

LIVELIHOOD PATTERNS OF TRIBAL IN KORAPUT  
DISTRICT OF ODISHA WITH SPECIAL ATTENTION  
TO AGRICULTURE AND ALLIED ACTIVITIES

A PROJECT REPORT SUBMITTED TO THE  
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BY

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INTERNATIONAL AGRI-BUSINESS MANAGEMENT INSTITUTE  
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ANAND 388 110

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# **Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities**

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## **ABSTRACT**

Odisha is inhabited by 62 tribes with constituting 22.43 per cent of the total State population. The livelihood strategies of households are determined mostly by their social, demographic, economic and cultural settings. Tribal economy is affected by poverty of the physical environment, ignorance of efficient technique of exploiting natural resources and lack of capital for investment, therefore, lack of food security is a major problem for them. As the socio-economic improvement of the tribal still remains in question in spite of implementation of many developmental projects, the sustainable rural livelihood approach is being adopted to mitigate problems related to development in the region. Investigation on tribal livelihoods necessitates examination of socio-economic settings, livelihoods options, their aspirations and constraints to get livelihood. The current study is carried out to support the 3 year programme titled “Integrated farming systems for income enhancement of small and marginal farmers in south Odisha” implemented by CYSD a CSO in Odisha with the help of FORD Foundation. For proper grounding of the programme and scoping for possible convergence option from line departments it is important to understand the intricacy of the livelihood pattern, their aspiration and constraints faced by them in accessing on farm and off farm livelihood. Majority of tribal is found to devoid of literacy (54.16%), agriculture is the primary occupation of the tribal household followed by labour work, NTFP collection and poultry rearing in the study area. Majority (35%) of the tribal fall under the categories of 30000-40000 in annual income range. 64.15% have no membership in any community based organisation. Tribals have medium level of engagement in both on-farm and off farm activity. Majority of tribal aspire for income augmentation through increased crop production, poultry rearing, animal husbandry (majorly goat rearing) and labour work under MGNREGA. Lack of irrigation was the major constraints described by the farmers for on-farm activity while lack of availability of wage related work is prior most concern for the tribals in non-farm segment of livelihood. The tribals in the sample size is realising only 24 days of entitlement or job opportunity under MGNREGA and income from MGNREGA stood only at 13.7% of the total annual income. Having a preliminary overview of livelihood pattern and aspiration of individual livelihood models are being prescribed to be implemented with resource leveraging from ongoing schemes and provisions in the block from various line department and panchayats. The models is formulated keeping in view better job employment under MGNREGA, feasible diversified of cropping models and possible asset creation to support the farming models. The departments like directorate of agriculture, directorate of horticulture, directorate of soil conservation and watershed

development, DRDA (District rural development agency), ITDA (Integrated Tribal development agencies) etc. are important stakeholders of the convergence model. The designed convergence model is proposed to income augmentation of farmers by 30% with adoption of alternate livelihood options.

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**CERTIFICATE**

This is to certify that the project entitled “ **Livelihood patterns of tribal in Koraput district of Odisha with special attention to Agriculture and Allied activities**” submitted by **Abhishek Mishra** **Reg. No.2040618001** to the Anand Agricultural University, Anand in partial fulfillment of the requirement for the degree of M.B.A. (Agribusiness Management) after presentation and defended by the candidate before the following members of the Advisory Committee. The performance of the candidate in this project has been found satisfactory; we therefore, recommend that the project report may be approved.

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1<sup>st</sup> June, 2020

### To Whomsoever It May Concern

This is to certify that Mr. Abhishek Mishra, (Reg. No. 2040618001) student of MBA-ABM from International Agribusiness Management Institute, Anand undertook his development sector internship in Centre for Youth and Social Development (CYSD). He was assigned with a project called **“Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities”** and placed at Koraput district from 1<sup>st</sup> February, 2020 to 1<sup>st</sup> June, 2020.

During his association, Abhishek has grasped the systems, processes, program & project strategy, etc of the organization. He worked with full enthusiasm and dedication and gained fair understanding about the organization's programmes and activities.

We are sure, the knowledge and experience that Abhishek has gathered will pave his way towards building a socially responsible and conscious career.

We wish him all success in his future endeavors.

Minati Mallik  
HR Manager





**Dr. Ashish Mahera**

Assistant Professor & Head  
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## CERTIFICATE

This is to certify that the project entitled “**Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities**” of M.B.A (Agribusiness Management) embodies bonafide research work carried out by **Abhishek Mishra** under my guidance and supervision and that no part of this project work has been submitted for any other degree. The assistance, guidance and help received during the course of investigation have been fully acknowledged.

**Place:** IABMI, Anand

**Date:**

**(Ashish Mahera)**

**Advisor**



## **DECLARATION**

---

I hereby declare that the project entitled “**Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities**” submitted for the M.B.A. (Agribusiness Management) degree is my original work and this has not formed the basis for the award of any degree, associate ship or other similar titles.

**Place:** Anand

**(Abhishek Mishra)**

**Date:**

**Registration No. 2040618001**



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*Place: Anand*

*Date:*

*(Abhishek Mishra)*



## CONTENTS

Chapter No.	Title	Page No.
	ABSTRACT	i
	ACKNOWLEDGEMENT	iii
	LIST OF TABLES	viii
	LIST OF FIGURES	ix
	LIST OF ABBREVIATIONS AND SYMBOLS	x
<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
	1.1 TRIBALS AND THEIR IMPORTANCE	<b>1</b>
	1.2 LIVELIHOOD PATTERNS OF TRIBALS & ITS DYNAMICS	<b>2</b>
	1.2.1 Agriculture	<b>2</b>
	1.2.2 Livestock Rearing	<b>3</b>
	1.2.3 Labour Work	<b>3</b>
	1.2.4 NTFP Collection	<b>4</b>
	1.3 ORGANISATION PROFILE	<b>4</b>
	1.3.1 Mission	<b>4</b>
	1.3.2 Approaches	<b>5</b>
	1.3.3 Strategic Interventions	<b>5</b>
	1.3.3.1 Promoting sustainable livelihoods	<b>5</b>
	1.3.3.2 Fostering participatory governance	<b>5</b>
	1.3.3.3 Reducing disaster vulnerability and addressing climate change concerns	<b>6</b>
	1.3.3.4 Advocating for responsive state	<b>6</b>
	1.4 RATIONALE OF THE STUDY	<b>7</b>
	1.5 THE CONTEXT OF THE PROGRAMME	<b>7</b>
	1.6 ISSUE STATEMENT	<b>7</b>
	1.7 OBJECTIVES OF THE STUDY	<b>9</b>
<b>2</b>	<b>REVIEW OF LITERATURE</b>	<b>10</b>
<b>3</b>	<b>MATERIALS AND METHODS</b>	<b>18</b>

	3.1 SELECTION OF PROBLEM	<b>19</b>
	3.2 PREPARATION OF WORK PLAN	<b>19</b>
	3.3 RESEARCH DESIGN	<b>19</b>
	3.4. LOCALE OF STUDY	<b>19</b>
	3.4.1 State of Odisha	<b>20</b>
	3.4.2 Agricultural Profile of the State	<b>21</b>
	3.5 SAMPLING PROCEDURE	<b>21</b>
	3.5.1 Selection of District	<b>22</b>
	3.5.2 Selection of Block	<b>22</b>
	3.5.3 Selection of Gram Panchayat	<b>22</b>
	3.5.4 Selection of Village	<b>23</b>
	3.5.5 Selection of Respondents	<b>23</b>
	3.6. TOOLS AND TECHNIQUES FOR COLLECTION OF DATA	<b>23</b>
	3.6.1 Pilot Study	<b>23</b>
	3.6.2 Preparation of Interview Schedule	<b>23</b>
	3.6.3 Pretesting of Interview Schedule	<b>23</b>
	3.6.4 Interview and Data Collection	<b>24</b>
	3.7 VARIABLES AND THEIR MEASUREMENT	<b>24</b>
	3.7.1 Measurement Procedure	<b>24</b>
	3.7.2 Independent Variables	<b>24</b>
	3.7.3 Dependent Variables	<b>25</b>
	3.8. VARIOUS INDEPENDENT VARIABLES AND THEIR MEASUREMENT	<b>25</b>
	3.8.1 Education ( $X_1$ )	<b>25</b>
	3.8.2 Martial Status ( $X_2$ )	<b>26</b>
	3.8.3 Occupation ( $X_3$ )	<b>26</b>
	3.8.4 Annual Income ( $X_4$ )	<b>26</b>
	3.8.5 Social Participation ( $X_5$ )	<b>27</b>
	3.8.6 Source of Information ( $X_6$ )	<b>27</b>
	3.8.7 Degree of Involvement in Decision Making Process ( $X_7$ )	<b>28</b>

	3.9 PROCESSING AND ANALYSIS OF DATA	29
	3.9.1 Frequency (f)	29
	3.9.2 Percentage (%)	29
	3.9.3 Mean ( $\bar{X}$ )	29
	3.9.4 Rank Order	30
	3.10 LIMITATION OF THE STUDY	30
<b>4</b>	<b>RESULTS AND DISCUSSION</b>	<b>31</b>
	4.1 EDUCATION ( $X_1$ )	31
	4.2 MARITAL STATUS ( $X_2$ )	33
	4.3 OCCUPATION ( $X_3$ )	33
	4.4 ANNUAL FAMILY INCOME ( $X_4$ )	35
	4.5 SOCIAL PARTICIPATION ( $X_5$ )	37
	4.6 DISTRIBUTION OF RESPONDENTS AS PER THE ACCESS TO SOURCES OF INFORMATION ( $X_6$ )	38
	4.7 EXTENT OF INVOLVEMENT IN DECISION MAKING PROCESS ( $X_7$ )	39
	4.7.1 on-Farm Activities	39
	4.7.2 off-Farm Activities	39
	4.8 ASPIRATION OF TRIBAL	40
	4.8.1 Agricultural Aspiration	40
	4.8.2 Occupational Aspiration	41
	4.9 CONSTRAINTS FACED BY TRIBALS	42
	4.9.1 Constraints Faced in on-Farm Activity	42
	4.9.2 Constraints Faced by Tribal in off-Farm Activity	43
	4.10 SCOPING FOR CONVERGENCE	44
	4.10.1 Target Group	45
	4.10.2 Context of the Programme	45
	4.11 PROBLEM FACED BY TRIBAL IN ACCESSING EMPLOYMENT UNDER MGNREGA	47
	4.12 PROBLEMS FACED BY PRI MEMBERS IN IMPLEMENTATION OF MGNREGA	49

	4.13 EXISTING INCOME OF RESPONDENT & CONTRIBUTION FROM MGNREGA (N=60)	<b>50</b>
<b>5</b>	<b>SUMMARY AND CONCLUSIONS</b>	<b>55</b>
	<b>REFERENCES</b>	<b>I</b>
	<b>APPENDICES</b>	<b>IV</b>

## LIST OF TABLES

TABLE NO.	TITLE	PAGE NO.
3.1	Odisha at a glance	20
3.2	Selection of gram panchayat	22
3.3	Independent variables and their empirical measurement	25
3.4	Scores as per education level	25
3.5	Scores as per marital Status	26
3.6	Scores as per Occupation	26
3.7	Score as per annual income	27
3.8	Score as per the social Participation	27
3.9	Score as per source of information	28
3.10	Degree of Involvement in on-farm activities	28
3.11	Degree of Involvement in Off-farm activities	28
4.1	Distribution of respondents according to education (N=120)	31
4.2	Distribution as per the marital status	33
4.3	Distribution of respondents according to occupation	34
4.4	Distribution of respondents according to annual family income	36
4.5	Distribution as per the social Participation	37
4.6	Distribution of respondents as per access to source of information	38
4.7	Distribution as per involvement in on-farm activities	39
4.8	Distribution as per the involvement in decision making in off farm activity	39
4.9	Distribution of respondent as per the agricultural aspiration	40
4.10	Distribution of tribal as per occupational aspiration	41
4.11	Constraints faced by farmers' on-farm	42
4.12	Distribution of respondents according to constraints faced in off-farm activities	43
4.13	Table of officers enquired	45
4.14	Formulated model and possible convergence from the ongoing scheme	52



## LIST OF FIGURES

<b>Figure No.</b>	<b>Description</b>	<b>Page No.</b>
3.1	<b>State of Odisha</b>	<b>20</b>
4.1	% Distribution of respondents according to education	<b>32</b>
4.2	Marital status of the respondents	<b>33</b>
4.3	Distribution of respondents according to annual family income	<b>36</b>
4.4	Income from MGNREGA	<b>50</b>
4.5	Income level of the Respondent	<b>51</b>



## **LIST OF ABBREVIATIONS AND SYMBOLS**

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SCA-TSS	: Special Central Assistance to Tribal Sub-Scheme
WHO	: World Health Organisation
NTFP	: Non Timber Forest Products
PVTGs	: Particularly Vulnerable Tribal Groups
OLM	: Odisha Livelihood Mission
OMM	: Odisha Millet Mission
SDC	: Special Development Council
MGNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act
CYSD	: Center for Youth and Social Development
MSP	: Minimum Support Price
ICDS	: Integrated Child Development Services
PRI	: Panchayati Raj Institutions
FPO	: Farmers' Producer Organisation
ITDA	: Integrated Tribal Development Agencies
BDO	: Block development Officer
APO	: Assistant Programme Officer
DRDA	: District Rural Development Agencies
ORMAS	: Odisha Rural Development and Marketing Society
APICOL	: The Agriculture Promotion and Investment Corporation of Odisha Limited
OAIC	: Odisha Agro Industrial Corporation
OLIC	: Odisha Lift Irrigation Corporation
DSC &WS	: Directorate of Soil Conservation and watershed
CDVO	: Chief District Veterinary Officer
ATMA	: Agriculture Technology Management Agency
NFSM	: National Food Security Mission
BGREI	: Brining Green Revolution to Eastern India



# 1. INTRODUCTION

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## 1.1 TRIBALS AND THEIR IMPORTANCE

Tribal are the custodian of world's untouched territories with diverse and culturally rich heritage. More than 370 million indigenous people live on uncharted territories of earth spread in 70 countries as per WHO. They have their unique place due to their uncommon way of living, culture, connection with the nature, linguistic and traditional practice. Their way of livelihood, specifically in relation with natural resource management, farming and allied activities are particularly uncommon to the modern known methods. It reflects in their day to day practices in accessing livelihood through farm and non-farm means. Padmashree Kamala Pujari a unknown name, a tribal women of Koraput district has saved indigenous rice varieties that is being cultivated in traditional belts of Koraput and created a seed bank by her own efforts. Collection of these varieties, their disease resistance characteristics can provided scope for rice breeding for the modern disease resistance rice, however this is just an example why it is important to conserve the culture of these tribal along with improving their way of living. Despite their rich diversity of cultures, religions, traditions, languages and histories, they continue to be among the world's most marginalized population groups (WHO, 2007). India is home to 437 tribes and in Odisha, the Scheduled Tribes (STs) constitute 23 percent of the total population, covering 62 recognized tribes and 13 Particularly Vulnerable Tribal Groups (PVTGs). The tribals primarily depend on agriculture, forest and wage labour for their livelihoods. Land holding size is small due to fragmentation. Most of the uplands are less productive and rain-fed. The tribal people, primary Non-Timber Forest Product (NTFP) collectors and occupational groups, operate in the lower order of value chain with limited access to business sector including market information, knowledge, skill enhancement, access to institutional credit, risk management options etc. Despite numerous welfare schemes /programmes and institutions are in place in the State, effective implementation and penetration in the rural mass particularly in the tribal pockets is a big question mark. The flagship programmes such as MGNREGS, Tribal Sub Plan (TSP), Special Central Assistance (SCA) to TSP, Odisha Livelihood Mission (OLM), Millet Mission, Special Development Council (SDC) etc. are yet to achieve the desired outcomes. Among various demographic groups, tribals have lowest Human Development Index (HDI), with high

incidence of income poverty, limited knowledge and control over resources. The multi-dimensional poverty that exists among tribals are manifested with distress migration, fragile livelihoods resource base and political exclusion.

