



KNOWLEDGE, ATTITUDE & PRACTICE STUDY

2018



# FINAL REPORT

## KNOWLEDGE, ATTITUDE & PRACTICE STUDY



**CARE India Solutions for Sustainable Development**

## ACKNOWLEDGEMENT

This study is conducted under Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA<sup>1</sup>) initiative of CARE India led by the Tata Cornell Institute for Agriculture and Nutrition (TCI). Our special thanks to the consultant, MART Global Management Solutions LLP for this study who have gathered all the desired information from the field and helped in preparing this report.

We also would like to record our appreciation for all community members spread across 72 villages of G. Udaygiri & Tikabali blocks in Kandhamal district and Narla, Bhawanipatana & Junagarh blocks in Kalahandi district for their active support and cooperation during the process of field study in spite of their busy schedule and pressing engagement. The valuable time spared by them and their hospitality and cordiality accorded to our field staff during their visit is also appreciated.

We are grateful to the community members, SHG members, Community Resource Persons of CARE-India, key informants of villages under this study for their full support in terms of articulating the perspectives of the study team and sharing required information for use in the report preparation. Specially thanks for their unconditional support in this regard.

All partners played very important and constructive role during field study by way of discussion on various key issues during personal interviews. They deserve special acknowledgement for making themselves available.

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<sup>1</sup>CARE India is implementing the Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA) initiative in India, as a member of a consortium being led by Cornell University. Other consortium members include BAIF, Emory University, Grameen Development Services, International Food Policy and Research Institute (IFPRI), the Tata Trusts, and Tata Cornell Initiative. This project aims to improve access and availability for poor and marginal smallholders to year-round affordable, diverse and quality foods in order to achieve positive nutrition outcomes



## ABBREVIATION

Agri	Agriculture
ANM	Auxiliary Nurse Midwife
ASHA	Accelerated Social Health Activist
AWW	Auredited Worker
BCI	Behaviour Change Intervention
FGD	Focussed Group Discussion
Govt	Government
GP	Gram Panchayat
HKG	Homestead Kitchen Garden
IDI	In-depth Interview
KAP	Knowledge, Attitude and Practice
KG	Kitchen garden
KVK	Krishi Vikas Kendra
NGO	Non Governmental Organisation
NGTK	Nutrition Gender Tool Kit
NTFP	Non Timber Forest Produce
PoP	Package of Practices
SC	Scheduled Caste
SHG	Self Help Group
ST	Scheduled Tribe





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## EXECUTIVE SUMMARY

The TATA-Cornell Institute for Agriculture and Nutrition has been awarded a grant from the Bill & Melinda Gates Foundation (BMGF) to promote nutrition-sensitive food system in India that enhances the availability and affordability of diverse, high quality and nutrient rich foods for the rural poor; through the project known as Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA). CARE India has been the implementing partner under TARINA for the project activities in Odisha across 72 villages in two districts i.e. Kandhamal and Kalahandi. The project commenced on November 2015 and is ongoing.

Now that the project has reached its midline, CARE India intended to understand and assess the changes (desirable and undesirable) and impacts (positive and negative) of intervention made so far through conducting a Knowledge, Attitudes and Practices (KAP) study so that based on its recommendations, course correctional steps/actions can be taken to strengthen and maximize the positive impacts in the remaining years. The key objective of this study is ***to establish the impact of TARINA strategies on crop diversification and improved kitchen garden practices on diet diversity through technical assistances under TARINA project through assessment of Knowledge, Attitude and Practice of farmers.***

A balanced mix of qualitative and quantitative research methodology was adopted to conduct the study. The quantitative assessment was primarily conducted to generate information with linkage to available database and relate to the performance indicators of the project. A survey approach was adopted for the targeted farmers/participants to identify trends in knowledge uptake, achievements and perceptions at the individual household level. The qualitative study focused on measuring changes and impacts primarily aimed at generating insights into knowledge gained, attitudes and practices, learning, benefits, issues; constraints etc. at larger community /group level i.e., producers, partners and institutions. The study was undertaken with a total of 562 respondents of total 413 respondents in Kalahandi and 149 respondents in Kandhamal. As far as intervention wise respondents are concerned, in Kalahandi 79 respondents covered under NGTK (Nutrition Gender Tool Kits), 224 in Kitchen Garden/Homestead Kitchen Garden (HKG) and 304 in Crop diversification have been covered. Similarly, in Kandhamal, 71 respondents engaged in NGTK, 105 in Kitchen Garden/Home Garden, 56 in Crop diversification have been covered. **Altogether 839 responses in three types of intervention from 562 respondents in both the districts have been collected through the quantitative survey.**

The findings indicate the following areas where the intervention impact has been high.

**For NGTK** these include – Women’s decision making inputs in crop choice, women’s input in decision on visiting friends and relatives, women’s input in decision on having children, women’s input in decision on buying food, women’s input in decision on children’s healthcare and self healthcare, women’s input in selecting household menu, women’s input in decision on utilization of household income, decisions about food and nutrition in the household.





**For Kitchen Gardens**, these include equal labour contribution in kitchen garden activities, raising awareness and knowledge about sources of availability of KG/HG inputs, knowledge about women farmers on FFS sessions focussing on women related issues in KG/HG intervention and understanding about positive and negative aspects of KG/HG activities, adoption of varieties of vegetables, having discussions among men and women in household about differential needs of food, among others.

**For Crop Diversification**, these include knowledge and awareness about nutritional value of pulses/vegetables, reaching out to large number of women farmers, adoption of package of practices for seed treatment, safe use of pesticides, periodic weeding and the intervention has high impact, adoption of agri-equipments by women farmers, reduction in input cost i.e. standard seed rate and seed treatment, reduction of input for pulses, legumes and vegetables among others.

Based on the empirical evidences the study recommended :

#### **For NGTK**

The intervention should have added focus on improving the decision making role of women in all aspects of agriculture, nutrition and finance. The intervention impact has been **low** in the areas of women accessing nutritive food such as; egg, meat, fish & milk products, women input towards decision on non-agri loans, knowledge & perception about gender roles, gender stereotyping, food intake during pregnancy, among others as stated in the study and needs improvement.

#### **For Kitchen Gardens**

The intervention impact has been **moderate to low** in the following areas, uptake of knowledge on various topics of KG/HKG, adoption of KG/HKG practices on account of them being perceived as time consuming and costly, coverage of women with demonstrative application of knowledge in KG/HKG, impact of FFS demonstration on women farmers, practice of using household waste for KG/HKG activities, motivation for fencing around KG/HKG, low production quantity, persuading women farmers to go for year round KG/HKG activities, adoption of proper water management practices, adoption of appropriate knowledge to deal effectively with crop damage due to pests. These areas need attention.

#### **For Crop Diversification**

Intervention impact on knowledge and awareness about nutritional value of pulses/vegetables is very high which indicates that coverage under knowledge input in TARINA has been effective and successful in reaching out to large number of women farmers. However, in certain areas, increased focus is required during the rest of the intervention period, as the impact of TARINA has been **low** These include improving knowledge recall of the women farmers, adoption of package of practices **other than** seed treatment, safe use of pesticides and periodic weeding, adoption of fencing, increase yield, secured farming practice and increase in household consumption.



## Chapter 1

### Background:

The TATA-Cornell Institute for Agriculture and Nutrition has been awarded a grant from the Bill & Melinda Gates Foundation (BMGF) to promote nutrition sensitive food system in India that enhances the availability and affordability of diverse, high quality and nutrient rich foods for the rural poor; through the project known as Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA).

CARE India has been the implementation partner under TARINA for the project activities in Odisha across 72 villages in two districts i.e. Kandhamal and Kalahandi. The project started with a fact finding study to understand the priority intervention. Based on the fact finding study 'Food Systems Diagnostic Study' (FSDS) recommendations, nine interventions were prioritised, including – Crop Diversification into pulses/legumes/vegetables, homestead garden, Poultry, Goatery, Dairy, Drudgery reduction / labour saving technology, Post-harvest management with cross cutting interventions viz. Behaviour Change Communication (BCC) and Collective Strengthening. The project commenced on November 2015 and is ongoing.

The project has the following objectives

- Provide technical assistance to make agricultural projects nutrition sensitive
- Provide an evidence-driven pathway to policy reforms that promote availability and affordability of more nutritious food system
- Leadership and capacity increased to institutionalize nutrition sensitive agriculture in India.

The important stakeholders are women farmers' households from SC (Scheduled Caste), ST (Scheduled Tribe) and other communities, their spouse and family members, value chain actors (farmers, local traders/retailers, wholesalers, government line departments and resource agencies).

Since its launch in 2015, the project has completed more than two years of implementation with majority of its intervention strategies rolled out to impact the target population – 10,500 households across 72 villages in two districts (Kandhamal and Kalahandi) in Odisha.

As the project has reached its midline, CARE India intends to assess the changes (desirable and undesirable) and impacts (positive and negative) of intervention made so far through conducting a Knowledge, Attitudes and Practices (KAP) study so that based on its recommendations, course correctional steps/actions can be taken to strengthen and maximize the positive impacts in the life span of the project.

Study Objectives:

The key objective of this study is ***to establish the impact of TARINA strategies on crop diversification, improved kitchen garden practices and on diet diversity through technical assistances under TARINA project through assessment of Knowledge, Attitude and Practice of farmers.*** Keeping this objective in mind, the study focuses on KAP assessment of the impact population, and through it, understanding the progress/ achievement of output indicators of the project.

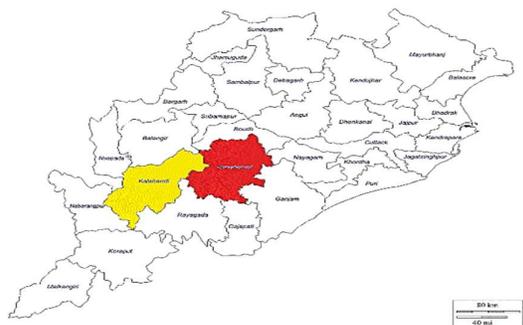
There are four specific objectives to be addressed in the study as follows:



- To **understand the knowledge** among demo plot farmers on **practicing improved crop diversification strategies** and **their influencing capacity** among fellow farmers for crop diversification strategies under TARINA project location
- To **comprehend the impact of improved kitchen garden** among women small holder farmers on diet diversity
- To figure out the **role of nutrition gender tool kits on addressing the nutrition-gender complexity** and mainstreaming gender under TARINA project areas.
- To **give the recommendations** with clearly mentioning **what is working and not working and possible implementation strategies** based on the study findings, to achieve the project goal and result framework.

### Study area

The project intervention covered 72 villages of two districts- Kalahandi and Kandhamal districts of Odisha and therefore the study was undertaken in both the districts. The selection of representative farmers' households with their respective villages and blocks was done by adopting a scientific research methodology and sampling technique delineated below.



### Research methodology and approach :

A balanced mix of qualitative and quantitative research methodology was adopted to conduct the study. The information collected from both the studies were complementary and fed into each other to support values and targets used as benchmark for each outcome and impact envisaged in the project. The baseline study benchmarks will be compared to arrive at exact progress made in achieving the outputs and impacts of the project.

The quantitative assessment was primarily conducted to generate information with linkage to available database and relate to the performance indicators of the project. A survey approach was adopted for the targeted farmers/beneficiaries to identify trends in knowledge uptake, achievements and perceptions at the individual household level. The quantitative household survey covered demo plot farmers, diversified/influenced farmers under crop diversification, farmers following improved kitchen garden practices and NGTK tools administered with beneficiaries. Face to face interviews were conducted with the impact and target households using structured questionnaire to collect prima facie facts with regards to assessing Knowledge, Attitude and Practice of farmers.

The qualitative study focused on measuring changes and impacts primarily aimed at generating insights into knowledge gained, attitudes and practices, learning, benefits, issues; constraints etc. at larger community /group level i.e. producers, partners and institutions. FGDs and IDIs with project beneficiaries and stakeholders, project partners' staff were held to qualify the present or existing status of farming and allied activities and draw some of the insights and feedback that could help strengthen intervention in future. It also helped in ratification, validation and triangulation of quantitative information, and further explore, validate and explain on key constraints and challenges etc. and other external influencing factors faced by the target and impact communities in the project.



### Sample coverage for quantitative study

The sample was drawn adopting the appropriate sampling techniques. A total of 830 households in both the districts were surveyed in quantitative study. The sampling and sample calculation is given below in detail -

The sample size has been calculated from the given formula:

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

Where n= required sample size, t=confidence level at 95%, p= probability of occurrence of sample (set at 50%), m= margin of error.

- The total sample size of 830 will validate the findings at 95% confidence level and  $\pm 3.4\%$  confidence interval (any confidence intervals less than  $\pm 5$  is highly appreciated). It shows that beneficiary (household level) wise findings are validated at this sample size.
- The sample of 830 respondents is distributed under three interventions (NGTK initially planned to be covered under Qualitative was revised and put under Quantitative as per CARE India's suggestion) namely diversified/influenced farmers and improved kitchen garden practice farmers & NGTK tools administered to women farmers.
- It was learned from the CARE India implementation team that the farmers participated in demo plots and farmers that adopted crop diversification are not mutually exclusive.
- It was also learned that there is an overlapping of homestead gardens with farmers having diversified crops, demo plots, kitchen gardens and NGTK as well. In this case, the details of 830 farmers were derived from the list of beneficiary available with TARINA as per proportionate sampling procedure.
- To cover sample households, systematic random sampling technique was used and mostly the list provided by the TARINA project was referred. At the village level, right hand rule was applied for selection of sample under stratified random sampling and wherever a person was genuinely not available during the survey period another beneficiary was taken from the list on random for interviewing in the survey.

