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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. II, 2014

CONTENTS

Sl.	Research Paper	Author	Page
1.	Ethical Values of Management Leadership: An Analysis in relation to livelihood Management System	S. Panda[1] & Dr. C. Satapathy[2]	
2.	Assessment of Factors Affecting Adoption of Gram Production Technology	Prashant Sharma and[1] Diliep Kumar Chaturvedi[2]	
3.	Leadership Pattern of Panchayat Leaders in Rural Development in West Bengal	J K Das[1], Jayasree Datta[2] and Sankar Naskar[3]	
4.	Sources and Extension information utilization behavior among ginger growers	Krishnamurthy, A.T[1]. Nagesh[2] and Sathish.H.S[3]	
5.	Perceived impact of Impact of Climate change on rural livelihood systems	B. Mishra, S.S. Nanda, R. Mishra*	
6.	Preference of the tribals towards KVK training-An analysis	N. Bar[1] and S.P. Sangramsingh[2]	
7.	Modification and evaluation of a steel bullock cart for better rural transport	S. K. Swain, A. K. Dash, A. K. Mohapatra, M. K. Ghosal	
8.	The insect pest scenario in Finger millet (*Elusinecoracana*(L) Gaertn) and its role in food and nutritional security.	Arundhati Sasmal[1]; Hota. A. K[2], Mahapatra. P. M[3]	
9.	Role of Educational Climate Women Development	Dr. Gayatri Biswal	
10.	Impact assessment of technologies tested by KVK, Angul (Odisha) during 2001-2011	Niranjan Das	
11.	Women Empowerment and Sustainable Development through SHGs – A Study in Bhubaneswar City.	G. Joyti Rekaha, PG. Student , Dr. Gayatri Biswal,	
12.	Factors and Suggestions for Sustainability of Women Self Help Groups	*Pragatika Mishra, ** Gayatri Biswal	

13.	Perception and Reaction Of Women Agricultural Labourers towards their Development	Jyoti Nayak, P. K. Rout
14.	An Estimation of Demand, Supply Dynamics and Post-Harvest Losses of Onion in Odisha	Debasish Mishra[1] and HN Atibudhi[2]
15.	Parental Involvement and Nutritional Status of the Children of Agricultural Labourers	D. Pradhan[1]
16.	Health Status of Urban of Slum Children (3-5 yrs) A Study in Sikharchandi area, Khurda, Bhubaneswar	Anuragi Das* Chandrashree Lenka** Sasmita Behera**
17.	Decision-making Behaviour of Farm Families in Farming system Activities	*Smt. Shelly Dash, **Dr. N.C.Rath
18.	Involvement of Lodha women in developmental programmes in Odisha- An Overview	Mrs. M Bhol, Mrs. M. Mishra[2] and R.K. Raj[3]
19.	Farmers Response on Sugarcane production and Policy Recommendations: Evidence based on findings from village level study in Orissa	R.K. Rout and R.K. Mishra
20.	A Comparatives Study on Empowerment of Rural Women through SHGs Approach	Dr.L. Pradhan, M. P. Nayak & Dr. P.Das
21.	Knowledge Level of Tribals on Livelihood Generation Project in Odisha	*Himansu K. Mohapatra & **R. N Das

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Ethical Values of Management Leadership: An Analysis in relation to livelihood Management System

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Abstract

At present ethical values are searched at all levels. To be good leaders in professional line, one has to stick to principles of ethical values. The present study with a randomized sample of 50 from the departments of Agriculture, Animal Husbandry, Training institutes, NGO and Marketing organizations reveals that there is considerable gap in adherence to the principles of (i) respect to others (34%), (ii) serving to others (10%), (iii) justice to people and work (37.25%), (iv) honesty (50%), and (v) community building (47.50%). The sample in the scale of ethical values is found to be 25% as fully ethical while 28% unethical with other 48% in between. The study believes that ethical values in our society have been deteriorated and reflections are observed in development activities.

Key words: *Principles, ethic, development, unethical, ethical leadership*

Introduction:

Now we are in search of ethics in all spheres of livelihood system and living. Starting from home up to highest form of administrative levels people feel for the need of ethical values. The word ethics has its root in Greek word *'ethos'* which means customs, conduct or character. Ethic is connected with the kind of values and morals finds desirable or appropriate. In case of leadership the ethics are more visible and that too in development programs where welfare of general people is at the top priority and ethic is a must. In case of leadership it is concerned with nature of leaders and virtuousness. In any decision making process the ethic is reflected directly or indirectly. There are ethical theories that deal with the conduct of the leaders. These theories are of two kinds, theories that stress consequence of leader's action and rules and regulation that leaders should follow and conduct themselves. The scholars have established principles of ethical leaders in five important issues, like (i) respects others (ii) serves others (iii) shows justice (iv) manifests honesty and (v) builds community. These five pricip0les have grater relevance with developmental leadership who are in position of management. The present study keeping management of livelihood system in view attempted to analyze ethical attributes of

development leaders focusing mainly on agriculture and allied subjects. While conducting the study five selected developmental departments were taken into consideration like, department of agriculture, Training institutions, Animal husbandry, NGO and marketing organization.

Objectives of the Study:

The study was designed to examine ethical values of leaders engaged in livelihood system in general and the following objectives in particular.

1. To find out usages of ethical principles in practice with developmental organizations.
2. To classify the leaders on ethical values into high, moderate and low category

Review of Literature:

There have been a number studies on leadership but very few studies on ethical values of leaders. Many authors have examined leadership from situational points of view while on general aspects of leadership are not few. The influence dimension of leadership requires that the leaders to have an impact on lives of those being led. Burn (1978) argued that it is the important for leaders to engage themselves with followers and help them in their personal struggles regarding conflicting values. Graham (1991) stated that in addition to serving, the leaders have social responsibility to be concerned with the have -nots and to organize them as equal stakeholders in the life of the organizations. Heifetz (1994) was in opinion that leaders must use authority to mobilize people to face tough issues. The leaders provide a holding environment in which there is trust, nurturance and empathy. As stated by Carlson and Perrewe (1995) the values promoted by leaders have a significant impact on the values exhibited by the organizations. Gini (1998) revealed that all leaders have an agenda, a series of beliefs, proposals, values, ideas, and issues that they wish to put on the table. The ideas of leaders should be value based. In case of developmental activities relating to livelihood system the ethical values of leaders count much in mobilizing participation of the clients.

Materials and Methods:

The study was confined to examine ethical values of leaders involved in development programs. The development programs relating agriculture, animal husbandry, training institutions, NGO and marketing organizations were considered as domain of study. From these organizations, 50 well experienced field level personnel were selected @ of 10 each for the purpose of data collection. Te sample were explained to reveal true reaction about the superior persons without fear and favor as it is only academic exercise only. The respondents were interviewed through a structured interview schedule containing Perceived Leader Integrity Scale used by North house (2007) with little modification as per requirement of the situation. Besides five important principles of ethical theories namely, respect others, serve others, Give justice, Honesty and building of community were taken into consideration. The responses were scored assigning, 1, 2, 3 and 4 to the level of reaction like, Not at all, Barely, Somewhat and well respectively. The scores were analyzed to reveal the relevant findings.

Result & Discussion

I. Principles of Ethical leadership

The analysis was made to find out the reactions of the sample regarding ethical values of the leaders (superior officers) involved in agriculture, animal husbandry, training and capacity building, NGO and marketing organizations which are closely associated with livelihood of the farmers. The important five ethical principles were examined in the context of their use by the leaders monitoring the sub-ordinates to implement the livelihood programs.

(i). Respect others: Respecting others means clients, workers and those who are involved in the process as the common activities of development. In their studies Beauchemp and Bowie (1988) pointed that persons must be treated well to achieve success. Leaders who respect others also allow them to be creative and part of the program. Respect includes giving credence to others for ideas and confirming them as human beings. The leaders should nurture followers, clients' becoming aware of their needs, interest, values, purposes and integrating them into the ideas of the unit or team. The present study with 50 sample representing five important sectors dealing with livelihood system examined the principle of respecting others. The responses were recorded on a four point continuum.

Table: 1 The principle of respect for others (N=50)

Organization	Mean Score	Rank
1. Agriculture	2.70	I
2. Animal husbandry	2.64	II
3. Training institute	2.62	III
4. NGO	2.60	IV
5. Marketing organization	2.60	IV
Average	2.64	-
Gap (%)	34.00	-

In the matter of respecting to the ideas, feelings, behavior of co-workers and clients the leaders involved in agriculture ranked first followed by animal husbandry, training institutes and equally by NGO and marketing of respecting others. A gap of 34% was found between desirable and in reality in respecting others. In short, the principle of respecting others is found to be more than 60%.

(ii). Serving others:

The second important principle of ethical behavior is to serve others for which the unit is set up. Servicing others means monitoring, empowering, team building, and follower centered behavior. The leaders should work in ways to benefit others. The concept was operationalized as the degree to which leaders serve the clients and subordinates to benefit them as appropriate.

Table: 2 Service to others (N=50)

Organization	Score	Rank
1. Agriculture	2.56	III
2. Animal husbandry	2.52	IV
3. Training institute	2.60	II
4. NGO	2.86	I
5. Marketing organization	2.36	V
Average	3.60	-
Gap (%)	10.00	

As contained in table, in the matter of serving others as principle of ethical leadership NGO stands first followed by training institute, agriculture, animal husbandry and marketing organization. The gap is only 10% indicating that serving attitude has been greatly achieved by the all five departments where NGO being the first. The reason is that the entire mentioned department is meant to serve people and that too target is fixed for which gap is found to be only 10%.

(iii) Justice: Rationality in decision is the justice that leaders should go with. It is the fairness and justice that qualifies professional leaders. The leader has to deal equally to all concerned may be the subordinates or clients. No one should receive special treatment or special consideration except special situation. Justice implies equal share according to needs and equal opportunity. In the present study the justice has been conceptualized as the degree to which the professional leaders under survey do justice to all concerned with in developmental activities.

Table: 3 Justice to work and clients (N=50)

Organization	Score	Rank
1. Agriculture	2.68	II
2. Animal husbandry	2.26	IV
3. Training institute	3.16	I
4. NGO	2.32	III
5. Marketing organization	2.14	V
Average	2.51	-
Gap (%)	37.25	

Analysis reveals that in giving justice to team co-workers and clients Training Institutes ranks first followed by agriculture, NGO, animal husbandry and marketing organization. The training institutes being educational in nature the justice as considered under study excels all other four units in question. The gap is calculated to be 37.25% implying that justice as considered is found up to 62.75%.

(iv). Honesty: In sustainable development programs the position and role of honesty is attached with much more importance that too more in India. To be good leader one has to be honest. Just opposite, dishonesty is a form of lying, and a way of misrepresenting reality. Dalla Costa (1999) clearly stated that honesty means not to deceive or not to promise what cannot be fulfilled. It is also not to hide or suppress truth. The term honesty is conceived under the study is the degree to which the professional leaders are fair in money matter and dealing with co-workers and clients for whom the cell is established.

Table: 4 Honesty in money and dealing (N=50)

Organization	Score	Rank
1. Agriculture	1.92	IV
2. Animal husbandry	2.12	II
3. Training institute	2.20	I
4. NGO	1.76	V
5. Marketing organization	2.00	III
Average	2.00	-
Gap (%)	50.00	-

In the scale of honesty mainly dealing with money matter, client, not misrepresenting reality, not hiding truth, the training institution stands first followed by department of animal husbandry, marketing organization agriculture and NGO. The overall gap is 50% which implies that honesty under consideration is found up to 50% only.

(v). Building Community: Building community means developing a common goal of individuals and groups to serve the clients. The public and team goal should be the same. The professional leaders in agriculture, animal husbandry, NGO, capacity building and marketing organizations have to build strong community of theirs so that transfer of technology and their adoption becomes easier. The ethics of developing community was examined in the context of leadership ability.

Table: 5 Building Community (N=50)

Organization	Score	Rank
1. Agriculture	1.80	IV
2. Animal husbandry	2.08	III
3. Training institute	2.58	II
4. NGO	3.12	I
5. Marketing organization	1.76	V
Average	2.10	-
Gap (%)	47.50	

A look at the analysis reveals that in developing community in terms of making common goal with public, integrating individual goal to group goal and working on common goal NGO stands first followed by Training Institute, department of Agriculture, Animal husbandry and Marketing Organization. However the overall gap is observed to the tune of 47.50%.

II. Perceived Leader Integrity Scale: Integrity is related to the ethical aspect of leaders. The integrity indicates the ethical traits of leaders. In the present study the perceived integrity of leaders was examined applying the scale of Craig and Gustafson 1998 on a four point continuum like (i) All time ethical (ii) Barely unethical (iii) Somewhat unethical (iv) Never ethical. There are 30 statements negatively worded to record the response following score of, 1, 2, 3 and 4. The analysis based on assigning highest value to 1 and others accordingly the following results were obtained.

On the basis of score analysis the classification of the sample professional leaders was found to be as follows.

Table: 6 Classification of the leaders on ethical values

Range of Ethical Value	Number	% of total	Classification
1. All time ethical	12	24.00	High ethical leaders
2. Barely unethical	12	24.00	Medium leaders
3.Somewhat unethical	12	24.00	Medium level leaders
4. Never ethical	14	28.00	Low level leaders
Total	50	100.00	-

Conclusion:

Conclusion is that 24% of professional leaders covering department of agriculture, animal husbandry, training organizations, NGO and Marketing organizations are highly ethical leaders and 28% are never ethical or low in ethical scale. However, in between 48% are barely and somewhat un-ethical. The findings are location and organizational specific may not hold good for generalization.

There is considerable gap in following of principles of ethical leadership and ethical leaders are found to 24% only where as unethical leaders vary with levels and intensity.

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Assessment of Factors Affecting Adoption of Gram Production Technology

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ABSTRACT

The present study was investigating the factors affecting adoption of gram production technology. *The study on* factors affecting adoption of gram production technology *in* Datia *District.* Data were collected from gram growing farmers that were selected randomly from each selected 10 villages to make a sample size of 200 farmers, by using a structured questionnaire. The result of study indicated that the major constraints perceived by the respondents in adoption of improved gram production technology were - unavailability of HYV seeds, Difficult to follow IPM/ IDM, Lack of technical knowledge, lack of capital, Unavailability of organic manure , High cost of chemical fertilizers, insecticides, pesticides and other critical input, Lack of storage facilities, Unavailability of seed treatment chemicals and culture, Lack of irrigation facility and Non-availability of advanced agricultural information.

Keywords*: Socio-economic profile, Adoption, Constraints, Suggestions.*

Introduction

Gram is the major pulse crop of Madhya Pradesh. Gram is a suitable crop under change climate of semi-arid tropics grown mostly on depleted soil fertility, marginal and undulated land. It is grown in the areas receiving less rainfall as its water requirement is less as compared to other pulses. In Madhya Pradesh, it covers about 3.25 Million hectares with a production of 3.575 Million tones and productivity 1100 kg/ha. during 2012-13, whereas, in India the under gram is 8.7 Million hectare with a production and productivity of 8.88 Million tones and 1021 kg/ha, respectively. A wide gap exists between the available techniques and its actual application by the farmers which is reflected through poor yield in the farmer's field. There is a tremendous opportunity for increasing the production of Gram crop by adopting the improved technology. This study was conducted with a view that its results

may be useful to the extension workers, administrators and communication experts, researchers and planners who are engaged in generating and dissemination of improved gram production technology to the farmers. An attempt was made in this study to analyze those factors which would affect the adoption of improved gram production technology and to suggest the measures for formulating strategies to increase the adoption improved gram production technology along the growers. This will help the planners, policy makers, scientists and extension workers in understanding and devising appropriate measures to tackle the problems more efficiently. The study was exploratory in nature and was conducted in ten villages of Datia block of Datia District. The specific objectives are to:

1. To study the socio-economic profile of the gram growers / farmers.
2. To study the level of adoption of the gram growers regarding recommended gram production technology.
3. To determine the relationship between socio economic profile with level of adoption of gram production technology of gram growers.
4. To study the constraints experienced by the gram growers and suggestions given to overcome the problems.

Materials and Methods

The present study was undertaken in Datia district. There were 10 villages selected randomly. After the selection of the villages, a village wise list of the gram growing farmers from the selected 10 villages was prepared and 20 farmers from each village were randomly selected. Thus, the total sample comprised of 200 farmers spread over ten selected villages. The data were collected from primary sources only. Primary data was collected through the use of a structured questionnaire, copies of which were administered on the 200 farmers selected for the study. Data collected were qualitative as well as quantitative. The quantitative data were interpreted in terms of percentage and qualitative data were tabulated on the basis of categorization methods. After tabulation percentage, mean a fraction whose denomination is 100 and the numeration of the fraction is called percentage. For calculating percentage, frequency was multiplied by 100 and divided by total respondents.

Results and Discussion

Table 1 reveals that most of the respondents (49.00%) were belonging to middle age category. More than half of the respondents (57.50 %) were OBC category, higher percentage of respondents (34.00 %) were educated at high school level, majority of the respondents (51.00%) were found to medium social participation, maximum respondents were marginal size of land holding 45.50 per cent, most of respondents (47.50%) were from medium socio-economic status, majority of the respondent (59.00 %) were medium level of management orientation, maximum respondents (41.00 %) belong to medium economic motivation, maximum respondents belong to medium level of mass media exposure 39.00 per cent, more than half of the respondents (62.00%) were found medium level cosmopoliteness, majority of the respondent (54.00) were medium level of risk preference, higher percentage of the

respondents were medium level of innovativeness 59.50 per cent more than half of the respondents (64.50%) were found medium level Information seeking behaviour and favorable of attitude toward improved production technology 52.00 per cent.

Table 2 indicated that out of the total of 200 Gram growers, 66.00 per cent had complete adoption about the field preparation, while 34.00 per cent had partial adoption about the field preparation practices .Regarding improved varieties, 62.00 per cent had complete adoption, while 38.00 per cent respondents had partial adoption about the improved varieties. About the time of sowing, 81.00 per cent had complete adoption, while 19.00 percent respondents had partial adoption about the sowing time. In case of seed rate 68.00 per cent respondents had complete adoption, while 32.00 per cent respondents had partial adoption about the seed rate. Regarding seed treatment with fungicides, 44.00 per cent had complete adoption, while 56.00 per cent respondents had partial adoption about the seed treatment with fungicides. About seed treatment with culture, 36.00 per cent respondents had complete adoption, while 64.00 per cent respondents had partial adoption about the seed treatment with culture. In case of method of sowing, 61.00 per cent had complete adoption, while 39.00 per cent respondents had partial adoption about the method of sowing. About recommended row to row spacing, 59.00 per cent had complete adoption, while 41.00 per cent respondents had partial adoption about the recommended row to row spacing. In case of depth of sowing, 55.00 per cent respondents had complete adoption, while 45.00 per cent respondents had partial adoption about the depth of sowing. In case of recommended dose of chemical fertilizers, 41.00 per cent respondents had complete adoption, while 59.00 per cent had partial adoption about the recommended dose of chemical fertilizers. In case of use of bio fertilizers, 33.00 per cent respondents had complete adoption, while 67.00 per cent respondents had partial adoption about the use of bio fertilizers. About use of micro nutrients, 18.00 per cent had complete adoption, while 82.00 per cent respondents had partial adoption about the use of micro nutrients. Regarding irrigation management of gram, 45.00 per cent had complete adoption, while 55.00 per cent respondents had partial adoption about the irrigation management practices. About method of weed control in gram crop, 49.00 per cent had complete adoption, while 51.00 per cent respondents had partial adoption about the weed control practices. In the case of use of weedicides, 28.00 per cent respondents had complete adoption, while 72.00 per cent respondents had partial adoption about the weedicides. About integrated pest management in gram crop, 23.00 per cent had complete adoption, while 77.00 per cent respondents had partial adoption about the integrated pest management practices. About insect control in gram crop, 59.00 per cent had complete adoption, while 41.00 per cent respondents had partial adoption about insect control methods. About integrated disease management in gram crop, 22.00 per cent had complete adoption, while 78.00 per cent respondents had partial adoption about the integrated disease management practices. Regarding disease control, 42.00 per cent respondents had complete adoption, while

58.00 per cent respondents had partial adoption about the disease control practices.

The zero order correlation coefficient of characteristics of gram growers with their adoption of gram production technology is furnished in Table 3. it can be observed that correlation coefficients in respect of education(0.428), social participation(0.324), size of land holding(0.369), socio economic status(0.305), attitude towards improved production technology(0.307), management orientation(0.294), economic motivation (0.321), mass media exposure(0.296), cosmopoliteness(0.378), risk preference (0.324), innovativeness (0.317) and information seeking behaviour (0.374) were found highly significant at 0.001probability level with adoption of gram production technology while age (0.029) and caste(0.106) had non significant relationship with adoption of gram production technology.

During investigation, there were many reasons due to which the recommended production technologies could not be adopted on the farms as expressed by the gram growers. These factors were termed as constraints in this study. It was revealed from the Table 4 that out of total 100 gram growers, Unavailability of HYV seeds (70.00%), Difficult to follow IPM/ IDM (69.00%), Lack of technical knowledge (67.00%), Lack of capital (60.00%), Unavailability of organic manure (59.00%), High cost of fertilizers, insecticides, pesticides and other critical input (58.00%), Lack of storage facilities (52.00%), Unavailability of seed treatment chemicals and culture (50.00%), Lack of irrigation facility(48.00%) and Non-availability of advanced agricultural information (45.00%) were the major constraints felt by the gram growers.

Table 5 revealed the various suggestions provided by the gram growers in regard to the better adoption of the recommended gram production technology. The respondents suggested to increase their knowledge and adoption; HYV seed at the time of sowing should be made available (67.00%), Need based training programmes should be conducted (62.00%), Subsidy should be increased on plant protection chemicals and fertilizers(60.00%), Credit should be available in time (58.00%), Mass production and supply of organic manure should be made (55.00%), Chemical fertilizers pesticides and other critical input should made be available at required time with minimum cost (52.00%), Storage facilities should be made available at block level (51.00%), Seed treatment chemicals and culture should be easily available(50.00%), Irrigation facility should be available (45.00%) and Timely availability of advanced agricultural information (41.00%).

Conclusion

The various suggestions provided by the gram growers in regard to the better adoption of the recommended gram production technology were HYV seed at the time of sowing should be made available, need based training programmes should be conducted, subsidy should be increased on plant protection chemicals and fertilizers, Credit should be available in time, mass production and supply of organic manure should be made, Chemical fertilizers pesticides and other critical input should made be available at required time with minimum cost, storage

facilities should be made available at block level, seed treatment chemicals and culture should be easily available, Irrigation facility should be available and Timely availability of advanced agricultural information. The major constraints perceived by the respondents in adoptiaon of improved gram production technology were - Unavailability of HYV seeds, Difficult to follow IPM/ IDM, Lack of technical knowledge, Lack of capital, Unavailability of organic manure, High cost of fertilizers, insecticides, pesticides and other critical input, Lack of storage facilities, Unavailability of seed treatment chemicals and culture, Lack of irrigation facility and Non-availability of advanced agricultural information.

Table 1. Frequency distribution of respondents according to socio-economic profile of the gram growers

S.No.	Category	Frequency	%	Mean
1	**Age**			
	Young	33	16.50	0.41
	Middle	98	49.00	1.21
	Old	69	34.50	0.86
	Total	200	100.00	2.48
2	**Caste**			
	SC/ST	39	19.50	0.41
	OBC	115	57.50	1.20
	General	46	23.00	0.48
	Total	200	100.00	2.09
3	**Education level**			
	Illiterate	13	06.50	0.23
	Can only read (functionally literate)	17	08.50	0.30
	Primary school	24	12.00	0.42
	Middle school	54	27.00	0.94
	High School	68	34.00	1.19
	Above high school	24	12.00	0.42
	Total	200	100.00	3.50
4	**Social participation**			
	Low	27	13.50	0.36
	Medium	102	51.00	1.34
	High	71	35.50	0.94
	Total	200	100.00	2.64
5	**Size of land holding**			
	Marginal (<1 ha)	91	45.50	1.06
	Small (1-2 ha)	39	19.50	0.46
	Medium (2.1-5 ha)	39	19.50	0.46
	Large (>5 ha)	31	15.50	0.36
	Total	200	100.00	2.34

6	**Socio economic status**			
	Low	39	19.50	0.48
	Medium	95	47.50	1.17
	High	66	33.00	0.82
	Total	200	100.00	2.47
7	**Management orientation**			
	Low	57	28.50	0.53
	Medium	118	59.00	1.10
	High	25	12.50	0.23
	Total	200	100.00	1.86
8	**Economic motivation**			
	Low	44	22.00	0.58
	Medium	82	41.00	1.07
	High	74	37.00	0.97
	Total	200	100.00	2.62
9	**Mass media exposure**			
	Low	71	35.50	1.01
	Medium	78	39.00	1.11
	High	51	25.50	0.72
	Total	200	100.00	2.84
10	**Cosmopoliteness**			
	Low	53	26.50	0.50
	Medium	124	62.00	1.17
	High	23	11.50	0.22
	Total	200	100.00	1.89
11	**Risk preference**			
	Low	72	36.00	0.57
	Medium	108	54.00	0.86
	High	20	10.00	0.16
	Total	200	100.00	1.59
12	**Inovativeness**			
	Low	63	31.50	0.55
	Medium	119	59.50	1.04
	High	18	09.00	0.16
	Total	200	100.00	1.75
13	**Information seeking behaviour**			
	Low	49	24.50	0.45
	Medium	129	64.50	1.18
	High	22	11.00	0.20
	Total	200	100.00	1.83
14	**Attitude toward improved production technology**			
	Less favorable	53	26.50	0.51
	favorable	104	52.00	1.00
	More favorable	43	21.50	0.42
	Total	200	100.00	1.93

Table 2. Extent of adoption of the gram growers regarding recommended gram production technology

S. No.	Name of practices	Respondents	
		Complete adoption	Partial adoption
1.	Field preparation	132 (66.00)	68 (34.00)
2.	Improved varieties	124 (62.00)	76 (38.00)
3.	Time of sowing	162 (81.00)	38 (19.00)
4.	Seed rate	136 (68.00)	64 (32.00)
5.	Seed treatment with fungicides	88 (44.00)	112 (56.00)
6.	Seed treatment with culture	72 (36.00)	128 (64.00)
7.	Method of sowing	122 (61.00)	78 (39.00)
8.	Recommended row to row spacing	118 (59.00)	82 (41.00)
9.	Depth of sowing	110 (55.00)	90 (45.00)
10.	Recommended dose of chemical fertilizers	82 (41.00)	118 (59.00)
11.	Use of bio fertilizers	66 (33.00)	134 (67.00)
12.	Use of micro nutrients	36 (18.00)	164 (82.00)
13.	Irrigation management	90 (45.00)	110 (55.00)
14.	Methods of weed control	98 (49.00)	102 (51.00)
15.	Use of weedicides	56 (28.00)	144 (72.00)
16.	IPM	46 (23.00)	154 (77.00)
17.	Insect control	118 (59.00)	82 (41.00)
18.	IDM	44 (22.00)	156 (78.00)
19.	Disease control	84 (42.00)	116 (58.00)

Table 3 Relationship between social attributes of gram growers and their adoption

S. No.	Characteristics	Correlation coefficient 'r'	't' value
X_1	Age	0.029^{NS}	0.408
X_2	Education	0.428**	7.372
X_3	Caste	0.106^{NS}	1.508
X_4	Social participation	0.324**	5.093
X_5	Size of land holding	0.369**	6.010
X_6	Socio-economic status	0.305**	4.731
X_7	Attitude towards improved farm practices	0.307**	4.769
X_8	Management orientation	0.294**	4.528
X_9	Economic motivation	0.321**	5.035
X_{10}	Mass media exposure	0.296**	4.565
X_{11}	Cosmopoliteness	0.378**	6.205
X_{12}	Risk preference	0.324**	5.093
X_{13}	Innovativeness	0.317**	4.958
X_{14}	Information seeking behaviour	0.374**	6.118

Table 4. Constraints as reported by the gram growers in gram production

S. No.	Constraints	No. of respondents	%	Rank
1.	Unavailability of HYV seeds	140	70.00	I
2.	Difficult to follow IPM/ IDM	138	69.00	II
3.	Lack of technical knowledge	134	67.00	III
4.	Lack of capital	120	60.00	IV
5.	Unavailability of organic manure	118	59.00	V
6.	High cost of fertilizers, insecticides, pesticides and other critical input	116	58.00	VI
7.	Lack of storage facilities	104	52.00	VII
8.	Unavailability of seed treatment chemicals and culture	100	50.00	VIII
9.	Lack of irrigation facility	96	48.00	IX
10.	Non-availability of advanced agricultural information	90	45.00	X

S. No.	Suggestions	No. of respondents	%	Rank
1.	HYV seed at the time of sowing should be made available	134	67.00	I
2.	Need based training programmes should be conducted	124	62.00	II
3.	Subsidy should be increased on plant protection chemicals and fertilizers	120	60.00	III
4.	Credit should be available in time	116	58.00	IV
5.	Mass production and supply of organic manure should be made	110	55.00	V
6.	Chemical fertilizers pesticides and other critical input should made be available at required time with minimum cost	104	52.00	VI
7.	Storage facilities should be made available at block level	102	51.00	VII
8.	Seed treatment chemicals and culture should be easily available	100	50.00	VIII
9.	Irrigation facility should be available	90	45.00	IX
10.	Timely availability of advanced agricultural information	82	41.00	X

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Leadership Pattern of Panchayat Leaders in Rural Development in West Bengal

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Abstract:

Panchayat Raj Institutions (PRIs) are the local self-governing bodies, consisting of elected representatives from rural areas. PRIs plays a crucial role in the implementation of most of the rural development programmes. The present study had been conducted in Hooghly district of West Bengal. Result shows that education (X3), occupation (X2) and house type (X8) are found to be highly correlated with the outside contact (Y1) and the mass media exposure (Y3). Mass media exposure (X13) is found to be highly correlated with the knowledge about Panchayat activity (Y4). To be effective Gram Panchayat organization should be oriented to the people and creation of mass awareness should be its prime goal. The Success of the Gram Panchayat as a development organization shall depend on the extent to which it can effectively communicate and coordinate with organizations at the local level, involve different sections of the village people, conduct monitoring and evaluation of field work, organize development of personnel, arrange production inputs and services, create and maintain infrastructural facilities generate employment and income, improve the quality of rural life, facilitate peoples education, maintain proper resource inventory and remain accountable to the public. The Panchayat have to develop more contact with the mass media, particularly the radio and television. This shall help the Panchayats in bringing mass awareness and bridging the gap between the Panchayat and the people.

Key words: *Panchayat, leadership, rural development, mass media*

Introduction:

Village panchayat represent a system of governance prevalent in ancient India. Gandhiji had aptly remarked that independence must begin at the bottom. Every village ought to be a republic or Panchayat with the authority and resources to realize the potential for economic and social development of the village. Panchayat Raj Institutions (PRIs) are the local self-governing bodies, consisting of elected representatives from rural areas. PRIs are being assigned a crucial role in the implementation of most of the rural development programmes.

Panchayat Raj Institutions in India

After the initiation of the Community Development Programme and National Extension Service in India, it was realized that the people's participation was not coming forth to the desired extent. So, the local leadership might develop and enable the local people to take up the planning and implementations of development programme themselves.

Balvantray G. Mehta Committee Report

The Balvantray G. Mehta Study Team was appointed in January 1957 to study and report on the Community Development Projects and National Extension Service. The study team observed that -

'Development cannot progress without responsibility and power. Community development can be real only when the community understands its problems, realises its responsibilities, exercises the necessary powers through its chosen representatives and maintains a constant and intelligent vigilance on local administration……'

According to the report, one of the least successful aspects of Community Development and National Extension Service was its attempt to evoke popular initiative and recommended 'Democratic Decentralisation'.

The Balvantray G. Mehta Study Team Recommended

a) the establishment of elected and organically linked democratic bodies at the village, block and district level;

b) the entrustment of all planning and development activities to these bodies; and

c) transfer of adequate resources to those bodies to enable them to discharge their duties.

On the broad suggestions of the Team, the state of Rajasthan was the first to launch Panchayati Raj in the country on 2nd October 1959, followed by Andhra Pradesh in November 1959 and Maharashtra on 1st May 1962. Subsequently most of the country was covered with Panchayati Raj Institutions.

Asoka Mehta Committee Report

The Government of India appointed the Committee on Panchayati Raj Institutions in 12th December 1977, interalia, to review the existing situation regarding democratic decentralization in the states and the working of the Panchayati Raj Institutions from the district to the village levels. Mehta (1978) observed that the story of Panchayati Raj has been a story of ups and downs. He indentified three phases of Panchayati Raj in India. These are – the phase of ascendancy (1959 – 64), the phase of stagnation (1965 – 69) and the phase of decline (1969 – 77).

Panchayati Raj in West Bengal

Bengal Chowkidari Act 1870 marked the beginning of local self-government movement in the undivided Bengal. This Panchayat is called Chowkidari Panchayat whose main responsibility was to maintain law and order. The Ripon Resolution of 1882 laid the foundation of Local Self-Government with the setting up of District Boards under the Bengal

Local Self-Government Act1885. Under this Act a two-tier system viz. District Board at the district level and local Board at the sub-divisional level were introduced. With the enactment of Bengal Village Self Government Act, 1919 village Panchayat was introduced. The Chowkidari Panchayats were replaced by the Union Boards. The restructured Union Board had wide range of powers relating to municipal law and order, judicial and rural development functions. During post-independence period, the West Bengal Panchayat Act 1957 replaced the Union Board by Anchal Panchayats. For rejuvenation of Panchayati Raj a new enactment titled West Bengal Panchayat Act 1973 was passed by the Legislative Assembly and a three-tier Panchayati Raj system has been introduced in West Bengal since 1978. The important rationale for introduction of three-tier Panchayati Raj in West Bengal was 1) to make Panchayati Raj an agency for communication of the ideas and an instrument for social changes and progress. It may function as a link- between the people and Government, 2) to supply the local interest, supervision and care necessary to ensure that all expenditure on local projects conform to the needs and wishes of the locality, 3) to be an attempt towards democratizing the District / block Administration by providing popular control over the bureaucracy in rural areas, 4) to provide an institutional support to the CDP to achieve its aim by self-directed programme of community uplift by community effort. Hence CD is the end PR is only a means, 5) to provide a training ground to be a nursery and a cradle for democracy. Panchayats will constitute a complex of direct, face-to-face, participating democracy.