Livelihood in particular means as capabilities, use of assets (Individual or social assets) and activities in order to earn a living. Tribal people access their livelihood with a very limited options, it may be in their culture or inherited from forefathers, a particular skill set, traditional farming methodology and now-a-days labour has taken a significant role in livelihood accessing. Their livelihood options are significantly contributed by their food pattern, way of living, cultural aspects and believes. So one can find a strong intricacy in their livelihood. It is very difficult to understand the linkage and promote other livelihood options to take up by the community. Tribals do not have a high standard of life style, new age dressing or an influenced food pattern. The main source of their income come from nature like forest products collection ex. Fire woods, NTFP (Non-timber Forest Products), shifting cultivation, they work hard in the field with their indigenous varieties and with traditional methods, a significant population also work as agriculture labourers, migrate to other states for labour work and work under government schemes like MGNREGA. Tribal livelihood pattern was based on possession over natural resources like forest, land. Their customary practices and traditional practices created obstacles for achieving rights over their own forest and resources which amplifies issues like migration and displacement. Dominant nature of seer capitalism can be seen by over dominance and exploitation of tribal natural resources and entitlements.

## **1.2 LIVELIHOOD PATTERNS OF TRIBALS & ITS DYNAMICS**

### **1.2.1 Agriculture**

Settled agriculture is one of the primary component of the tribal households. The land holding is quite less, many of them cultivate in sloppy lands (Dangar), and specifically single crop in Kharif like (finger millets, Arhar, Maize) oil seeds like sunflower, groundnut and depends on (Podu Chasa) shifting cultivation in the forest. A smaller land entitlement, lesser agricultural productivity and marginal income levels led to increase indebtedness, trapping tribal into a vicious cycle of poverty. Tribal agriculture is characterized as lesser input driven, predominantly lesser chemical uses, Indigenous seed

uses, subsistence farming, uses of ITK, labour intensive, lesser marketable surplus and limited access to organized markets. Many tribal families depend upon the single crop in Kharif for the nutritional security or family consumption. Female labour is a dominant factor as most of the labour intensive work done by female like (harvesting, threshing etc.)

Statistics shows in Orissa 54-56% of tribal had lost to non-tribal their entitlements through mortgages, forcible possession on land, migration of refugees, mortgages. As in many cases tribal lost possession to non-tribal on productive land, they managed by cultivating poor quality land, more over natural calamities worsen the condition.

### **1.2.2 Livestock Rearing**

Animal wealth is one of the livelihood component of tribal. Specifically in Koraput context the Bonda tribe and Kandha tribes depend upon Backyard poultry with average flock size 8-10 numbers of birds during period of festivals or immediate need of cash tribal sell their livestock in nearby Markets. Likewise existence practice with Goiter and sheep rearing. Cow is reared only for farm practices not for commercial purpose as tribal believe it to be unethical. Tribal have literally no access to vaccination of their livestock, better fodder, health care facility. There is lack of improved practices, farmers are only rearing animals for subsistence purpose.

### **1.2.3 Labour Work**

One of the major component of livelihood for tribal is labour work that too majorly unskilled labour work in nearby settlement or with panchayat or line departments under MGNREGA. Many of the tribal went to nearby block head quarter in the morning for get engaged in various kind of labour work. Many of them work as farm labour in leased land or as a share cropper in others field. Due to lack of available industrial arrangements, productive work opportunity, lack of required skills or vocational training and less remuneration from agriculture many of the tribal migrate to nearby states like Andhra Pradesh, Tamilnadu, and Karnataka in search of livelihood, which has resulted a severe migrant crisis in the district. There are around 1.60 lakhs migrant labour those regularly migrate to out of the state (District administration Koraput 2020).

#### **1.2.4 NTFP Collection**

Forest resource is one of the major livelihood provider to the tribal. They regularly collect NTFP (Non timber forest product) like Saal leaves, Lac, Tamarind, Kangu, Honey, Jack fruits, timber, bamboo, gum resins, mushroom, grasses for sweeping sticks etc. from forest and sell it in nearby Markets. They approach forest in group, march for miles in to the forest for collection. Though there is MSP issued for NTFPs of various types, small collectors still cannot access to MSP if no concrete plan for procurement has not been set. Due to lack of processing facility, storage infrastructure, proper formal market, monopoly of traders, these NTFP products could not reach their real sense value.

The recent estimate suggest Indian population to be reaching 1.38 billion, the total population of Odisha is 45596577 among which male and female ratio is 979 while for Koraput it is high as 1032. Literacy ratio is galloping to 76% while 83.6% of the population of Odisha lives in rural region. The tribal of Odisha are shares 22.8% of the total population. As agriculture is one of the core component of tribal livelihood analysis of its intricacy, extent of involvement of tribal, aspiration of them regarding their livelihood is one of the important component before formulating any livelihood programme.

### **1.3 ORGANISATION PROFILE**

Centre for Youth and Social Development (CYSD), a non-government and non-profit organization, has been working towards improving the quality of lives of tribal and rural poor in Odisha, with primary focus on eradicating extreme poverty and hunger, ensuring social inclusion and justice, good governance and citizen's right, helping communities identify and initiate development measures, providing training and other capacity-building support to pro-poor organizations and individuals, and carrying out research and advocacy in favor of the under privileged people especially the tribal. CYSD also joins hands with the special initiatives taken up by the government, civil society and communities to address inequality both in number and intensity.

#### **1.3.1 Mission**

To enable marginalized women. Men and children to improve their quality of life. To this end CYSD uses issue based research to influence policies from a pro-poor and rights

based perspective. It also works to ensure transparent. Gender sensitive, accountable and democratic governance by building the capacities of people and organizations in participatory planning Currently, CYSD reaches out to 3.70 lakh population spread over 102 blocks of 12 districts in Odisha through direct project interventions, However, CYSD covers the whole State of Odisha indirectly through partner networks.

### **1.3.2 Approaches**

CYSD basically follows a three-pronged approach in implementation of different programmes. These include: i) Action and Learning through intensive participatory action and experimentation at the community level; ii) Replication/ Scaling up through extensive partnership and networking with like-minded agencies; and i) Policy Influencing at State and National level through policy research and advocacy.

### **1.3.3 Strategic Interventions**

CYSD has carved out four coherent and reinforcing strategic actions to realize its mission and vision as follows.

#### **1.3.3.1 Promoting sustainable livelihoods**

CYSD's livelihood interventions focuses on food and nutrition security and expanding income earning opportunities for rural poor, more particularly the tribal. The strategy is poised to work towards improving access to and sustainable return from community resources (natural, physical and financial); value chain optimization for rural products in favor of rural poor; skill improvement for better employability of youths; risk minimization through community adaptation and strengthened collective action and elicit community led policy advocacy for improved livelihoods for the poor, more particularly the tribals, The pilots of CYSD including promotion of Women Self- Help Groups in 1980's; watershed development in 1990's; agro-forestry and collective farming in 2000's have become mainstream activities by several CSOS and the Government.

#### **1.3.3.2 Fostering participatory governance**

CYSD strives to improve the governance system that truly represents the voice of the poor. The efforts have been focused towards strengthening local governance institutions, facilitating citizen-led monitoring and processes for ensuring community rights over food, natural resources and information by using legal space offered by progressive acts

like Right to Food, Right to Education, right to Information, Forest Rights Act, and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) etc. Under gendered approach to development, the key interventions budgeting, development of women leadership, capacity building of women PRI representatives on their roles and responsibilities, promotion of education among the girls, prohibition of girl child marriage and addressing gender-based include gender violence. The Organisation so far has facilitated and experienced use of different social accountability tools including Community Score Card and Citizen Report Card: community monitoring of Public Distribution System (PDS), Integrated Child Development Services (ICDS), education and maternal health; social audit of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS); budget analysis and budget tracking. It has successfully accomplished concurrent monitoring of Mid-Day Meal (MDM) and Social Impact Assessment of different development projects assigned by the Government of Odisha.

#### **1.3.3.3 Reducing disaster vulnerability and addressing climate change concerns**

The organization has an identity as a strong regional player in disaster preparedness, response and enhances its effort towards innovating climate change adaptation practices and research. At the same time the Organisation has also built up its understanding and responded to mitigation issues. In this process CYSD has a great learning from the experiences in responding to Super Cyclone 1999, Phailin in 2013, Hud hud in 2014, Titli in 2018 and Fani in 2019 in Odisha in terms of relief, rehabilitation and restoration activities undertaken in collaboration with government, civil society and the private sector.

#### **1.3.3.4 Advocating for responsive state**

CYSD has taken initiatives to make the State responsive to the inclusive development agenda. In this regard, regular consultations have been organized in the State under the banner of Odisha Development Initiative; bringing the civil society, government, academia, research institutions and private sector together and deliberating upon the development issues and building synergy among different actors to take the development agenda forward.

#### **1.4 RATIONALE OF THE STUDY**

The existing study titled “Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities” comes under one of the research agendas of the approved 5 years project of the CYSD titled “improve the quality of the tribal of south Odisha with special emphasis on small and marginal farmers” with the donor ship of FORD foundation United states of America. The current study will help for the grounding of the initiated project, the existing pattern of livelihoods, extent of involvement of tribals in variety of livelihood activity, possible constraints that tribal are facing and the possible convergence plan from the government departments and schemes that can be taken for the programme implementation phase.

#### **1.5 THE CONTEXT OF THE PROGRAMME**

Odisha continues to be one of the poorest States in India with 32.59 percent of the people living below poverty line against the national average of 21.91 percent. Poverty concentration is more pronounced in rural areas with 35.69 percent of the people living below poverty line. Not only is Odisha extremely poor, but also in a very unequal State, with large disparities between regions, social groups, and gender. The tribal primarily depend on agriculture, forest and wage labour for their livelihoods. Land holding size is small due to fragmentation. Most of the uplands are less productive and rain-fed. The tribal people, primary Non-Timber Forest Product (NTFP) collectors and occupational groups, operate in the lower order of value chain with limited access to business sector including market information, knowledge, skill enhancement, access to institutional credit, risk management options etc. Despite numerous welfare schemes programmes and institutions are in place in the State, effective implementation and penetration in the rural mass particularly in the tribal pockets is a big question mark.

#### **1.6 ISSUE STATEMENT**

In Odisha, the Scheduled Tribes (STs) constitute 23 percent of the total population, covering 62 recognized tribes and 13 Particularly Vulnerable Tribal Groups. Among various demographic groups, tribals have lowest Human Development Index (HDI), with high incidence of income poverty, limited knowledge and control over resources. The multi-dimensional poverty that exists among tribals are manifested with distress

migration, fragile livelihoods resource base and political exclusion. The tribal people primarily depend on agriculture, collection of Minor Forest Produces (MFPS) and labour force for their livelihoods. While rights, entitlements, welfare schemes/ programmes and institutions are in place, their effective implementation and penetration in the tribal pockets has been limited.

The livelihoods and resource interaction is getting tenuous day by day with misplaced priorities as well as lack of programmatic appreciation to diversified livelihoods basket of tribal families in fiscal policy. At the same time there has been a low realisation of democratic dividend and large numbers of youths are migrating to neighboring states for labour work. The flagship programmes such as MGNREGS, Tribal Sub Plan (TSP), Special Central Assistance (SCA) to TSP, Odisha Livelihood Mission (OLM), Millet Mission, Special Development Council (SDC) etc., are yet to achieve the desired outcomes.

MGNREGS, which guarantees 100 days of employment per Household in a year, fell much short of its promises. The Odisha Economic Survey Report 2018-19 states that the average days of work under MGNREGS was 15 days and only 2 percent of the households could get 100 days of job out of total households demanded for jobs. Unavailability of season specific village wise job creation plans, lack of demand for jobs by workers, lack of capacity of PRIS to facilitate effective planning, and often lack of focus on livelihoods and income generation programmes are the impending factors for the ineffective implementation of MGNREGS. Further, specific programmes like TSP and SCA to TSP have been limited in integrating context specific livelihoods options such as horticulture, Poultry, Goiter and dairy in tribal regions.

The present Millet Mission also expands with huge production of traditional millets in tribal regions. Yet, there is hardly any intervention to improve the access of Minimum Support Price (MSP) of these products. The Farmers' Producer Organisation (FPO) generally operate in the lower order of value chain with limited access to business development services. The intervention would primarily focus in the areas; expedite employment generation and creation of Livelihoods assets in MGNREGS; access to MSP of millets through established windows; strengthen Integrated Farming Practices

mobilizing farmers and connecting them to district level institutions; and explore opportunities available for small and marginal farmers from special development windows such as OLM, SDC and Integrated Tribal Development Agency (ITDA). The intervention seeks to address the vulnerabilities of tribals in general and the issues related to income inequality and food and nutrition security round the year of small and marginal farmers, labourers and migrants including youths in particular. Further, it will also address the social, cultural and economic inequality of women as farmers. They will be facilitated to access employment, fair price to their products and alterative livelihood sources. The intervention will focus on undivided Koraput district in South Odisha covering Koraput, Malkangiri, Nabarangpur and Rayagada, which are among the migration prone districts as identified by the Government of Odisha. These districts are the most backward districts in India and are among the 10 Aspirational Districts in Odisha, selected by NITI Aayog. The Poverty Head Count Ratio (PCR) for rural areas accounts 78%, 70%, 61% and 56% for Koraput, Rayagada, Malkangiri and Nabarangpur respectively.

### **1.7 OBJECTIVES OF THE STUDY**

1. To study the socio-economic profile of tribal people in the study area.
2. To study the aspiration level of tribal in different livelihood options
3. To study the constraints faced by tribal in accessing their livelihood.
4. To derive convergence possibility and alternate livelihood models for implementation in the livelihood enhancement programme.



## 2. REVIEW OF LITERATURE

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For as a starting base of scientific investigation, a comprehensive and relevant record of literature is essential. The review of literature helps the researcher to keep research work going in appropriate direction with a head start. Hence, an attempt has been made to review possible literature, journals, research papers, articles etc. some of them have been presented in the following sequences.

Umunnkewe (2015) expressed that of the tribal middle age group were educated up to high school level. 42.50 per cent and high school above 29.10 per cent respectively.

Chaturvedani et al. (2015) reported that 55.83 per cent of the desi bird rarer belonged to Gond tribe with primary to secondary level education and having a small families up to 5 members maximum.. Agriculture is found to be the primary occupation with 51.67 per cent while poultry as secondary occupation with 35.38 percent, and with little flock size (8-10) desi birds and reared with a locally available housing material and mud.

Pradhan (2014) observed that 54.86 per cent of the respondents had active participation and membership in more than one organization, CBOs in the village; while 45.14 per cent of the respondents were member of at least one organization or CBOs and 30.56 per cent of the respondents were found to be the office bearer in at least one CBOs.

