decisions in family affairs, procurement of inputs, marketing of the produce, credit, and finance and assets creations were selected for study. Information were collected in three point continuum such as not consulted (NC) consulted but not implemented (CBNI) as well as consulted and implemented (CI). Collected information were analyzed and presented herewith.

1. Family decision.

Family is the basic unit of our living system. Women should be empowered first of home than other levels. Therefore participation of women in family decision making process is the focal point of many social scientists. Most of the studies reveal that women are not given opportunity in family decision making process. Therefore, good understanding and cooperation are much needed for taking right decisions in the family affairs. Research studies also revealed that participation in family decision making process is directly proportional to the level of understanding between the partners. Attempt was therefore made in the study to ascertain the role of farm women in family decision making process. Information collected on 3-point scale has been analyzed and presented in Table 1.

Table:1: Role of farm women in family decision making.

Sl. No.	Decision	Not consulted		Consulted but not implemented		Consulted and implemented		Mean score	
		Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal
1	Purchase of household goods	40.00	25.00	8.33	10.00	51.67	65.00	2.12	2.40
2	Planning for activities	44.17	73.33	5.00	20.00	50.83	6.67	2.07	1.33
3	Observing ceremonies	39.17	0.00	6.67	59.17	54.17	40.83	2.15	2.41
4	Education / Training	34.17	5.83	9.17	28.33	56.67	65.83	2.23	2.60
5	Household activities	0.00	0.00	2.50	28.83	97.50	79.17	2.98	2.79
6	Labour matter	60.83	62.50	8.33	22.50	30.83	15.00	1.70	1.53

As observed from the table that majority of the respondents of tribal district had activity involved in decision making about purchase of household goods (51.67%), planning for activities (50.83%), ceremonial functions (54.17%), education / training of the family members including children (56.67%) and house hold activities (97.50%). But in non-tribal district, the respondents had much involvement on purchase of inputs (65.0%), education / training (65.83%) and household activities (79.17%). They had been consulted on these areas and also involved in implementation. But the respondents had not consulted about engagement of labourers or any labour matters. For optimum utilization of family labour in performing various activities, the role of farm women in decision making process was equally important as their male counterparts. The result indicated that still the women remained at back and male members were dominating for different planning activities as majority of the respondents in non-tribal district (73.33%) and considerable respondents in tribal district (44.17%) stated for being not consulted.

1. Role in procurement

Timely arrangement of inputs is essential for successful implementation of any activities. Often it is observed that the male member in the family usually decide on procurement of inputs excepting household materials. The reason being the allocation of resources is usually done by the male members because of patriarchal family nature. The procurement of input is very crucial because of the scarce resources. The time, mode and source of procurement along with quantity and price require sufficient analysis for which the farm women in decision making process are of equal role with their male counterparts. It is being observed that the farm women are usually not consulted towards taking decisions on procurement of inputs. Attempt was therefore made in the study to assess the role of farm women in decision making process about procurement of inputs. The results of which are presented in table .2 after analysis.

Table: 2: Role of farm women in decisions towards procurement of inputs.

Sl. No.	Decision	Not consulted		Consulted but not implemented		Consulted and implemented		Mean score	
		Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal
1	Inputs to be procured	45.00	72.50	10.00	19.17	45.00	8.33	2.00	1.36
2	Quantity procured	45.00	66.67	10.00	19.17	45.00	14.17	2.00	1.48
3	Source of procurement	50.00	66.67	8.33	19.17	41.67	14.17	1.92	1.48
4	Mode of procurement	50.00	62.50	8.33	23.33	41.67	14.17	1.92	1.52
5	Time of procurement	50.00	62.50	8.33	23.33	41.67	14.17	1.92	1.52
6	Price of inputs	53.33	62.50	10.00	23.33	36.67	14.17	1.83	1.52

A sharp contrast of findings had been observed on role of farm women in decision making process between tribal and non-tribal respondents on various activities and procurement of inputs. It had been observed that the tribal farm women had good involvement as they not only consulted for decision but also the decisions were being implemented. Since inputs were the basic requirements for undertaking any activity, it was observed from the table that the non-tribal respondents were not being consulted as observed from the table 5.3.2. Majority of the respondents in non-tribal district had stated that they were not being consulted in all the aspects of procurement of inputs. Similarly around 50% of the respondents in tribal district stated for being not consulted on different aspects of procurement of inputs. The findings brought to the fact that the farm women were not being considered experienced about various aspects of the procurement of inputs for which they were not being consulted. It might also be another fact that the farm women had not feel themselves competent for which they were not being interested to take part in the decision making process about procurement of inputs although majority of the respondents in both the districts involved in family decision making process including planning on input arrangement.

1. Financial involvement.

Access to the financial resources is the determinant of empowerment. Economic empowerment largely depends upon financial involvement. Budgeting on home, enterprise, inputs, credit, and above all savings are important factors for development. Appropriate decision on these aspects is very crucial. Involvement of farm women on

budgeting is quite important in the family. It is usual phenomenon that farm women are not much consulted in taking decisions towards financial involvement. Attempt was made in the study to assess the role of farm women in decision making towards financial involvement. The result so obtained is appeared in Table 3.

Table:3. Role of farm women in financial decision making

Sl. No.	Activity	Not consulted		Consulted but not implemented		Consulted and implemented		Mean score	
		Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal
1	Family budgeting	61.67	65.83	5.00	21.67	33.33	12.50	1.72	1.47
2	Enterprise budgeting	55.83	65.83	10.00	21.67	34.17	12.50	1.78	1.47
3	Credit requirement	55.00	57.50	10.83	21.67	34.17	20.83	1.79	1.63
4	Source of credit	62.50	57.50	4.17	21.67	33.33	20.83	1.71	1.63
5	Mode of repayment	61.67	55.83	5.00	16.67	33.33	27.50	1.72	1.72
6	Saving	60.84	62.50	5.83	16.67	33.33	20.83	1.73	1.58
7	Saving utilization	65.83	62.50	5.00	16.67	29.17	20.83	1.63	1.58

The respondent had very poor role and involvement in financial decision making as observed from the table. Women were more involved in maintenance of the family. But the study revealed that, 61.67% of the respondents in tribal district and 65.83% in non-tribal district were not being consulted towards family budgeting. Similar findings were also observed in enterprise budgeting, and credit requirement where more that 55% of the respondents were not consulted. Women in the family were much concerned about saving for development of the family for which they sacrificed much. Therefore, they should be involved. But more that 60% of the respondents in tribal district and more that 55% in non-tribal district were not being consulted. Similarly women were taking better decisions about savings and its utilization. But around 65% of the respondents on both the districts were not being consulted. It was interesting to observe that more number of respondents in the tribal district ware consulted and their decision implemented in financial decision making process than not-tribal district.

Conclusion

Regarding decision making role, it was observed that the farm women in both the districts had good role in family decision making process. The farm women of the tribal district had better decision role in family decision, procurement, marketing and financial aspects where as the non-tribal farm women had better decision making role towards asset creation. Age, cosmopoliteness, occupation, social & economic traits had

positive and significant relationship in the decision making process of tribal farm women. In non-tribal district, age and education had positive relationship with decision making role with respect to family affairs, procurement and negatively with marketing and asset creation.

References

National Perspective Plan for Women (1988-2000)

Sapur, R.K. (1999) Women and Development, Ashish Publication House, New Delhi, pp.22.

Sood, R. (1991) Changing status and adjustment of women, Nanak Publication, New Delhi, pp.48

Knowledge and adoption of chickpea cultivation practices by farmers

Sathish HS, Sidramayya and Prakash Tamagond

Department of Agril. Extension Education, UAS, Raichur
E mail: satish4744@gmail.com

Abstract

The present study was conducted in Raichur, Sindhanur and Lingasugur taluks of Raichur district during 2011-12. The total sample constituted 120 respondents for the study. Ex post facto research design was employed in the study. The data was collected from the respondents using structured and pre tested interview schedule personally. The results of the study revealed that majority of the respondents were middle aged, educated up to middle school and high school, having medium land holdings with semi medium annual income and medium annual income with medium extension participation and medium mass media utilization. Majority of the respondents had knowledge about detailed Chickpea cultivation practices like sowing time, recommended variety, yield, chemical fertilizers, seed rate, application of recommended organic manure, weed management and powdery mildew management. Majority of them adopted the practices like recommended variety, seed rate, sowing time, application of recommended chemical fertilizers, recommended spacing and application of recommended organic manure.

***Key words**: Adoption, extension participation, knowledge, mass media*

Introduction

Chickpea is an important grain legume in Asia and is a rich and cheap source of protein. It is grown and consumed in large quantities from South East Asia to India. It is one of the earliest cultivated legumes. Chickpea is a highly nutritious grain legume crop and is one of the cheapest sources of protein. It can be eaten raw, roasted or boiled. It can also be processed into flour or dehulled grain (dal). It contains none of the anti-nutritional or toxic compounds often present in other legumes.

Chickpea is cultivated in an area of 11.15 million ha in the world with a production of 8.58 million tonnes and the productivity range was around 7694 kg/ha. The major chickpea growing continents are Asia, Africa and Australia. The major chickpea producing countries are India, Pakistan and Turkey.

In India, it is grown in area of 9.19 million hectares with a production of 7.58 million tonnes and productivity of 912 kg/hectares. Madhya Pradesh occupies first place with respect to area (3.11 m hectares) and production (2.69 m tonnes) followed by Rajasthan (1.78 m ha area and 1.60 mT production) and Maharashtra (1.44 m ha area and 1.30 m T production). Andhra Pradesh ranks first in productivity (1241 kg/ha) followed by Bihar (1200 kg/ha) and Gujarat (1111 kg/ha). in Karnataka it is grown in an area of 0.96 m ha with a production of 0.63 m T and productivity of 656 kg/ha (Anonymous, 2012).

Important districts growing Chickpea in Karnataka are Gulbarga, Bijapur, Bagalkote, Raichur, Gadag, Dhrawad and Bellary. In Raichur it is grown in an area of 69776 hectares, with production of 30956 tonnes and productivity of 467 kg/ha.

It is important to know that the productivity of Chickpea in Karnataka is very low compared to other chickpea growing states; even it is very much lower than the average India's productivity. Knowledge and adoption of improved chickpea cultivation practices among farmers plays an important role in improving the production and productivity of chickpea in the state. With this background the present study was conducted to know the knowledge and adoption of improved chickpea cultivation practices by farmers in Raichur district of Karnataka state.

Methodology

The research study was conducted in Raichur district which was purposively selected during 2011-12. Three taluks namely Raichur, Sindhanur and Lingasugur were selected based on the criteria of highest area under chickpea. Further, four villages were identified from each taluk and from each village ten respondents were selected randomly from each village. Thus the total sample constituted 120 respondents. Ex post facto research design was employed in the study. The data was collected from the respondents using structured and pre tested interview schedule personally. The collected data was tabulated and analyzed using appropriate statistical tools like mean, standard deviation, frequency and percentage.

Results and discussion

Socio economic profile of respondents

It is evident from the table 1 that, nearly fifty (51.67 %) per cent of the respondents were middle aged, almost equal per cent (25.83 and 24.17 %) of them were educated up to middle school and high school respectively. With respect to land holding, 45.83per cent of them were medium land holders and 35.83 per cent of them belonged to semi medium annual income category and 34.17 per cent of them belonged to medium annual income category. With regard to extension participation 42.50per cent of them belonged to medium extension participation category followed by high (30.00 %) and low (27.50 %) categories respectively. Nearly fifty per cent (49.17 %) of them belonged to medium mass media utilization category followed by high (26.67 %) and low (24.17 %) categories respectively.

Knowledge about detailed cultivation practices of Chickpea

The data presented in Table 2 revealed that, majority of the respondents had knowledge

about detailed Chickpea cultivation practices. The practices in order of priority were: sowing time (75.83 %), recommended variety (60.83 %), weed management (60.83 %), yield (59.17 %), chemical fertilizers (56.67 %), seed rate (74.17 %), application of recommended organic manure (49.17 %), recommended spacing (40.83 %) and damping off (35.83 %).

Further the table also reveled that, the respondents not having the knowledge about the following cultivation practices in order of priority were: management of damping off (64.17 %), pod borer management (36.67 %), spacing (59.17 %), weed management (39.17 %), organic manure (50.83 %) seed rate (25.83 %) and inter cultivation (37.50 %). The findings were in line with the findings of Borua (2012) and Beula priyadarshini (2013).

Adoption of detailed cultivation practices of Chickpea

Table 3 revealed the adoption of detailed recommended cultivation practices of chickpea. The practices adopted in order of priority were: recommended variety (69.17 %), seed rate (58.33 %), sowing time (55.83 %), application of recommended chemical fertilizers (39.17 %), recommended spacing (35.83 %), application of recommended organic manure (32.50 %) and pod borer management (62.50 %).

Further the table also indicates that, the respondents not adopted the recommended cultivation practices in order of priority were: damping off management (79.17 %), weed management (75.83 %), inter cultivation (74.17 %), Pod borer management (37.50 %), recommended organic manure application (67.50 %), spacing (64.17 %) and recommended chemical fertilizers application (60.83 %). Similar findings were also found by Kardak *et al.* (2006) and Venkataramulu *et al.* (2010).

Table 1: Socio economic profile of respondents

Sl. No	Particulars	Categories	Frequency	Percentage
1	Age			
		Young (Below 30)	31	25.83
		Middle (31 – 50)	62	51.67
		Old (Above 51)	27	22.50
2	Education			
		Illiterate (No formal education)	17	14.17
		Primary school (1 – 4)	24	20.00
		Middle school (5 – 7)	31	25.83
		High school (8 – 10)	29	24.17
		Pre university (11-12)	17	14.17
		Graduate (> 12)	2	1.67

3	Land holding			
		Marginal (up to 2.50 acres)	11	9.17
		Small (2.50 to 5.00 acres)	25	20.83
		Medium (5.01 to 10.00 acres)	55	45.83
		Big (Above 10.00 acres)	29	24.17
4	Annual income			
		High (Above Rs 51,000)	23	19.17
		Medium (Rs 34,001 to 51,000)	41	34.17
		Semi medium (Rs 17,001 to 34,000)	43	35.83
		Low (Rs Below 17,000)	13	10.83
5	Extension participation			
		Low (mean – 0.425*SD)	33	27.50
		Medium (mean + 0.425*SD)	51	42.50
		High (mean + 0.425*SD)	36	30.00
6	Mass media utilization			
		Low (mean – 0.425*SD)	29	24.17
		Medium (mean + 0.425*SD)	59	49.17
		High (mean + 0.425*SD)	32	26.67

Table 2: Practice wise knowledge of recommended Bengalgram cultivation practices by the farmers

Sl. No.	Particulars	Known		Not known	
		Frequency	Percentage	Frequency	Percentage
1	Seeds and sowing				
	Recommended variety	73	60.83	47	39.17
	Sowing time	91	75.83	29	24.17
	Seed rate	89	74.17	31	25.83
	Spacing	49	40.83	71	59.17
2	Manures and fertilizers				
	Organic manure	59	49.17	61	50.83
	Chemical fertilizers	68	56.67	52	43.33
3	Inter cultivation and weed management				
	Inter cultivation	75	62.50	45	37.50
	Weed management	73	60.83	47	39.17
4	Pest management				
	Pod borer management	76	63.33	44	36.67
5	Disease management				
	Damping off	43	35.83	77	64.17
6	Yield	71	59.17	49	40.83

Table 3: Practice wise adoption of recommended Bengal gram cultivation practices by the farmers

Sl. No.	Particulars	Adopted		Not adopted	
		Frequency	Percentage	Frequency	Percentage
1	**Seeds and sowing**				
	Recommended variety	83	69.17	37	30.83
	Sowing time	67	55.83	53	44.17
	Seed rate	70	58.33	50	41.67
	Spacing	43	35.83	77	64.17
2	**Manures and fertilizers**				
	Organic manure	39	32.50	81	67.50
	Chemical fertilizers	47	39.17	73	60.83
3	**Inter cultivation and weed management**				
	Inter cultivation	31	25.83	89	74.17
	Weed management	29	24.17	91	75.83
4	**Pest management**				
	Pod borer management	75	62.50	45	37.50
5	**Disease management**				
	Damping off	25	20.83	95	79.17

References

Beula priyadarshini M and Vijaya kumara N (2013) A study on the knowledge and adoption level of improved sericulture practices by the farmers of chittoor district. Int J Agric Sci and Res ***3*** *(2) : 43-46.*

Venkataramulu M, Hanchinal SN, Hirevenkanagoudar LV (2010) Adoption of improved cultivation practices among chilli growers. Karnataka J Agric Sci ***22*** *(5) : (722-725).*

Borua S, Brahma AK (2012) A study on the knowledge level and extent of adoption of selected technology by rural youth trained in KVKs of AAU in Assam. J Acad Indus Res ***1*** *(7) : 374-378.*

Shubhadeep Roy, Rekha Bhagat, Rao DUM. 2007, Level of knowledge and extent of adoption of farmers on recommended gladiolus production practices. Indian Res J Ext Edu ***7*** *(2&3) : 69-71.*

Kardak VN, Kashid NV, Kamble MS, Kardak SN (2006) Knowledge and adoption of sorghum production technology by the farmers of vidharbha region of Maharashtra. Agric Sci Digest ***26*** *(2) : 149 – 150.*

Agro-Extension Analysis of Sri Method Spread Via Farmer interest Groups (FIGs)

R.S. Panigrahi*, S. Biswal and P.K. Behera**

*Asso. Professor, Department of Extension Education,
**Asso. Prof. Department of Agronomy,
***Ph.D. Scholar, Department of Agronomy;

Abstract

The present paper is an attempt towards analysing impact of agro-extension factors on select SRI practices in both of Kendrapada and Balasore district of Odisha. A total of 34 FIGs from the two leading paddy districts were included under the study with 102 farmer members for studying their response on SRI methodology and influence of Interest Groups on the adoption dynamics. It was found that the FIGs have fair acess towards influencing the production decision of SRI farmers over and above their official compulsions. The paddy growers also expressed their inclination towards SRI method on spacing management, weeder use and transplanting techniques where as they were constrained to the follow the titbits of controlled irrigation, arrangement of organic manure/ nutrient application alongwith the risk of handling single paddy seedlings.

Key words: *SRI method, FIGs, Agro-extension analysis, Extension system.*

Introduction:

Ever growing population necessitates parallel increase in food production. More than 70% of farmers of Odisha belong to resource poor category and are dependent on paddy as their stapple food; as such a cost effective SRI method is the need of the time. Small and marginal farmers dominate the farming scenario of the state who are to act organised against the negligence of agri-extension agencies to get their pie via collective production group approaches.

Hence, the present paper is aimed at analysing the influence of Farmer Interest Groups (FIGs) in

facing the difficulties in adoption of SRI. Cultivation from the agro-extension sector that is solely responsible for their advancement.

The System of rice Intensification (SRI) is a climate smart agro-ecological methodology

to increase the productivity of irrigated rice by modifying the management of plant, soil, water & nutrients. Use of SRI methodology increases 20-50% of grain yield, while reducing inputs like seeds by 90%, irrigation water by 30-50%, chemical fertilizer by 20-100% and usually reduced need for pesticides. SRI method infact brings greater return to land, labour & capital while representing as an alternative towards regaining agricultural productivity through ecological and natural processes. Agricultural extension system in both developed and developing countries have successfully promoted the techno-economic, social and leadership skills of farmers by helping them organise into producer farmer groups. The purpose of the paper is to analyse how the Farmer Interest Groups (FIGs) do organise themselves to teach the necessary techno-economic and social skills needed to enable poor farm house holds to manage the sustainable paddy cultivator (SRI method) practices.

Material and Methods:

The present study was conducted with 17 numbers of Farmer Interest Groups (FIGs) each of Kendrapara and Balasore districts of Odisha. Three personnel each from the ministerial cadre of each FIG were selected as respondents covering a sample size of 102 members from 34 FIGs. The responses were collected through a questionnaire and the data were analysed by using mean score, rank order and Critical Ratio (CR) value for both the districts.

Result and Discussion:

Formation of "Farmer Interest Groups (FIGs)" with the help of public organizations, NGOs, Para extension workers and private input dealers in all the blocks and villages of the district is one of the major objectives of ATMA. FIGs are formed for Group approaches to agricultural extension at the village level towards the sustainability of extension services.

Table-1: Adoption of major/ select SRI principle in Kendrapara/ Balasore District.

Sl. No.	Select SRI Practices	Mean Score (MS)		Pooled MS	Percent (%)	Rank
		Kendrapara	Balasore			
1	Transplanting of young seedlings	3.1	3.7	3.4	14.00	IV
2	Single seedling segregation	3.7	3.9	3.8	16.00	III
3	Wider spacing maintenance	4.8	4.4	4.6	25.00	I
4	Organic sources of nutrient	3.6	2.6	3.1	13.00	V
5	Use of Conoweeder	3.9	4.5	4.2	21.00	II
6	Optimum water management	2.5	2.9	2.7	11.00	VI

An analysis of Table-1 above regarding select SRI practices revealed that the farmers were maintaining wider spacing and interested in the use of conweeder the most. Planting of thread like paddy seedlings by careful segregation from the clump were not much appreciated thus ranking third and fourth in the preference list. On the face of the growing mechanization due to labour shortage, the depleting animal resources have resulted in non-availibility organic manure/ dung. Thus the paddy growers were at a loss to apply adequate organic nutrients, however, were in the practice of incorporating as far practicable. Water management via optimum irrigation was beyond the control of SRI adopters, considering the natural undulation of farm lands and canal irrigation for which it was the least preferred practice in both districts.

Table-2: Agro-constraints to select SRI practices in Kendrapara/ Balasore districts

Sl. No.	Select SRI Practices	Mean Score (MS)		Pooled MS	Percent (%)	Rank
		Kendrapara	Balasore			
1	Young seedlings transplantation	3.2	4.0	3.6	15.00	III
2	Segregation of single seedling	3.3	3.5	3.4	12.00	IV
3	Spacing maintenance upto specification	1.9	2.9	2.4	06.00	VI
4	Application of organic sources of nutrient	4.1	3.5	3.8	18.00	II
5	Weeding by the conoweeder	3.4	2.8	3.1	1.00	V
6	Controlled water management	4.5	4.9	4.7	38.00	I

A study of agro-constraints impeding the holistic SRI approach gave an interesting trend wherein the SRI farmers isolated controlled irrigation as their single most problem to keep under command. Serious shortage of FYM coupled with high cost of market organic products added to their cup of owes in following organic nutrition which was infact the heart of the SRI method. Planting of young seedlings after segregating one by one from the mat form was very tedious and cumbersome to follow, although they did it with difficulty. Use of conoweeder for weeding was not that problematic although some amount of caution were required to move between the narrow lines. Considering the general tendency of paddy growers in deviating the plant population norms, spacing maintenance was ranked the last among the problems as the wider spacing was antithesis to their habits of over plant population support in both of the prominent paddy tracts of Odisha state.

Table-3: Comparative analysis of extension constraints in the adoption of SRI method by FIGs.

Sl. No.	Constraints area	Mean Score		Difficulties (%)	CR value
		Kendrapara	Balasore		
1	More of trainings/ meetings	3.57	3.0	15.97	3.20
2	Emphasis on record keeping	4.39	4.10	6.61	4.48
3	Work under many directions	3.61	2.41	33.24	7.02

4	Inadequate guidance	3.12	1.90	39.10	7.08
5	Internal factions	3.82	2.82	26.18	5.58
6	Unavailability of inputs	3.41	2.35	31.09	6.34
7	Target achievement/ output only	3.37	2.24	33.53	6.84
8	Non-sharing of technical information	3.18	1.53	51.89	10.87
9	Lack of programme stability	2.39	2.24	6.33	0.99*
10	No scope for exercising own experience	1.58	1.53	3.16	0.40*

(Maximum obtainable Score=05;
* Non significant)

An analysis of extension constraints faced by FIG members in the promotion of farming interests found the emphasis on frequent meetings, record & report preparation due to local politics and unavailability of inputs. However they were of the opinion that there was programme stability, scope for incorporating own experience as well as multiple instructions for completion of assignments.

Conclusion:

SRI method in itself is undoubtedly, one agro-ecological approach towards yield maximization in a sustainable manner. However, the illiterate/ neo literate farmers mass need to be techno-savy to follow the titbits in letter and spirit. The impediments to their interests and adoption are their resource poor condition as well as extra small holdings. The study suggests to find out some visible intervention into the problems of water management, single seedling segregation as well as organic nutrient supplementation to see the SRI method in its modified form in future.

Reference:

Chamsers, R. (1992); Spreading and self improving: A strategy for scaling up; M. Edwards and D. Hulme. (Ed.)

Desai, G.R., Mishra, S. and Das, B.N. (2005), Reforms in Extension; Experiences from ITD component of NATP in Orissa, IMAGE, BBSR, India.

*Maheswari, S. (1987) Voluntary action in Rural Development in India, Indian Journal of Public Adminstration, Vol.**33**(3), pp.559-68.*

Self Help Group Credit Linkage by State Bank of India : A Conceptual Analysis

Sunil Kumar Das[1], Subhransubala Mohanty[2]

Finance & Accounts Officer, Central Rice Research Institute (ICAR), Cuttack, Odisha
Reader in Economics, Ekamra College, Bhubaneswar, Odisha

ABSTRACT

This paper reviews theprogress of SHG-Bank linkage programme at the national and regional level and examines its impact on the Self Help Group (SHG) member. Poverty and backwardness of the persons in the country are mammoth in proportion that needs for redressal. Illiteracy, social and material deprivation, lack of avenues for supplementary income in the state manifolds the impact of poverty. While the self-help movement in India has been a direct consequence of the goal towards empowerment, under the present circumstances a lot remains to be achieved in terms of overall improvement of SHG, which depends heavily on the credit linkage programme by all banks in general and State Bank of India (SBI) in particular.The different products and services offered by State Bank of India are still to be known by the SHGs. In this backdrop an attempt has been made through this paper to understand the concept, function and requirement of SHGs and fulfilment of their requirement by the SBI through its various schemes, products and services. The credit linkage of SHGs by all agencies including commercial banks & SBI has also been brought through this paper.