Kalahandi	CD Diversified/Influenced	CD Demonstration	KG	NGTK	Total
<b>Total women farmers</b>	164	128	224	66	<b>582</b>
<b>Villages Covered</b>	21	12	19	8	
<b>Gps covered</b>	12	7	10	6	
<b>Total GPs under TARINA</b>	12	12	12	12	
Kandhamal	CD Diversified/Influenced	Demonstration	KG	NGTK	Total
<b>Total Women farmers</b>	52	6	106	84	<b>248</b>
<b>Villages covered</b>	7	3	10	11	
<b>GPs covered</b>	4	3	6	6	
<b>Total GPs under TARINA</b>	7	7	7	7	



The above table shows the details of sample drawn on proportionate sampling and ensuring that a representative sample with adequate number of villages and GP locations across sample blocks are taken under the quantitative study. Emphasis was given to villages and GPs where there was more number of beneficiaries' coverage under the project.

#### Sample coverage for Qualitative sample:

In qualitative survey the sample FGDs and IDIs were organised with semi structured questions. The table below provides the FGDs and IDIs conducted in both the districts

Stakeholders	Tools	Narla	Junagarh	Kandhamal
		<i>Village</i>	<i>Village</i>	<i>Village</i>
<b>Diversified and influenced farmers</b>	FGD	Bhanpur Balsinga	Dundelmal Dedar Kukudamalpada	Pukulinga Balumaha Komanaju
<b>Kitchen garden</b>	FGD	Bhanpur Balsinga	Katingpadar Dedara Kukudamalpada	Pukulinga Balumaha Komanaju
<b>NGTK</b>	FGD	Balsinga(1)	Katingpadar Dundelmal	Pukulinga Balumaha
<b>Stakeholders( Input dealers and Govt. agencies)</b>	IDI	<ul style="list-style-type: none"> <li>○ Jagruti seeds, Bhawanipatna</li> <li>○ Ayush Agro, Bhawanipatna</li> <li>○ Agronomist, KVK, Bhawanipatna</li> <li>○ Asst. Professor,OUAT Kalahandi</li> </ul>		Agronomist,ATMA, Kandhamal Sr. Scientist, KVK

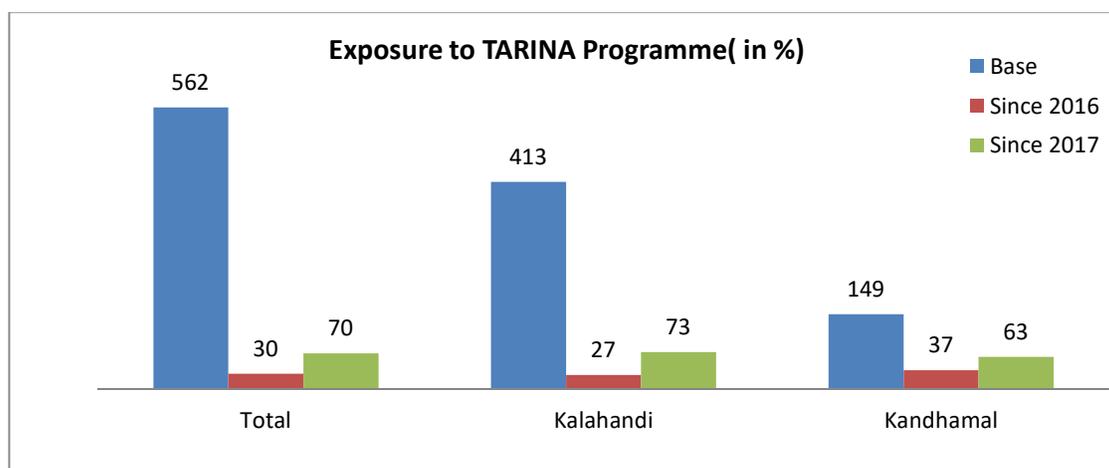


## Chapter 2

### Respondents' profile:

The study has been undertaken with a total of 562 respondents consisting of 413 respondents in Kalahandi and 149 respondents in Kandhamal. As far as intervention wise respondents are concerned, in Kalahandi 79 respondents engaged in NGTK, 224 in Kitchen Garden/Home Garden and 304 in Crop diversification have been covered. Similarly, in Kandhamal, 71 respondents engaged in NGTK, 105 in Kitchen Garden/Home Garden, 56 in Crop diversification have been covered. **Altogether, 839 responses in three types of intervention with total of 562 respondents in both the districts have been covered through the quantitative survey.** The respondents from Kalahandi have been covered from three blocks i.e. Bhawanipatna, Narla and Junagarh and in Kandhamal from G. Udayagiri and Tikabali covering altogether 18 Gram Panchayats from both the districts.

### Involvement in TARINA programme:



It is revealed that nearly one third of respondents in Kalahandi and 63% respondents in Kandhamal have exposure to the intervention in 2016. A little less than one third and little more than one third respondents in Kandhamal have been exposed to the TARINA intervention for one year. This is critical to understand that the mid line survey has been conducted to measure progress, outcome and impact in terms of a KAP study after completion of at least two years and it was desirable to have all the respondents at least get adequate time (at least two crop seasons) to use their learning to produce the results as per the objectives of the programme.

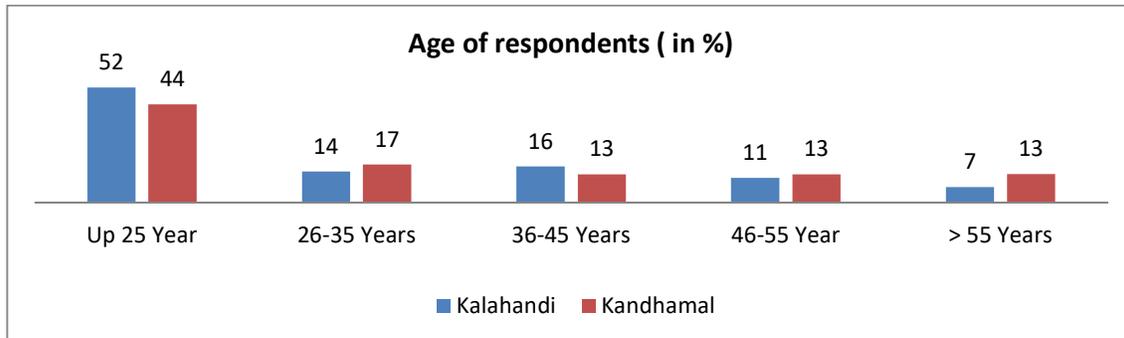
### Total members in the household:

The respondents belong to mostly 3-6 member households in aggregate for both the districts. There are also two member and seven member households, each below 10% of the total. Out of the total households, about one third of the total respondent households in Kalahandi (32%) have 4 members, where as in Kandhamal there are equal number of four and five (22% to the total households) member households. There are more seven member households (14%) in Kandhamal, than in Kalahandi (5%) households. Majority (97%) of the households in Kalahandi



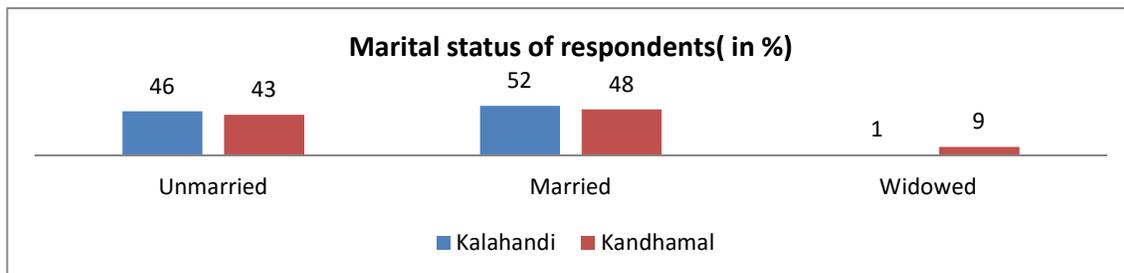
and almost equal, (96 % precisely) households in Kandhamal are 2- 7 members households. So, there is a lot of similarity in terms of demographic composition of the households in both the districts

**Age of Respondents:**



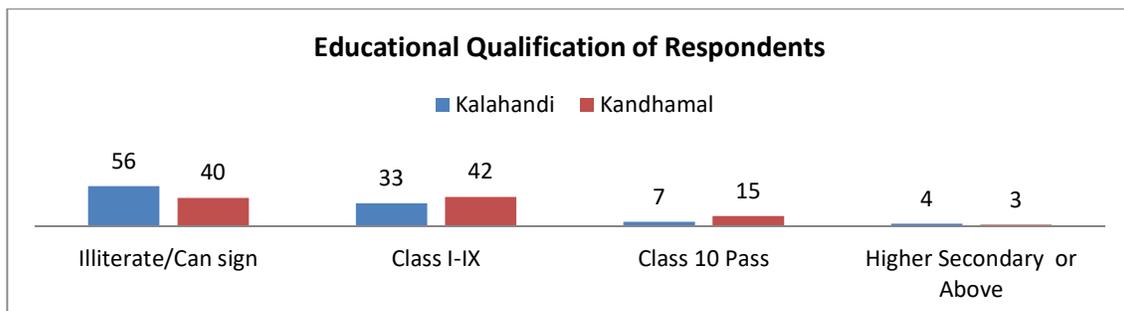
In aggregate, the age of respondents reflects that 15% of the respondents were in the age group of 14-18 years, 47% of the respondents in between 18-45 years and 15% within the age group of 46 -60 years of age who have been part of the TARINA intervention. There are 7% respondents who are more than age 60 and above. This indicates that a majority of the programme participants belong to the productive age group.

**Marital status of Respondents:**



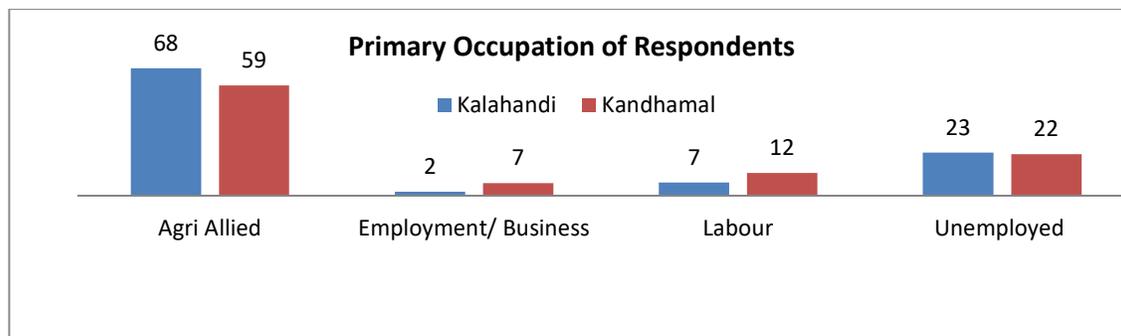
The marital status of both the districts shows a similar trend where the almost equal percentage of respondents is unmarried and married in both districts. There are more widowed respondents (9%) in Kandhamal than in Kalahandi.

**Educational status of Respondents:**



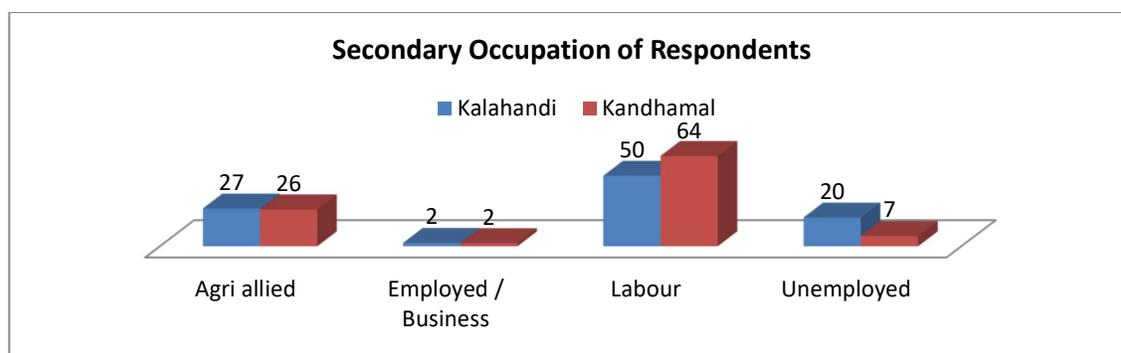
Out of the total response base of 413 in Kalahandi and 149 in Kandhamal, there are 56% of respondents in Kalahandi and 40% in Kandhamal who belong to illiterate or can sign category followed by a major percentage of 33% and 42% of respondents in Kalahandi and Kandhamal respectively who have educational qualification from Class-I to Class -IX. There are less than 10% of the respondents in Kalahandi and 15% of the respondents in Kandhamal who have passed 10<sup>th</sup> standard. In the higher secondary and above qualification, there are less than 5% respondents in both the district. The informally literate percentage is less than 1 percent.

**Primary Occupation:**



68% respondents in Kalahandi and 59% of respondents in Kandhamal pursued primary occupation of agriculture and allied followed by 7% respondents in Kalahandi and 12% respondents in Kandhamal who depended upon labour as primary occupation. There are less than 10% respondents (2% in Kalahandi and 7% in Kandhamal) who have been employed or in business. There are sizeable (23%) respondents in Kalahandi and 22% respondents in Kandhamal who are unemployed or engaged in household chores.