The present study had been conducted operationalise the process of communication and knowledge gaining among the Panchayat member regarding the rural development activities. The study had been methodologically set to get the rational information regarding the topic for concluding the same after maintaining the clarity regarding the communication ability and knowledge about Panchayat activity of the Panchayat professionals.

Mehta (1978) stated that during the coming decades, the PRIs would have to undertake "developmental works" under conditions of rapid changes, continuous growth and sustained innovations in all spheres of life.

In this context the objectives of the study were –

i. To find out the socio-economic status of elected Gram Panchayat leaders.

ii. To find out the exposure of the elected Panchayat Leader to the Institutional Leaders and mass-media.

iii. To find out the knowledge about Panchayat activities of the elected Panchayat Leaders.

Review of literature:

According to Mehta (1957), the term " development work" for Panchayat covers agriculture, animal husbandry, cooperation, minor irrigation works, village industries, primary education, local communications,

sanitation, health and medical relief, local amenities and similar subjects. Muthayya (1972) opined that the functions of the village Panchayat can be divided into obligatory and discretionary. They cover a wide range including municipal administration, cultural, social, agricultural and other developmental activities. In short, these functions centre around preparation and implementation of village plans for agricultural development, provision of civic amenities to the village and suitable powers of taxation. Rogars (1975) defined development as a widely participatory process of social change intended to bring about both social and material advancement for the majority of the people, through growing greater control over their environment. The growing equality is the main dimension of this new development. Shiviah (1978) pointed out that Panchayati Raj performs the traditional, civic, welfare and regulatory functions associated with PRIs, taking a comprehensise view of the picture in the country as a whole were studied.

Materials and Methods:

Locale of research

The Gram Panchayats under Serampore-uttarpara Panchayat Samiti of Hooghly district in West Bengal was selected for study. The area had been selected for the study because of (a) availability of Panchayat professional, (b) Acquaintance with the local people as well as the local language and (c) Provision of relevant information.

Sampling techniques

Purposive as well as simple random sampling techniques were adopted for the study. For selection of district and block purposive sampling techniques was adopted because the area was ideal with respect to the problem, convenient for researcher and having the infrastructural facilities and in case of selection of Panchayat respondent's simple random sampling technique was taken up.

Criteria for selection

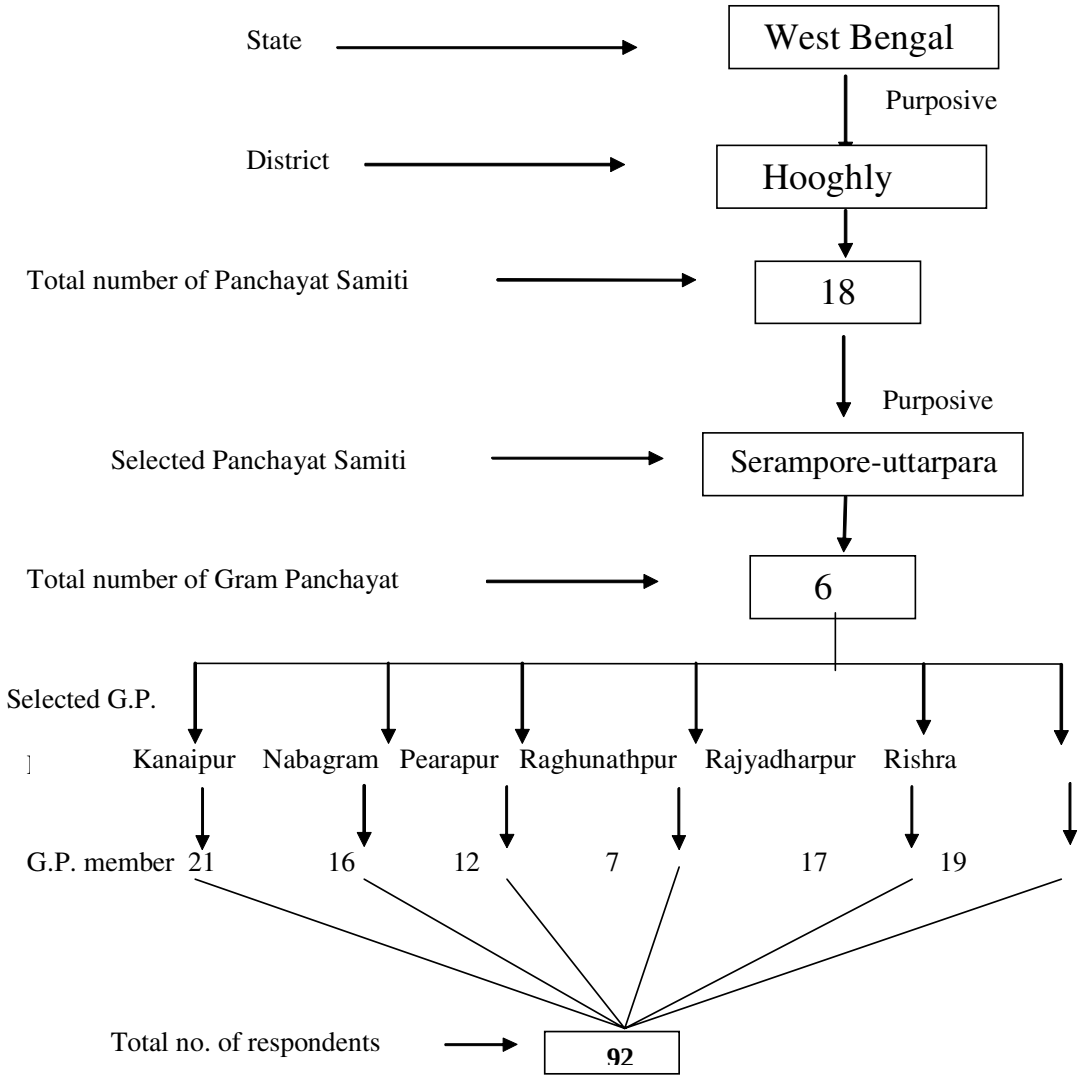
a) Hooghly, the large district of West Bengal is the home district of student investigator.

b) Serampore-uttarpara Panchayat Samiti is the nearest Panchayat Samiti to the student researcher's home.

Above two criteria helped the student investigator to carry on his research project in a limited time bond.

Fig. 1 Diagrammatic Representation of Sampling Technique Sampling Design

(Purposive as well as random)



Result and Discussion:

1. Socio-Economic Profile of Gram Panchayat Members.

A profile provides for cross-sectional information of a situation. The socio-economic profile of the Gram Panchayat members was obtained with the help of the Socio-economic status Scale Rural developed by Pareek and Trivedi (1964). Socio-economic status refers to the position of an individual with reference to various indicators of social and economic condition in a rural community. The socio-economic status scale has nine items. The socio-economic status of Gram Panchayat members was calculated by adding the scores assigned to a category of each item. The socio-economic profile of Gram Panchayat members is presented in Table-1.

Table 1. Socio-economic profile of Gram Panchayat members

Items	Category	Frequency	Percentage (%)
	Schedule caste	24	26.10
	Lower caste	11	11.95
Caste (X1)	*Artisan caste	18	19.57
	**Agril. caste	10	10.87
	Prestige caste	29	31.51
	Dominant caste	0	0
	Labour	8	8.69
	Caste occupation	11	11.95
Occupation (X2)	Business	19	20.66
	Independent profession	24	26.08
	Cultivation	18	19.57
	Service	12	13.05
Education (X3)	Illiterate	0	0
	Can read only	6	6.52
	Can read and write	9	9.78
	Primary	28	30.45
	Secondary	24	26.08
	Higher Secondary	17	18.48
	Graduate and above	8	8.69
Family type (X4)	Single family	50	54.35
	Joint family	42	45.65
Family size (X5)	Up to 5 members	43	46.74
	Above 5 members	49	53.26
	Member of one organization	43	46.74
Social participation(X6)	Member of more than one	24	26.08
	Office holder	8	8.69
	Wider public leader	17	18.49
	No land	12	13.06
	Less than 1 acre	34	36.95

Social participation(X6)	Member of more than one	24	26.08
	Office holder	8	8.69
	Wider public leader	17	18.49
	No land	12	13.06
	Less than 1 acre	34	36.95
Land holding(X7)	1 to 5 acre	32	34.78
	5 to 10 acre	6	6.52
	10 to 15 acre	5	5.43
	15 to 20 acre	3	3.26
	More than 20 acre	0	0
House type (X8)	No house	11	11.95
	Hut	8	8.69
	Kutcha house	22	23.91
	Mixed house	36	39.15
	Pucca house	15	16.30
	Mansion	0	0
	No drought animal	34	36.95
	1 to 2 drought animal	20	21.74
Farm power (X9)	3 to 4 drought animal /		
	1 or more prestige animal	25	27.18
	5 to 6 drought animal /		
	Tractor / power tiller	13	14.13
Material possession	Bullock cart	18	19.57
(X10)	Cycle	82	89.13
	Radio	43	46.74
	Chair	78	84.78
	Improved agricultural implements	12	13.05

*Muslim members were regarded as Agricultural caste ** Scheduled Tribe members were regarded as Artisan caste.

Table2. Distribution of frequency, percentage of the communication ability of Gram Panchayat member

(a) Outside contact

Place	Most often		Often		Some time		Rarely		Never	
	Fre.	%	Fre.	%	Fre.	%	Fre.	%	Fre.	%
City Kolkata	29	31.52	37	40.22	15	16.30	11	11.95	0	0
District town	56	60.87	25	27.17	7	7.61	4	4.35	0	0
Sub-division town	71	77.17	21	22.83	0	0	0	0	0	0
Nearest town	75	81.55	17	18.45	0	0	0	0	0	0

Discussion

The table 2(a) present the distribution of the respondent on the basis of their out side contact. In case of respondent the majority had visited city Kolkata Often (40.22%), followed by Most often visit (31.52%), Some time visit (16.30%) and Rarely visit (11.95%). The majority of respondent Most often visit (60.87%) district town, followed by Often visit (27.17%), Some time visit (7.61%) and Rarely visit (4.35%). In case of respondent the majority had visited Sub-division town Most often (77.17%), followed by Often visited to sub-division (22.83%).

The majority of the respondent Most often visited (81.55%) to Nearest town, followed by Often visit (18.45%).

(b) Contact with in his periphery

Place	Most often		Often		Some time		Rarely		Never	
	Fre.	%	Fre.	%	Fre.	%	Fre.	%	Fre.	%
Neighbour	56	60.86	12	13.05	17	18.48	7	7.61	0	0
Village People	50	54.35	37	40.22	5	5.43	0	0	0	0
School Teacher	18	19.57	21	22.83	42	45.65	11	11.95	0	0
Family Friend	26	28.26	48	52.18	13	14.13	5	5.43	0	0
BDO	14	15.22	28	30.45	25	27.17	19	20.64	6	6.52
ADO	5	5.43	21	22.83	29	31.52	23	25.00	14	15.22
FO	17	18.48	19	20.64	24	26.11	19	20.64	13	14.13
BLDO	3	3.26	7	7.61	47	51.09	8	8.69	27	29.35

Discussion

The tables 2(b) present the distribution of attributes of the respondent on the basis of contact with in his periphery. In case of respondent the majority had Most often contact with their Neighbour (60.86%) regarding Panchayat activities, followed by Some time contact (18.48%), Often contact (13.05%) and Rarely contact (7.61%). In case of Panchayat member the majority of the respondent had Most often contact (54.35%) with their village people, followed by Often contact (40.22%) and Some time contact (5.43%). In case of Panchayat member the majority of the respondent had Some time contact (45.65%) with School teacher, followed by Often contact (22.83%), Most often contact (19.57%) and Rarely contact (11.95%). In case of Panchayat

member the majority of the respondent had Often contact (52.18%) with Family friend, followed by Most often contact (28.26%), Some time contact (14.13%) and Rarely contact (5.43%). In case of Panchayat member the majority of the respondent had Often contact (30.45%) with BDO, followed by Some time contact (27.17%), Rarely contact (20.64%), Most often contact (15.22%) and Never contact (6.52%). In case of Panchayat member the majority of the respondent had Some time contact (31.52%) with ADO, followed by Rarely contact (25.00%), Often contact (22.83%), Never contact (15.22%) and Most often contact (5.43%). In case of Panchayat member the majority of the respondent had Some time contact (26.11%) with FO, followed by Rarely contact (20.64%), Often contact (20.64%), Most often contact (18.48%) and Never contact (14.13%). In case of Panchayat member the majority of the respondent had Some time contact (51.09%) with BLDO, followed by Never contact (29.35%), Rarely contact (8.69%), Often contact (7.61%) and Most often contact (3.26%).

(c) Mass media exposure

Exposure to	Most often		Often		Some time		Rarely		Never	
	Fre.	%	Fre.	%	Fre.	%	Fre.	%	Fre.	%
Daily News Paper	59	64.13	23	25.00	10	10.87	0	0	0	0
Weekly News Paper	22	23.91	30	32.61	26	28.26	14	15.22	0	0
Monthly Magazine	25	27.17	18	19.57	21	22.83	24	26.08	4	4.35
Govt. Publication	21	22.83	27	29.35	18	19.57	19	20.64	7	7.61
Political Literature	17	18.48	11	11.95	35	38.04	16	17.40	13	14.13
Television	32	34.78	47	51.09	13	14.13	0	0	0	0
Radio	18	19.57	20	21.74	54	58.69	0	0	0	0

Discussion

In case of Panchayat member the majority of the respondent had Most often reading (64.13%) the Daily news paper, followed by Often reading (25.00%) and Some time reading (10.87%). In case of Panchayat member the majority of the respondent had Often reading (32.61%) the Weekly news paper, followed by Some time reading (28.26%), Most often reading (23.91%) and Rarely reading (15.22%). In case of Panchayat member the majority of the respondent had Most often reading (27.17%) the Monthly magazine, followed by Rarely

reading (26.08%), Some time reading (22.83%), Often reading (15.22%) and Never reading (4.35%). In case of Panchayat member the majority of the respondent had Often reading (29.35%) the Govt. political publication, followed by Most often reading (22.83%), Rarely reading (20.64%), Some time reading (19.57%) and Never reading (7.61%). In case of Panchayat member the majority of the respondent had Some time reading (38.04%) the Literature, followed by Most often reading (18.48%), Rarely reading (17.40%), Never reading (14.13%) and Often reading (11.95%). In case of Panchayat member the majority of the respondent had Often watching (51.09%) the Television, followed by Most often watching (34.78%) and Some time watching (14.13%).

In case of Panchayat member the majority of the respondent had Some time listening (29.35%) the Radio, followed by Often listening (21.74%) and Most often listening (19.57%).

Correlation Coefficient between the dependent variables and independent variables.

Table 3. Correlation coefficient between the outside contact (Y1) and independent variables

Variables	Correlation coefficient (r) Y1
Caste(X1)	0.17602
Occupation(X2)	0.37700 *
Education(X3)	0.35500**
Family Type(X4)	0.03100
Family Size(X5)	0.01600
Social Participation(X6)	0.19200
Land Holding(X7)	0.22001***
House Type(X8)	0.38597*
Farm Power(X9)	0.10302
Material Possession(X10)	0.11600

*Significant at 1% level of significant (0.358)
**Significant at 5% level of significant (0.279)
***Significant at 10% level of significant (0.206)

Table 4. Correlation coefficient between the contact with in his periphery (Y2) and independent variables

Variables	Correlation coefficient (r) Y1
Caste(X1)	0.07499
Occupation(X2)	0.13100
Education(X3)	0.16899
Family Type(X4)	0.00900
Family Size(X5)	-0.01400
Social Participation(X6)	0.03501
Land Holding(X7)	0.05199
House Type(X8)	0.07201
Farm Power(X9)	0.02799
Material Possession(X10)	0.08500

*Significant at 1% level of significant (0.358)

**Significant at 5% level of significant (0.279)

***Significant at 10% level of significant (0.206)

The correlation coefficient between the independent variables and the contact with in his periphery (Y2) has been displayed in Table-4. Out of 10 independent variables caste (X1), occupation (X2), education (X3), family type (X4), family size (X5), social participation (X6), land holding (X9), house type (X8), farm power (X9) and material possession (X10) are not found to be significantly related with the contact with in his periphery (Y2).

Table 5. Correlation coefficient between the mass media exposure (Y3) and independent variables

Variables	Correlation coefficient (r) Y1
Caste(X1)	0.20201
Occupation(X2)	0.30800 **
Education(X3)	0.40900 *
Family Type(X4)	-0.02198
Family Size(X5)	-0.03001
Social Participation(X6)	0.19700
Land Holding(X7)	0.05800

Land Holding(X7)	0.05800
House Type(X8)	0.32900 **
Farm Power(X9)	0.01301
Material Possession(X10)	0.02367

*Significant at 1% level of significant (0.358)
**Significant at 5% level of significant (0.279)
***Significant at 10% level of significant (0.206)

The correlation coefficient between the independent variables and the mass media exposure (Y3) has been displayed in Table-5. Out of 10 independent variables caste (X1), family type (X4), family size (X5), social participation (X6), land holding (X7), farm power (X9) and material possession (X10) are not found to be significantly related with the mass media exposure (Y3).

The variables occupation (X2), house type (X8) and education (X3) are found to be highly correlated with the mass media exposure (Y3).

Table 6. Correlation coefficient between the knowledge about Panchayat activity (Y4) and independent variables

Variables	Correlation coefficient (r) Y1
Caste(X1)	0.13
Occupation(X2)	-0.07
Education(X3)	-0.01
Family Type(X4)	0.06
Family Size(X5)	0.05
Social Participation(X6)	0.03
Land Holding(X7)	-0.01
House Type(X8)	-0.03
Farm Power(X9)	-0.15
Material Possession(X10)	0.06
Outside Contact (X11)	-0.11
Contact with in his periphery (X12)	0.09
Mass media exposure (X13)	0.36*

*Significant at 1% level of significant (0.358)
**Significant at 5% level of significant (0.279)
***Significant at 10% level of significant (0.206)

The correlation coefficient between the independent variables and the knowledge about Panchayat activity (Y4) has been displayed in Table-6. Out of 10 independent variables caste (X1), occupation (X2), education (X3), family type (X4), family size (X5), social participation (X6), land holding (X9), house type (X8), farm power (X9),material possession (X10), outside contact (X11) and contact with in his periphery (X12) are not found to be significantly related with the knowledge about Panchayat activity (Y4).

The variables mass media exposure (X13) is found to be highly correlated with the knowledge about Panchayat activity (Y4).

1. Co-Efficient between outside contacts (Y1), contact with in his periphery (Y2), mass media exposure (Y3) and knowledge about panchayat activity (Y4) with causal variables

Table 7. Co-efficient between outside contact (Y1), contact with in his periphery (Y2), mass media exposure (Y3) and knowledge about Panchayat activity (Y4) with causal variables

Dependent variables (Y)	Regression Equation	R^2	Adj. R^2	SE(est.)
Outside contact (Y1)	Y1 = 12.16 + 0.75 X4 **	0.15	0.14	2.18
Contact with in his periphery (Y2)	Y2 = 12.94 + 1.61 X3 **	0.17	0.16	4.74
Mass media exposure (Y3)	Y3 = 17.56 + 0.64 X3	0.03	0.02	4.91
Knowledge about Panchayat activity (Y4)	Y4 = 17.05 + 0.36 X12	0.13	0.12	4.73

Note: **: P< 0.01 and *: P< 0.05

Four equations can identify the important predictors to explain Y.

From table 7, it can be concluded that outside contact (Y1) is explained by house type (X4) variable with their positive contribution towards enhancing outside contact (Y1). Total variance explained by such equation is 15% and all predictors in this equation have resulted significant regression coefficient to explain outside contact (Y1). Hence, it can be concluded that contact with in his periphery (Y2) is explained by education (X3) variable with their positive contribution towards enhancing contact with in his periphery (Y2). Total variance explained by such equation is 17% and all predictors in this equation have resulted significant regression coefficient to explain contact with in his periphery (Y2). Also, it can be concluded that mass media exposure (Y3) is explained by education (X3) variable with their positive contribution towards enhancing mass media exposure (Y3). Total variance

explained by such equation is 3% and all predictors in this equation have resulted significant regression coefficient to explain mass media exposure (Y3). Then, it can be further concluded that knowledge about Panchayat activity (Y4) is explained by contact with in his periphery (X12) variable with their positive contribution towards enhancing knowledge about Panchayat activity (Y4). Total variance explained by such equation is 13% and all predictors in this equation have resulted significant regression coefficient to explain knowledge about Panchayat activity (Y4).

4. Path analysis between the antecedent variables and consequent variables

Table 8.Path analysis (Y1) [outside contact Vs. the causal variables]

Variables	Total Effect	Direct Effect	Indirect Effect	Substantial Indirect Effect 1	2	3
Caste(X1)	0.0749	-0.0080	0.0830	X3	X3	X5
				0.1589	0.1589	-0.0318
Occupation(X2)	0.1310	0.0866	0.0443	X8	X3	X10
				-0.1340	0.1319	0.0316
Education(X3)	0.1689	**-0.2736**	**0.4425**	X5	X8	X2
				-0.0147	-0.1470	0.0417
Family Type(X4)	0.0090	0.0845	-0.0755	X5	X8	X3
				-0.1016	-0.0570	0.0465
Family Size(X5)	-0.0140	-0.1183	0.1043	X4	X8	X3
				0.0726	-0.0344	0.0342
Social Participation(X6)	0.0350	-0.0080	0.0430	X3	X8	X7
				0.1236	-0.0813	-0.0090
Land Holding(X7)	0.0519	0.0600	-0.0080	X8	X10	X2
				-0.0863	0.0560	0.0433
House Type(X8)	0.0720	-0.2168	0.2888	X3	X2	X10
				0.1855	0.0535	0.0398
Farm Power(X9)	0.0279	-0.0329	0.0609	X8	X10	X7
				-0.0674	0.0552	0.0394
Material Possession(X10)	0.0850	0.1064	-0.0214	X8	X7	X9
				-0.0811	0.0315	-0.0170

Residual Effect = .7722295

Table 9 presents the path analysis to explain the direct, indirect and residual effect of antecedent variables on consequent variables i.e. contact with in his periphery. The result reveals that the variables education (X3) exerts highest direct and indirect effects on contact with in his periphery over the other 9 antecedent variables. The residual effect is almost 77 percent, it could be concluded that the combination of 10 variables in this investigation in the form of antecedent variables had been able to explain 23 percent of the variation in the consequent variables i.e. outside contact.

Table 10.Path analysis (Y3) [mass media exposure Vs. the causal variables]

Variables	Total Effect	Direct Effect	Indirect Effect	Substantial Indirect Effect 1	2	3
Caste(X1)	0.2020	-0.0287	0.2307	X3	X8	X4
				0.1728	0.0447	-0.0405
Occupation(X2)	0.3080	0.1630	0.1449	X3	X8	X4
				0.1433	0.0537	-0.0301
Education(X3)	0.4090	**-0.2974**	**0.7064**	X2	X8	X4
				0.0785	0.0589	-0.0220
Family Type(X4)	-0.0219	-0.1295	0.1078	X3	X2	X8
				0.0505	0.0378	0.0228
Family Size(X5)	-0.0300	0.0032	-0.0332	X4	X3	X2
				-0.1115	0.0371	0.0298
Social Participation(X6)	0.1970	0.0330	0.1639	X3	X8	X2
				0.1344	0.0326	0.0137
Land Holding(X7)	0.0580	0.0254	0.0325	X2	X8	X9
				0.0815	0.0346	-0.0340
House Type(X8)	0.3290	0.0869	0.2420	X3	X2	X4
				0.2016	0.1007	-0.0341
Farm Power(X9)	0.0130	-0.0518	0.0648	X2	X8	X10
				0.0520	0.0270	-0.0255
Material Possession(X10)	0.0236	-0.0492	0.0729	X8	X9	X2
				0.0325	-0.0268	-0.0255

Residual Effect = .7424283

Table 10 presents the path analysis to explain the direct, indirect and residual effect of antecedent variables on consequent variables i.e. mass media exposure. The result reveals that the variables education (X3) exerts highest direct and indirect effects on mass media exposure over the other 9 antecedent variables. The residual effect is almost 74 percent, it could be concluded that the combination of 10 variables in this investigation in the form of antecedent variables had been able to explain 26 percent of the variation in the consequent variables i.e. outside contact.

Table 11.Path analysis (Y4) [knowledge about Panchayat activity Vs. the causal variables]

Variables	Total Effect	Direct Effect	Indirect Effect	Substantial Indirect Effect 1	2	3
Caste(X1)				X12	X11	X3
	0.13	0.12	0.01	0.15	-0.13	-0.11
Occupation(X2)				X11	X12	X7
	-0.07	-0.11	0.04	-0.27	0.23	0.11
Education(X3)				X12	X11	X1
	-0.01	-0.20	0.19	0.30	-0.26	0.07

Education(X3)				X12	X11	X1
	-0.01	-0.20	0.19	0.30	-0.26	0.07
Family Type(X4)				X1	X3	X11
	0.06	0.08	-0.02	0.04	-0.03	-0.02
Family Size(X5)				X4	X7	X1
	0.05	-0.04	0.09	0.07	0.05	0.03
Social Participation(X6)				X12	X11	X3
	0.03	0.02	0.01	0.15	-0.14	-0.09
Land Holding(X7)				X9	X11	X10
	-0.01	0.23	-0.24	-0.20	-0.16	0.08
House Type(X8)				X10	X12	X3
	-0.03	0.05	-0.08	0.08	0.24	-0.13
Farm Power(X9)				X7	X7	X2
	-0.15	-0.30	0.15	0.15	0.15	-0.03
Material Possession(X10)				X9	X7	X11
	0.06	0.14	-0.08	-0.16	0.12	-0.09
Outside Contact (X11)				X12	X3	X3
	-0.11	-0.72	0.61	0.62	-0.07	-0.07
Contact with in his periphery (X12)	0.09	**0.73**	**-0.64**	X11 -0.61	X3 -0.08	X2 -0.03
Mass media exposure (X13)	0.36	0.35	0.01	X12 0.06	X11 -0.04	X3 -0.03

Residual Effect = .8143852

Table 11 presents the path analysis to explain the direct, indirect and residual effect of antecedent variables on consequent variables i.e. knowledge about Panchayat activity. The result reveal that the variables contact with in his periphery (X12) exerts highest direct and indirect effects on knowledge about panchayat activity over the other 12 antecedent variables. The residual effect is almost 81 percent, it could be concluded that the combination of 13 variables in this investigation in the form of antecedent variables had been able to explain 19 percent of the variation in the consequent variables i.e. outside contact.

Conclusion and Recommendation:

The villagers are, in general, an unorganized mass of people in the rural areas, which have made their development difficult. Gram Panchayat, in West Bengal, has emerged as an organization by the rural people at their local level, which can meet their economic, social and political goals. The attaining of these goals by the Gram Panchayat depends on the extent to which it can run effectively as an organization.

On the basis of the present investigation, the following conclusions and recommendations may be made in respect of role of the Panchayat leader's in rural development work done by the Gram Panchayat organization.

1) To be effective Gram Panchayat organization should be oriented to the people and creation of mass awareness should be its prime goal.

2) The Success of the Gram Panchayat as a development organization shall depend on the extent to which it can effectively communicate and coordinate with organizations at the local level, involve different sections of the village people, conduct monitoring and evaluation of field work, organize development of personnel, arrange production inputs and services, create and maintain infrastructural facilities generate employment and income, improve the quality of rural life, facilitate peoples education, maintain proper resource inventory and remain accountable to the public.

3) Communication and coordination are two-way processes. The Govt. departments, banks etc. at the local level should take initiative in building and maintaining effective communication and coordination with the Gram Panchayat. A closer communication and coordination among Gram Panchayat, Panchyat Samiti and Zilla Parishad shall enhance effectiveness of the Panchayat system.

4) The Panchayat have to develop more contact with the mass media, particularly the radio and television. This shall help the Panchayats in bringing mass awareness and bridging the gap between the Panchayat and the people.

5) A close association between the Panchayat system and the higher technical institution like the Agricultural Universities, Engineering and Medical Collages etc. is desirable. This shall provide the much needed technical expertise to the Panchayat for resources survey and in planning, implementation and evaluation of their development projects.

6) For organizations like Gram Panchayats, which are required to be people oriented, the motivation "need for affiliation" is important for their functionaries.

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Sources and Extension information utilization Behavior among Ginger Growers

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ABSTRACT

The present study was undertaken in selected villages of Mudigere taluk, Chikmaglur district of Karnataka during the year 2012, with 60 respondents, to know the socio-economic profile and Sources and information utilization behavior and suggestions offered by the ginger growing farmers for better yield. The data was collected from the respondents using structured interview schedule. The data collected was tabulated and analyzed using suitable statistical tool. The results of the study revealed that, majority of the respondents were middle aged with education up to primary to middle school having small sized family of 1 to 6 members with marginal land holdings and farming experience up to 5 years. With respect information utilization behavior, university scientists are the formal source contacted regularly by 40 per cent of the respondents. Fifty percent of them contacted officials of horticulture department occasionally followed by university scientists (46.66 %). The study also revealed that, in informal sources, 83.33 per cent of them contacted friends regularly followed by relatives (68.33 %). With respect to mass media, 46.66 per cent of them obtained information occasionally from television and publications. Research on development of soft rot resistant variety was the suggestion offered by the cent per cent respondents, followed by Technical support/ guidance by the universities (95.00 %) and Supply of good quality seed material at subsidized rate (90.00 %).

***Key words**: Information utilization behavior, Socio-economic profile and Suggestions*

Introduction:

Ginger is one of the earliest known oriental spices and is being cultivated in India for both as fresh vegetable and as a dried spice, since time immemorial. Ginger is obtained from the rhizomes of *Zingiber officinale*. The ginger family is a tropical group, especially abundant in Indo-Malaysian region, consisting of more than 1200 plant species in 53 genera.

The total production of ginger in the world is 1683.00 thousand tons with the total acreage of 310.43 thousand ha. China, India, Nepal and Thailand are the major producers of ginger in the world, having production of 396.60 thousand tons, 385.33 thousand tons, 210.79 thousand tons and 172.68 thousand tons respectively. India and Indonesia have the largest area under cultivation. The area

under cultivation in India is 107.54 thousand ha and the total production of the country is 385.33 thousand tons.

India is a leading ginger producer in the world. More than 50% of total ginger production takes place in North East, Uttarakhand and Sikkim states. Most of ginger in North Eastern states is produced under organic conditions. Indian Institute of Spices Research, Kozhikode, Kerala and State Agricultural Universities identified / developed a number of superior and high yielding cultivars. Indian Spices Board established under the Ministry of Commerce, provides further support for expansion of area under spices, enhancing exports and provides technical guidance to the ginger growing farmers. Export of ginger increased from 8,332.91 tons in 2007-08 to 35,616.35 tons in 2011-12 in Quantum and increased from Rs 3,296.08 Lakh to Rs 26,626.77 Lakhs in value term. In Karnataka, the ginger is grown in an area of 49614 hectares with the production of 496556 metric tons.

Information seeking is a human process that requires adaptive and reflective control over the afferent and efferent actions of the information seeker (Murugan and Balasubramani, 2011). Advances in information communication technologies have revolutionized the information flow in agriculture field. Lot of information is available to farmers from various sources, but gathering of technical information from a credible sources play a vital role in bringing desirable changes among the farmers and also adoption of improved ginger cultivation practices. With this background, the study was undertaken with the following specific objectives,

Objectives

1 To know the socio-economic profile of ginger growing farmers

2 To find out the sources and extension information utilization behavior of ginger growing farmers

3 To enlist the suggestions offered by the ginger growing farmers for better yield

Materials and Methods:

The study was undertaken in three villages *Viz.,* Jannapura, Daradahalli and Banakal of Mudigere taluk, Chikmaglur district of Karnataka during the year 2011, to know the socio-economic profile, sources and information utilization behavior and suggestions offered by the ginger growing farmers for better yield. Based on the random sampling techniques 60 respondents at the rate of 20 ginger growing farmers from each village were selected. The data on personal and socio economic profile of respondents were categorized based on age (young, middle and old), education (illiterates, Primary and middle school- 1 to 7th std., High school- 8 to 10 th std., PUC, Graduation and above),family size (small -1 to 6 members, medium -7 to 10 members, large -10 and above) and size of land holding (marginal farmers -below 2.5 acres, small farmers - 2.5 to 5.0 acres and big farmers -above 5.0 acres), farming experiences (up to 5 years, 5 to 10 years, more than 10 years). Information seeking behavior of ginger growing farmers was categorized in to formal sources, informal sources and mass media. The data from the respondents were collected personally with help of well structured, pre tested interview schedule. The same were analyzed with the appropriate statistical tools and presented in below.

Results and Discussion:

Personal and Socio-economic profile of the respondents

It is clear from the table 1 that, majority (70.00 %) of the respondents belonged to middle aged category followed by old (20.00 %) and young (10.00 %) aged categories.

With respect to education, 56.66 per cent of them were educated up to primary to middle school. Respondents with education level up to high school were 21.66. Very less per cent of them were educated up to graduation. Remaining *ie,*. 8.33 and 3.33 per cent were educated up to PUC and illiterates, respectively.

With regard to family size, majority (73.33 %) of the respondents were having small families followed by medium (16.66%) and large families (10.00%), respectively.

Slightly more than half (51.66 %) of the respondents were marginal farmers followed by small (35.00 %) and big (13.33 %) farmers categories.

With respect to farming experience, major chunks (43.33 %) of the respondents were having an experience up to 5 years. followed by 10 years (36.66 %) and 5 to 10 years

(20.00 %)

Sources and extension information utilization behavior of ginger growers

Formal sources

It is clear from the table 2 that, forty per cent of the respondents regularly gathered the information from university scientists, followed by spice board and horticulture department. University scientists are technically qualified and suggested remedy may be credible and provide solution immediately to their practical problems, this might be the reasons for majority of the farmers contacted university scientists for technical information.