Key Words*: Self Help Groups (SHGs), SHG-Credit Linkage, Microfinance*

Introduction

The SHG approach is all about rebuilding strong and homogenous communities thereby bringing people together and empowering them. As an individual the poor are voiceless, powerless and vulnerable but by bringing them together as a homogenous collective aware of their rights, they have tremendous strength. SHGs are becoming one of the best means for the empowerment of poor people in almost all the developing countries including India. All persons in India are given a chance to join any one of SHGs for training and development, so as to be prospective entrepreneur and skilled worker. The SHGs are promoted by the Government as if women in India may not be resourceful enough to be

entrepreneurs. When the SHGs arrange training facilities to carry out certain kind of work which are suitable for them, bank must arrange financial assistance to carry out manufacturing and trading activities, arranging marketing facilities, arrange for enhancing the capacity of SHG members in terms of leadership quality and arranging for the management of SHGs by themselves. As a social movement with government support, SHGs become more or less a part and parcel of the society.

Objectives

(1) To make a conceptual analysis of Self Help Groups in particular.

(2) To focus the credit needs of the SHGs and its linkage with State Bank of India.

(3) To analyse in detail the credit linkage purpose, procedure and repayment of lending.

(4) To highlight the innovation and innovative of SBI for widening the network of SHGs.

(5) To analyse the role of SBI in credit linkage programme of SHGs.

Methodology

The paper is based upon the secondary source of information collected from annual reports of National Bank for Agriculture and Rural Development (NABARD), Status of Microfinance by NABARD, annual reports of State Bank of India, website of Agricultural Planning & Information Bank, website of State Bank of India & website of NABARD.

Analysis

The whole analysis is divided into five parts. Part I deals with meaning, membership, function of SHGs, Part-II describes the requirement of SHGs and its linkage with SBI, Part-III consists of purpose of loan, documentation, repayment procedure of loan, Part-IV tells about different product, services, innovation & innovative by SBI for SHGs and Part-V analyses the leading role of SBI in SHG-Bank credit linkage programme.

4.1. Meaning, Membership and Function of SHG:

Concept of Self Help Groups

- From one family, only one person can become a member of an SHG. More families can join SHGs in this way.
- The group normally consists of either only men or only women. Mixed groups are generally not preferred, since it may obstruct free and frank discussions, opening up typical personal problems.
- Women's group are generally found to perform better. They are better in savings and they usually ensure better end use of loans.
- Members should be homogenous i.e. should have the same social and financial background. This makes it easier for the members to interact freely with each other, if members are both from rich as well as poor class, the poor may hardly get an opportunity to express themselves.
- Members should be between the age group of 21-60 years.
- Members should be rural poor. By poor one should not be decided by the living conditions and this has no relation to poverty line. People living above poverty line (APL) can also form SHG like BPL.

- The ideal size of an SHG is 10 to 20 members as in a bigger group members cannot actively participate. It is required that an informal group should not be more than 20 members, hence need not be registered.

Major Functions of an SHG

- All SHG members regularly save small amount. The amount may be small, but savings have to be regular and continuous habit with all the members.
- "Savings first-credit later" should be the motto of every SHG member.
- SHG members take a step towards self-dependence when they start small savings. They learn financial discipline through savings and internal lending.
- The SHG should use the savings amount for giving loans to members.
- The purpose, amount, rate of interest, schedule of repayment etc. are to be decided by the group itself.
- Proper accounts to be kept by the SHG.

Meeting

- The group should meet regularly, ideally the meetings should be once in week or at least once in month.
- Full attendance in all the group meetings will make it easy for the SHG to stabilize and start working to the satisfaction of all.
- Membership register, minutes register etc. are to be kept up to date by the group by making the entries regularly, which helps to know about the SHG easily.
- The group should have a fixed day or date for the meetings as it will help the members to plan their routine works in advance.
- The group should fix a common place to conduct the meeting.

Savings

- Savings should be deposited by all the members in the meeting itself.
- No interest will be paid to the members for their money with the group.
- The members will not be encouraged to adjust their savings amount against their loan. The group shall consider for adjusting only at extreme circumstances.

Keeping of Accounts

- Simple and clear books for all the transactions to be maintained.
- If no member is able to maintain the book, the SHG may take outside help.
- All registers and books of account should be written during the course of the meeting.

Books to be maintained by SHGs:

Minutes Book: The proceedings of meetings, the rules of the group, names of the members etc. are recorded in the book.

Savings and Loan Register: Details of individual loans, repayments, interest collected, balance etc. are recorded in the savings and loan register.

Weekly/Fortnightly/Monthly Register: Summary of receipts and payments are updated in every meeting in the weekly/fortnightly/monthly register.

Member Pass Book: Individual's savings and loans, balance outstanding is regularly entered in the individual's member pass book.

4.2.Requirement of SHGs:

The rural poor are incapacitated due to various reasons such as most of them are socially backward, illiterate, low motivation and poor economic base. Individually, a poor is not only week in socio-economic term but also lacks access to the knowledge and information, which are the most important components of today's development process. However, in a group, they are empowered to overcome many of these weaknesses. Hence, there are needs of SHGs, which in specific term as under:

- To mobilize the resources of the individual members for their collective economic development.
- To uplift the living conditions of the poor.
- To create a habit of savings.
- Utilization of local resources.
- To mobilize individual skills for group's interest.
- To create awareness about rights.
- To assist the members financially at the time of need.
- Entrepreneurship development.
- To identify problems, analysing and finding solutions in the group.
- To act as a media for socio-economic development of the village.
- To develop linkages with institutions of NGOs.
- To organise training for skill development.
- To help in recovery of loans.
- To gain mutual understanding, develop trust and self confidence.
- To build up team work.
- To develop leadership qualities.
- To use an effective delivery channel for rural credit.

Linking of SHG to Banks:

To fulfil the above needs of SHGs, a linkage of SHG to Banks is highly essential and following steps are involved in the process of linkage of an SHG to Bank for availing loan by SHG from Banks:

(i) **Opening of Saving Bank Account:**

The Reserve Bank of India (RBI) has issued instructions permitting banks to open Saving Bank (SB) account of registered or unregistered SHGs. The following documents are required from the group to open an account:

- The SHG has to pass a resolution in the group meeting signed by all members indicating their decision to open SB A/c with the bank. This resolution should be filed with the bank.
- The SHG should authorize at least three members, any two of him, to jointly operate upon their account.
- If the group has not formulated any such rules, regulations, loans can be sanctioned without them. A saving bank account passbook issued to the SHG should be in the name of the SHG and not in the name of any individual(s).

(ii) Internal Lending by SHG:

- After savings for a minimum period of 2 to 3 months, the common savings fund should be used by the SHG for lending its own members.
- The purpose, terms and conditions for lending, rate of interest etc. may be decided by the group through discussions during its meetings.
- Simple & clear books of account of savings and lending should be kept by the SHG.

(iii) Assessment of SHG:

The following factors are considered by bank for granting loans to SHGs:

Sl. No.	Factors to be checked	Very Good	Good	Unsatisfactory
1	Group size	15 to 20	10 to 15	Less than 10
2	Type of members	Only very poor members	2 or 3 not very poor member	Many not poor members
3	Number of meetings	4 meetings in a month	2 meetings in a month	Less than 2 meetings in a month
4	Timing of meetings	Night or after 6 p.m	Morning between 7 to 9 a.m.	Other timings
5	Attendance of members	More than 90%	70 to 90 %	Less than 70%
6	Participation of members	Very high level of participation	Medium level of participation	Low level of participation
7	Savings collection within the group	4 times a month	3 times a month	Less than 3 times a month
8	Amount to be saved	Fixed amount	Varying amount	Not known
9	Interest on internal loan	Depending upon the purpose	2 or 3 rupees per hundred per month	Less than 3 rupees per hundred per month
10	Utilization of savings amount	Fully used for loaning to members	Partly used for loaning	Poor utilization
11	Loan recoveries	More than 90%	70 to 90%	Less than 70%
12	Maintenance of books	All books are regularly maintained & updated	Most important registers are updated	Irregular in maintaining & updating books
13	Accumulated savings	More than ₹5000/-	₹3000 to ₹5000	Less than ₹3000/-
14	Knowledge of the rules of the SHG	Known to all	Some have little knowledge of it	Most of the members do not know the rules
15	Education level	More than 30% of members can read & write	20 to 30% members can read & write	Less than 20% members can read & write
16	Knowledge of Govt. Programme	All are aware of Govt. programmes	Many members know about Govt. Programmes	Most of the members do not know about Govt. Programmes

NOTE:

- SHGs with 12 to 16 "very good" factors may be granted loans immediately.
- SHGs with 10 to 12 "very good" factors may be given 3 to 6 months' time to improve, before loan is granted.
- SHGs with rating of less than 10 "very good" factors need not be considered for loan.

(iv)Sanction of Credit Facility to SHG:

Direct lending to SHGs: After satisfying about the functioning of the groups, branch may sanction loan directly in the name of the SHG, which in turn will lend internally to its members.

Indirect lending to SHG through NGOs/ SHPIs: If Bank is not fully confident of lending to SHG directly or where the SHG is not interested in taking loans from the bank, the branch can extend credit facilities to the Non Government Organisation (NGO)/Self Help Promoting Institutions (SHPI) on lending to SHGs promoted by them. Where bulk financing to NGO is resorted to, the branch should closely observe working of SHGs by attending to their meeting etc., so that branch may develop necessary confidence in the SHGs.

Quantum of Loan: The amount of loan to SHG can be to the tune of 1 to 4 times of its savings. The savings of the group constitute the followings:

- The group's balance in the SB A/c.
- Amount held as cash with the authorized persons.
- Amount internally lent amongst the members.
- Amount received as interest on the loans.
- Any other contributions received by the group like grants, donation etc

4.3 Purpose and Repayment Procedure of Lending by SBI:

Purpose of Loan: Sanction of loan to SHGs by banks is based on the quantum of savings mobilized by the SHG, but not for any specific purpose unlike in case of schematic lending. Loan may be granted by the SHG for various purposes to its members. The purpose can be emergency needs like illness in the family, marriage etc. or buying of assets of income generation. The group will discuss and decide about the purpose for which loans are to be given to its individual members by the SHG. Loans to SHGs for group enterprises should be discouraged in initial stages.

Assessment of Credit:SHG should prepare a credit plan for its members. Aggregate of this credit plan has to be submitted to the branch, on the basis of which, the branch will assess the credit requirements of the group.

Security: RBI/ NABARD rules stipulate that no collateral security should be taken from SHGs. Collateral security is not necessary for the loans sanctioned to SHGs because of the following reasons:

- The members of the SHGs know that the bank loan is their own money like savings.
- The SGHs are aware that they are jointly responsible for the payment.

- They exert moral pressure on the borrowing members for repayment.
- Bank cannot hold the SB A/c balance of the SHG as a security as this will prevent the SHG from lending from its internal savings.

Documentation:

(i) Direct Finance to SHG:

- Inter-se agreement to be executed by all the members of the SHG. This is an agreement by the members with the bank, authorising a minimum of three members to operate the group's account with the bank. This is known as General power of Attorney.
- Application to be submitted by SHG to bank branch while applying for loan assistance. It will be stamped as indemnity.
- Articles of agreement for use by the bank while financing SHGs. This contains the duly stamped agreement between the bank and the SHG wherein both the parties agree to abide the terms and conditions set thereon. It will be stamped as agreement.
- Sponsorship letter from NGO/SHPI if sponsored by them.
- The loan amount should not be handed over to the single representative of the group. Credit delivery to a group should be in the presence of several office bearers of SHG and selected members. At least one of them should be a borrower so as to safeguard/ prevent possibility of misappropriation of funds by the office bearers.

(ii) Indirect Finance to SHG:

- Application to be submitted by the NGO to branch while applying for loan assistance on lending to SHG.
- Articles of agreement for use by the bank while financing the NGO. It contains the duly stamped agreement between the bank and the NGO wherein both the parties agree to abide by the terms and conditions set thereon.
- NGO should be registered under Society/ Company/Partnership/Co-operative Act.
- Audited Balance Sheet for three years.
- Provision in by-law of NGO to borrow for SHG activities.
- Resolution to borrow from bank.
- A statement of credit required by SHG.

Repayment of Loan by SHG:

A repayment schedule is drawn up with the SHG and the loan is to be repaid regularly. Small and frequent instalment will be better than large instalments covering a long period. The group members are responsible for the repayment of loans to the bank. Every member is made to realize that the money belongs not only to him, but also to the other members of the group.

4.4 Different Products & Services of State Bank India for Self Help Groups:

SBI has successfully initiated various measures towards widening its SHG network. Some of the examples are given below:

The Business Facilitator Model & Business Correspondent Model is used by the bank to extend savings and loan facilities to the

unprivileged and unbanked areas. The objectives of the model are given below:

A. To provide comprehensive financial services, credit, remittance, insurance, mutual fund and pension products in a cost effective manner particularly in unbanked areas.

B. To improve process efficiencies and reduce transaction costs by providing linkage between the existing network of SBI branches and the informal & formal agencies engaged with the poor by adopting technology based solutions.

C. To leverage on the strengths of intermediaries in accelerating the process of financial inclusion.

To sum up the objective of permitting Bank to use Business Facilitator Model/ Correspondent Model is to extend savings and loan facilities to the unprivileged and unbanked areas.

(i) Business Facilitator Model: The Self Help Groups are one of the eligible entities for the Business Facilitator Model.

Selection Criteria:

- Should know the local language.
- Should have knowledge about the area.
- Should satisfy the norms of due diligence as laid down.
- Should not be affiliated to any political organisation.
- Should have been referred by at least two persons known to the Bank and having satisfactory dealings with the Bank.
- The organisation / office bearers/ members should not have any criminal record and for that police verification report must be submitted in respect of each applicant.
- Past dealings, if any, with the Bank should have been satisfactory.
- Should not be a Director or officer or employees of the SBI or a relative to the Director or officer or employees of the SBI.
- Suitable sworn affidavit will be obtained, if required.

Activities:

- Conducting only non-financial business activities i.e. no cash transactions.
- Identification of potential customers and activities.
- Collection and preliminary processing of loan applications / account opening forms.
- Filling of loan applications / account opening forms including nomination clause.
- Cross-selling of other financial products like insurance/ mutual fund products / pension products / any other third party products.
- Assisting in post-sanction monitoring and follow-up for recovery.
- Promoting and nurturing SHGs / Joint Liability Groups (JLGs).
- Creating awareness about savings and other products and education and advice

on managing money and debt counselling.

(i) Business Correspondent Model: The authorized functionaries of well run Self Help Groups linked to SBI are one of the eligible entities for the Business Facilitator Model.

Selection Criteria:

- In addition to the selection criteria prescribed for Business Facilitators, the following areas would be considered while selecting Business Correspondents:
- They should be well established, enjoy good reputation and have the confidence of the local people.
- They should have significant rural/ semi-urban presence.
- The entity should have a satisfactory track record and should be able to generate he funds required for this service.
- Ability to invest in Point of Sale (PoS) devices and other equipment.
- Ability to retain the required cash balance at point of sale and the balance in the current account on continuous basis.
- The proposed individual should be a permanent resident of the area in which they propose to operate and minimum educational qualification of X^{th} pass is stipulated.
- Where individuals under permitted categories have been appointed they cannot in turn appoint sub agents.

Activities:

- In addition to the activities listed under the Business Facilitators Model, the scope of activities to be undertaken by the Business Correspondents will include:
- Opening of no frill deposit accounts and other products as permitted from time to time by leveraging technology.
- Collection and payment of small value deposits and withdrawals not exceeding ‘10,000/- in each case.
- They will be authorized to accept/ deliver cash either at his place of work or at any convenient location subject to the ceiling of ‘10,000/- per customer in each case.
- Furnishing of mini account statement and other account.
- Recovery of principal and collection of interest in respect of borrower accounts.
- The activities to be undertaken would be within the normal course of the banking business but conducted through and by the entities at places other than the bank’s premises.
- These models should not be utilized for collecting high value deposits.

Multiple IT Enabled Channels for Financial Inclusion:

SBI TINY CARD:

The bank has gone beyond the usual domains of technology in terms of platform, solution, operational details and service contents in very aggressive manner to serve the excluded

common citizen with minimal cost and SBI Tiny Card is one of the channel for financial inclusion. Tiny smart card is biometrically enabled contact-less/contact cards/chip/ chipless operable at PoT/PoS device machine. The operation through the PoS/PoT device support both offline & online/ real time transactions in customer's account. Tiny card for SHG customers with authorised signatories & finger print validation operable at BC/CSP PoS near to their place of residence has been introduced.

Micro Credit:

The SBI provides loans to SHGs for meeting entire credit requirements of the group and fulfilling social needs like income generation activities, housing, education, marriage, debt swapping etc. While providing loans to SHGs, SBI provides both term loans and cash credit limit. The quantum of loan to SHGs depends on the saving corpus of the group. The first loan to the Group is not more than four times the corpus. In case of repeat loans, higher need based loan is sanctioned. However, maximum loan per SHG member is within '50,000/-.There is no margin requirement in sanctioning loan to SHGs by SBI and the group corpus itself is considered as margin.

Kisan Credit Card (KCC):

SBI also provides timely and adequate credit to SHGs of farmers to meet their cultivation expenses, contingency expenses, expenses related to ancillary activities through simplified procedure as and when required.

Loan Amount:

- Short term credit limit is fixed for the first year depending upon the crops cultivated as per proposed cropping pattern & scale of finance.
- For successive years the limit will be stepped up @10% and short term credit limit sanctioned for 5th year will be about 150% of the first year limit allowed to SHG farmers.
- Investment credit requirement of small value in the nature of farm implements, equipment etc. and repayable within a period of one year is included while determining KCC limit.
- The short term loan limit derived for the 5th year and the investment credit requirement as mentioned above is the Maximum Permissible Limit (MPL) and sanctioned as the Kisan Credit Card Limit.
- Short term loan limit assessed for the first year or for the 2nd to 5th year plus the estimated investment credit limit required will be the Maximum Drawal Limit (MDL) allowed for the particular year.

Features of Kisan Credit Card:

- State Bank Kisan Card is issued to the borrowers to enable them to withdraw from KCC accounts from ATMs and PoS terminals.
- KCC is in the nature of revolving account. Credit balance in the account, if any, to fetch interest at saving bank rate.
- Processing fees waived for KCC limit up to ' 3.00 lakh.
- Collateral security is waived for limit up to ' 1.00 lakh and limit up to ' 3.00 lakh for loans with tie-up arrangement for recovery.

- KCC account is renewed annually to continue the limit during KCC validity period of 5 years.
- For the purpose of renewal a simple declaration as per the guidelines of SBI is required from the borrowers.
- The assessment of revised MDL requirement of the KCC borrower is made on proposed cropping pattern and declared area.
- Eligible crops are covered under Crop Insurance Scheme of National Agricultural Insurance Scheme (NAIS).

Disbursement of the Loan:

As per the cultivation requirements of the crop, the loan is disbursed in cash.

Repayment:

Borrowers are required to route their farm proceeds or other credit into the KCC account with a minimum of loan amount plus interest and other charges within the due date of repayment which is given below:

Crop	Period	Date of Repayment
Kharif (mono)	1st April to 30th September	31st January
Rabi crop (mono)	1st October to 31st March	31st July
Double/Multiple Crops	Kharif & Rabi Seasons	31st July
Long Term Crops	All round the year	12 months from the date of first disbursement

Gramin Bhandaran Yogana- Capital Investment Subsidy Scheme for Construction / Renovation of Rural Godowns:

This scheme is for creating scientific storage capacity in the rural areas for storing farm produce, thereby prevent distress sale of produce by the farmers after harvest by promoting pledge financing and marketing credit. The Self Help Groups are also eligible for such loan.

Loan Amount: The loan amount depends on the project cost. Maximum project cost is ‘3000/- to ‘4000/- per tonne capacity for construction and ‘750/- per tonne for renovation. SBI finances up to 75% of the project cost in other than NEH and hilly States and 80% of the project cost in NEH and hilly areas and to SC/ST borrowers.

Mortgage: The land and godown is mortgaged for the purpose of loan.

Repayment: The loan is repaid in 11 years with a grace period of one year. Subsidy gets adjusted/ credited with the final instalments.

Scheme to Cover Loans for General Purpose under General Credit Card (GCC):

All the existing customers of SBI having satisfactorily performance with the bank including no frills deposit in the bank are eligible to get loan under General Credit Card (GCC). GCC facility is not extended to the KCC borrowers. The scheme is to provide hassle-free credit to the existing customers without insistence on security. Those members of SHGs having satisfactorily performance with SBI can also get this loan.

Loan Amount: Maximum loan amount is ‘ 25,000/-.

Repayment: The GCC account is in the nature of cash credit. The outstanding amount in the GCC should be cleared in full when the applicant is fluid with cash which may be at yearly/ half yearly/ quarterly/ monthly intervals based on the occupation of the applicant. In case the entire amount is repaid a minimum of 20% of the amount due along with up to date interest debited is repaid.

Mortgage Loan to Seed Processing Units:

The purpose is to provide hassle free finance to seed processing units who are willing to furnish mortgage of property of adequate value. The existing customers from SHGs are also eligible for such loan.

Loan Amount: The loan amount is 65% of the realisable value of the property subject to maximum of 40% of the projected annual turnover. The minimum loan amount is ‘ 5.00 lakh and maximum is ‘ 1.00 crore.

Security: Stocks and receivables and equitable land & building are mortgaged.

Repayment: Repayment is made on annual basis on the basis of level of activity. The entire loan is repayable on demand.

Innovations & Innovative by SBI:

SBI has successfully initiated various measures towards widening its SHG network. The various schemes are given below:

A. Sensitization of Staff: SBI keeps sensitizing the staff from messenger to manager in rural and semi-urban branches towards the programme.

B. Special training programmes in SHGs: The special training programmes in SHGs are being conducted at 47 training centres of the SBI in the country apart from State Bank institute of Rural Development, Hyderabad.

C. Close liaison with NGOs: Operating functionaries at branch level and region level are in close contact with NGOs in their area to take the movement ahead. Regular meetings are convened with NGOs and their support is solicited for the purpose.

D. Lending to NGOs/ Federations of SHGs/ Microfinance Institutions (MFIs): Lending to NGOs, Federation of SHGs on selective basis on lending to SHGs, JLGs and individuals is being encouraged.

E. Sahayog Niwas: SBI has launched its housing loan product “Sahayog Niwas” for SHG members. Housing loans to the extent of ` 50,000/- are given to the SHGs members for purchase or construction of house and `25,000/- for repair/renovation/purchase of plot without any mortgage of house and land.

F. SBI Life-Grameen Shakti: SBI life is the first to introduce a life insurance scheme especially designed for SHG members. Special feature of the scheme is that entire premium amount paid by the member is refunded after maturity period of ten years.

G. Rural Self Employment Training Institutes (RSETIs): SBI has established 111 (one hundred eleven) RSETIs all over the country to help the rural youth to acquire skill for income generating ventures.

H. Financial Literacy Centers (FLCs): SBI has set up 169 FLCs for providing financial literacy to SHGs. FLCs conduct camps, seminars and workshops to create financial awareness among people.

I. Appreciation by Government: A number of SBI branches have received commendation and appreciation for doing excellent jobs in SHG-Bank credit linkage programme.

J. Samanwita: SBI has sponsored and financially supported NGO 'Samanwita' in collaboration with Government of Odisha for supplementing the process of socio economic upliftment of the tribal and the downtrodden in the poorest and most backward Kandhamal district of Odisha where 52% of the population is tribal. The core activities performed by Samanwita are empowerment of people through promotion of SHGs especially women SHGs.

K. Self Help Promoting Institution (SHPI) Status: SBI is the first commercial bank to earn SHPI status.

L. Migration to Micro Enterprise Model: SBI has been actively encouraging SHGs and their members to migrate to micro enterprise model from lending and savings model facilities them to scale up to normal customer of banking services.

M. New Schemes:

• Scheme for promotion of women SHGs is being implemented with the support of anchor NGOs in backward / Left Wing Extremism (LWE) affected districts in a big way. Out of 150 such districts, SBI has lead bank responsibility in 51 districts.

• **SHG2:**Bank has introduced system for providing cash credit to SHGs in ratio of saving corpus for 3-5 years to make easy availability of finance to meet contingent needs and provide flexibility in operation. SHG members can save variable amount of saving over and above the minimum fixed by the group which can be considered as corpus while considering loans limit to SHG.

• **Scheme for financing SHGs of Scheduled Tribes (STs):** For channelizing the funds of National Scheduled Tribes Finance and Division Corporation (NSTFDC) has been introduced. Under this scheme existing well-functioning ST SHGs below poverty line are eligible for financial assistance of ' 35,000/- per member or ' 5.00 lakh per SHG whichever is lower for income generating activities.

4.5 SHG-Bank linkage Credit Programme:

SHGs have become the common vehicle of development process. SHG-Bank linkage programme launched by NABARD way back in 1992 synthesising formal financial system and informal sector, has become a movement throughout the country. It is considered as the largest microfinance programme in terms of outreach. The programme is also the main contributor towards financial inclusion in the country. The overall progress of microfinance programme from 2007 to 2013 is given in Table-1.