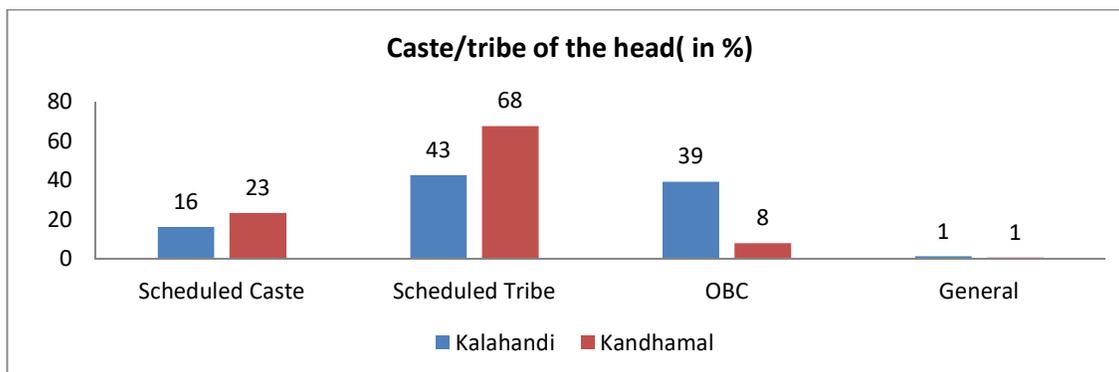
**Secondary occupation:**



As far as secondary occupation of the respondents is concerned, the major percentage of respondents (50% in Kalahandi and 64% in Kandhamal) who depended upon wage labour as a major secondary occupation. Almost equal percentage of (27% in Kalahandi and 26% in Kandhamal) depended upon agriculture and allied activities followed by unemployed or respondents engaged in household chores (20% in Kalahandi and 7% in Kandhamal).

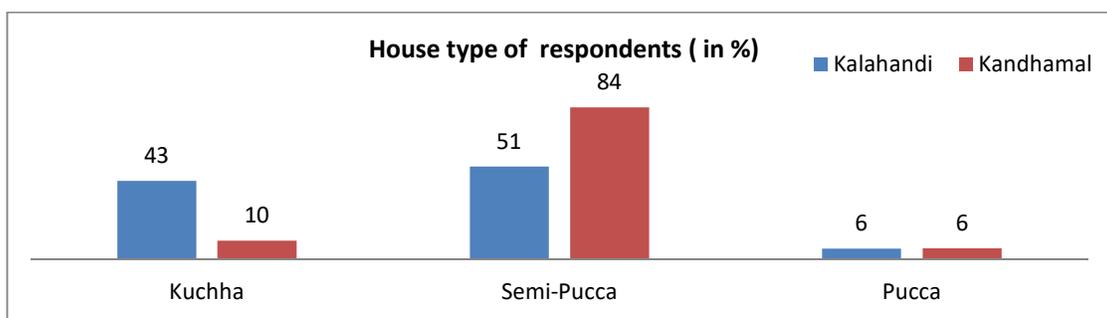


**Caste and Tribe status:**



Social status of the respondents' covered in the study shows different trend in both the districts. While majority of the respondents in Kandhamal belong to STs (68%) followed by SCs(23%). The respondents in Kalahandi mainly come from three major communities i.e. STs(43%), OBCs(39%) and SCs(16%).

**House types of Respondents:**



The house type of the respondents provides a contrasting scenario with respondents in Kalahandi having more Kuchha houses than that of Kandhamal (43% to 10%). Respondents in Kandhamal have more semi Pucca houses that Kalahandi (84% to 51%) with equal percentage of Pucca houses in each district. Although house type is generally reflecting the economic status of the beneficiaries, it is also important to keep in mind the context of government's increased focus to poor beneficiaries under various rural housing schemes. Therefore, it will be erroneous here to say that house type alone can indicate the financial or economic position of the household.

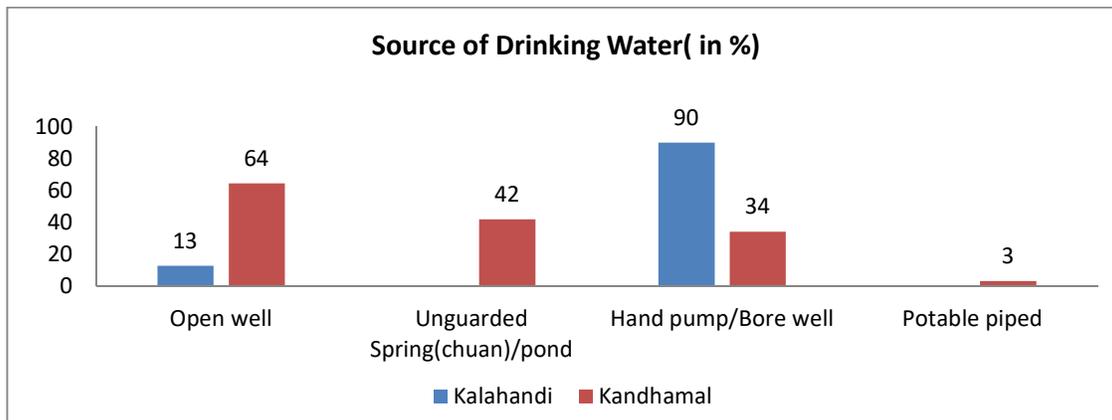
**SHG membership of Respondents:**

Although, TARINA programme has not promoted any institutional beneficiary group in the intervention areas, yet there are a majority of respondents who have membership to the existing Self Help Groups promoted by Government and Non-Government agencies in both the districts. In Kalahandi, 70% of the respondents and 79% of the beneficiaries in Kandhamal have expressed to have membership to women SHGs. Out of those who have membership, 67% in Kalahandi and 69% in Kandhamal have been members for more than 2 years period and the rest have one year of membership to SHGs. This indicates all of the respondents have been covered under social and financial inclusion programmes and in every likelihood they have already or having prospects of



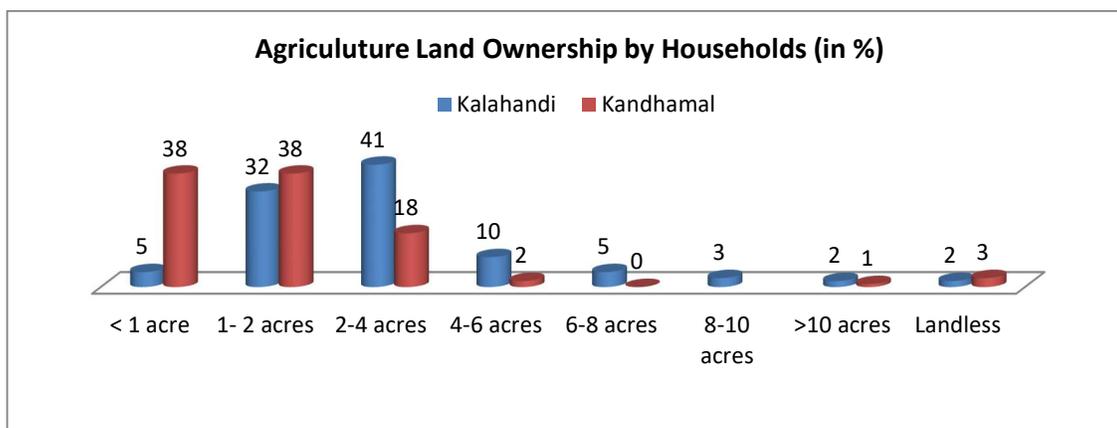
getting inputs in terms of training, grants, loans from entities (Govt and Non-govt) working in the space.

**Drinking water sources for households:**



One of the basic indicators of progress is availability and accessibility of clean and safe drinking water for all. The survey results show that the major source of drinking water for respondents in Kalahandi is hand pump where as only 34% have access to such source in Kandhamal. In this respect, Kandhamal shows a bleak picture where a majority (64% and 42% respectively) depend upon open well and Chuan/Unguarded spring or pond. These are important because for TARINA intervention, these indicators always influence since a lot of stress and time is devoted to arrange basic amenities which in turn influence the psyche and motivation for involvement in the programme and effectively contributing to the results.

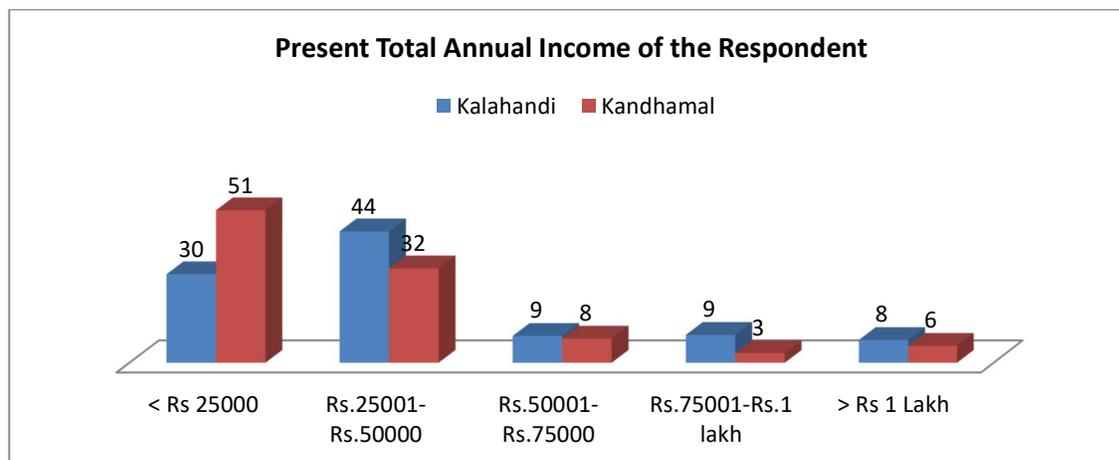
**Agriculture Land ownership:**



In Kalahandi the majority households own land 2-4 acres (41%), 1-2 acres (32%) and 4-6 acres ( 10%) where as in Kandhamal the majority household (38% ) own land size of <1 acre and 1-2 acres followed by 18% households own land of 2-4 acres. Few percentages of household, 12% in Kalahandi and 4% in Kandhamal own land of 6-8 acres, 8-10 acres and > 10 acres of land in Kalahandi.

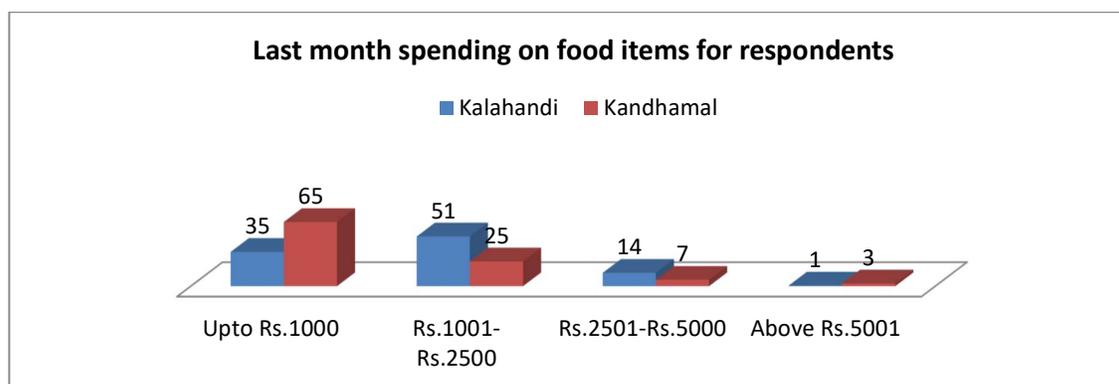


**Annual Income:**



The annual income of respondents captured in the study identifies major distribution of respondents in the income range of less than Rs.25000 (30% in Kalahandi and 51% in Kandhamal), followed by Rs. 25001 to Rs. 50000 (44% in Kalahandi and 32% in Kandhamal). There are 9% in Kalahandi and 8% in Kandhamal having present annual income of Rs. 50001 to Rs. 75000. In the income range of Rs. 75001- Rs. 1 lakh there are 9% respondents in Kalahandi and 3% respondents in Kandhamal. There are 8% respondents in Kalahandi and 6% respondents in Kandhamal who have an annual income range of more than 1 lakh.

**Spending on food by household in the last month:**

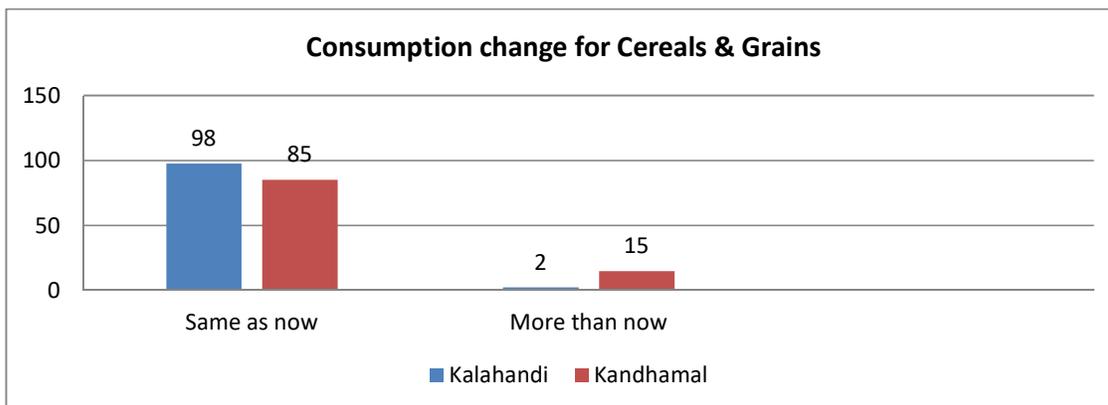


In Kalahandi one third (35%) of the respondents spent Rs. 1000 whereas in Kandhamal majority (65%) respondents spent the same amount in the last month on food items. Major percentage of Kalahandi respondents (51%) and one fourth of the respondents in Kandhamal spent Rs. 1001 to Rs. 2500 in the last month. There are 14% respondents in Kalahandi and 7% respondents in Kandhamal who spent Rs. 2501 to Rs. 5000 in the last month on food. Respondents spending more than Rs. 5000 on food items in the last month are less than 4% in both the district.