Umunnakwe et al. (2014) revealed that majorities of the respondents found to be conservatives in study and women education, family size is small to medium and had moderate socio-political participation in the village.

Singh and Yadav (2014) mentioned that according to investigation nine numbers of constraints had been identified for the low yield of rice. Among the constraints, about 68.33 per cent of the farmers reported the main constraints for low yield of rice had been unavailability of improved seed and fertiliser unavailability of timely information about cropping contingency planning, high cost of developed seed, unawareness about improved agronomic practices and high cost of plant protection chemicals were reported by 66.67, 52.50, 49.17 and 45.83 per cent respondents respectively.

Rokonuzzaman (2013) documented that 52 per cent of the tribal had moderate training need compared to 39 per cent of them required high end training need in skill of homestead vegetable production. In the field of livestock rearing and poultry, 36 per cent of them having medium training needs while the majority 55 per cent of the tribal people had high training needs.

Angaitkar et al. (2013) investigated that 86.66 per cent of the tribal had problem of lower realisation of sell value of farm produce. 82.5 per cent youths had expressed problem regarding lack of irrigation facility for cropping other than monsoon season, 75.83 per cent youths had problem of lack of hybrid seeds for sowing, 70.00 per cent had problem of lack of training about improved farm technology, 61.66 per cent youth faced problem like transportation, 60.83 per cent faced problem of lack of labors for farm operation and 55.83 per cent youths had problem of lack of availability of pure seeds and fertilizers.

Rokonuzzaman (2013) found that tribal people faced different constraints in defined IGAS. The most crucial constraints as perceived by the respondents were lack of capital, lack of irrigation potential creation and facilities, lack of vocational training and training on improved practices, lack of knowledge of disease/insect management, lack of land/suitable soil quality, attack of wild elephant and other mammals, lack of marketing arrangements and lack of credit facilities. Lack of capital for purchase of livestock, no knowledge of improved breed, lack of training on rearing, lack of knowledge of insect/disease mitigation were the major problems in livestock & poultry raising of the tribal people.

Rokonuzzaman (2013) reported that tribals' average educational qualification was 3.70 years of schooling and most of the tribal children 67 per cent were literate but 43 per cent of them could not go beyond primary level, while rest 33 percent of them were illiterate.

Rokonuzzaman (2013) explained that in terms of organizational participation of tribal, average score was 11.75 and almost all 98 per cent of the tribal people had very low participation in social organization.

Kiturmather al. (2013) reported that majority 70.83 per cent of tribal had favorable attitude towards rural development followed by 15.00 percent having less favorable

attitude and the remaining 14.17 per cent of the respondents' belonged to more favorable attitude particularly in rural development domain.

Verma et al (2012) revealed that 68.65 per cent that is majority of the rural mass were having favorable attitude and 17.79 per cent were having most favorable attitude while only left 13.56 per cent rural people were having less favorable attitude towards different activities of Nehru Yuva Kendra.

Kumari (2012) explained that the major constraints faced by the respondents were lack of understanding about balanced use of fertilizers (100%), lack of knowledge and skill about seed and seedling treatment (88%), no timely availability of fertilizers (74%), non-availability of farm labour on required month of a season (69%), high wages of farm labour (66%), lack of availability of irrigation facility and proper water utilization technique.(65%), lack of knowledge regarding benefits of harvesting close to ground level (51%), lack of knowledge and skill about seed treatment (50%), non- availability of seed at proper time (50%) were adoption of recommended cultivation practices.

Chauhan (2012) observed that identifiable constraints faced by the tribal farm women regarding technical aspect of farming were lack of knowledge regarding sowing timing, advanced varieties and required seed rate 82.00 per cent and it was supported by S. Shethy et al (2010) & Sisodia and Rathore, (2004)

Chauhan (2012) observed that in case of Socio-cultural constraints the most unexpected one was Fear of farm produce robbery as there is no support of fencing(72.31%) the 2<sup>nd</sup> one would be difficulties in marketing of surplus but small quantity produce that remains with them after consumption (69.78%) was the important constraint faced in line of Post-harvest management. High monkey menace (71.86%) was the main general constraint faced by kitchen gardening growers. availability of green fodder throughout the year Inadequate knowledge about proper scientific feeding of milching animals, Non availability of cattle fodder, higher cost of animal concentrates, higher cost and unavailability of green fodder higher cost of dry feed, lack of knowledge regarding concentrate and mineral mixture were found to be second, third, fourth, fifth, sixth and seventh constraints, respectively.

Chauhan (2012) observed that the major problem in animal rearing was repeated inbreeding of milking animals and low milk yield by desi reared breed. This might be due to lack of balanced feeding of the milch animals. Lack of pedigree potent bulls for natural conception and no awareness about artificial insemination were found to be the second and third major shortcoming respectively. Study also revealed that low milk yield of desi animals was the first and major constraint in milk production. This is might be due to local desi low yielding breeds & unproductive ruminants reared by tribal farmers. Inadequate awareness about hygienic milk production and lack of knowledge about making value added products of dairy were found to be the second and third prominent constraints, respectively.

Lakra (2011) showed that 40.00 per cent of the respondents had negligence social participation, while only 28.76 per cent of the respondents were member of at least one organization, 23.12 per cent of the respondents' falls in the segment of member of more than one organization or village social Organisation. 8.12 per cent of the respondents found to be office bearer of organization.

Devi and Verma (2011) expressed modes of information gathering by the tribal that the respondents more frequently practice use of neighbors, family members and friends as localities source of information. Most of the respondents used cosmopolite and mass media sources of information least frequently and only radio, television and cassette recorder were frequently used by the farm women.

Lakra (2011) reported that 88.75 per cent of the respondents suggested that there should be established continuous contact among the farmers and agriculture officers & scientist, followed by 86.87 per cent information must be provided in appropriate time, 86.25 per cent mentioned compensation should be given in case of crop failure, 85.00 per cent expressed transportation facilities should be provided, 81.87 per cent expressed demonstration and skill development programme should be conducted in farmers field, 79.37 per cent suggested for availability of inputs like developed seeds, fertilizer and plant protection chemicals etc. should be made available to tribal at subsidized rate on proper seasonal time at village level, 59.37 percent revealed irrigation potential should be increased, 39.37 per cent told to check adulteration in seed, pesticides, insecticides etc.,

36.87 per cent expressed requirement of regular training programme should be conducted for capacity building, 25.00 per cent agreed for timely information should be available through mass media and other possible channels.

Mandavkar (2011) explained that the tribal farmers required training mainly on selection of appropriate varieties, methods of fertilizers application, pest and diseases management and IPM techniques, importance of balanced fertiliser importance both organic and chemical fertilizers and their type, characteristics and advantage of high yielding and hybrid varieties, knowledge regarding concentrations of crop protection chemicals, equipment for application of fertiliser seed, plant protection chemicals, their availability, accessibility, associated costs, chemicals used for seed treatment, required seed rate and irrigation method.

Auto et al. (2010) revealed that most of the tribal youth 62.1 per cent were married because of the culture of the study area that encourages early marriage.

Auto et al. (2010) reported that about 78.7 per cent of the tribal lack of credit access and enough capital to increase their level of production. Also, 38 per cent and 30.5 per cent expressed that high input cost and farm produce low price realisation respectively were factors that discouraging them from engagement in agricultural activity.

Mishra et al. (2007) revealed that agriculture was primary occupation of the tribal family, and their annual earning ranges between Rs. 40,000 to 60,000.

Sangsmesh (2006) revealed that in rainfed tract more than one fourth of the respondents 36.66 per cent were members of the youth club and one fourth of the respondents 23.33 per cent attended the meetings occasionally, whereas, only 13.33 percent of the respondents attended the meetings of youth club regularly.

Sangamesh (2006) reported that 70.00 per cent of the respondents admitted that the constraint of higher input cost like fertilizers, seeds, agrochemicals followed by the problem 53.33 per cent of disease and pest attack to crops, 46.66 per cent given reason of lower producers share in consumer rupees, 45.00 per cent lack of skill training on improved practices and 26.66 per cent of the tribal were facing difficulties of under and hidden employment respectively.

Mishra et al. (2006) observed that 79 per cent were having participated in one social organization. The education was significant and negatively correlated with social factors.

Mishra et al, (2006) observed that socio-economic status of the tribal, economic motivation, risk orientation and scientific orientation of the respondents' were also observed to be medium.

Sangamesh (2006) reported that maximum 60.00 per cent of the tribal interviewed expressed their willingness to get agricultural inputs like seeds, fertilizers at subsidies cost to the farmers followed by 53.33 per cent of the respondents express need to conduct training programmes related to agriculture and allied activities and other self-employment programmes to augment their income level whereas, 30.00 per cent of the tribal suggested to conduct accessible educational programmes and awareness among villagers about education and health.

Bhanu (2006) reported that 60.83 per cent of the tribal well aspired to take up agriculture, followed office work contributing 17.50 per cent to the figure, rural also aspired to take up factory work 9.17 per cent, tribal aspired to do business stands at 6.67 per cent and the remaining 5.83 per cent of the tribal aspired to take up other vocational work as their occupation including driving, tailoring, carpentry and so on.

Bhanu (2006) expressed that 65 per cent of the rural youth had medium aspirations level. About 19.17 per cent of the rural youth had lesser aspirations, followed by 15.83 per cent of the tribal youth who had high degree aspirations.

Sangamesh (2006) found that 31.66 per cent of the respondents had educated up to S.S.I.C. whereas, 21.66 per cent of the respondents were educated up to P.U.C. followed by 15 00 per cent had education up to degree level and 13.33 per cent had education up to middle school level Only S.33 per cent of the respondents studied up to primary school while 10 00 per cent of the respondents were illiterates.

Furtado et al, (2004) reported low participation of tribal youth in village meetings and with regard to Kurhad bandhi (prohibition of cutting of forest trees), Charai bandi (discouraging grazing cattle on public land) and Nasha bandi (adoption of family planning measures) participation of tribal was found to be in satisfactory limit. While,

participation in Sharmadan (one-day voluntary labor force for every 15 days) was largely confined to the activities of their interest.

Prasad (2002) found that 70.00 per cent of the tribal studied up to higher level i.e., higher secondary to degree followed by middle school up to 15.33 per cent, primary school figured to 2.67 percent while 4.67 per cent of the respondents were illiterates and only 0.67 per cent was educated up to PG level.

Prasad (2002) reported that 38 per cent of the respondent families had annual income above Rs. 25,000 followed by 31.33 per cent of the respondents had annual income in the range of Rs. 11,001 to Rs. 25,000 and 30.67 per cent of the families of the tribal had annual income more than Rs. 11,000.

Monohari (2001) found that more than half of the primitive tribal groups 58.75 percent possessed favorable attitude towards improved agricultural technology followed by highly favorable attitude 26.25 per cent, only 10.00 per cent of them belong to neutral attitude category and meager per cent of them 5.00 per cent had unfavorable attitude. None of them found in highly unfavorable attitude.

Sophia (2001) concluded that in Uddalore district of Tamil Nadu 56.25 percent of Sugar cane farmers were having education up to primary school level and 13.75 percent had education to the level up to higher secondary and meager per cent of sugarcane farmers 2.55 per cent were educated up to college level and 5.00 per cent were illiterates.

Hiremath (2000) reported that in Dharwad district of Karnataka more than 27.00 percent of the youth had education up to primary schooling level, 16.67 per cent had education up to higher secondary education, 13.33 per cent of youth had education up to diploma and rest 6.67 per cent had education up to degree.

Sharma et al (2000) concluded that most of the tribal farmers gets farm related information from Radio followed by other means such as friends, neighbors and progressive farmers of the region. Radio and Television like mass communication were recorded of about 39.46 per cent as communication sources. About 66.6 per cent respondents utilized 1-3 sources and only 3 per cent respondents utilized more than 6 sources.

Narendran (2000) revealed that 26 per cent of tribal children of non-school going rural youth aspired to study up to Primary standards, 22 per cent of them aspired to study to diploma grade, 22 per cent aspired to be a graduate with a degree, 18 per cent aspired to study SSLC and 12 per cent aspired to study up to post-graduate level education. Whereas, 86 per cent of the school going rural children aspired to complete primary education but only 14 per cent aspired to join diploma. Out of 86 per cent who aspired to complete primary education, 58 per cent of them aspired to join intermediary science, 33 per cent aspired to join arts group but only 9 per cent aspired for vocational courses. There is lack of awareness about vocational courses and other possible option with a tribal child.

Shakuntala and Chaman (2000) found that radio and television like mass media were possessed information by 59 per cent of rural families.

### 3. MATERIALS AND METHODS

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Research generally denotes to search for knowledge. It is a systematic and scientific investigation for some ponderable phenomenon or close observation on a specific topic. Research methodology is pretty important to solve a research problem systematically. It is the structural arrangement of the study for facilitating research within the defined design of objectives. It comprises of techniques, methods, tools and approaches for any scientific work. Methodology fine tunes the stepping stones, streamlines the process of enquiry, data collection, respondent finalization, geography finalization, analysis methodology etc. As a whole, research methodology deals with the objective quantification of generalization which demands logical analysis of the problems and devising appropriate methods to get evidence on a specific object. This is a vital requisite of any scientific study as it emerge as a direct contribution on the validation and relevance of the research findings. The chapter consist of research methodology and procedures adopted by the Researcher to analyze the issue in the due course of investigation which are specified as below:

Research procedures followed:

1. Problem Selection
2. Preparation of work plan
3. Research design
4. Geography of study
5. Sampling technique
  - a. District selection
  - b. Selection of block
  - c. Selection of Gram Panchayat
  - d. Selection of villages
  - e. Respondents selection
6. Tools and techniques for collection of data
  - a. Pilot study
  - b. Preparation of questionnaire
  - c. Pretesting of questionnaire

- d. Interview and collection of data
7. Measurement of variables
8. Processing and analysis of data

### **3.1 SELECTION OF PROBLEM**

The present study entitled "**Livelihood patterns of tribal in Koraput district of Odisha with special attention to agriculture and allied activities**" was under taken for detection and analysis of socio economic profile, participation in different off farm and on farm activity, aspiration level and suggestions. The programme of alternate livelihood promotion designed by the Host Organisation CYSD requires a first level analysis of the livelihood pattern of tribal, their entitlements, and their active engagements in different activities to formulate definitive models through which Organisation can achieve required targets set under the programme.

### **3.2 PREPARATION OF WORK PLAN**

Before required investigation were made to conduct a detail survey of related aspects of tribal in the operational district, all possible dimension on which livelihood aspect can lies upon is taken into discussion. The geography of the investigation, sample size, sample element, analysis methodology, time line of the research etc., decided keeping in view numbers of possible limitation. The methodology finalization, interview schedule preparation etc. started from February to end of May and month of June dedicated for analysis and report preparation.

### **3.3 RESEARCH DESIGN**

The present study was employed with Ex-post-facto survey research design. Both and non-probability random sampling and purposive methods were adopted for district, block, gram panchayat, and village and respondents selection.