Fifty per cent of the respondents contacted horticulture department occasionally followed by university scientists (46.66 %), spice board (30.00 %), NGOs (30.00 %) and farmers associations (20.00 %). Ginger is one of the important horticulture crop and horticulture department supply the critical inputs at subsidized rate and also provide technical guidance to the farmers. This might be the probable reasons for majority of the respondents contacting horticulture department occasionally for gathering information with regard to ginger cultivation.

Major chunk of the respondents never contacted agriculture department and farmers associations for information.

Informal sources

Majority (83.33 %) of the ginger growers gathered the information with related to ginger cultivation from their friends regularly followed by relatives (68.33 %) and progressive farmers (6.66 %). Usually farmers are making friends with same age, education level, socio-economic status and likeminded, this may leads to develop a good relationship to understand each other to exchange their ideas, experiences, feelings and views among them before acceptance and adoption of technologies. This may be the probable reasons that, large number of respondents gathering information from their friends. These findings were in line with the earlier findings of Aziagba, and Okede (2011).

36.66 per cent of the respondents gathered the information occasionally from the progressive farmers.

Majority of them never contacted other informal sources like opinion leaders (86.66 %) and neighbors (83.33 %).

Mass media

Electronic media like television were regularly viewed by the 23.33 per cent of the respondents for gathering information followed by publications (20.00 %) and radio (6.66 %). Television is the one of the most effective electronic mass media through which participants can see and hear the message or information simultaneously and facilitate quick comprehension of the message by the participants.

Equal (46.66 %) per cent of the respondents occasionally obtained the information from television and publications followed by radio (20.00 %) .

Majority (74.37 %) of the respondents never gathered information related to ginger cultivation from radio. Lack of leisure time and broadcasted time may not be suitable for the farmers and nowadays radios are gradually disappearing in rural areas this might be reasons for large number of respondents were never listen the radio. Similar results were obtained by Suresh Chandra Babu *et al* (2012).

Suggestions offered by the ginger growing farmers for better yield

Research on development of soft rot resistant variety was the major suggestion offered by the cent per cent of the ginger growing farmers. Other important suggestions offered were, technical support/ guidance by the universities and developmental departments by time to time (95.00%), supply of good quality seed material at subsidized rate (90.00 %), establishment of good market facilities (80.00 %), and formation of commodity groups/growers associations (56.66%). Soft rot disease one of the major disease which leads drastically reduces the yield which in turn causes the huge economic losses to the farmers.

Conclusion:

It could be concluded from the results that, majority of the respondents belonged to middle aged and educated up to primary and middle school with small family, marginal holding and having five years farming experiences. Study also reveals that, the ginger growing farmers regularly gathered the information with related to ginger cultivation from their friends followed by university scientists and television, further, they suggested to develop a variety resistant to soft rot and provide technical guidance by the universities and developmental departments persistently.

Recommendations:

- State agricultural universities have to undertake research to develop a soft rot resistant varieties
- Institutions involved in the extension activities have to take necessary measures to organize demand driven extension activities to enhance the knowledge and skill in order to manage their crop enterprise
- Administrators and policy makers have to initiate necessary action to formation of commodity interest groups and distribution of quality seed materials at subsidized rate.
- Government make a necessary efforts to establish a separate regulated market to get good price for their produce

Sl. No.	Characteristics	Number	Percentage
1	**Age**		
	Young (<35 years)	6	10.00
	Middle (36-50 years)	42	70.00
	Old (>50 years)	12	20.00
2	**Education**		
	Illiterates	2	3.33
	Primary and middle school (1 to 7th)	34	56.66
	High school (8 to 10 th)	13	21.66
	PUC	5	8.33
	Graduation	6	10.00
3	**Family size**		
	Small (1 to 6 members)	44	73.33
	Medium (7 to 10members)	10	16.66
	Large (10 and above)	6	10.00
4	**Land holding**		
	Small farmers (2.5 to 5.0 acres)	21	35.00
	Big farmers (> 5.0 acres)	8	13.33
	Marginal farmers (< 2.5 acres)	31	51.66
5	**Farming experiences**		
	Up to 5 years	26	43.33
	5 to 10 years	12	20.00
	More than 10 years	22	36.66

Table 2 Distribution of respondents according to their sources and information utilization behavior

Sl. No.	Information source	Always		Occasionally		Never	
		F	%	F	%	F	%
1	**Formal sources**						
	Agriculture department	-	-	-	-	60	100.00
	Horticulture department	8	13.33	30	50.00	22	36.66
	University scientists	24	40.00	28	46.66	8	13.33
	Spice board	12	20.00	18	30.00	30	50.00
	NGOs	-	-	18	30.00	42	70.00
	Farmer association	-	-	12	20.00	48	80.00

2	**Informal sources**						
	Friends	50	83.33	8	13.33	2	3.33
	Relatives	41	68.33	8	13.33	11	18.33
	Neighbors	-	-	10	16.66	50	83.33
	Progressive farmers	4	6.66	22	36.66	34	56.66
	Opinion leaders	-	-	8	13.33	52	86.66
3	**Mass media**						
	Television	14	23.33	28	46.66	18	30.00
	Radio	4	6.66	12	20.00	44	74.37
	Publications	12	20.00	28	46.66	20	33.33

Table 3 Suggestions offered by the ginger growing farmers for better yield N=60

Sl. No.	Suggestions	Frequency	Percentage
1	Supply of good quality seed material at subsidized rate	54	90.00
2	Research on development of soft rot resistant variety	60	100.00
3	Establishment of good market facilities	48	80.00
4	Technical support/ guidance by the universities and developmental departments by time to time	57	95.00
5	Formations of commodity groups/growers associations	34	56.66

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Perceived Impact of Impact of Climate Change on Rural livelihood systems

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Abstract

The rise in global temperature due to climate change started affecting agriculture. The Indian agriculture because of climate change (change in temperature, rain fall etc.) has created fear among the farmers who are to adjust the uncertainties in crop production in future in scared of loosing income and employment. In this context the subsistence livelihood of the small and marginal farmers need to be ensured through appropriate adaptations and resilience measures. The vulnerability of Indian and the state agriculture as well forecasted out of climate change behavior is putting these farmers in panic. They react on various dimensions of climate change and the ill effect on their livelihood. The present study was designed study the perception of the farmers on climate change impacts on agriculture and suggestion on possible coping strategies. Weather trends over a long period time yields in climate change.

Introduction

India is a large developing country with nearly 700 million rural population directly depending on climates sensitive sector (agriculture, forest and fishery) and natural resources (water, biodiversity, mangroves, coastal areas and grass lands) for their subsistence and livelihood. Change in temperature as well as rain fall patterns and increase in CO_2 level projected to accompany climate change will have important effects on global agriculture especially on tropical agriculture e although effect of climate change on agriculture differs across the world). It is expected that crop productivity alter due to weather events and changes in patterns of pests and diseases. The scientific investigation conducted in the country and abroad highlights that suitable land areas for cultivation of key staple food crops undergo geographic shifts in response to climate change. Impact of climate change can be on eight areas like –

1) Impact of climate change on soil
2) Impact of climate change in fertilizer use
3) Impact of climate change on water resources

4) Impact of climate change on coastal areas
5) Impact of climate change on species and natural areas
6) Impact of climate change on forest
7) Impact of climate change on overall agriculture
8) Impact of climate change on food security

The materials and methods

Keeping in view the above eight areas of climate change issues the study was conducted on "The climate change and agriculture - the farmers – perspective". The data were collected from fifty farmers selected at random visiting ATIC of OUAT during 2014.The reaction on impact of climate change on agriculture in their respective farming situations were collected through personal interview using a semi structured interview schedule. The data were analyzed and the findings thus revealed on the above mentioned eight areas of climate change issues were discussed.

Findings and discussion

1. Impact of climate change on soil

Table.1 Impact of climate change on soil

Sl. No.	Climate change impact on soil	Rank
1.	Susceptibility of soil to erosion	I
2.	Increase in mineralization	II
3.	Degradation of soil structure and porosity	III
4.	Lowering of organic matter of soil	IV
5.	Low water holding and nutrient soil capacity	V

The farmers opined that Changes of in rainfall agriculture is observed to bring susceptibility of soil to erosion, increase in mineralization, degradation of soil structure and porosity, lowering of organic matter of soil and lw water holding and nutrient soil capacity in order of importance.

2. Impact of climate change in fertilizer use –

Table. 2 Impact of climate change on fertilizer use

Sl. No.	Climate change impact on fertilizer use	Rank
1	Application of higher doses of fertilizer is becoming essential	I
2	Application of additional doses of nitrogen and micro nutrient	II

3. Impact of climate change on water resources: the impact was responded inorde of importance as presented in table 3

Table. 3 Impact of climate change on water resources

Sl. No.	Climate change impact on water resources	Rank
1.	Increase in frequency of drought and floods.	I
2.	Increase in average temperature	II
3.	Decrease in number of rainy days	III
4.	Increase in rainy days intensity	IV
5.	Decrease in summer rain fall	V

4. Impact of climate change on coastal areas

Table. 4 Impact of climate change on coastal areas

Sl. No.	Climate change impact on coastal areas	Rank
1.	Increase in inundations	I
2.	Coastal erosion	II
3.	Displacement of wetlands and lowlands	III
4.	Deterioration of coastal eco systems – such as mangroves and salinisations, cyclones and rising sea levels.	IV
5.	Flooding of low line coastal areas	V
6.	Damage of coastal infrastructure, aquaculture and tourism	

5. Impact of climate change on species and natural areas : The farmers perceived the impact of climate change on species and natural areas as presented in table.5 in order of importance

Table. 5 Impact of climate change on species and natural areas

Sl. No.	Climate change impact coastal areas	Rank
1.	Increase in inundations Damage of sal and teak forest	I
2.	Loss of forest biodiversity	II
3.	Loss of quality of forest products	III
4.	Forest fire and forest fragmentation	IV

6. Impact of climate change on forest : The farmers ranked the impact of climate change in order of importance as shown in table 6.

Table. 6 Impact of climate change on forest

Sl. No.	Climate change impact on forest	Rank
1.	Modification of natural modified/developed forests	I
2.	Forest biomasses are highly vulnerable due to increasing temperature	II
3.	Warming and water stress exacerbate land degradation	III
4.	Long term and irreversible impact on forest eco-system	IV
5.	Adverse impact on socio-economic condition of people dependent on forest	V

7. Impact of climate change on overall agriculture: The farmers ranked the effect of climate change on overall agriculture in order of importance as shown in table.7.

Table.7 Impact of climate change on overall agriculture

Sl. No.	Climate change impact on overall agriculture	Rank
1.	Decline in crop production	I
2.	Water may become scarce depriving crop for irrigation	II
3.	Change in time of planting time in conventional cropping systems	III
4.	Fluctuation in food productions	IV
5.	Negative impact in farmers livelihood due to climate change (draught, floods, cyclones, heavy rain, hot weather and cold waves)	V
6.	Negative effect on quality of cereals, foods, vegetables, medicinal and aromatic plants & flowers	
7.	Negative effect on livestock farming (milk production & poultry etc.)	
8.	Negative effect on fish farming (fish disease, mortality of fish etc.)	

8. Impact of climate change on food security : Food security of the farmers particularly the small and marginal ones may be put to risk due to change climate as indicated in table 8 being ranked by respondents.

Table.8 Impact of climate change on food security

Sl. No.	Climate change impact on food security	Rank
1.	Risk in availability of food due to drop in food production	I
2.	Coastal erosion The risk in access of food due to loss of income and employment	II
3.	Risk in stability of food supply due to external dependency on import of food	III
4.	Risk in food safety (pest and diseases) and human diseases (malaria and diarrhea)	IV

Suggestions for mitigation of climate change impacts on agriculture: The respondent suggested the following measures for mitigation of climate change impacts on agriculture in order of importance.

Table.9 Impact of climate change on species and natural areas

Sl. No.	Areas of climate change impact coastal areas	Rank
1.	Best management practices of fertilizers and pesticides	I
2.	Intensification of agriculture	II
3.	Converting more land to agriculture	III
4.	Climate change adaptations in terms of variety, technology and storage	IV

Conclusion

Implementation of mitigation strategies requires decisions at different levels and mitigation practices that recover investment cost and generate profit in the short term are preferred over practices that require a long term to recover their investment costs. Thus efforts need to go to develop strategies mitigate its negative impacts and research in new directions need to be carried out to understand the effects of climate change on agriculture and help to determine to future strategies for sustainable development, adaptation and policy decisions for ensuring food security, as evidence by the reaction of farmers under study.

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Preference of the tribals towards KVK Training -An analysis

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Abstract

Effective training can develop the competency of the tribal people in optimum use of their farm activities. However, preferred areas of training are the most important consideration of the tribal people for attending training programmes. A study concluded with 240 tribal farmers and farm women in six blocks of Sundergarh, Keonjhar and Nuapada districts of Odisha revealed that suitable varieties of various crops, integrated nutrient, disease and pest management, nursery management, vegetable cultivation, processing, preservation and value addition of fruits and vegetables, competency in operating feasible implements and machineries, soil and water conservation, repairing and use of pump sets, feed preparation with local feed materials, up-gradation of local breeds, health care and feeding management, pisciculture in community tanks and reservoirs, lac cultivation, value addition of non-timber forest produce, forest based farming system and management of forest plants were the preferred areas of training for which KVKs have to design training programmes accordingly for betterment of the tribal people.

Key words *: Training, preference, tribal people*

Introduction

Krishi Vigyan Kendra (KVK) generally deals with training programmes related to needy areas to serve both men and women. The type of courses covered are usually package of practices for various cereals, pulses, oilseeds, vegetables and fruit crops, nutrient management, plant protection, farm mechanisation, care and feeding of animals, sheep and goat rearing, poultry keeping, pisciculture, irrigation and water management, soil and moisture conservation, income generating activities, farm planning and marketing of produce etc. Good environment has also been created in KVK for effective training where the trainees can very well acquired necessary skills, knowledge and can change their attitudes for using the knowledge in their farm activities for better production and income.

Scheduled tribe communities are usually considered backward and their level of

developments are not to the desired extent. Moe than fifty percentage of these sections have been living in the vicious circles of poverty due to skewed distribution of developmental opportunities as well as low level of motivation and aspiration for better income. Effective training can develop their competency in better management of their activities. However, preferred areas of the training are the important consideration of motivation to the tribals for attending training programme. Though, KVKs have the mandate of need assessment before conducting training programmes, but the practice was not followed regularly. Attempt was therefore made to study the preferred areas of training of tribals for better organisation of training programmes by KVKs functioning in tribal areas.

Materials and Methods

The study was undertaken in the tribal districts of Sundergarh, Keonjhar and Nuapada under the North Western Plateau, North Central Plateau and Western Undulating agro-climatic Zone in Odisha. A sample size of 40 tribal farmers and farm women from each districts covering two blocks and associated with KVK training programmes were selected randomly as the respondents with total sample size of 240. The data was collected personally with a semi-structured scheduled on a scale point of strongly agree, agree, somewhat agree, least agree and disagree were analysed with score value of 4,3,2,1 and 0 respectively. The results so obtained are discussed herewith.

Results and Discussions

The tribals are growing crops with their past experience. They have preference towards growing of certain field crops. The data analysed in Table-1 revealed that the respondents had not much preference towards training on integrated weed management, efficient use of water,

Table – 1: Preferred subject areas on crop production (N = 240)

Sl. No.	Preference	Keonjhar		Sundargarh		Nuapada		Avg.	Rank
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank	Mean Score	
1	Suitable variety	3.40	I	3.30	I	3.35	I	3.35	I
2	Nursery management	3.00	IV	2.85	IV	2.90	III	2.92	IV
3	Integrated nutrient management	3.10	III	3.00	III	3.25	II	3.12	III
4	Integrated pest and disease management	3.20	II	3.15	II	3.25	II	3.20	II
5	Integrated weed management	1.95	VI	1.80	VII	1.65	VII	1.80	VII
6	Efficient use of water	1.95	VI	1.85	VI	1.90	V	1.90	VI
7	Crop rotation and mixed farming	1.60	VIII	1.45	IX	1.55	VIII	1.53	IX
8	Harvesting and post harvesting	2.25	V	2.10	V	2.15	IV	2.17	V
9	Bio-fertilizer and bio-pesticides	1.75	VII	1.60	VIII	1.75	VI	1.70	VIII

(Maximum obtainable Score – 4)

crop rotation, mixed farming, bio-fertiliser and pesticides, rather they give emphasis towards training on suitable variety of different crops, integrated disease and pest management, integrated nutrient management and to some extent nursery management.

Horticultural crops have much potentiality in the tribal districts. The data collected about the preferred training areas on horticultural crops revealed (Table-2) that the respondents had opined processing and preservation of fruits vegetables, vegetable cultivation, integrated disease and pest

Table – 2: Preferred subject areas on Horticulture (N=240)

Sl. No.	Preference	Keonjhar		Sundargarh		Nuapada		Avg. Mean Score	Rank
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank		
1	Suitable variety	3.10	V	2.90	V	2.95	VI	2.98	V
2	Quality planting material production	1.75	IX	1.70	VIII	1.95	IX	1.80	VIII
3	Vegetable cultivation	3.40	II	3.25	II	3.30	III	3.32	II
4	Management of fruit crops	1.75	VIII	1.50	IX	1.65	X	1.63	IX
5	Flower cultivation	1.70	IX	1.50	IX	1.60	Xi	1.60	X
6	Integrated pest management	3.35	III	3.15	III	3.15	V	3.22	IV
7	Integrated disease management	3.45	I	3.25	II	3.25	IV	3.32	II
8	Integrated nutrient management	3.25	IV	3.10	IV	3.40	II	3.25	III
9	Use of plant growth regulators	2.95	VI	2.80	VI	2.90	VII	2.88	VI
10	Processing and preservation	3.40	II	3.50	I	3.55	I	3.48	I
11	Water management	2.35	VII	2.30	VII	2.40	VIII	2.35	VII
12	Cultivation of medicinal plants	1.35	X	1.35	X	1.40	XI	1.37	XI

(Maximum obtainable Score – 4)

management, integrated nutrient management and suitable varieties as the most preferred areas of training under horticultural crops.

Farm mechanisation is essentially required for timely operation of farm activities, cost effective due to labour scarcity and drudgery reduction. The data analysed in Table-3 revealed that the respondents had preferred more towards training on operation of various implements and

Table– 3: Preferred subject area on Farm Mechanization (N=240)

Sl. No.	Preference	Keonjhar		Sundargarh		Nuapada		Avg. Mean Score	Rank
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank		
1	Feasible implements	3.35	II	3.45	II	3.25	III	3.35	III
2	Repairing and maintenance of implements/machinery	1.95	V	1.80	VI	1.90	V	1.88	VI
3	Fabrication of handy tools	1.95	V	1.75	VII	1.85	VI	1.85	VII
4	Repairing and maintenance of pump sets	3.10	III	3.40	III	3.25	III	3.25	IV
5	Soil and water conservation	3.45	I	3.35	IV	3.55	II	3.45	II
6	Water management and precision farming	2.60	IV	2.35	V	2.40	IV	2.45	V
7	Operating implements and machineries	3.45	I	3.55	I	3.60	I	3.53	I

(Maximum obtainable Score – 4)

machineries followed by soil and water conservation, skill competency in use of feasible implements as well as repairing and maintenances of pump sets.

Livestock is another important vocation of the tribal people. They have also affinity for rearing of sheep, goat and poultry. The data content in Table-4 revealed that feed preparation

Table – 4: Preferred subject area on Animal production (N=240)

Sl. No.	Preference	Keonjhar		Sundargarh		Nuapada		Avg. Mean Score	Rank
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank		
1	Selection of breeds	1.85	Ix	1.80	IX	1.90	VII	1.85	IX
2	Up gradation of local breeds	3.35	III	3.25	II	3.45	I	3.35	II
3	Housing and maintainable	2.25	VII	2.10	VI	2.20	V	2.18	VII
4	Feeding management	3.25	IV	3.05	IV	3.45	I	3.25	IV
5	Health care	3.40	II	3.20	III	3.35	II	3.32	III
6	Fodder cultivation and feeding	2.30	VI	2.40	VII	2.60	III	2.43	VI
7	Value addition of local feed	2.60	V	2.65	V	2.45	IV	2.57	V
8	Feed preparation with local feed materials	3.65	I	3.65	I	3.35	II	3.55	I
9	Rearing of newly borne kids, chick and calf	2.00	VIII	1.95	VIII	1.95	VI	1.97	VIII

(Maximum obtainable Score – 4)

with local feed materials, up gradation of local breeds, health care and feeding management were the most preferred areas on animal production.

Though pisciculture has not much potentiality in tribal districts, still the government has put emphasis for pisciculture activities in water reservoirs, community tank, water harvesting structures etc. It has been observed from Table-5 that the respondents had not expressed much training

Table - 5: Preferred subject area on Pisciculture **(N=240)**

Sl. No.	Preference	Keonjhar		Sundargarh		Nuapada		Avg. Mean Score	Rank
		Mean Score	Rank	Mean Score	Rank	Mean Score	Rank		
1	Fry and fingerling production	1.90	V	1.95	V	2.40	IV	2.08	VI
2	Design and construction of fish pond	1.85	VI	1.80	VII	2.15	VII	1.93	VIII
3	Feeding management	2.05	IV	2.05	IV	2.40	IV	2.17	V
4	Disease management	2.15	III	2.15	III	2.50	II	2.27	III
5	Composite fish farming	3.40	I	3.25	II	3.55	I	3.40	II
6	Pisciculture in community tank and reservoir	3.30	II	3.45	I	3.55	I	3.43	I
7	Paddy cum fish farming	2.15	III	2.15	III	2.35	V	2.22	IV
8	Multiple stocking and harvesting	1.40	VIII	1.40	IX	2.05	VIII	1.62	XI
9	Ornamental fish production	1.85	VI	1.85	VI	2.25	VI	1.98	VII
10	Fresh water prawn production	1.40	VIII	1.35	X	2.45	III	1.73	IX
11	Production of fin and shell fish	1.60	VII	1.15	VIII	1.85	IX	1.67	X

(Maximum obtainable Score – 4)

on pisciculture. The only preferred training expressed by them was on pisciculture in community tank and reservoirs.

Farm forestry is another important farm activity in the tribal areas for optimum use of the available resources. As observed from Table-6, Lac cultivation, value addition of non-timber forest based farming system as well as management of forest plants were the preferred areas of training on farm forestry.

Table – 6: Preferred subject area on farm forestry (N=240)

Sl. No.	Preference	Keonjhar Mean Score	Keonjhar Rank	Sundargarh Mean Score	Sundargarh Rank	Nuapada Mean Score	Nuapada Rank	Avg. Mean Score	Rank
1	Quality planting material production	2.15	VI	2.15	IV	2.55	IV	2.28	IV
2	Management of forest plants	3.05	IV	3.25	III	3.40	I	3.23	III
3	Forest based farming system and management	3.25	II	3.35	II	3.15	II	3.25	II
4	Nutrient management	1.70	VII	1.90	VI	2.10	VI	1.90	VI
5	Disease management	2.20	V	2.10	V	2.45	V	2.25	V
6	Mulberry/silk worm cultivation	1.40	VIII	1.40	VII	1.95	VII	1.58	VII
7	Lac cultivation	3.40	I	3.45	I	3.10	III	3.32	I
8	Value addition of non-timber forest produce	3.10	III	3.25	III	3.40	I	3.25	II

(Maximum obtainable Score – 4)

The tribal district has complex diverse and risk prone agriculture for which production and productivity of crops are comparatively low. The tribal farmers including women have not utilise their time productively. Therefore, additional income generating activities are essential for their sustainable livelihood. The data analysed in Table-7 revealed that nursery

Table – 7: Preferred subject area on income generating activities (N=240)

Sl. No.	Preference	Keonjhar Mean Score	Keonjhar Rank	Sundargarh Mean Score	Sundargarh Rank	Nuapada Mean Score	Nuapada Rank	Avg. Mean Score	Rank
1	Mushroom cultivation	3.15	III	3.10	IV	3.0	IV	3.08	III
2	Bee keeping	3.00	IV	2.55	VII	2.50	VI	2.68	VI
3	Fabric printing	1.60	VIII	1.45	IX	1.55	VIII	1.53	VIII
4	Embroidery and Tailoring	1.45	IX	1.30	X	1.50	IX	1.42	IX
5	Nursery raising	3.25	II	3.45	I	3.35	I	3.35	I
6	Nutritional gardening	2.95	V	2.75	V	2.60	V	2.77	IV
7	Poultry rearing	3.40	I	3.25	III	3.05	III	3.23	II
8	Preservation and value addition	3.15	III	3.35	II	3.20	II	3.23	II
9	Designing and production of handicrafts	1.90	VII	1.55	VIII	1.95	VII	1.80	VII
10	Vermi composting	2.90	VI	2.70	VI	2.50	VI	2.70	V

(Maximum obtainable Score – 4)

Raising, poultry rearing, preservation and value addition of farm produce and mushroom cultivation were the most preferred training areas on income generating activities.

Conclusion

The tribals have low perception and understanding about farm activities. They have their own traditional mind set. In order to bring them in to the mainstream of life,KVK have to organise training programmes initially with their preferred areas to develop confidence and expanding their horizons. The findings therefore suggested that KVKs in the tribal areas should organise training programmes on suitable varieties of various crops, integrated nutrient, disease and pest management, nursery management, vegetable cultivation, processing, preservation and value addition of fruits and vegetables, competency in operating feasible implements and machineries, soil and water conservation, repairing and use of pump sets, feed preparation with local feed materials, up-gradation of local breeds, health care and feeding management under animal components, pisciculture in community tanks and reservoirs, lac cultivation, value addition of non-timber forest. Produce, forest based farming systems, management of forest plants, poultry rearing and mushroom cultivation were the preferred areas of the training to the tribals.

It is therefore suggested that KVKs functioning in the tribal districts have to organise training programmes preferably on these aspects to enrich the knowledge and skill competence of the tribal peoples on their preferred activities. These training programmes have not only helped the tribal to increase their production and income but established their confidence with KVKs which will facilitate to organise other training programmes best suitable to their situation.

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Modification and Evaluation of a Steel Bullock Cart for Better Rural Transport

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Abstract

A study was undertaken under the All India Coordinated Research Project on Utilization of Animal Energy at College of Agricultural Engineering & Technology, OUAT, Bhubaneswar to evaluate the efficiency of the steel bullock cart (INSDAG, Kolkata design) after providing a rubber liner on periphery of steel wheels and bearings and brakes on wheel axles facilitating smooth movement and less draft requirement for pulling the cart. During the experiment, the steel cart was pulled by a pair of non-descript small size bullocks of Odisha having body pair weight of 420 kg following the standard work rest cycle of 1hr work + 15 minutes rest + 1 hr work + 20 minutes rest + 1 hr work. The small size bullocks were found to be sustainable within the threshold fatigue level for pulling 1200 kg and 1000 kg pay load for 3 hours with rubber lining on wheels operated under tar road and kuchha road conditions respectively as compared to 900 kg and 800 kg under similar road conditions without rubber lining. The average percentage of wheel slip in case of rubber lining wheel was less as compared to that of iron wheel without rubber liner for the range of loads varying from tare to 1200 kg. The wear pattern for both the wheels have been studied with different payloads ranging from tare weight to 1200 kg, which indicated that the wear rate (% decrease in thickness of the rubber liner) was in the range of 0.155-0.670% and 0.301-0.887% in case of tar road and kuchha/earthen road conditions respectively. Furthermore, a dynamo operated lighting system has been incorporated in the cart which makes provision for indicator lights, head light and horn system along with mobile set charging system in order to facilitate its safe movement during night hours adhering to traffic rules and regulations

Introduction

Transportation system in rural India is dominated by traditional wooden bullock carts even today for carrying the agricultural inputs and produce to the nearby markets covering small and even medium distance (Anonymous, 2012). Use of bullock cart will also remain in existence in tribal populated areas for long future due to the predominance of bullock farming system and poor socio-economic condition of the people (Srivastava, 2000). It has been estimated that there are at present 15 million bullock carts in India, out of which 80 % are of conventional type

(Ghosal et al. 2012). The existing traditional bullock carts are mostly made up of wood/ bamboo which vary in design and load carrying capacity being manufactured by rural artisans while no standard design is followed. The prime limitations of the traditional carts are their low pay load capacity, lack of standard design, poor stability and lack of proper alignment between the yoke and the platform (Ramanujam, 1993). Keeping in view of the importance and need of cart mechanization in near future particularly for tribal dominated areas and in rural sectors, one organization namely, Institute of Steel Development and Growth (INSDAG), Kolkata has designed and developed an improved steel bullock cart for higher pay load, stability and more comfort to the bullocks compared to conventional bullock cart (Anonymous, 2005). The performance of the steel cart of 2.0 tonnes capacity was found to be satisfactory for medium size bullocks of Odisha both for tar and katcha road (Ghosal et al. 2011). The information on the suitability of steel cart of 2.0 tonnes capacity for small size bullocks of Odisha is not available although it is quite important for tribal areas where non-descript small size draft bullocks are the major source of farm power. Almost all farmers among the tribal community are of small and marginal category as per 2011 census and bullock based farming is predominantly followed for performing various agricultural operations. Studies (Ghosal et al. 2011) on the performance of steel cart (2.0 tonnes capacity) of INSDAG design revealed that the existing rural road conditions (earthen and tar road) were found unsuitable for long hours of use due to high friction between the metallic rim and the road surface causing partial damage to the track as well as wheel. Hence it was felt necessary to put a rubber liner on the iron wheels of the cart, as a modification, in order to prevent the damage of the rural road. The present study was therefore taken up to evaluate the suitability of steel cart of 2.0 tonnes capacity for small size bullocks of Odisha and to assess the feasibility of using rubber liner from wearing point of view. Furthermore, some additional facilities like provision of head light, indicator horn etc. have become essential for facilitating movement following traffic rules during night hours.

Materials and Methods

The two-wheeled steel cart (2.0 tonnes capacity) developed by the Institute of Steel Development and Growth (INSDAG) and fabricated by M/S Viswakarma Fabricators, Aska, Ganjam, Odisha has been procured for the study. The iron wheels of the steel cart have been modified by putting rubber liner around their periphery to protect the road from damage by iron wheels alone. The rubber material was collected from the middle portion of an old and rejected tyre of the truck and its thickness was 1 inch. The cost of rubber liner for both the wheels was Rs. 1000/- (@ Rs. 25/- per feet for 40 feet long liner). The study was conducted in the test track available in the premises of College of Agricultural Engineering and Technology, OUAT, Bhubaneswar, Odisha, India during the year 2013. Standard techniques were used for measurement of the different parameters to study the performance of the cart. The experiment was conducted at three hours for each payload and the observations were taken in one hour interval. The modified cart has been evaluated with the help of two non-

descript small size bullocks (pair weight 420 kg) commonly available in the tribal districts of Odisha.

Development of Dynamo operated lighting system

The dynamo operated lighting system consists of a mechanical power transmission system from cart wheel to gear box , a gear box with two helical gears, a generator, a 6V battery and a circuit for supplying current. The first mechanical power transmission system (between spokes of cart wheel and an extension of the gear box) has got speed ratio of 1:2, which connects to the gear box having speed ratio of 1:8 and finally the speed ratio from gear box to the generator has been 1:3 being transmitted through belt and pulley arrangement. Thus the speed ratio from the cart wheel to the generator shaft becomes 1:48 which generate adequate electrical power for charging a 6V battery and supplying AC current to the lighting system. The system has been designed considering the average speed of the cart within the range of 1-3 kmph. The provision of 6V battery ensures operation of lighting system in DC circuit during halt in night hours.

Observations

i) Pay load, kg

ii) Draft, N

iii) Forward speed (m/s)

iv) Wheel slippage (%)

v) Physiological responses of bullock (pulse rate, respiration rate, body temperature)

vi) Fatigue score

vii) Wear pattern (decrease in thickness) of rubber liner used in both the wheels

Results and Discussion

Evaluation of steel cart without and with rubber liner on the wheels for tar road

The cart was evaluated without and with rubber liner on the wheels by the small size bullocks of Odisha under tar road condition. In the first phase, the performance of the cart without rubber liner was studied for seven days with the change of pay loads ranging from tare to 1000 kg. The work rest cycle of 1 hour work + 15 min rest + 1 hour work + 20 min rest + 1 hour work was followed during the test period. The total hours of operation were 21 for 3 hours of use in a day. In the second phase, the performance of steel cart with rubber liner was studied for the same small size bullocks and the same work rest cycle with the change of pay loads ranging from tare to 1300 kg. The total hours of operation were 22. The fatigue score, corresponding to different pay loads during the test period indicated to limit the test up to pay loads of 1000 kg and 1300 kg with the wheels without and with rubber liner respectively. Therefore the duration of test was restricted accordingly. The results of the experiment conducted for the various pay loads in case of without and with rubber liner on tar road are presented in Tables 1 and 2 respectively.