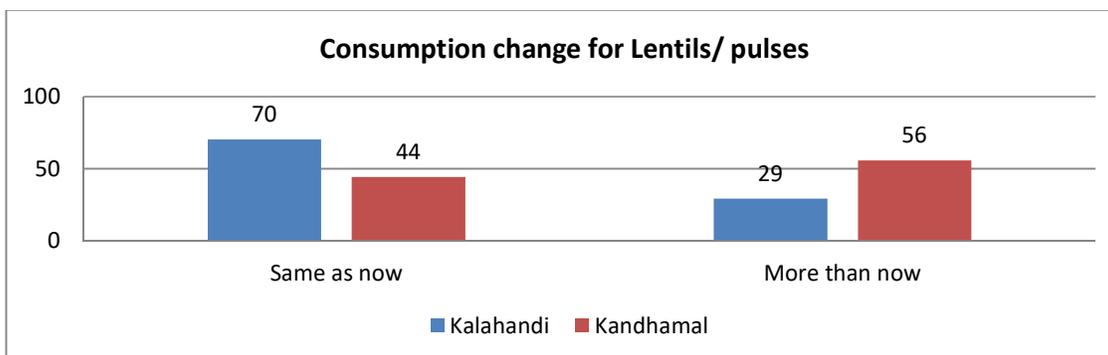


**Consumption Pattern and affordability:**

The respondents were asked few questions to understand affordability and change in consumption pattern of particular food, mainly in the context of understanding whether affordability is a prime determinant for consumption of foods. The following responses have been captured as given below.

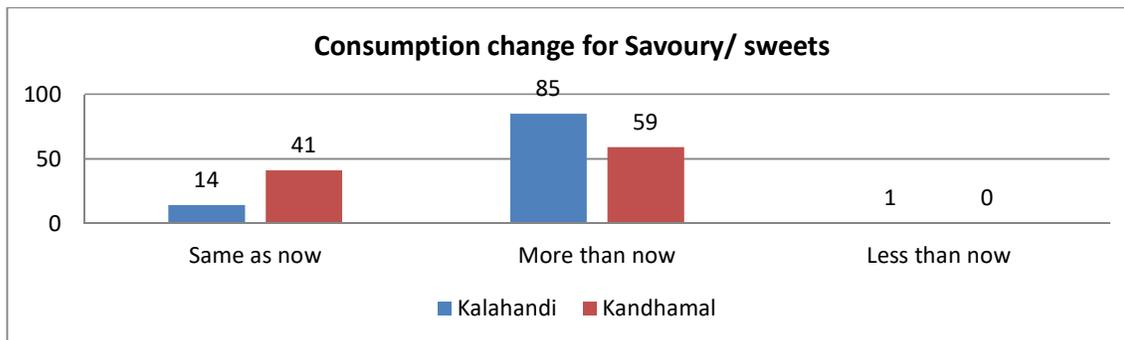


In the eventuality of fall in price of cereal and grains, a majority percentage (98% in Kalahandi and 85% in Kandhamal) stated that it would remain unchanged. 15% of respondents in Kandhamal spoke it would increase.

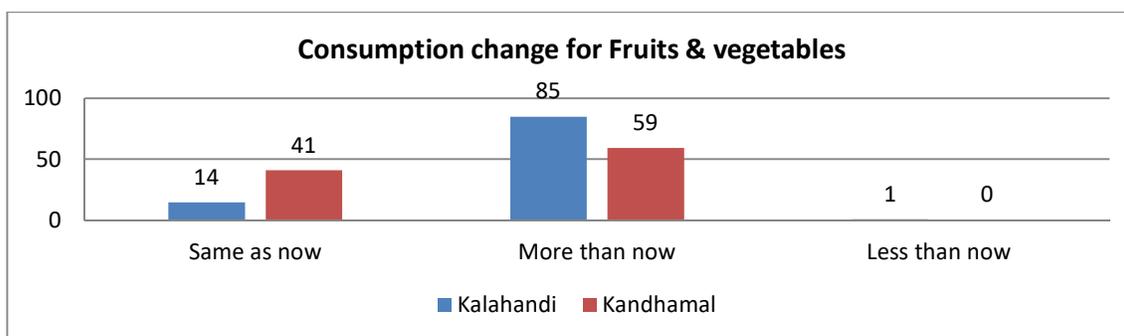


In the situation of fall in price of lentils and pulses, there has been divided opinion among both the district respondents. While 70% in Kalahandi told it would remain unchanged, 56% in Kandhamal said consumption of such foods would increase indicating that there is still requirement of more lentils and pulses for adequate consumption by household members.

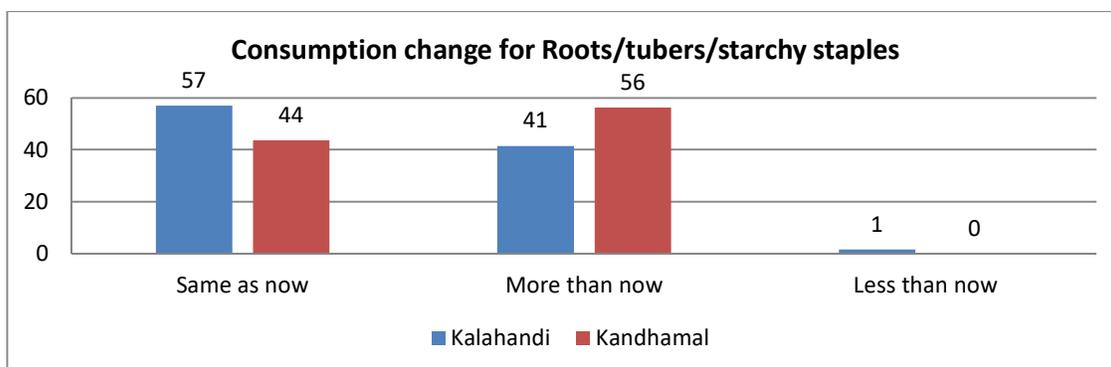




On fall of price of Savoury and sweets, 85% respondents in Kandhamal and 59% respondents in Kalahandi would increase their consumption.

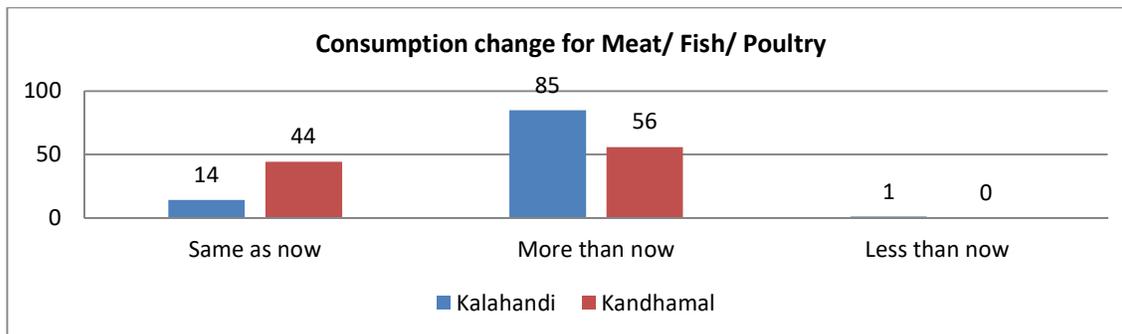


Falling prices of fruits and vegetables would increase consumption by 85% respondents in Kalahandi and 59% respondents in Kandhamal, the exactly same trend as in case of above.

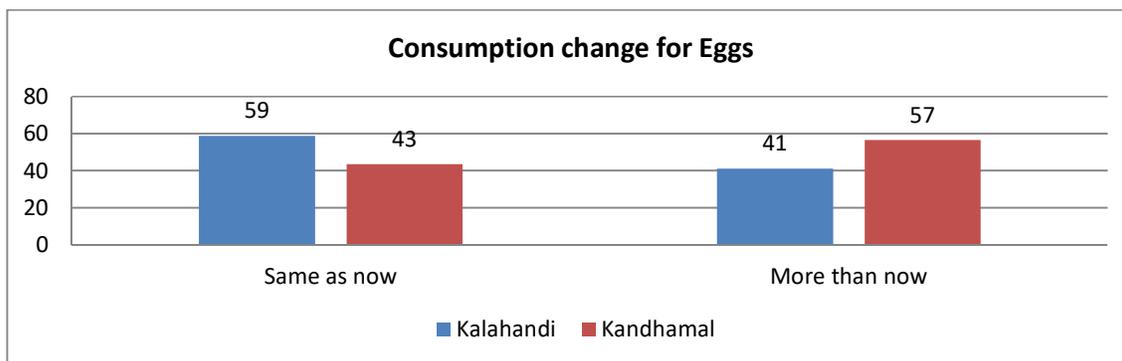


57% respondents in Kalahandi and 44% of respondents In Kandhamal said they would not increase or decrease their consumption of roots/tubers/starchy staples in the event of fall in its price. That indicates that they have adequate quantity available for consumption. While 41% in Kalahandi and 56% in Kandhamal said they would increase consumption in a situation of falling prices.

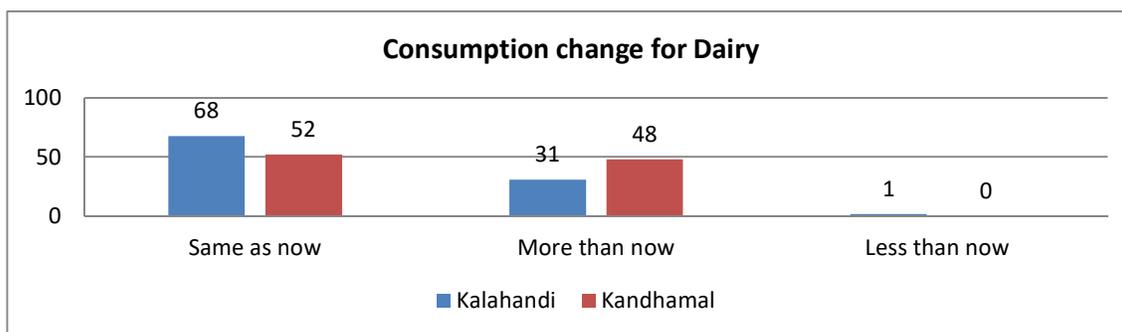




85% respondents in Kalahandi and 56% in Kandhamal would increase consumption of meat/ fish/poultry in the event of its price falling where as a sizeable 44% respondents in Kandhamal said they would continue with what they are consuming now indicating adequacy of the same food at present.

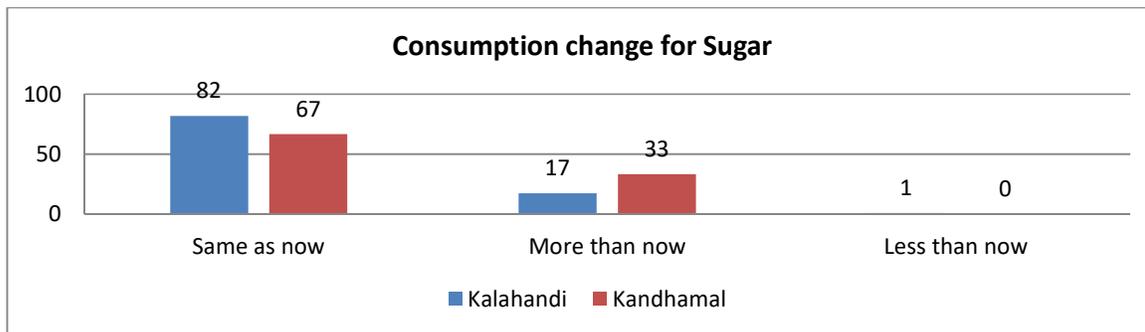


The responses are almost equal with 41% respondents in Kalahandi and 57% of respondents in Kandhamal said they would have more egg consumption in falling prices, where as 59% respondents in Kalahandi and 43% in Kandhamal are satisfied with the quantity available.



Fall in dairy products; consumption would increase for 31% respondents in Kalahandi and 48% of respondents in Kandhamal. But a majority of 68% in Kalahandi and 52% in Kandhamal would not have any change in its consumption.





Consumption of sugar would increase for 17% respondents in Kalahandi and 33% of respondents in Kandhamal in the event of falling prices. But a major percentage of 82% in Kalahandi and 67% in Kandhamal would not change the quantity of current intake of sugar even when the price of sugar has fallen.