Progress of Microfinance Programme of SHGs (As on 31st March) Table-1

Year	Number in lakh			Amount in ₹ crore		
	Loans Disbursed	Loan Outstanding	Savings A/c with Banks	Loans Disbursed	Loan Outstanding	Savings A/c with Banks
2007	11.06	28.95	41.61	6570.39	12366.49	3512.71
2008	12.28	36.26	50.10	8849.26	16999.90	3785.39
2009	16.10	42.24	61.21	12253.51	22679.84	5545.62
2010	15.87	48.51	69.53	14453.30	28038.28	6198.71
2011	11.96	47.87	74.62	14547.73	31221.16	7016.30
2012	11.48	43.54	79.60	16534.77	36340.00	6551.41
2013	12.20	44.51	73.18	20585.36	39375.30	8217.25

Source: Annual Reports of NABARD from 2007-08 to 2013-14

28.95 lakh SHG members had loan outstanding worth '12,366.49 crore from all agencies and 41.61 lakh SHGs maintained saving amount of '3512.71 crore as on 31st March, 2007. 36.26 lakh SHG members had loan outstanding worth '16,999.90 crore from all agencies and 50.10 lakh SHGs maintained saving amount of '3785.39 crore as on 31st March, 2008. 42.24 lakh SHG members had loan outstanding worth '22,679.84 crore from all agencies and 61.21 lakh SHGs maintained saving amount of '5545.62 crore as on 31st March, 2009. 48.51 lakh SHG member had loan outstanding worth '28,038.28 crore from all agencies and 69.53 lakh SHGs maintained saving amount of '6198.71 crore as on 31st March, 2010. 44.51 lakh SHG members had loan outstanding worth '39,375.30 crore from all agencies and 73.18 lakh SHGs maintained saving amount of '8217.25 crore as on 31st March, 2013. The saving linked SHGs increased to 73.18 lakh as on 31st March, 2013 from Rs.41.61 lakh as on 31st March, 2007. The number of SHGs having outstanding loans with bank increased to 44.51 lakh as on 31st March, 2013 from 28.95 lakh as on 31st March 2007. During 2006-07, banks extended loans to the extent of '6570.39 crore to 11.06 lakh SHGs whereas in 2012-13 banks extended loans to the extent of '20585.36 crore to 12.20 lakh SHGs.

Expanding the Outreach of SHG Bank Linkage Programme:

The SHG Bank linkage programme continued its phenomenal journey during 2013-14 in terms of growth in the savings of SHGs and loans disbursed by banks to them. The year wise disbursement of refinance to SHGs is given in Table-2.

Year wise Disbursement of Refinance to SHGs

Table-2 (‘ in crore)

Year	Total Disbursement	Disbursement to SHGs	% Share of SHGs	Position of SHGs in the Disbursement	Disbursement to Sectors over SHGs
2005-06	8622.37	1067.72	12.40	Third	NFS, FM
2006-07	8795.02	1292.86	14.70	Third	NFS, FM
2007-08	9046.27	1615.50	17.80	Third	NFS, FM
2008-09	10535.29	2620.03	24.90	Second	NFS
2009-10	12009.08	3173.56	26.43	Second	NFS
2010-11	13485.87	2545.36	18.90	Second	NFS
2011-12	15421.70	3072.59	19.92	Second	NFS
2012-13	17674.29	3916.64	22.16	Second	NFS
2013-14	21486.17	3813.14	17.75	Second	NFS
Total	117076.06	23117.4	174.96		
Average	**13008.45**	**2568.60**	**19.44**		

Source: Annual Reports of NABARD from 2007-08 to 2013-14

During 2005-06 to 2007-08, the highest disbursement was made to Non-Farm Sector (NFS) followed by Farm Mechanisation (FM) and SHGs. During 2008-09 to 2013-14, the highest disbursement was made to Non-Farm Sector (NFS) followed by SHGs. The disbursement of refinance revealed that, lending to SHGs accounted for 17.75% in 2013-14. The average percentage of lending to SHGs is 19.44% from last nine years. Disbursement of ‘2568.60 crore was made to SHGs on an average from total average disbursement of ‘13008.45 crore from last nine years.

Analysis of Leading Role of SBI in SHG-Bank Credit Linkage programme:

The SBI is the market leader in SHG-Bank credit linkage programme since its inception. In the year 2003, bank had set a challenging target of credit linking one million SHGs by March 2008 which has been achieved. The bank has also introduced a scheme for financing NGOs/MFIs for on-lending to SHGs. In the year 2007-08, it has own award for topping in SHG-Bank credit linkage in Odisha, Jharkhand, Maharashtra, Uttarakhand,Tamil Nadu & Uttar Pradesh. It has been rated as the best public sector bank for rural reach by Dun & Bradstreet Banking Award 2009. It has also been

awarded with best microfinance award for the year 2009 by the Asian Banker from the financial institutions across the Asia Pacific, Gulf and Central Asia regions.

SBI has actively participated in SHG-Bank credit linkage programme.The SBI has made a steady progress in financing SHGs. SBI is maintaining its position as a leader amongst the commercial banks in credit linking of SHGs and is a prime driver for the movement. As at the end of March, 2006, SBI with a share of approximately 47% of total SHGs financed by commercial banks is far ahead of others. The year-wise achievements of SBI in credit linkage programme to SHGs from 2007-08 to 2012-13 are given below in Table-2:

Progress of SHG Bank Linkage - Bank Loans Disbursed to SHGs by State Bank of India & Commercial Banks

Table-2

Year	**SHGs in Number**			**Loan Disbursed (Amount in ₹ crore)**		
	All Banks (Total)	Commercial Banks @	SBI #	All Banks (Total)	Commercial Banks @	SBI #
2007-08	1227770	735119	283339	8849.26	5403.90	1749.30
		(59.87)	(38.54)		(61.07)	(32.37)
2008-09	1609586	1004587	323673	12253.51	8060.53	2410.18
		(62.41)	(32.22)		(65.78)	(29.90)
2009-10	1586822	977521	292857	14453.30	9780.19	2821.19
		(61.60)	(29.96)		(67.67)	(28.85)
2010-11	1196134	669741	173558	14547.73	9724.55	2563.00
		(55.99)	(25.91)		(66.85)	(26.36)
2011-12	1147878	600807	151415	16534.77	9942.04	2749.65
		(52.34)	(25.20)		(60.13)	(27.66)
2012-13	1219821	735577	131722	20585.36	13385.01	2676.66
		(60.30)	(17.91)		(65.02)	(20.00)
Average		**(58.75)**	**(28.29)**		**(64.42)**	**(27.52)**

Source: NABARD- Status of Microfinance in India: 2007-08 to 2012-13

@ Figures in parentheses indicate the share of commercial Banks out of all Banks.

Figures in parentheses indicate the share of SBI out of commercial Banks.

The commercial banks had percentage shares of 59.87 out of all banks and SBI had percentage share of 38.54 out of commercial banks in SHG linked during 2007-08. The commercial banks had percentage shares of 61.07 out of all banks and SBI had percentage share of 32.37 out of commercial banks in loan disbursed to SHGs during 2007-08. During 2012-13, the commercial banks had percentage shares of 60.30 out of all banks and SBI had percentage share of 17.91 out of commercial banks in SHG linked & commercial banks had percentage shares of 65.02 out of all banks and SBI had percentage share of 20.00 out of commercial banks in loan disbursed to SHGs. From the data of six years the commercial banks had average percentage share of 58.75 out of all banks and SBI had average percentage share of 28.29 out of commercial banks in SHG linked and the commercial banks had average percentage share of 64.42 out of all banks and SBI had average percentage share of 27.52 out of commercial banks in loan disbursed to SHGs.

5: Conclusion

The credit linkage programme of the SHGs by various agencies in general and SBI in particular has been reviewed. It is observed that commercial banks play an important role in credit linkage programme of SHGs, where the share of SBI is dominant. Hence, SBI is the leader in credit linkage programmes of SHGs. SBI considers lending to SHGs as part of their mainstream operation. The SBI provides loans to SHGs for meeting the entire credit requirement of the groups like income generation activities, social needs and debt swapping. Lack of awareness amongst SHG members about the services, products, innovation and innovative of SBI for SHGs, hamper the credit flow to SHGs. Further, it is observed that there are huge gaps in credit requirement vis-à-vis credit flow to SHGs. The inadequate banking network also hampers the credit linkage programme of the SHGs.

Reference

1) Handbook on Forming SHGs by NABARD

2) Status of Microfinance in India for the year 2007-08 to 2012-13 by NABARD

3) Annual Reports of NABARD for the year 2007-08 to 2013-14

4) Annual Reports of State Bank of India for the year 2007-08 to 2013-14

5) http://www.megapib.nic.in (Agricultural Planning & Information Bank)

6) http://www.sbi.co.in (website of State Bank of India)

7) http://nabard.org (website of NABARD)

8) http://rbi.org.in (website of Reserve Bank of India)

Poultry Rearing Practices in Jajpur District of Odisha

Prabhat Kumar Padhi *, Manasi Bhol, Tilottama Pattnaik

Krishi Vigyan Kendra, Barchana, Jajpur, Pin 754081, India

ABSTRACT

One hundred and forty number of rural poultry farmers coming in contact with KVK, Jajpur during the period October 2012 to October 2014 were divided into small scale (n=90), medium scale (n=35) and large scale (n=15) farmer based on flock size and were evaluated on the basis of a tool designed to assess their backyard poultry rearing practice with respect to housing, sanitation, feeding, disease management, and marketing. The study showed that more than 80% of poultry farmer's currently rearing improved varieties of birds have been rearing birds for more than 15 year. Quality houses for birds was constructed by 100% of farmers having large flock size as compared to 85.71% and 6.67% of farmers with medium and low flock size respectively. Use of absorbent litter material was highest in large scale farmers (93.33%). Rice polish was a major feed ingredient in growing birds of small scale farmers (95.56%) where as large scale farmers used commercial starter feed during that stage (80%). Farmers belonging to small (66.67%) and medium scale (68.57%) group often procured birds from street vendors. Large scale farmers invariable purchased birds from reliable sources. All the groups of farmers were well aware of the dangers of Ranikhet Disease but neglected on vaccination against it to prevent disease in adult birds. More number of birds was reared by farmers of medium and large scale group during December to June. Male member in all groups were responsible for marketing. Farmers with larger flock size reared birds for an average period of 2-3 months for meat purposes whereas 60% small scale farmers reared birds for longer periods for egg purposes.

Key words: *Backyard poultry, farmer practice and dual purpose bird.*

Introduction

Poultry rearing is an important mean of livelihood generation in rural and economically backward areas throughout the world. In India this system of poultry rearing, although mostly neglected, contributes to nearly 30% of national egg production [1].

In the past decade development of improved birds at organizations such as Project Directorate on Poultry (PDP) Hyderabad, Central Avian Research Institute (CARI), Izatnagar, and State Agricultural Universities (SAUs) has reduced the unproductiveness associated with non-descript bird rearing [2]. Vanaraja bird developed by Project Directorate on Poultry (PDP), Hyderabad reaches body weight of 2250 grams in 5.5 months in field conditions, whereas an non-descript chicken weighs 1150 grams at the same time [3] and produces more number of eggs in comparison with country type birds which produces only 60-70 eggs in a year [4]. The production traits of improved birds have been characterized in controlled conditions at research stations and other agro-climatic regions of country and the results of these studies are often not concurrent suggesting an influence of variation in rearing practices on production performance of birds.

To assess of knowledge and practices of farmers in Jajpur district in small scale poultry rearing, Krishi Vigyan Kendra (KVK), Jajpur carried out studies to identify the current state of farmers' practices and problems faced by them in relation to housing, sanitation, feeding, disease management, and marketing.

Materials and Methods

The study was conducted in the period October 2012 to October 2014. One hundred and forty number of farmers visiting KVK for farming advise and for procuring developed chicks were categorized into small scale farmer group (S), medium scale farmer group (M) and large farmer group (L) based on the number of birds they procured (Figure 1). They were evaluated on the basis of a tool (Table 1) designed to assess their knowledge and practice.

The tool (Table 2) consisted of 42 multi option questionnaire related to background information of farmers on poultry rearing, housing, feeding and water management, sanitation, health care and marketing. For responses closely resembling current scientific practices a score of 1 was given. Otherwise a score of 0 was given for the response. The total score was converted to percentage scale and was categorized into high, medium, low and very low (Figure1). Statistical analysis was done by using chi-square test for independence of variables using Graphpad Instat software.

Results and Discussion

1. General information

Out of the total 140 no of farmers interacting with the KVK 64 % were small scale farmers with flock size less than 20, 25% were medium scale farmers with flock size between 20 to 50 and 11% were having flock size more than 50 (Table 1). More than 80% respondents irrespective of number of birds were rearing traditional poultry farmers managing desi non-descript birds for more than last 15 years. Small scale farmers mainly used their backyard for foraging by birds and have not scaled up of poultry enterprise due to their preoccupation in other income generation activities. About 70% farmers

irrespective of flock size reported to be practicing round the year rearing.

Street vendors are a major source of chicks in rural areas and it has been documented in rural areas of Uttar Pradesh [5] and Maharashtra [6]. In the present study 76.67% of farmers with very low flock size and 68.57% of farmers with medium sized flocks were found to procure chicks from sellers in local market. In contrast to this farmer with flock size more than 50 invariably procured chicks from reliable sources suggesting that with increase in financial investment the caution exercised by farmers also increased. At the same time an increase in flock size was accompanied by decreased involvement of women members in poultry care. Knowledge level of farmers and the number of birds reared by them was found to be significantly linked to age of farmers across all groups in Chi square test for independence of variables.

2. Housing

Provision of shelters for birds is very important for protection of birds from predators and adverse climatic situations whereas cleanliness of shed is important for maintaining birds in a disease free state. Studies conducted by a number of workers [5, 6, 7] has identified predator attack and external parasite infestation to be very frequent in backyard poultry rearing in mud covered floors. In the current study 6.67 % of farmers having less than 20 numbers of birds had constructed easy to clean houses having cemented floor. As compared to this 85.71% and 100% of medium scale farmers and large scale farmers respectively had built easy to clean houses with cemented floor suggesting a relation between good housing and sanitary practices and number of birds reared.

From a scientific point of view birds of different age groups should be kept separately to minimize variations in growth rate and incidences of cannibalism. Farmers practicing poultry rearing on a less intensive scale (small group and medium group) did not provide separate housing for birds of different age groups. As compared to this 86.67% of farmers with more than 50 birds had at least one additional shelter for birds kept for longer time period.

Use of disposable litter material in poultry rearing is important to prevent diseases and to get manure for fertilizer purposes. In the present study it was observed that 13.34% of farmers of small stock size group had used disposable litter material where as 48.57% of farmers with medium stock size and 93.33% of farmers with large stock size used good quality litter material.

Climatic stress has a major effect on the survival of birds particularly chicks in brooding stage. Use of incandescent bulb and insulation to create warmth in winter was wide spread in farmers having more than 20 numbers of birds where as only 13.33% of farmers with less than 20 birds adopted these methods. In summer months the temperatures in many areas of Jajpur reach above 40 degree Celsius for long periods of time. During this time plenty of cool water, use of paddy straw on roof and use of wet gunny bags for evaporative cooling are scientifically advised. These methods were adopted in 38.89% , 60% and 100% of farmers of the low scale, medium scale and large scale group respectively.

3. Feeding and water management

In the group of farmers having small flocks of chicken, nutritional needs was usually taken care of by household waste and scavenging, involving no input of vitamins and minerals. Supplementation of calcium supplementation for continuous egg laying was also not practised. In studies conducted by Mandal et al (2006) it was observed that in farmers with very few numbers of birds there is usually no provision of feeder and waterer. Birds mostly find water in drains, small pots and other spots not specifically meant for their drinking and water source is rarely sanitized. Similar findings were also recorded in current study. Use of commercial feed for supplementary feeding was not observed in this group. However use of rice polish (Local language: Khuda) in large scale was reported by farmers.

Farmers having medium stock size (20-50) preferred economy of production over performance of birds. The major feed ingredient given in this group was rice mill byproduct which was cheap and readily available (54.29%). The use of rice polish might be due to widespread cultivation of paddy throughout the district. Similar observations have also been made in studies conducted in rice growing regions in Bangladesh [8]. Use of supplementary feeding was limited to 8.57% farmers of this group. About 15% of farmers of this group used vitamin and mineral supplementation, but use of calcium at the rate of 4 grams per day per laying bird was not existent in this group as was the case with farmers with less than 20 birds in flock.

Farmers with higher flock size consistently used commercial feed (80%) although some farmers used rice polish to reduce cost of production. The farmers of this group used commercial type feeders and waterers and vitamin and mineral supplementation. They also used supplementary feeding along with scavenging in the birds remaining after sale of most of the stock but, never used calcium at recommended levels for sustained egg production. .

4. Sanitation and healthcare

Periodic thorough cleaning of shed with disinfectiant is needed to keep a check on diseases in domestic birds. Farmers across different flock sizes used scrubbing with lime or bleaching powder or phenyl to clean their poultry shelters. However use of such means was relatively low (52.22%) in small scale farmers as compared to medium scale farmers (94.29%) and large scale farmers (100%). Use of 'All in All out' method to keep diseases at check was not adopted by small scale farmers where as it was adopted in large scale farmers. Proper disposal of diseased and dead birds was practiced variably in farmers of different groups.

Need based use of antibiotics to prevent incidences of mortality is advisable. This practice is adopted by medium (82.86%) and large scale (100%) farmers with small scale farmers having zero adoption rate.

Awareness about Ranikhet disease (RD) was found to be reasonably high in farmers of across all groups. However use of vaccination in adult birds is limited to just 3.33% in low scale farmers group whereas 11.43% of medium and 26.67% of farmers in large group practiced vaccination against Newcastle disease. Improper attention to vaccination in small scale rearing has also

been reported by other workers [5, 8]. Absence of vaccination against RD might be accompanied by significant risks ranging from substantial diminishment of flock to wiping out of entire flock [9]. So it appears that farmers need more sensitization on vaccination to prevent RD outbreaks.

5. Marketing

Poultry meat prices tend to fluctuate throughout the year with variations in consumer preference. Relatively higher prices remain from December to June period of the year and the price peak usually occurs around local festival Raja in June, to take advantage of which more no of birds could be reared. Only 10% of farmers with low flock size utilized the marketing advantage provided by such occasions. In contrast 65% of respondents of low large and 60% of respondents in higher large group increased their stock size in anticipation of higher market demand. For meat purposes small scale farmers reared birds for 7-8 months on an average as compared to 2-3 months in medium and large scale group.

Keeping large number of dual purpose birds on feed for egg laying is not advisable from economic point of view. Respondents of large scale rearing group did not rear hens for long periods of time till 1.5 years, whereas 60% of small scale farmers reared birds for such long periods. Hence it is apparent that farmers with less than 20 birds are interested in eggs of chicken either for domestic consumption.

Table 1: Distribution of poultry farmers according to their knowledge and practice in small scale poultry rearing.

	Small scale farmer n=90	Medium scale farmer n=35	Large scale farmer n=15
Average score of group	30 ± 1.03	54.3 ± 1.82	72.6 ± 1.65
Very low	14	0	0
Low	58	5	0
Medium	18	23	0
High	0	7	15

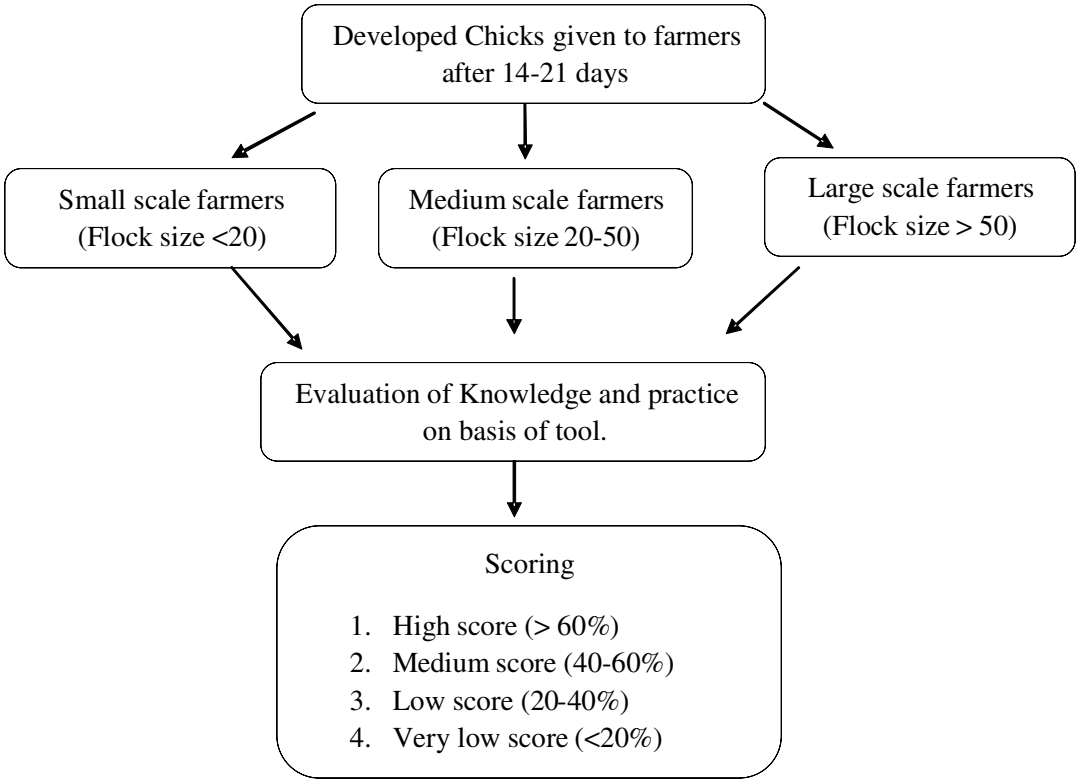
Table 2: Adoption rate (in %) of scientific practices in small scale poultry rearing in farmers according to different flock sizes.

Tool	Small (n=90)	Medium (n=35)	Large (n=15)
Background information			
A. Average age of farmers of the group (in years)	38.62 ± 0.84	41.77 ± 1.25	39.40 ± 2.08
B. Average no of birds reared	9.99 ± 0.48	32.51 ± 1.12	78.33 ± 7.55
1. Practicing poultry rearing for a long time. (>15 year)	93.33	82.86	80
2. Female member taking care of birds.	82.22	88.57	40
3. Improved birds reared in last 5 years.	73.33	100	100
4. Has intention to go for commercial poultry rearing	4.44	17.14	100
5. Disease free source of chicks	23.33	31.43	100

Housing			
7. Provision of separate house for birds at a distance from human houses	21.11	77.14	100
8. Easy to clean house	6.67	85.71	100
9. Separate housing for birds of different age groups.	5.56	25.71	86.67
10. Prevention of predator attack	80	88.57	86.67
11. Use of absorbent and disposable litter material	13.33	48.57	93.33
12. Use of bulb, insulation in winter	13.33	100	100
13. Use of paddy straw and wet bag etc in summer to reduce heat stress.	38.89	60	100
Feeding and water management			
14. Use of feeders and waterers	0	84.42	100
15. Commercial quality feed during brooding and confinement	4.44	45.71	80
16. Scavenging with supplementary feeding after sale of most of the stock.	7.78	8.57	26.67
17. 40-50 gram quality feed supplementation after range feeding and in time of scarcity	0	8.57	93.33
18. Use of rice polish as feed	95.56	54.29	20
19. Vitamin and mineral supplementation during growing stage and in adults	0	14.29	100
20. Calcium supplementation during egg laying @ 4 grams per bird.	0	0	0
Sanitation			
21. Periodic cleaning of poultry shed with scrubbing and disinfectants.	52.22	94.29	100
22. All in and all out system at least once per year	0	91.43	100
23. Use of disinfectants such as lime	51.11	80	93.33
24. Proper disposal of dead and separation of ill birds	50	85.71	66.67
Healthcare			
25. Rearing of desi chicken for brooding of eggs of improved birds.	18.89	74.29	73.33
26. Need based use of antibiotics	0	82.86	100
27. Vaccination in adult birds	3.33	11.43	26.67
28. Clean water source	23	38	57
29. Awareness on Ranikhet Diseases	92.22	91.43	100
Marketing			
30. Poultry rearing for generating income.	80	68.57	100
31. Both male and females responsible for marketing	0	0	0
32. Use of eggs for nutrition and income generation.	23.33	11.43	53.33
33. Keeping birds for both meat and egg.	65.56	100	100

34. Synchronized rearing for festivals such as Holi and Raja	10	68.57	60
35. Higher capacity rearing in December to June.	54.44	85.71	100
36. Average duration of rearing of males 2-3 months.	13.33	91.43	100
37. Average duration of rearing of hens till 1.5 years.	60	0	0
38. Birds sold to commercial buyers.	0	71.43	100
39. Income realized in single sale.	16.67	77.14	60
40. 5-6 batches reared per year	17.78	54.29	73.33

Figure 1: Flow diagram of methods used in the study



Reference

DAHD, Government of India. (2007). Development of Rural Back Yard Poultry, Concept Paper for a new initiative.

Pathak, P. K., & Nath, B. G. (2011). Rural Poultry Farming with Improved Breed of Backyard Chicken. Journal of World's Poultry Research. 3(1): 24-27, 2013.

Rao, G.Y. and Prakash, M.G. (2005). An on farm study on the performance of Vanaraja birds in tribal areas. Proceedings of XXIII Annual Conference and National Symposium of Indian Poultry Science Association Congress. 2–4 February, Hyderabad, India, 2:367.

Niranjan, M., Sharma, R. P., Rajkumar, U., Reddy, B. L. N., Chatterjee, R. N., & Battacharya, T. K., (2008). Comparative evaluation of production performance in improved chicken varieties for backyard farming. International Journal of Poultry Science, 7(11), 1128.

Mandal, M. K., Khandekar, N., & Khandekar, P. (2006). Backyard poultry farming in Bareilly district of Uttar Pradesh, India: an analysis. Livestock Research for Rural Development, 18(7), 20-39.

Khandait, V., Gawande, S., Lohakare, A., & Dhenge, S. (2011). Adoption Level and Constraints in Backyard Poultry Rearing Practices at Bhandara District of Maharashtra (India). Res. J. of Agri. Sci, 2(1), 110-113.

Barua, A., & Yoshimura, Y. 1997. Rural poultry keeping in Bangladesh. World's Poultry Science Journal, 53(04), 387-394.

Alam, M. A., Ali, M. S., Das, N. G., & Rahman, M. M. (2014). Present status of rearing backyard poultry in selected areas of Mymensingh district. Bangladesh Journal of Animal Science, 43(1), 30-37.

Fonseka, T. M. (1987). Sri Lanka: Poultry production. Australian Center for International Agriculture Research (ACIAR), Canberra. Monograph, (5), 100-104.