Table 1. Performance of steel bullock cart (2.0 tones capacity) with iron wheel without rubber liner pulled by a pair of small size bullocks on tar road

S. No.	Pay load (kg)	Av. Draft (kg)	Av. Draft (N)	Draft, (%) of body weight	Av. Speed (km/h)	Av. Power, requirement (kW)	Av. wheel slippage (%)	Fatigue score
1	Tare (280+50)	14	137.34	4.04	3.27	0.15	0.56	8
2	400	22	215.82	5.23	3.20	0.19	0.54	10
3	600	26	255.06	6.19	3.02	0.21	0.51	13
4	700	30	294.3	7.14	2.91	0.23	0.47	15
5	800	35	343.35	8.33	2.73	0.26	0.40	18
6	900	39	382.59	9.28	2.62	0.27	0.35	19
7	1000	43	421.83	10.23	2.55	0.29	0.31	22

Table 2. Performance of steel bullock cart (2.0 tones capacity) with iron wheel with rubber liner pulled by a pair of small size bullocks on tar road

S. No.	Pay load (kg)	Av. Draft (kg)	Av. Draft (N)	Draft, (%) of body weight	Av. Speed (km/h)	Av. Power, requirement (kW)	Av. wheel slippage (%)	Fatigue score
1	Tare (280+50)	11	107.91	2.61	3.96	0.11	0.40	6
2	400	19	186.39	4.52	3.6	0.18	0.36	8
3	600	23	225.63	5.47	3.13	0.19	0.32	10
4	800	32	313.92	7.61	2.88	0.25	0.30	12
5	900	37	362.97	8.80	2.77	0.27	0.26	15
6	1000	39	382.59	9.28	2.7	0.28	0.23	16
7	1200	42	412.02	10	2.55	0.29	0.22	19
8	1300	45	441.45	10.71	2.41	0.29	0.21	23

The results indicated that the average draft increased from 137.34 to 421.83 N when pay loads increased from tare weight to 1000 kg in case of iron wheel without rubber liner as against average drafts from 107.91 to 441.45 N with increase of pay loads from tare weight to 1300 kg for iron wheel with rubber liner on the tar road. The average speeds were found to decrease from 3.27 to 2.55 kmph from tare weight to 1000 kg in case of iron wheel of cart without rubber liner as against average speeds from 3.96 to 2.41 kmph with increase of pay loads from tare weight to 1300 kg for iron wheel with rubber liner. Similarly, the power requirements increased from 0.15 to 0.29 kW when pay loads increased from tare weight to 1000 kg in case of iron wheel of cart without rubber liner as against the same from 0.11 to 0.29 kW with increase of pay loads from tare weight to 1300 kg for iron wheel with rubber liner. The average wheel slippage percentage decreased from 0.56 to 0.31 when pay loads increased from tare weight to 1000 kg in case of iron wheel

of steel cart without rubber liner as against the same from 0.4 to 0.21 with increase of pay loads from tare weight to 1300 kg for iron wheel with rubber liner. It was found that non-descript small size bullocks could sustain pulling only 900 kg pay loads for three hours of use of the above cart on the tar road in case of wheels without rubber liner as fatigue score was calculated to be 19. Similarly, the sustainable pay load for the same small size bullocks in case of wheels with rubber liner was observed to be 1200 kg on the tar road with the fatigue score of 19, just below the threshold fatigue level of 20 (Upadhay and Madan, 1985). With further increase of pay load to 1300 kg, the fatigue score reached to 23.

Wear pattern study of rubber liner for both the wheels of steel cart on tar road

While studying the performance of cart with the wheels having rubber liner, the wears (decrease in thickness of rubber liner) of both the wheels were measured on hourly basis with respect to increased pay loads and time. But mean percentage wears of rubber liner on each wheel at each pay load after 3 hours of use have been mentioned in Table 3. The total hours of operation were 22. On the tar road, the small size bullocks were found to pull a sustainable load of 1200 kg continuously for three hours after following a work rest cycle of 1 hour work + 15 min rest + 1 hour work + 20 min rest + 1 hour work. Thereafter, the wear pattern was studied for a sustainable load of 1200 kg for seven days with 3 hours of use in each day and the data were placed in Table 4. The thickness of rubber liner was measured at ten different points on the periphery of each wheel. In the first phase, the pay loads were increased from the tare weight to 1300 kg. The thickness of rubber liner at ten different points for each wheel was measured on hourly basis and finally the mean percent wear from initial stage to third hour of operation was calculated for both the wheels. It was observed that for all pay loads, the wears at the ten different points in the left wheel were more than those of right wheel. This may be attributed to the existence of slope in the test track and also due to the difference in the height of neck of both the bullocks used for the study. The mean percent of wears were observed to be from 0.155 to 0.533 for right wheel with pay loads ranging from tare to 1200 kg on tar road. Similarly, the mean percent of wears were from 0.341 to 0.670 for left wheel with pay loads ranging from the same tare to 1200 kg on the tar road. Also the mean percentage decrease in thickness of rubber liner for both the wheels from initial to 3rd hour of each pay load was calculated and found to be varied from 0.248 to 0.601 for the pay loads ranging from tare to 1200 kg. The small size bullocks of Odisha were found pulling a sustainable load of 1200 kg for three hours with the above work rest cycle on the tar road with a fatigue score of 19. The experiment was also continued to the next day with a further pay load of 1300 kg. After 1st hour of operation, the distress symptoms of both the bullocks were observed to be so prominent that the experiment was stopped on that day as fatigue score reached to 23. The experiment was started in the same manner in the next day directly with the sustainable load of 1200 kg and continued for seven days. The total hours of operation at sustainable load were 21. At the sustainable load of 1200 kg, the mean percent of wears

were observed to be from 0.583 to 0.659 for right wheel after seven days of operation of steel cart on the tar road. Similarly, the mean percent of wears were from 0.685 to 0.788 for left wheel during the same seven days of working of the cart. Also the mean percentage decrease in thickness of rubber liner for both the wheels from initial to 3rd hour of each day's of operation were calculated and found to be varying from 0.634 to 0.723. The predicted equation for the variation of mean percent of wear with the time of operation for both the wheels at the sustainable load has been derived to calculate the percent of wear with the use of the rubber liner for their replacement. Allowing about 10 percent wear of rubber liner (Kravckenko et al. 2012) for safe use before replacement, it can be used for about 550 hours with the steel cart on tar road without affecting the surface of the track.

Table 3: Wear pattern (decrease in thickness) of rubber liner on iron wheels of 2.0 tonnes capacity steel bullock cart on tar road

Sl. No.	Payload (kg)	Mean percentage wear of rubber liner on right wheel after 3 hours of use	Mean percentage wear of rubber liner on left wheel after 3 hours of use	Mean percentage wear of rubber liner for both wheels after 3 hours of use
1	Tare (280 + 50)	0.155	0.341	0.248
2	400	0.260	0.434	0.347
3	600	0.354	0.489	0.421
4	800	0.420	0.552	0.486
5	900	0.443	0.613	0.528
6	1000	0.468	0.664	0.566
7	1200	0.533	0.670	0.601
8	1300	0.185	0.225	0.605

Table 4: Wear pattern (decrease in thickness) of rubber liner on iron wheels of 2.0 tonnes capacity steel bullock cart at a sustainable load of 1200 kg on tar road

Day of Experiment (3 hours use in each day)	Total Hours of use (hr)	Mean percentage wear of rubber liner on right wheel after 3 hours of use in each day	Mean percentage wear of rubber liner on left wheel after 3 hours of use in each day	Mean percentage wear of rubber liner for both wheels after 3 hours of use in each day
1st	3	0.583	0.685	0.634
2nd	6	0.586	0.690	0.638
3rd	9	0.605	0.718	0.661
4th	12	0.611	0.723	0.667
5th	15	0.634	0.743	0.688
6th	18	0.649	0.755	0.702
7th	21	0.659	0.788	0.723

The steel bullock cart (2.0 tonne capacity) has been tested with and without the use of rubber liner in tar road after modifying the periphery of its wheels with rubber lining. The steel cart was operated with a pair of non-descript small size bullocks of Odisha having pair body weight of 420 kg. The work rest cycle followed was 1hr work + 15 minutes rest + 1 hr work + 20 minutes rest + 1 hr work. The cart was found to be working nicely without damaging the road.

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The insect Pest Scenario in Finger Millet (*Elusinecoracana*(L) Gaertn) and its role in Food and Nutritional Security

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Abstract

An experiment was conducted at the Centre for Pulse Research (CPR), Berhampur, OUAT, Odisha under All India Coordinated Small Millet Improvement Project (AICSMIP) during *Kharif*, 2012 &2013 to study the insect pest population in finger millet crop and presence of beneficial insects. Eighteen numbers of Advanced Varietal trials (AVT 3) were tested during Kharif, 2012. From the result it was observed that the grass hopper infested plants ranged from 4.2%-14%,the leaves infestation by grass hoppers ranged from 0.7%-7%. Among the sucking pests aphids' incidence was observed caused plants infestation ranged from 13.1%-51.4%. At the same time the population of natural enemies were very high recorded 2.7-6.7 numbers of spiders & 0-1.7 numbers of Ladybird beetles.Seventeen numbers of Advanced Varietal trials (AVT 3) were tested during Kharif, 2013. From the result it was observed that the grass hopper infested plants ranged from 0%-6.3%, the leaves infestation by grass hoppers ranged from 0-15.2%. Among the sucking pests plants infestation ranged from 0-2.7% and1.6% to 10.2% panicle infestation. At the same time the population of natural enemies were very high recorded 3.0 numbers of spiders & 4.7 numbers of Lady bird beetles per sq. mt. Visualising the insect pest scenario of two consecutive years it became clear that the abundant presence of natural enemies in the finger millet ecosystem the harmful insects like defoliators and sucking pests are naturally managed without any external chemical protection. Finger millet crop shows exillent climate resilience, can be grown in diverse climatic conditions with minimum care and management can serve the nutritional and food security.

Introduction

The small millet includes Finger millet, Kodomillet, Foxtail millet, Little millet, Barnyard millet and Proso millet. They account for 1.88 m. ha and production of 2.01 m t of which finger millet alone covers an annual planting area of about 60% and 78% of production. Finger millet crop shows exillent climate resilience can be grown in diverse climatic conditions with minimum care and management. This is a crop of antiquity and known for its suitability to dry lands, hill and tribal agriculture and contributes to food security at farm and regional level. It requires small quantity of water, mature early

and well suited for cultivation under scarcity conditions. Finger millet is considered to be most preferred among these small millet crops. The productivity of finger millet in India is 1396 kg/ha (Annual Report, AICSMIP, 2013-14). Each 100gm grains have 354 Kilo calories of energy. Finger millet is known for its unique nutritional properties particularly high fibre content (3.6 gm./100 gm.), quality protein, and mineral composition. It has high calcium content (410 mg/100gm) compared to any other cereals coupled with high protein content (7.6 gm./100 gm.). It is a very good food for infants and elderly citizens and patients. Because finger millet has low glycaemic value this food lasts for long time in digestive system, which attribute is desirable for sugar patients and particularly hard working people. Finger millet is rich in vitamins like thiamine, riboflavin, niacin and four rare essential amino acids like cysteine, tyrosine, tryptophan and methionine. Due to high potassium content (314 mg/100gm) it increases the inbuilt resistance against bacterial and fungal diseases. Due to presence of antioxidants it reduces the risk of heart, kidney problems and cancer. It is rich in iron content 12.6mg/100gm, increases the red blood corpuscles in blood.

Materials and Methods

Keeping the importance of small millets the All India Co-ordinated Small Millet Improvement Project (AICSMIP) focus on crop improvement and scientific package of practice all over the country. Under the umbrella of AICSMIP, varietal screening programme against major insect pests was conducted at Centre For Pulse Research (CPR) during 2012 and 2013 Kharif season. It was replicated thrice in RBD design. Eighteen numbers of Advanced Varietal trials (AVT 3) along with three local checks were tested during Kharif, 2012. Seventeen numbers of Advanced Varietal trials (AVT 3) with one local check were tested during Kharif, 2013. Recommended dose of fertilisers @ 40:20:20 kg N, P_2O_5 &K_2O/ha were provided and no plant protection chemicals were given to ensure the natural biodiversity of insects.The observations on percentage plants, percentage leaves damaged due to grasshoppers at 30-35 DAS and the percentage Dead Heart due to stem borer infestation was observed at 45 DAS. The observations on percentage plants infestation by aphids was taken at 30-35 DAS and panicle infestation by aphids was recorded. The population of spiders and ladybird beetle per meter square was also taken.

Results and Discussions

From the result of Kharif,2012 it was observed that the grass hopper infested plants ranged from 4.2%-14%,the leaves infestation by grass hoppers ranged from 0.7%-7%. Among the sucking pests aphids' incidence was observed to cause plants' infestation ranged from13.1-51.4%. At the same time the population of natural enemies were very high recorded 2.7-6.7 numbers of spiders & 0-1.7 numbers of Lady bird beetles per sqmt. Insecticides are not recommended for control of aphids as the predators of family Coccinellidae and Syrphidae are very active in the field (Jagdish et. al, 2008). Seventeen numbers of Advanced Varietal trials (AVT 3) were tested during Kharif, 2013. From the result it was observed that the grass hopper infested plants ranged from 0%-6.3%, the leaves infestation by grass hoppers ranged

from 0-15.2%. Among the sucking pests plants infestation ranged from 0-2.7% and panicle infestation from 1.6%-10.2%. At the same time the population of natural enemies were very high recorded 3.0 numbers of spiders & 4.7 numbers of Lady bird beetles per sq. mt. The adults in captivity as well as in field searched each plant thoroughly for aphids before moving on to the next.(Nath et.al, 1976) Many other populations of parasites and predators were found in the ragi ecosystem. The stem borer incidence was negligible during the kharif seasons.

Conclusion

Visualising the insect pest scenario of two consecutive years it became clear that the abundant presence of natural enemies in the finger millet ecosystem the harmful insects like defoliators and sucking pests are naturally managed without any external chemical protection. The fingers of ragi provide a perfect niche for breeding and shelter to these spiders who take vital role in natural insect pest management as they are voracious predators of insects. Finger millet as such does not need any specific plant protection measure. It is reported by Department of Agriculture, Gov. of Sri Lanka that "No severe insect pests have been reported on finger millet in Sri Lanka"(2011-12).It is observed that the area under small millet is in alarming situation. So attempts have been taken to expand the cultivation of Finger millet through Front Line Demonstration (FLD) for food and nutritional security and sustainable livelihood security.

Table1. Incidence of insect pests in finger millet entries of AVT III at Berhampur, Odisha duringKharif,2012-13 (Mean of three replications).

Entry No.	Grasshopper incidence at 30 - 35 DAS			Aphid incidence at 45 DAS		Ear caterpillar	No of predators per m^2	
	% plants	% leaves	% leaf area	% plants	No of aphids/cm^2 leaf or panicle area	% ear infestation	Spiders	Ladybird beetles
1	4.2	0.9	4.5	33.5	25	6.6	3.3	1.3
2	6.0	0.7	6.2	27.0	18		5.0	1.0
3	10.5	6.4	8.5	24.7	27		5.3	1.0
4	7.1	3.0	5.0	21.5	30		6.7	0.7
5	13.1	0.9	2.4	32.4	41		4.3	1.0
6	8.5	2.0	3.7	13.1	27		5.0	0
7	9.0	1.0	4.3	48.1	18	8.3	2.7	1.0
8	7.6	1.5	6.1	26.7	26		4.7	0
9	5.1	7.0	7.4	22.8	31		2.7	0.7
10	11.2	1.0	2.8	16.0	24		4.7	0.7
11	7.8	2.7	5.3	25.9	19		6.0	0.3
12	5.6	0.9	8.1	21.5	25	6.6	4.0	0.7
13	12.5	2.4	4.5	15.0	28		5.0	0.7
14	11.9	0.8	6.1	37.5	21	3.3	5.7	0.3

15	4.8	1.8	7.0	41.4	34		5.7	0
16	9.1	1.7	8.5	45.6	30		3.3	1.3
17	12.3	0.9	11.0	51.4	38		4.3	1.7
18	14.0	3.2	7.6	18.2	23		4.3	0.7
19*	8.6	1.0	6.4	28.5	30		2.7	0.3
20*	6.0	1.0	7.0	40.2	27	10	3.0	0.3
21*	7.5	1.0	8.2	42.1	31		3.0	1.3

*= Local check "T19-Bhairabi, T20-Chilika, T21-PR 202"

Table2. Incidence of insect pests in finger millet entries of AVT III at Berhampur, Odisha during, Kharif 2013-14 (Mean of three replications).

Entry No.	Entry Name	Grasshopper incidence at 30 – 35 DAS		Aphid incidence		Stem borer incidence	No of predators per m^2	
		% affected plants	% infested leaves	% affected plants at 45 DAS	% affected panicles	% DH	Spiders	Lady bird beetles
1	GPU82	5.3 (2.41)	12.4 (3.59)	0 (0.71)	5.3 (2.41)	6.3 (2.61)	1.3 (1.140	0.7 91.10)
2	PR 10-14	6.3 (2.61)	15.2 (3.96)	0 (0.71)	2.0 (1.58)	4.3 (2.19)	0 (0.710	1.3 (1.340
3	BR 36	3.0 (1.87)	8.3 (2.97)	0 (0.71)	4.5 (2.24)	0 (0.71)	0 (0.71)	1.0 91.220
4	PPR 1012	0 (0.71)	0 (0.71)	0 (0.71)	1.8 (1.52)	4.0 (2.12)	1.7 (1.480	0.3 (0.89)
5	WWN 25	1.7 (1.48)	4.5 (2.24)	2.3 1.67)	7.9 (2.90)	3.8 (2.07)	2.7 (1.790	0.7 (1.10)
6	BR 64	4.3 (2.19)	14.4 (3.86)	2.0 (1.58)	6.7 (2.68)	1.0 (1.220	2.0 (1.580	2.7 (1.79)
7	PR 10-26	2.3 (1.67)	6.8 (2.70)	2.7 (1.79)	10.2 (3.27)	6.7 (2.68)	3.0 (1.870	4.7 (2.28)
8	KMR 126	0 (0.71)	0 (0.71)	1.7 (1.480	8.4 (2.98)	1.7 (1.480	1.7 91.480	3.0 (1.87)
9	GPU 67*	0 (0.71)	0 (0.71)	0 (0.71)	2.4 (1.70)	0 (0.71)	0.3 90.890	0.3 (0.890
10	PR 10-21	0 (0.71)	0 (0.71)	0 (0.71)	2.9 (1.84)	6.4 (2.63)	1.3 (1.340	0 (0.71)
11	PEH 1201	2.4 (1.70)	4.3 (2.19)	0 (0.71)	1.6 (1.45)	3.7 (2.05)	0 (0.710	0 (0.710
12	GPU 84	2.7 (1.79	9.6 (3.18)	0 (0.71)	2.4 (1.70)	0 (0.71)	2.3 (1.670	1.3 (1.340

13	BR 67	0	0	0	5.2	4.0	0.7	0.7
		(0.71)	(0.71)	(0.71)	(2.39)	(2.120	91.100	(1.10)
14	PPR 1010	2.3	10.2	1.7	7.4	4.7	2.7	1.3
		(1.67)	(3.27)	1.48)	(2.81)	(2.28)	(1.790	(1.34)
15	KMR 128	3.3	13.0	0	2.9	0	1.0	0
		(1.95)	(3.67)	(0.71)	(1.84)	90.710	91.220	(0.71)
16	PR 10-45	3.5	9.4	0	1.7	1.5	0.3	0.7
		(2.00)	(3.15)	(0.71)	(1.48)	(1.41)	90.890	(1.10
17	KMR216	0	0	0	4.0	0	0	1.0
		(0.71)	(0.71)	(0.71)	(2.12)	(0.710	(0.710	(1.22)
18*	Chilika	3.7	6.4	0	3.1	0	1.3	0.3
		(2.05)	(2.63)	(0.71)	(1.90)	(0.71)	(1.340	(0.89)
$CD_{0.05}$		0.02	0.02	0.01	0.02	0.02	0.04	0.07

*Local check T18-Chilika

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Role of Educational Climate in Women Development

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Abstract

The need of education for women needs no emphasis. The development of a nation equally depends on men and women. To bring women into the main stream of development, there is no other important factor than education. Therefore, education is one of the important aspects of development of women and society. University Grant Commission (1948) has emphasized expansion of women education for development of the society. Education and development are interlinked and interdependent. Mudaliar Commission (1952) had also emphasized education of women in social evolution. Keeping this background in view an attempt was made in Odisha to examine education of women at college level which can boost development at lateral stage.

To find out differential perception of urban and rural women students a sample of 300 students covering 11 districts with 21 colleges of Private, Government and Semi-Government were taken. The perception revealed that urban and rural women students had favourable responses for many variables like classroom arrangement, teaching materials, administration, overall facilities and educational system in general. Whereas negative responses were received for accommodation, common room facilities, reading room facilities, general health and hygiene. In short the findings revealed a wide variation between urban and rural women students about educational climate at college level. The variables like extra-curricular activities, examination system, exposure to mass media, friend circle and discipline of admission were dominant factors leading to academic achievement in rural areas. Academic climate in urban areas for the women revealed sports, tuition, library, education of parents were the attributing factors.

The established fact is that lower educational opportunities prevailed in the rural areas compared to urban areas for women. The study infers that unless educational opportunities are expanded in rural areas we must not expect much about development of the society so far as contribution of women to it is concerned.

Key words : *Educational Climate, Women Development, Educational Opportunities, Social Evolution.*

Introduction :

The need of education for women needs no emphasis . The development of a nation equally depends on men and women. To bring women into the main stream of development, there is no other important factor than education. Therefore education is one of the important aspects of development of women and society. In India at present many programmes and plans are exclusively meant for women and their welfare . Education is one of them. It is an established fact that education alone can bring about permanent change in the living style of women of the country . It is needless to say that women sector has been neglected especially with reference to educational opportunities.

University Grant Commission has emphasized expansion of women's education for development of the Society. Development and Education are inter- linked and inter-dependent.

Muduliar Commission (1952) had also emphasized education of women in Social evaluation.

As we know the present day development give more importance for women's participation in development, it is a fact that unless women are educated they can not contribute to development as per expectation. Keeping this background in view an attempt has made to examine education of women at college level, which can boost development at lateral stage.

A study was conducted in Odisha on the title mentioned above covering 11 district's with 21 colleges of Private, Government and Semi-Government in nature. All together 300 students were selected for the study, 150 from rural and 150 from urban areas. Information were collected on various dimensions of educational climate for women in the state. The objective of the study was:-

To examine the educational climate of colleges as perceived by women students of rural and urban areas in relation to their academic achievement.

Review of Literature :-

(1) Desai (1984) examined the change and traditionalism among college going urban girls . He found that the college going girls manifested relatively high mean scores on scientific achievement and orientation . Some what lower mean scores found on secular and civic orientation rather low scores on independence and unrealistic orientation. Scores on the overall modernity scale showed that the respondents had appreciably moved towards modern attitudes, values and behavior patterns. There was no marked difference in the modernity of the girls students, coming from rural and urban back ground.

Suman (1986) stated that recreational facilities along with educational programme can make women students more efficient and these are to be provided in the institution. To make them fit to work hard and go ahead the educational institutions should provide necessary facilities in terms of class room, reading room, library facilities etc.

Sharma and Sharma (1995) observed that education is spreading horizontally from big nuclear village to small peripheral villages and vertically from higher social caste groups to lower ones and from higher income groups to lower income groups . Another factor also appear to influence women for the spread of

education among women in rural areas is urban contact. Contact with big cities mainly because of economic dependence women folk especially the younger members whose fathers and brother staying in big cities were better educated than women in household with no urban contact. With the advance of women's education in rural areas, number of girls are therefore reaching higher stages of education and as a result there is inevitable change in the pattern of social and cultural life. Section of uneducated society are getting exposed to the excellence especially women hole educated mothers would not like their daughters to be less educated . This is a powerful factor in women's education in sense that it works like the law of compound interest. It is in this that lies the best guarantee of the progress of women education in future in rural areas.

According to Neera Desai and Usha Thakkar (2001) – where as literary and elementary education fulfill social and human development needs and become instruments of better health and for income generation, the higher education of women promotes social and occupational mobility and leads to intellectual and personal development, quite often resulting in generating elitist culture. Thus, higher education is seen as crucial step in personal, familial and societal mobility. One of the paradoxes of women's education has been that whereas literacy and elementary education which touches the mass of women presents a glooming scenario, the picture of women in higher education is not so depressing.

A review of latest trends towards change in women's access to higher education reported by UNESCO (2012) in its first world Atlas of Gender Equality in Education demonstrates the expansion at an unprecedented rate for women in higher education from 1970 to 2009. As stated by the report, during this period women have been the principal beneficiaries of the higher education expansion phenomenon in all religion, growing their participation from 8 to 28 percent in comparison with men that went from 11 percent in 1970 to 26 percent in 2009, thus shifting gender disparity from male to female dominance. According to Rama (2009), such trend towards change in women's access to higher education will continue over the coming decades, even though it is possible to assume that in the long run it will follow a slower pace.

Methodology

The study was conducted in Odisha covering the districts of Puri, Khurda, Jagatsinghpur, Dhenkanal, Angul, Bhadrak, Ganjam, Rayagada, Sundargarh etc. Both urban and rural women's colleges were selected on equal proportion as sample respondents to interview. As much as 300 girls students were randomly selected and interviewed by means of a structural interview schedule developed for the purpose. The student of all the streams belonging to final year of graduation were the sample for the study. Observation method was also followed to supplement the collected data.

Result and Discussion

(1) Availability of Infrastructural facility: For women students the facilities like transport, library, reading room, common room etc. are required to help in prosecuting higher education.

Table – I

Facilities for women students.

Sl. No.	Facilities	Frequency	Percentage
1.	Distance to college		
	i) within reach	190	63.33
	ii) Quite distant	110	37.67
2.	Transport		
	i) By the college	146	48.67
	ii) Self arranged	154	51.33
3.	Library facility		
	i) Very good	30	10.00
	ii) Good	50	16.67
	iii) Bad	120	40.00
	iv) Very Bad	100	33.33
4.	Books and Journals		
	i) Sufficient	30	10.00
	ii) Not Sufficient	170	56.67
	iii) Not at all sufficient	100	33.33
5.	Reading room		
	i) Available	30	10.00
	ii) Not available	150	50.00
	iii) Bad condition	120	40.00
6.	Common Room		
	i) Available	95	31.66
	ii) Not available	205	68.34

Results reveals that facilities like proximity, transport, library, books and journals, reading room, common room are quite in-sufficient to meet the requirement of the women student. About 36.67% of the women student feel that colleges at distant place while 51.33% reported of making self arrangement to reach the college which is quite difficult and some times risky also. Library facilities and availability of books and journals are in bad condition as reported by majority of the students. The situation of reading room and common room is far from satisfactory and 68.34% student said that common room is not available at all. It is important to note that 40% of the sample reported that reading room is in band condition.

Table – II
Academic Climate in College (N = 300)

Sl. No.	Facilities	Frequency	Percentage
1.	Completion of course (Theory and Practical)		
	i) Adequate	123	41.00
	ii) Manageable	158	52.67
	iii) Inadequate	19	6.33
2.	Clarification of doubts.		
	i) Quite satisfactory	84	28.00
	ii) Satisfactory	200	66.67
	iii) Not satisfactory	16	5.33
3.	Conduction of seminar		
	i) Good number	42	14.00
	ii) Very few	164	54.67
	iii) Not at all	94	31.33
4.	Examination		
	i) Very good	148	49.33
	ii) Good	144	48.00
	iii) Bad	08	2.67
5.	Evaluation		
	i) Very much perfect	52	17.33
	ii) Perfect	197	65.67
	iii) Little biased	40	13.33
	iv) very much biased	11	3.67
6.	Teacher-student relationship		
	i) Good	126	42.00
	ii) Average	168	56.00
	iii) Bad	06	2.00

Result reveals from table 2 that completion of course, clarification of doubts, conduction of seminar, examination and evaluation system, teacher student relationship is good and girl students both in urban and rural colleges are satisfied with this . About 52.62% students said that their coverage of course is manageable while 41% said adequate and 6.33% inadequate. Regarding clarification of doubts 66.67% girl students are satisfied, 28% are quite satisfied and 5.33% are not satisfied. 54.67% students had the opinion on conduction of seminar is very few, 31.33% not at all and only 14% students

are satisfied with conduction of seminar . Regarding examination system 49.33% girl students said that their examination system is very good, 48% good and only 2.67% said bad. Evaluation system in the colleges was perfect i.e 65.67%, 17.33% very much perfect, 13.67% little biased and 3.67% very much biased. Regarding teacher-student relationship 56% girl student had the opinion average, 42% good and only 2% was bad.

Academic climate in the college is very much important is it directly affects the achievement of the students . The study support the hypothesis that better is the academic climate at college, greater is the achievement of students. Course coverage, use of library are found to be important dimensions to decide the achievement of urban and rural girls. The study concluded that for better academic achievement few factors like coverage of course in stipulated period, clarification of doubts, conduction of seminar, systematic examination system, perfect evaluation and congenial teacher student relationship have to be strengthened. In other words those aspects are lacking in the colleges of women at large. The extra curricular activities should be strengthened to have proper exposure of girl students to the external world.

In finding out relative position of individual factors on score analysis the following results were obtained.

Table – III

(Score Analysis) (N=300)

Sl. No.	Factors	Score Value	Rank
1.	Completion of Course	2.34	IV
2.	Clarification of doubts	2.20	V
3.	Conduction of Seminar	1.82	VI
4.	Examination	2.46	II
5.	Evaluation	2.96	I
6.	Teacher – Student relationship.	2.40	III

The analysis reveals that, evaluation, examination & teacher – student relationship are found to be in 1st , 2nd and 3rd position where as seminar and clarification of doubts have been ranked lowest.

Conclusion

Academic climate in the college is very important as it directly affects the achievement of the students. The study supports the hypothesis better is academic climate at college, greater is the achievement of the students. The study concluded that for better achievement of women students few factors like coverage of course in stipulated period, systematic examination system, proper evaluation, clarification of doubts, conduction of seminar and congenial teacher- student

relationship have to be strengthened. In other words those aspects are lacking in the colleges of women in rural areas compared to urban areas. The study infers that unless educational opportunities are expanded in rural areas we must not expect much about development of the society so far as contribution of women is concerned.

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Impact assessment of technologies tested by KVK, Angul (Odisha) during 2001-2011

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A good number of agro technologies have been assessed and demonstrated in the farmers' field by KVK, Angul during 2001-2011. Impact assessment was conducted for 10 technologies involving 100 practicing farmers. The rate of adoption was found to vary considerably over the time, maximum (57%) being with the micronutrient application in groundnut followed by micronutrient (Zinc) application in paddy and minimum (10%) with use of multicrop planter for threshing of paddy for labour saving. Application of $ZnSo_4$ in paddy was found to spread maximum (420 ha) followed by Gypsum and Borax application in groundnut (290 ha). Use of farm machineries was observed to be less appreciated by the farmers over time. The constraints for adoption of these technologies were of various types. Among the biological constraints non-availability of quality input and seeds came to forefront followed by delayed availability. Non-availability of skilled labourers was found to be the main technological constraint. High cost of labour was the major socio-economic impediment followed by lack of appropriate credit facility for less adoption of technologies.

Key words: *Impact, Assessment, Technology*

Introduction

Assessment and refinement of technology through farmers' participatory on farm research is one of the main activities of Krishi Vigyan Kendras (KVK) established by Indian Council of Agricultural Research (ICAR), New Delhi. KVK, Angul being established during 2001-02 under the administrative control of Orissa University of Agriculture and Technology (OUAT), Bhubaneswar and technical guidance of Zonal Project Directorate (ZPD), ICAR, Jabalpur (M.P) has been accomplishing this assignment in a systematic manner. A good number of technologies have been assessed/ refined and disseminated through various extension programmes to address the emerging challenges of farming community. But no action has yet been taken up to assess the impact of these technologies. Therefore, this study was undertaken to assess the impact of the technologies tested during 2001-2011towards the sustainable production system.

Materials and methods

The study was conducted during 2013-14 in 10 adopted villages of KVK about 10 technologies tested, demonstrated and disseminated among the practicing farmers during 2001-2011. It was based on individual interactions as well as Focussed Group Discussion (FGD) of 100 farmers (10 for each technology) exposed to these technologies previously under the direct supervision of Krishi Vigyan Kendra. The list of these 10 technologies under the study has been given in Table 1. After successful assessment, the technologies had earlier been demonstrated in the farmers' field in the succeeding years through Front Line Demonstration programme (FLD) of KVK. The impact of these technologies on production system was analyzed on the basis of probed questions to the practicing farmers and extension functionaries of the locality. The adaptability of these technologies was assessed by scoring their adaptation rate and continuity. Constraints in adoption were recorded and categorized in to different groups. The problems experienced by the respondents were recorded and their frequency was found out for easy inference. The extent of horizontal spread of these technologies over the years was also estimated to determine their sustainability and social implications.

Results and discussion

Performance of the technologies

The performance of the technologies tested against the traditional farmers' practices is given in Table 2. Pre-emergence spraying of Pendimethaline (Stomp) @1330 ml/acre + hoeing and earthing up resulted in 50% enhancement of groundnut yield over farmer's practice of twice hand weeding.Net profit of Rs21,500.00 was obtained from this technology with B:C ratio of 1.9 against Rs 16,200.00 and 1.6 respectively from farmer's practice. Cultivation of HYV scented rice-Geetanjali resulted in net profit of Rs 10,500.00 as against of Rs 6,000.00 from local variety-Tulsiphool due to higher yield. Similarly a net profit to the tune of Rs45,000.00 was realized from cultivation of wilt tolerant chilly variety-Utkal Ava over Rs 36,000.00 from local variety susceptible to wilting. The B:C ratio was found to be 2.5.Suprava variety of ginger exhibited 19% more yield over local variety with net profit of Rs67,000.00/ha. Soil application of Gypsum @200kg/ha+ Borax @ 10kg /ha gave the yield advantage of 25% in groundnut with net profit of Rs28,000.00 and B:C ratio of 2.7.Similarly Soil application of $ZnSo_4$ @25 kg/ha resulted in 13% increased yield. Among the farm machineries, the use of drum seeder, multi crop thresher and power operated paddy cleaner exhibited 97%, 50% and 94% saving in labour cost respectively as compared to manual operations. Similarly, harvesting of ground nut by bullock drawn ground nut digger increased the digging capacity to the extent of 50%.

Impact of the technologies

Impact assessment of these technologies revealed that the technologies are being adopted by the farmers at variable rate (Table-3). Highest adoption rate (57%) was observed with soil application of Gypsum and Boron to mitigate the micronutrient deficiency in groundnut field soil. This technology was found to be extended horizontally to 290 ha more area of that locality. Similarly lower adoption rate was observed for the use of

multicrop thresher for paddy threshing (10%) without having any information for its horizontal spread. On the other hand the technology like soil application of $ZnSo_4$ to meet the zinc deficiency in paddy field soil was found to spread over 420 ha of additional area followed by the cultivation of wilt tolerant variety of Chilli Utkal Ava with horizontal spread of 382 ha. The impediments identified for variable adoption of these technologies were broadly under three groups viz. Biological hindrances, Technological hindrances and Socio-economic hindrances (Table-4). Among the biological constraints, Non-availability of inputs and seeds of high yielding variety of crops ranks first with frequency of 80% followed by delay in input availability (76%). The other deterrents under this category with frequency more than 60% are non-availability of wilt resistant variety (72%), inadequate supply of inputs (68%) and poor quality of inputs (63%). In technological category non-availability of skilled labours ranks first (with frequency of 75%) followed by lack of trained extension personnel for follow up. High cost of labour is the major socio economic constraints (with frequency of 90%) followed by lack of credit facility (82%) for adoption of these technologies. For successful adoption of these technologies in a sustainable manner it is highly essential to address there constraints in a time bound manner and system paradigm mode. The findings of this study are in conformity of the findings of Bhardwaj and Sharma (2014). Tomar (2014) has also reported similarly results in impact assessment of plant protection technologies for management of insect pests and diseases in Madhya Pradesh condition.