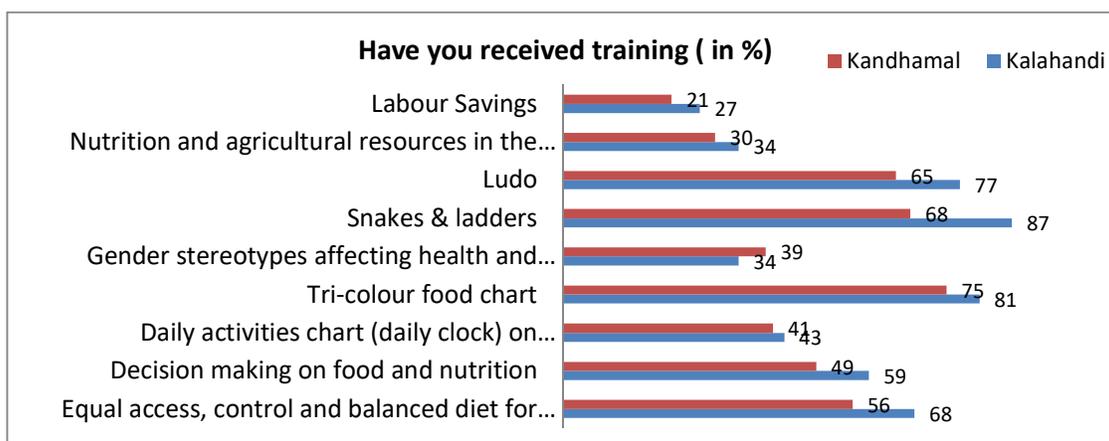


### Chapter 3

#### Knowledge, Attitude & Practice in NGTK Intervention

A total of 150 NGTK intervention respondents were covered under CARE- TARINA programme in both the districts with 79 respondents in Kalahandi and 71 in Kandhamal district. Out of the total beneficiaries, 40.7 % were exposed to intervention in 2016 and 20.7 % beneficiaries in 2017 suggesting exposure was at least for a year for 60% of the total beneficiaries.

#### Trainings Received:



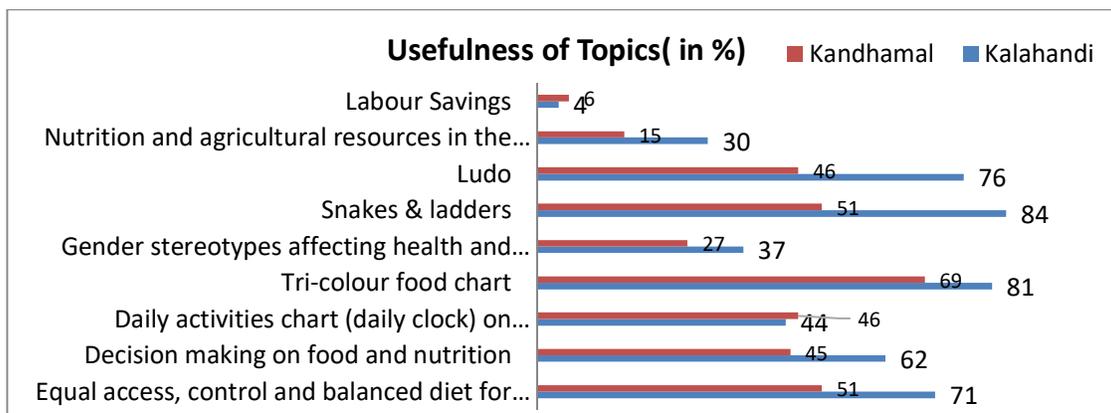
CARE- TARINA training on NGTK reflected in the study entails that most respondents (87%) received training on Snake and Ladder in Kalahandi, followed by 81% on Tricolour Food Chart, over 50% in Equal Access and Control and balanced diet for households and Decision making on Food and Nutrition, less than 50% on Daily Activity Chart, gender stereotypes affecting Health and Nutrition, Nutrition and Agricultural Resources and 26.5% on Labour saving technology. Similar trends have been marked in Kandhamal district.



Access of such similar information from other sources reveals that **there are other important sources from where the respondents received similar information.** In Kandhamal 50% of respondents received such or similar information from sources i.e. ASHA, AWW and NGOs. In a way, this shows that there has been good penetration of government outreach services with respect to women and gender intervention.



**On the usefulness of NGTK tools:**



**On sharing the information and knowledge received from CARE TARINA in NGTK intervention,** a majority (86%) respondents in Kalahandi and in Kandhamal (69% respondents) have had inter-community sharing of information which is a positive trend for the programme.

**On aspect of intra household sharing of information and knowledge,** there are 99% and 89% respondents in Kalahandi and Kandhamal respectively who reported to have shared the information with members of their household.

**On rights over land and properties** are concerned, 37% respondents women in Kalahandi and 13% respondents in Kandhamal own land in their name, indicative of a good trend in women empowerment.

**Agricultural calendar is mainly concentrated around Khariff** as out of the base of 150 respondents, 89.8% and 88.6% respondents from Kalahandi and Kandhamal respectively cultivated in the Khariff season. Agricultural activities in Rabi are also significant, 88.6% in Kalahandi and 64.7% Kandhamal reported to have cultivated in this season.

**The duality of involvement in agriculture** is reflected in terms of a sizeable percentage of respondents of 60.8 % and 85.9% respondents expressed that they are **engaged as agricultural labour** in Khariff. It is also noted that the respondents covered under the programme are specially STs and SCs are endogamous in nature. Therefore, relatively culturally they are a closed community with a great deal of socio economic cooperation and interdependence between the members. It's a fact that there is exchange of labour in all walks of life including economic activities i.e. agriculture farming, house building etc. This is a scope that TARINA programme needs to take advantage of in implementation.

**Participation in non-farm wage labour** is also identified in the study. In activities such as MGNREGA there have been a lot of developmental activities undertaken, although not on a regular or mandated basis. Yet 45.57 % and 66.20% respondents in Kalahandi and Kandhamal have reported to have engaged in such activities.

**On the aspects of financial inclusion** i.e. opening of bank account by women respondents, 87.34% and 95.77% respondents in Kalahandi and Kandhamal respectively have bank account opened in a commercial bank. Though this is the first step in achieving greater financial inclusion, yet it creates

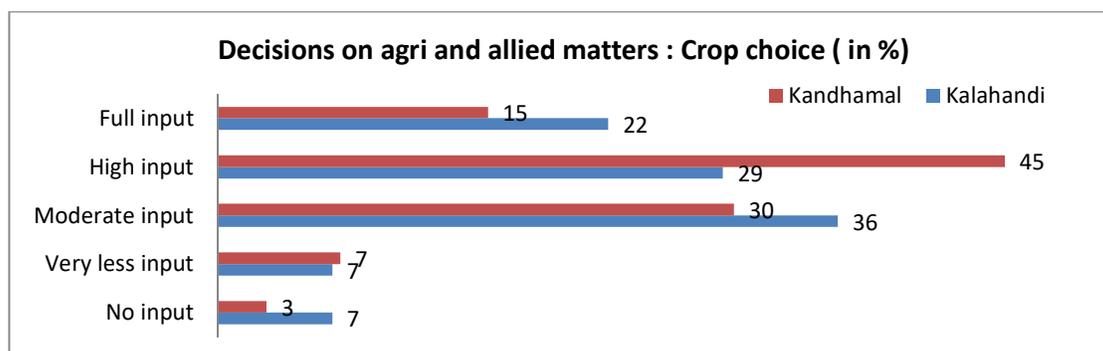


huge potential for TARINA programme to build on further and use this to generate better micro enterprises that suits to the women beneficiaries in the long run.

As an indicator of **people’s participation in local governance**, the study reveals that there have been significant participation rates in Gram Sabha. The percentage is quite high i.e. 94% in Kalahandi and moderate (55.7%) in Kandhamal. The variation in the percentage is more due to nature of development and progress in both the districts and geographical situation- the studied blocks of Kandhamal are consist of hilly plains where the villages are situated and transportation is a problem in comparison to Kalahandi which has villages on plain land and transportation is easier.

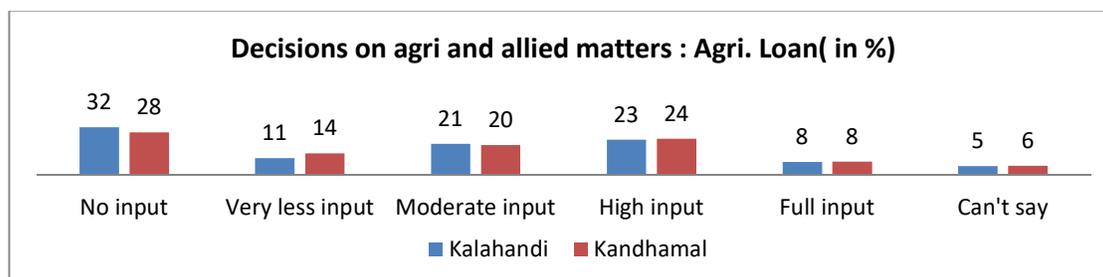
**Focus on decision making** is integral to the programme design of TARINA, where there were number of questions asked to the participants of the programme to understand their knowledge, attitude and practice that directly linked with other activities implemented in the programme. In **making agricultural decisions on crop choice domain**, more than one third (37%) respondents in both the districts said to have significant contribution.

**Decisions of Crop choice:**



On the overall basis, almost equal percentage said to have contributed moderately on the decision of crop for cultivation. A total of one fifth has made absolute decision in this regard which shows a positive trend in the TARINA programme. But there are 11.5% respondents who have not provided any input towards the crop choice for cultivation and need to be targeted by the programme. The graph above provides district wise division of responses.

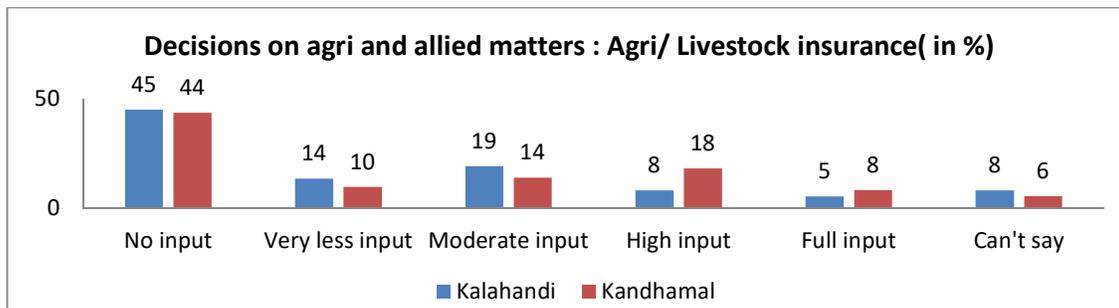
**Decisions on Agriculture and allied matters:**



One out of ten respondents has full input in the **decision of taking agricultural loan**. A little more than 4 out of 10 respondents have moderate inputs, 4 out of 10 respondents do not have any input in the decision on agri loan aspect. The trend in both the districts shows similar trend in this aspect. The graph above provides district wise division of responses.

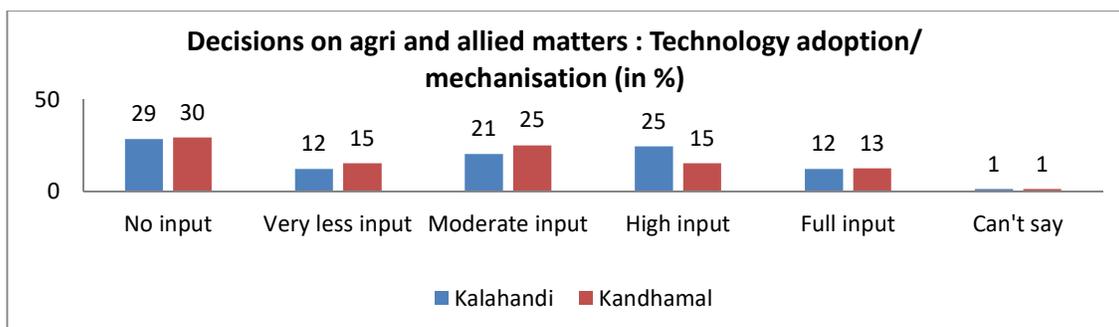


**Decisions on Agriculture and allied matters: Agri / Livestock insurance**



On an average for all the districts, one fifth of the respondents have high to full inputs in the decision making of Agriculture and livestock insurance. The district variation shows that Kandhamal has the advantage with double the percentage of respondents having such inputs. 16.6% of respondents have moderate inputs in the decision making process. It is important to note here that 44% respondents for both the districts have no input in the above decision making process – making this an area for possible intervention under the TARINA programme. The graph above provides district wise division of responses.

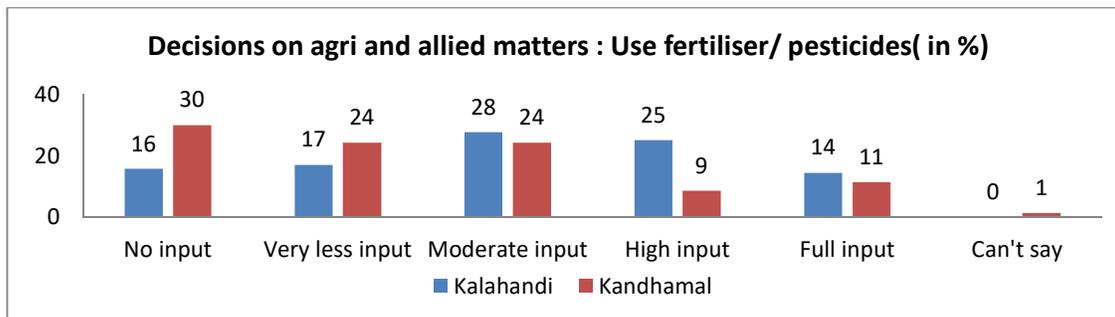
**Decisions on agriculture and allied matters: Technology adoption/ mechanisation:**



On overall level for both the districts, with regards to the decision making on technology adoption and mechanisation in agriculture, one fifth of the respondents said that they have high input, followed by a slightly better but same percentage of respondents have moderate input. Almost 14% (13.8% precisely) said they have less role or input in the decision making of adoption of technology and mechanisation in farming. A high percentage of respondents (29-30%) express they have no influence or input in the above decision making which is again a potential area of intervention in the 2<sup>nd</sup> part of the TARINA programme. The district variation in this aspect is not significantly visible as given in the graph above.