Impact Study of Filed Demonstration of Women friendly Farm Implements machines in Puri District

A.K.Goel[1] , D. Pradhan[2]

Associate Professor, FIDU, Dept. of Farm Machinery & Power, College of Agricultural Engineering & Technology, OUAT, Bhubaneswar [2] Associate Professor, Dept. of HDFS, College of Home Science, OUAT, Bhubaneswar

Abstract

Successful demonstration is an important path for acceptance of any new technology. Acceptance rate of any new and improved implements mainly depend on demonstration at farmers field. Demonstration of some women friendly farm implements and machines conducted at three different villages of Puri district to find out the impact of the demonstration. It was observed that maximum farm women want to adopt mandva weeder and drum seeder due to their ease of operation and no one from the sample group want to accept any power driven machines like SRI power weeder i.e. farm women want smaller implements that have less drudgery and profitable to them and any power driven machines are not acceptable by the farm women.

Introduction

Agriculture is the oldest and largest industry of the world. The basic needs of mankind are fulfilled by food, feed, fodder, fibre and other goods produced by the systematic raising of plants and animals in the banner of agriculture. Orissa is a predominantly agriculture based state and more than 70% of the state population is directly or indirectly involved in agriculture.

Rice is the main crop in our state. In addition to rice, maize, bajra, jawar, pulses sunflower, groundnut, jute and sugarcane are grown by the farmers. Due to scarcity of labour in peak operating time, farmers are now a days depending more on agricultural implements and machines for their farm operations and hence farm power availability in the state has increased to 1.40 kW/ha which is still lower than the national average of 1.5 kW/ha (Anon, 2013). Due to acute shortage of labour force, mechanization is being gaining popularity in the state through various sponsored schemes.

Availability of adequate farm power is very crucial for timely farm operations for increasing production and productivity and handling the crop produce to reduce losses. There has been a close nexus between farm power availability and increased productivity. The power-productivity relationship shows

that those states having higher farm power availability have higher productivity. The productivity of rice in in Punjab, Haryana and western UP was more than other states namely Odisha, Bihar, Assam, WB, Chhatisgarh and Jharkhand as these states has farm power availability less than 1.50 kW/ha. The present farm power availability has to be scaled up to above 2.50 kW/ha by 2020 to achieve higher food grain production. The scarcity of labour and high labour wages has hit crop cultivation hard during recent years. Research shows that the production can be increased by 10-15% by enhancing the mechanical power inputs in agriculture and hence the net profit from agriculture could also be increased by 25-30%. As a major portion of the agricultural workers are women and mostly they perform the tedious jobs like transplanting, weeding and harvesting, steps should be taken to provide them suitable machines for reduction of their drudgery. Though, many of them want improved implements for various farm operations, their ignorance about the availability, use and maintenance and sometimes financial constraints compelled them to continue the age old conventional practices. Demonstration of women friendly tools and

implements will definitely create awareness among these groups and encourage them to use these machines. While demonstrating the new technology in the farmers field, the scientists are required to study the factors contributing higher crop production, field constraints and generate feedback information (Sengupta & Kumar, 2011). This paper deals with the feedback of demonstrations of some women friendly tools and implements on crop production process.

Materials and Methods

Demonstration of some selected women friendly implements and machines were conducted in three villages namely Beroboi, Rupadeipur and Mouzbeg of Puri district. Five farm women were randomly selected from each village and demonstration were conducted in their field. Initially some of them were not willing to use the machines but after the intervention of their husbands, all the machines were operated by them after a very short time field training. The implements demonstrated in these villages are:

1. Drum seeder (8-rows)
2. Mandva weeder
3. Cono weeder
4. SRI weeder
5. Cycle weeder
6. Pedal thresher
7. Power thresher (motor operated)
8. Hand winnower

Results and discussion

The cost savings and acceptance rate due to demonstration of different implements are presented in Table 1.

Table 1 Effect of demonstration of women friendly tools and implements

Implements demonstrated	Crop	Cost of operation, Rs/ha		Cost saving, Rs/ha	Number of farm women willing to purchase
		Before use of machine	After use of machine		
Drum seeder	Paddy	3300	303	2997	11 (73.33)
Mandva weeder		1600	1250	350	13 (86.66)
Cono weeder		1600	1368	380	9 (60.00)
SRI weeder		1600	1220	380	0 (0.00)
Cycle weeder	Soybean	2400	1140	1260	6 (40.00)
Power thresher		1000	720	280	3 (20.00)
Pedal thresher		1600	1000	600	2 (13.33)
Hand winnower		1000	820	180	0 (0.00)

Figures in parenthesis indicates the percentage

It was found that, maximum percentage of farm women (86.66%) want to purchase mandva weeder followed by drum seeder (73.33%) than any other implements the used. This may be due to its less weight and ease of operation. No farm women from the sample groups want to have SRI power weeder and hand winnower and this may be difficult in operation of these implements. As regards to cost savings, maximum saving (Rs 2997/- per ha) was occurred in case of drum seeder while the minimum savings of Rs 180/- per ha (for winnowing the paddy produced from 1 ha taking average production of 15 q/ha) obtained for hand winnower.

Conclusions

Acceptance rate of any farm equipment depend on its successful demonstration before the target groups. The demonstration of women friendly farm implements conducted at three different villages of Puri district shows that, farm women want the implements which has less weight, has less drudgery involved and easy to operate and they do not want to operate any power driven equipment or machines. Maximum farm women want to adopt mandva weeder and drum seeder due to their ease of operation and no one from the sample group want to accept SRI power weeder and hand winnower. Hence, it may be concluded that, farm women want smaller implements that have less drudgery and profitable to them. Any power driven machines are not acceptable by the farm women.

References

Anonymous, 2013. Farm Mechanisation in Odisha, Souvenir, National Workshop on Farm Mechanisation held at Bhubaneswar (Sept. 18-19, 2013) published by DA&FP, Govt. of Odisha.

Sengupta, A and Kumar, R. (2011), Adoption of farm technology and enhancing productivity through front line demonstration (FLDs), Journal of Extension Education, Vol. XVI, No. 1 & 2.

Terms forming social ecology of coastal Odisha: The people's perception and participatory estimation on climate change

[1]A Jena, and [2]S K Acharya

[1] PG Scholar & [2] Professor, Department of Agricultural Extension, Bidhan Chandra KrishiVishwavidyalaya, , West Bengal, India-741252
anshumanjena101@gmail.com, acharya09@gmail.com

Abstract

The social ecology of coastal Odisha with a 480 km coast line, is turning more vulnerable to climate change and increased propensity of extreme weather. This has been reflected in the stagnating yield of food crops over the couple of decades, even though the application of fertilizer in crop field is increasing. Almost every year within a cohort of last 53 years, coastal agriculture of Odisha has experienced brunt of 40 years of drought, flood or cyclones. This has negated the positive impact of modern technology in the operating farms. The present research has envisaged the going to be impacted of climate change through the eyes and knowledge of rural people and farmers. The study has been carried out in chilika catchment areas of Puri district, based on a blend between participatory rural appraisal and a conventional percentage analysis. It has been found that the perceived effect of climate changes is the predominated problem followed by lack of irrigation and salinity problem. This shows the natural networking of problems among three negative actors i.e. climate change, irrigation and salinity. The study revealed that though 90% people are aware about change in temperature, 83.75% about erratic rainfall, but still only 33.75% people are aware about climate change and global warming.

Keywords : *Climate change, coastal agriculture, deforestation, salinity.*

Introduction:-

Ecosystem begets nurtures, sustains and transforms the live and live-forms. The three basic mega-ecosystem are physical ecosystem, biological, and social ecosystem. For the physical ecosystem, the determinant factors are matter and energy, for biological ecosystem, it is genetics and metabolism. The social ecology again has got two basic determinants i.e. metabolism and intelligence.

Climate change has been recognized globally as an ever increasing threat to our planet. The economic and social implications of global climate change are the subject of intense national and international study in present day scenario. The mean global annual

temperature increased between 0.4 to 0.7°C (Singh, 2008).

Of around 7600k.m of coastal lines bordering India, itself is the world's one of the largest coastal ecosystem, increasingly vulnerable to sea level rising and global warming. Added to it, the aspects of livelihood changes, migrations, erosion of ichthyofaunal diversity, problems of salinity, decline of productivity etc. are making the problem complex and polymorphic.

With a 480 km coast line that is prone to climate-mediated cyclones and coastal erosion and water resources dependent on monsoons, Odisha is relatively more vulnerable to climate change.Chilika lake of Odisha coastal area presents a huge pool of hydro-ecological, bio-ecological and socio-ecological dynamics and transformational traits. Chilika Lake is related to the status and prospects of livelihood and economic productivity for the entire social ecology, keeps relegating to it. The change dynamics are more important than the present of change itself. While change dynamics include the past and direction of change as well as of shifts, its impacts on futuristic plan and prospects, is immense.

The present study has taken care of the perceptual analysis of change dynamics along and across the age, community, occupation of the respondents. These are organically dovetailed to the ecological phenomena of the Chillikalake and her catchment areas.

Materials & Methods:-

Research locale: The village Malud and Satapada of Krushnaprasad Block and Brahmagiri and Bentapur village of Brahmagiri Block, around Chilika coastal ecosystem of Puridistrict of Odisha, were selected purposively and a total number of 80 respondents were selected by simple random sampling method.

A Pilot study was conducted before construction of data collecting schedule.

Sampling Design

Table-1: Sampling Scheme (Multistage Random Sampling)

The schematic diagram features the sampling scheme of The State, District, Block, Villages and Respondents.

Step	Items	Level	Approach
1	State	Odisha	Purposive
2	District	Puri	Purposive
3	Block	Krushnaprasad, Brahmagiri	Purposive
4	Village	Malud, Satapada, Brahmagiri, Bentapur	Random
5	Respondents	80	Random

After collection of data, data were processed and analysed in accordance with the outline laid down for the purpose at the time of developing the research plan. Process implies editing, coding, classification and tabulation, calculation of percentage of collected data.

Results and Discussion

Table 2: Rainfall, Fertilizer consumption and Kharif Rice Production of Odisha

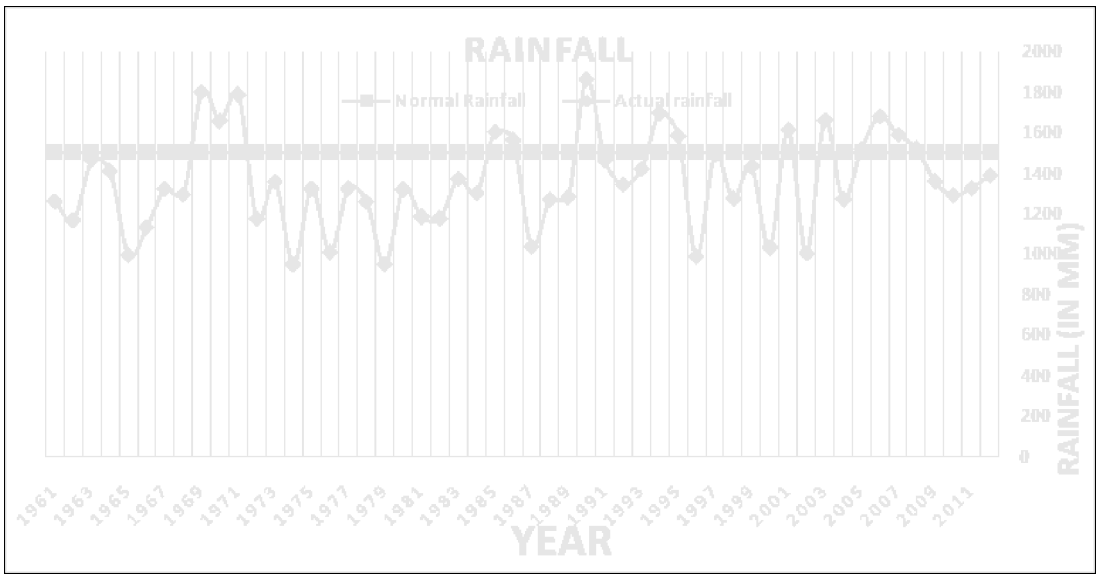
Sl. No.	Year	Normal Rainfall (mm)	Actual rainfall (mm)	Fertilizer Consumption (kg/ha.)	Kharif Rice Production (lakh Mts.)
1	1961	1502.5	1262.8	0.8	36.99
2	1962	1502.5	1169.9	0.8	36.32
3	1963	1502.5	1467.0	0.9	42.47
4	1964	1502.5	1414.1	1.2	43.59
5	1965	1502.5	997.1	1.9	31.89
6	1966	1502.5	1134.9	2.2	35.37
7	1967	1502.5	1326.7	3.2	34.43
8	1968	1502.5	1296.1	3.6	38.48
9	1969	1502.5	1802.1	3.7	38.39
10	1970	1502.5	1660.2	4.1	39.13
11	1971	1502.5	1791.5	7.3	33.76
12	1972	1502.5	1177.1	8.1	37.35
13	1973	1502.5	1360.1	8.7	41.91
14	1974	1502.5	951.2	6.9	29.67
15	1975	1502.5	1325.6	6.7	42.74
16	1976	1502.5	1012.5	8.6	29.58
17	1977	1502.5	1326.9	8.2	40.50
18	1978	1502.5	1261.3	8.7	41.89
19	1979	1502.5	950.7	8.3	27.34
20	1980	1502.5	1321.7	8.7	40.31
21	1981	1502.5	1187.4	9.7	36.63
22	1982	1502.5	1179.9	10.4	27.07
23	1983	1502.5	1374.1	10.8	47.63
24	1984	1502.5	1302.8	12.7	38.50
25	1985	1502.5	1606.8	15.7	48.80
26	1986	1502.5	1566.1	16.4	44.56
27	1987	1502.5	1040.8	16.7	31.03
28	1988	1502.5	1270.5	22	48.96
29	1989	1502.5	1283.9	21.7	58.40
30	1990	1502.5	1865.8	20.1	48.42

31	1991	1502.5	1465.7	20	60.30
32	1992	1502.5	1344.1	21.6	49.76
33	1993	1502.5	1421.6	21.3	61.02
34	1994	1502.5	1700.2	22.7	58.31
35	1995	1502.5	1588.0	24.6	56.48
36	1996	1502.5	990.1	30.5	38.27
37	1997	1502.5	1493.0	35	57.51
38	1998	1502.5	1277.5	36	48.85
39	1999	1502.5	1435.7	42	42.75
40	2000	1502.5	1035.1	41	41.72
41	2001	1502.5	1616.2	41	65.71
42	2002	1502.5	1007.8	39	28.26
43	2003	1502.5	1663.5	39	61.99
44	2004	1502.5	1273.6	43	58.84
45	2005	1502.5	1519.5	46	62.49
46	2006	1502.5	1682.8	47	61.96
47	2007	1502.5	1591.5	52.1	68.26
48	2008	1502.5	1523.6	56	60.92
49	2009	1502.5	1362.6	58	62.93
50	2010	1502.5	1293.0	62	60.51
51	2011	1502.5	1327.8	62.25	51.27
52	2012	1502.5	1391.3	62.5	86.81

Out of 53 years only 13 years have been normal years. This almost puts the state with a 75% probability of being visited by natural calamity of any kind. This has been reflected in the stagnating yield of food crops over the couple of decades, even though the application of fertilizer in crop field is increasing and at the same time, a shift of occupation from farm to nonfarm economy has been well discernable. This has also negated the positive impact of modern technology in the operating farms.

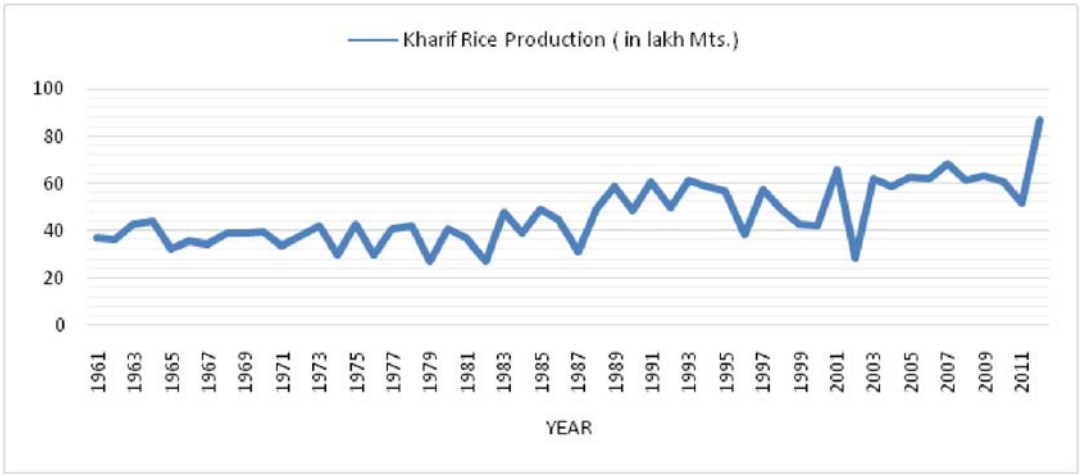
Graphical delineation-1: Rainfall: 1961-2012

The graphical delineation 1 presents the distribution of rainfall in Odisha. From 1961 to 2012. It shows that baring few couples of years ,rests of the years are suffering from below normal rainfall, specially the cohort 1972-1984, has been consistently suffering from below normal rainfall.

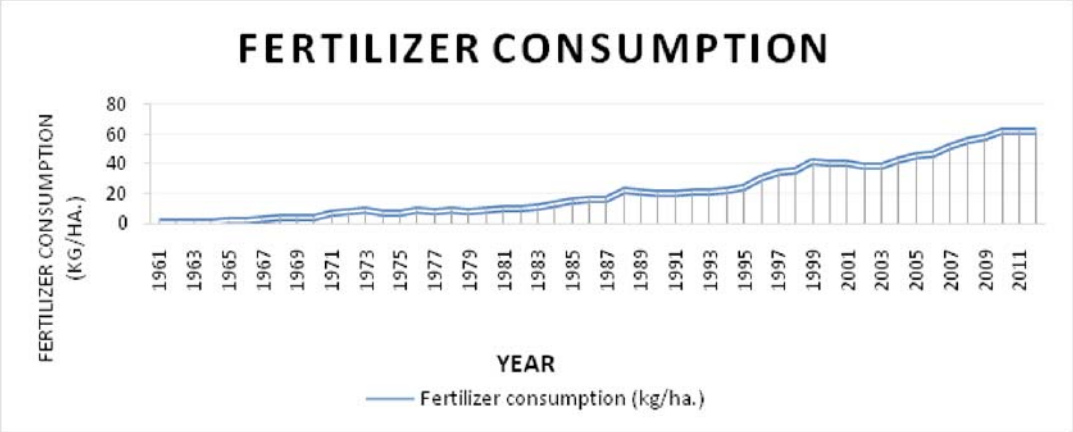


Graphical delineation-2: Kharif rice production: 1961-2012

The graphical delineation 2 presents the two, kharif rice production from 1961 to 2013 and graphical delineation 3 presents the patterns of fertilizer consumption between1961 to 2008. By taking 2 patterns into consideration, it can be seen that the level of fertilizer consumption has not well been reflected to increase the production of kharif rice. Kharif rice being an inevitable predictant to monsoon rainfall, the gradual erratic nature of monsoon rainfall might have neglected the fertilizer consumption



Graphical delineation-3: Fertilizer consumption: 1961-2012



From 1967 to 1987, there has been a clear dent of increase in fertilizer consumption but kharif rice production has been plating because if you see into the rainfall pattern of the same period, it was the period of below normal rainfall. So, the dividend from increase fertilizer application on productivity of aman rice has been neglected by the erratic rainfall.This has negated the positive impact of modern technology in the operating farms.

Table 3: Matrix Ranking: Participatory Perceptual Analysis on Dominant Problems Affecting Coastal Rural Life in Chilika Social Ecology

Attributes / Problems	No. of people affected	Severity of impact	Frequency of impact	Score	Rank
Irrigation	7	7	8	**22**	**2nd**
Disease-pest attack	6	6	7	**19**	**4th**
Low quality seeds	7	5	5	**17**	**5th**
Salinity	8	6	7	**21**	**3rd**
Climate Change	9	8	7	**24**	**1st**
Lack of knowledge	5	6	6	**17**	**5th**
Total	**42**	**38**	**40**	**120**	

The brunt of climate change is predominated, has been evinced in the participatory matrix ranking by local people. It has been found that the perceived effect of climate changes is the highest followed by lack of irrigation and salinity problem. This shows the natural networking of problems among three negative actors i.e. climate change, irrigation and salinity. By analysing the psychology and perception of people on doing matrix ranking, attributes like no. of people affected followed by frequency of impact followed by severity of impact are given importance respectively by the farmers in scoring of dominant problems.

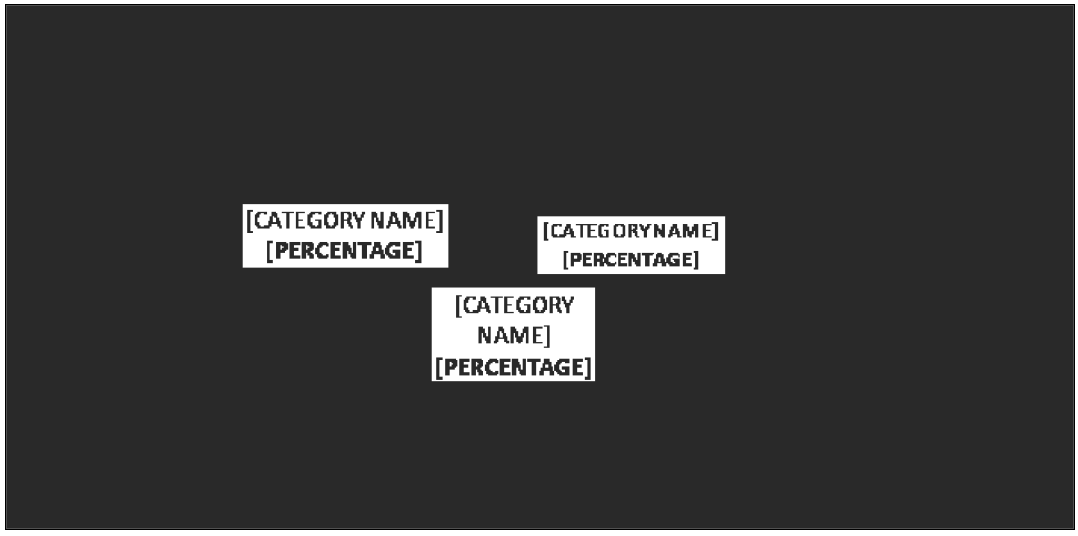


Table 4: Matrix Ranking: Participatory Perceptual Analysis on Choices and Ranking of Rice varieties

Attributes / Varieties	Production	Cooking quality	Scent	Disease-pest free	Climatic resistant	Profit	Total	Rank
Nadiarasa	3	6	6	4	3	4	**26**	**7th**
Tulasibasa	3	7	8	4	3	3	**28**	**5th**
Padmakeshari	2	5	6	3	3	2	**21**	**8th**
Ratantudi	5	5	5	3	4	5	**27**	**6th**
Narada	5	6	5	6	8	6	**36**	**2nd**
Masuri	8	7	5	7	6	8	**41**	**1st**
Swarna	7	6	4	5	6	6	**34**	**3rd**
1014	6	5	4	5	5	6	**31**	**4th**
Total	**39**	**47**	**43**	**37**	**38**	**40**		

In this participatory analytical process, the local people has selected 7 rice varieties grown in that area. The attributes are, Production, Cooking quality, Scented, Disease-pest free, Climatic resistant, Profit. It has been found that, the variety Masuri has splendidly combine production, profit, resilience to climate change and it has ranked the first position followed by Narada, Swarna etc. According to people perception, the variety Narada gives less production than Masuri, Swarna, 1014, but the variety has good resilience to climate change. That's why the variety Narada is so popular in coastal areas.

But at the time of scoring for choice of rice variety, it was seen that people are giving importance to cooking quality followed by scent, climatic resistant, production, profit and disease-pest free characteristics of rice varieties. But by analysing scores of popular varieties, climatic resistant is derived as the most critical factor.

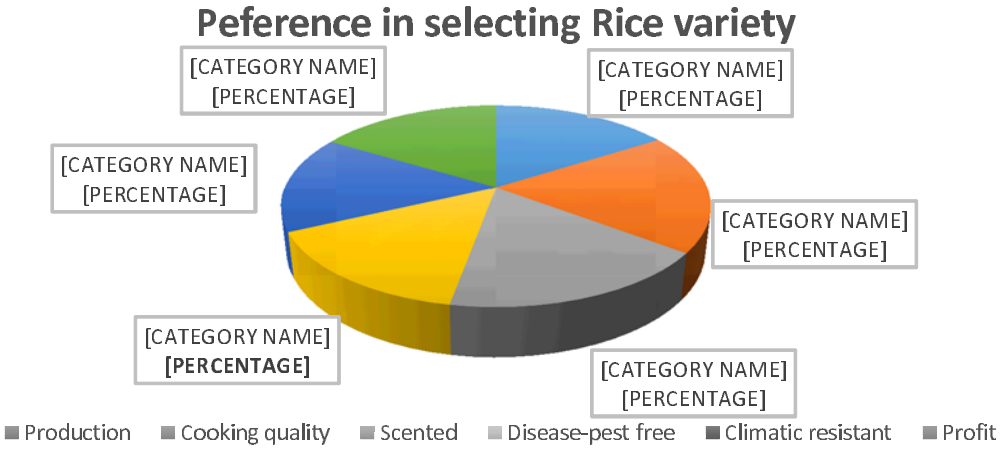


Table 5: Matrix Ranking: Participatory Perceptual Analysis on Causes of Environment Degradation

Attributes / Problems	No. of people affected	Severity of impact	Frequency of impact	Score	Rank
Deforestation	7	8	6	**21**	**1st**
Over-netting	6	6	7	**19**	**3rd**
Vehicles	5	6	6	**17**	**5th**
Population growth	5	8	7	**20**	**2nd**
Tourist pressure	4	4	5	**13**	**6th**
More Boats	5	6	7	**18**	**4th**
Total	**32**	**38**	**38**		

In this participatory analytical process, the local people have pointed out various problems lead to environment degradation like deforestation, over-netting, vehicles, population growth, tourist pressure, and more no. of boats and ranked among them according to some attributes like, no. of people affected, severity of impact, frequency of impact. Followed by Population growth pressure, Over-netting, more no. of boats, etc., deforestation is found as the main contributor towards environment degradation, which is almost human induced.