Table- 1.Technologies tested by KVK, Angul (Odisha) during 2001-2011

Sl.No	Crop/Enterprise	Identified problems	Details of technology tested
2	Scented rice	Low yield from local scented rice variety	Cultivation of HYV scented variety (Geetanjali)
3	Chilli	Low yield from local variety of chilly susceptible to wilting	Cultivation of wilt tolerant var. chilli-Utkal Ava
4	Ginger	Low yield from local variety of ginger	Cultivation of improved ginger var. Suprava
5	Groundnut	Low yield due to micronutrient deficiency in field soil	Soil application of Gypsum @200kg/ha+ Borax @ 10kg /ha
6	Rice	Low yield due to zinc deficiency in field soil	Soil application of $ZnSo_4$ @25 kg/ha
7	Multi-crop thresher	Expensive manual threshing of paddy	Use of multi-crop thresher for threshing of paddy
8	Drum seeder	Expensive manual weeding of paddy	Sowing of pre-germinated paddy by drum seeder
9	Groundnut digger	Expensive manual digging of groundnut	Harvesting of ground nut by bullock drawn ground nut digger
10	Paddy cleaner	Expensive manual cleaning of paddy	Use of power operated grain cleaner for cleaning of paddy

Table- 2. Effect of technologies tested by KVK, Angul (Odisha) during 2001-2011

Sl.No	Identified problems	Farmer's practice	Details of technology tested	Yield (q/ha)/Performance			Net p
				FP	RP	% change	FP
1	Weed infestation in groundnut	Manual weeding	Pre-emergence spraying of Pendimethline (Stomp) @1330 ml/acre + hoeing and earthing up	4.8	7.2	50	16,200
2	Low yield from local scented rice variety	Cultivation of local scented rice variety (Tulasiphol)	Cultivation of HYV scented variety (Geetanjali)	15.8	26.0	64.6	6,000
3	Low yield from chilli due to wilting	Cultivation of local variety of chilly	Cultivation of wilt tolerant var. chilli-Utkal Ava	105	130	24	36,000
4	Low yield from ginger	Cultivation of local variety of ginger	Cultivation of improved ginger var. Suprava	102	131	19	50,200
5	Micronutrient deficiency in groundnut	No Gypsum & Borax application	Soil application of Gypsum @200kg/ha+ Borax @ 10kg /ha	12.0	15.0	25	20,000
6	Zinc deficiency in rice	No application of Zn	Soil application of $ZnSo_4$ @25 kg/ha	23	26	13	8,000
7	Expensive manual threshing of paddy	Manual threshing	Use of multi-crop thresher for threshing of paddy	0.62 man. days / q.	0.31 man days / q.		50% labo
8	Expensive manual weeding of paddy	Manual transplanting	Sowing of pre-germinated paddy by drum seeder	Rs. 10,000/ha	Rs. 250/ha		97% reduc
9	Expensive digging of groundnut	Manual digging	Harvesting of ground nut by bullock drawn ground nut digger	0.2 ha./ day	0.3 ha./ day		50% i
10	Expensive cleaning of paddy	Manual cleaning	Use of power operated grain cleaner for cleaning of paddy	1.0 man day/q.	0.06 man day/q		94% lab

FP- Farmers' practice RP- Recommended practice (Tested technology)

Table- 3. Impact of technologies tested by KVK, Angul (Odisha) during 2001-2011

Identified problems	Technologies tested/demonstrated	Adaptability of technology	Horizontal spread
Weed infestation in groundnut	Pre-emergence spraying of Pendimethline (Stomp)@1330 ml/acre + hoeing and earthing up	32%	264 ha
Low yield from local scented rice variety	Cultivation of HYV scented rice variety (Geetanjali)	16%	170 ha
Low yield from local chilli variety	Cultivation of wilt tolerant var. of chilli-Utkal Ava	31%	382 ha
Low yield from local ginger	Cultivation of improved ginger var. Suprava	36.3%	90 ha
Micronutrient deficiency in groundnut	Soil application of Gypsum @200kg/ha+ Borax @ 10kg /ha	57%	290 ha
Zinc deficiency in rice	Soil application of $ZnSo_4$ @25 kg/ha	45%	420 ha
Expensive manual threshing of paddy	Use of multi-crop thresher for threshing of paddy	10%	NA
Expensive manual weeding of paddy	Sowing of pre-germinated paddy by drum seeder	13%	105 ha
Expensive manual digging of groundnut	Harvesting of ground nut by bullock drawn ground nut digger	16%	80 ha
Expensive manual cleaning of paddy	Use of power operated grain cleaner for cleaning of paddy	14%	NA

Table 4. Constraints in adoption of technologies tested/demonstrated by KVK, Angul (Odisha) during 2001-2011

Biological constraints	Frequency %	Technological constraints	Frequency %	Socio-economic constraints	Frequency %
Non-availability of wilt resistant variety	72	Non availability of skilled labour	75	High cost of input/machineries	72

Non-availability of inputs/HYV seed	80	Lack of trained extension personnel for follow up	65	High cost of labour	90
Poor quality of inputs	63	Lack of training for farmers	62	Lack of credit facility	82
Inadequate supply of inputs	68			Lack of strong support price	74
Delay in input availability	76			Fluctuated market price of produce	65
Lack of assured irrigation	60			Lack of storage facility	62
Poor drainage system	52			Lack of milling, processing and value addition	58

NB: Number of respondents-100

Conclusion

Impact assessment made for 10 technologies tested by KVK, Angul involving 100 practicing farmers indicated a considerable variation of adoption percentage , maximum (57%) being with the micronutrient application in groundnut followed by micronutrient (Zinc) application in paddy and minimum (10%) with use of multicrop planter for threshing of paddy for labour saving. Application of $ZnSo_4$ in paddy was found to spread maximum (420 ha) followed by Gypsum and Borax application in groundnut (290 ha). Use of farm machineries was observed to be less appreciated by the farmers over time. Among the biological constraints non-availability of quality input and seeds came to forefront followed by delayed availability. Non-availability of skilled labourers was found to be the main technological constraint. High cost of labour was the major socio-economic impediment followed by lack of appropriate credit facility for less adoption of technologies. These constraints need to be addressed systematically to improve the adoption percentage of these technologies.

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Women Empowerment and Sustainable Development through SHGs – A Study in Bhubaneswar City

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The word " Empowerment" is an active multidimensional process which enable the women to realize their power/ identity in the process of decision making, social participation, economic independence, market intelligence, political participation, extension participation, information seeking behavior, practicing science based technologies, leadership quality, award own and maintenance of health status.

The study "women empowerment and sustainable development through SHGs – A study in Bhubaneswar city" is an attempt to analyze the role and performance of SHGs in promoting socio-economic status of women in urban slum of Bhubaneswar city . The objective of study are to know the impact of SHGs in women empowerment and assessment of socio economic status of members and their families in view of participation in SHGs. To collect the data 5 SHGs were selected and 10 members from each SHGs all total 50 members of Niladrivihar slum were taken as the sample of the current study from Bhubaneswar city. Particularly women based SHGs were taken as the sample of the present study. Interview schedule was used as the tool for data collection and collected data was analyzed through quantative method.

It is reveal from the current study that SHGs activities will empower women those who are staying in urban slum. SHG is an easy source which will motivate the poor women in slum areas to change their economical and social status through group activities which will enhance their confidence and effort to maintain their livelihood and motivate them for more group activity.

Key words : *Women empowerment, sustainable development, socio-economic status, social transformation and Self Help Group (SHG)*

Introduction

The process of empowering women through self – Help Groups (SHGs) covers both rural and urban areas of the country. It has been observed that since the intervention of the programme a large number of women have been mobilized and organized into self Help Groups (SHGS) with regular practice of thrift and credit. The programmes aims at – making the women members self-dependent, self – reliant and self-sufficient through economic independence . The programme includes various training and capacity building, exposure visit, and loan linkage, practice micro

enterprise activity that leads to empowerment of women in different socio economic aspects. As the programme has been implemented for a long period of time by both the Government, Non-Government organization there is a need to asses the women empowerment through micro – entrepreneurship by self – help groups. The city Bhubaneswar has been surrounded by number of slums and all the slums are covered by the self-helps group programmes. The present study aims at assessing the women empowerment through SHGs in one of the urban slum of Bhubaneswar city. The findings of the research will spell out the women empowerment through self-help groups, which will be quite helpful to take up further development strategy of the all round development of women folk.

Objectives of the study

1. To find out the impact of SHGs in empowering women.
2. To have a critical assessment of socio-economic status of members and their families in view of participation in SHGs.

Review of Literate

1. Harper A (2000) stated that a large group is more likely to be influenced by existing social and economic structures within a community, rather than by the poverty alleviation agenda of the financial intermediary. This influence can be begin but is perhaps more likely to be oppressive.

2. NABARD (2000) conducted a study on the impact of micro finance (MF) on the living standards of SHGs members. The study aimed to find out how far the SHG bank linkage programme had lightered the burden of life for the average member of a SHG and to analyse the betterment of household by giving access to micro finance. The study covered 560 SHG members households from 223 SHGs spread over 11 states. It showed positive results. There were perceptible and wholesome changes in the living standards of the SHG members, in terms of ownership of assets increase in savings and borrowing capacity, income generating activities and income levels. The study revealed that almost all the members developed saving habits in the post SHG situation as against 23 percent of house holds who had this habit earlier and the average borrowing per year household increased from Rs.4,282 to Rs.8,341. The study concluded that the involvement in the group significantly contributed in improving the self confidence of the members. The feelings of self worth and communication with other improved after association with the SHGs and the members were relatively more assertive in confronting social evils and problem situation. As a result, there was a fall in the incidence of family violence.

3. Kurukhetra, February 2002 P. 26

SHGs enhances the equality of status of women as participants, decision makers and beneficiaries in the democratic, economic, social and cultural spheres of life. In all stages of economic and social activities involvement of women become essential. They encourage women to take active part in the socio-economic progress of our nation.

4. Yojana, September - 2002

Compared to two generation ago, wages rates and earnings have undoubtly gone up both in rural and urban areas. For more women are now in work force, as salaried employees in

a variety of jobs, whether it is constructive worker at the lower end of the economic spectrum, or women administration and scientists. Women today are economically better then they were at the time of independence. This economic improvement is not merely in monetary terms but also in real value terms, whether indices and base years are employs for compression.

Sampling of the Study

The total sample size for present study is 50. Five SHGs were taken and 10 members from each SHG of Niladrivihar Slum were interviewed for the present study. Hence , 50 respondents were interviewed randomly for collection of data through interview schedule. The researcher personally interviewed them as per the questions of the interview schedule to collect the data. Hence the sampling that has been adopted for the present study is random sampling.

Tools and Methods of data Collection

In the present study the researcher has taken of interview schedule as the main tool of data collection. The data were collected from both primary and secondary sources. The primary data were collected through personal interview schedule. Separate interview schedule was used for each respondent.

The secondary data were collected from official and non-official documents, various materials, different journals, magazines, books and articles from newspaper.

Result and Discussion

In order to know the socio-economic profile of the respondents an attempt has been made to gather information about the target group. There are some important tables given below which gives adequate information concerning the socio-economic life of the respondents.

Table – I
Age of Respondents

Sl. No.	Age	No. of Respondents	Percentage
1.	20 – 30	14	28
2.	31 – 40	26	52
3.	41 – 50	08	16
4.	51 above	02	04
	Total	**50**	**100**

Age classification is considered important in Socio-economic analysis because it is one of the aspects of demographic features in social structure.

The above table shows that out of 50 respondents 28% belongs to age group 20 – 30, 52% belong to the age group within 31-40 years , where as 16% are belonging to the age group of 41-50 years and a minimum number i.e 4% belongs to the age group above 50 years. From the above table it is known that the women between the age group 31-40 are very interested to join SHGs.

Table – 2

Caste

Sl. No.	Caste	Respondents	Percentage
1.	SC	19	38
2.	ST	04	08
3.	OBC	12	24
4.	General	15	30
	Total	**50**	**100**

The above table shows that 38% of the respondents belong to SC, 8% belong to ST, 28% OBS and the remaining 30% are from General Caste.

Table – 3
Types of family

Sl. No.	Types of family	Respondents	Percentage
1.	Nuclear	45	90
2.	Joint	5	10
	Total	**50**	**100**

The above table reveals that 90% are having nuclear family where as only 10% members are staying in joint family. Thus there is a decreasing trend in the joint family system due to migration of people from rural to urban areas.

Table – 4
Types of House

Sl. No.	Types of House	Respondents	Percentage
1.	Katcha	30	60
2.	Pucca	08	16
3.	Semi - Pucca	12	24
	Total	**50**	**100**

The above table shows that 60% are having Katcha house, 16% are having Pucca house and the 24% are having semi pucca house.

Table – 5
Educational Status

Sl. No.	Educational Status	No. Respondents	Percentage
1.	Illiterate	05	10
2.	Can Sign	11	22
3.	Upto VII	17	34
4.	Upto X	14	28
5.	X to +2	02	04
6.	Graduate	01	02
	Total	**50**	**100**

The above table reveals that 10% members are illiterate, 22% can sign, 34% sample members have completed their education upto VII class, 28% utp X Class , 04% completed their education upto 12 class and only 2% i.e one member out of the 50 respondents have completed graduation.

Table – 6
Types of Occupation

Sl. No.	Types of Occupation	No. of Respondents	Percentage
1.	Service	03	06
2.	Daily Labour	03	06
3.	House wife	32	64
4.	Any other	12	24
	Total	**50**	**100**

Table 6 reveals that 6% are service holder and 6% sample members are daily labours, 64% sample members are house wives and another 12 sample member are engaged with different types of manual work.

Sl. No.	Position in SHGs	No. of Respondents	Percentage
1.	President	04	08
2.	Secretary	07	14
3.	Treasure	02	04
4.	Members	37	74
	Total	**50**	**100**

The above table shows the position of the sample members in the SHGs 74% respondents are the simple members of the SHGs whereas the rest 26% respondents are in different position of the SHGs 08% respondents are performing their role as president, 14% members as secretary and 04% as treasure of the SHGs.

Table – 8
Material possession / Asset holding pattern

Sl. No.	Types of assets	No. of Respondent	Percentage
1.	T.V	16	32
2.	Cell Phone	11	22
3.	Bi-Cycle	10	20
4.	Two wheeler	09	18
5.	Auto	04	08
	Total	**50**	**100**

The above table indicates the assets holding pattern of the members of the sample SHGs. It is found from the above table that 32% members have T.V, 22% have cell phone, 20% have bicycle 18% have two wheeler and only 04% have auto as their assets. It is needless to say that T.V. and cell phones are common possession in each and every families.

Table – 9
Change in assets offer joining in the SHGs.

Sl. No.	Change in assert after joining in the	No. of respondent	Percentage
1.	Increased	44	88
2.	Decreased	00	00
3.	No. change	06	12
	Total	**50**	**100**

It is found from the above table that the assets have increase after joining in the SHG i.e 88% and no such indication of increase is found i.e 12%.

Table – 10
Change in Status

Sl. No.	Change in Status	No. of respondent	Percentage
1.	Confidence increase	14	28
2.	Status increased in the family	05	10
3.	Decision Making	11	22
4.	Helping in family finance/ Economic development	16	32
5.	Helping Others	04	08
	Total	**50**	**100**

The above table indicates the change in status of the sample members after joining in the SHGs. The highest percentage of sample members have given their view that the SHG as a means to empower the women to help the family in financial matter, 28% members have viewed that their confidence level have been increased after joining in the SHGs, 22% sample women members have the realization that they have been treated most respectful or have decision making power after joining in the SHGs 10% members opined that their status in the family increase after becoming a member of the SHGs. The rest 8% of the respondents are able to help other in the process of empowerment through SHGs.

Conclusion

It is found from the present study that Self Help Groups (SHGs) programmes have contributed a lot towards empowering the women. It has enhanced the economic condition of the women through increased income from various micro enterprise activities.

SHGs are the most viable social unit and with the vast scope of development. It can be used as a means to eradicate poverty in urabn slums as well in rural areas. To bring social transformation in urban slums and in rural areas SHGs and micro finance appear to be best possible means of achieving success.

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Factors and Suggestions for Sustainability of Women Self Help Groups

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Abstract

The study examined the factors which influence the sustainability of Women Self Help Groups. The particular research study was done in three districts of Odisha namely Cuttack, Puri and Khurda. About 240 women were selected randomly as respondents having experience as SHG member (President/Secretary). Data was collected through survey method by using a pre-tested questionnaire and attempt was made to know the influencing factors for sustainability of Women Self Help Groups. However, it was found that after involvement with the SHG, it empowers the women in the areas of decision making, social security, personal autonomy, economic autonomy, political autonomy and legal awareness.

Key words: *Influencing factors, Sustainability, Empowerment, SHG, Women*

Introduction

Self help group is a small voluntary association of women who come together for the purpose of solving their common problems through mutual help. It promotes small savings and inter-loaning among its members. Rajamohan (2003) stated that SHG is a medium for the development of saving habit among the women. It can play as a powerful vehicle for their socio-economic development. But now, its sustainability is a great question. Many formulated SHGs are observed to be inactive. Many researchers have found that environmental climate has a great influence on SHG members for their entrepreneurial activities for sustainability of SHG. Studies also indicate that SHG members have experienced higher improvement in their economic conditions vis-à-vis non-members (Puhazhendi, V. C. and K. C. Badatya, 2002). In this present study, an attempt has been made to determine influencing factors for sustainability of women SHG as reflected in the following tables.

Methodology

The study was undertaken in three districts (Cuttack, Puri and Khurdha) of Odisha covering six blocks two in each. About 240 SHG members (President/Secretary) were randomly selected as sample respondents @ one from each SHG, Criteria was fixed for the respondents having experience as group member and three years experience as a housewife with children in family. The interview schedule was developed, pre-tested and modified to be used for data collection in the field along with PRA and FGD methods. The collected data was processed and analyzed with the help of statistical tools and techniques which are reflected in the findings and discussion.

Results and Discussion:

Socio-economic profile of SHG members: The socio-economic information is very much essential to study the life style of an individual. Many researchers have found that socio-economic parameters have a great influence on SHG members to take up any entrepreneurial activities. Sheik Mohammed (2004) reported that Self-Help Groups worked for the success of women entrepreneurs. This present study has made an attempt to collect information on socio-economic profile of SHG members as shown in the following table.

Table-1 Socio-economic profile

Sl No	Socio-economic parameters	Salient factors	Percentage (%)
1	Age	31-40 years	45.00%
2	Education	Literate	42.91%
3	Caste	General	54.59%
4	Marital status	Married	93.75%
5	Family size	Medium (4 to 6 members)	65.83%
6	Type of family	Nuclear	66.66%
7	Head of family	Husband	70.41%
8	Social status	Medium	69.58%
9	Income range	Up to Rs. 10,000/-	81.66%
10	Primary occupation	Farming	29.17%
11	Exposure	Outside district	79.58%
12	Experience	5 years	54.58%
13	Membership	Office bearers	83.33%

As per analysis of socio-economic data, majority of the respondents were within the age group of 31 to 40 years (45.00%) having educational qualification of literate level (42.91%) belonging to general caste (54.59%). With regard to marital status 93.75% of SHG members were married against 5.41% unmarried. Most of them had medium sized families within 4 to 6 members (65.83%), nuclear family system (66.66%),

husband as head of the family (70.41%), medium social status (69.58%) within the income range upto Rs.10,000/- (81.66%) having farming as primary occupation (29.17%). With context to outside exposure, maximum respondents were exposed outside their districts (79.58%) being experienced for more than 5 years (54.58%) as office bearer in SHG (83.33%).

Suggestions for Better Functioning of SHG:

It is found that most of the SHGs remain defunct after formation whatever may be the reason. Therefore, the SHG members were asked for some suggestions for better functioning of groups as described in table below.

Table 2 Suggestions for better functioning (n=240)

Sl No	Suggestions	Total Score	Average Score	Rank
1	Awareness of farm women regarding govt. schemes	418	1.74	VI
2	Loan facility	549	2.28	I
3	Good counselor	416	1.73	VII
4	Group advisor	430	1.79	IV
5	Market facility	402	1.67	VIII
6	Sustainable income generating programmes	389	1.62	X
7	Produce as per demand	400	1.66	IX
8	Group unity	437	1.82	III
9	Self motivation	422	1.75	V
10	Own infrastructure	444	1.85	II

The table is indicative that the SHG members suggested for increasing loan facility (2.28), own infrastructure (1.85), group cohesiveness (1.82), group advisor (1.79), self motivation (1.75), awareness of government schemes (1.74) as ranked I, II, III, IV, V and VI respectively. In other way, least importance was given for sustainable income generating programmes (X), produce as per demand (IX), market facility (VIII) and good counselor (VII) in order of importance.

Suggestions for economic sustainability:

It is hypothesis that economic sustainability gives success and growth to SHG. So it plays an important role for sustainability of a SHG. The researcher has taken economic sustainability as a parameter and the obtained results are reflected in table below.

Table 3 Suggestions for economic sustainability in group (n=240)

Sl No	Suggestions	f	%	Rank
1	Creation of local market	142	59.16	II
2	Creating products as per market demand	125	52.08	IV
3	More transport facility	47	19.58	VIII
4	Infrastructure facility	66	27.50	VII
5	Creation of societies	152	63.33	I
6	Availability of raw materials	67	27.91	VI
7	Skill training	139	57.91	III
8	Any other	93	38.75	V
9	No suggestions	29	12.08	IX

The data in above table depicts that 63.33% of respondents had suggested for creation of societies for economic sustainability which is highest from the total followed by creation of local market (59.16%), skill training (57.91%), creating products as per market demand (52.08), availability of raw materials (27.91%), infrastructure facility (27.50%), more transport facility (19.58%). However, 38.75% of them suggested for any other areas which includes new ideas for getting more profit, selling facility at door step and a counselor for solving group dynamics and problems. On the other hand, there was no suggestion for economic sustainability by 12.08% of SHG members.

Identified areas of empowerment:

Empowerment of group members plays an important role for sustainability of a SHG. The researcher has made an attempt to collect information on areas of empowerment of SHG members through before and after analysisas reflected in the following table.

Table 4 Identified areas of empowerment (n=240)

Sl No	Areas of empowerment	Before	%	After	%	Increase (%)
1	Autonomy in decision making	50	20.83	130	54.00	33.17
2	Social security	70	29.16	180	75.00	45.84
3	Personal autonomy	65	27.08	210	87.50	60.42
4	Economic autonomy	45	18.75	135	56.25	37.50
5	Political autonomy	30	12.50	170	70.83	58.33
6	Legal awareness	25	10.41	110	45.83	35.42
	Average		19.78		64.90	45.11

Data in the above table reflects that after involvement with the groups the SHG members were empowered in the areas of autonomy in decision making, social security, personal autonomy, economic autonomy, political autonomy, legal awareness. On an average the rate of empowerment was about 20% before involvement with the group

which enhanced to 65% after involvement. So the average growth of empowerment was 45.11% which is a highly influencing factor for sustainability of SHGs.

Conclusion:

In the context of sustainability of SHG, socio-economic profile of SHG members like monthly income upto Rs10000, medium social status, farming as occupation, general category of castes and medium family size having 4 to 6 members were found to be influencing factors for progressiveness of SHG. The suggestions given by the respondents for better functioning of SHG were: (a) educating the women regarding the scheme and policies of government for SHG, (b) more loan, (c) marketing facility to sell the produce, (d) a good counselor to handle the team and group dynamics, (e) a good advisor, (f) produce as per market demand, (g) IG program, (h) self motivation, (i) group unity and (j) own infrastructure. Further, for economic sustainability in group they suggested for creation of local market, production as per market demand, more transport facility, infrastructure facility, formation of societies, availability of raw materials and skill training. The identified areas for empowerment were autonomy in decision making, social security, personal autonomy, economic autonomy, political autonomy and legal awareness. Therefore, the government as well as the NGOs should consider these factors to maintain the sustainability of SHG and to improve the socio-economic conditions of the women.

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Perception and Reaction of Women Agricultural Labourers towards their Development

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Abstract

Rural women mostly perform multifarious activities in the home, farm and allied activities, which include transplanting, weeding, harvesting, milking of animal, cleaning of animal sheds, mud plastering of house etc. This makes their life miserable as the activities are not only fatiguing but also time consuming (Jamal, 1994). The use of traditional tool and equipment for the work add further to their drudgeries. They perform these activities in their own convenient posture like sitting, standing, squatting or bending without realizing the harmful affect on the body.

Today when there is no longer need for "an authoritarian foreman" in the home for the production of goods and with the growingly acceptable practice of women having work interests along with marriage, more women have moved into work situations outsides the home. Although a difference in the roles of husbands and wives remains, the direction of their roles has changed. The wife emerges as a colleague of her husband and she has taken on an added major role, that of a wage earner. For poor families, women's capacity to work and earn is often the only resource to call upon for survival so the present study was undertaken to access the perception and reaction of female agricultural labourers towards their development.

A total sample of 50 women workers were selected those who were engaged as farm labourer. The data were collected by using interview methods. The result showed that though the earnings were low but it would definitely contribute to the household developments to some extent. Women's households had sometimes better housing conditions after they took the employment. There was also an increase in percentage of respondents who possessed different durable items after their employment. Also it was found that the possessions of mobiles increased to 80%. Respondents also reported an increase in quantity & variety of food consumption. They also suggested that full month work, leave, saving benefits, incentives and supplies of implements were the means for betterment.

Keywords: *Agricultural Labourers, Development, Perception and Reaction*

Introduction

Rural women perform multifarious activities in the home, farm and allied activities, which include transplanting, weeding, harvesting, milking of animal, cleaning animal sheds, mud plastering of house etc. This makes their life miserable as the activities are not only fatiguing but also time consuming (Jamal, 1994). The use of traditional tool and equipment for the work add further to their drudgeries. They perform these activities in their own convenient posture like sitting, standing, squatting or bending without realizing the harmful affect on the body.

Today when there is no longer need for "an authoritarian foreman" in the home for the production of goods, and with the growingly acceptable practice of women having work interests along with marriage, more women have moved into work situations outsides the home. Although a difference in the roles of husbands and wives remains, the direction of their roles has changed. The wife emerges as a colleague of her husband and she has taken on an added major role, that of a wage earner.

In many poor households, women capacity to work and earn is often the only resource to call upon for survival. Shrivastva (1990) reported that at low economic level, it is difficult to maintain desired standard of living without women's earnings. Women consistently contribute more because they spend less than men for personal use. Women's income contributes to the well being of their families. It can be said that bliss, prosperity and welfare of the family depend upon women worker's economic contribution (Debnath 1992; Paulson 1980)

Although the earnings of women in poor groups directly influences the overall development but the women and household development remains somewhat an ignored, so the present study was undertaken with the following objectives.

- To know the socio economic status of agricultural women labourers.
- To assess the earnings of agricultural women labourers.
- To ascertain the impact of their earnings on their overall development.

Materials and Methods

The aim of the study was to access the impact of agricultural women laborer's earnings on their overall development in Khurda district of Odisha. Mainly women agricultural labourers are engaged in farm activities. A total sample of 50 married women workers were selected for study. A questionnaire was developed to collect data by using interview method supported by observation. Women workers were the key informants. The collected data was analyzed.

Results and Discussions

The working hours of the sample women workers was from 8 am to 5 pm, having one hour breaking period. It was ascertained that the total man-days in a month varies from 10 days to 24 days. The average monthly man-days were 14 days. It was increased during the peak period. In emergency they used to take leave without wage. The women workers mainly engaged in field preparation, transplanting, weeding, cleaning, bunding, grading, threshing, winnowing, pacaging and loading in tractor trolley. Some of them are

engaged in food processing activities like peeling, drying, sterilizing, and cleaning also. They usually were doing the above activities with the help of improved farm implements like improved sickle, thresher, winnower, cleaner, grader etc. They are not using the protective measures like gloves, head turbans and full sleeve aprons.

Socio-economic condition

Before going to analyze the different developmental parameters of the female workers after their empowerment, the data on basic socio-economic conditions like age group, education, family type, family size, family occupation etc had been collected and analyzed below in the Table 1.

Table 1 : Socio-economic profile of the Respondents

Characteristics	Category	Number	Percent, %
Age (years)	20 to 30	27	54
	31 to 40	19	38
	41 to above	04	08
Education	Illiterate	--	--
	Signature	03	06
	Primary	38	76
	Middle	09	18
	High school	--	--
Family type	Nuclear	48	96
	Joint	02	04
Family size	Up to 3 members	03	06
	4-6 members	47	94
Family occupation	Own cultivation	02	04
	Business	05	10
	Service	--	--
	Casual labour	43	86
Period of work	1 to 2 years	07	14
	2 to 5 years	27	54
	5 years to more	16	32

It is seen from Table 1 that mostly the respondents were in the age group of 20-30 years. 76% of them had primary education, only 6% can do signature. All most all of them (96%) living in nuclear family. Regarding family size 94% had 4 to 6 family members. The main occupation of the family was casual labour. While discussing regarding the span of involvement in work, 54% of them had 2 to 5 years of experiences.

Earnings of women workers

After employment the income of the female workers contributes up to certain extent in the monthly income of the whole family, which is discussed below in the Table 2.

Table 2 : Monthly Income

Monthly Income (Rs)	Own	%	Family	%
Below 2000/-	33	66	---	---
2000-4000/-	17	34	12	24
4000-6000/-	---	---	23	46
Above 6000/-	---	---	15	30

This is seen from the Table 2 that monthly earnings of (66%) women workers were below Rs 2000/- but the family income of (46%) remained in between Rs 4000/-to Rs 6000/-. Though the women workers were concentrated in low-end jobs and they performed the lowest paid work. But the income earned by poor women constitutes a substantial contribution to family income. This income makes up for a deficit in family level income, which is already very low.

Level of living of family

Level of living of the family depends upon the income. Women's income in poor households not only increases the aggregate income level of their families but they also contribute a much larger share to basic family maintenance. Level of living condition of family was assess in terms of housing conditions, possession of consumer durable items, consumption of food items & purchasing capacity.

Housing conditions

The housing condition of the workers was analyzed before and after their employment. Some changes had found out which is discussed below in the Table 3.

Table 3 : Type of Housing Condition of workers Before and After Employment

Nature	Before Employment		After Employment	
	Number	Percent,%	Number	Percent, %
Own	07	14	22	44
Rented	43	86	28	56
Katcha	43	86	23	46
Semi pucca	07	14	27	54
Separate kitchen	03	06	11	22

Before employment, 86% of respondents families had remained in the rented houses and only 14% had owned houses as shown in the Table 3. After employment, nearly 44% had owned house and only 56% had rented house. And also it was revealed from the study that 86% had katcha houses before the employment but after the employment it was reduced to 46% and also before employment 14% remained in semi pucca, after 54% had semi pucca.

Data revealed that no doubt women worker's households had somewhat better housing conditions after they took employment. Only 6% had separate kitchen room before the employment but after the employment 22% had separate kitchen room. Other necessary facilities were also lacking in the majority of the households.

Investment of capital

Investment of money as important as earning. So, data also collected regarding how much in which head they are investing their earned capital. This analysis will improve their socio-economic condition in future. The collected data is analyzed below in the table 4.

Table 4 : Investment of Capital

Particulars	No	%
House hold articles	42	82
Education	40	80
Food	36	72
Marriage	12	24
Land purchase	02	04
Health	07	14

Mostly they invested their earnings for purchasing household articles as shown in the Table 4. Then they had given priorities to education and they invested least in purchasing land.

Possession of consumer Durable items

The data on possession of number of durable household items like TV, bike, table, bed etc before and after employment was collected which reflects their capital investment and development. The collected data is analyzed in the Table 5 below.

Table 5 : Consumer Durable Items

Particulars	Before Employment		After Employment	
	Numbers	%	Numbers	%
TV	14	28	33	66
Gas stove	02	04	17	34
Cycle	12	24	41	82
Motor-cycle	--	-	02	04
Mobile	03	06	43	86
Chair	04	08	24	48
Table	04	08	07	14
Cup-board	07	14	14	28
Fan	12	24	46	92
Watch	03	06	22	44
Heater	07	14	18	36
Kerosene stove	17	34	26	52
Pressure cooker	05	10	13	26
Grinder	--	--	02	04
Sewing machine	--	--	03	06
Bed	07	14	15	30

While looking to the Table 5, it was found that 86% respondents had mobiles and only18% had gas stoves. While looking to data it was found that before employment only 6% had mobiles, which was increased to 86% after. It was found that they showed importance to mobile, as an easy means to communicate. So also they gave emphasized to possess fan. 92% had fan with them. From the Table 5, it is well observed that the possession of all the durable items was enhanced after their employment. They purchased the items according to their preference.

Level of satisfaction

Data regarding the level of satisfaction of the female workers had been collected before and after their employment, which is discussed below in the Table 6.

Table 6 : Level of satisfaction

Particulars	Before Employment			After Employment		
	Little	Moderate	More	Little	Moderate	More
Family seeking views	42	08	--	14	23	13
Purchasing capacity	37	13	--	07	14	29
Lending from others	35	09	06	26	16	08
Imparting education	21	29	--	--	17	33
Varietal food items	42	08	--	--	47	03
Knowledge about crops	47	03	--	06	44	--

While discussing the level of satisfaction, it was clearly marked in Table 6 that before their employment family needed to seek views very little from them for any family matter but after their employment that concept was changed. The family members used to seek views regularly. So also it was found that before the employment the percentage of lending money was lower, it was increased as they had capacity to return back the money. While looking to varietal food items before the employment they used to add little amount of varietal items but after employment they used to add more food items in their daily dietary pattern. From their perception it was revealed that most of them showed a moderate level of satisfaction.