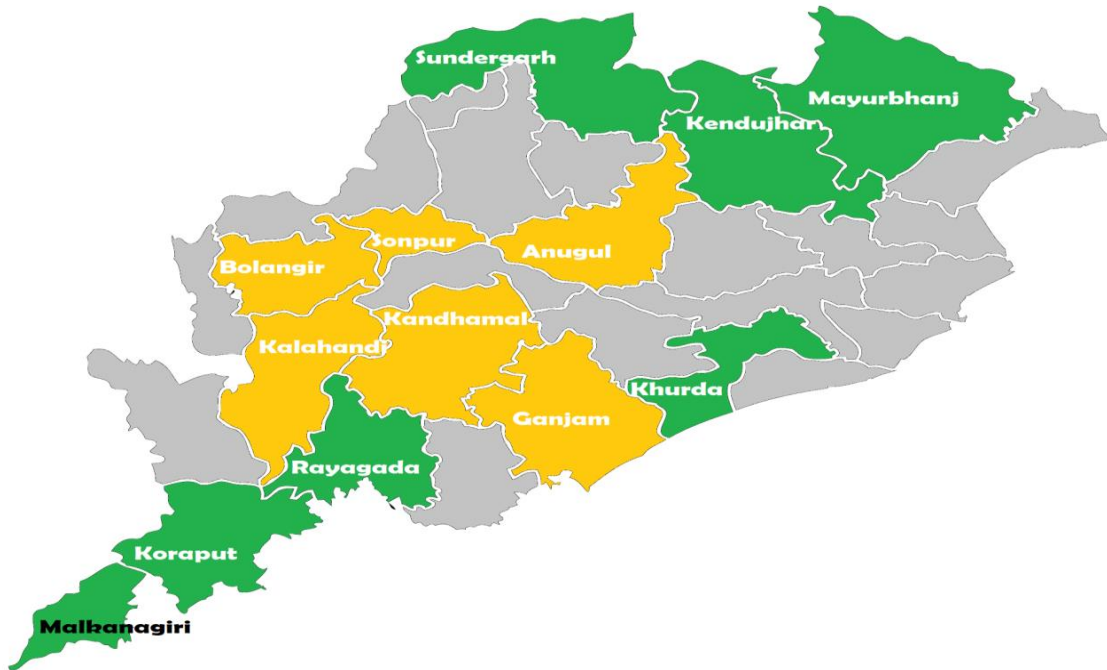
### **3.4. LOCALE OF STUDY**

The study was administered in Koraput district of Odisha state. The Koraput district is situated in the Southern of Odisha State and is bounded on the North by Rayagada District of Odisha, on the South Malkangiri and Andra Pradesh and in east by Chhattisgarh. The Koraput District is situated at 17.4 degree to 20.7 degree North latitude

and 81.24 degree to 84.2 degree east longitude. The headquarters of Koraput district is situated 515 Km away from capital of Odisha.

### 3.4.1 State of Odisha

The research study was undertaken in the state of Odisha which is predominantly agrarian with agriculture and animal husbandry sector contributing 17.49 percent to the net state domestic product and 15.35 percent to the gross state domestic product. Odisha is located between 170° 31' N to 20° 31' N latitude and 81° 31' E to 87° 30' E longitude. The geographical area is 155.71 lakh hectares.



**Figure 3.1: State of Odisha**

**Table-3.1 Odisha at a glance**

Sl. No	Particulars	Magnitude	Unit
1	Normal rainfall	1451.2	Mm
2	Actual rainfall	1362.6	Mm
3	Land utilization pattern		
4	Total cultivated area	6180	000 ha
A	High land	2914	000 ha

B	Medium land	1755	000 ha
C	Lowland	1511	000 ha
D	Permanent pasture and other grazing lands	494	000 ha
E	Current fallows	606	000 ha
F	Other fallows	229	000 ha
G	Land under miscellaneous tree crops mangroves not includes in net area sown	324	000 ha
H	Cultivable wastelands	375	000 ha
I	Land for to non-agricultural use	8671	000 ha
J	Barren and uncultivable land	840	000 ha
K	Net area sown	5574	000 ha

(Source: Odisha Agricultural Statistics (2018))

### 3.4.2 Agricultural Profile of the State

Odisha is dominantly an agrarian economy. Out of the total working population 61.8 percent of are engaged in agriculture activity which includes 23.4 percent cultivators and 38.4 agricultural laborers (2011 census). About 38 percent of cultivated land is irrigated and rest of the land is dominantly under rain-fed condition which are exposed to performance of monsoon. Cropping intensity is about 168 percent during 2018-2019. Majority of the farmers belongs to category of small and marginal and have limited purchasing power with low levels of literacy. The average land holding size of all social groups in the state has shrinked to 1.15 ha as again the land holding size is 0.83 ha for SC, while for ST it is around 1.24 ha. Agriculture sector also provide employment to more than 70% of total work force of the state, directly or indirectly, making agriculture largest employment generator sector of the state.

### 3.5 SAMPLING PROCEDURE

Both random and purposive sampling techniques were followed in the study. The district, blocks, Gram panchayats and villages were selected purposively, while the respondents were selected randomly.

### 3.5.1 Selection of District

The study was conducted during the year 2020 in the Koraput district of the Odisha state. The Odisha state consists of 30 districts, out of which Koraput is one of the tribal dominated district, with low HDI, high incidence of income poverty, limited knowledge and control over natural resources and multi-dimensional poverty. Koraput was selected purposively for the study.

### 3.5.2 Selection of Block

Out of total 13 blocks in Koraput district five districts (Narayanpatna, Laxmipur, Dasmantpur, Boipariguda, Kundura) block was selected on the basis of requirement of the project that had been selected for alternate livelihood promotion implemented by the host Organisation. The selected blocks are mainly dominated rain-fed area with low irrigation facility, difficult terrains, tribal dominated over 63% of the population belong to ST categories.

### 3.5.3 Selection of Gram Panchayat

In all the selected block 5 panchayats had been selected for the study one from each block. Panchayats had been selected on the basis of the requirement of the alternate livelihood project designed by the host Organisation. Out of the selected 15 panchayats for the project 5 had been selected in which accessibility is better from district head quarter, dominancy of tribal demographics and warm relationship with PRI members for support in survey work.

Sl. No	Block	Panchayat	Sample taken
1	Boipariguda	Kollar	20
2	Kundura	Lima	40
3	Laxmipur	Tunpar	20
4	Narayanpatna	Tentulipadar	20
5	Dasmantpur	Mujanga	20

### **3.5.4 Selection of Village**

From each selected panchayats, 2 villages (Total 5x2-10) were selected on the basis of maximum availability of tribal population in the villages. The villages selected where for the study.

### **3.5.5 Selection of Respondents**

For the survey purpose total 120 tribal had been selected from above mentioned villages randomly, the household head are being selected as sampling element and each household is selected as sampling unit.

## **3.6. TOOLS AND TECHNIQUES FOR COLLECTION OF DATA**

In order to ensure maximum objectivity of the study a number of standard tools developed by different expert in the field of science were considered. However selected tools were modified to required extent as per applicability.

### **3.6.1 Pilot Study**

Prior to finalization of the variables and preparation of interview schedule, the investigator made a visit to the selected villages. Discussions and interactions were made with the respondents. This was done to make sure that no aspect left behind while collection of data from the respondents.

### **3.6.2 Preparation of Interview Schedule**

The interview schedule was designed on the basis of objectives and independent and dependent variables for the present investigation. Each question was thoroughly examined and discussed with the experts before using the interview schedule. Adequate precautions and care were taken into consideration to formulate the questions in a proper manner so that the respondents could understand the questions easily and respond properly.

### **3.6.3 Pretesting of Interview Schedule**

Before finally administering, the entire schedule was pretested with 10 percent sample other than the respondents for assessing the reliability and validity of the study. The purpose was to record the tactical data based on the observations made during the pretesting necessary modifications and refinements were made in the interview schedule.

Thus correct and more appropriate schedule was developed and finally used for collecting the relevant information from the selected respondents of the study.

#### **3.6.4 Interview and Data Collection**

Good rapport was established with the tribal along with the conducive environment which helped a lot to ask questions and discuss upon various dimensions comfortable relating to the study. Along with the introduction of the researcher, the purpose of the study was explained to the respondents' before digging into responses. The interview schedule was read out before the respondents in their local language to easily access their responses. The data was collected from the period of 15<sup>th</sup> February to 15<sup>th</sup> April 2020. The collected data were tabulated, entered in excel and subjected to empirical measurement and analysis. Secondary data pertaining to the study were collected from the official records and reports in respect of the District, Block, Panchayats and other publications, journals, research papers and previous studies. A copy of the interview schedule has been attached to the appendix for reference.

### **3.7 VARIABLES AND THEIR MEASUREMENT (operational definition, scaling and scoring techniques)**

#### **3.7.1 Measurement Procedure**

Measurement and operationalization of the variables help the researcher to land upon the accurate conclusion. After reviewing concerned literatures related to the field of study and consultation with the experts of KVK, a list of variables was prepared. On the basis of the selected variables, a schedule was formed. List of variables studied along with their empirical measurement are given below:

#### **3.7.2 Independent Variables**

It is presumed to cause the dependent variable and is selected, manipulated or measured prior to measuring the dependent variable

**Table 3.3: Independent variables and their empirical measurement**

Sl. No.	Independent Variable	Empirical Measurement
1.	Education ( $X_1$ )	Trivedi (1983)
2.	Marital Status ( $X_2$ )	Trivedi (1983)
3.	Occupation ( $X_3$ )	Trivedi (1983)
4.	Annual Family Income ( $X_4$ )	Trivedi (1983)
5.	Social Participation ( $X_5$ )	Modified Trivedi (1983)
6.	Source of Information ( $X_6$ )	Modified Trivedi (1983)
7.	Degree of Involvement in decision making process ( $X_7$ )	Trivedi (1983)

**3.7.3 Dependent Variables**

Dependent variables is the result, consequence, effect or output of some input variables that are under observation.

**3.8. VARIOUS INDEPENDENT VARIABLES AND THEIR MEASUREMENT****3.8.1 Education ( $X_1$ )**

The variable education was measured looking at the status of formal education acquired by the respondent tribal. Educational level as a variable helps to get or accumulate knowledge, exposure to information and also contribute positively towards choosing livelihood alternatives. Education opens up chance to learn new skill, use information for availing nearby opportunities. Education of the tribal was measured by allotting scores to various education levels as mentioned in following table.

**Table-3.4 Scores as per education level**

Sl. No	Education level	Score
1	Illiterate	1
2	Primary education	2
3	Middle school	3
4	High school	4
5	College and above	5

### 3.8.2 Martial Status (X<sub>2</sub>)

On the basis of tribal marital status, they were grouped into two categories married and unmarried

**Table-3.5 Scores as per marital Status**

Sl. No	Marital Status	Score
1	Unmarried	1
2	Married	2

### 3.8.3 Occupation (X<sub>3</sub>)

The predominant occupation possessed by the tribal family are Agriculture, Animal husbandry, poultry, labor, services, business, NTFP collection and other etc. was included in the study.

The type of occupation and related scores were assigned as follows:

**Table-3.6 Scores as per Occupation**

Sl. No.	Occupation	Score
1	Agriculture	1
2	Animal Rearing (Cow, poultry, Gotery)	2
3	Poultry	3
4	Labour	4
5	Services	5
6	Business	6
7	NTFP collection	7
8	Others	8

### 3.8.4 Annual Income (X<sub>4</sub>)

Total annual incomes of tribal family is one of the important variable that is mapped from the study. The income comprises figure from all the available livelihood sources as they are engage often in multiple livelihood option in different period of the year. The respondents were categorized in the income group level in following way.

**Table-3.7 Score as per annual income**

Sl. No.	Annual Income	Score
1	20000-30000	1
2	30000-40000	2
3	40000-50000	3
4	50000-60000	4
5	60000-80000	5
6	80000-100000	6

**3.8.5 Social Participation (X<sub>5</sub>)**

The social participation of tribal youth may influence their involvement of different on-farm and off-farm behavior. Through social participation, tribal youth may get an opportunity for more learning exposure towards new ideas and may be motivated for participation. The term social participation in this study refers to the degree of involvement of the respondents in formal informal organization as a member or executive, office bearer or both. A social participation score was computed for each respondent on the basis of his membership and position in various formal informal organizations and categorized into following subheads:

**Table- 3.8 Score as per the social Participation**

Sl. No.	Particulars	Score
1	No membership in any organization	1
2	Membership of one organization	2
3	Membership in two or more than two organization	3
4	Executive Office bearer in an organization	4

**3.8.6 Source of Information (X<sub>6</sub>)**

Source of information are supposed to directly associate with the adoption of technology these information sources provide various information to the respondents regarding more

participation of on-farm and off-farm improved technology. For assessing this variable, 14 different sources of information were identified. To determine the extent of utilization of catch information source, the responses of the tribal youth were recorded and presented in frequency and percentage. Afterwards the respondents were categorized for analysis on the basis of scores obtained after using number of information sources as follows:

**Table-3.9 Score as per source of information**

Sl. No.	Particulars	Score
1	Low utilization (Up to 6 sources)	1
2	Medium utilization (7 to 12 sources)	2
3	High utilization (Above 12 sources )	3

### **3.8.7 Degree of Involvement in Decision Making Process (X<sub>7</sub>)**

On the basis of the review of the past studies and after discussion with advisory committee, nineteen items on-farm and twenty one items off-farm activities of decision making in which the tribal youth are possibly involved in different farm activities were selected. All responses were collected in three points: continuum scale 1.e. full, partial and never. The weight ages given to these were 3, 2 and 1 respectively for making the following categories, maximum obtain score used.

**Table- 3.10 Degree of Involvement in on-farm activities**

Sl. No.	Particulars	Score
1	Low extent of involvement (Up to 7 score)	1
2	Medium extent of involvement (8 to 14 score)	2
3	High extent of involvement (Above 14 score)	3

**Table- 3.11 Degree of Involvement in Off-farm activities**

Sl. No.	Particulars	Score
1	Low extent of involvement (Up to 7 score)	1
2	Medium extent of involvement (8 to 14 score)	2
3	High extent of involvement (Above 14 score)	3

### **3.9 PROCESSING AND ANALYSIS OF DATA**

The data collected from all 120 respondents were processed in accordance with the outline laid down for the purpose at the time of developing the research plan. Processing refers to coding, editing, segregation and tabulation of collected data. A list of respondents was prepared and information received from them was tabulated on a master sheet in MS Excel. Degree of importance was given to different items with regards to their relative position of the scale and scoring was done accordingly. Then data were tabulated, processed and analyzed by using separate statistical tools. The role of statistics in research is to function as a tool in designing research, analyzing its data and drawing conclusions of their form.

Statistical methods used,

The following statistical methods were used for the analysis of data basing on its mature and type of information obtained.

#### **3.9.1 Frequency (f)**

The number of individuals or observations in each class of attributes variables 18 called frequency of that class of variable. The arrangement of Frequencies and different classes of a variable is called The Frequenes distribution of the variables (Gupta, 2000)

#### **3.9.2 Percentage (%)**

Percentage was used in the descriptive analysis for making simple comparisons. In order to calculate percentage, the frequency of a particular cell was divided by the total number of respondents in that particular category to which the cell belong and multiplied with 100 Percentage was calculated up to two places after a decimal point This has been used in the study and proved helpful in organizing the data clarity and precision

#### **3.9.3 Mean ( $\bar{X}$ )**

Measure of central tendency or average provide us information about the point which tends to denote quantifiable figure such a measure is considered as the most representative for the entire mass of data the mean is the arithmetic average and is the result obtained when the sum of the value of individual in the data is divided by the

member of individuals in the data Mean is simplest and relatively stable measure of central tendency. The mean reflects and is affected by every score in the distribution.