As per IPCC, It had "very high confidence that the global average net effect of human activities since 1750 has been one of warming" (IPCC, 2007).Agriculture represented 13.5% of global GHG emissions and forestry (mainly through deforestation) 17.4% of emissions (IPCC, 2004).

Similarly attributes like Severity of impact and frequency of impact are derived as psychologically most important factors followed by no. of people affected in analysing causes of environment degradation.

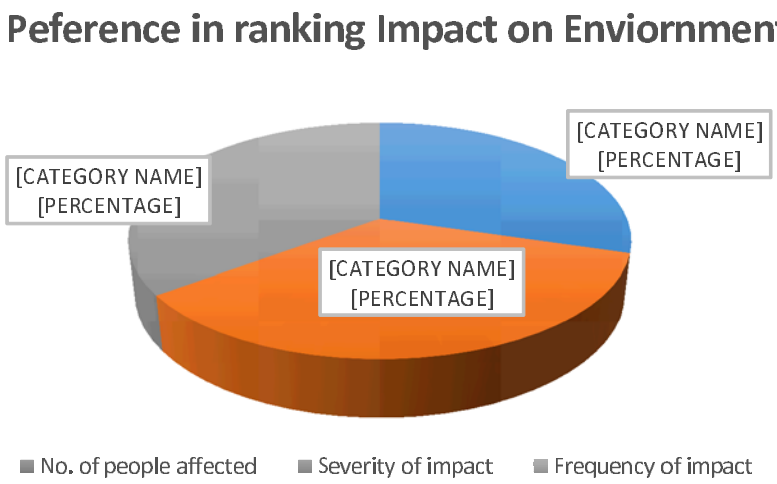


Table 6: Distribution of respondents according to perceived risks (N=80)

Risk	No.	Explanation	Rank
Increase in crop diseases	63 (78.75%)	There was increased phenomenon of certain type of disease, like- blast in seedbed of paddy, yellowing of leaves, curling of leaves and rotting of seedlings etc. of different crops.	**1**
Reduction in Agricultural production	47 (58.75%)	Reduction in yield of different Rabi crops due to high temperature and also Kharif paddy due to less rainfall	**6**
Increase in insect-pest attack	45 (56.25%)	Increase in the attack of different types of jassids and micro-incidences organisms.	**7**

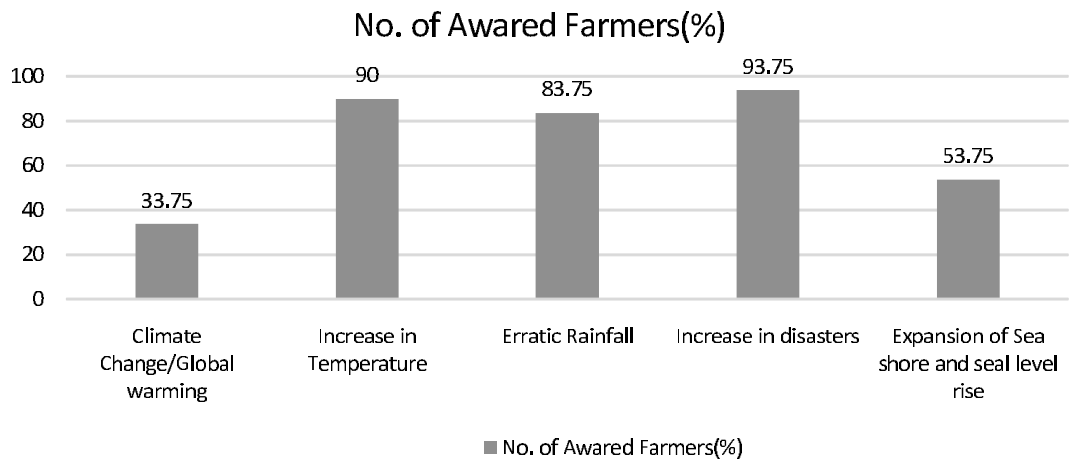
Increase in incidence of salinity	52 (65%)	Due to sea level rising and increase in temperature, the problem of salinity is increasing to a significant extent. Increase in temperature leads to increase in evaporation of water leaving dissolved salts at the surface soil, which in turn leads to increased problem of salinity.	**5**
Increase in coast of cultivation	60 (75%)	Due to increased pest and insect attack and also due to increased diseases costs of insecticide and fertilizer have also increased to a significant level.	**2**
Increase in animal diseases	45 (56.25%)	Different types of diseases of hen, duck, animals etc. like-white faeces, spot in the body, sterility etc. has increased.	**7**
Decrease in fish growth rate	37 (46.25%)	Growth rate of fish declined mainly due to overfishing and increased saline level.	**8**
Increase in cost of fish	54 (67.5%)	Now farmers have to move towards deep sea to catch fish which increase fish cultivation the both risk and cost of fish cultivation.	**4**
Decrease in forest area	58 (72.5%)	Area under mangrove forest has also declined due to deforestation and frequent disasters like cyclone.	**3**
Decrease in Income	22 (27.5%)	Income of the farmers has reduced due to crop loss, low production and increase in cost of cultivation.	**10**
Increase in migration of people	35 (43.75%)	Peoples are migrating towards Bhubaneswar, Kolkata, Gujarat and Delhi etc. for job and better livelihood.	**8**

By perceptual analysis of people of coastal areas, it is found that, increase in crop diseases (78.75%) is the most important perceived risk faced by people followed by Increase in coast of cultivation (75%), Decrease in forest area (72.5%), Increase in cost of fish (67.5%), Increase in incidence of salinity (65%) etc.

Table 7: Perception on Change dynamics (N=80)

Factors	No.	Rank
Climate Change/Global warming	27 (33.75%)	**5**
Increase in Temperature	72 (90%)	**2**
Erratic Rainfall	67 (83.75%)	**3**
Increase in disasters	75 (93.75%)	**1**
Expansion of Sea shore and seal level rise	43 (53.75%)	**4**

Graphical delineation 4:



People by less no. do believe that there is global warming or climate change. But, people in high intensity do believe that, there has been change in temperature, increase in disasters and rainfall has developed an erratic pattern. So, global warming as rhetoric, may not be that socialized as such, but there has been a clear perception on changes of meteorological parameters.

According to the survey results, the majority of the respondents, up to 85% were of the view that there has been a rise in temperature. Approximately 61% of the respondents observed a decrease in rainfall volume, whilst about 90% perceived a change in the timing of rains. Lack of knowledge and information, lack of inputs, inappropriate policy, and land scarcity, shortage of labour, lack of market, water scarcity, poverty and lack of extension services were identified as barriers to new technology adaptation (ATPS,2013)

Table 8: Perception on Adaptation (N=80)

Factors	No.	Rank
Govt. policies to mitigate climate change impact.	25 (31.25%)	**3**
Adoption as per govt. policies	15 (18.75%)	**4**
Change in sowing date	58 (72.5%)	**2**
Varietal change	63 (78.75%)	**1**

Most of the respondents have opted for change in conventional rice variety as a mitigation strategy to combat the climate change. They have also opted for change in sowing time as another highly expectable strategy. But interestingly, only a few i.e. 18.75% of farmers opted for having a change in govt. policies aiming to reduce adverse effect of climate change.

From the study on Sunderban coastal ecosystem of West Bengal, it was observed that nearly 38 per cent of the respondents had heard about climate change. Most of respondents perceived climate change due to rapid industrialization by human being (Sarkar, 2010).

Conclusion

The analysis shows that farmers' perceptions on climate change are in line with the climatic data records. The brunt of climate change is predominated problem, has been evinced in the participatory matrix ranking by local people. It has been found that the perceived effect of climate change is the highest followed by lack of irrigation and salinity problem in coastal areas. Deforestation, Population growth pressure, Over-netting, more no. of boats were found as the main contributors towards environment degradation in coastal areas which badly leads to a greater change dynamics of the coastal area. People though there are aware about change in temperature, erratic rainfall, but still they are unware about climate change and global warming, which is a burning problem of present world. It needs a high level awareness about climate change, its causes and its impact on human and his livelihood.

References

Intergovernmental Panel on Climate Change (IPCC). (2007). Climate Change 2007: Impacts, Adaptation, and Vulnerability. Summary for Policymakers. Contribution of Working Group II to the Fourth Assessment Report of the IPCC.

Kalinda, T. H. (2011). Smallholder Farmers' Perceptions of Climate Change and Conservation Agriculture: Evidence from Zambia. Journal of Sustainable Development,Vol. 4, No. 4, Published by Canadian Centre of Science and Education.

Singh, P. K. (2008). 'Climate change leads to psychiatric illness'. <http://sify.com/news/scienceandmedicine> (Apr. 08. 2008)

Sarkar, S., Padaria, R. N. (2010). Farmers' Awareness and Risk Perception about Climate Change in Coastal Ecosystem of West Bengal. Indian Research Journal of Extension Education, 12 (2).

Sustainability of Draught Animals through Employment Generation of Rural Masses

A.K.Dash[1], S.K.Swain[2], A.K.Mohapatra[3] and M.Mahapatra[4]

1, 2 -Associate Professor, 3-Animal Scientist, AICRP on Utilisation of Animal Energy, 4 -Associate Professor, Dept. of Farm Machinery and Power, College of Agricultural Engineering & Technology, Orissa University of Agriculture & Technology, Bhubaneswar.
Corresponding Email- ajayadash@yahoo.com

ABSTRACT

Livestock rearing is one of the most important activities in the rural areas of the country providing supplementary income for most of the families dependent on agriculture. Apart from providing a subsidiary income to the families, rearing of livestock such as cattle, buffaloes, sheep, goats, pigs etc is a source of protein in the form of milk and meat. It has been found that in the time of exigencies like drought and other natural calamities, it is the livestock, which comes to the rescue of the vast sections of rural population. As the ownership of livestock is more evenly distributed with landless labourers, small and marginal farmers, the progress in this sector will result in a more balanced development of rural economy.

Keywords: *Draught animals, Biogas, Organic farming, Employment generation.*

Introduction

Animals have been traditionally a part of Indian agriculture. They have contributed to the agricultural economy through their products and by-products. Some of these products are milk, wool and eggs. By-products are hides, horns, tusks, dung, urine, meat etc which are obtained either from the animals or the remains of animals after death. Similarly animals are also used for draught purposes for farm operations and transport. Draught animals have been the backbone of Indian agriculture through ages for supplying of draught power. The major draught animals are bullocks and he-buffaloes. Other draught animals are camel, donkey, equines (horse, pony and mule) and yak.

Objective

1. To study the potential of animal power in India

2. To study the possible ways of employment generation for rural masses through utilization of draught animal energy.

Material and Methods

The researchers attempted to evaluate the potential animal power from different livestock sources which needs to be harvested for upliftment of rural economy. Employment generation for rural masses through different methods such as biogas production, organic farming and opportunities available in dairy and animal energy sector.

Status of draught animals in India

Since 1990, there has been a rapid growth in number of tractors and power tillers which has adversely affected the economics of draught animal system. Farmers started using these power sources and implements with a view to ensure timely operations and also to reduce drudgery. Besides carrying out operations in their fields, farmers also carry out custom hiring of tractors and implements. Many farm operations carried out earlier by draught animals are now being carried out by machines. Due to this, annual use of draught animals has reduced to about 250-400 h annually and their economics have been affected.

As per the Livestock Census 2007, the population of draught animals is 55.88 million among which population of bullocks is 49.70 million and buffaloes 4.27 million (Table - 1) (Chaudhuri, 2013). If the population of draught animals in 2007 as per Livestock Census data is compared to the population of 2003 (Table - 2), it is seen that total population of draught animals has been decreased from 63.90 million in 2003 to 55.88 million in 2007. This has reflected a decrease in their population which is alarming to the rural economy. Again from the same census data the number of draught animals decreased from 80 million in 1971-72 to 55.88 million in 2007-08.

Table 1 : Draught animal population in India.

Sl. No.	Draught animal	Population, millions
1	Bullock	49.70
2	Buffalo	4.27
3	Camel	0.52
4	Mule	0.14
5	Horse and pony	0.47
6	Mithun	0.26
7	Yak	0.08
8	Donkey	0.44
	Total	55.88

Source: Livestock Census data 2007

Table 2 :Comparison of draft animal status in 2003 and 2007.

Sl. No.	State	Draught animal population, (Millions)		Percentage change
		2003	2007	
1	Andhra Pradesh	4.25	4.41	+3.69
2	Arunachal Pradesh	0.31	0.23	-23.04
3	Assam	2.24	2.81	+15.97
4	Bihar	2.71	2.77	+2.31
5	Chhattisgarh	4.00	3.99	-0.21
6	Goa	0.03	0.02	-28.48
7	Gujurat	2.81	2.57	-8.43
8	Haryana	0.58	0.44	-26.52
9	Himachal Pradesh	0.77	0.60	-21.79
10	Jammu & Kashmir	0.97	0.90	-4.27
11	Jharkhand	3.78	3.86	+2.11
12	Karnataka	3.07	2.93	-4.77
13	Kerala	0.04	0.02	-50.66
14	Madhya Pradesh	6.60	6.94	+5.20
15	Maharastra	6.54	6.15	-5.86
16	Manipur	0.18	0.08	-53.34
17	Meghalaya	0.21	0.16	-21.88
18	Mizoram	0.0106	0.0056	-47.10
19	Nagaland	0.11	0.08	-32.04
20	Odisha	5.65	3.67	-35.06
21	Punjab	0.49	0.27	-44.17
22	Rajastan	2.86	2.61	-9.34
23	Sikkim	0.04	0.03	-18.25
24	Tamil Nadu	1.26	1.10	-12.26
25	Tripura	0.18	0.18	-2.64
26	Uttar Pradesh	7.42	5.0	-32.54
27	Uttarakhand	0.72	0.68	-6.54
28	West Bengal	5.81	4.0	-31.12
29	Andaman & Nicobar Island	0.02	0.02	-6.21
30	Chandigarh	0	0	-93.99
31	Dadra & Nagar Havele	0.03	0.03	-2.00
32	Daman & Diu	0	0	-37.95
33	Lakshadweep	0	0	-
34	Pondicherry	0	0	-43.67
35	All India	63.80	55.88	-10.55

Source: Livestock Census data 2003 and 2007

However, despite decrease in population of the animals, the population of draught animals still remains significant. The draught animals remain as the major power source for farm operations and transport for small and marginal farmers who constitute 80% of the farming community. Even if the population of draught animals decreases in current rate, they will still play a significant role in Indian agriculture for next 20-25 years.

Opportunities available for upliftment

Innumerable opportunities are available for rural masses, some of which are mentioned below to select and use as per resources and linking of the rural masses:

Biogas generation

Biogas technology provides an alternate source of energy in rural India, and is hailed as an appropriate technology that meets the basic need for cooking fuel in rural areas. Using local resources, viz. cattle waste and other organic wastes, energy and manure are derived. Realization of this potential and the fact that India supports the largest cattle wealth led to the promotion of National Biogas Programme in a major way in the late 1970s as an answer to the growing fuel crisis. Biogas is produced from organic wastes by concerted action of various groups of anaerobic bacteria (Nagamani *et al*).

Table 3: Potential of biogas production from different live-stocks.

Sl. No.	Feedstock	Availability (kg animal^{-1} d^{-1})	Gas yield (m^{3}kg^{-1})
1	Cattle waste	10	0.36
2	Buffalo waste	15	0.54
3	Piggery waste	2.25	0.18
4	Chicken waste	0.18	0.011

Organic farming

Heavy reliance on chemical pesticides in the past five decades has produced an ecological catastrophe resulting in insects developing resistance to many chemical pesticides and resurgence of newer varieties of pests which are even more difficult to eradicate or manage by chemical pesticides. The measures now required are aimed at controlling their population to manageable levels. Integrated pest management uses a combination of cultural, chemical and biological control methods. Use of animal energy with mechanical devices weeders could provide support to organic farming and use of labour effectively and provide employment to both sources of animal power.

The cost of inputs in organic farming is only about Rs. 4000/- per hectare while it is Rs. 9000-9500/- with chemical fertilizers and pesticides. The farmers have discovered that cultivation of cowpea and vegetables after the harvesting of paddy and using compost manure three times in a year makes the soil fertile. The farmers use about 300 Kg compost after 30-45 days of sowing. The farmers also use bio-pesticide made from neem derivatives, karanja oil and cow urine which are sprayed in crop field periodically. In rubber and tea plantations, some farmers

use farm yard manure and neem extract and are getting better yields than with chemical fertilizers and pesticides. Above all, application of biofertilisers and biopesticides keep the soil health better. Organic farming is symbiotic, sustainable and harmonious with nature (www.organicworld.com).

The union government had launched a Rs. 92 cores national project on organic farming in 10th plan period. Under this project a high level committee had outlined the standards for organic farming, accreditation and certification procedures for export. Under the project about 50 organic farms had been established and the farmers were being trained in organic farming. Infrastructures had been created for production of biofertilisers, biopesticides, biocontrol agents, compost and vermiculture etc.

Organic food

Organic food is cultivated using organic manures, biofertilisers, biopesticides (like neem extract, karanja oil, cow urine, micro-bacterial flora and fauna, etc), adopting mechanical weed control and biocontrol of pests and diseases.

Many developed countries and some developing countries have setup standards for organic foods and assign certifying agencies for labeling of these products. A chain of retailers mostly in the developed countries have started specializing in the marketing of organic foods. They have set quality standards which are often more stringent and difficult to follow than their own national standards. The organic foods are sold at a premium price by which farmers get a better price.

Some of the organic foods that are more widely traded in the world market are tea, cocoa, spices, herbs, alcoholic beverages, vegetables, processed fruits and dried fruits and nuts, etc(Table 4). Non-food items include cotton, cut flowers, pot plants, etc.

Table 4 :World market for organic food products in the year 2012

Sl. No.	Country	Sales (in million Euros)
1	USA	22,589.5
2	Germany	7,040.0
3	France	4,004.0
4	UK	1,950.0
5	Italy	1,885.0
6	Switzerland	1,520.3
7	Japan	999.7
8	Spain	998.0
9	Australia	926.9
10	Sweden	905.0
11	China	790.8
12	India	130.0

Source : FiBL Survey 2014 (FiBL :Research Institute for Organic Agriculture, Switzerland) (www.organicworld.com)

The export opportunities could be fruitfully harnessed for busting export while providing employment to those who engage themselves in bio-farming activities.

Employment opportunities available in dairy and animal energy sector

Some of the opportunities which could be exploited depending upon the situational opportunities, social factors and management skill including technical capabilities could be listed as under:

1. Rearing quality bullocks and trading
2. Farm operations
   - Implement hiring to support farm operations
   - Custom hiring – Animals
3. Implements
   - Production
   - Trading
   - Repair & maintenance
   - Servicing
4. Transport in urban and rural area
5. Cart manufacturing and selling
6. Animal by-product utilization
   - Dried dung cakes for cooking
   - Biogas plant feeding, maintenance and gas distribution
   - Biogas plant construction, repair & maintenance
   - Cow urine for Aurveda
   - Bio-fertliser - Biodynamic agriculture products etc
   - Farm Yard Manure
   - Vermicompost
7. Slaughter house
   - Meat
   - Production & marketing
   - Waste value addition
   - Hoof, bone & skin industrial use
8. Animal operated rotary transmission unit
   - Threshing
   - Seed cleaning & grading
   - Ground nut decortication
   - Chaff cutting
   - Water lifting
   - Electricity generation through battery charging in decentralization mode

Conclusion

Animal energy in India consists of 55.88 million draught animals who support manual labour in reducing their drudgery and providing best output. They save fossil fuel, otherwise spent upon running 5 million tractors and consequently reducing carbon foot prints. Draught animals are environment friendly, suited to small and marginal farmers for which improved implements along with suitable yoke and harnesses have been developed. The uses of animals in animal operated rotary mode have opened further employment gates. Thus, the use of draught animal power has immense potential which need to be harvested in systematic and judicious way.

References

Chaudhuri, Deepak (2013). Improved technology for utilization of draught animals. AICRP on Utilization of Animal Energy Report, October, 2013.

Livestock census 2007 – www. Dahd.nic.in.

Nagamani, B and Ramasamy, K (2011) Biogas production technology: A Indian perspective, Fermentation Laboratory, Department of Environmental Sciences, Tamil Nadu Agricultural University, Coimbatore, pp 1-15.

Paroda, R.S (2003). Making Indian agriculture more resilient role of entrepreneurship. Souvenir, 6th Agricultural Science Congress, NAAS, 13-15 February, 2003, Bhopal.

Singhal, Vikas (2003). Indian Agriculture.

www.organicworld.com.

Empowerment of Village Community through Watershed Approach in Kalahandi District of Odisha

A. P. Sahu[*] N. Sahoo[*] S. C. Senapati[**]

[*] Associate Professor and [**]Professor, Department of Soil & Water Conservation Engineering
College of Agricultural Engineering & Technology, OUAT, Bhubaneswar

Abstract

The overall performance of watershed programmes has been examined for 16 nos. of micro-watersheds for the first 3 years through mid-term evaluation in Kalahandi district of Odisha. The watershed development activities were found to have made significant positive impacts on various bio-physical aspects like soil and water conservation, soil and water erosion in the cropped area, soil fertility, changes in cropping pattern, cropping intensity, production and productivity of crops, on water table, perenniality of water in wells, water availability for cattle and other domestic purposes etc. The peoples' participation in watershed development activities has been found very satisfactory and achieved the optimal level. From the study it was realized that the future bone should be the movement towards a balanced approach of matching the supplied driven menu with a set of demand driven activities. For its continued success, the programmes should be economically efficient, financially viable, technically feasible and socially acceptable while ensuring equity. Regular and routine monitoring of environmental parameters is important for sustainable development as environmental enhancement increases the credibility and acceptability of the programme. It was found that trainings on capacity building, demonstration and exposure visits have empowered the village community to change their socio-economic status through agricultural and allied activities in sustainable way.

Key words : *Empowerment, Watershed*

Introduction

India is blessed with abundant land and water resources. Due to continuous rise in population demand for these resources is continuously increasing. The demand for land can be made by increasing the intensity of cultivation by bringing waste and fallow lands under cultivation, which could be possible only by the efficient utilization of water resources. More than 58% of country's population depends on agriculture in which more than 70% of the farming community belongs to marginal and small farmers. They depend only on agriculture and that too subjected to high degree of risk and uncertainty and provides only seasonal, irregular and uncertain income. Indian agriculture is predominantly rainfed agriculture due to 40% of irrigation

intensity. Out of total cultivated area of 143Mha in the country, 101Mha (nearly 70%) area are rainfed and about 42% of dry land areas contribute to total food grain production. Variation in rainfall with reference to time and space influence the crop production as well as socio-economic conditions of farmers. According to society for promotion of waste land development (SPWD), out of 329 Mha of total geographical area in India, 16.2% falls under waste land. The production potential of the lands declined due to deficient rainfall in the recent years, deforestation and ground water depletion, which poses threat to India's development.

Social life is becoming desperate in rural villages due to low production and productivity of the land, which ultimately impacts on the socio-economic condition of the farmers. So, sustainable development of degraded lands in watershed villages can be attained through watershed approaches, afforestation and adopting suitable soil and water conservation measures, when people actively participate in watershed development programmes. The conservation, development and efficient utilization of natural resources have become inevitable in the context of sustainable agriculture, which has assumed greater significance due to their over exploitation.

Madhu *et al.* (2004) stated in their study that the development and management of waste lands through integrated watershed management with active participation of local community is a successful proposition. It is observed that rural people are being deprived off getting modern education and health facilities due to their poor socio-economic status resulting from monotonous traditional agriculture. To bring the rural people to main stream of development, India has designed a dream project popularly known as watershed development programme. The aim of this programme is to balance the conservation, regeneration and use of land and water resources by human within a watershed boundary. The overall attributes of watershed development approach, by and large, are three fold, such as promoting economic development of the rural area, employment generation and restoring ecological balance (GOI, 2008). Sahu and Pattnaik (2009) stated in their watershed report that active participation of peoples is a good indicator for sustainable development of watershed. To empower the village community, emphasis should be given on formation of efficient self help groups (SHGs) and user groups (UGs), establishing sustainable community organization, awareness generation among rural masses, improving skills of the local community through training and exposure visits, women participation in decision making processes and building capacity of rural masses. Singh *et al.* (2010) reviewed and analysed the watershed report on impact and effectiveness of watershed development programmes in India conducted by various government agencies and other organizations and found that the benefits from the watersheds were the highest where people's participation was high. At majority of the places it was moderate and in a few it was conspicuous by absence. The other impact indicators were far ahead in watersheds having greater people's participation. Sasikala *et al.* (2013) studied that the importance of watershed programme was recognized by the villagers through awareness created by Project Implementation Agencies (PIAs) and watershed development team members

through meetings, display boards, wall painting etc. Paul Bhaskar *et al.* (2014) assessed the impacts of the Integrated Watershed Management Program in selected tribal areas of Gujarat and Chhattisgarh, India and found positive link between watershed management and sustainable development resulting in higher agricultural and milk productivity, introduction of water efficient and environment friendly agricultural practices, improved animal husbandry techniques and better availability of water for irrigation and other domestic uses and decreased migration rates. Special emphasis on women empowerment and upliftment of the landless have also led to improved participation and decision making in planning and equitable gains from the watershed program.

Objective

To assess the empowerment of village community through different watershed activities by peoples' participation.