Suggestions For Improvement

For the improvement, some suggestions were enlisted in Table 7. It was found that cent percent respondents viewed that full month engagement. Which would not only help them to utilize their time resources but also provide them some sort of economical benefit to carry on the family.

Table 7 : Suggestions For Improvement

Particulars	No	%	Rank
Full month work	50	100	I
Incentives	34	68	VI
Medical facilities	31	62	VII
Protective measures	38	76	IV
Saving benefit	42	82	III
Leave	44	88	II
Supply of implements	37	74	V

Conclusions

The findings showed that with the low level of income she earned, she was forced to run a family. Though the earnings were low but it would definitely contribute to the household development to some extent. In the perception and reaction of the women labourers it was revealed that they showed a moderate level of satisfaction for their earnings. They suggested that full month work, leave, saving benefits, incentives, and supply of implements and protective measures were the means for their betterment and employers should promote worker's development by providing the above benefits. It is only through this that committed labour force can be promoted.

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An Estimation of Demand, Supply Dynamics and Post-Harvest Losses of Onion in Odisha

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Research student Present research paper is a part of Ph.D research work of the First author (In the 1980s and the earlier 1990s, the Statistical Office of the European Union (EUROSTAT) adopted in the late 1990s the so-called "OECD-modified equivalence scale". This scale, first proposed by Headgears et al.(1994), assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.)

Abstract

An attempt has been made in this paper to find out the demand supply balance of onion in Odisha. The production and marketing scenario of onion in India as well as in Odisha is not good enough to check the severe price fluctuation occurring every year. Onion is one of the most market sensitive commodities that created ripples in the trade as well as in political circles The study has been conducted based on primary data on Onion farmer of Angul, Bolangir, Kalahandi and Nuapada districts respectively, as these districts are major onion growing districts in the state. Four hundred households have been surveyed randomly. Out of that 200 were from rural and 200 from urban for estimating per capita consumption of onion.Onion is cultivated in 33,000 ha in Odisha with an annual production of 3.18 lakh tons .Out of the total production the average post-harvest loss was calculated to be 21.3%. Estimating the loss in different stage it was found that the average physiological weight loss was 12.43% followed by rotting 5.28% and sprouting 3.56%. The study further revealed that around 47 % of the total produce was chanellised to other states Just afterharvest. Arrival of onion to the local market varies from 24% to 45% of the production. For a population of 4.19 crores of the state, the consumption need is around 4.06 lakh tonnes of onion in a year. Out of the total production of the state only 32.18% is available to the Odisha market. The rest of the demand was catered by import from places like Nasik, (Maharastra), Bangalore, (Karnataka), Sukhsagar (Kolkata) and Andhra Pradesh. As 78% of the state onion demand was imported from other states, transportation plays a vital role in onion price fluctuation. Road condition during rainy season, intensity of traffic and periodic rise in diesel prices, frequent truckers strike local road blocks adversely affect the onion price in Odisha market. onion price used to be lowest in the month of May because of arrival of local produce and start rising from the month of June, highest in the month of deceber and January. The price rises very steeply and doubled in the month of November and then continue till January. Steps like growing kharif onion, post harvest management,proper storage structures and supply chain management with maintainance of buffer stock prior to the on set of monsoon in each district Head Qurtwers can restrict un due floctuations in prices.

Introduction

Onion is one of the important crops considered among the vegetables and condiments. It is believed to the native of Asia and Middle East and it is cultivated for last 5000 years. Biggest producers of onion are China, India and United States, accounting for about half of the world's dry onions production. India being a second major onion producing country in the world has a productivity of 10.16 MT/ha, which is significantly lower than the world average of 17.3 metric ton/ha.

Indians consume 15 million tonnes of onions a year. In India the onion area has increased from 1.2 lakh Ha to 8.34 lakh Ha, since 1961 similarly Production has increased from 2.484 lakh tonnes to 4.91lakh tonnes. Though the area under onion has increased 7 times since 1961 but there is no significant increase in the productivity. Maharashtra is the leading onion producing state in India. The other major states producing onions are Gujarat, Uttar Pradesh, Odisha and Karnataka. In India per hectare yield is highest in Maharashtra (21.55 MT/ha) followed by Gujarat (21.24 MT/ha), Haryana (20.37 MT/ha) and Rajasthan (15.24 MT/ha).

Odisha produces 3.18 lakh tons of onion from 33.1thousand Ha of land. Most of the onion farmers in Odisha are small and marginal in nature. The season of onion starts in November & December and harvested during Mar-April and sold within 1-2 months due to lack of proper storage facility. Fearing losses, farmers usually unload their entire stock within a month of harvest. As a result, during this period prices rule very low due to glut situation. Thereafter the rise in prices is quite rapid and sometimes wide fluctuations occur leading to dissatisfaction amongst the producers as well as consumers. The production and marketing scenario of onion in India as well as in Odisha is not good enough to check the severe price fluctuation occurring every year.

For last few years it is observed that the price of onion goes on increasing from the month of June and reaches its peak in December and January. Despite several interventions from Government this scenario exist in some way or other. Mostly the price insensitivity is blamed on export, post-harvest loss, vagaries of climates and most importantly mismanagement of supply chain management. Finding solutions to these problems will benefit the consumer as well as onion farmer in many ways. An attempt has been made in this paper to find out the demand supply balance of onion in Odisha.

The major objective is To estimate demand, supply dynamics and post-harvest losses of onion in the state.

Data and Methodology

The study has been conducted based on primary data on Onion farmer of Angul, Bolangir, Kalahandi and Nuapada districts respectively, as these districts are major onion growing districts in the state. The secondary data such as district profile and other agricultural statistics have been collected from various issues of Odisha economic review and Odisha Agricultural statistics, different websites and portals.

One block from each district was purposively chosen having the importance of onion crop in the cropping pattern. Thus Angul block

from District Angul, Bongamunda form Bolangir, Kesinga from Kalahandi, and Khariar from Nuapada was selected purposively for this study.From each block thirty households were selected for primary data collection, Thus a total of 120 farmers were selected from the state for final analysis.

Selection of markets

For supply chain analysis and post-harvest losses 30 markets of eleven districts i.e. Angul, Bargarh, Bolangir, Boudh, Deogarh, Jharsuguda, Kalahandi, Nuapada, Sambalpur, Sonepur and Sundergarh has been purposively selected.

Consumption Data

Four hundred households have been surveyed randomly. Out of that 200 were from rural and 200 from urban. Their consumption data was collected with Pre designed questionnaire and analyzed to get the per head onion consumption in Odisha.

Results

Annual consumption demand of onion in Odisha.

As the consumption pattern of rural and urban population is different so the total consumption demand was estimated taking into the monthly consumption of rural and urban population separately. To get the adult equivalent of the child population OECD modified equivalence scale has been adopted and three children was taken as equivalent to one adult[1].

Table-1 Present Annual demand of Onion in Odisha

Odisha	Population (2011)	Adult Equivalent	Adult Population	In (%)	Onion Consumption for 30 days (kg)	Consumption per Year (Tonnes)	Demand (%)
Urban	6156261						
Child Population (0-6Yrs)	839863	279954	6436215	16.68	0.944	72909	19.50
Rural	30755447						
Child Population (0-6Yrs)	4195787	1398596	32154043	83.32	0.78	300962	80.50
Total	41947358		38590258	100		373871	100

The data presented in the table-1 showed that the child population of Odisha between 0-6 years is 50.35 lakhs which is 12% of the total population. Converting the children to adult equivalent it was estimated that2.79 Lakh more adult in urban area and 13.98 lakh adult in rural area to be added to the adult population. The modified adult population became 3.86 crores. Out of the total population around 83 % of the people live in rural area and 17% live in urban area. The 17 % urban population consumed around 20% of the total onion demanded and the rest 80 % was consumed by the rural population of Odisha. Monthly per capita onion consumption of urban population was 944gm

whereas for rural population it was 780gm which was 163gm less than urban monthly per capitaconsumption. The average per capita monthly onion consumption in the state was 862 gm. The total consumption demand of Adult population in urban Odisha was about 0.72 lakh tonnes and the demand for rural area was 3.01 lakh tonnes. For the onion consuming population of 3.85 crores in our state we need 3.74 lakh MT of onion per year as per current consumption pattern.

Supply Estimation

Onion is cultivated in 33,000 ha in Odisha with an annual production of 3.18 lakh tons in the year 2009-10. But unfortunately the total produce was not available to the consumer. Though the annual onion harvest was 3.18 lakh tonnes the availability to the Odisha population was much low due to loss at different stages. The loss was accrued mostly to the post-harvest losses like moisture loss, sprouting, and rotting coupled with transportation loss.

Post-harvest Loss

There was a considerable gap found between the onion production and the arrival to the local markets. The gaps were mainly due to storage loss. Majority of our onion farmer store their produce unscientifically. They store their onion either loose or in bags. The harvested onions were kept by our onion farmer from April-May to Oct-November for 5-6 months. Post-harvest losses were mainly due to physiological weight loss, rotting and sprouting. Weight loss was more when temperature was above 35°C. The temperature between 10-25°C increases sprouting. Rotting was influenced by relative humidity (RH). More the relative humidity more was rotting. The study revealed the percentage of Post-harvest loss in eleven sample Onion producing districts.

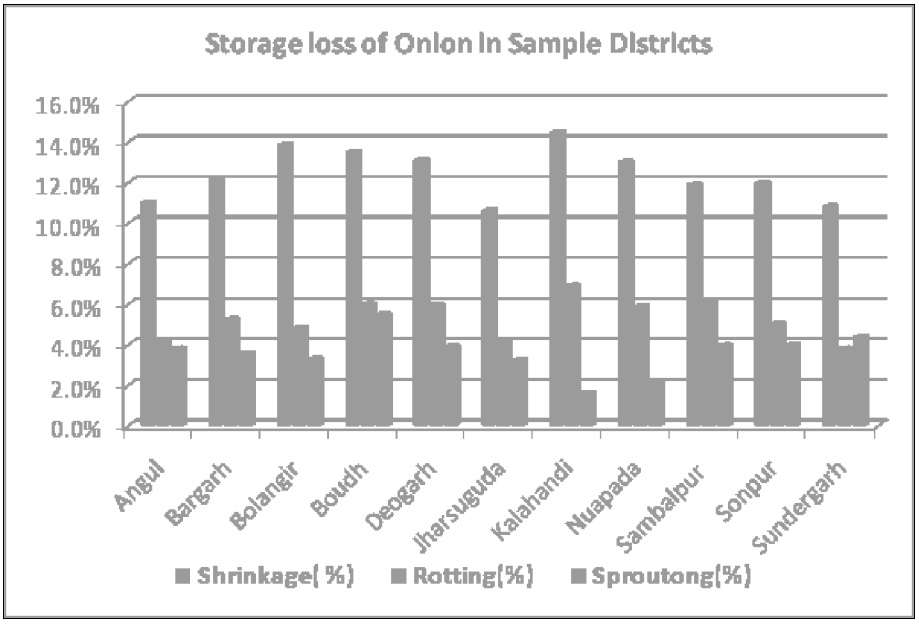


Table-2Post-Harvest loss of Onion in Sample Districts

Sl.No.	DISTRICTS	No of Onion Farmer Surveyed	Production of Onion(MT)	Post-harvest Loss(MT)	P H Los (%)
1	Angul	20	135	26	19.00
2	Bargarh	20	111	23	21.00
3	Bolangir	20	153	34	22.00
4	Boudh	20	127	32	25.00
5	Deogarh	20	96	22	23.00
6	Jharsuguda	20	131	24	18.00
7	Kalahandi	20	109	25	23.00
8	Nuapada	20	133	28	21.00
9	Sambalpur	20	132	29	22.00
10	Sonepur	20	122	26	21.00
11	Sundergarh	20	91	17	19.00
	Total	***220***	***1340***	***285***	***21.30***

The above table-2 showed that the post-harvest loss varied from 18 to 25%. The highest loss reported in Boudh followed by Deogarh and Jharsugada.

graph showed that the physiological loss due to loss of moisture was highest in Kalahandi, Bolangir and Boudh and lowest in Sundergarh. Rotting of onion was highest in Sambalpur, Nuapada and Boudh and lowest in Sundergarh and Jharsugada. The sprouting loss was highest in Boudh followed by Bolangir and Sambalpur and lowest in Kalahandi.

The average post-harvest loss was calculated to be 21.3%. Estimating the loss in different stage it was found that the average physiological weight loss was 12.43% followed by rotting 5.28% and sprouting3.56%.

TABLE-4Types of Post -harvest Loss

Sl. No	Types of Post -harvest Loss	In (%)
	Physiological weight Loss	12.43
2	Rotting	5.28
3	Sprouting	3.56
	Total	21.27

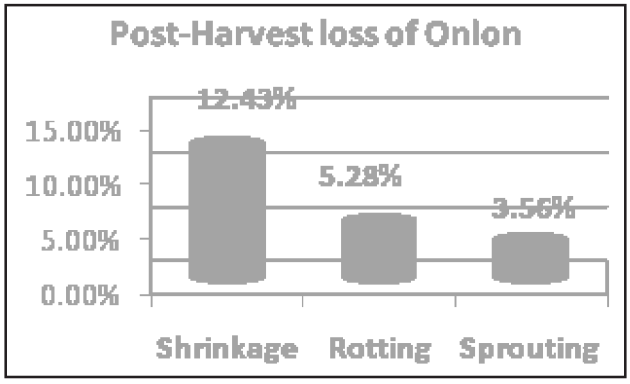
The study also revealed that the post-harvest loss was 0.67 lakh MT during study period.

Supply Chain & Demand Supply Dynamics

For a population of 4.06 Crores the consumption demand of onion in Odisha was 3.74 lakh MT. In Odishathe total production was only 3.18 lakhs of onion in 33000 Ha. The study revealed that around 47 % of the total produce was chanellised to other states. Just afterharvest, the small and marginal farmer availed the pre contracted loan from local as well as out of state traders for their seed, fertilizerand other cultural operation and also make a verbal agrement to sell their harvest in a pre specified price to the traders. During the harvest season the traders used to collect the produce and export it to nearby chatisgarh state.

The survey was conducted on 30 major markets in 11 potential onion growing districts of Odisha to locate the supply chain from producer to final consumers.

TABLE-6 Production, Export to Other States & Market arrival of Onion in Important Districts

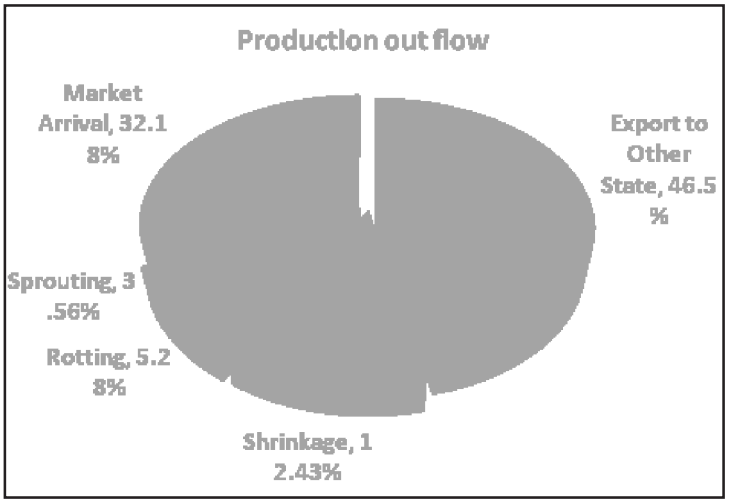


Sl. No.	DISTRICTS	Production of sample farmer (MT)	Export to Other State	%	Market Arrival	%
1	Angul	135	56.50	42.00	52.46	39.00
2	Bargarh	111	58.98	53.00	28.94	26.00
3	Bolangir	109	59.06	54.00	26.25	24.00
4	Boudh	127	44.47	35.00	50.83	40.00
5	Deogarh	96	52.07	54.00	22.18	23.00
6	Jharsuguda	131	52.33	40.00	54.94	42.00
7	Kalahandi	153	71.97	47.00	45.94	30.00
8	Nuapada	133	45.12	34.00	59.72	45.00
9	Sambalpur	132	72.57	55.00	30.35	23.00
10	Sonepur	122	68.19	56.00	28.01	23.00
11	Sundergarh	91	38.17	42.00	35.44	39.00
	Total	***1340***	***623.67***	***46.55***	***431.21***	***32.18***

The study revealed that around 47 % of the farmer's production was exported to the other states. The eleven sample districts selected had a total onion production of 1.8 lakhs in the year 2010 which was 57 % of the total onion produced in the whole state. As indicated from the table No.6 the western districts where onion is predominantly cultivated a major portion used to be exported to the nearest market of Raipur of Chhattisgarh. Most of the traders have pre contract agreement with the onion growers.

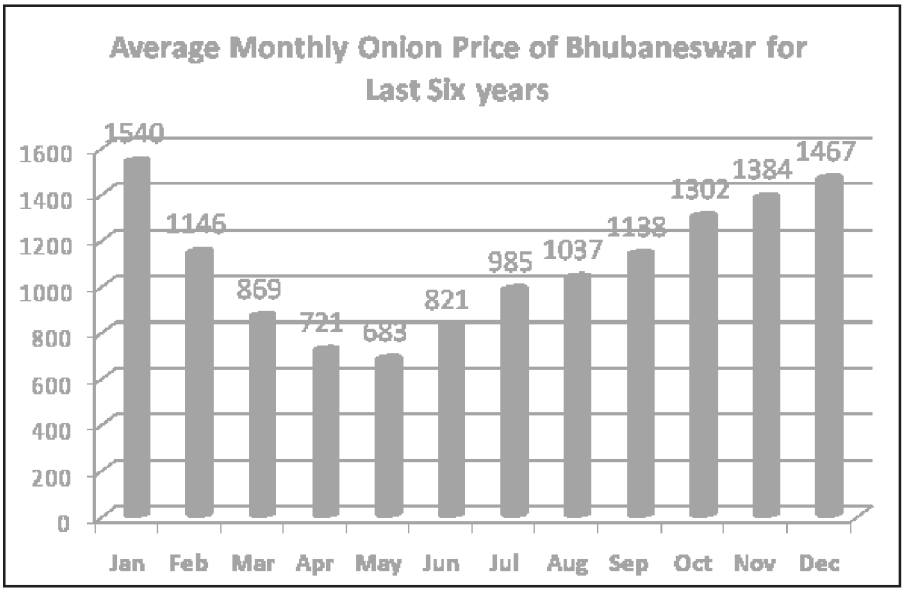
These transactions took place within one and half months of the harvest. The study also revealed that some cases onions were directly transported to the destination from field itself by the active support of the local Chhattisgarh traders. The onion exported from Odisha were not graded sorted or value added resulting low price. The total post-harvest loss estimated to be 21.3% of the total production, which comprises Shrinkage (12.43%), Rotting(5.28%) , and sprouting(3.56%). Arrival of onion to the local market varies from 24% to 45%. On an average 32% of the total produce comes to the local market.

Supply in flow



For a population of 4.19 crores of Odisha we need 4.06 lakh tonnes of onion in a year. Against the demand of 3.74 lakh MT we produce only 3.18 lakh MT. Out of the total produce only 32.18% is available to the Odisha market. The rest of the demand was catered by import from places like Nasik, (Maharastra), Bangalore, (Karnataka), Sukhsagar (Kolkata), And Andhra Pradesh.

The surveyed data reveals that Odisha depended completely on Nasik for onion during the month of Jan, Feb, Oct, Nov, and Dec. For other months there was partial dependence. During the rainy season Odisha traders' imported major portion of their



requirement from Karnataka and Andhra Pradesh and again the import from Nasik started from October. During this period the Kharif onion came to the market. Any climate irregularities during this period heavily affect the production of Kharif onion and affect the supply to Odisha Market resulting hike in onion price. Only 1.3 per cent was imported from Sukhsagar Kolkata.

As 78% of our onion demand was imported from other state, transportation play a vital role in onion price fluctuation. Road condition during rainy season, intensity of traffic and periodic rise in diesel price, frequent truckers strike local road block adversely affect the onion price in Odisha market.

Price trend of Onion

Average monthly onion price presented in the graph revealed that onion price was lowest in the month of may and highest in the month of deceber and January. The price rises very steeply and doubled in the month of November and then continue till January. So Government should interven to reduce the price hike during this months.

As per thestudy we need 3.74 lakh MT of onion for one year and for one month we need 31156 MT of onion. After the export to the other state and post-harvest loss we have only 32.18% of our total production for our own market. The local market availability of onion which came to 102332 Tones was sufficient for 3.28 months consumption.

The table reveals that only three months onion demand is catered by own source. The rest is procured from Nasik, Bangalore, Andhra Pradesh and Kolkata. Only during rainy season a part of the demand is procured from Andhra Pradesh and Karnataka otherwise we depend mostly on Nasik for our onion demand.

Conclusion

The present study clearly reveals thatOdisha imports a lion share of its onion requirements from other states.Onion is cultivated in 33,000 ha in Odisha with an annual production of 3.18 lakh tons .Out of the total production the average post-harvest loss was calculated to be 21.3%. Estimating the loss in different stage it was found that the average physiological weight loss was 12.43% followed by rotting 5.28% and sprouting 3.56%. The study further revealed that around 47 % of the total produce was chanellised to other states Just afterharvest.Arrival of onion to the local market varies from 24% to 45%. On an average 32% of the total produce comes to the local market.

For a population of 4.19 crores of Odisha need 4.06 lakh tonnes of onion in a year. Out of the total production of the state only 32.18% is available to the Odisha market. The rest of the demand was catered by import from places like Nasik, (Maharastra), Bangalore, (Karnataka), Sukhsagar (Kolkata), And Andhra PradeshAs 78% of the state onion demand was imported from other states, transportation play a vital role in onion price fluctuation. Road condition during rainy season, intensity of traffic and periodic rise in diesel price, frequent truckers strike local road blocks adversely affect the onion price in Odisha market.onion price used to be lowest in the month of may and start rising from the month of June, highest in the month of deceber and January. The price rises very steeply and doubled in the month of November and then continue till January.

Policy sugestions

- Efficient manage ment of post harvest loss of onion can meet two monhths onion require ment.Therefore scientific storage of onion through PPP mode should be encouraged in the state.
- Research on post-harvest technology should be encouraged besides production technique.
- The state is yet to start kharif onion cultivation massively to maintain the supply chain
- Market intelligenceon onion production, price forecasting by the research institutes should be encouraged so, that farmer can take decisions about their onion farming in advance.
- Contract farming should be encouraged to ascertain the price in advance.
- As onion hoarders take the advantage of natural calamities and adverse weather conditions specifically in rainy season supply Departments in all the district Headquarters should store the onion to sell in public distribution out lets.

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Parental Involvement and Nutritional Status of the Children of Agricultural Labourers

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Abstract

Parental role and their involvement in childcare are very important for the overall development of the child. To find out different proportions of parental involvement and their effect on nutritional status of children a study was conducted on 160 agricultural labourer households having at least one child in the age group of 1-5 years from 8 villages randomly selected from four blocks, which were purposively selected from four districts of Orissa. It was found that majority 41.25 per cent parents had involvement in childcare activities in the proportion of 70:30 (mother: father). It was further revealed that only 25 (15.63 %) out of 160 children were found to be totally normal based on all three parameters. Majority (68.13 %) among malnourished children were in the present and past underfed group (low wt/age, low ht/ age and low wt/ ht). Parents having 50:50 involvements had highest (80.0 %) normal children where as parents having 90:10 involvements had least (6.9 %) of normal children. It was concluded that equal involvement of both the parents was conducive to better growth and development in children.

KEY WORDS: *Parental involvement, Childcare activities, Agricultural labourers, Nutritional status, wt/age, ht/ age and wt/ ht.*

Introduction

The importance of involvement of both mother and father can be well understood from the following points of view. For example, in global perspective the vision of the children is represented as the most precious wealth and productive future citizens of a country. They are considered as a 'pool of human potentials' on which the destiny of a nation depends. Children are considered as the 'Gift of God' in India and so Mahatma Gandhi the Father of our nation has rightly said, 'Children are my life'. The baby after birth is totally under the care of the adults. Most of his physical and biological needs are to be carefully met out for the growth and development of the child. Parental involvement in childcare practices, good or bad can either make or mar these blooming buds. Nearly half (46 per cent) of young children in south Asia, 30 per cent in sub-Saharan Africa, 8 per cent in Latin America

and the Caribbean, and 27 per cent worldwide are believed to suffer from malnutrition (UNICEF, 2002). It is only due to lack of parental care and ignorance. The sooner the parents become conscious for this, the better it is for both the parents and children. Again UNICEF has drawn the attention towards another pathetic phase of childcare and its nourishment. UNICEF (1985) has pointed out that malnutrition is the biggest single cause of infant and child mortality in the poor countries of the world. In India malnutrition is very common, not only among poor families who cannot afford to buy food but also among well to do families who because of ignorance and superstitions do not give their infants proper food. Because undernourished children usually live in poverty and suffer from other kinds of environmental deprivation, the specific effect of malnutrition may be hard to isolate. However taken together, these deprivations can affect not only growth and well-being but cognitive and psychological development as well (Alaimo *et al*. 2001). The infants should receive the highest priority in any developmental programme because the progress and prosperity of a country depends on the care given to the children. It is required that parents primarily understand the needs of the child and should come forward actively without fail to provide the needed nourishment. In this study an attempt has been made to find out the proportion of parental involvement in childcare and its effect on the nutritional status of the children.

Methodology

Two districts each of coastal and inland region of Odisha were randomly selected for the study. One block of each district was selected purposively based on the highest percentage of agricultural labourers. From each block, two villages were randomly selected. By adopting proportionate random sampling technique agricultural labourer households were selected from each village. So, the total numbers of sample households from 8 villages were 160. Care was taken to ensure that the labourer household should have women agricultural labourer. In each household the major income must come from agricultural labour and wages.

Results and Discussion

Household background:

The parameters under household background included under study were caste, family type & size, number of children, age and education of parents, which are presented in Table 1. The percentage of scheduled caste, scheduled tribe and other backward caste families were 46.87, 40.63 and 12.50 respectively. None of the respondents were from higher castes. The data collected on type of family indicated that 60.0 % were nuclear and 40.0 % were joint families.

Majority (66.87 %) families had six or more members, only 5.0 % families were very small families with three members. The remaining families (28.13 %) had members of 4-5. Only very limited percentage of labourers had followed very small family norms. Among the respondents 23.12 % families had only one child. The families with 2-3 and 4-5 children were 38.75 and 30.0 per cent respectively. Few families (8.13 %) had six or more children.

Table 1. Household background of the respondents

Sl. No.	Categories	Frequency, N=160	Percentage
1	**Caste**		
	SC	75	46.87
	ST	65	40.63
	OBC	20	12.50
	Others	-	-
2	**Type of family**		
	Nuclear	96	60.0
	Joint	64	40.0
3	**Family size, members**		
	Up to 3	8	5.0
	4 to 5	45	28.13
	6 and more	107	66.87
4	**No. of children**		
	1	37	23.12
	2 to 3	62	38.75
	4 to 5	48	30.0
	6 and above	13	8.13

Individual profile of men and women labourers:

The data on age and education of the men and women labourers were recorded and presented in Table 2. All the labourers were categorized into three age categories like less than 25, 25-40 and more than 40 years. The percentage of MALs (Men Agricultural Labourers) in the age group of less than 25, 25-40 and more than 40 were 8.75, 81.25 and 10.0 respectively. It was observed that more than four fifth (81.25 %) of men respondents were in the age group of 25-40 years. With regards to the women labourers like men majority 54.38 % were in the age group of 25 to 40 years and the rest 45.62 % belonged to the age group of less than 25 years.

Data on education revealed that percentage of illiterate MALs and WALs (Women Agricultural Labourers) were 40.62 and 80.0 respectively. Out of 59.38 % literate MALs, majority (41.88 %) had educational level up to primary where as 6.25 and 11.25 % were up to middle school and high school and above respectively. Out of 20.0 % literate WALs, only 1.25 % had education up to middle school. None of the women labourers had educational level up to high school and above. The result indicated that women illiteracy was twice than that of men. This was in congruence with the study conducted by Hann and Dubey (2005) that the deprived groups have much lower literacy than other groups.

Table 2. Individual profiles of men and women labourers

Sl. No.	Profiles	MALs		WALs	
		Frequency N=160	Percentage	Frequency N=160	Percentage
1	**Age, years**				
	Less than 25	14	8.75	73	45.62
	25-40	130	81.25	87	54.38
	More than 40	16	10.0	-	-
2	**Education**				
	Illiterate	65	40.62	128	80.0
	Primary	67	41.88	30	18.75
	Middle school	10	6.25	2	1.25
	High school and above	18	11.25	-	-

Proportion of parental involvement in childcare:

Proportion of involvement of mother and father in childcare is presented in Table 3. With respect to their proportion of involvement the parents were grouped into five categories. Almost equal involvement in childcare having a proportion range from 1.0-1.25 of both the parents was observed in 9.38 % families. It was observed that in more than 90.0 % families, mothers were involved more than that of fathers in various childcare activities. Highest number of parents i.e. 41.25 % was in the category of 70:30 (mother: father), which showed that they were in the proportion range of 1.91-3.17. In the categories of 60:40, 80:20 and 90:10 the percentage of parents involved were 8.75, 22.5 and 18.12 respectively.

Similarly, Russel and Russel (1987) in their study concluded that mothers were more involved in childcare practices. Their findings were supported by Kajal and Punia (1996) who, opined that men are merely seen to "help around" without assuming complete responsibility of tasks. Bentley *et al*. (1991) compared the developmental expectation and parenting behaviour of mothers and fathers of children aged 1 to 4 years using parent inventory. They concluded that mothers obtained significantly higher nurturing scores as compared to fathers. Fathers today are more involved in their children's lives, and even in childcare and housework, than ever before. Still, most are not nearly as involved as mothers are (Coley, 2001). Some fathers do much more, sharing parenting equally with mothers. Equally sharing parents do not reverse roles; instead, both parents make job adjustments and career choices compatible with their parenting responsibilities (Deutsch, 2001).

Table 3. Proportion of involvement of mother and father in childcare

Sl. No.	Mother : Father	Frequency, N=160	Percentage
1	50:50	15	9.38
2	60:40	14	8.75
3	70:30	66	41.25
4	80:20	36	22.5
5	90:10	29	18.12

Nutritional status of children taking all three parameters:

The nutritional status of children taking weight/age, height/age and weight/ height in to consideration is presented in Table 4. It revealed that only 25 (15.63 %) out of 160 children were totally normal basing on all three parameters. The rest 84.37 % had different degrees of malnutrition. Majority (68.13 %) among malnourished children were in the present and past underfed group (low wt/age, low ht/ age and low wt/ ht) followed by 6.88 % in the presently normal fed with past history of malnutrition group (normal wt/ age, low height/age and normal wt/ ht). The rest three groups i.e. presently malnourished (low wt/ age, normal ht/age & normal wt/ht), presently underfed with past history of malnutrition (low wt/age, low ht/age & normal wt/ht) and presently underfed (low wt/age, normal ht/ age & low wt/ht) comprised of 3.13 % children each. Prolonged exclusive breast feeding, delayed weaning, ignorance of nutritional need of children and high morbidity due to diarrhoea were probably some of the causative factors. It is also found out while analyzing their background that they were economically and educationally poor, lived in unhygienic environment and had poor inner resource capability. In addition to this, lack of time and mind to look after the child, suffering from various occupational and health hazards were probably some of the other causative factors. Most of the labour families had no homestead land for kitchen gardening and had limited adoption of recommended childcare practices.

Table 4. Nutritional status of children

Sl. No.	Nutritional status	Frequency, n=160
1	Normal (normal wt/age, normal ht/age & normal wt/ht)	25 (15.63)
2	Presently malnourished (low wt/age, normal ht/age & normal wt/ht)	5 (3.13)
3	Presently underfed with past history of malnutrition (low wt/age, low ht/age &	5 (3.13)
4	Presently normal fed with past history of malnutrition (normal wt/age, low	11 (6.88)
5	Presently underfed (low wt/age, normal ht/age & low wt/ht)	5 (3.13)
6	Present and past underfed (low wt/age, low ht/age & low wt/ht)	109 (68.13)
Total normal		25 (15.63)
Total malnourished		135 (84.37)

Figures in the parenthesis indicate percentage

Parental involvement and nutritional status of the children:

Childcare should be a joint responsibility of both the parents. Each must share considerably in all major childcare activities especially in child's nutrition. Not only in preparing and feeding but also in procuring and purchasing the quality food items, both have major role to play. The relation between parental involvement and nutritional status was presented in the Table-5.

It was assumed that with equal parental involvement, children could grow better. The result indicated that majority parents having 50:50 involvements had normal children (80.0 %). Parents having 90:10 involvements had least (6.9 %) of normal children. Malnourished children were found to be least (20.0 %) among the parents of 50:50 involvements in childcare. It was further found that in all other four groups (60:40, 70:30, 80:20 and 90:10) having greater difference in their involvement in childcare practices had higher percentage (64.29, 81.82, 88.89 and 93.1) of malnourished children respectively. From this it was revealed that equal involvement of both the parents was conducive to better growth and development in children.

Table 5. Effect of parental involvement on nutritional status of the children

Sl. No.	Ratio of involvement of women to men	Nutritional status		Total	λ^2
		Malnourished	Normal		
1	50:50	3 (20.0)	12 (80.0)	15	
2	60:40	9 (64.29)	5 (35.71)	14	
3	70:30	54 (81.82)	12 (18.18)	66	38.51^{**}
4	80:20	32 (88.89)	4 (11.11)	36	
5	90:10	27 (93.1)	2 (6.9)	29	

Figures in the parentheses indicate percentages ** Significant at P=0.01

To understand the association between parental involvement and level of nourishment of children the $\ddot{e}^2$ test was employed. The $\ddot{e}^2$ value was found to be 38.51which was significant at 0.01 level implying that a significant association existed between the parental involvements and level of nutritional status of children. A general trend was found by comparing the cell values with different levels of parental involvement that there is greater possibility of having well nourished children under greater involvement of father ideally 50:50.