Arithmetic mean ( $\bar{X}$ ) of a variable is obtained by dividing the sum of all the variety values of a series of observations by the total number of observations. Thus, if there are observations of a variable, x having values  $X_1, X_2, \dots, X_n$

#### **3.9.4 Rank Order**

Ranking is an expression of people's priority about their thoughts and feelings. Ranking was done by assigning the first rank to highest mean score and the second rank to the next highest mean score and so on. (The mean score for a particular factor was worked out separately for the two areas by dividing the weighted score of the factor with the total number of respondent)

#### **3.10 LIMITATION OF THE STUDY**

The study is carried out in limited period of time, the sample size taken may not represent whole population. Time and resources were the main limitation while carrying out the study in that too in Pandemic situation of Corona Virus.



## 4. RESULTS AND DISCUSSION

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This chapter contains the findings of the study as per the objectives outlined. The data obtained from the community were processed, analyzed statistically and presented here with the support of tables and graphs wherever possible systematically.

### **Objective 1- To study the socio-economic profile of tribal people in the study area**

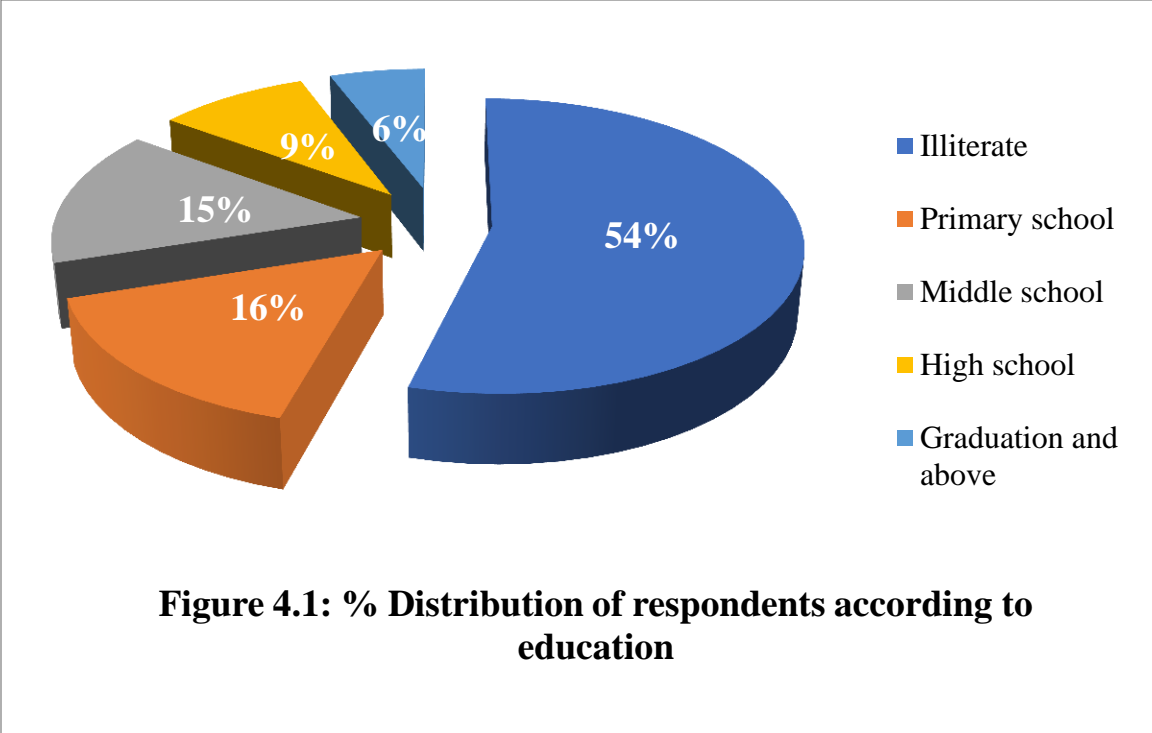
Socio-economic profile represents comprehensive overview of people's existing conditions and also provide us an insight of their basic socio-economic characteristic. The important variables that has been choose for representing the socio-economic profile were education, occupation, annual income of the household, Participation in social organization, source for getting information and scientific orientation the findings of the study were represented in the below tables.

#### **4.1 EDUCATION (X<sub>1</sub>)**

Education is considered as a crucial factor for social development, understanding nearby environment and seeking out potential opportunity from them. Education meant for bringing out desirable changes in the behavior, attitude, and enthusiasm of human beings, particularly in the process of developing a positive feeling more over a particular skill to be get employed or in gaining a livelihood. Education profile is one of the important aspect which will be reflected in the baseline for the project. In the current study the respondent were segregated into 5 groups as per their level of education they have received.

**Table 4.1 Distribution of respondents according to education (N=120)**

Categories	Frequency	Percentage
Illiterate	65	54.16%
Primary school (up to Class 7 <sup>th</sup> )	19	15.83%
Middle school (Up to class 10 <sup>th</sup> )	18	15%
High school (Up to 12 <sup>th</sup> )	11	9.16%
Graduation and above	7	5.8%



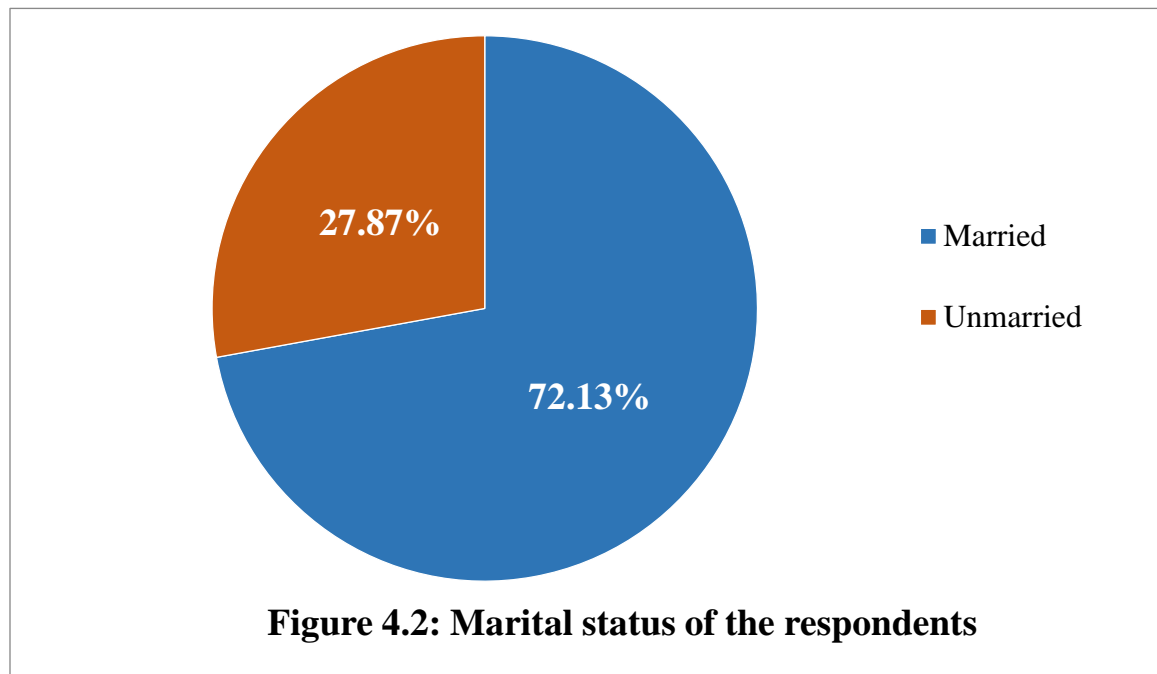
The data that appeared from the study indicates that majority that is 54.16% of the respondent in the study area are illiterate having no access to read or write. Whereas 15.83% had received primary education. Only 15% of the respondent had completed middle school and 9.16% of the sample size went to high school study predominantly in arts background. Only 5.8% of the respondent studied up to graduation. These figures reveals that there is seer lack of educational measures in the tribal dominated belt. Despite of all efforts of government like Adarsha Bidyalaya, Ekalabya schools, efforts from SC ST and minorities department for reforms in education the dropout rates in school are still in higher side which can be seen from the figures that only 18% cumulatively completed their schooling and opt for higher education beyond HSC level. These figures also will impact significantly to the programme approach as Organisation will need to focus more on vernacular skill training and one to one contact for information dissemination in local language, pictureisation of content and promoting and linking to indigenous touch to programme planning (like selection of cropping pattern, agronomic practice, animal to rear, assets to be created etc).

#### 4.2 MARITAL STATUS (X<sub>2</sub>)

The table 4.2 depicts about the marital status of the respondent in the intervention area. From the collected information it was evident that 72.13% of the respondent were married and rest 27.87% were unmarried. Early marriage is a common phenomenon in the tribal community of Koraput.

**Table-4.2 Distribution as per the marital status**

Categories	Frequency	Percentage
Married	88	72.13%
Unmarried	34	27.87%



#### 4.3 OCCUPATION (X<sub>3</sub>)

Occupation has been regarded as a major segment in economic aspect of an individual. Also occupation has a direct connection with the livelihood. The tribal has a variety of occupation and for a livelihood programme to roll out, an insight on occupational pattern will reveal the livelihoods models to be promoted in the particular intervention area.

**Table-4.3: Distribution of respondents according to occupation**

Occupation	Primary		secondary		Tertiary		Total	
	frequency	Percentage	frequency	Percentage	frequency	Percentage	F	P
Agriculture	103	85.83	17	14.16	0	0	120	100
Animal Rearing	0	0	13	10.83	42	35	55	45.83
Poultry	0	0	16	13.33	55	45.83	71	59.16
NTFP collection	0	0	23	19.16	34	28.33	57	47.50
Labour	17	14.16	42	35	14	11.66	73	60.83
Business	0	0	6	5	0	0	6	5
Service	0	0	2	1.6	0	0	2	1.6
Other	0	0	1	0.83	0	0	1	0.83

The above table is showing figures regarding the involvement of tribals in different livelihood segment. The above categories are considered after extensive literature review and experts consultation of COATS, Koraput, Odisha.

The table reveals that agriculture is the major primary occupation of a tribal household that is 85.83% of total sample size. While 14.16 % considered agriculture as secondary option, those mostly belong to labour class category and mostly earn living by working under contractor of MGNREGA like employment schemes.

Labour is the 2<sup>nd</sup> prominent livelihood option in the segment as 14.16 % consider labour as a primary occupation and 35 % that majority of individual consider labour as their secondary occupation and 11.66% said they often do labour work in the off farm season for a tertiary livelihood. All those supporting figures stressing out to provide livelihood option to individual under unskilled labour component in flagship scheme like MGNREGA. Due to unavailability of sufficient labour work and unsuccessful implementation of MGNREGA many of tribal opted for migration to different states to work as labour. Which creates serious migration issue in the intervention state.

Animal rearing and poultry plays the 3<sup>rd</sup> most important livelihood factors for tribal. However tribal mostly rear animal for subsistence basis for own consumption and farm operation form cow dung and other droppings. 45.83% of tribal agreed that they rear poultry mainly desi birds and sell it whenever they required immediate cash or they use these birds in Festivals like PARABA. In total 59.16 % agreed that they rear desi poultry birds in their backyard. 45.83% total rear various mammals for their livelihood mainly Desi cow, goat and sheep. Only 10.83% take animal rearing as a secondary source of income which shows low involvement of tribal in segment of animal rearing in a business motive.

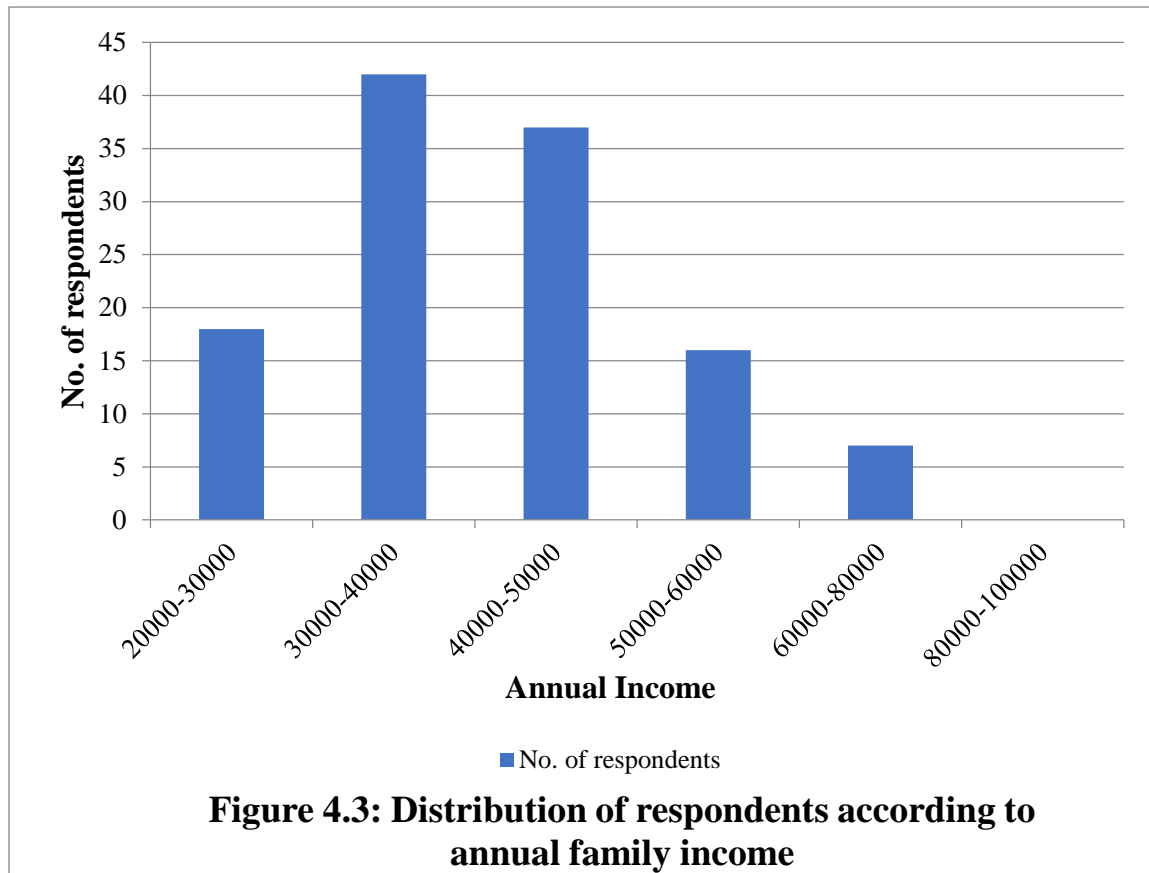
NTFP collection is one of crucial component of tribal occupation. The intervene blocks are rich in forest resource. Many of the tribal got forest land entitlement under FRA act. 19.16 % of population take NTFP collection as their secondary income predominantly Tamarind, saal leaves and seeds etc. while 28.33% said they collect and sale NTFP as their tertiary source of income. Total 47.50% of tribal engaged in NTFP collection in the intervention area. While only 5% and 1.2% of the respondent respectively engaged in business and service respectively as a secondary means of livelihood in the sample size.

#### **4.4 ANNUAL FAMILY INCOME (X<sub>4</sub>)**

Annual income is one of the important aspect of the socio-economic status of an individual. It's a sign of social status and also well contributed by the knowledge level and adoption of innovative practice in off farm and on farm level. Generally the tribal income is contributed by the above discussed livelihood alternatives. The income level of individual are not fixed and also do not arrive in a constant interval, there is generally no such tracking made by tribal for the income level, there is no specific spending pattern or internal home budget by the tribal.