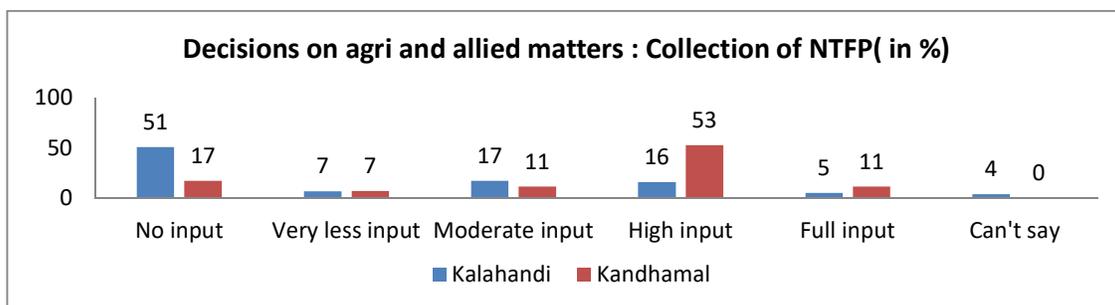


**Decisions on Agriculture and allied matters: Use fertiliser / pesticides:**



In both the districts perspective, 3 out of 10 respondents said that they have full or high input in the **decision-making process to select fertilisers and pesticides to be used in agriculture farming**. Except a negligible percentage of variation in the full input respondents in both the districts, there is a significant difference in responses in having high inputs between the districts, where Kalahandi has almost 3 times higher percentage of response than Kandhamal. Besides, one fourth of the total respondents have moderate inputs or role in the above decision making process. But, there is high percentage of 41 combined of very less input on overall for both the districts, which is the key areas of concern for the 2<sup>nd</sup> part of the TARINA programme. The graph above provides district wise division of responses.

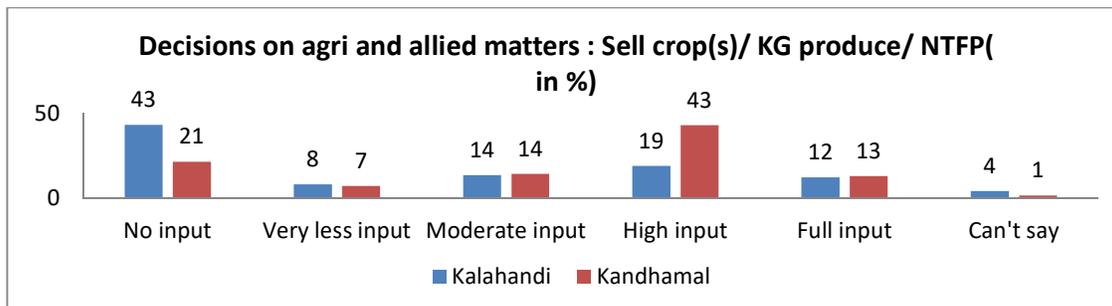
**Decisions on agriculture and allied matters: Collection of NTFP (in %)**



In Kandhamal women respondents have clear decision making role and contributed to the **decision making process of NTFP collection** with a majority percentage of 53% followed by Kalahandi with 16%. In Kalahandi, majority (51%) respondents say they have no input in the above decision making process. Important to mention here that as the study team witnessed in the sample blocks that there is more NTFP available in Kandhamal district than its counterpart and it is quite understood that NTFP collection in Kandhamal by households is an integral part of livelihoods generation. The graph above provides district wise division of responses.

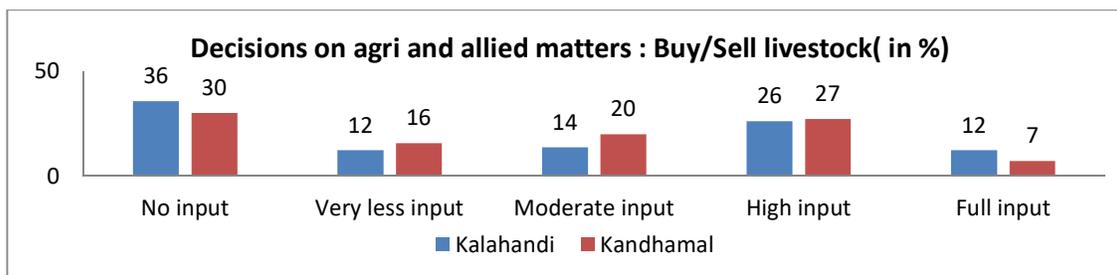


**Decisions on agriculture and allied matters: Sell crop(s)/ KG produce/ NTFP:**



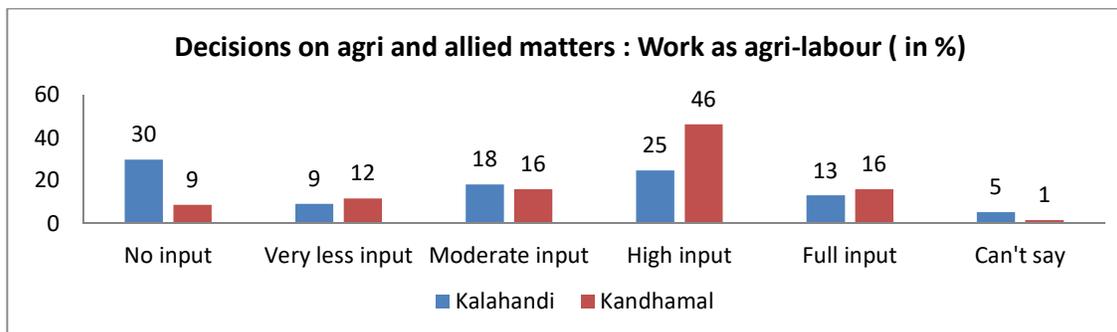
With regard respondents having no input on selling of crop and produce decision show that Kalahandi is double the percentage of Kandhamal. If we add to that the percentage of very less input (7-8%) it is high and need to be intervened in the programme. On average, 14% of the respondents have moderate inputs in the process. Both the districts show similar trends on the aspects of above decision making process. Putting together the full and high inputs, 43% respondents in both the districts have contributed significantly in the decision making process with Kandhamal on the advantage with combined higher percentage of 56%.

**Decisions on agriculture and allied matters i.e. Buy/Sell livestock:**



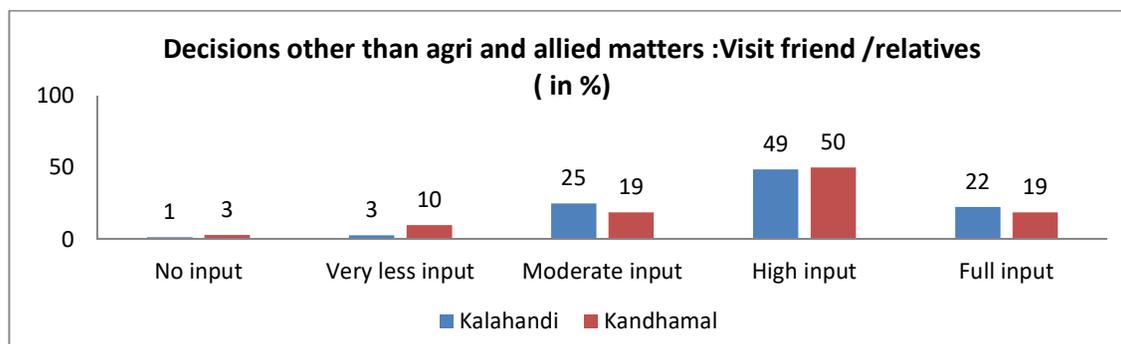
On decision making in Agriculture and allied matters, buy & sell livestock, responses in no inputs is high with 32.8% in average for both the districts. Taking together responses a total of 36% respondents said to have their full and high inputs with both the districts showing parity in trend. 30% of the respondents said they had very less or moderate inputs in the decision. The district variations reflected in the graph above reflected the same with Kandhamal district shows a better trend than its counterpart.

**Decision making on Agriculture and allied matters- Work as agri labourers:**



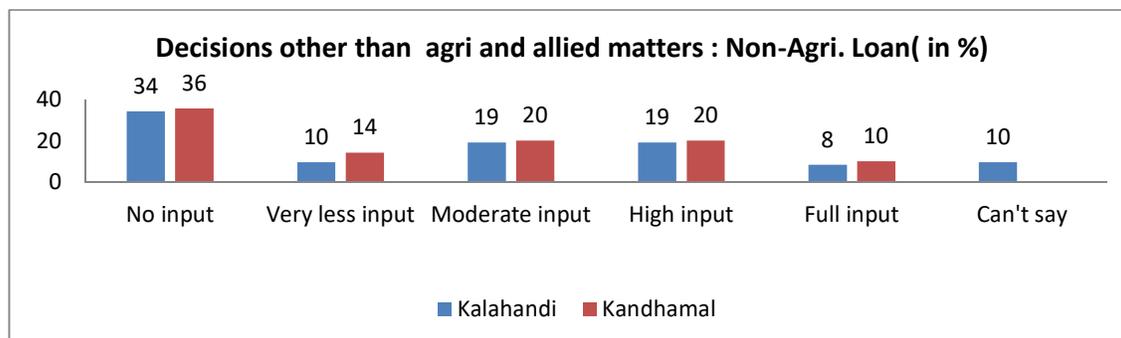
On an average, almost half of the respondents said they have full or high inputs in the **decision making process to work as agricultural labourer**. Kandhamal district shows a better result as nearly 62% respondents said they had full or high inputs in the decision. Kalahandi has significant percentage (30%) of respondents who said they have not contributed anything in the above decision making process.

**Decision making on other than agri and allied matters-Visit friend /relatives:**



On taking **decisions of visiting friends and relatives by women respondents**, almost half of the respondents have contributed with high inputs followed by 20.5% in aggregate have given their full inputs which is significant in the domain of the household.

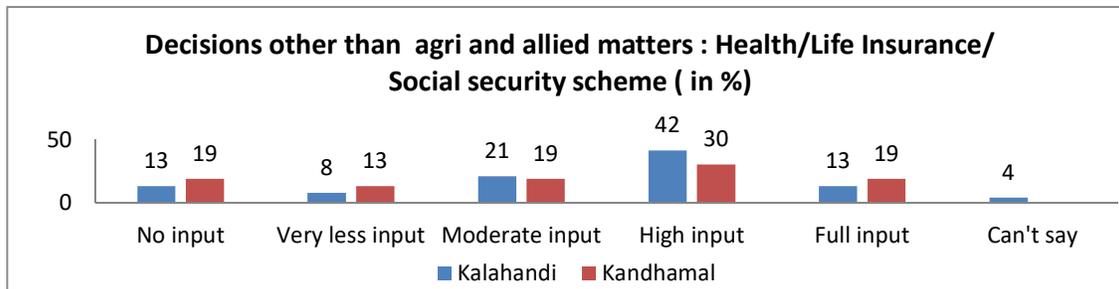
**Decisions other than agri and allied matters -Non-Agri. Loan:**



In **decision making on availing non-agricultural loan**, 34.9% respondents said they did not have any input in the decision, 11.8% said they had very less inputs in the process in aggregate. Putting together high and full input responses, 28.6% respondents in both the district acquired the capability of having their say in the decision making. There is least variation in percentage in all degrees of decision making as shown in the above graph.

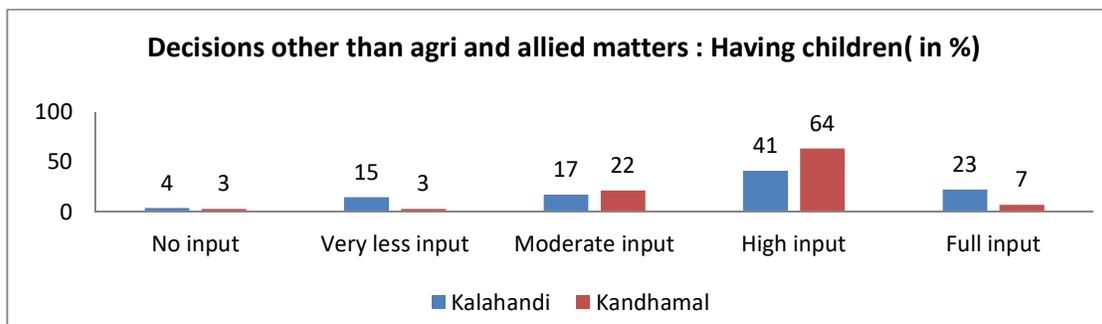


**Decisions other than agriculture and allied matters-Health/Life Insurance/ Social security scheme:**



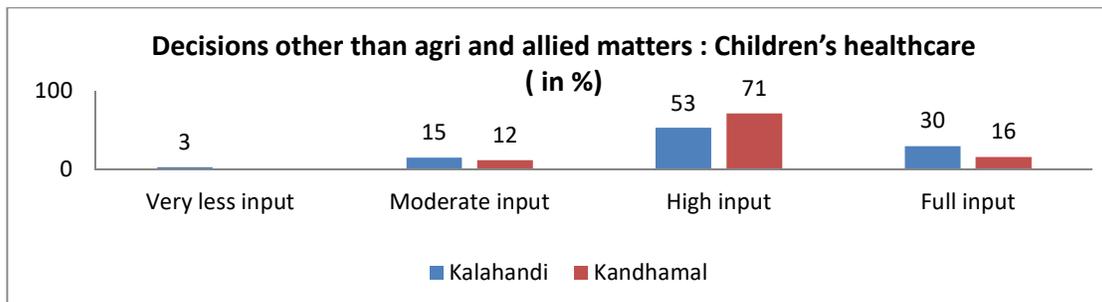
On an average for both the districts, 15.75% respondents have had full say, 36.3 % had highly contributed with input in both the districts. Kalahandi district is on an advantage having 42% respondents having high inputs in the decision making. Altogether, a little more than one fourth of the total participants had very less or no inputs in the above decision making process as shown in above graph.