Sangwan *et al* (1997) reported that the pattern of growth and physical status of body though genetically determined is profoundly influenced by diet, nutrition and the feeding practices adopted by mothers.

Conclusion

Almost equal involvement in childcare having a proportion range from 1.0-1.25 of both the parents was observed in 9.38 % families. In more than 90.0 % families, mothers were involved more than that of fathers in various childcare activities. In the categories of 60:40, 70:30, 80:20 and 90:10 (mother: father) the percentage of parents involved were 8.75, 41.25, 22.5 and 18.12 per cent respectively.

Only 25 (15.63 %) out of 160 children were found to be totally normal based on all three

parameters. The rest 84.37 % had different degrees of malnutrition. Majority (68.13 %) among malnourished children were in the present and past underfed group (low wt/age, low ht/ age and low wt/ ht) followed by 6.88 % in the presently normal fed with past history of malnutrition group (normal wt/ age, low ht/ age and normal wt/ ht). The rest three groups i.e. presently malnourished (low wt/ age, normal ht/age & normal wt/ht), presently underfed with past history of malnutrition (low wt/age, low ht/age & normal wt/ht) and presently underfed (low wt/age, normal ht/ age & low wt/ht) comprised of 3.13 % children each.

Majority parents having 50:50 involvements had highest (80.0 %) where as parents having 90:10 involvements had least (6.9 %) of normal children. It was further found that in all other four groups (60:40, 70:30, 80:20 and 90:10) having greater difference in their involvement in childcare practices had higher percentage (64.29, 81.82, 88.89 and 93.1) of malnourished children respectively. It was concluded that equal involvement of both the parents was conducive to better growth and development in children.

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Health Status Of Urban Slum Children (3-5 Yrs.).A Study In Sikharchandi Area, Khurda, Bhubaneswar

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Abstract

The objective of the study was to assess the nutritional status of 100 anganwadi children (3-5 yrs.)in Sikharchandi area of khurda district ,Bhubanaeswr ,Odisha. The aim was to know regarding the degrees of malnutrition prevalent in that area. The data was collected by random purposive sampling methods with the help of pretested questionnaires and required tools for dietary survey and anthropometric measurements. Majority of the parents (63%) were labourers belonging to low socioeconomic condition (60%).Nuclear family system found to be more prevalent with segregation of different castes. 63% parents were found to be literate, 88% children were found to be non-vegetarian and taking three meals per day (64%).Fruit was found to be nil in their diet whereas cereals (11%) excess and fleshy food were taken(25%) less in their diet. Intake of all other food stuff was deficient in comparison to RDA. Mean height, mean weight and mean arm circumference of boys was found to be better than girls in all age groups .But height, weight and arm circumference of boys and girls was lesser in comparison to NCHS standard irrespective of all the age group which implied that children were suffering from mildly to moderate degrees of malnourition . Results of clinical assessment showed that 37% children were suffering from different types of infectious diseases.100% children were found to be immunized but parents were ignorant about importance of immunization and also about the new vaccination. Parents were using unscientific cooking methods. Thus it can be concluded that illiteracy, ignorance and low income of the parents significantly contribute to the occurrence of malnutrition among children in Sikharchandi area of Khurda district , Bhubaneswar, Odisha.

Key words : *Nutritional status, malnutrition, Anthropometric Measurement*

Introduction

Growth and development are correlated with each other. A child's growth is the most important indicator of health, which is influenced and measured by adequate intakes of food and nutrients and a decreased susceptibility to disease.

Pre–School Children are one of the most nutritionally vulnerable segments of the population. All children normal or special need certain basic provisions of life to grow up from the helplessness of infancy and childhood to become mature and independent adults.

It has been seen that most of the parents of the pre-school children lack nutritional awareness. Once the child starts going to school the attention of the parents are diverted to their school work and food becomes a secondary matter. As a result the nutritional needs of the children are often over looked and growth retardation sets in.

To increase the growth rate and to decrease the malnutrition of preschool children in India ICDS provide Anganwadi center for combat of child hunger and malnutrition. A typical Anganwadi center also provides basic health care in Indian villages. As nutritional status of children below 5 yrs. is an indicator of health status in a particular area, the present study is designed to study the nutritional status of preschool children (3-5yrs.) in Sikharchandi Anganwadi center, Bhubaneswar.

Materials and Methods

For the present study 4 Anganwadi centers of Sikharchandi area were selected as a representative area for survey to assess the nutritional status of urban slum children 3-5 yrs. under BMC-3 ICDS Project, Khurda , Odisha.

100 Children (3-5 years) of both the sexes were selected randomly to know their socio economic condition, dietary habits and nutritional status. The data was on socioeconomic condition of the families were collected by using the interview cum questionnaire method. The data on food intake of the respondent were collected by using 24 hr. recall method.

Anthropometric measurement such as weight was recorded by using weighting machine and height and arm circumference were recorded by using measuring tape. The mean and standard error of all the measurements were calculated and compared with NCHS, ICMR and Wolanski standard.

Result and Discussion

The experimental finding obtained from the present study have been discussed in the following heads.

A) Demographic Profile of the Family.

Out of 100 surveyed children, 50 were male and 50 were female. Nuclear family (60%) system was found to be more prevalent in that area but size of the family was more than 5 members i.e. 5-7 in majority cases.

Majority cases (58%) of the respondents belong to Muslim religions with segregation of other castes. Majority of the parents were daily laboures (63%) and having low income i.e. RS. 2000 to 4000(60%).56.8% families were staying in kutcha houses.95.6% families were drinking water from BMC water supply

and 90% of the families were using latrine and 10% of the families were going to open field for defecation.

B) General Surrounding:

The surrounding of the Sikharchandi area was found to be dirty and filled with garbage. There was no proper transportation system. Roads were overflowed with cow dung, mud and other garbages. In Sikharchandi village most of the people did not clean their utensils properly after use. They generally engaged their children for collecting garbage for recycling process and stored near their house which created a polluted environment with foul smell.

C) Age and Sex of the surveyed of children.

The age and the sex of the children is viewed with more importance to know the nutritional status of a community as they are considered most vulnerable groups of the society. The distribution of surveyed children (3 to 5 yrs.) according to their age and sex is shown in Table no-1.

Age and Sex Distribution of Children

Table.1

Age in years	No of Boys	(%)	No of Girls	(%)	Total	(%)
3	10	10	12	12	22	22
4	25	25	28	28	53	53
5	15	15	10	10	25	25
TOTAL	**50**	**50**	**50**	**50**	**100**	**100**

It is observed from table 1 that out of 100 children surveyed, 50 percent were males and 50 percent were females. It was seen that maximum children belonged to the age group of 4yrs i.e. 53% were out of which 25% were males and 28% females.

D) Nutritional Assessment

Nutritional status is one of the critical indicators of health, therefore, 3 regular nutritional assessments are important to monitor the health of the children. In the present study anthropometric measurements and clinical assessments were done to know the health status of the children. In the present study anthropometric measurements such as weight, height, mid-arm circumference of the children were noted down. The mean and the standard error of all the measurements were calculated. The results obtained are expressed below.

i) Weight

Table.2 Mean weight of the children

Age	Weight of boys in kg	Weight of Girls in kg	NCHS Boys in kg	Girls in kg	% of deficiency/excess % of boys	% of Girls
3	12.3 ±0.070	10.3±0.096	15.7	14	21.66(-)	26.96(-)
4	13.4±0.671	13.6±0.052	16.7	16	19.77(-)	15(-)
5	12.2±0.013	14.9±0.013	18.7	17	34.76(-)	15.82(-)

It was observed from the table no.-2 that the mean weight of boys and girls were less than the standard of National Council of Health Statistics irrespective of age i.e. up to 5 yrs. of age group. The percentage of mean weight of boys and girls of 3yrs Children were very less in comparison to NCHS standards i.e. 21.7% less for boys, 26.9% percent less for girls, respectively, which may be due to prolonged breast feeding and late introduction weaning food. After 4yrs., the children slowly proceed to normal condition but most children were not taking normal home prepared diet as well as Anganwadi supplied diet.

It was observed that mean weight of both boys and girls belongs to 4+ and 5+ yrs. of age group was also less in comparison to NCHS standard but percentage of deficiency was more among boys in the age group of 5yrs.It was also interesting to note that as the age advance the percentage of deficiency to NCHS standard decreased in case of girls whereas in case of boys it fluctuated from time to time.

ii) Height

It is seen from table.3 table that girls were taller than the boys in the age group of 3 & 5 yrs. The mean height of the boys was 79.29% to 95.21% and girls were 88.12% to 94.46% of NCHS standard. And the mean height of boys were varied from 75.2 to 100.35 and girls were 82.75 to 101.38 .The percentage of deficiency varied from 4.79 to 20.9 in case of boys whereas in case of girls is varied from 5.55% to 11.9%.This showed that the children were mildly malnourished. Similar finding were also observed by Lenka et.al (2013),Dahiya & kapoor(1992).

Table.3 Mean height of the children

Age	Height of boys in cm	Height of Girls in cm	NCHS Boys in cm	Girls in cm	% of deficiency/excess % of boys	% of Girls
3	75.2±0.07	82.75±0.05	94.9	93.9	20.91(-)	11.88(-)
4	97.3 ±0.67	95.4±0.081	102.9	101.6	4.79(-)	5.55(-)
5	100.35±0.11	101.38±0.17	109.9	108.4	7.94(-)	6.13(-)

iii) Mid arm-circumference of Children:

Measurement of the circumference of the mid-upper arm may prove to be a useful and practical means of assessing protein–calorie deficiency of early childhood. Keeping these hypotheses in view mean mid-arm circumference of the children was studied and analyzed.

It was observed from the table no.4 that mean mid-arm circumference of boys to Wolanski standard was 89.7 to 99.9 whereas for girls it was 75.47 to 96.15 Mean mid arm circumference of children showed little difference in comparison to Wolanski standard except girls in the age group of 3yrs. Thus it can be concluded that the children were mildly malnourished. Similar finding were also observed by Lenka et.al (2013) and Dahiya&Kapoor(1992).

Age	Boys A.C in cm	Girls A.C in cm	Wolanski's Standard		% of deficiency/ excess	
			Boys	Girls	% of boys	% of Girls
3	15.25±0.14	12±0.05	16.2	15.9	5.86 (-)	24.53(-)
4	16.92±0.067	16.25±0.071	16.9	16.9	0.11(-)	3.85(-)
5	15.75±0.06	13.5±0.073	17.0	16.9	7.35(-)	20.11(-)

E) Food Consumption Pattern

Information on food consumption pattern of the children revealed that 88% children were non-vegetarian and were taking three meals per day (64%). Parboiled rice in the form of 'Pakhala' was their staple food. The children used to take food supplied by the Anganwadi center for breakfast and lunch along with home prepared food for snacks and dinner.

i) The food supply by Anganwadi center:

Cereals 100gm, pulses-20gm, vegetable-35gm,one egg and oil-3gm was supplied by the Anganwadi center to each child.

But the problem was whether children eat those food or not or it was eaten by other members of the family. It was interesting to note that in 28% cases the food was eaten by other members of family especially among the children belong to the age group of 3yrs.

The below Table no.5 shows the food supplied by the Anganwadi center.

Monday	**Gajamuga (20gm), paraboiled rice (80gm) with dalma, dal (20gm), and Veg (50gm), Oil (3gm)**
Tuesday	**Mudhimuan (20gm), paraboiled rice (80gm) with soybean curry, soybean (20gm) and potato (20gm), oil (3gm)**
Wednesday	**Mudhimuan (20gm), paraboiled rice (80gm) with egg curry/ egg(30gm) and potato 20gm), oil(3gm)**
Thursday	**Gajamuga (20gm), Khichidi-Raw rice- (80gm),drum stick-5gm, veg (30gm), oil(3gm), dal (20gm)**
Friday	**Mudhimuan (20gm) parboiled rice (80gm) with, egg curry/ egg (30gm), potato (20gm), oil (3gm)**
Saturday	**Mudhimuan(20gm) parboiled rice(80gm) with, egg curry/ egg (30gm) and oil (3gm)**

ii) Mean food intake of children:

The data on mean food intake of children of (3 to 5 yrs.) shows that all the food items consumed by the children was found to be less than the recommended dietary allowances expect cereals which was excess by 11% .However, the intake of pulses, other vegetables, root & tubers and sugar & jaggery were only 28.6%, 16.7%, 25% and 12.5% deficient to the RDA, ICMR respectively. It was observed that milk, oil& fat & leafy vegetables consumption was very low and fruit intake was found to be nil in their diet. It was observed during the survey that animal foods included mostly beef curry which was 75% of the RDA. The intake of leafy vegetable was less due to disliking of the children and intake of meat, fish and egg was low probably due to low income of the families. Similar findings were also observed Dahiya & Kapoor (1992).

Table.5 Mean food intake of children

SL	Food Item	Actul Mean Food Intake	RDA	% excess of deficiency
1	**Cereals**	**300**	**270**	**111.1(+)**
2	**Pulses**	**25**	**35**	**28.6(-)**
3	**Other vegetables**	**25**	**30**	**16.7(-)**
4	**Leafy vegetables**	**20**	**50**	**60(-)**
5	**Roots & tubers**	**15**	**20**	**25(-)**
7	**Fruits**	**-**	**-**	**-**
8	**Milks**	**80**	**250**	**68(-)**
9	**Oil &Fat**	**10**	**25**	**60(-)**
10	**Sugar &Jiggery**	**35**	**40**	**12.5(-)**
11	**Animal Food**	**15**	**20**	**25(-)**

iii) Nutrient intake Pattern:

Intake of the key nutrient by the respondents were analyzed from their daily food consumption comprising of different food groups are calculated and presented in the table below

SL	Nutrient	Actual Mean Nutrient Intake	RDA	% of deficiency/ excess
1	Energy(kcal)	1700	1690	0.59(+)
2	Protein(gm)	22.62	30	24.6(-)
3	Fat(mg)	18.68	25	25.28(-)
4	Calcium(mg)	299.42	400	25.15(-)
5	Iron(mg)	10.502	18	41.67(-)

The distribution of the actual mean nutrient intake of the children (3 to 5 yrs.) showed that the entire nutrient taken by the children was found to be less in comparison to RDA except calorie. Protein, fat, calcium and iron which were deficient by 24.6%, 25.15% and 41.67% respectively.

F) Clinical Assessment of Children:

Clinical assessment has always been and remains an important practical method for assessing the nutritional status of a community.

It was observed that out of 100 surveyed children 63% children were not showing any clinical sign of nutritional diseases whereas 37% of children were suffering from different types of infectious diseases. Most of the children were not clean their nail regularly. 16%of children were suffering from chronic diseases of cold and asthma and 14% children were suffering from any other diseases such as epilepsy. 4.57% had waxy discharges of ear and 2% children were suffering from pot belly condition which was a clear symptom of protein energy malnutrition. 18.5% were suffering from scabies or eczema which may be due to prevailing unhygienic condition in the area. Some symptoms of protein calorie malnutrition were also observed on face such as 4% children were suffering from moon face condition& 2% from odema all over the body. 100% children were found to be immunized but parents were ignorant about importance of immunization and also about the new vaccination.

Summary and Conclusion

The result of the present study revealed very interesting conclusion with regard to socio economic condition of the parents, nutritional status of the children (3 to 5 yrs.) food and nutrient intake and clinical assessment. Nuclear family system was found to be more prevalent. The parents were basically daily labourers belonging to lower economic status and living in Kutcha houses. Educational status of the father was better than mother.

The problem of malnourished was found to be more acute among girls in comparison to boys. Mean height, weight, mid-arm circumference of Anganwadi boys and girls were found to be lesser than the NCHS and wolanski standard.

The mean intake of the entire food item consumed by the Anganwadi children (3 to 5 yrs.) was found to be less than the recommended dietary allowances except cereals. The mean nutrient intake of Anganwadi children was found to be lesser than RDA i.e. protein, iron and calcium except calories. Result of clinical survey revealed that 37% children of Anganwadi center were suffering from different types of nutritional and infectious diseases.

Thus in can be concluded that low socio economic condition, illiteracy, ignorance about health practices, unhygienic living condition, improper food and nutrient intake, unavailability of health facilities were the major causes of prevalence of malnutrition (mildly malnourished) among the children in the studied area.

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Decision -making Behaviour of Farm Families In Farming System Activities

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Abstract

It is an established fact that both men and women of farming community have joint involvement in Agriculture and allied activities in their farming system, such as cleaning of fieldpreparation, sowing, intercultural operations, harvesting, picking, cleaning of grains, storage of grains and processing etc. But in case of farm women decision making is questionable for implementationof these activities.

In this context, the present study was conducted to determine the contribution of farmer and farmwomen in decision making in farm activities. A total of 400 farmer and farm women were **selected** as respondentsthrough random sampling technique. Relevant data were collected with the help of personal interview technique. The data were analyzed using appropriate statistical tools. Analysis of data showed that the involvement of farmwomen in decision making process in agriculture was very low. It is due to the reason that majority of farm women are illiterate having little knowledge about the latest techniques of farming due to male dominance and less exposure to extension contacts.

The rural women have very low decision making power. Limited exposure and participation along with less control over resources resulting in probably less degree of empowerment.

The success of any activity depends to a greater extent and proper planning and decision by the people involved in it. The proper decision at appropriate time in different farming system activities brings outsuccess farming. Decision making is affected by many factors. The people having good economic condition are expected to take good and prompt decision. Some otherfactors like age, education and exposure to social contacts effects the decision making process in farm families.Keeping this in view, the study was undertaken to find out the extent of participation among farmers and farmwomen in farm decision making process.

Key words: *Agriculture, Gender decision making, constraints.*

Methodology

The study was conducted in four blocks of undivided Sambalpur district namely Attabira, Kuchinda, Lakhanpur and Reamal. Fourhundred respondents (200 farmers and 200 farm women) were selected by random sampling method for the present study.

It is operationalized as the extentof involvement in taking important decisions in different activities relating to agriculture, animal husbandry, poultry and homestead activities viz. kitchen gardening, mushroom cultivation and apiculture by farmers and farm women based onthe decisionas taken up by the farmwomen, farmers orjointly byboth of them.

The required data was collected with a well-structured and pre-tested interview schedule. Appropriate stastical tools were used for getting meaningful interpretation of results.

Findings and Discussion

Decision making is a mental process which is taken by every individual separately in their own way. It is a stage in innovation- decision process and it occurs when an individual engages in activities that lead to a choice to adjust or reject. The innovating Farmers and farm women take decisions separately in their day to day activities (Rogers 1971). It is generally known that all decisions relating to marketing, labor, and account maintenance related activities are taken by male members and other insideactivities related decisions are usually taken by women members of the family. But in farm families, decisions on the same farm related activities taken solely by farmer or farm women and some of the decisions aretaken jointly. As decision making has an important role on implementation of farm activities and all developmental programmes in farming community, therefore it was decided to analyze the decision-making behavior of respondents to identity the importance of male or female in farming activities.

1. Decision making behavior of famers and farm women in management activities of Rice farming Attempts were taken to find out the involvement of farm women and farmers in taking important decisions by them relating to the management activities ofdifferent crops grown by them.

It is a well-known fact that the important decisions are taken in the family afterjoint decision in

some cases decisions are also taken solely by farmwomen or by farmer. The findings of the study

on decision making behavior of the farm families relating to crop production is depicted in the tableI.

Table-I Decision making behavior of farmers and farmwomen in management activities of rice farming

SL. NO	Activities	Farm women n^1=200		Farmer n^2=200		Joint decision N=400	
		f	%	*f*	%	*f*	%
1	Crops to be grown	-	-	140	35	260	65
2	Selection of seeds and verities	-	-	192	48	208	52
3	Purchase of seeds						
	(i) Seed rate	-	-	196	49	204	51
	(ii) Method of sowing	-	-	164	41	236	59
	(iii) Seed treatment	-	-	195	49	205	51
	(iv) Sowing seasons and time	iii	28	189	47	100	25
	(v) Transplanting						
	(vi) broadcasting	100	25	106	26	194	49
		40	10	192	48	168	42
4	Inter cultivational operations:						
	(i) weeding time	119	30	150	38	131	32
	(ii) fertilizer to be used	-	-	189	47	211	53
	(iii) time of fertilizer application	-	-	195	49	205	51
	(iv) Dose and method of fertilizer application	-	-	198	50	202	50
	(v) Using weeding wide						
	(vi) Using pesticide	-	-	189	47	211	53
	(vii) thinning	-	-	195	49	205	51
		102	26	186	46	112	28
	Post-harvest operations						
	(i) quantity of seed to be stored	130	32	187	47	83	21
	(ii) Method of storage	58	16	102	26	240	60
5	Marketing						
	(i) Quantity to be sold	186	47	104	26	110	27
	(ii) Selling time	76	19	186	47	138	34
	(iii) Selection of market-price	78	19	498	50	124	31
	(iv) Mode of payment						
		64	16	196	49	140	35

From the table I, it was observed that decision making of farm women in crop production activity is very less in comparisonto farmers. The similar result was presented by Sharma et al. (2013).maximum involvement in decision making by the farm women in case of making of produce, especially the quantity to be sold and how much to be retained for their use (47%) and quantity of seed to be stored (32%) . the other activities in which the farm women take the decision solely are deciding on sowing season time, weeding time, transplanting, thinning of seedlings, quantity and method of storage, selling time, etc. Roger (2007) but in case of farmers, the sole decision was taken by them in almost all the activities, however, the activities in which sole decision is taken by the farmers were,

selection of seed (48%) , seed treatment , fertilizer application (50%) seed rate for the crop seed treatment , time of fertilizer application (each 49%) . the area in which joint decisions were taken were, crops to be grown (65%) method of storage (60%) method of sowing (50%) etc. The study agrees with Thakur (1997) and Nand et al. (1994)

Decision making behavior of farmers and farm women in investment in different identified activities

In farm families, majority of family decisions i.e. Investments in different activities are mostly taken jointly by farmers and farm women. In this context it was tried to find out. The participation of Farmer and Farm women in investment decision related to farming operations. The result thus obtained is depicted in table II

Table-II Decision making behavior of farmers and farmwomen in investment in different identified activities

SL. No.	Activities	Farm women N1=200		Farmer N2=200		Joint decision N=400	
		f	%	*f*	%	*f*	%
1.	Buying of land	21	5	19	5	360	90
2.	Selling of land	24	6	20	5	356	89
3.	Leasing of land	-	-	310	78	90	22
4.	Purchasing farm implements	22	5	188	47	190	48
5.	Hiring farm implements	34	9	274	68	92	23
6.	Construction of shed.	15	4	39	10	346	86
7.	Construction of farm house	13	3	41	10	346	87
8.	Construction of store house	25	6	55	14	320	80
9.	Buying of pump sets	-	-	189	47	211	53
10.	Digging wells	15	4	105	26	280	70
11.	Purchasing of Agriculture inputs	31	8	189	47	180	45
12.	Getting loans and credit	105	26	200	50	95	24
13.	Type of saving	165	41	155	39	80	20
14.	Saving (amount)	180	45	102	25	118	30

It may be observed from the table II that some of the investment decision were taken by farm women independently more than farmers, like; amount to be saved and type of saving. Whereas mostly other decisions were taken more independently by farmers that is purchase of farm implements, buying of pump sets, purchasing of agricultural inputs, getting loans and credits.

But in investment decisions jointly observed in buying of land (90%) selling of land 89%), construction of shed (86%) construction of

farm house (87%) construction of store house (80%) and digging of wells (70%) . so, these activities are found to be very significant in joint decisions.

Conclusion

The obtained result clearly indicates even in agriculturally developed areas.the involvement of farmwomen in farming systems is more, but their role in decision making in different aspects needs to be improved by initiating more viable and well developed programmes. It needs the attention of the planners policy makers and extension workers.

Hence, it may be concluded that, farm women take independent decisions for type of saving and amount to be saved for future use. They also take,part jointly with their spouse in farm related investment decisions, though some of the investment decisions were taken by farmers alone in the study area.

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Involvement of Lodha women in developmental programmes in Odisha- An Overview

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Abstract

Lodha women have more contribution for the maintainance of their family. Lodha Micro Project had launched several programmes for the upliftment of Lodha women. A study conducted with 210 Lodha women from Suliapada and Morada blocks in mayurbhanja district revealed that the Lodha Women had insufficient knowledge, accessibility, involvement and applicability of the knowledge particularly on health care and sanitation, vocational activities, infrastructure facilities, socio-cultural activities, credit and finance. The Lodha micro project Officials have to organise adequate capacity building programmes to enrich their knowledge, accessibility and involve them fully in programme formulation enabling them to apply the knowledge in their activities for their alround development.

Keywords : *Lodha women, programme, Lodha Micro Project,respondents*

Lodha Micro Project has launched various income generating activities such as horticultural plantations, goat and poultry keeping, sabai rope making, tassar rearing, bee keeping etc. for the development of Lodha Women. Besides; agricultural activities related to their involvement were also implemented. Capacity building programmes are also organised to develop their knowledge and skill competency. Adult education and cultural programmes are being organised to develop their consciousness towards income generating activities.

In spite of all efforts, significant developments have not been made to Lodha women. Unless the Lodha women have detail knowledge,accessibility and involvement in the programme formulation as well as applicability of the knowledge in their activities, significant improvement cannot be expected. An attempt was therefore made to assess the involvement of Lodha women towards various developmental programmes implemented by the Lodha Micro Project.

Materials and Methods

The study was undertaken during 2014 in Suliapada and morada blocks of Mayurbhanja district in Odisha. Out of total families adopted by Lodha Micro Project, 66 Lodha women from suliapada and 144 from Morada block covering around 25.00% of the families were randomly selected as the respondents for the study. The developmental programmes

implemented such as farm activities, health care and sanitation, education, vocational activity, infrastructure support, socio-cultural activity, credit and finance were selected as the variables for the study. The statistical tools like mean score, gap percentage and path analysis were employed to reveal the results.

Result and Desicion

Lodha Micro Project are supplying seeds, fertilisers, bullock, poultry, goat, farm implements and handy tools, fruit plants under farm activities, providing fire proof houses, mass vaccination, health care and sanitation measures, nutritious diet from local food materials and mass insurance facilities, under health and sanitation. The project also facilitates residential education and providing school uniforms, stipend, books etc. under educational activities. Promoting vocational activities, credit facilities, marketing opportunities, construction of concrete road, solar energy, housing for socio-cultural activities, promoting traditional culture and folk dance were other activities undertaken for the upliftment of Lodha women. The data collected on scale point of fully, partially and not known about all these activities were analysed with score of 3, 2 and 1 respectively.

Table – 1 : knowledge about different activities undertaken

Sl. No.	Knowledge	Mean Score		Diff. (%)	Pooled mean score (n = 210)	Gap (%)
		Suliapada block (n = 66)	Morada block (n =144)			
1.	Irrigation	1.98	2.19	9.59	2.12	29.33
2.	Farm activities	2.20	2.21	0.45	2.21	26.33
3.	Health care and sanitation	2.03	2.07	1.93	2.05	31.67
4.	Education	2.15	2.17	0.92	2.17	27.67
5.	Vocational Activity	1.99	1.97	1.01	1.98	34.00
6.	Infrastructure facility	2.08	2.12	1.89	2.11	29.67
7.	Socio cultural activity	2.16	2.07	4.17	2.10	30.00
8.	Credit and finance	1.97	1.96	0.51	1.97	34.33

It is observed from Table-1 that the respondents of both Suliapada and Morada blocks were of similar opinions. The knowledge level of the respondents of both the districts on different programmes implemented were also almost at par. Considerable gaps of 26.33% to 34.33% were observed on the knowledge indicated for the inadequate knowledge of the respondents about various activities undertaken.

Organising programmes to transfer knowledge has no meaning unless Lodha women have easy access in acquiring knowledge. The data collected on scale point of easy, some and no access have been

analysed with score value of 3.2 and 1 respectively. As observed from Table-2, significant gaps were observed on accessibility in acquiring knowledge on credit and finance (47.00%), health care and sanitation (47.00%), socio-cultural activities (42.00%), infrastructure support (37.00%) vocational activity in comparison to farm activities (21.33%) and educational activities (29.67%). When the Lodha women had inadequate knowledge, accessibility to various activities will be naturally low for which significant percentage of gaps were observed.

Table – 2 : Accessibility of the respondents in acquiring knowledge

Sl. No.	Accessibility	Mean Score Suliapada block (n = 66)	Mean Score Morada block (n =144)	Diff. (%)	Pooled mean score (n = 210)	Gap (%)
1.	Irrigation	2.44	2.15	11.89	2.24	25.33
2.	Farm activities	2.44	2.33	4.51	2.36	21.33
3.	Health care and sanitation	1.56	1.61	3.11	1.59	47.00
4.	Education	2.30	2.03	11.74	2.11	29.67
5.	Vocational Activity	2.00	1.94	3.00	1.96	34.67
6.	Infrastructure facility	1.91	1.88	1.57	1.89	37.00
7.	Socio cultural activity	1.55	1.83	15.30	1.74	42.00
8.	Credit and finance	1.67	1.56	6.59	1.59	47.00

(Maximum Obtainable Score - 3)

Active investment of people in various developmental activities increases their interest, knowledge and skill competency. The data collected on three scale point of fully, partially and not involved revealed (Table-3) that

Table – 3: Extent of involvement in various activities

Sl. No.	Applicability	Mean Score Suliapada block (n = 66)	Mean Score Morada block (n =144)	Diff. (%)	Pooled mean score (n = 210)	Gap (%)
1.	Irrigation	2.15	2.03	5.58	2.07	31.00
2.	Farm activities	2.56	2.24	12.50	2.34	22.00
3.	Health care and sanitation	1.53	1.78	14.04	1.70	43.33
4.	Education	2.24	2.06	8.04	2.12	29.33
5.	Vocational Activity	1.98	1.76	11.11	1.82	39.33
6.	Infrastructure facility	1.95	1.98	1.52	1.97	34.33
7.	Socio cultural activity	1.82	1.76	3.30	1.78	40.67
8.	Credit and finance	1.76	1.89	6.88	1.85	38.33

(Maximum Obtainable Score – 3)

the respondents maximum of 43.33% involvement were observed under health care and sanitation followed by socio-cultural activity (40.67%), vocational activity (39.33%), credit and finance (38.33%), infrastructure support (34.33%), educational activities (29.33%) and farm activities (22.00%).Since, knowledge and accessibility to various activities were low, their involvements will be naturally low for which significant percentage of gaps were observed.

Use of the knowledge is the ultimate end in designing any developmental activity. Lodha Micro Project also emphasized for the adoption of the development activities undertaken. The data collected from the respondents on scale point of most, somewhat and not applicable revealed

Table 4: Applicability of the knowledge gained

Sl. No.	Knowledge	Mean Score		Diff. (%)	Pooled mean score (n = 210)	Gap (%)
		Suliapada block (n = 66)	Morada block (n =144)			
1.	Irrigation	2.44	2.15	11.89	2.24	25.33
2.	Farm activities	2.44	2.33	4.51	2.36	21.33
3.	Health care and sanitation	1.56	1.61	3.11	1.59	47.00
4.	Education	2.30	2.03	11.74	2.11	29.67
5.	Vocational Activity	2.00	1.94	3.00	1.96	34.67
6.	Infrastructure facility	1.91	1.88	1.57	1.89	37.00
7.	Socio cultural activity	1.55	1.83	15.30	1.74	42.00
8.	Credit and finance	1.67	1.56	6.59	1.59	47.00

(Maximum Obtainable Score – 3)

(Table-4) that the respondents were also not applied the knowledge satisfactorily. Significant percentages of gaps were observed on health care and sanitation (48.67%), credit and finance (39.33%), socio-cultural activity (38.67%) and infrastructure (36.33%). However, better applicability of the knowledge was comparatively observed on education, farm activities and vocational activity. The findings indicated that the respondent had interest in adoption of each technologies introduced. It is therefore suggested that the Lodha Micro project officials have to organise various capacity building programmes to enrich their knowledge and skills which may facilitate their accessibility and adoption of technologies introduced.

Path analysis have also been made to assess the important variables influencing knowledge level. As observed from Table-5, that extension

Table 5: Path analysis of socio-economic variables on knowledge (n=210)

Sl. No	Variable	Total effect	Total direct effect	Total indirect effect	Substantial effect		
					I	II	III
X_1	Age	0.320	0.115	0.205	0.109x10	0.036x2	0.026x11
X_2	Education	0.413	0.202	0.211	0.157x8	-0.139x10	-0.059x2

X_3	Family type	0.056	-0.221	0.277	0.172x15	-0.153x7	-0.034x10
X_4	Family size	-0.250	-0.110	-0.140	-0.095x12	0.086x15	-0.042x4
X_5	Social participation	0.513	0.450	0.063	-0.144x10	0.105x6	-0.067x5
X_6	Cosmopoliteness	-0.576	-0.220	-0.356	-0.206x7	0.167x9	0.088x13
X_7	Sources of information	-0.081	-0.221	0.140	0.178x5	-0.172x8	-0.074x11
X_8	Extension contact	0.231	-0.590	0.821	-0.062x14	0.057x7	-0.046x15
X_9	Housing pattern	0.115	-0.38	0.495	-0.194x9	0.109x12	-0.023x8
X_{10}	Holding size	-0.016	-0.191	0.175	-0.276x10	-0.150x18	-0.045x9
X_{11}	Communication system	-0.402	-0.219	-0.183	-0.172x16	0.135x14	0.089x6
X_{12}	Possession of house hold article	0.025	0.079	-0.054	0.062x3	0.052x11	-0.048x5
X_{13}	Occupation	-0.450	-0.22	-0.230	-0.234x5	0.074x14	0.033x9
X_{14}	Annual income	0.431	0.33	0.101	0.084x14	0.069x13	-0.024x16
X_{15}	Social aptitude	-0.473	-0.37	-0.103	0.084x13	0.069x16	-0.224x3
X_{16}	Economic aptitude	-0.514	-0.55	0.036	-0.068x6	-0.054x7	-0.038x11

Residual effect: 0.046

Highest indirect effect: Extension contact

contact channelized through education, sources of information and housing pattern had exhibited positive influence in involvement of the respondents in implementation of various developmental programme implemented by Lodha Micro Project. The residual effect being 0.046 inferred that 4.60% of the variation in this relation could not be explained.