**Table-4.4: Distribution of respondents according to annual family income**

Sl. No.	Annual Income	Frequency	Percentage
1	20000-30000	18	15
2	30000-40000	42	35
3	40000-50000	37	30.83
4	50000-60000	16	13.33
5	60000-80000	7	5.83
6	80000-100000	0	0



The income level data from the current survey revealed that majority of the respondent comes under the income level of 30000-40000 i.e. 35% which predominantly comes from mono cropping and other secondary source of income by tribal. The 2<sup>nd</sup> group stands at 40000-50000 with 30.83%. While 13.33% of the respondent comes under categories of 50000-60000. Only 5% of the respondent comes under category of 60000-80000.

#### 4.5 SOCIAL PARTICIPATION (X<sub>5</sub>)

Social participation refers to extent of engagement of an individual with the community or society. Better socio participation leads to increase in contribution in development activity. Congregated initiative for better economic activity, creation of self of and community asset or process of collective farming etc. could be possible by better social participation. Mission Shakti, OLM lead SHG initiative, OTELP project lead VDC (village development committee) are few of the examples in them.

**Table-4.5 Distribution as per the social Participation**

Sl. No.	Particulars	Frequency	Percentage
1	No membership in any Community based Organisation (CBOs)	77	64.16
2	Membership of one of the CBOs	25	20.83
3	Membership in two or more CBOs	14	11.66
4	Office bearer or BOD member in any CBOs	4	3.33

The figures explain that 64.16% of the people don't have any kind of membership in any type of community based Organisation. Only 20.83 % people have members have membership in one of the CBOs majority of it in SHGs, VDCs, MGNREGA labour group, Producers group or cluster made by line departments. Only 11.66 % people have membership in two or more than two groups while 3.33% has executive bearing in these above mentioned CBOs. There is enough potential for creation and strengthening of existing community based Organisation like producer group, producer cluster, self-help groups and other types of CBOs in these blocks.

#### 4.6 DISTRIBUTION OF RESPONDENTS AS PER THE ACCESS TO SOURCES OF INFORMATION (X<sub>6</sub>)

**Table-4.6 Distribution of respondents as per access to source of information**

Sources	Regular		Sometime		Never		Total	
	f	%	f	%	f	%	f	%
Friend/Neighbor	92	76.66	28	23.33	0	0	120	100
Progressive farmers	58	48.33	34	28.33	28	23.33	92	76.66
Sarpanch/ward member/PRI members	16	13.33	24	20	60	50	40	33.33
KVKs	0	0	0	0	0	0	0	0
NGOs	4	3.33	8	6.66	108	90	12	9.99
Farmer friend	7	5.83	4	3.33	109	90.83	11	9.16
Newspaper/Magazine	3	2.5	7	5.83	110	91.66	10	8.33
Radio/TV	28	23.33	45	37.50	47	39.16	73	60.83
Farmer Fair	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
ATMA	0	0	0	0	0	0	0	0

The above table depicts that the majority of the tribals get information from nearby fellow farmers, friends and neighbors. Followed by progressive farmers nearby (48.33%). Mass media also play a major role in information dissemination that comprises (23.33%). Only (13.33%) of the farmers get information from panchayat functionaries and the figures for farmers friend (5.83%) revealed that the service penetration by line departments are not so strengthen in the study area. Only 3.33% people were aware about NGOs while people cannot access information KVK, farmers fair, formal training, ATMA.

## 4.7 EXTENT OF INVOLVEMENT IN DECISION MAKING PROCESS (X<sub>7</sub>)

### 4.7.1 on-Farm Activities

As per the response collected majority that 60.83% have medium level of engagement in on-far, activity while 25.83% have low level of engagement. Only 13.33 % tribal have high level of engagement with on-farm activities.

**Table- 4.7 Distribution as per involvement in on-farm activities**

Extent of involvement in decision making process	Frequency	Percentage
Low (Up to 7 score)	31	25.83
Medium (8 to 15 score)	73	60.83
High (above 15 score)	16	13.33

### 4.7.2 off-Farm Activities

Distribution of respondents according to extent of involvement in decision making process in off-farm activities

As per the response collected from tribal majority that is 54.16% have medium level of engagement in off-farm activity while 30% have high engagement in off farm activity majorly contributed by NTFP collection and labour related work. Figures shows there is scope for improvement in NTFP and labour related occupation in the tribal. While 15.83% have low level of engagement in off-farm activity.

**Table- 4.8 Distribution as per the involvement in decision making in off farm activity**

Extent of involvement in decision making process	Frequency	Percentage
Low (Up to 6 score)	19	15.83
Medium (7 to 13 score)	65	54.16
High (above 13 score)	36	30

## Objective-2 To study the aspiration level of tribal in different livelihood options

### 4.8 ASPIRATION OF TRIBAL

Aspiration is the person's goals, insight about improvement and for his own future achievements, understanding aspiration of tribals is important to derive appropriate interventions for them and scoping for convergence possibility for the programme.

#### 4.8.1 Agricultural Aspiration

**Table- 4.9 Distribution of respondent as per the agricultural aspiration**

Activity	Nil 0%	Less 25%	Mediu m 25-50%	More 50-75%	Maximu m >75%	Total
Increase in cultivated land	12 (10%)	20 (16.66%)	60 (50%)	18 (15%)	10 (8.33%)	108 (90%)
Crop Production	7 (5.83%)	12 (10%)	16 (13.33 %)	60 (50%)	25 (20.83%)	113 (94.16%)
Animal Husbandry	20 (16.66%)	45 (37.50%)	35 (29.16 %)	20 (16.66%)	0 (00)	100 (83.33%)
Poultry Farming	38 (31.66%)	18 (15%)	28 (23.33 %)	25 (20.83%)	11 (9.16%)	82 (68.33%)
Fish rearing	49 (40.83%)	25 (20.83%)	21 (17.50 %)	18 (15%)	7 (5.83%)	71 (59.16%)

The above table depicts that majority of the respondent aspire for agriculture and crop production enhancement i.e. 94.16% followed by increase in cultivable land that is 90%. People in good numbers also aspire for animal husbandry but restricting to goat only and there is no higher order of demand for animal rearing while poultry also contribute

68.33% with higher order aspiration of approx. 30%. Fish rearing has aspiration stood at 59.16%.

#### 4.8.2 Occupational Aspiration

**Table-4.10 Distribution of tribal as per occupational aspiration**

Occupation	Nil 0%	Less 25%	Medium 25-50%	More 50-75%	Maximum >75%	Total
Agriculture and animal husbandry	8 (6.66%)	11 (9.16%)	23 (19.16%)	35 (29.16%)	33 (27.50%)	102 (85%)
Business	42 (35%)	24 (20%)	39 (32.50)	15 (12.50%)	0 (00)	78 (65.00%)
Small industry	54 (45%)	27 (22.50%)	28 (23.33%)	11 (9.16%)	0 (00)	66 (55%)
Office work	38 (31.66%)	30 (25%)	32 (26.66%)	16 (13.33%)	4 (3.33%)	82 (68.33%)
NTFP collection	24 (20%)	14 (11.66%)	41 (34.16%)	26 (21.66%)	15 (12.50%)	96 (80%)
Labourers under MGNREGA or contractor	21 (17.50%)	24 (20%)	44 (36.66%)	24 (20%)	7 (5.83%)	99 (82.50%)

Occupational aspiration is one of the important factor to understand the internal interest of the tribal to take up different occupation available for them. Majority i.e. 85% have aspiration for better income form agriculture and allied activities. Many of the tribals look labour work under MGNREGA or contractor as a promising source of income from them, they aspire for labour work i.e. 82.50%. With 80% NTFP collection is a major occupational aspiration for tribal specifically in tamarind and saal leaves. Aspiration for office work, business and small industry stood at 68.33%, 65%, and 55% respectively that too lower order of aspiration.

### Objective-3- To study the constraints faced by tribal in accessing their livelihood

#### 4.9 CONSTRAINTS FACED BY TRIBALS

In order to find out the constraints faced by tribals an attempt was made to find out various problems at on-farm and off-farm level specific to tribal livelihood aspects. The constraints reported by respondent was ranked after getting the weighted average mean for the various constraints. The details of these constraints are given below.

##### 4.9.1 Constraints Faced in on-Farm Activity

**Table- 4.11 Constraints faced by farmers' on-farm**

Sl. No.	Particulars	Weighted average score	Ranks
1.	Lack of knowledge about scientific farming	0.67	IV
2.	Lack of Irrigation	0.84	I
3.	Unavailability of agriculture labour	0.38	XII
4.	Lack of agriculture implements and high cost	0.62	VI
5.	Unavailability of timely inputs (Fertiliser, Seeds)	0.65	V
6.	High cost of Inputs	0.81	II
7.	Lack of marketing of the produce	0.58	VII
8.	Lack of green fodder for animal	0.36	XIII
9.	Lack of knowledge about improved poultry	0.54	VIII
10.	Lack of training about fishery	0.39	XI
11.	Lack of pond	0.51	IX
12.	High construction cost of pond	0.48	X
13.	Problems of animal mortality	0.79	III

The above table revealed that lack of irrigation was the primary constraints posed by the tribal. Due to lack of irrigation facility they only able to grow one crop in rain-fed situation under Kharif for rest of the year the field remain unused. High input cost is the one of the major constraints faced by farmers. Due to high cost of cultivation farming becoming less remunerative day by day to them. More over most of the farmers are with small land holding so higher input cost breaks confidence of the farmer on farming. Coming to animal rearing, animal mortality is the most critical factor for failure. Tribals are unaware about vaccination process. It seems that often entire bird population of the

village wiped out due to Rani khet disease which is call (pakhi Marudi) in local language. Extension mechanism was very poor in the interior tribal belt hence tribal lacks scientific knowledge which is one of the important constraints which took position at 4<sup>th</sup>. Unavailability of timely input 5<sup>th</sup> constraints, particularly seed material is the critical factor for crop failure. As farmers cannot access to quality input timely production hampers. People are not able to grow commercial crops like ginger, turmeric, potato easily because of unavailability of quality seed material. Lack of agricultural implements and high cost to buy or hire was the 6<sup>th</sup> important component as responded by tribal. There is no formalize system of marketing of produce, no RMC nearby. Tribal often fell in trap of traders and sell produce to them in substandard rate in nearby local hats. Lack of marketing of produce stood as 7<sup>th</sup> constraints. Tribal take back yard poultry as a real cash source, but due to lack of knowledge about protective and improved poultry they could not take the benefit as in amount possible which stood as 8<sup>th</sup> constraints. Lack of pond, high construction of pond, lack of training about fishery, unavailability of agriculture labour, lack of green fodder for animal were the constraints ranked as 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup> respectively.

#### 4.9.2 Constraints Faced by Tribal in off-Farm Activity

**Table- 4.12: Distribution of respondents according to constraints faced in off-farm activities**

Sl. No.	Particulars	Weighted average score	Ranks
1.	Non availability of credit for business	0.56	5
2.	No knowledge about other livelihood means	0.65	3
3.	Lack of education and professional/vocational training	0.78	2
4.	Lack of wage related work	0.86	1
5.	Lack of knowledge about MGNREGS, RSETIs and other programmes	0.61	4
6.	Lack of transportation, connectivity to market,	0.48	6
7.	Engagement in non-productive work	0.36	7

In case of non-farm constraints majority of the tribal are facing problem in wage related work. They are not satisfy with the remuneration they get against their labour. Process of getting money under MGNREGA is cumbersome involving many channels and problems like corruption also. Lack of education and vocational training is revealed as 2<sup>nd</sup> most important constraints posed by tribal. Tribal also don't have much knowledge on alternate livelihood option they can avail this is the 3<sup>rd</sup> most important constraint. People are also unaware about schemes of employment like MGNREGA, its benefits and fundamental entitlement for them. Skill development programme like R-SETI, DDU-KGY are also not known to the tribals which is 4<sup>th</sup> most important constraint. Non-availability of credit for business or crop, substandard connectivity and communication, engagement in unproductive work were the 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> off-farm constraints faced by the tribals.

**Objective-4 To derive convergence possibility and alternate livelihood models for implementation in the livelihood enhancement programme.**

#### **4.10 SCOPING FOR CONVERGENCE**

After having an insight on existing livelihood pattern of tribal, complexity in adoption of alternate options, existing resources with them, the major task was to come up with suitable model for implementation looking to the prevailing context of livelihood. As the core programme cost is dependent on the convergence approach from various concerned departments and special assistance window. Continuous discussion with various line departments undertaken for convergence possibilities in the intervention area.

The programme titled “Integrated farming systems for income enhancement of small and marginal farmers in south Odisha” is intended to strengthen the socio economic condition of the small and marginal farmers basically in the rain-fed condition. The programme focuses on developing an ecosystem of appropriate cropping and farming systems, inclusion of allied sectors, enhancing income through possible farm models, employment through MGNREGA, realisation of MSP through a feasible convergence approach with government departments and related schemes.

#### 4.10.1 Target group

Small and Marginal Farmers, sharecroppers, labourers special attention to Tribal in Rain-fed condition.

#### 4.10.2 Context of the Programme

Odisha continues to be one of the poorest States in India with 32.59 percent of the people living below poverty line against the national average of 21.91 percent. Poverty concentration is more pronounced in rural areas with 35.69 percent of the people living below poverty line. The tribal primarily depend on agriculture, forest and wage labour for their livelihoods. Land holding size is small due to fragmentation. These conditions leads to distress subsistence farming, mono cropping, and underutilization of resources. The programme aims to provide a round the year engagement of a farmer in accessing livelihood leading to crop diversification, risk mitigation of single mode activity while linkage to government programmes which will eventually contribute to 30% increase to base line income from various diversified activities.

**Table-4.13 Table of officers enquired**

State Level	Special secretary Agriculture, special secretary SC ST & minorities development department
District level	District collector & magistrate, emergency officer, Asst. collector, project Administration ITDA (Koraput, Jeypore), Additional Horticulture officer, District agriculture officer (Narayanpatna, Jeypore, Koraput), ADVO, CDVO, Project director DRDA, Deputy director ORMAS, District manager TDCC, District Manager OLM, Scheme officer Odisha millet mission, Agriculture officer , ITDA, APD, Finance and Training, DRDA
Block level	Block development officer, APO MGNREGA, Block programme manager livelihood, Block agriculture officer, Welfare Extension Officer , ITDA, Block horticulture officer, Police inspector, chairman panchayat samite, vice chairman panchayat samiti, Representative of Producer company and collectives
GP level	Sarpanch, samite sabhya, panchayat extension officer, Gram rojgar sevak, Jogana sahaayak, GP nodal officer COVID-19, Extension officer (AO, LI, Horticulture assistant etc.)
Community Level	Ward member, Anganwadi worker, Asa karmi, CBO leaders, SHG leaders, Producer group leader, Youth, Teachers, BNBK, Krusakasathi, etc

Strategies- The programme will be designed to operate with 3 fold strategies

(I) To develop an ecosystem of sustainable farming models focusing on crop diversification ensuring yearlong engagement of a marginalized farmer addressing farm related risk.

(ii) To enhance livelihood of small and marginal farmers through cluster approach directing to integrated farming approach. (Crop, Livestock, Plantation etc.)