**Decisions other than agriculture and allied matters -Having children**



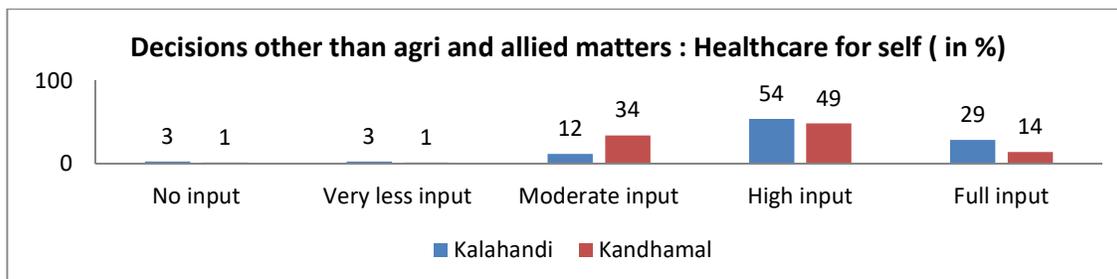
In Kandhamal, almost 71% of women have either full or high **input on whether to have or when to have children closely followed by 64% in Kalahandi** with both the districts responses averaging at 67%. 20% of the respondents had moderate influence or input in the decision making. Around 12% of respondents had very less and no input in the above decision making for both the districts as shown in graph above.

**Decisions other than agriculture and allied matters- Children’s healthcare:**



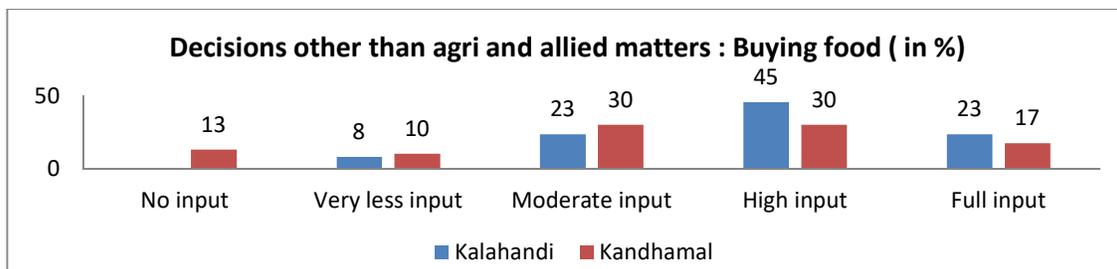
In the **decision about children’s health care** putting together high and full inputs there is high percentage of respondents (84%) for both the districts followed by around 13 % having contributed moderately. This is a positive trend for both the districts.

**Decisions other than agri and allied matters: Healthcare for self:**



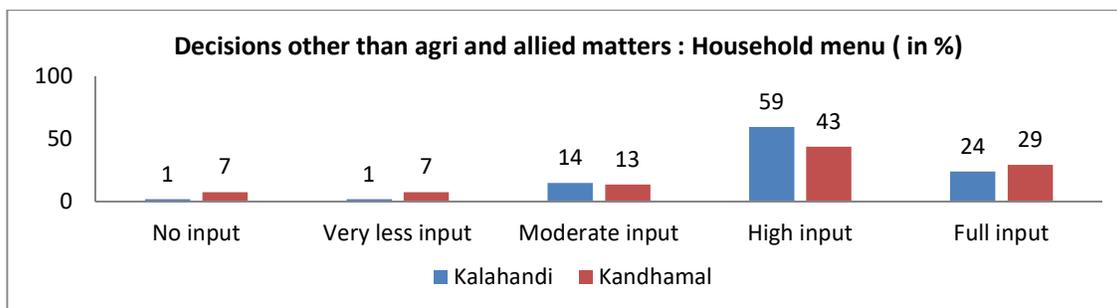
In **healthcare for self**, 73% of respondents have high or full input in Kalahandi followed by 22.6% with moderate input in the overall basis which is a good trend and needs to be improved more in the rest part of the TARINA intervention.

**Decisions other than agriculture and allied matters -Buying food:**



A little fraction of more than 58% of respondents for both the districts said to have full or high input on **decision of buying foods**. Kalahandi district shows better trend in both the aspects i.e. more than one fourth (26.5%) respondents had moderate inputs for both the districts with Kandhamal district showing a 7% more trend. Overall, 15% respondents in all districts did not have any or very less input in the above decision making.

**Decisions other than agriculture and allied matters -Household menu:**

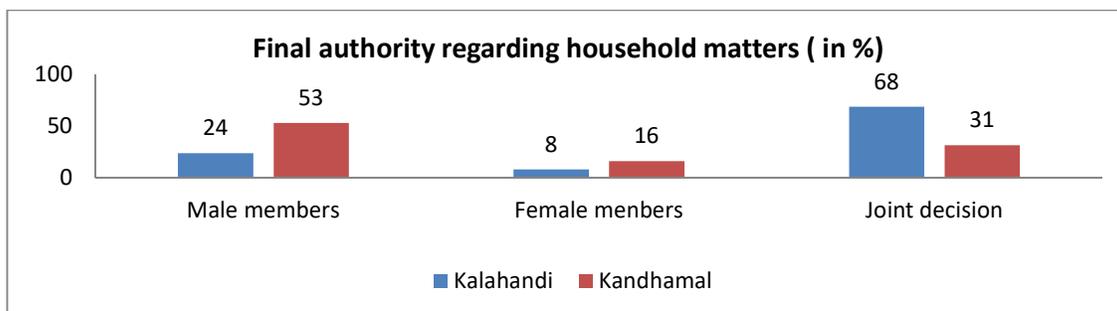


In **decision of selecting menu for the household**, on an average 77.9% respondents had high or full input for both the districts followed by 13.7% moderately contributing in the decision making process. 9% of the respondents either had no or very less input in the decision.

**Decision on working as non-farm labourer:**

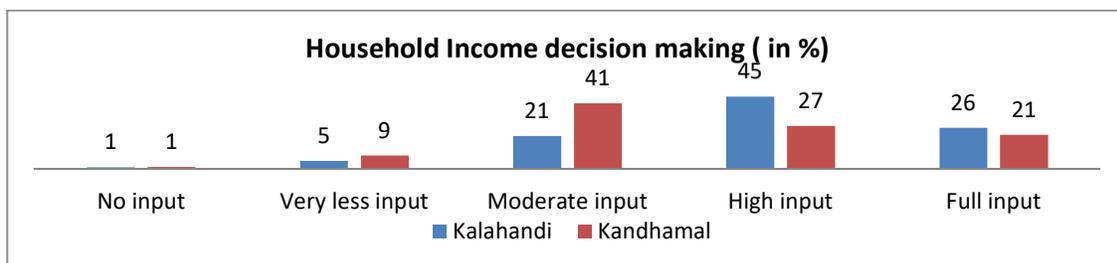
More than one fourth (27%) respondents provided high inputs, 15% respondents provided full inputs and 36.8% respondents either had less or no input in the above decision making process.

**Final authority regarding household matters:**



Having the **final authority to take decisions**, half of the respondents (50.6%) in Kalahandi agreed that decisions have been taken jointly. Kalahandi district on an advantage with higher percentage of 68% as against 31% respondents in Kandhamal. Besides, majority respondents (53%) in Kandhamal expressed to have the final authority rested with male members of the household. This needs attention since the TARINA programme works to reverse the trend or at least to maintain equity in the process. Kandhamal having double the percentage of Kalahandi in males taking decisions, 16% respondents said that the final authority of decision lay with female members which are a very good trend to pick up in TARINA programme.

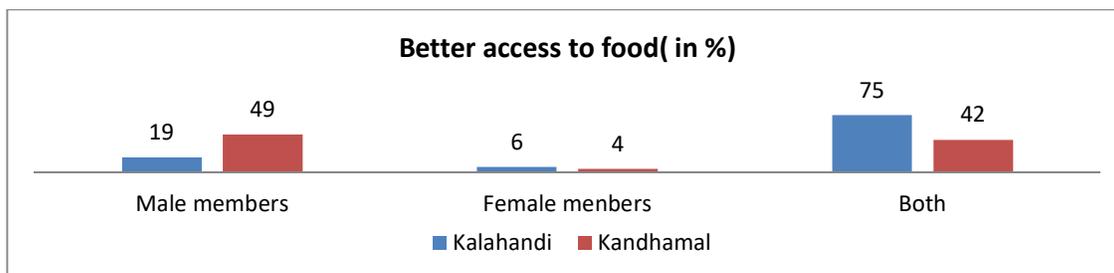
**Household Income decision making:**



One of the important indicators of decision making is **who decides the use of the household income** which is primarily dominated by males traditionally. The study result shows, there are 23.8% women respondents who had full input, 36.7% women respondents who had very high input followed by 30.6% respondents' women with moderate input for both the districts. This is a good trend that TARINA programme intended to work on would likely carry on improving. There is variation between the districts with regards to responses but on overall basis this is a good trend.

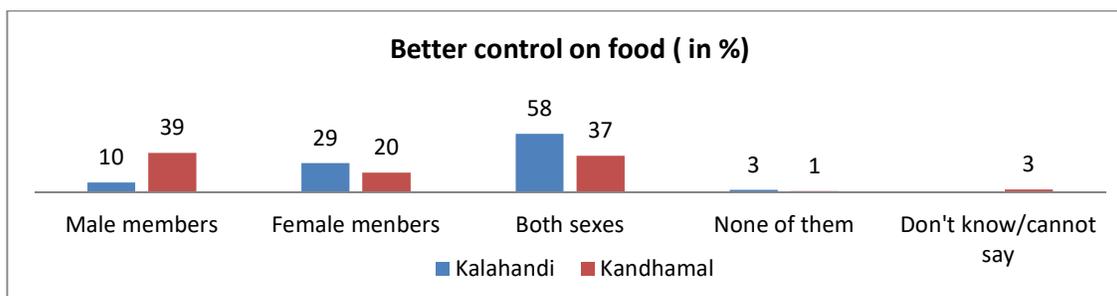


**Access to consumption of eggs, meat, fish, milk and other dairy products:**



With regards to the **access to consumption of eggs, meat, fish, milk and other dairy products**, Kalahandi district figures show a better trend. 75% respondents stated that the decision is arrived jointly by both the sexes. In Kandhamal high percentage of male (49%) have better decisions in comparison to their counterpart which need to be looked at from TARINA programme perspective.

**Better control on food:**



48% of respondents stated that **decision on control on food** is mutually decided by both male and female members for both the districts with Kandhamal reported nearly 22% less than Kalahandi district. 24.6% females exercised their control followed by 24% male had their control on such foods for both the districts. Among the districts, there is variation mainly in better control by men which is 10% in Kalahandi and 39% in Kandhamal.

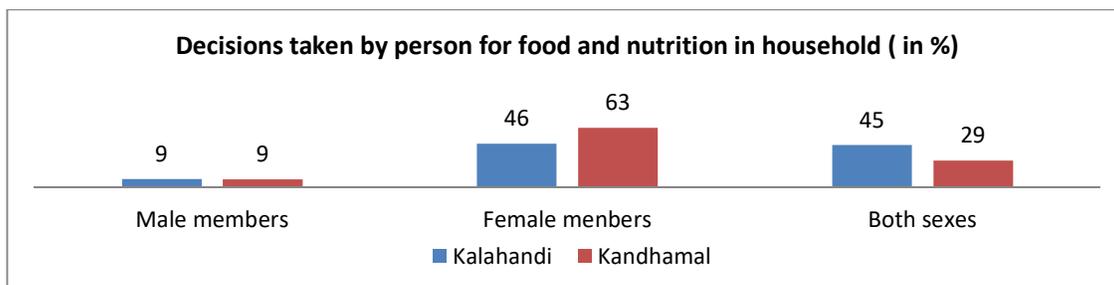
**Activities promoting health and nutrition:**

An equal number of participants in the range of 40% stated that pulses and lentils, fruits and vegetables and the entire above category improve nutrition. This divided views show that the knowledge of the beneficiaries is there but due to their focus on specific foods they come up with answers that are partially right to the context of the TARINA programme. This needs attention whereby the messages and inputs provided reemphasize the need for each of the three categories of foods improving nutrition and ensuring balanced food.

Similar trend is marked in the responses where there is more focus given on distribution of fruits and vegetables (43%) followed by introducing balanced diet( 39.8%) and awareness on equitable distribution of food (22%). The respondents in Kandhamal seem to be better informed on all the three aspects of ensuring better health and nutrition of household members. There are 6.7% respondents with 11.5% in Kandhamal have clarity on what promotes household health and nutrition.