Conclusion

The Government of Odisha has launched several programmes for the empowerment of Lodha Women through Lodha Micro Project. The study revealed that the respondents had insufficient knowledge, accessibility, involvement and applicability of the knowledge particularly on health care and sanitation, vocational activities, infrastructure facilities, socio-cultural activities, credit and finance. Comparatively better involvements were observed on farm and educational activities. Extension contact and sources of information found to influence the involvement of the respondents.

Lodha women have more contribution for the maintenance of the family in comparison to their male counterpart who are mostly involved in antisocial activities. It is very much essential to develop the competency of the Lodha women on priority. It is therefore suggested that the Lodha Micro Project officials have to organise educational activities sufficiently to enrich their knowledge, accessibility and involve them fully in the programme formulation enabling to apply the gained knowledge successfully in their day to day activities for their alround developments.

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Farmers Response on Sugarcane Production and Policy Recommendations: Evidence based on findings from Village Level Study in Orissa

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ABSTRACT

Sugarcane is a major cash crop of India, particularly in UP, Maharastra, Tamil Nadu, Karnataka, Andhra Pradesh, Bihar, Gujurat, and Foot hils of Uttarakhand. Sugarcane crop has an productivity of 70 tonnes/ha and an area of 4.2 mha. plays a pivotal role in the national economy. Sugarcane is considered as one of the best cash crops in Orissa. It is grown in all the 30 districts of Orissa. The selected district Dhenkanal occupied 10th position in area (1.19 thousand ha), 9th position in production (81.46 thousand MTs) and 14th position in yield (68510 kg/ha) in 2004-05. The establishment of a sugar factory in Dhenkanal district has increased the prospect of this crop in the surrounding area. In Orissa the productivity of sugarcane was only 53.2 tonnes/ha as compared to 68.4 tonnes/ha at all India level. There is ample scope for increasing area, production and productivity of the crop in the state. The area and production of sugarcane in the state has declined since last decade due to more emphasis given by the farmers to cereals and other crops. Concerted efforts are to be made by the extension agencies to educate farmers about the adoption of modern and scientific practices of sugarcane cultivation. The jaggery manufactures should come forward to organize co-operative marketing societies to enjoy the benefits of regulated marketing system. Policy makers are required to formulate suitable policies and offer prices which will be remunerative to the sugarcane growers. The Government is to promote contract farming in sugarcane in feasible areas.

Introduction

Sugarcane is the main source of sugar in India and holds a prominent position as a cash crop. It contributes approximately 56 per cent of total sugar production in the world. Sugar is one of the oldest commodities in the world and traces its origin in 4th century AD in India and China. India is the largest consumer (18 million tones) and the second largest producer of sugar after Brazil. The Indian sugar Industry is one of the largest producers of white crystal sugar with massive enterprise of sugar factories located throughout the country with an annual turn over of Rs. 150 billion. Indian agriculture has undergone a phenomenal transformation during the past five decades. The metamorphosis was brought by not only technological changes

such as green revolution, but also by institutional innovations in delivering farm inputs and marketing of output. **:** Concerted efforts are to be made by the extension agencies to educate farmers about the adoption of modern and scientific practices of sugarcane cultivation. The jaggery manufactures should come forward to organize co-operative marketing societies to enjoy the benefits of regulated marketing system. Policy makers are required to formulate suitable policies and offer prices which will be remunerative to the sugarcane growers. The Government is to promote contract farming in sugarcane in feasible areas. As the statutory minimum price (SMP) of sugarcane is linked to the recovery rate, there is an imperative need to improve the operational efficiency of plant and machinery of sugar factories and in the process growers get higher cane price. Government is required to determine the additional liability of cane price (ACP) and to notify the same in a time bound manner. In view of the above perspectives, a study on "Farmers Response on Sugarcane production and Policy Recommendations: Evidence based on findings from village level study in Orissa" was undertaken with the following objective.

Objective

i. To study the resource base of the sample farmers in the study area.

ii. To study the response of farmers on sugarcane production in the study area.

iii. To suggest policy measures based on findings of the study.

Materials and Methods

Sample Design

The multi-stage stratified random sampling technique was adopted in the study. In the first stage two blocks namely Dhenkanal Sadar and Kankadahada were selected randomly, in the second stage, 16 villages were randomly selected at the rate of 8 villages per block. This constituted 5 per cent of the total number of villages of two selected blocks. In the final stage, list of sugarcane farmers was prepared separately for both types of sample villages and 10 farm households from each of the 16 sample villages were selected randomly.

Result and Discussion

Size of Holding

Table 1: Distribution of holding in different size groups of sample farms of blocks

Size groups	Dhenkanal Sadar (Region-I)		Kankadahada (Region-II)	
	Total No. of sample farms	Average size of operational holding (in ha.).	Total No. of sample farms	Average size of operational holding (in ha.).
I (below 1.00 ha)	18	0.91	26	0.85
II (1.01 to 2.00 ha)	28	1.56	29	1.51
III (2.01 to 4 .00 ha.)	22	2.68	20	2.73
IV (4.00 and above)	12	6.34	5	6.21
Pooled	**80**	**2.44**	**80**	**1.89**

The average size of holding was estimated to be 2.44 ha. for Dhenkanal Sadar (Region –I) and 1.89 ha. in Kankadahada Block (Region-II) of the sample district. The operational size of holding of marginal, small, medium and large farmers are found to be 0.91, 1.56, 2.68 and 6.34 ha. as against 0.85, 1.51,2.73 and 6.21 ha. respectively.

Type of Ownership of Land

Information relating to the land ownership are given in Table 2.

Table 2 : Distribution of own and leased in land in different size groups of sample farms (in hectares)

Size groups	Dhenkanal Sadar (Region-I)			Kankadahada(Region-II)		
	Average size of operational holding	Own land	Leased in land	Average size of operational holding	Own land	Leased in land
I	0.91	0.76	0.15	0.85	0.71	0.14
	(100)	(83.53)	(16.48)	(100)	(83.53)	(16.47)
II	1.56	1.21	0.35	1.51	1.36	0.15
	(100)	(77.56)	(22.44)	(100)	(90.00)	(9.93)
III	2.68	2.31	0.37	2.73	1.58	1.15
	(100)	(86.31)	(13.69)	(100)	(57.88)	(42.12)
IV	6.34	5.92	0.42	6.21	5.97	0.24
	(100)	(93.38)	(6.62)	(100)	(96.14)	(3.86)
Pooled	**2.44**	**1.97**	**0.47**	**1.89**	**1.49**	**0.40**
	(100)	**(80.74)**	**(19.26)**	**(100)**	**(78.84)**	**(21.16)**

(Figures in parentheses are percentages)

It may be noted from the table that more than three-fourth of their total operational holdings accounted for owned land while the remaining were by way of leased in land on a share cropping basis. This clearly indicates that there is negligible extent of tenancy among the farmers in the area under study. On an average, the percentage of owned and leased in land worked out to 80.74 and 19.26 per cent in Dhenkanal Sadar as compared to 78.84 per cent and 21.16 per cent in Kankadahad Block. And between size groups, the proportion of leased in land increased with decrease in size of holding. This was mainly due to the fact that the marginal and small farmers were interested to make their units viable by making labour investments in their farms.

Extent of irrigation

Irrigation plays an important role in agricultural production. The nature of cropping pattern followed by the farms in a particular area largely depends upon the availability of irrigation facilities. The following table shows the extent of irrigation in different farm size groups.

Table 3 : Distribution of area under irrigation in different size groups of sample farms

Size groups	Dhenkanal Sadar (Region-I)			Kankadahada(Region-II)		
	Average size of operation holding (ha)	Area under irrigation (in ha)	Per cent	Average size of operation holding (ha)	Area under irrigation (in ha)	Per cent
I	0.91	0.67	73.63	0.85	0.44	52.18
II	1.56	1.12	71.79	1.51	0.88	58.43
III	2.68	2.09	77.99	2.73	1.67	61.05
IV	6.34	4.72	74.45	6.21	3.77	60.74
Pooled	**2.44**	**1.83**	**74.31**	**1.89**	**1.12**	**59.26**

In case of Region-I, the average irrigated area for all farm size groups pooled together was 1.83 hectares and its proportion to total operated area was 74.31 per cent. And between size groups this proportion varied between 71.79 to 74.45 per cent. In case of Region-II, the average irrigated area for all farm size groups pooled together was 1.12 ha. and its proportion to total operated area was 59.26 per cent. And between size groups this proportion varied between 52.18 per cent to 61.05 per cent. The medium and large farmers in both the regions seem to enjoy better irrigation facilities as compared to marginal and small farm size groups in the area under study.

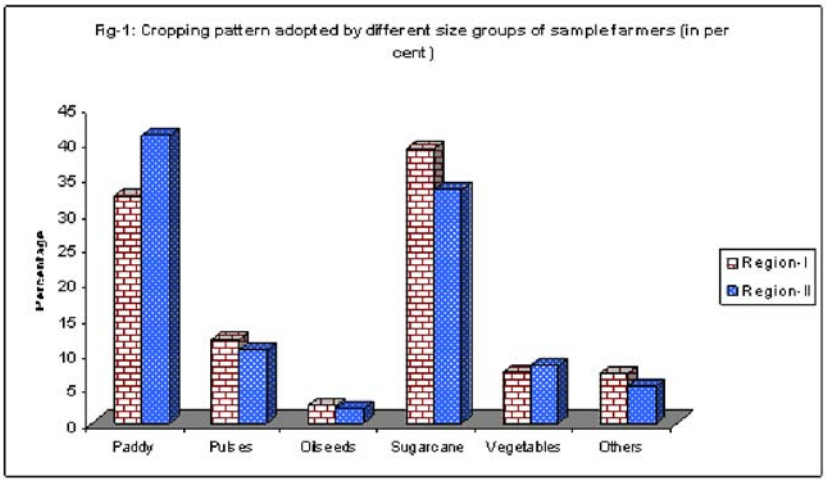
Cropping Pattern

The cropping pattern followed by farmers in the study area is given in Table 4.

The importance of paddy cultivation in the area comes out very clearly from the survey data. Among other crops the preference of growing sugarcane was also evident among all categories of sample farms. Next these is sugarcane pulses are grown by all the sample farmers in the area. The proportion of area devoted to sugarcane crop varied between 36.67 and 40.08 per cent in region-I as compared to 31.79 to 33.62 per cent in region-II. The marginal and small farmers devoted more area for this crop as compared to large farmers. This might be due to better irrigation facilities available to this categories of sample farmers. Among other crops, oilseeds and vegetables are also grown by the sample farms indicating diversification of farming in the area under study.

Table 5 : Cropping pattern adopted by different size groups of sample farmers (in per cent)

Crops	Dhenkanal Sadar (Region-I) Size group					Kankadahada(Region-II) Size group				
	I	II	III	IV	**Pooled**	I	II	III	IV	**Pooled**
Paddy	35.63	32.13	30.68	30.12	**32.22**	40.12	41.53	40.92	42.12	**40.96**
Pulses	14.44	10.54	12.34	10.08	**11.84**	10.58	10.41	9.98	10.05	**10.34**
Oilseeds	2.53	2.81	2.41	2.15	**2.54**	2.04	2.11	2.14	2.08	**2.09**
Sugarcane	36.67	40.08	39.92	38.92	**39.09**	32.47	33.62	34.05	31.79	**33.24**
Vegetables	4.12	7.93	8.01	9.05	**7.26**	8.36	8.18	7.93	7.82	**8.15**
Others	6.61	6.51	6.64	9.68	**7.04**	6.43	4.15	4.98	6.14	**5.22**
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**



Policy Recommendations

- Sugarcane crop is both labour and capital intensive. It requires heavy quantities of various inputs and hence the cost of production is high. Though the farmers in the area under study realized more returns, they were reported to have incurred more expenditure on various inputs. This was mainly due to ignorance of majority of the farmers about the recommended practices in sugarcane cultivation.
- In spite of various efforts made by the extension agencies of the State Department of Agriculture there has not been much Impact on the farmer's field concerted efforts should be made by these agencies to educate the farmers about the adoption of modern and scientific practices of sugarcane cultivation, on a continuous basis.
- Resource adjustment on all farm size categories have to be effected to increase the output and profit.
- The ratio of marginal value product to factor cost of various inputs indicated that use of capital on various farm inputs could be increased. It is also suggested that excess use of any particular input due to under over enthusiasm needs to be

avoided. The labour utilization was to be reduced particularly on marginal and small farms of sugar cane.

- Majority of the jaggery manufacturer get sugarcane though channe-II (village merchant), who purchase the produce from farmers. The farmers are aware that their share in consumer's rupee was high in channel-I. Hence, the marketing of jaggery though channel-I need to be encouraged. For achieving this, the jaggery manufactures should come forward to start and organize co-operative marketing societies to enjoy the benefit of regulated marketing system.
- Since sugarcane is a labour and capital-intensive crop, the support price fixed for this crop should commensurate with the cost of cultivation. It should therefore be the concern of the policy makers to formulate suitable policies and offer prices, which will be remunerative to the farmers.
- In contract farming of sugarcane, quality inputs such as seeds, fertilizes and plant protection chemicals are provided to the farmers at their farm gate coupled with technical advice on production aspects. This not only reduces the working capital needs of the farmers but also substantially reduces their transaction cost per unit of output. The contract farming in sugarcane has helped the marginal and small farmers to increase their income levels. The government is the promote contract farming in feasible areas.
- In spite of several advantages, the farmers under contract farming have expressed certain problems like delay in payment, delay in delivery of inputs etc. These need to be addressed by the sugar factories in the interest of sustaining long-term synergistic relationships between the firms and farmers.
- The Government should enact suitable bye-laws and create an enabling condition for contract farming to be widely accepted and adopted.
- The Statutory Minimum Price (SMP) of sugarcane is linked to the recovery rate and the level of recovery in influenced by efficiency of plant and machinery operating in sugar factories. There is on imperative need to improve the operational efficiency of plant and machinery and in the process elevate their recovery rates so that sugarcane growers get higher cane price.
- The sugarcane (control) order, 1966 not only provides for giving to the farmers the SMP of sugar cane but also Additional Cane Price (ACP) under cause 5A of the order. Governments are required to determine the additional liability of cane price and to notify the same in a time bound manner.
- Government should provide necessary incentives to all sugar mills to produce ethanol, alcohol, co-generation of power etc. along with sugar, in a flexible and also permit any new sugar units to be set up if they plan to do so.
- Govt. of India should adopt a policy of blending at least 10 per cent ethanol with petrol mandatory after due consultation with stakeholders. The price of ethanol should be linked with the price of petrol

to make it remunerative for the sugar mills who will pay higher price to the sugar cane growers.

- The production capacity of sugar factories needs to be increased substantially to become variable and improve export prospects in the overseas market. There is a need to formulate a long term strategy by the Government for promoting the export of sugar on sustainable basis.

Conclusion

The above analysis revealed that economic of sugarcane production in Dhenkanal district of Odisha has been fluctuating though it has potential as per the perception of sampled farmers.The proportion of irrigated area to total operated area was 74.31 per cent in region-I as against 52.18 per cent in region-II. The medium and large farmers in both the regions seem to enjoy better irrigation facilities and compared to as compared to marginal and small size groups. Apart from paddy, sugarcane and pulses are grown by all sample farmers in the area. The proportion of area devoted to sugarcane crop varied from 36.67 to 40.08 per cent on region-I as compared to 31.79 to 33.62 per cent in region-II. The marginal and small farmers devoted more area for this crop as compared to large farmers. This might be better irrigation facilities available to these categories of farmers. Concerted efforts are to be made by the extension agencies to educate farmers about the adoption of modern and scientific practices of sugarcane cultivation. The jaggery manufactures should come forward to organize co-operative marketing societies to enjoy the benefits of regulated marketing system. Policy makers are required to formulate suitable policies and offer prices which will be remunerative to the sugarcane growers. The Government is to promote contract farming in sugarcane in feasible areas. As the statutory minimum price (SMP) of sugarcane is linked to the recovery rate, there is an imperative need to improve the operational efficiency of plant and machinery of sugar factories and in the process growers get higher cane price. Government is required to determine the additional liability of cane price (ACP) and to notify the same in a time bound manner.

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A Comparative Study on Empowerment of Rural Women through SHGs Approach

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Abstract

Women have been regarded as the nuclei of a nation, builder and molder of its destiny. National development is not possible without developing this important and substantial section of our society, because women constitute almost half of the total population in the world & they play a vital role in domestic & social life of the society. But their representation in all spheres (political, economical & social) of life is low. Now the concept of Women Self Help Group (WSHGs) is catching of as the most viable means to empower women, especially at the grass root level for social, economical, political & technology development of rural women. Women have shown extraordinary dynamisms in organizing themselves in group activities for income generation, social participation & improvement in the quality of life. Now the SHGs stand to underline the principle "for the people, by the people, and of the people". This paper represents the "A comparative study on empowerment of rural women through Self Help Groups approach". This study was undertaken in five villages of Bhadrak district of Odisha. From each village 20 women were selected comprising of 100 samples were selected for the study. They were interviewed on a set of prepared questionnaire & then the result were tabulated & analyzed. This study revels that, the organized women are more active & leading better quality of life than un-organized one in case of social participation, knowledge on income generating activities, involvement in agriculture & allied activities , decision making process, Financial matter Resource management, procurement of inputs & material, asset creation, ownership & control over resources, Linkage & coordination ,Banks etc.

Introduction:

Women constitute half of the India's population. & they play a vital role in domestic & social life of the society. They comprise half of the workforce in agriculture & allied activities & also they share most of the duties & responbilities of the family, house keeping and child rearing. The contribution of women in agriculture is quite significant as compare to men. Besides working for large hours in the agrarian sector, women have also been largely responsible for aspects like family food security, maintaining the bio-diversity through preservation of seeds. Still they are much more behind their counterpart in all spheres i.e. social, economical, technological & political etc. Therefore women need active participation in agriculture as worker, manager & entrepreneur. But their development is not so visible due to male dominancy, socio-cultural restriction, non-realization of women's capabilities to produce They are always subjected to social taboos, ,cultural restriction , even though they have by-passed their needs, interest & aspiration. Women in rural sector less known about the policy, provision & technology for them. The government & non-government supports & provision not reached to the women. Now there is a great awakening among leaders & policy makers in the country to provide a better life for rural farm women. It has been commonly agreed that unless the rural farm women are empowered & engaged in productivity activities, the rural farm families cannot be improved &contribute to national development. Because "The empowerment of women is the process by which women strengthen their capacity individually and collectively to identify, understand, and overcome discrimination, thus taking control of their lives" In the words of president APJ Abdul Kalam "empowering women is a prerequisite for creating a good nation, when women are empowered, society with stability is assured. Empowerment of women is essential as their thoughts and their value systems lead to the development of a good family, good society and ultimately a good nation." When a woman is empowered it does not mean that another individual becomes powerless or is having less power. On the contrary, if a women is empowered her competencies towards decision- making will surely influence her family's behavior.

In this context today the concept of Self Help Groups (SHGs) is catching of as the most viable machine to empower women, especially at the grass root level for social, economical & technology development of farm women. Women have shown extraordinary dynamism in organizing themselves in group activities for income generation, better bargaining power and improvement in the quality of life. Involvement of women is essential in all stages of economic & social activities. Therefore, organizing women in Self Help Groups will enhance the status of women as participants, decision makers and beneficiaries in the democratic, economic, social and cultural spheres of life. At present, Self Help Group is widely used as an instrument to empower women socially and economically. Once socio-economic empowerment is achieved, it would have implication on the overall development of women. In this context, this paper entitled "A comparative study on empowerment of

rural farm women through SHGs approach" has been conducted with an objectives to study the extent of participation & involvement of members in self help groups in the direction of achieving socio-economic empowerment.

Materials and Methods

The present study was carried out in five adopted villages of Krishi Vigyan Kendra, Bhadrak namely Gopalpur of Bonth block, jamojodi of Tihid, Madhusudanpur of Basudevpur block, Sriganga of Dhamnagar block, Sendhatira of Bonth block of Bhadrak district of Odish. Twenty farmwomen were selected from each village, 10 from among SHG members, & non-members constituting a total sample size of 100 from five villages They were interviewed on a set of prepared questionnaire . The views were tabulated & analyzed.

Result Discussion:

Table-1 Social participation

Sl.No	Institutions	Participants (%)	
		SHG members	Non-SHGs members
1	PRI	12	0
2	Cooperative Society	04	0
3.	SHG	100	0
4.	Cultural Organisation	42	20

Table-2 Decision making process

Sl.No	Activity	Involved to a satisfactory level (%)	
		SHG members	Non-SHGs members
1	Involvement in family decision making	50	20
2	Own decision on personal matter	60	16
3	Independency in selection of own enterprise/activity	64	06
4	Joint decision in educational and social matters	80	22
5	Involvement in household activities	90	90

Table-3. Financial Matter

Sl.No	Activity	SHG members	Non-SHGs members
1	Participation in budgeting	72	18
2	Access to financial information	82	12
3	Access to credit institution	100	12
4	Credit facilities	100	12
5	Availing credit timely	94	12

Table-4. Ownership & Control over Resources

Sl.No	Resource	SHG members	Non-SHGs members
1	Internal resources	32	14
2	Family earnings	62	18
3	Disposal of produce	74	32
4	Enterprise selection	84	12
5	Independency to work	56	12

The SHGs movement initiated with the purpose of developing self help attitude & behavior among the reasonable farm women has gone a long way in achieving socio-economic empowerment of the participating farm women. The SHG members usually develop an attitudes social co-operation. The data tabulated in Table-1 indicates that, the SHG members have higher degree of social participation, with the members of SHG have 42% participation in cultural organizations, followed by 12% in Panchayat Raj institutions & 4% in co-operative societies. Only 20% of the non-members have participation in cultural organization & they do have nil participation in other social institutions.

In traditional society, the rural women have little role in the decision making process in various family matter. But the invent of improved competence the SHG members have expressed to have better involvement. The information placed in Table-2 reveled that the SHG members have better involvement in decision making process than non-members. Fifty percent SHG members expressed their significant & satisfactory involvement family decision making as compare to 20% only in case of non-members. Satisfactory degree of involvement has been expressed by 60% SHG members in Own decision on personal matter, 62% independency in selection of own enterprise& 80% in joint decision in education & social matter against only 16%, 6%, & 22% by non-members in respective areas. Only equal response was obtained from both categories with respect to their involvement in household activities.

It is not only the social empowerment but also the economic empowerment determines that has shown improvement in case of organized women. The findings in table-3 indicate higher participation & access of SHG members in financial budgeting & other parameters. When 72% of the SHG members do participate in financial budgeting of the farm families, 82% do have access to credit institution & credit facilities & 94% avail credit timely, on the other hand among the non member respondents only 18% participate in financial budgeting & still less i.e. only 12% have access to financial information, credit institutions, credit facilities & avail credit timely.

It is the ownership & control over resources that ultimately indicates the kind of value the women are placed at in the family system. The SHG members have greater ownership

& control over the internal resources (30%), Family earning(62%), disposal of produce(74%), enterprise selection(84%) & independently do work 56%. On the other hand the non member respondents show relatively lower degree of ownership & control over internal resources (14%), family earning(18%), disposal of produce(32%), enterprise selection(12%) & independently to work(12%).

Summery & Conclusion:

The need for women empowerment has been widely understood & steps as felt appropriate been initiated in various forms & different points of time. Empowering women will not only strengthen their capacity but also will give a lead to all round development of a society. While trying different mechanism for women empowerment, SHGs movement has been found to be very successful. As indicative from the result of present study, organized women through self help group & formalizing their economic & social behavior in group activities has been helpful in strengthening their capacity & performance in various socio-economic parameter. Such improvement not only indicates their present status but also their power & capacity to performing in future expanding socio-economic activity. So no development could be achieved in rural India on sustainable basis until and unless women folk are developed and empowered socially and economically. It is well understood today, that, without economic and social liberalization of women no true liberation women is possible and also without the p truly occurs. Further, it is only when the rural women is allowed to participate as an equal partner in the most vital process of development of the nation.

Suggestion:

The present study would suggested, expanding set of activities both in Government & non-government sector to bring more & more rural women under SHGs fold a sustainable & equitable development of the society.

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Knowledge Level of Tribals on Livelihood Generation Project in Odisha

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Abstract

The study on the "Impact of CBDA on the Livelihoods of Tribals of Nuapada District in Odisha" was undertaken in 8 villages of Nuapada district with 160 respondents (110 participating and 50 non-participating) farmers of Bhunjia tribe selected at random. It was observed that 68.13 percent of total participants had high level of knowledge on the objectives of CBDA whereas and 29.3 percent had low level of knowledge. Participant Bhunjia tribe had maximum up to 99.1 percent of high level of knowledge but 92 percent of non participants had low level of knowledge on the objective of CBDA. It might be concluded that participant Bhunjia tribes found to be well aware about objective of CBDA but non-participants did not.

Key words: *Knowledge, tribals*

Introduction

In Odisha, there are thirteen such tribal communities, out of which Chuktia Bhunjia is one of them, which is a little known tribe of Western Odisha mainly resides in Nuapada district. With a view to ensure special attention for all round development of Chuktia Bhunjia tribe, Chuktia Bhunjia Development Agency (CBDA), a Micro Project was launched in 1993-94 at Sunabeda in Nuapada district by ST & SC Development Department. Assessment of knowledge level of the respondents regarding the objective and activities of CBDA as laid down in the bye-law of that project had been studied by the researcher. Data were collected through structured interview schedule and were presented in the tables.

1. Knowledge on Objectives of CBDA

Knowledge of the tribals on the objectives of CBDA as laid down in the bye-law of that project like Socio-economic upliftment of Chuktia Bhunjia tribe, execution of different schemes directly by CBDA for benefit of Chuktia Bhunjia tribe in coordination with the assisting agencies, execution of different schemes through agencies by CBDA for benefit of Chuktia Bhunjia tribe in coordination with the assisting agencies, CBDA coordinates with which of the following agencies like Block, Agro-Industry, Co-operative Banks, Commercial Banks,

State Government and Central Government, CBDA reviews the progress of execution of activities for economic development of Chuktia Bhunjia tribe and CBDA reviews effectiveness of the benefits projection for economic development of Chuktia Bhunjia tribe were assessed and the scores obtained are presented below in table .1

TABLE-.1. Distribution of tribals according to the Knowledge on Objectives of CBDA

Sl No	Category	Participant		Non-participant		Total	
		Frequency (N=110)	Percentage (%)	Frequency (N=50)	Percentage (%)	Frequency (N=160)	Percentage (%)
1	Low	1	0.9	46	92.0	47	29.37
2	Medium	0	0	4	8.0	4	2.5
3	High	109	99.1	0	0	109	68.13
	Total	110	100.0	50	100.0	160	100.0

MEAN = 3.48 SD = 0.77 (TOTAL)

MEAN = 5.89 SD = 0.81 (PARTICIPANT)

MEAN = 1.08 SD = 0.72 (NON-PARTICIPANT)

It was observed from the table-.1. that 68.13 percent of total participants had high level of knowledge on the objectives of CBDA whereas and 29.3 percent had low level of knowledge. Participant Bhunjia tribe had maximum up to 99.1 percent of high level of knowledge but 92 percent of non participants had low level of knowledge on the objective of CBDA. It might be concluded that participant Bhunjia tribes found to be well aware about objective of CBDA but non-participants did not.

2. Knowledge on Activities of CBDA

Knowledge of the tribals on the activities of CBDA as laid down in the bye-law of that project like assistance of grant to individual Chuktia Bhunjia tribe, assistance of grant to groups like SHG/UG/CIG/FIG of Chuktia Bhunjia tribe, provision of seeds to Chuktia Bhunjia tribe, provision of Fertilisers to Chuktia Bhunjia tribe, provision of pesticides to Chuktia Bhunjia tribe, organisation & arrangement of the following agricultural machinery & implements to Chuktia Bhunjia tribe, crop production activities for Chuktia Bhunjia tribe, live stock development for Chuktia Bhunjia tribe, development of Irrigation Potentiality for Chuktia Bhunjia tribe, land development, soil conservation work, procuring & marketing activities for Chuktia Bhunjia tribe, other infrastructural development activities by CBDA etc. were assessed and the scores obtained are presented below in table .2.

TABLE-7.2. Distribution of tribals according to the Knowledge on activities of CBDA

Sl No	Category	Participant		Non-participant		Total	
		Frequency (N=110)	Percentage (%)	Frequenc y (N=50)	Percentage (%)	Frequency (N=160)	Percentage (%)
1	Low	1	0.9	42	84.0	43	26.87
2	Medium	0	0	8	16.0	8	5.0
3	High	109	99.1	0	0	109	68.13
	Total	110	100.0	50	100.0	160	100.0

MEAN = 47.51 SD = 9.22 (TOTAL)
MEAN = 91.2 SD = 8.1 (PARTICIPANT)
MEAN = 3.82 SD = 10.34 (NON-PARTICIPANT)

Results obtained from table-.2.regarding knowledge on the activities of CBDA revealed that 68.13 percent of total participants had high level of knowledge on the activities of CBDA whereas and 26.87 percent had low level of knowledge. Participant Bhunjia tribe had maximum up to 99.1 percent of high level of knowledge but 84 percent of non participants had low level of knowledge on the activities of CBDA. It might be concluded that participant Bhunjia tribes found to be well aware about activities of CBDA but non-participants did not.

Results obtained from table-3. below regarding distribution of tribals according to knowledge about objectives of CBDA revealed that, as per t-test, it was found that knowledge level of participants about objectives of CBDA was highly significant with t-score of 37.59 at 0.01 percent level of significance. Average mean score was found to be 5.89 in case of participants as compared to that of non-participants was 1.08. It was also observed that participants had very low percentage of gap in the knowledge but the non- participants had mostly gap of 98 percent.

Results obtained from table-4. below regarding distribution of tribals according to knowledge about activities of CBDA revealed that, as per t-test, it was found that knowledge level of participants about objectives of CBDA was highly significant with t-score of 40.516 at 0.01 percent level of significance. Average mean score was found to be 63.836 in case of participants as compared to that of non-participants was 3.42. It was also observed that participants had very low percentage of gap upto 2 percent in the knowledge about activities of CBDA but the non- participants had mostly gap of 84% to 99.625% percent.

Findings on knowledge of tribes on the activities in this study collate with the findings of M.S.Rao and B.L.Rao(2010).

TABLE-.3. Distribution of tribals according to Knowledge about Objectives of CBDA

Sl. No	Item	PARTICIPANT BHUNJIA TRIBE			NON-PARTICIPANT TRIBE		
		Mean Score	Gap in Percentage	Average Mean	Mean Score	Gap in Percentage	Average Mean
1	Socio-economic upliftment of Chuktia Bhunjia tribe	0.98	2%		0.98	2%	
2	Execution of different schemes directly by CBDA for benefit of Chuktia Bhunjia tribe in coordination with the assisting agencies.	0.98	2%		0.02	98%	
3	Execution of different schemes through agencies by CBDA for benefit of Chuktia Bhunjia tribe in coordination with the assisting agencies.	0.98	2%		0.02	98%	
4	CBDA coordinates with which of the following agencies like Block, Agro-Industry, Co-operative Banks, Commercial Banks, State Government and Central Government	0.98	2%	5.89	0.02	98%	1.08
5	CBDA reviews the progress of execution of activities for economic development of Chuktia Bhunjia tribe.	0.98	2%		0.02	98%	
6	CBDA reviews effectiveness of the benefits projection for economic development of Chuktia Bhunjia tribe.	0.98	2%		0.02	98%	

TABLE-.4. Distribution of tribals according to Knowledge about Activities of CBDA

Sl. No	Item	PARTICIPANT BHUNJIA TRIBE			NON-PARTICIPANT TRIBE		
		Mean Score	Gap in Percentage	Average Mean	Mean Score	Gap in Percentage	Average Mean
1	Assistance of grant to individual Chuktia Bhunjia tribe	1	0%		0.16	84%	
2	Assistance of grant to groups like SHG/UG/CIG/FIG of Chuktia Bhunjia tribe	0.98	2%		0.16	84%	
3	Provision of seeds to Chuktia Bhunjia tribe	0.98	2%		0.16	84%	
4	Provision of Fertilisers to Chuktia Bhunjia tribe	0.98	2%		0.16	84%	
5	Provision of Pesticides to Chuktia Bhunjia tribe	0.98	2%		0.16	84%	
6	Organisation & arrangement of the following agricultural machinery & implements to Chuktia Bhunjia tribe	15.7	1.875%		0.06	99.625%	
7	Crop Production activities for Chuktia Bhunjia tribe	5.89	1.83	63.836	0.28	95.33%	3.42
8	Live stock development for Chuktia Bhunjia tribe	4.91	1.8%		0.24	95.2%	
9	Development of Irrigation Potentiality for Chuktia Bhunjia tribe	3.93	1.75%		0.22	94.5%	
.0	Land Development	4.91	1.8%		0.26	94.8%	
.1	Soil Conservation Work	10.8	1.82%		0.48	95.64%	
.2	Procuring & Marketing for Chuktia Bhunjia tribe	5.89	1.83%		0.26	95.67%	
.3	Infrastructural development activities by CBDA	6.87	1.857%		0.28	96.0%	

Conclusion

1. It was observed that 68.13 percent of total participants had high level of knowledge on the objectives of CBDA whereas and 29.3 percent had low level of knowledge. Participant Bhunjia tribe had maximum up to 99.1 percent of high level of knowledge but 92 percent of non participants had low level of knowledge on the objective of CBDA. It might be concluded that participant Bhunjia tribes found to be well aware about objective of CBDA but non-participants did not.
2. Regarding knowledge regarding the activities about CBDA 68.13 percent of total participants had high level of knowledge on the activities of CBDA whereas and 26.87 percent had low level of knowledge. Participant Bhunjia tribe had maximum up to 99.1 percent of high level of knowledge but 84 percent of non participants had low level of knowledge on the activities of CBDA. It might be concluded that participant Bhunjia tribes found to be well aware about activities of CBDA but non-participants did not.

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