Materials and Methods

Mid-term evaluation of ACA watersheds was conducted in all the eight randomly selected watersheds out of 16 nos. of ACA watershed located in 8 blocks of the Kalahandi district. Simple random sampling technique was also used to select 50 nos. of beneficiaries from each watershed to evaluate different interventions implemented in the watershed. The expert team visited around 70 - 80 per cent of the structures, crop fields and plantations of the micro watersheds and from those they assessed the empowerment of village community. The experts gave emphasis on the representation of women, SC and ST people in watershed committees. Though they belong to weaker section of the society, their names were taken into consideration for constituting SHGs and UGs under the umbrella of PIAs and watershed development team (WDT) members. A number of training programmes/capacity building programmes, exposure visits etc. were arranged at regular interval of time to strengthen and empower SHGs and UGs belonging to entire village community. Their potentiality was judged by the evaluation experts from their active involvement in different interventions of the watershed development programme like preparation of micro action plan, decision making, site selection, execution of work etc. regarding the rate of empowerment of village communities.

Information was collected on people's participation, conservation measures taken, afforestation, water resources development, upgradation of socio-economic status and initiation of different commercial activities within the watershed boundary and the overall success rate of watershed development programme provided sufficient clues to the evaluation experts to evaluate the rate of empowerment of village community. Initiatives were taken on development of primary and secondary education, better medical and health facility, good drinking water facility, sustainable agricultural development policy, transportation networks within and outside of the watershed boundary, good connectivity with block head quarters and creation of good marketing facility etc.

Results and Discussion

The evaluation experts has stated in their report that highest percentage of women

representatives from Sardapur (53%), Dorapadar (57%), Rajkhandual (30%) and Maa Manikeswari (30%) were actively participating and raising their voice and feelings in different watershed activities and meetings for decision making (Table 1). The maximum SC and ST representation of 90% was found from Raj Khandual and Maa Manikeswari watersheds in the watershed because these two watersheds had high SC and ST population and they had also active interest in the programme. There were 497 numbers of SHGs and UGs consisting of male and female in all the watersheds. Kadamdunguri watershed of Madan Rampur block had highest numbers of SHGs and UGs (56 nos.) followed by Sripali (52 nos.) and Dengsargi (43 nos.) watersheds. Minimum numbers of SHGs and UGs were found in Gopalpur and Sikerkupa and Raj Khandual watersheds. It was reported that some of the women SHGs had been engaged in vegetable marketing, tailoring, preparation of spice powder, black gram products like noodles and cakes (Badi and Pampad) making, poultry farming, mushroom cultivation and preservation of fruits and vegetables. They also noted that the SHG of Goudtala had taken interest in pisciculture. It was ascertained that most of the SHGs and UGs had strong linkage with financial institutions for taking loan for their enterprises. It is observed from the performance reports of SHGs that most of the SHGs were in the path of prosperity due to proper management and rotation of revolving funds.

Table 1 Peoples' participation in ACA Watershed under RLTAP of Kalahandi district

Block	Name of watershed	Women representative (%)	SC/ST representative (%)	Constitution of SHGs / UGs (No.)
Bhawanipatna	Sardhapur	53	42	27
	Dorapadar	57	39	36
Kesinga	Kundabandha	30	30	37
	Gaudtola	30	30	35
Narla	Sripali	30	30	52
	Dengsargi	25	25	43
M. Rampur	Podagudi	30	30	33
	Kadamdunguri	30	40	56
Lanjigarh	Gopalpur	25	70	12
	Sikerkupa	25	60	10
Th. Rampur	Raj Khandual	30	90	10
	Maa Manikeswari	30	90	13
Koksara	Bangomunda	30	80	23
	Badpodaguda	30	70	29
Golamunda	Siva Shakti	30	30	35
	Bordi – Kuhura	30	30	28
	Total	**515**	**786**	**479**
	Average	**32.19**	**49.13**	**29.94**

Previously, SHGs and UGs were not so capacious for self-sustenance due to their inadequate capacity building and exposure visit. Therefore, adequate number of trainings and exposure visits of stakeholders of the watershed were arranged by PIAs and WDTs on package of practices for fruit and vegetable cultivation and their value addition, apiculture, poultry farming, goat and sheep rearing, mushroom cultivation and pisciculture. After a series of trainings and exposure visits, the stakeholders showed high degree of interest for opening up of an enterprise in which he or she had been trained. The capacity of women of the watershed belonging to SHGs was also built up through the above activities. The capacity of the SHGs was built up in such a way that they utilized the funds efficiently for the developmental work of the watersheds and also they did not compromise with the quality of works and their timely completion. In a few number of watersheds though the SHGs were efficient, but they did not complete the different developmental works due to irregular fund release.

As far as afforestation works are concerned, major plantations of acacia, amla, gamhari, bamboo, subabul, chakunda, karanja, simaruba and teak had been taken up nicely in community land and fruit plants like cashew, mango and some forest species in private lands. It was observed that the plantation work was finished in almost all the watersheds in scheduled time. The survival rate of forest and horticultural plants was found to vary from 50 to 95%, which indicated good effort of stakeholders. Water resources development was made in each watershed through dug wells, farm ponds, percolation tanks and check dams and recharging of ground water, which helped the people to grow 2 to 3 crops in a year (Table 2).

The stakeholders had good rapport with PIA, WDT members and higher officials at the block level. It was found from report that the PIA and WDT members were very happy with them for their co-operation, performance of SHGs and UGs and meaningful involvement for a particular activity in watershed. The labour migration reduced to 7% from a maximum of 50% due to successful implementation of watershed activities (Table 3). No doubt it is one of the important indicators for overall watershed development. The reason is that most of the labourers were getting enough employment due to different watershed activities, facilities created for growing second crop and other allied agricultural activities during the period under report.

Table 2 Water resources development and afforestation in ACA watersheds of Kalahandi district after 2 years of implementation

Name of watershed	Increase in ground water levels (m)	Dug wells rejuvenated (nos.)	Additional dug wells (nos.)	Farm ponds (Nos)	Percolation tanks (Nos)	Check dams (Nos)	No of seedlings planted	
							Private land	Common land
Sardhapur	1.5	17	15	13	2	5	41600	24000
Dorapadar	1.8	38	23	22	2	7	18800	15360
Kundabandha	1.0	-	5	0	3	2	4500	4500
Gaudtola	0.9	10	5	1	1	0	50000	50000
Sripali	0.15	6	-	1	2	5	-	32000
Dengsargi	0.20	2	-	4	2	3	-	34000
Podagudi	2.1	2	10	20	6	0	-	10000
Kadamdunguri	2.6	6	11	40	5	11	-	10500
Gopalpur	1.0	2	-	0	0	0	16000	-
Sikerkupa	1.0	-	2	0	0	0	-	-
Raj Khandual	1.2	1	2	0	0	0	16000	-
Maa Manikeswari	3.0	5	10	0	0	0	24500	-
Bangomunda	1.6	2	4	1	3	0	21000	-
Badpodaguda	1.8	-	3	0	1	0	15350	33240
Siva Shakti	2.2	6	6	0	2	0	23500	35600
Bordi – Kuhura	2.1	3	5	0	0	0	11400	17350
Total	**24.15**	**100**	**101**	**102**	**29**	**33**	**242650**	**266550**
Average	**1.51**	**7.69**	**7.77**	**6.38**	**1.81**	**2.06**	**22059.09**	**24231.82**

Table 3 Sustainability status of stakeholders in ACA watersheds of Kalahandi district

Block	Name of watershed	Percentage benefited from training and film show	Percentage benefited from exposure visit	Labour migration (%)	Farmers benefited (nos.)
Bhawanipatna	Sardhapur	60	90	10	172
	Dorapadar	50	95	10	180
Kesinga	Kundabandha	70	90	0	411
	Gaudtola	50	80	0	402
Narla	Sripali	40	70	1	100
	Dengsargi	40	80	1	120
M. Rampur	Podagudi	50	60	0	210
	Kadamdunguri	40	50	0	215
Lanjigarh	Gopalpur	30	50	0	20
	Sikerkupa	60	40	12	25
Th. Rampur	Raj Khandual	40	60	0	100
	Maa Manikeswari	35	40	0	41
Koksara	Bangomunda	40	30	50	252
	Badpodaguda	30	40	50	175
Golamunda	Siva Shakti	60	80	3	180
	Bordi – Kuhura	70	90	3	187
	Total	**765**	**1045**	**140**	**2790**
	Average	**47.81**	**65.31**	**8.75**	**174.38**

Strong impact of training and exposure visits was found to be reflected in activities like soil and moisture conservation measures, water harvesting measures, silvipasture development, well convergence of different programmes running in watershed, reduction in migration, improvement in ground water table, eradication of drinking water problems, livestock development, assets created and their proper maintenance etc. It was also observed that the purchasing and repaying capacity of the SHGs and UGs had been enhanced as evident from base line survey data.

Conclusion

From the study, women representation and their empowerment were found to be very encouraging in the watershed development programme. The people's participation was found to be 100% in almost all the watersheds and they were actively involved in the process of planning, decision making, rapport development, site selection and execution of works for holistic development of the watersheds. There was significant development of water resources through different techniques, which became possible due to active participation of village communities. When development was made

in different areas, its impact was found on reduction of labour migration, increase in employment generation and finally improvement of their socio-economic status through their many fold earnings as compared to the pre-project period. The trainings, demonstrations and exposure visits built the capacity of the village community to make significant and sustainable development in agriculture and allied activities. On an average, 174 families per watershed had been found to be benefited from the watershed development projects.

References

Govt. of India. 2008. Common Guidelines for Watershed Development Projects.

Madhu, M., Chand, S., Sikka, A.K., Jeevarathanam, K., Selvi, V., Singh, D.V., Ragupathy, R. and Sundarambal, P. 2004. Impact of IWDP Salaiyur Watershed in Coimbatore District, Tamil Nadu. Paper presented in a National Seminar on Impact Assessment of Watershed Development Conceptual and Methodological Issues: 34-26.

Paul Bhaskar J., Pankaj, L. and Pankaj, Y.2014. Impacts of integrated watershed management program in some tribal areas of India, J. Environ. Res. Develop., Vol. 8 (04): 1005-1015.

Sahu, A. P. and Pattnaik, A. K. 2009. Mid-term evaluation report of ACA watersheds of Kalahandi, Odisha, India.

Sasikala, R., Thangaraja, K. and Rajasekaran, R. 2013. Mid-term evaluation of IWDP-III batch watersheds in Dharampur district, Tamilnadu, India. International Jr. of Science, Environment and Technology, Vol.2 (6): 1107-1115.

Singh, Prem, Behera, H. C. and Singh, Aradhana.2010. Impact and Effectiveness of Watershed Development Programmes in India (Review and Analysis Based on the Studies Conducted by Various Government Agencies and Other Organizations).

Adoption of Sugarcane Cultivation Practices by the Farmer Under Contract Farming in Odisha

Sangram Paramaguru[1], R.S. Panigrahi[2] , Mrs.Jyotirmayee Udgata[3] and Tribijayi Badjena

[1]SMS(Agril. Extension) Krishi Vigyan Kendra, Puri, O.U.A.T , [2]Asso. Professor , Dept.of Extension Education, O.U.A.T, Bhubaneswar ,[3]SMS (Home Sc.), Krishi Vigyan Kendra, Nayagarh O.U.A.T, Bhubaneswar and [4]SMS(Agril. Extension) Krishi Vigyan Kendra, Nayagarh, O.U.A.T, Bhubaneswar

ABSTRACT

Adoption of recommended practices are very much essential for quality and quantity of production under contract farming. The study conducted with 240 sugarcane growers under contract farming in Dhenkanal and Khurdha district of Odisha revealed that considerable adoption gaps were observed on maintenance of optimum plant population, recommended fertilizers and manure, post harvest management, herbicide application, water management and proper planting. Medium adoption level was also observed on various management practices. The study therefore suggested for further exposure of the respondents towards developing knowledge and skill competency on adoption of recommended practices for increase in quality production and continuance of the contract farming in sugarcane cultivation.

Key words: Contract farming, knowledge, adoption, sugarcane cultivation

Contract farming has made an impressive inkling in the minds and thoughts of policy makers, development planners and extension as well as sustainable development researchers as a mechanism to build of linkages between farmers and agribusiness firms. It has a huge potential to be a catalyst to overcome poverty and unemployment. Contract farming appears as a blessing for the farmers since all the inputs along with technical know-how provided by the contracting firms. There is also a guarantee for purchase of the produce with pre-agreed price. Therefore, it is win-win situation for both the contracting firms and contracted growers.

Contract farming in sugarcane cultivation has gained momentum in Odisha after establishment of sugar factories both at private and cooperative sector. Quality productions with desired quantity are the

ultimate goal of the contract farming. The growers should therefore adopt the recommended practices for obtaining desired production with quality parameters. A study has therefore designed to assess the extent of adoption of practices in sugarcane cultivation under contract farming.

Methodology

The study was undertaken in Dhenkanal and Khurdha districts of Odisha during 2012. Sakthi Sugar Ltd., Dhenkanal and Nayagarh Sugar Complex Ltd., Nayagarh are enrolling sugarcane growers under contract farming system. A sample of 120 sugarcane growers from two blocks of each district under contract farming were selected randomly as the respondents with total sample size of 240. The data were collected personally with a semi-structured schedule being pre-tested earlier. Appropriate statistical tools were employed to reveal the results.

Results and Discussion

Sugarcane is traditionally grown in Dhenkanal and Khurdha district. Sugarcane cultivation under contract farming has been introduced by Sakthi Sugar Ltd. in Dhenkanal district and Nayagarh Sugar Complex Ltd. in Khurdha district since last 15 years. The findings revealed (Table-1) that only 12.91% of the respondents were growing sugarcane since last three years. Majority of 58.76 % of the respondents were growing sugarcane since last 10 years and more. It indicates that the respondents had rich experience in sugarcane cultivation.

Table –1: Year of cultivating sugarcane

Sl. No.	Year	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		F	%	F	%	F	%
1.	Last year	6	5.00	2	1.67	8	3.33
2.	Last three years	17	14.16	6	5.00	23	9.58
3.	Last Seven years	35	29.17	33	27.50	68	28.33
4.	Last ten years	24	20.00	37	30.83	61	25.43
5.	More than ten years	38	31.67	42	35.00	80	33.33

Sugarcane is one of the major cash crops in these districts. Besides; marketing of the produce with remunerative price are ensured through contract farming. It has been observed that (Table-2) only 25.41% of the respondents were

Table –2: Extent of area covered under sugarcane crop

Sl. No.	Area (ha)	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		F	%	F	%	F	%
1.	Up to 0.20	8	6.66	12	10.00	20	8.33
2.	0.21 to 0.40	21	17.50	20	16.67	41	17.08
3.	0.41 to 0.60	23	19.17	28	23.33	51	21.25
4.	0.61 to 0.80	18	15.00	22	18.33	40	16.67
5.	0.81 to 1.0	23	19.17	20	16.67	43	17.92
6.	Above 1.0	27	22.50	18	15.00	45	18.75

cultivating sugarcane within 0.40 ha. land . Remaining 74.59% of the respondents were cultivating sugarcane in more than 0.40 ha out of which 18.75% of the respondents were cultivating in more than 1.0 ha. It indicates the affinity of the farmers towards in sugarcane cultivation under contract farming.

Regarding land particulars of cultivating sugarcane, it is revealed from Table – 3 that 41.25% of the respondents each were cultivating sugarcane either in their own land or in both own and leased land. Moreover; 79.58% of the respondents were cultivating sugarcane individually which confirms the benefits of the sugarcane cultivation under contract farming.

Table – 3: Land situations for cultivating sugarcane

Sl. No.	Situation	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		F	%	F	%	F	%
1.	Own land	35	29.17	64	53.33	99	41.25
2.	Leased Land	24	20.00	18	15.00	42	17.50
3.	Both own and leased land	61	50.83	38	31.67	99	41.25
4.	Individually	87	72.50	104	86.67	191	79.58
5.	Jointly with other farmers	33	27.50	16	13.33	49	20.42

Contract farming perhaps, the only way to make small farming competitive by enabling small farmers for their access to technology, credit, marketing channel and information while lowering transaction costs. The responses received from the respondents on scale point of better than, same and less than other crops revealed that Table – 4 the respondents had prioritized equitability , profitability , relative

Table-4: Benefits of sugarcane cultivation

Sl. No.	Benefit	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		Mean Score	Rank	Mean score	Rank	Mean score	Rank
1.	Relative advantage	2.49	I	2.30	V	2.40	III
2.	Compatibility	1.84	VIII	2.05	VIII	1.95	VII
3.	Simplicity	1.48	IX	2.09	VII	1.79	IX
4.	Profitability	2.38	IV	2.43	II	2.41	II
5.	Stability	2.45	II	2.31	IV	2.38	IV
6.	Sustainability	2.37	V	1.65	X	2.01	VI
7.	Divisibility	1.88	VII	1.82	IX	1.85	VIII
8.	Observability	2.30	VI	2.39	III	2.35	V
9.	Predictability	2.40	III	2.29	VI	2.35	V
10.	Equitability	2.40	III	2.49	I	2.45	I

(Maximum obtainable score – 3)

advantage, stability, observability, predictability and sustainability of the sugarcane crop in comparison to other crops grown. It indicates the advance of cultivating sugarcane in comparison to other crops.

Sugarcane is a long duration crop. Proper management practices are required for desired production with quality parameters required by the contracting firms. The respondents were asked to opine the important practices in sugarcane cultivation. The data collected on scale point of most important, important, least important and not important were analyzed with score value of 4, 3, 2 and 1 respectively. As observed from Table – 5 the respondents had stated that irrigation, seed cane

Table – 5: Important practices in sugarcane cultivation

Sl. No.	Practice	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		Mean Score	Rank	Mean score	Rank	Mean score	Rank
1.	Land preparation	2.43	VIII	3.38	III	2.91	VII
2.	Seed cane selection	3.69	I	3.34	IV	3.52	II
3.	Seed cane treatment	3.55	III	2.90	VIII	3.23	IV
4.	Fertilisers and manure	3.32	IV	3.13	VI	3.23	IV
5.	Irrigation	3.59	II	3.55	II	3.57	I
6.	Intercultural operation	2.88	VII	3.03	VII	2.96	VI
7.	Diseases and pest management	3.13	VI	3.22	V	3.18	V
8.	Harvesting and post harvesting	3.28	V	3.73	I	3.51	III

(Maximum obtainable score – 4)

selection, timely harvesting and post harvest management, seed cane treatment, application of fertilizers and manures, disease and pest management were the important practices in sugarcane cultivation. It indicates that the respondents had good knowledge about sugarcane cultivation.

Regarding adoption of practices, it is observed from Table – 6 that better adoption were observed on good variety, use of implements particularly tractor for land preparation and sprayer, plant protection measures, earthing up, tying, proper time of harvest and seed cane treatment. Considerable percentage of gaps observed on maintenance of optimum plant population, use of recommended fertilizers and manures, herbicide application, water management, post harvest management and proper planting required further exposure to develop knowledge and skill competency.

Table – 6: Adoption of practices on sugarcane cultivation

Sl. No.	Practice	Dhenkanal district (n=120)		Khurdha district (n=120)		Total (n=240)	
		Mean Score	Gap (%)	Mean score	Gap (%)	Mean score	Gap (%)
1.	Use of implements	2.77	7.67	2.65	11.67	2.71	9.67
2.	Good variety	2.73	9.67	2.73	9.67	2.73	9.67
3.	Seed cane treatment	2.63	12.33	2.55	15.00	2.59	13.67
4.	Proper planting	2.58	14.00	2.28	24.00	2.43	19.00
5.	Optimum plant population	2.27	24.33	2.19	27.00	2.23	25.67

6.	Recommended fertiliser and manure	2.19	27.00	2.37	21.00	2.28	24.00
7.	Plant protection measure	2.76	8.00	2.67	11.00	2.72	9.33
8.	Herbicide application	2.23	25.67	1.88	37.33	2.06	31.33
9.	Water management	2.63	12.33	2.10	30.00	2.37	21.00
10.	Earthing up	2.87	4.33	2.73	9.00	2.80	6.67
11.	Tying	2.69	10.33	2.53	15.67	2.61	13.00
12.	Proper time of harvest	2.48	17.33	2.52	16.00	2.50	16.67
13.	Post harvest management	2.08	30.67	2.27	24.33	2.18	27.33

(Maximum obtainable score – 3)

Adoption index analysis revealed that majority of the respondents had comparatively high adoption level on plant protection measures, tying and medium adoption level on other management aspects as mentioned in (Table-7). But, the analysis of data of both adoption of practices and adoption index found to be contradictory. It is therefore presumed that the respondents were not adopting recommended practices and suggested for further exposure.

Table – 7: Comparative adoption index on sugarcane cultivation (n=240)

Sl. No.	Adoption	Index Value							
		High		Medium		Semi-medium		Low	
		F	%	F	%	F	%	F	%
1.	Use of implements	12	5.00	180	75.00	48	20.00	-	-
2.	Good variety	-	-	240	100.00	-	-	-	-
3.	Seed cane treatment	-	-	240	100.00	-	-	-	-
4.	Proper planting method	108	45.00	132	55.00	-	-	-	-
5.	Optimum plant population	-	-	240	100.00	-	-	-	-
6.	Recommended fertilizer and manure	60	25.00	180	75.00	-	-	-	-
7.	Plant protection measures	228	95.00	12	85.00	-	-	-	-
8.	Herbicide application	84	35.00	156	65.00	-	-	-	-
9.	Water management	72	30.00	168	70.00	-	-	-	-
10.	Earthing up	72	30.00	168	70.00	-	-	-	-
11.	Tying	204	85.00	36	150.00	-	-	-	-
12.	Proper time of harvest	60	25.00	180	75.00	-	-	-	-
13.	Post harvest management	84	35.00	156	65.00	-	-	-	-

(High 0-25, Medium 26-50, Semi medium 51-75, Low 76-100)

Conclusion

Contract farming has the objective of desired quantity and quality production as demanded by the contracting firms. Adoption of recommended practices are very much essential for desired quantity of production with quality parameters. Though the respondents had good perception about sugarcane cultivation, considerable adoption gaps were observed on various management practices and particularly on maintenance of optimum plant population, use of recommended fertilizers and manures, post harvest management, herbicide application, water management and proper planting.

It is therefore suggested that the sponsoring firms have to analyze all these deficiencies and organize capacity building programmes to enrich the knowledge and skill competency of the sugarcane growers to adopt the recommended practices for desired quality and quantity of production ensuring continuance of sugarcane cultivation under contract farming.

Reference

Agila, R., Manoranjan, M. And Asokhan, M. (2008): A study on performance of contract farming in coleus, *Madras Agril. Journal* 95 *(1-6) : 248-249.*

Danson, A., (2004): strengthening farm agri-business linkage in Africa AGSF *Occasional paper 6, FAO, Rome.*

Guo, H., Jolly, R.W. and Zhu, J., (2005): Contract farming in China paper presented at the *15th Annual world Food Agribusiness symposium, IAMA, Chicago, June 25-26, 2005.*

Masakure, O. And Henson, S., (2005): Why do small scale producers choose to produce under contract , *World Development, 33 (10) : 1721-1733.*

Analysis of Agricultural Accidents for reducing health hazards

S K Mohanty, J N Mishra

AICRP on Ergonomics and Safety in Agriculture, College of Agricultural Engineering & Technology, Orissa University of Agriculture and Technology,, Bhubaneswar, India, 751003
Email: **esaouat@yahoo.com**

Abstract

Occupational accidents in agriculture and allied activities are the common problem all over the world. The craze for increasing productivity with small land, maintaining quickness and timeliness in field operation, gives path for agricultural mechanization and mismanagement leads to serious accidents. Entangle to body parts in the running machine, shock, electrocution, sunstroke are the major type of accident recorded. In rural areas the farmers are attacked by animal during watching of crop and headache, allergy due to pesticide poisoning share the good amount of accidents in agriculture.

Keywords : Analysis, Agricultural Accidents, Health hazards

Introduction

In India, there are about 200 million workers engaged in agricultural and allied activities. Now the mechanical power has emerged as boost for the farmers against the traditional agriculture. The mechanization of agriculture is not only cost effective but helps in increasing the productivity. Presently the number of agricultural machinery are about 150 million. The number of tractors has crossed 2 million mark. The farm mechanization has increased productivity and production of Indian farms, but on the other hand it has also increased casualties through agricultural accidents. Loss of human life has both loss to the family as well as financial loss to the nation. There are some studies carried out in India but their scope and applications are limited to a particular probe Odisha data.

Results of a survey carried out in three regions of Korea by Park et al. (1994) are reported. 300 units (Power tiller, tractor and combine harvesters) were selected for detailed study. The average annual frequency of accidents was 8.67 per 100 units for power tiller, 6.67 per 100 units from tractors and 6.33 per 100 units for combine harvesters.

Classification of accidents according to operating patterns, time of day, place and human as well as information on operator injury and machine damage recorded.

Verma et al. (1976) conducted a survey on thresher accidents in Punjab. According to them every year there were about 1,000 such accidents in the country. They reported that about 73%, 13% and 14% of the accidents were due to human factors, machine factors and crop and other factors, respectively. In these accidents, the right hand was injured in 66% of the cases, followed by left hand (17%) and fingers (8%). The survey also mentioned that 59% of the accident victims were hired labourers. Responding to the public uproar created due to these accidents, the Government of India enacted the "Dangerous Machines (Regulation) Bill – 1983" and made safe feeding chutes/feeding systems compulsory on power threshers. Mcknight (1984) conducted a comprehensive study analyzing U.S. data for the six-year period of 1975 to 1981 to determine the extent and characteristics of fatal accidents involving farm equipment. He reported 3,229 farm-equipment related deaths, 75% of which were due to tractors and 50% of the tractor related deaths were associated with overturns. Murphy (1990) reported that tractor related accidents accounted for one-third to one-half of all fatal farm injuries and 5 to 10% of total non-fatal injuries. He pointed out that there was a lack of sufficient and accurate data on tractor accidents and it restricted planning and implementation of proper safety programmes. Mohan and Patel (1992) estimated that the agricultural related activities caused about 5,000 to 10,000 deaths, 15,000 to 20,000 amputations and 150,000 to 200, 000 serious injuries every year in the states of Haryana, Punjab and Uttar Pradesh alone. Lehtola et al. (1994) analysed agricultural tractor related fatalities in lowa, USA between 1988 and 1992. 136 fatalities from 131 fatal incidents reported in lowa's news papers were used as data source. A study conducted by Mittal et al. (1996) in Punjab State (India) reported that about 47% of agricultural accidents were caused due to sprayers followed by tractors (25%), electric motors (14%), chaff cutters (8%) and threshers (6%). Out of the total of 36 accidents reported by them, 3 (8.3%) were fatal and 33 (91.7%) were non-fatal in nature. The accident incidence rate/1000 machines/ year was highest for tractors (23.7) followed by sprayers (15.5), electric motors (7.1), threshers (5.7) and chaff cutters (2.2).
Langley et al. (1997) studied the epidemiology of tractor incidents on New Zealand farms for the period 1981-1991 using data from three independent data files and reported that 18.6% of all fatal injuries occurring on farms were related to tractors, and 55% of deaths and 11% of hospitalizations were due to overturning of tractors. Death rate due to tractors accidents was 1 per 100,000 rural residents per year. Highest rate of fatal injuries was reported with the age group above 60 years. Causes and consequences of accidents and measures to present them are discussed. Meyer (1993) studied the clothing, ground condition, space availability, visibility and working method and equipment were considered together with proposal for improving ergonomic condition and safety. It can be seen that very limited information is available about the magnitude and causes of

accidents in agriculture and no study was conducted till now for the state of Orissa, which is highly acceptable to natural calamities. The objective of the study is to collect information about the occurance of agricultural accidents in Orissa for the last 6 years (1995-2000) occurred through the state and to study the actual cause of agricultural accidents.