(iii) To create farm supporting livelihood assets in operational blocks through flagship programme convergence approach

The convergence plan is designed looking to the prevailing farming practice and ongoing schemes in defined blocks under various line departments. The convergence plan seeks support from schemes like NFSM (National Food security Mission), OMM (Odisha Millet Mission), BGREI (Bringing Green Revolution to Eastern India), SCA-TSS (Special Central Assistance to Tribal Sub-Scheme) from ITDA (Integrated Tribal Development Agency). Horticulture department is supposed to provide support under NHM (National Horticulture Mission), RKVY (Rastria Krishi Vikash Yojna). DSC & WS (Directorate of Soil Conservation and Watershed Development) will help in land development activity and leveraging from Mo-Pokhari Yojna (to creation of Farm Pond). The various programme under state-plan will provide support for improved agronomic practice and adoption of better farm practice like SRI or line sowing. The major component of livelihood is considered here is labour component under MGNREGA. MGNREGA will solve 2 dimensional purpose first is job employment for unskilled worker and creation of durable assets to support farming. As MGNREGA is supposed to deliver an important source for resource leveraging it is important to analyze problem faced by tribal and its implementing agency that is the PRI members example GRS (Gram Rojgara Sebaka), PEO- Panchayat Extension Officer for proper implementation of the programme.

#### **4.11 PROBLEM FACED BY TRIBAL IN ACCESSING EMPLOYMENT UNDER MGNREGA**

- **Lack of awareness among people about MGNREGA provisions and updated guidelines**

MGNREGA is a demand driven programme, the wage seekers need to understand the job demand process and provisions designed for them, in both the GP it is found that people are not aware of their demand driven entitlements and after submission of application also they are not getting the employment with in time. The study tried to access very basic level and informative understanding about MGNREGA from the job seekers of both the GP but many of them are unaware about these basic aspects. More over to this due to pandemic new guidelines that has been circulated regarding increment in wage rate, take up of individual asset creation work, work with 5 numbers of workers, maintenance of social distancing, use of mask etc. precautionary advisory yet not reached to community.

- **Lack of confidence with MGNREGA functionaries (GRS, PEO etc.)**

One of the major problem that is felt in the community is they have less confidence with panchayat functionaries responsible for programme implementation. Close association and healthy understanding is essential between GP level functionaries and villagers but there is felt sense of in secureness among villagers about transparency of GP functionaries in many of cases job seekers doubt their involvement and responsiveness in helping them getting employment

- **Negative attitude towards MGNREGA payment system**

There is strong dissatisfaction among the jobseekers for the payment procedures, regularity of payment under MGNREGA. As majority of wage earners are in settlement of hand to mouth arrangement, delay in payment release actually affect their daily living. Many of job seeker stated under regular wage work under contractor or private arrangement they get immediate payment of wages at the vary right day. Delay in payment is found to be as the major reason for programme failure in most of the case. It becomes difficult again to mobilize or motivate worker to work under MGNREGA after he had a bitter experience in payment.

- **Despite of job application Panchayat is unable to provide projects in 5 km vicinity**

Project approval and sanctions under MGNREGA is a multi-stakeholder process involving many stages of involvement. Panchayat has limited option to provide work in nearby areas, and job seekers found it difficult to travel to far places for work.

- **Lack of willingness towards earth related work, more dependency on work engaging heavy machineries**

It is observed in the study that people are somewhat uninterested to do more labour component work, though the unskilled labourers are more in number still they are unwilling to carry on earthen work.

- **Dissatisfaction regarding quantum of daily payment**

As we have seen in the previous data points MGNREGA payment bears a smaller fraction of job seekers annual income, with lesser days of engagement and the prevailing wage rate the aggregate earning from MGNREGA could not contribute much to their livelihood so there dissatisfaction among the job seekers regarding daily wage rate.

- **People have assumptions that individual work that they are submitting will not get sanctions for uptake**

The project sanction process in MGNREGA is followed by 3 stage sanction process, many time projects also get rejected in view to unfulfilment of required criteria for asset creation, so many of the project get rejected or get delay in approval process. Moreover it is observed in both the GP that, a reversal process of project incorporation is happening in the village, i.e. only the planned or targeted projects block wise distributed to GPs and after getting direction in that line MGNREGA functionaries get to work on those projects involving some regular Job seekers in the villages those who are regularly in contact. Demand driven nature of the programme is not being applied in this kind of settlement and many aspired projects given by Individuals also don't get approval.

#### **4.12 PROBLEMS FACED BY PRI MEMBERS IN IMPLEMENTATION OF MGNREGA**

- **Multiple engagement of PEO and GRS**

Many of the PEOs in the panchayat has given multiple roles, PEOs are entrusted with more in two GPs, there can felt lack of engagement given multiple role assumed by them.

- **Quality manpower provisions for panchayat**

Many of the functionaries has accused about the technical knowledge and capability of various functionaries for their role. Quality of manpower their capacity is one of the concern for effective implementation.

- **Lack of planning process**

Planning is one of the important variables in MGNREGA. NREGA is demand driven programme, it is expected that Grampanchyat have to identify their own needs to create infrastructure or assets for their community and they should put their demand in proposal and get it sanctioned from block and district administration. In NREGA policy frame work bottom up approach adopted and decentralization of power is institutionalized. It is found that in both the villages' people are unable to prepare work sites plan for their village because lacks of technical and procedural understanding of policy frame work.

- **No prospective village plan**

In the COVID-19 situation, GP don't have a perspective plan or block has not communicated a dedicated action for the GPs for taking up new work or employment of migrant worker. Without proper planning GP are engaging in work as they are doing previously no special activeness or attention given by the functionaries for programme in this situation.

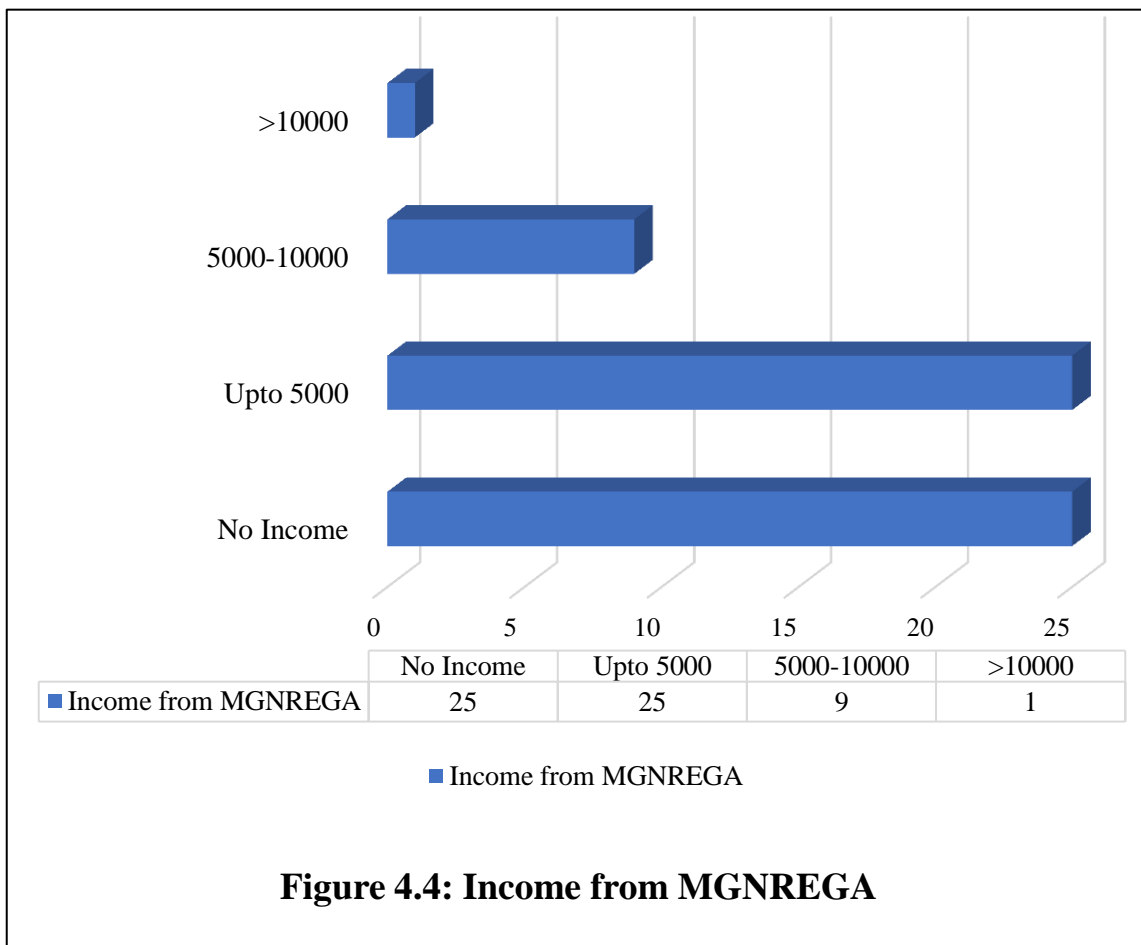
- **Participation in decision making**

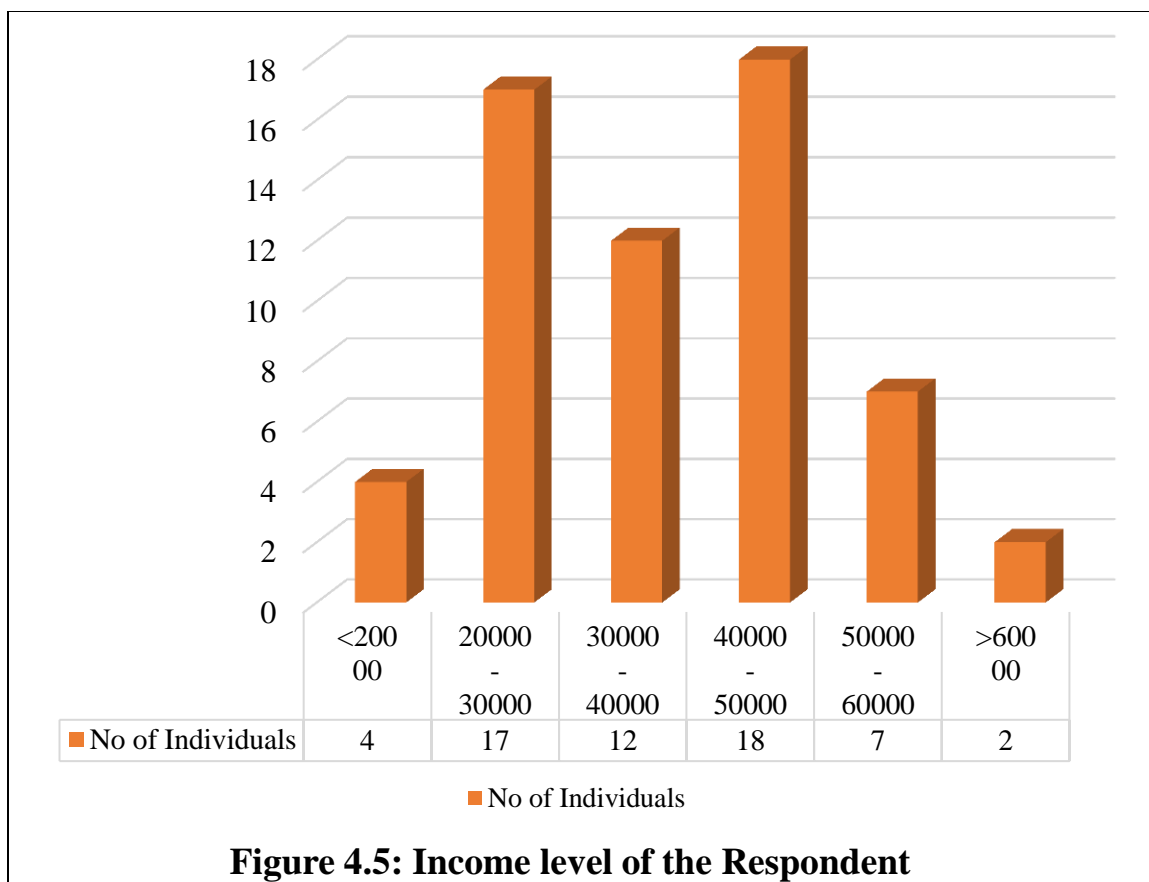
People participation in decision making process is a crucial aspect of decentralized planning. The MGNREGA has given power Gram Sabha to discuss the issues at local level and come out with solution to implement the MGNREGA in more effective

way. The backward community people are not organized these structural issues still creating the challenges for effective implementation of MGNREGA in democratic way.

#### 4.13 EXISTING INCOME OF RESPONDENT & CONTRIBUTION FROM MGNREGA (N=60)

- From the study the it is revealed that the average income level comes at Rs 38158 while if we consider those respondent who worked under MGNREGA, their annual average income stood at Rs 35,642 and Contribution of MGNREGA component averaging to Rs 4886.00.
- From the study it is revealed that MGNREGA only contribute to 13.7% of the annual income of the regular workers under MGNREGA, and its creates only 24 Person days of employment as per the revised daily wage rate which is way below 100 days of Job guarantee that is enacted in the act.





Looking to the existing pattern of MGNREGA, the model will developed to increase contribution from MGNREGA. And the average entitlement which is stood at 24 should be increased to 60 Days of entitlement.

Taking in accounts to the above situation and prevailing livelihood condition below mentioned livelihood and convergence model is prepared for implementation in the programme. The detailed components of the model and possible convergence sources is described in the below table.