Methodology

2.1 Collection from news papers

As it is not possible to survey 52,000 villages throughout the state, information on agricultural accidents were collected from 6 leading news papers published locally in Odisha. Those agricultural accidents actually recorded in the daily local papers were analysied.

2.2 Type of agricultural accidents

For each year the type and nature of agricultural accidents were recorded. For each accident recorded a team of staffs of AICRP on Ergonomics and Safety in Agriculture visited the site and collected the information from the actual site. Total 12 types of agricultural accidents were recorded from the six news papers for the last 6 years (1995-2000). The agricultural accidents occurred mainly from power operated machines like (Tractor, Power tiller, Rice Hauler, Power Thresher, Winnower), electrical machines, from animal attack (Bear, Elephant, snake etc.) and Sun stroke.

Results and Discussion

Agricultural accident data was collected from local news papers for the period 1995-2000 compiled and presented in Table-1 and Table-2. Agricultural accident data broadly classified into 12 categories. During the survey period 1470 fatal and 1662 non-fatal cases were recorded from sunstroke where during the year 1998 only significant number of cases were recorded. The number of male agricultural workers involved in this heatstroke was recorded to be 1031 and female agricultural worker were 439. Due to lack of precautionary measures and awareness many agricultural workers were affected in sunstroke. Total 322 number of agricultural worker were involved in tractors out of which 108 (33.5 per cent) were fatal and 214 (66.4 per cent) was non-fatal. 81 nos. of male agricultural workers were involved and 27 nos. of female agricultural workers were involved in the tractor accident. Entanglement of body parts and loose garment recorded 10 nos. accident from power tiller where 12 nos. workers were involved. Similar 23 numbers of cases were also recorded in case of rice hauler, thresher and winnower. Casual during pesticide spraying, storing, mishandling of sprayer, etc. were noticed in agricultural accident from pesticides. 41 cases of agricultural accident recorded in which 57 number agricultural workers were involved. Accidents from animal attack (crocodile/bee/elephant) of 60 numbers were recorded during this period. 69 cases of agricultural workers were involved in snake bite where 46 numbers were fatal and 23 were non-fatal.

Total 122 numbers of accidents from tractor and its drawn implements have been recorded during the period 1995-2000. During tractor accidents the number of fatal cases recorded

to be 53 and non fatal was 90. 79 number of male agricultural workers involved in these accidents. Collision from front and back was also recorded. These accidents were mainly due to high speed, overload, absence from back light/SMV symbol, etc in tractors. Major accidents were recorded during night time when the speedy moving vehicles crushed the tractor from the back, as there was no provision of back light at the rear of the tractor trailer. Falling from tractor while moving on village/farm road also recorded. Tractor sometimes came across with low level live electrical wires causing some accidents resulting fatal cases. Some tractor accidents were also recorded due to dashing with train while passing at unmanned train level crossing resulting a number of fatal cases. The major causes of tractor accidents were due to high speed, overloading, absence of rear light, poor maintenance, absence of battery as well as intoxication, inadequate rest, lack of proper training of tractor operators, etc.

Based on the information collected the following recommendations can be made for minimizing the accidents in agriculture.

1. Rotating parts of various prime movers and farm equipment should have proper guards.
2. Safety feeding chute or other safe feeding devices as specified in BIS standards should be provided in the case of thresher.
3. Installation of electric pump sets and motors need to be done in proper manner.
4. Rollover protective structure (ROPS) in tractor can help to reduce the death caused in tractor accident.
5. Provision of turning indicator should be made mandatory on tractor-trailor.
6. Each tractor-trailor should have SMV symbols with fluorescent colour at the rear trailor.
7. Design as well as modifications in tractors and other farm equipment are needed for easy and safe hitching of the equipment with the tractor.
8. Anti venom injections should be made available at all primary health centers as most of snake bites cases occur at farms or in rural areas.
9. Training should be organized for tractor operators at block levels for proper and safe operation of tractors and tractor equipment.
10. More number of awareness programmes should be conducted on proper and safe operation of sprayer and duster.
11. Publicity materials on safe use of various machines need to be prepared and circulated on a wider scale by the manufacturers.

Table No.1 Type and nature of agricultural accidents reported in newspapers published during 1995-2000

Sl No.	Source of accident	Nature of accident	No. of accidents	Total No. of workers affected	No. of accident victims					
					Number of Fatals			Number of Injuries		
					Male	Female	Total	Male	Female	Total
1	Tractor and Trailor	Over turning, collision fall, slip	122	322	81	27	108	184	30	214
2	Power tiller	Entanglement of body parts and loose garments	10	12	5	0	5	7	0	7
3	Rice Hauler	Entanglement of body parts and loose garments	9	10	2	0	2	6	2	8
4	Thresher / Winnower	Entanglement of body parts and loose garments	14	15	0	0	0	9	6	15
5	Electrical machine / live electric wire	Shock, Electrocution	9	12	6	0	6	6	0	6
6	Snake	Snake bite	69	69	30	16	46	14	9	23
7	Sun stroke	Heat	3126	3132	1031	439	1470	1169	493	1662
8	Thunder	Electrocution	113	226	123	48	171	65	30	95
9	Pesticides	Poisoning	41	57	18	11	29	13	15	28
10	Digging well	Fall	7	12	1	0	1	11	0	11
11	Crocodile/Bee/Elephant	Animal attack	60	124	41	15	56	49	19	68
12	Animal drawn implements	Collision / Fall	8	13	1	0	1	12	0	12
	Total		**3588**	**4004**	**1339**	**556**	**1895**	**1545**	**604**	**2149**

Table No.2 Type and nature of tractor accident reported in newspapers published during 1995-2000

Sl No.	Nature of accident	No. of accidents	Total number of workers affected	Number of fatals			Number of Injuries		
				Male	Female	Total	Male	Female	Total
1	Over turning	51	143	41	12	53	79	11	90
2	Collision face to face with other vehicles	34	106	29	5	34	64	8	72
3	Collision from back side by other vehicles	3	19	1	2	3	13	3	16
4	Hit by tractor	6	5	4	1	5	0	0	0
5	Falling from trailor	6	16	2	2	4	10	2	12
6	Loosening of hitch point	3	9	1	2	3	4	2	6
7	Falling in deep water / river	4	4	0	0	0	2	2	4
8	Collision of tractor with electric / telephone poles or houses	6	11	1	1	2	7	2	9
9	Collision of tractor with train at unmanned level crossing	4	4	2	2	4	0	0	0
10	Others	5	5	0	0	0	5	0	5
	Total	**122**	**322**	**81**	**27**	**108**	**184**	**30**	**214**

Reference

Langely, J. D,: Clarke, J. Marshall, S.W.; Cryer, P.C. and Alsop, J. 1997. Tractor fatalities and injury on New Zealand farms. Journal of Agricultural Safety and Health, 3 (4) : 237-251.

Lehotal, C.J.; Merley, S. J. and Melvin, S.W, 1994. A study of five years tractor related fatalities in lowa. Applied Engineering in Agriculture, 627-632.

Neter, E.; 1993. Prevention of accidents and work design with walking carrying, pulling and pushing in agriculture. Ergonomics and Safety 43 : 149-153.

McKnight, R.H., 1984. U.S. agricultural equipment fatalities, 1975-81 : Implications for injury control and health education. PH. D. diss., Johns Hopkins Univ., Baltimore, Md.

Mohan, Dinesh and Patel, Rajesh, 1992. Design of safer agricultural equipment : application of ergonomics and epidemiology. International Journal of Industrial Eegonomics, 10 : 301-309.

Murphy, D. J. 1990. Trends in 20 years of tractor accident statistics. ASAE Paper No.90-1639. St. Joseph, Mich.: ASAE.

Mittal, V. K.; Bhatia, B. S. and Ahuja, S.S., 1996. A study of the magnitude, causes and profile of victims of accidents with selected farm machines in Punjab. Final report of ICAR adhoc research project. Department of Farm Machinery and Power Engineering, Punjab Agricultural University, Ludhiana, India.

Verma, S.R.; Rawal, G.S. and Bhatia, B.S., 1976. Thresher accidents in Punjab during wheat threshing season of 1976. Department of Farm Machinery and Power Engineering, Punjab Agricultural University, Ludhiana, India.

KVK Training Programme and Constraints of the Tribal Farmers-An Overview

N. Bar[1], M. Mohaptra[2], S.R. Dash[3] and j udgatta[4]

SMS,Agril. Extension, KVK, Sambalpur 2-Programme Coordinator, KVK, Dhenkanal,SMS, Agril. Extension, KVK, Jagatsinghpur, SMS, Home Science, KVK, Nayagarh, OUAT, Bhubaneswar

ABSTRACT

The tribal communities are usually resources poor and having small farm production system. The training programmes designed by KVKs should be within their level of understanding and capability to use. The study conducted with 240 tribal farmers from KVK, Sundergarh, Nuapada and Keonjhar districts of Odisha revealed that the respondents had stated the constraints in planning, designing and conducting training by KVKs along with technological and economical aspects to use the technologies, skill prioritisation, developing appropriate lesson plan with proper duration, interactive approach and use of different methods have to followed in conducting training effectively. Emphasis should be given for vocational and entrepreneurial training with more of on-campus and farm women training. Liasoning may be made with credit institutions for financial support and district developmental departments for crop insurance, storage facilities for perishable produce and service centres for repairing of farm implements.

Key words: **Training, constraints, tribal farmers, technology, KVK**

Introduction

In view of the globalisation and economic liberalization of Indian economic, the approach to transfer of technology need to be further defined and emphasis to be given on small farm production system. The tribal communities are usually resource poor having small farm production system and essentially required food and economic security. Krishi Vigyan Kendra (KVK) functioning in all the 30 districts of Odisha are conducting training programmes regularly and more particularly to weaker communities to increase their knowledge and skill competency in adoption of the technologies. It has been realised that tribal farmers are not developing interest to take training at Krishi V igyan Kendras.

An attempt therefore made to assess the constraints of the tribal farmers in attending training organised by KVK in their district.

Materials and Methods

The study was conducted during 2012 in three KVKs i.e. Keonjhar, Sundargarh and Nuapada district dominated by tribals. A sample of 80 tribal

farmers and farm women from four gram panchayats of two blocks from each district attending training at KVKs during last five years as per the training register of KVK were selected randomly as per the respondents making total sample size 240. Constraints towards planning, designing, conducting training along with technological, economical, socio-psychological and institutional aspects were selected as the variables. The data collected personality from the respondents on scale point of strongly agree, agree, somewhat agree, least agree and disagree over the framed statements were analysed with score value of 4,3,2,1 and 0 respectively. Mean score, index value and covariance analysis were made to reveal the results.

Results and Discussion

Effective planning provides cooperative and coordinated efforts as well as facilitates sequential execution of tasks by reducing constraints. It has been observed fromtable-1 that the respondents of

Table –1: Constraints in planning training programmes **(N=240)**

Sl. No.	Constraint	Mean Score			Avg. Mean Score	Rank
		Keonjhar	Sundargarh	Nuapada		
1	Participatory approach not followed	3.50	3.45	3.35	3.43	I
2	Survey analysis not made	2.40	2.30	2.20	2.30	II
3	Need not properly assessed	1.95	1.90	1.85	1.90	III
4	Required arrangements not made	1.70	1.60	1.50	1.60	VI
5	Biasness in selecting trainees	1.50	1.40	1.45	1.45	VIII
6	Preference not given to the progressive farmers	1.70	1.65	1.60	1.65	V
7	Not assessing the capabilities of the trainees	1.55	1.45	1.50	1.50	VII
8	Not ensuring availability of inputs	1.85	1.80	1.75	1.80	IV

(Maximum obtainable score – 4)

all the districts had stated favourably for survey analysis, need assessment, making all arrangements, no biasness in selection of trainees, assessing the capabilities and ensuring availability of inputs while planning made by the scientists for conducting training. The only constraints stated for not following participatory approach may be followed by KVK scientists as interactive approach is the motto of KVK training.

Prioritization of activities to attained the training objectives, resources and facilities required and solutions for the expected constraints of the trainees are to be followed while designing KVK training programmes. As observed from table-2, the respondents of all the three

Table –2: Constraints in designing training

Sl. No.	Constraint	Mean Score			Avg. Mean Score	Rank
		Keonjhar	Sundargarh	Nuapada		
1	Skill prioritization not done	3.50	3.50	3.40	3.47	II
2	Lesson plan not properly developed	3.45	3.45	3.55	3.48	I
3	Teaching aids not design properly	1.80	1.75	1.80	1.78	VII
4	Audio-visuals not properly arranged	2.40	2.40	2.35	2.38	IV
5	Same teaching materials used repeatedly	2.10	2.10	2.15	2.12	VI
6	Duration not appropriately designed	3.45	3.50	3.40	3.45	III
7	No alternate arrangements in power failure	2.45	2.40	2.25	2.37	V

(Maximum obtainable score – 4)

districts had stated for skill prioritization not done, lesson plan not properly developed and duration not appropriately designing training programme for which the tribal people may not understand the technological message along with development of knowledge and skill competencies for use in their farm activities.

Many training programmes flounder due to poor implementation which usually reflected inadequate preparation. The scientists have to ensure that all arrangements are in order prior to conducting training. The data in table-3, indicated that the respondents had stated less skill and

Table 3: Constraints in conducting training programmes (N= 240)

Sl. No.	Constraint	Mean Score			Avg. Mean Score	Rank
		Keonjhar	Sundargarh	Nuapada		
1	Not linked with farmer's need	1.90	1.85	1.80	1.85	IX
2	Less skill and more knowledge	3.30	3.30	3.15	3.25	V
3	Content not feasible to field situation	1.60	1.50	1.55	1.55	X
4	Interactive approach not followed	3.55	3.40	3.35	3.43	I
5	Less emphasis on vocational training	3.25	3.40	3.55	3.40	II
6	Repetition of training to same trainees	1.95	1.90	1.85	1.90	VIII

7	Gap in lesson plan and farm reality	2.25	2.20	2.15	2.20	VI
8	Monotype approach looses interest	3.40	3.35	3.30	3.35	III
9	Less entrepreneurial training	3.25	3.40	3.35	3.33	IV
10	Not usually conducted timely	2.05	2.05	2.10	2.07	VII

(Maximum obtainable score – 4)

more knowledge, not following interactive approach, less entrepreneurial and vocational training as well as monotype approach looses interest. Training is usually skill oriented. Interactive methods accelerate involvement of the trainees for clear understanding. Emphasis should be given for long duration vocational and entrepreneurial training for all self employment. Suitable combinations of feeling methods are to break the monotony. The constraints expressed by the trainees are justified and need adequate preparation.

The tribal farmers are usually not acquainted with new technologies. Proper understanding and confidence on the suggested technologies may facilitate adoption. As observed from table-4, the respondents had stated for no follow-up action for further clarification, less on-campus training

Table - 4: Technological constraints faced by the respondents (N= 240)

Sl. No.	Constraint	Mean Score			Avg. Mean Score	Rank
		Keonjhar	Sundargarh	Nuapada		
1	Non-availability of required inputs	2.70	2.65	2.05	2.48	III
2	Complex technology not easily understood	2.25	2.20	2.90	2.48	III
3	Knowledge imparted for not immediate use	2.05	2.05	2.00	2.03	IV
4	No follow-up action for further clarification	3.45	3.55	3.40	3.47	I
5	Scientists not experienced	1.20	1.20	2.15	1.52	VII
6	Less on-campus training	3.25	3.30	3.50	3.35	II
7	Quality inputs not available locally	2.15	2.15	1.75	2.02	V
8	Absence of single window delivery system	2.05	2.00	1.25	1.77	VI

(Maximum obtainable score – 4)

as well as for farm women and no attempt to develop confidence on technologies. All these approaches are very much essential to change the mindset of the tribal people in adoption of technologies.

Tribal farmers are usually resource poor. They need financial support for adoption of technologies received from KVK training. The economical constraints expressed by the respondents (table-5) were

Table –5: Economical constraints of the respondents (N= 240)

Sl. No.	Constraint	Mean Score			Avg. Mean Score	Rank
		Keonjhar	Sundargarh	Nuapada		
1	High cost of technology	3.25	3.15	2.95	3.12	VI
2	Labour intensive technology	2.30	2.30	2.25	2.28	VIII
3	No capability for investment	3.40	3.40	3.30	3.37	V
4	Credit facilities not available easily	3.55	3.55	3.40	3.50	III
5	No financial support to purchase implements	3.50	3.50	3.35	3.45	IV
6	Difficulty in repairing implements locally	3.50	3.50	3.40	3.50	III
7	No minimum support price of the produce	2.45	2.35	2.30	2.37	VII
8	No storage facilities for perishable produce	4.00	4.00	3.85	3.95	I
9	Ignorance about crop insurance	3.55	3.55	3.50	3.53	II

(Maximum obtainable score – 4)

no capability to use recommended inputs, credit facilities not available easily, no financial support to purchase farm implements, difficulty in repairing implements locally, ignorance about crop insurance and no storage facilities for perishable produce. Though; all these economical constraints were in the domain of KVK, but liasoning maybe made with credit institutions for financial support and district developmental organisations for required infrastructure support considering the relevancy of the constraints in adoption of suggested technologies.

The index value analysed of the constraints (Table-6) revealed that the majority of the respondents had high level of economical constraints, semi-medium level of planning constraints and medium level of constraints of technological, designing and conducting training. Hence, the respondents had constraints in all the aspects.

Table-6:Index value analysis of the constraints **(N=240)**

Sl. No	Constraint	Index value							
		High		Semi medium		Medium		Low	
		F	%	F	%	F	%	F	%
1	Planning	0	0.00	92	38.33	148	61.67	0	0.00
2	Designing	28	11.67	148	61.67	64	26.67	0	0.00
3	Conducting	0	0.00	220	91.67	20	8.33	0	0.00
4	Technological	0	0.00	152	63.33	88	36.67	0	0.00
5	Economical	220	91.67	20	8.33	0	0.00	0	0.00
6	Socio-psychological	64	26.67	172	71.67	4	1.66	0	0.00
7	Institutional	0	0.00	172	71.67	68	28.33	0	0.00

(High 0-25, Semi medium 26-50, Medium 51-75, Low 76-100)

Conclusion

Findings of the study revealed that the respondents had stated very pertinent constraints in attending training at KVK and use of the technologies. The scientists of KVK have to prioritize skill, develop proper lesson plan with appropriate duration, interactive approach and use of different methods to break the monotony for conducting effective programmes. Emphasis should be given for vocational and entrepreneurial training with more of on-campus and farmwomen training. Liasoning may be made with credit institutions for financial support for adoption of the suggested technologies. Linkage may be developed with district developmental departments for crop insurance, storage facilities for perishable produce and service centres for repairing of farm implements. All these approaches may develop interest among the tribal people to adopt the technologies and bring good impact of KVK trainings for the development of tribal farmers.

References

Chhotopadhyay,A.2005: Women and entrepreneurship, Yojana, January, 2005:27

Kamala,T.S. and Raju,K. A.2003: Problem faced by farm women in managing enterprises, MANAGE, Extension Research Review, 4(1): 74-78

Sinha,A.2004: Rural women in dynamic of Agriculture and food security, july 2004:4

Suguna,B.2002: Strategy for empowerment of rural women, Social welfare, 46(5):3-6

Economics of Nutritional Management among Farm Households in West Garo Hills of Meghalaya

Lakshmi Dhar Hatai Assistant Professor (Agril. Economics), Department of Basic Science & Humanities, College of Home Science, Central Agricultural University, Sangsangre, Tura, Meghalaya- 794005. Email : ldhatai@yahoo.co.in.

Abstract

Adequate food is required for growth, development of an active and healthy life. An attempt has been made with the specific objectives to examine the consumption pattern of food and nutrition status, to estimate per capita per day levels of income, expenditure and nutrition in farm households and to identify the factors affecting nutrition aspects in selected farm households in West Garo Hills district of Meghalaya. A sample of 20 per cent of total households based on probability proportion to size (PPS) method was drawn from marginal (< 1 ha.), small (1-2 ha.), medium (2-4 ha.) and large (> 4 ha.) farms. A sample of 30 farm households was drawn for the study. The selected respondents were interviewed and primary data were collected through survey method. The findings of the study revealed that as the farm size increases, the percentage expenditure on cereals registered a declining trend. On marginal farms, the percentage expenditure on cereals was obtained to be 40.58 per cent which declined to 31.33 percent in large farms. Farm families were better in protein intake as they were able to compete with standard norms of protein requirement. Almost 70 per cent of the farm household respondents supported that rise in per capita income would directly lead to an increase in the nutrition level. The farm households responded favourably i.e., the better environment, sanitation and public health measures would enhance nutrition level. It is observed that factors affecting nutrition efficiency indicated that family per capita income, percentage of expenditure on purchased food and the level of education in farm households had significant contribution in enhancing nutrition standards. It is essential for adoption of a holistic action plan in order to achieve sustainable food and nutrition security at the micro level in West Garo Hills of Meghalaya.

Food always occupies the first place in the basic needs of all human being. Men need adequate food which consists of wide range of nutrients for growth, development and healthy life. It is important to examine empirically the level of food and nutritional security. Consumption pattern is considered as one of the important component that measures the standard of living of the community. It is direct and final use of goods and services in satisfying the wants of human beings. Increasing income is always accompanied by a change in the food basket. There is great variation noticed in consumer expenditure among different income groups in rural as well as in the urban areas because of difference in the purchasing power and also on account of the availability of some home raised products in the village. For instance, the proportionate expenditure on staples (cereals, grams, pulses) declined from 45 per cent to 44 per cent in rural India while the figure settled at 32 per cent of the total expenditure on food in urban India. Regional food consumption pattern depends mainly on the socio-economic and cultural conditions of each region. Indian diet in the entire region is heavily dominated by cereals – the main source of calories. Pulses seem to be the main source of protein. In empirical analysis of the economic aspects of nutrition management attention has been focused mainly on how nutrition levels are related to the levels of income or family assets, local expenditure and expenditure on food under different farm size and income groups to ensuring their food security. In nutrition management, balanced intake of protein and calorie play crucial role in proper growth and development of human body. Thus, the consumption behaviour and nutritional pattern of the farm households are bound to be different. The producer-consumer households are given more emphasis on the technological improvements for changes in production patterns on their farm to ensure food security. In the formulation of a policy to improve the nutritional condition of the Garo community, it is essential that actual amount and types of food consumed by different farm families to overcome the problems of food insecurity , the following objectives were selected for the study.

Objectives:

i) To identify the consumption pattern of food and nutrition status of selected farm households in the study area.

ii) To estimate per capita per day levels of income, expenditure and nutrition in farm households.

iii) To identify the factors affecting nutrition efficiency in selected farm households in the study area.

Methodology:

The present study was conducted purposively in the Tikirikilla block of West Garo Hills district in Meghalaya. Two villages (namely Bolonggitok and Boldam) of this block was selected at random for drawing sample for farm households. A sample of 20 per cent of total households based on probability proportion to size (PPS) method was drawn from marginal (< 1 ha.), small (1-2 ha.), medium (2-4 ha.) and large (> 4 ha.) farms. A sample of 30 farm households was drawn for the study. The selected respondents were interviewed and primary data were collected with the help of well structured questioners

especially prepared for the purpose, through survey method.

Regression Analysis:

In order to identify the factors affecting the nutrition management i. e. protein (gms) and calorie intake per head, per day household for farm household was separately regressed with the following Cobb-Douglas production function:

$$Y = a\ X_1^{b_1} \cdot X_2^{b_2} \cdot X_3^{b_3} \cdot X_4^{b_4} \cdot e^{u}$$

Where,

Y = Protein (gms) / calorie-intake per capita per day

X_1 = Net monthly income per household (Rs.)

X_2 = Percentage of expenditure on purchased food to the total expenditure on food

X_3 = Household size

X_4 = Education level

a = Constant term

b_1, b_2, b_3, b_4 = Regression coefficient of respective variables

e^{u} = Error term

Nutrition Efficiency:

A probe into the nutrition efficiency in terms of income spent and nutrients derived will be very useful in determining the rational nutrition policy both at macro and micro level. The efficiency of indices for protein and calorie intake was calculated based on the following formulae:

$$\text{Efficiency Index} = \frac{\text{Protein/calorie per rupee of existing diet}}{\text{Protein/calorie per rupee of least cost diet}} \times 100$$

Results and Discussion:

From table-1, it revealed that as the farm size increases, the percentage expenditures on cereals registered a declining trend. On marginal farms, the percentage expenditure on cereals was obtained to be 40.58 per cent which declined to 31.33 percent in large farms. It is seen that the percentage expenditure on other food item; such as vegetables and fruits, milk & milk products, sugar, jaggery, spices and other items increased with an increase in the farm size with few minor exceptions.