**Table- 4.14 Formulated model and possible convergence from the ongoing scheme**

Proposed Models	Components of Model	Schemes to Link	Departments	Intervention	Unit of cluster
Crop Based Models					
Coarse Cereals Based	<ul style="list-style-type: none"> <li>Finger Millet+ Arhar Inter cropping +vegetables + Back Yard poultry /</li> <li>Maize + Cow pea + Onion +BYP</li> <li>Black/Brown Rice/scented Rice</li> </ul>	BGREI, NFSM, NMSA, OMM, SCA-TSS	Directorate of Agriculture, ITDA	Input support, Improve Agronomic practice, NPM practice, MSP realisation	25-35 acers in cluster
Pulse Based Model	<ul style="list-style-type: none"> <li>Arhar/Black garm/Cowpea +Finger millet +BYP</li> </ul>	BGREI, NFSM, NMSA, SCA-TSS	Directorate of Agriculture, ITDA	Intercropping , NPM, MSP, Input support	25-35 acres in cluster
Oilseed based	<ul style="list-style-type: none"> <li>Ground Nut/Niger/sunflower +Green gram/Black gram/pigeon pea + BYP</li> </ul>	BGREI, NFSM, NMSA, SCA-TSS	Directorate of Agriculture, ITDA	Improve Agronomic practice, NPM practice, Input support	25-35 Acers cluster
Agri Entrepreneurs	<ul style="list-style-type: none"> <li>To provide locally quality inputs to farmers (seeds, seedlings, Chicks, sapling, organic paste, farm implements etc.)</li> </ul>	APICOL	APICOL	Technical support, credit linkage and capacity building	1 entrepreneur in 200 Farmers
Horticulture based	<ul style="list-style-type: none"> <li>WADI Plantation (Mango, mixed orchard+ Short duration pulses+ Finger millets+ Vegetables + BYP)</li> <li>Adarsha Bagicha (Climate smart Model)</li> <li>Citrus/sapota/pomegranate+ field crops +BYP</li> <li>Vegetables+ Maize+ Pulses(Short duration)</li> </ul>	MGNREGA, Input subsidy, NHM	Directorate of horticulture	NRM, NPM, Input support, Crop Diversification	20-25 acres cluster

	<ul style="list-style-type: none"> <li>Existing Silver hook plantation and FRA entitlement holder should encourage to grow black pepper (In selected blocks only)</li> </ul>				
Nutri garden Promotion	<ul style="list-style-type: none"> <li>Promotion of Nutri garden for landless HHs</li> </ul>	MGNRE GA, OLM, ATMA	DRDA & Agriculture	Site development, fencing, input support, Capacity Building	20HH in one Village
Livestock Based Model	<ul style="list-style-type: none"> <li>Small Ruminants/Poultry Protective BYP model +Mixed Farming +Nutri Garden</li> <li>Development of poultry and goat shed under MGNREGA</li> </ul>	SCA-TSS, OLM Nutri garden	DRDA, ITDA	Vaccination, Input support, Market linkage	25-30 Households
Fish Based Model/Pond based Models	<ul style="list-style-type: none"> <li>Integrated Fishery in Pond +Fruits/Vegetables on bunds (Banana, Guava, Cassava, Vegetables Plots) +NADEP</li> <li>Recreational and development the existing pond as an integrated model</li> </ul>	Mo Pokhari Yojna + NHM +MGNREGA	Directorate of horticulture/ DSC & WS	Input support	5-7 Ponds in Panchayat
Irrigation Potential creation	Farm Ponds, Dug wells, MRLP, Diversion based Irrigation, Field channels	MGNRE GA, Jananidhi-II	DSC&WS and OAIC, OLIC	Labour component leveraging from MGNREGA	15-20 acres in one cluster
Top soil Management	Land Bunding, 5% corner Pit, 30X40 Model, Slope Management	MGNRE GA	DSC&WS	Labour component leveraging from MGNREGA, Vegetation	15-20 acres in one cluster
Soil and rain water	Innovative land bunding with recharge pits, soak pits, Composting	MGNRE GA	DSC&WS	Labour component leveraging from	15-20 acres

Management	promotion (NADEP/VERMI)			MGNREGA	
Strengthening farmers collectives	Capacity building Technical support on crop planning and implementation	RKVY, NFSM, ATMA	Agriculture and Farmers welfare		Existing farmers collectives
Capacity Building to Krushak sathi, Udyan mitra, Prani Mitra	Capacity building Technical support on crop planning and implementation	RKVY, NFSM, ATMA	Agriculture and Farmers welfare		Existing community facilitators

Review and Monitoring- The programme can be designed to work in coherence with the existing review mechanism of the line department in quarterly basis. Organisation has its own documentation, monitoring & review unit which will be employ to monitor the programme and provide reports and evidence base to the concerned officer at block level (AAO, AHO, Soil conservation officer) & at district level (DAO, DDH or ADH, PD watershed, DPM OLM etc.)

## 5. SUMMARY AND CONCLUSIONS

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India is home to 437 tribes and in Odisha, the Scheduled Tribes (STs) constitute 23 percent of the total population, covering 62 recognized tribes and 13 Particularly Vulnerable Tribal Groups (PVTGs). Their livelihood options are significantly contributed by their food pattern, way of living, cultural aspects and believes. So one can find a strong intricacy in their livelihood. The current study is carried out to support the 3 year programme titled “Integrated farming systems for income enhancement of small and marginal farmers in south Odisha” implemented by CYSD a CSO in Odisha with the help of FORD Foundation. For proper grounding of the programme and scoping for possible convergence option from line departments it is important to understand the intricacy of the livelihood pattern, their aspiration and constraints faced by them in accessing on farm and off farm livelihood. Odisha continues to be one of the poorest States in India with 32.59 percent of the people living below poverty line against the national average of 21.91 percent. Poverty concentration is more pronounced in rural areas with 35.69 percent of the people living below poverty line. The tribal primarily depend on agriculture, forest and wage labour for their livelihoods. Land holding size is small due to fragmentation. These conditions leads to distress subsistence farming, mono cropping, and underutilization of resources. The programme focuses on developing an ecosystem of appropriate cropping and farming systems, inclusion of allied sectors, enhancing income through possible farm models, employment through MGNREGA, realisation of MSP through a feasible convergence approach with government departments and related schemes.

The majority of the tribal that is 54.16% of the respondent in the study area are illiterate having no access to read or write. This denotes the need of inclusion of training programme for the tribals on improved agriculture practice and entitlement related rights.

Early marriage was common in the intervention area. Farming and labour work is the primary source of income in which farming was the major contributor with (85.83%). NTFP collection and poultry is among the major secondary option of livelihood. Intervention should be designed to support NTFP collector in primary processing, market linkage with strengthening community based Organisation like Farmer producer

Organisation and bulk buyers. Promotion of backyard poultry of desi birds and vaccination provision should be included in the perspective plan. Along with this steps should be taken to strengthen the labour groups, mates so that better involvement in MGNREGA will be possible. Awareness camps can be conducted for channelize the democratic process of job demand under MGNREGA. Majority that is more than 64.6% don't have membership in any community based Organisation which need to be considered while design of the programme to strengthen the community based Organisation for better development of ecosystem for alternate livelihood promotion.

Majority of the tribal get information from relatives, fellow farmers and progressive farmers, while spreading awareness and community mobilization process, creation of village level resource person or community resource person becomes important for proper information dissemination and smooth running of the livelihood programme.

Majority of tribals found to have medium level engagement in both on-farm and off-farm activities which could be improved by proper training and capacity building programme. Under NFSM and ATMA various training programme can be leveraged and provided to the targeted farmers. A defined capacity building module to be developed for training of the farmers.

Lack of irrigation facility, higher cost of input, animal mortality factor were among the major constraints described by the tribals in on farm sector. Schemes like assets creation under MGNREGA, input provision under state-plan or SCA-TSS could be leveraged for low cost input provisions. Vaccination programme need to be promoted in mass scale for RD disease (Ranikhet Disease) which is of prior importance. In off farm sector the major constraints described by tribal is non-availability of labour work in vicinity, which can be strengthen by awareness on job demand under MGNREGA, facilitation for take up of new self-of projects under MGNREGA for assets creation. PRI members should be given training on mate management, work facilitation under MGNREGA. Looking at the complexity of the livelihoods, engagement and aspiration of the tribal a convergence plan along with possible livelihood model is being prepared, looking at the crop feasibility, sustainability and other convergence possibility with various schemes of line departments and DRDA.

The study denoted to various types of livelihood components viz. crop based, wage based, forest based, horticulture based, migration based, service/business based and poultry based prevailing in the area. The studies have revealed the importance of farm sector in day to day engagement of a tribal household. Due to lack of availability of required resources, knowledge and inaccessibility to government help, tribal are lagging behind and various efforts of government are not reaching its core objectives and perform as per the mandate it is being designed. More focus should be given for sustainability and creating an ecosystem for the intervention. Strengthening of community level Organisation, better participation of tribal in them is a crucial aspect for better ownership and self-initiation for a better livelihood which is to be addressed carefully. Due to lack of income generation option often tribal migrate to nearby state and suffer in many fronts. Community mobilization could act as a strong tool to mobilize tribal for their entitlement getting benefits from various programme and accessing better livelihood in their own land. NTFP is also one of the important component of tribal livelihood, NTFP collector should be supported to provide with MSP by TDCC, access to formalize market and an identity as a NTFP collector. Various NTFP primary processing and packaging units should be encouraged through SHGs or other community based Organisation. Promotion/development of various agro-forestry/ permanent-farming / crop models involving agro horticulture crops and forest species, crop improvement, crop replacement, crop intensification; conversion of *podu* land into terraced fields, and community forests, land development of forest land entitlement etc. are some other options which are needed to implemented in the area.



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## ANNEXURE

### INTERVIEW SCHEDULE

Name of the respondent-

Name of the village-

Name of the Gram Panchayat-

Block-

District-

1. Educational Qualification- Illiterate/Primary/High school/Higher secondary/Graduate

2. Marital status- Married/ Unmarried

3. Family occupation

Sl. No.	Occupation	Type of Source	
		Primary	Secondary
1	Agriculture		
2	Animal Husbandry		
3	Poultry		
4	Labor		
5	Job		
6	Business		
7	Others		

4. Annual Income of family

Sl. No.	Occupation	Annual Income in (Rs.)
1	Agriculture	
2	Animal Husbandry	
3	Poultry	
4	Labor	
5	Job	
6	Business	
7	Others	
Total Annual Income-		

### 5. Participation in any Organisation

Sl. No.	Yes/No	Member	Post if any
1	Producer group/Cluster		
2	Shahakari samiti		
3	Youth Club		
4	SHGs		
5	NGOs		
6	Others		

### 6. Source of Information related to farming, allied activities, technology and govt. scheme

Sl. No.	Source	Regular	Sometime	Never
1	Friend/Neighbor			
2	Progressive farmers			
3	Sarpanch/ward member			
4	KVKs			
5	NGOs			
6	Farmer friend			
7	Newspaper/Magazine			
8	Radio/TV			
9	Farmer Fair			
10	Training			
11	ATMA			

### 7. Role in decision making process in agriculture and allied activity

Sl. No.	Activities	Role in decision making		
		Full	Partial	Never
1	Land selection			
2	Crop selection			
3	Improved variety			
4	Seed selection			
5	Manure application			
6	Fertiliser application			
7	Irrigation			
8	Intercultural activity			
9	Purchase of livestock			
10	Time of harvesting			
11	Involvement of labors in farming			
12	Availing loans			
13	Land lease			
14	Poultry rearing			
15	Buying selling poultry			
16	Land selection for pisciculture			
17	Buying and selling of fish			

8. Involvement in income generating process

Sl. No.	Activities	Role in decision making process		
		Fully	Partial	Never
1	Shop-keeping			
2	Agri-business			
3	Service			
4	Education			
5	Carpenter			
6	Tailor			
7	Black-smith			
8	Labour			
	1. In others field			
	2. Construction worker			
	3. Construction road/bridge			
	4. Digging hole, planting			
9	5. Land improvement			
	Collection of forest products			
	1. Collection of kendu leaves			
	2. Collection of Mahula fruits and flowers			
	3. Collection of fire woods			
	4. lakh			
	5. Custard apple			
	6. Ber			
	7. Tamarind			
	8. Kendu fruits			
9. Glue				
10. Others				

9. How much do you participate in these activities?

Sl. No.	Activity	0%	25%	25-50%	50-75%	>75%
1	2	3	4	5	6	7
A	Activities before sowing					
	1. Ploughing of field					
	2. Levelling of ground					
	3. Preparations of bunds and furrows					
	4. Application of FYM					
	5. Nursery preparation					

Sl. No.	Activity	0%	25%	25-50%	50-75%	>75%
1	2	3	4	5	6	7
B	<b>Activities during sowing</b>					
	1. Selection of seed					
	2. Seed treatment					
	3. Sowing					
	4. Ploughing during sowing					
	5. Field preparation before planting					
C.	<b>During Irrigation</b>					
	1. Preparation of drain and trenches					
	2. Irrigation					
D.	<b>Intercultural activity</b>					
	1. Weeding					
E.	2. Plant protection					
	<b>Activities during and after harvesting</b>					
	1. Harvesting					
	2. Drying, threshing etc.					
F.	3. Storage					
	4. Selling					
	<b>Activities related to animal husbandry</b>					
	1. selection of breed					
	2. Feeding					
G.	3. Vaccination and other care					
	4. selling of produce					
	5. Grazing of animals					
	<b>Activities related to poultry</b>					
	1. Site selection					
H.	2. Making of poultry house					
	3. Feed management					
	4. Vaccination and care					
	5. Marketing					
H.	<b>Activities related to fisheries</b>					
	1. selection of place					
	2. Pond preparation and maintenance					
	3. Purchase of fish var. and fingerlings					
	4. Maintenance of fish					
	5. Marketing of fish					

10. Details of non-agricultural activities you are involved in

A) Are you involved in business other than agriculture if yes, then fill the following table

Sl. No.	Business	Monthly Income	Annual Income
1	Grocery		
2	Cloth store		
3	Cycle/Motor cycle shop		
4	Tailor shop		
5	Other		
	Net Annual Income		

B) Are you involved as a wage earner? If yes, then fill up the following table

Sl. No.	Type of work	Days	wage	Annual Income
1	Work in others field			
2	Construction of building			
3	Plantation and dug			
4	Construction of road and bridges			
5	Pond construction			
6	Land leveling			

C) Are you doing any kind of job? If yes, fill the table

Sl. No.	Job type	Monthly salary	Annual salary

D) Do you participate in collection activities? If yes, than fill up the table.

Sl. No.	Name of the work	Amount	Rate	Annual Income
1	Tendu leaves			
2	Mahua leaves			
3	Fruits			
4	Firewood			
5	Lac			
6	Custard apple			
7	Date palm			
8	Tamarind			
9	Gums and resins			
10	Others			

11. How much do you anticipating for development in following points

Sl. No.	Statement	Zero (0%)	Less (<25%)	Medium (25-50%)	More (50-75%)	Maximum (>75%)
1.	<b>In agriculture Field</b>					
	A. how much increase in agriculture land do you want to see in coming years?					
	B. How much increase in production do you want to see in coming years?					
	C. How much increase in population of following animals you want to see in coming years?					
	a) Poultry					
	b) Goat					
	c) Cow					
	d) Buffalo					
	e) Sheep					
	D. How much increase in purchase of machinery you want in coming years?					
	a) Pump					
	b) Sprayer					
	c) Tractor					
	d) Power tiller					
2.	<b>In professional work/ Job</b>					
	A. How much increase in professional work you are expecting					
	a) Agriculture professional					
	b) Industrial work					
	c) Office work					
	d) Business					
	e) Others					
B. How much income augmentation you expect from professional work						
3.	<b>In wage working</b>					
	A. Do you wage work? If yes, In which type of wage work you want to see involvement?					
	a) Agriculture wage work					
	b) Construction of road					

	c) Pond construction					
	d) Land Improvement					
	c) Other Construction					
	B. How much increase in income you are expecting from wage?					
4.	In small scale collection A. Do you involve in small scale collection? If yes, what type of collection you want to improve?					
	a) Tendu leaves					
	b) Mahua fruits					
	c) Firewood collection					
	d) Lac collection					
	e) Flower collection					
	f) Custard apple					
	g) Date palm					
	h) Tamarind					
	i) Gum and resins					
	B. How much increase in income do you expect through collection					

12. What are the major constraints in agriculture and allied activities?

Sl. No.	Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Lack of knowledge about scientific farming					
2.	Lack of Irrigation					
3.	Unavailability of agriculture labour					
4.	Lack of agriculture implements and high cost					
5.	Unavailability of timely inputs (Fertiliser, Seeds)					
6.	High cost of Inputs					
7.	Lack of marketing of the produce					
8.	Lack of green fodder for animal					
9.	Lack of knowledge about improved poultry					
10.	Lack of training about fishery					
11.	Lack of pond					

12.	High construction cost of pond					
13.	Problems of animal mortality					

13. What are the major constraints in adopting off-farm livelihood means?

Sl. No.	Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Non availability of credit for business					
2.	No knowledge about other livelihood means					
3.	Lack of education and professional/vocational training					
4.	Lack of wage related work					
5.	Lack of knowledge about MGNREGS, RSETIs and other programmes					
6.	Lack of transportation, connectivity to market,					
7.	Engagement in non-productive work					