From table-2, it is observed that the per capita per day income level was estimated to be low for the farm households. The per capita per day income for farm households was Rs. 22.18. Similarly, the expenditure per capita per day estimated was Rs. 20.49. The nutritional status with respect to the protein and calorie intake in all farm households i.e. 59.34 gms and 2836.9 kcal of energy per capita per day, due to lack of awareness of nutritive diets and variation in the consumption pattern. The analytical findings showed that farm families were better in protein intake as they were able to compete with standard norms of protein requirement.

From table-3, it revealed that almost 70 per cent of the farm household respondents supported that rise in per capita income would directly lead to an increase in the nutrition level. No respondent was against this motion. However 30 per cent were neutral on this aspect. It is observed that there was lack of awareness in the farm households with respect to female education so far as

nutrition level is concerned. Farm households responded favourably i.e., the better environment, sanitation and public health measures would enhance nutrition level. It is suggested that 80 per cent of respondents were more concerned about the price fluctuations affecting nutrition level in farm households.

From table -4, it is clearly observed that factors affecting nutrition efficiency indicated that family per capita income, percentage of expenditure on purchased food and the level of education in farm households had significant contribution in enhancing nutrition standards. In case of farm households the regression coefficient obtained for these independent variables were 0.2546, 0.2894 and 0.9125 being significant for protein intake. Similarly, for calorie intake, the regression coefficients of these variables were obtained to be positive and statistically significant. The coefficient of multiple determinations (R^2) has been estimated to be 0.95 for protein intake incase of farm households. These values indicated that the proportion of variation in dependent variable (protein value) explained by the independent variables included in the model was found to be very high.

Conclusions:

On the basis of the empirical investigation, the measures suggested to improve the nutrition management and efficiency to ensure food and nutrition security in farm households. A relatively small family-size would lead to higher nutrition availability. The study has revealed that increase in total and per capita income in a family would enhance nutrition levels. An increase in income level would lead to diversification in the food baskets from cereals to other components of food items such as milk and milk products, fruits and vegetables, oils and fats etc. The level of education has a direct relevance with the nutritional standard of a family. Higher the level of education greater would be the nutrition efficiency. Rise in total and per capita income in a family would change the consumption pattern for better nutrition status. Increasing in total production, supply and redistribution of income will shift to food with higher protein and less calorie value. Food and nutrition schemes/ programmes being conducted by government and private agencies must be more effective and purposeful for all the people. Food and nutrition policies should be commodity and target group specific. Efforts should be taken in price stability over the seasonal fluctuation of the food commodity. Adoption of a holistic action plan to achieve sustainable food and nutrition security at the level of each individual should ensure physical, economic and environmental access to balanced diets, including safe drinking water, primary health and education so as to lead a healthy and productive life in study area.

Table 1 : Food Consumption of an average farm households bydifferent size groups (in rupees)

Item/Group	Farm Household			
	Marginal	**Small**	**Medium**	**Large**
Cereals	5383.72	8717.05	9846.00	15820.25
	(40.58)	(34.68)	(34.13)	(31.33)
Pulses	731.02	1020.50	1752.36	2650.00
	(5.51)	(4.06)	(6.07)	(5.25)
Vegetables and Fruits	1024.78	2482.50	2630.00	4575.80
	(7.73)	(9.88)	(9.12)	(9.06)
Milk and Milk products	1504.30	3526.85	4125.90	7212.50
	(11.34)	(14.03)	(14.30)	(14.28)
Oil and fat	1154.25	2156.78	2250.45	3875.60
	(8.70)	(8.58)	(7.80)	(7.67)
Non Veg.	245.12	686.75	859.68	1524.36
	(1.85)	(2.73)	(2.98)	(3.01)
Sugar, Jaggery and Beverages	785.45	1255.00	1725.48	3250.00
	(5.92)	(4.99)	(5.98)	(6.43)
Spices	360.00	582.90	658.75	1256.80
	(2.71)	(2.31)	(2.28)	(2.48)
Fuels and lightening	1126.35	2830.25	2950.75	4725.76
	(8.49)	(11.26)	(10.23)	(9.35)
Others	950.75	1874.36	2045.60	5602.00
	(7.17)	(7.45)	(7.09)	(11.09)
Total Expenditure	13265.74	25132.94	28844.97	50493.07
	(100.00)	(100.00)	(100.00)	(100.00)

(Figures in parentheses indicate percentage of total expenditure)

Table 2: Per capita per day nutrition status of an average farm household by size group

Group	Income (Rs.)	Expenditure (Rs.)	Protein Value (gms)	Calorie Value (Kcal)
A. Farm Household				
Marginal	15.42	14.78	51.62	2574.28
Small	20.76	19.42	56.18	2798.65
Medium	25.90	23.44	64.85	2887.12
Large	30.65	28.35	68.72	3087.54
All Farms	22.18	20.49	59.34	2836.9

Table 3 : Factors affecting nutrition level

Factors	No.of Respondents	Farm Household		
		Respondents in favour	Respondents not in favour	Respondents neutral
Rise in per capita income	30	21 (70)	-	9 (30)
Increase in income by women folk in the family	30	12 (40)	10 (33.33)	8 (26.67)
Female education	30	18 (60)	4 (13.33)	8 (26.67)
Increase in food output/ consumption level	30	17 (56.67)	6 (20)	7 (23.33)
Nutrition / food programmes conducted by the Government	30	12 (40)	5 (16.67)	13 (43.33)
Environmental health, sanitation and public health measures	30	24 (80)	-	6 (20)
Price effect on seasonal availability of fruits and vegetables	30	21 (70)	-	9 (30)
Price fluctuations	30	24 (80)	-	6 (20)

Table 4 : Factors Affecting Nutritional Aspects of Selected Farm Household.

Sl. No.	Parameters	Farm Household	
		Protein intake (Y_1)	Calorie intake (Y_2)
1	No. of observation	30	30
2	Intercept value(a)	1.5021	5.7142
3	Family per capita per day income (X_1)	0.2546***	0.1972***
		(0.0674)	(0.1178)
4	Percentage expenditure on purchased food (X_2)	0.2894**	0.2160**
		(0.0622)	(0.1141)
5	Family size (X_3)	-0.0867	-0.0946
		(0.0722)	(0.0718)
6	Education level (X_4)	0.9125***	0.9947***
		(0.1047)	(0.1086)
7	Coefficient of multiple determination (R^2)	0.95	0.95
8	F- Value	96.28***	98.75***

*** Significant at 1 per cent level, ** Significant at 5 per cent level , * Significant at 10 per cent level.(Figures in parentheses indicate standard errors)

References:

Jha, S. (1963), "Level of living in rural households", Indian Journal of Agricultural Economics, Vol. 18 (1): 321-329.

Rao, V. M. and R. S. Deshpandey (2002), "Food security in drought prone area, a study in Karnataka", Economic Political Weekly, Aug. 31-Sept. 6.

Sukhatme (1987), "Economics of Nutrition", Indian Journal of Agricultural Economics, Vol. 32, (3): 1-11.

Promotion of Kishan Variety of Sweet Potato through on Farm Trial in the Tribal Areas of Mayurbhanj

Sanghamitra Pattnaik, Manasi Bhol

KVK, Mayurbhanj, Odisha

Sweet Potato (*Ipomoea batatas*) is a starchy root crop. This herbaceous plant root is consumed after boiling or baking. Culled roots and vines are used as animal feed. The crop is very suitable in marginal soil with less input. It is fast growing and covers rapidly to prevent soil erosion. Sweet Potato is very nutritious as it has concentrations of 1.8mg of B-carotene, 23mg of vitamin-C and 4.50mg of Vitamin-E per 100gm fresh. Sweet Potato is grown in an area of 43,800 ha producing 4,12,680 t with a productivity of 9.4 t ha^{-1} in Odisha during 2011-12.

Mayurbhanj is the second highest sweet Potato growing district, in the state. In the district the crop is grown in an area of 3200 ha producing 31,570 t with a productivity of 9.8 t ha^{-1} during 2011-12. In order to increase the productivity of sweet potato, KVK, Mayurbhanj produced sweet potato vine cuttings of the variety Kisham in the nurseries after procuring planting materials from Regional Centre, CTCIR (ICAR), and conducted demonstrations in 13 multi location farmers field of Shyamakhunta, Suliapada, Badasahi Blocks during *kharif* 2013.

The present investigation was under taken to assess its effect on yield and economics of sweet potato particularly in Mayurbhanj district of Odisha.

Objective :

In this context, the pioneering work being undertaken by Krishi Vigyan Kendra District Mayurbhanj at the grass root level for the productivity enhancement through introduction of high yielding Kishan variety of sweet potato.

Methodology :

The study was conducted in 13 multi location farmers field of Shyamakhunta, Suliapada, Badasahi Blocks during *kharif* 2013 under rainfed ecosystem. The size of each demonstration plot was 0.03 ha. Ridge and furrow method of planting was followed. The

vine cuttings were planted in the soil from 27th September to 8th October, 2013 with both the ends exposed and the middle portion buried in the soil. 45cm height ridges were formed and ridge to ridge spacing is 90cm. Spacing from vine to vine is 20cm weeding was done in the early stage of cropping and subsequently it was not required. Fertilizer does of 80:60:80 kg N:P_2O_5:K_2O per ha was applied. Full phosphorous 1/3rd Nitrogenous and 1/3rd potash were given as basal and 1/3rd N1/3rd potash were given in 2 equal splits at 30 and 60 days after planting. There was no major pests and diseases in the field. The average maturity duration is 112days. The crop was harvested between 16-31 January 2014. One control plot was also kept by the side of the demonstration plot where farmer's practices was carried out. All the production technologies other than interventions were applied in similar manner both in demonstration and Farmers practices. Evaluation was made with focus group discussions, training programmes, personal visit and observations collected from individual farmers to assess the impact of technological interventions on productivity and yield economics. All the 13 farmers were involved in the evaluation process.

Results and discussions : The effects of demonstrations on selected technologies were studied in terms of changes in productivity and income. Detail observation on no of tubers/plant, tuber weight, tuber yield were recorded various technological interventions undertaken during *harif* 2013 have been reflected in Table-1.

Table -1 : Technological intervention and Farmer's practices on Sweet Potato.

Sl No	Component	Technological intervention	Farmers practice
1	Variety	Kishan	Local
2	Vine treatment	Vine dipping in 2 kg of Azospirilium per ha and soil application @10 kg/ha	No vine treatment
3	Fertilizer dose (CTCRI recommendation)	80:60:80 kg N:P_2O_5:K_2O per ha	120:40:150 kg N:P_2O_5:K_2O per ha
4	Maturity and Harvesting	111 to 114 days after planting	80-90 days after planting
5	Tuberskin	Red skinned	White skinned

Kishan variety of sweet potato (Red skinned) released by Regional Centre of CTCRI and Kerala Agricultural University have long elliptical tubers with purple skin and white flesh. It has production potentialities of 16 to 26 t/ha and of medium duration (110-120) type. For sweet potato production, vine dipping in 2kg of Azospirilium per ha and soil application @ 10 kg per ha recorded maximum sweet potato tuber yield. CTCRI

recommends a fertilizer dose of 80:60:80 kg $N:P_2O_5:K_2O$ per ha were applied. Full phosphatic fertilizer, 1/3rd Nitrogenous fertilizer and 1/3rd potash fertilizers were applied at the time of planting. Rest 1/3rd Nitrogen and 1/3rd potash applied 30 and 60 days after planting. Crop was irrigated in ten days interval looking to the moisture status of the soil. Proper drainage was maintained to overcome the rotting problem of the vine so also the tuber. These were the important interventions obtained through participatory discussion Other management practices followed in both demonstration and control plots were (Table-2) Seed rate, Sowing method, weed management and PP measures.

Table -2 : General Production and protection technologies applied.

Sl No	Technology	Specification
1	Spacing	90 x 20cm (45cm height ridges)
2	Vine planting	Cuttings are planted in the soil with both the ends exposed and the middle portion buried in the soil (Horizontal)
3	Weed Management	2(two) hand weedings followed by earthing up at 30 and 60 days after planting
4	Plant protection	Need base IPM measures to control sweet potato weevil (i.e. Treatment of vine cuttings in monocrotophos 0.05% solution for 10 minutes before planting & re-ridge the crop two months after planting)

The cuttings are planted in the soil with both the ends – exposed and the middle portion buried in the soil. Vines are also planted in an inclined position with half of its length buried in the soil. Horizontal planting has also resulted in higher plant survival and better development of root system. 45 cm height ridges formed with 90 cm apart was maintained and plant to plant spacing was 20cm. Two hand weeding followed by earthing up at 30 and 60 days after planting had been demonstrated. Need base chemical pesticides were sprayed. All these practices were sprayed. All these practices were followed both in demonstration and controlled plots considering other important production technologies. Sufficient moisture was available in the soil during maximum vegetative growth. However, a short term drought was supplemented by irrigation at 10days interval during the crop season. There was no major insect pest seen in the crop. Only sweet potato weevil infestation seen in some patches (10% infestation). The growth and yield attributes have been analysed and presented in Table-3.

Sl No	Interventions	No of tubers/plant	Diseases and pest incidence	Weight of tuber(gm)
1	Technological Intervention	2.5	Nil	81
2	Farmers practice	02	10%	73

Detail observations on no of tubers/plant tuber weight (gm) were recorded. As observed from Table-4, significant impact were observed on yield attributes.

Table-4 : Growth and yield attributes.

Sl No	Parameter	Kishan Technological intervention	Local Farmers practice	Increase (%)
1	No of tubers/plant	2.5	2.0	25.0%
2	Tuber weight	81	73	11.0%

In the demonstration, there was 66.66% increase in number of tubers per plant. Similarly there was increase of 45.83% in tuber weight. The result of yield attributes confirmed that high yielding kishan variety of sweet potato had significant impact in increasing productivity in sweet potato.

Further attempt has been made to analyze the economic impact of the demonstration. Results obtained during the period Kharif 2013 have been analyzed and observed from Table-5 that significant increase in yield were observed.

Table-5 : Results on the on farm trial.

Sl No	Farmers name	Area (ha)	Average yield (t/ha)		Increase in yield over Farmer's practice (%)
			Technological intervention	Farmer's practice	
1	Dinesh Kumar Singh	0.03	10.9	6.8	60.3
2	Dehury Singh	0.03	10.8	8.6	25.6
3	Baya Singh	0.03	9.8	8.4	16.7
4	Gura Singh	0.03	11.4	6.9	65.2
5	Ugrasen Dhada	0.03	10.9	8.2	32.9
6	Sudarshan Dhada	0.03	11.1	8.5	30.6
7	Pratap Ch. Behera	0.03	11.4	7.9	44.3
8	Srikanta Behera	0.03	9.9	8.2	20.7
9	Pradeep Ku Behera	0.03	11.4	7.5	52.0
10	Harish Ch Behera	0.03	11.4	8.2	39.0
11	Ch. Sapan Mohapatra	0.03	11.5	8.6	33.7
12	Prithiraj Soren	0.03	11.2	8.0	40.0
13	Jogeswar Soren	0.03	11.0	7.9	39.2
	Average	**0.04**	**11.0**	**8.0**	**37.5**

From the above table, it can be seen that the yield range was 9.8-11.5 t/ha and with an average yield of 11.0t/ha in the demonstration plot as compared to yield range 6.8-8.6t/ha with average yield of 8.0t/ha as Farmers practice one farmer namely Ch. Sapan Mohapatra, Angargadia village of Badasahi block has got highest yield of 11.5t/ha. However, the average yield increased by 37.5% in case of demonstrated plots as compared to average yield of local varieties of farmers practice.

Further attempt has been made to analyze the economic impact of the demonstration. The economic analysis, cost of cultivation, gross return, net return, B:C ratio of the demonstrated plot and farmers practice are given below in the Table-6.

Table -6 : Effect of Technology interventions on economics of sweet potato variety kishan and local races.

Economics	Sweet potato variety kishan	Sweet potato local races
Cost of cultivation (Rs/ha)	Rs. 26,000/-	Rs. 22,000/-
Gross Return (Rs/ha)	Rs. 88,000/-	Rs. 64,000/-
Net Return (Rs/ha)	Rs. 62,000/-	Rs. 42,000/-
Cost benefit ratio	1:3.38	1:2.90
Excess expenditure over farmers practice (Rs/ha)	Rs. 4,000/-	-
Effective gain (Rs/ha)	Rs. 24,000/-	-

*Sweet Potato farm gate sale price Rs 8/kg

The economic analysis presented in the Table-6 revealed that net return and cost benefit ratio was found better in Kishan variety of sweet potato. The net return and cost benefit ratio was found Rs. 62,000/- and 1:3.38 in the demonstration plots as compared to Rs. 42,000/- and 1:2.90 in the farmers practice respectively which indicate significant increase of inductivity of sweet potato.

The economic analysis presented in Table-6 revealed that maximum gain of Rs.24,000 was recorded in the introduction of technological intervention as compared to farmers practice.

The mean of yield attributes are no of tubers/ plant, tuber weight/gm recommended practice as compared to farmers practices. The enhancement yield of sweet potato was 37.5% more in recommended practices over farmer's practices. It was resulted consequently with farmers gain of additional profit in term of monetary value of Rs. 20,000/ha which is beneficial in their future life and improve the standard of living. The extension system have to assess the technological interventions through participatory approach, ensure availability of essential inputs, establish relationship with farmers and conduct demonstration with need based extension support so that farmers will develop confidence with the technology and continuously adopt this practice and increase production, productivity and income. Farmers preferred Kishan variety of sweet potato due to higher productivity and red skinned types 13 farmers in above three locations have already decided for up scaling of the area with Kishan variety in the next *kharif* season.

References :

M.Ndunchezhiyan and RS Misra, 2013, Tropical tuber crops Production and value addition, Livelihood Improvement through root & tuber crops, pp 5-9.

M.Ndunchezhiyan and RS Misra, 2013, Tropical tuber crops Production and value addition, Sweet potato, pp 10-17.

Odisha Agriculture Statistics 2011-12, Directorate of Agriculture & Food Production, Odisha, Bhubaneswar, District wise area, production & yield rate of Sweet Potato, pp 62.

Estimation of Group performance of the Members of Wash in Raghunathpur Block of Jagatsinghpur District

Bindushree Bishinni Bala[1], Bijaya kumar Mohanty[2]

Abstract

Unison of individual potentiality in the form of group capacity and dynamics has been unique while applied for creating income for livelihood and empowerment for women. A study on "Estimation of group performance of the members of the WSHG" conducted in Raghunathpur block of Jagatsinghpur district. The basic objective of a SHG is to develop a group into a well-managed Self Help Group which is based on the group performance like savings and thrift habits, internal lending, mutual agreement, planning and their involvement in different activities related to the group. The members should evolve rules and regulations, which are to be followed, after discussions with all the members for compliance in full.

Key words: WSHG, group performance, empowerment

Introduction

SHGs working on the principle of solidarity helps the poor to come together to pool their savings and asses credit facilities. Self help group by tapping social capital life trust and reciprocation helps in replacing physical collateral, a major hurdle faced by the poor in obtaining the formal credit. Then through the principles of joint liability and peer pressure, a SHG ensures front loan recovery from the members. In the process, a SHG helps the poor especially to establish their credit worthiness. Recent trends in group performance research have found that process gains as well as losses are possible, and both are frequently explained by situational and procedural contexts that differentially affect motivation and resource coordination.

The SHGs comprise very poor people who don't have access to formal financial institutions. They act as the forms for the members to provide space and support to each other. It also enables the numbers to learn to co-operate and work in a group environment. The SHGs provides savings mechanism, which suits the needs of the members. It also provides a cost effective

delivery mechanism for small credit to its members. The SHGs significantly contribute to the empowerment of poor women.

The SHG program is now more than a decade old. There is a need to explore: 1. To what extent SHG have helped poor women to get accessed to savings and credit. 2. To what extent the improved access to financial capital has contributed towards attaining goals like poverty elevation and women empowerment? 3. What are the challenges and constraints face by SHG in playing their expected roles?

Objective:

To study about the estimation of group performance of members of the WSHG.

Materials and methods:-

The study was conducted in Raghunathpur block of Jagatsinghpur district in which a total of 33 WSHGs were selected from 10 villages of 4 gram panchayats with the purpose of gathering information. The total numbers of 132 respondents were selected by random sampling method among the selected WSHG for study and were asked the questions according to the interview schedule prepared. Different characters related to the group performance like savings and thrift habits, internal lending, mutual agreement, planning and their involvement in different activities etc were studied for the selected group.

Results and Discussion-

In the light of the objectives set forth for this study, data were collected from the respondents and analyzed by using suitable analytical tools and techniques as indicated in the preceding chapter dealing with research methodology.

Table No.1-Distribution of respondents according to their group performance:

Slno.	Variables	Frequency			Percentage		
		High	Medium	Low	High	Medium	Low
1.	Savings and thrift	16	80	36	12.1	60.6	27.3
2.	Internal lending	16	100	16	12.1	75.8	12.1
3.	Mutual agreement	24	84	24	18.2	63.6	18.2
4.	Planning	0	108	24	0	81.8	18.2
5.	Involvement of women in farm activities	8	112	12	6.1	84.4	9.1
6.	preferred areas of training	56	60	16	42.4	45.5	12.1
7.	Frequency of meetings conducted	40	92	0	30.3	69.7	0
8.	Attendance in meeting	32	100	0	24.2	75.8	0
9.	Register Maintenance	132	0	0	100	0	0

Table No. 1 revealed that most of the respondents from the group were of medium category. Hence, their group performance needs to be developed to generate a favorable income for their living especially in savings and thrift habits, planning and their involvement in farm activities.

Table No.2.: Correlation study of socio economic variables with Group performance of the WSHG

SL.NO	Variables	r-value	T-value
1	Age	0.240**	0.006
2	Education	-0.387**	0.000
3	Age of respondent's husband	0.066	0.451
4	Education of respondent's husband	-0.284*	0.001
5	Marital status	0.000	0.000
6	Caste	0.017	0.845
7	Family type	-0.205?*	0.018
8	Family size	-0.126	0.149
9	Occupation	-0.162	0.064
10	Annual income	0.057	0.516
11	Social participation	-0.271*	0.002
12	Holding size	-0.344**	0.000
13	Material possessions	-0.006	0.947
14	Extension contact	0.075	0.392
15	Mass media exposure	-0.064	0.465
16	Cosmopoliteness	-0.060	0.497

As revealed from the table , age of respondent's husband, marital status, caste, family size, occupation, annual income, material possession, extension contact, mass media exposure and cosmopoliteness attributes of the respondents found to have no influence in accelerating group performance.

Similarly; education, education of respondent's husband, family size, family type, occupation, social participation, holding size, material possession and mass media exposure negatively influenced contributing significantly towards group dynamics effectiveness. At the same time, only age exhibited positive and significant influence in increasing the group performance of women self help groups.

The findings therefore conclude that age, education, education of respondent's husband, family size, family type, occupation, social participation, holding size, material possession mass media exposure and cosmopoliteness were the motivating factors for increasing the group performance of the women self help group.

Table No.3.: Multiple regression analysis of socio-economic variables on group performance of the WSHG

Co-efficient [a]						
		Unstandardized Coefficients		**Standardized Coefficients**		
Model		B	**Std. Error**	**Beta**	**t**	**Sig.**
		85.906	5.897		14.569	0.000
1	Age	-3.277	1.148	-.464	-2.855	0.005
2	Education	-3.858	0.623	-1.318	-6.197	0.000
3	Age of respondent's husband	-1.424	0.805	-0.191	-1.769	0.080
4	Education of respondent's husband	1.695	0.535	0.580	3.170	0.002
5	Marital status	0.000	0.000	0.000	0.000	0.000
6	Caste	0.334	0.278	0.115	1.201	0.232
7	Family type	-4.762	1.208	-0.655	-3.943	0.000
8	Family size	2.850	1.167	0.388	2.442	0.016
9	Occupation	-2.298	0.695	-0.316	-3.307	0.001
10	Income	-0.333	0.983	-0.035	-0.339	0.735
11	Social participation	0.762	0.910	0.099	0.838	0.404
12	Land holding size	-1.423	0.582	-0.329	-2.445	0.016
13	Material possession of family	0.938	0.406	0.224	2.312	0.023
14	Extension contact	1.843	0.568	0.317	3.242	0.002
15	Mass media exposure	-0.524	0.319	-0.177	-1.642	0.103
16	Cosmopoliteness	1.299	0.799	0.229	1.626	0.107
			R Square =0.464	**Adjusted R Square= 0.395**	**Std. Error of the Estimate = 2.838**	

(Predictors: (Constant), age, education, caste, family size, extension contact, occupation, social participation, material possession of the family, income, mass media exposure, cosmopoliteness)

The best fitted regression analysis could explain 46.4% of the total variance in influencing group performance. Among the fourteen variables, age, education, family type, occupation, holding size and extension contact exhibited significant influence on group performance of self help group members.

Conclusion-

It is concluded from the above results that, majority of the rural women in the selected SHGs falls under medium group performance category. Hence there is a need to develop their capacity by organizing effective motivational training programs and also to facilitate with entrepreneurial information and financial support to the rural women for earning their sustainable income. Awareness should be created about various credit facilities through SHGs. Different habits like savings and thrift, planning and involvement in farm activities of the group members needs to be emphasized to improve the group performance.

References

Kabeer,N.(2001) Conflict Over credits. Evaluating the empowerment potential of loan to women in rural Bangladesh, World development, NABARD, Mumbai.

Kumaran, N. P., 1997, Self-help groups – An alternative to institutional credit to the poor case

*study in Andhra Pradesh. Journal of Rural Development, Vol.**16**(3) : pp.515-530.*

Prita, M. P., 2001, A study on the performance of self-help groups in Dharwad district. M.Sc.

(Agri.) Thesis, University of Agricultural Sciences, Dharwad.

Puhazhendi and B, Jayaraman (1999): Rural credit delivery; performance and challenges before Banks, Economic and Political Weekly, Jan., pp.16-23.

*Snehalatha, M., 1994, A study on the impact of thrift and credit groups in improving the status of rural women. Journal of Research, Andhra Pradesh Agricultural University, Vol.**22**(2&3) : pp.179.*