**Decisions taken by person for food and nutrition in household:**

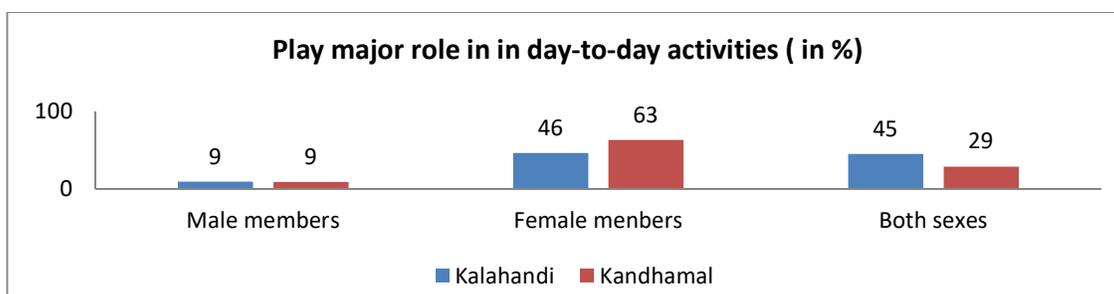


56% of the respondents stated that **decision around food and nutrition** is taken by both male and female followed by 29% stated that the decision is taken by them. While greater percentage of (74.6%) of decisions taken mutually by respondents in Kalahandi, 43.6% respondents in Kandhamal said they took the decision. 2% of the total participants could not respond and remain confused about the query.

**Discussions of Food and Nutrition:**

A majority of (92%) respondents of both districts said they had discussion about food and nutrition in their household, 66.9% said they participated in the exercise with three fourth of respondents in Kalahandi stated their participation in the discussion.

**Playing Major role in Day to Day activities:**

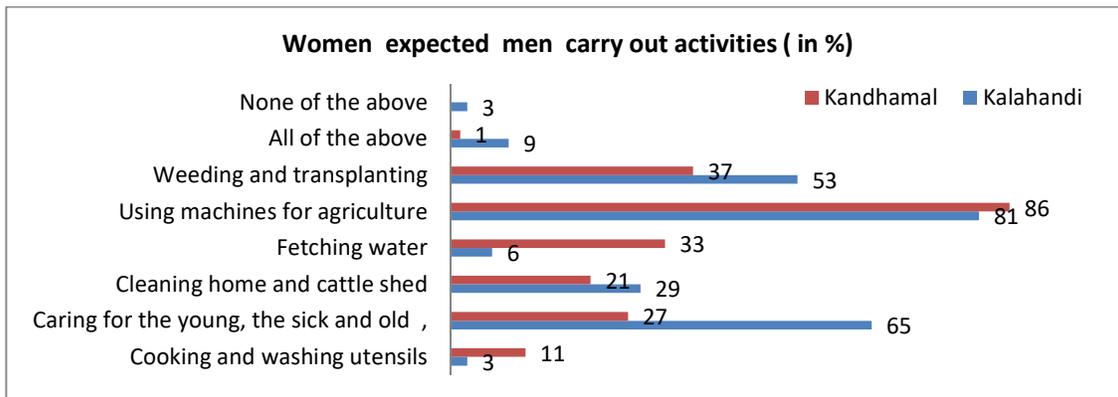


49% respondent women combined for both the districts **played a major role in day to day household activities (cooking, serving food and baby care)** with 37% respondents in Kandhamal and 58% in Kalahandi stated having mutual cooperation between the sexes undertaking the above role. This is a good trend where the role reversals are seen in spaces where females had exclusive roles i.e. 8.7% males looking after the above responsibilities on the overall basis.

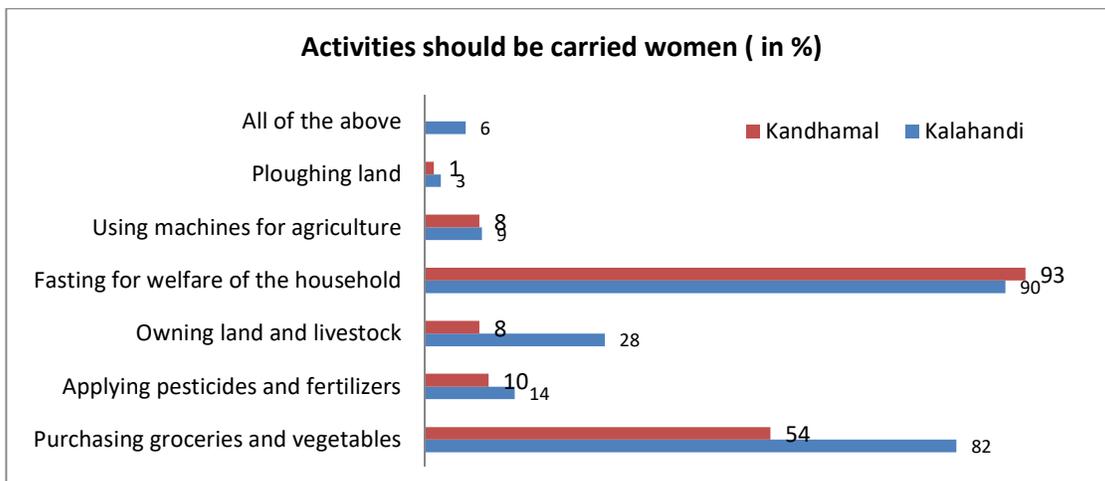
Growing diverse foods (68%) and buying diverse foods (53%) are the major steps taken by respondents to ensure balanced diet in the household. Kandhamal shows high percentage in comparison to Kalahandi district on the above two aspects. An equal percentage of 30.6% for both the districts believe rearing livestock as the key to ensure balanced diet in the household where as 39% stated that awareness creation as the key to ensure balanced diet. Moreover, on an overall basis 22.7% respondents stated all the above three as key to ensure balanced diet in the household which is a good achievement of TARINA programme.



With regards to **cracking the myths on gender stereotypes**, an aggregate of 46.9% (even higher % of 64.5% for Kalahandi) of women respondents felt men’s role should be to provide care for the young and the sick followed by 25. 5% stated men’s role should be cleaning home and cattle shed and 18.7% respondents (higher percentage of 32. 8 in Kandhamal) stated men’s role to be fetching water for household. This shows the change in attitude of women in the programme and seemingly will improve in the 2<sup>nd</sup> part of TARINA intervention.



There are also indications on **positive attitudinal change of women** in aspects of who should be purchasing groceries for household where 68.67 % respondents opined in favour of women doing these roles. 18.6% respondents said women should own land with Kalahandi showing better trend with 27.8% and 8.6% said women using machines for both the districts. A whopping 91.3% respondents for both districts stated that women should undertake fasting for the welfare of the members of the household is an indicator which needs a reversal through TARINA focusing specially on this point in the coming days of programme implementation.

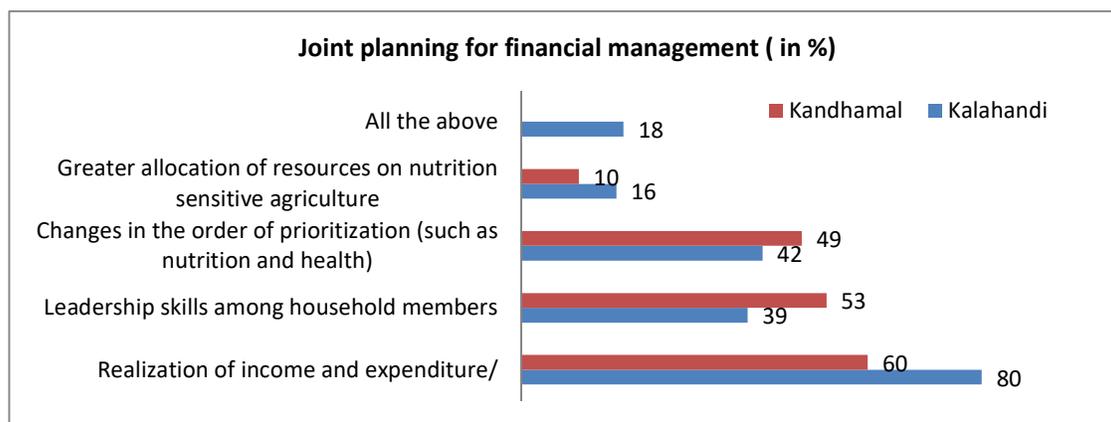


Putting together responses on following traditional practices, thoughts by women respondents reveal that a majority of respondents, 91% in Kalahandi and 74.8% in Kandhamal believed that growing mix of tubers, greens, fruits and vegetables in Kitchen garden/Home garden would ensure greater access to nutritional security of the household. This response reinforces the agenda TARINA is intending to ensure to achieve its objectives. Almost one third of the respondents believed



women and men jointly practicing quality seed production is the key where as an equal percentage of a little less than one fourth believed sale /exchange of surplus food items and all the above three reasons contribute to greater access to nutritional security.

Nearly 100% respondents stated that joint financial management by men and women should be carried out in the household.



Majority (52%) of respondents ‘from both the districts with higher percentage of 70.4% respondents in Kandhamal relied on ASHA, ANM for **pregnancy related information** followed by 14% from AWW on what food to eat and what not to eat. Relying on mother/mother in law has been the second best option relied upon by one fifth of the respondents in Kalahandi. It is a fact that both the districts as such and the intervened blocks are mostly rural and Kandhamal is having more hilly terrain. Accessing institutional medical facilities is an issue for all the respondents and hence the response of 12% who relied upon the advice of the doctor reflects that at least few percentage of people have access to trained health specialists.

On the knowledge part of **what and how the pregnant women should be given food choices**, an aggregate of 65% of the respondents for both the districts stated that she should eat normally, 13.6% said she should be given less than normal food. The percentage of respondents believing in less food intake for pregnant women is double in case of Kalahandi district. This is a concern where the traditional practices seemingly override scientific facts and still continues. This was also identified in the FGDs conducted in Kalahandi where women stated that the pregnant women having a bump is already in an uneasy state and with normal or more diet she would increase her uneasiness, would face difficulties in doing normal routine chores and hence it’s better advised she takes little less food than she usually takes so that she feels better. This needs ratification with medical facts whether such action is proven medically and does not create health issues for the pregnant women and her offspring. And based on facts the programme may develop a short module of awareness or BCC tool on such aspects for better awareness and knowledge by respondents.

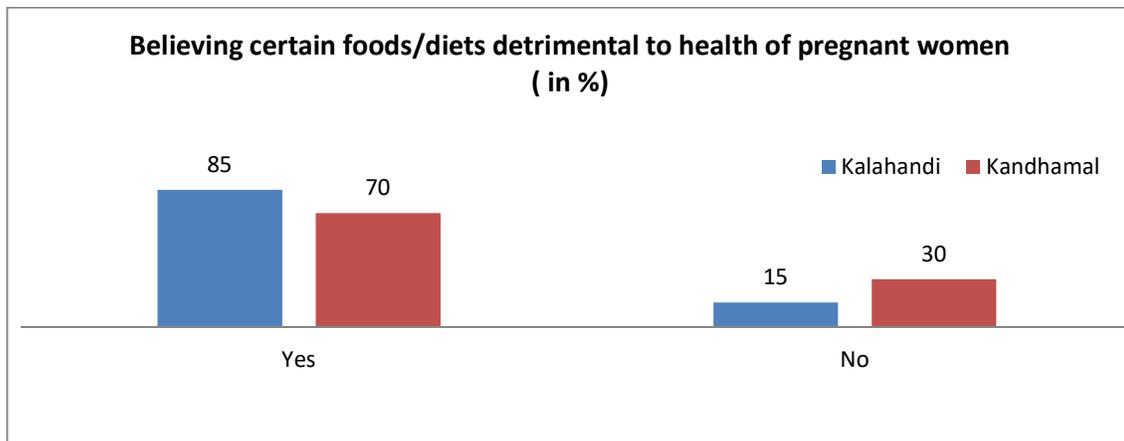
While **identifying the eating habits** , half of the respondents stated that pregnant women are given more milk , almost one third said that she was given same quantity that she used to without carrying, and around 10% said she was given less than she used to have without carrying. An equal percentage of respondents stated that she is not given and equal percentage that they were not sure about it. With regard to eating eggs, around one third respondents stated that she be given more eggs or same that she used to have without carrying, 16.6% respondents said she should have



taken less than she used to be without pregnant. On an overall basis 15% respondents stated that she did not eat or can't say on this. The same reflections are made by the respondents with regards to whether pregnant women taking meat, fish, poultry during pregnancy.

A majority of (70%) respondents for both the districts (with Kalahandi 90.9% respondents) said pregnant women eaten pulses and lentils more than usual, 21.6% (39.4% in Kandhamal) reported pregnant women eating same quantity, while there is none taking less pulses in Kalahandi. Similar trend is marked in respect of eating fresh vegetables and fruits for both the districts.

78% of women respondents for both the districts believed that **women should not eat particular foods during pregnancy** which is a concern that directly confronts with the age old traditions and myths related to pregnancy care. This was also identified during the FGDs conducted with women, where they cited foods like papaya, sakarkanda, eggs, arbi, typical tubers and roots that promote contraction, still birth and spontaneous abortion as believed by them.



## Chapter-4

### Knowledge, Attitude and Practice in Kitchen Garden/Home Garden Intervention:

Out of the response base of 320, a majority of respondents (67%) have kitchen garden area of 5-10 cents followed by 15% respondents having 10 cent to 20 cents, 5.9% respondents having 2-3 cents and an equal percentage (2-3 %) participants have 3-4 cents and 4-5 cents.

Out of base response of 328(223 for Kalahandi and 105 for Kandhamal), 91% stated that both **male**



**and female jointly contribute to KG/HG** with 8% stated it's only female members who contributed to KG/HG activities.

The **efforts put in by males in both districts in KG/HG activities** are equal to that of women

as per majority of the respondents. However, the efforts of women towards Kitchen Garden are marginally higher than men in Kandhamal while they are equal in Kalahandi.

Around 20% of the respondents in both the districts stated to have not known **Institutions/Schemes**. Their input services for KG/HG are available near their villages.

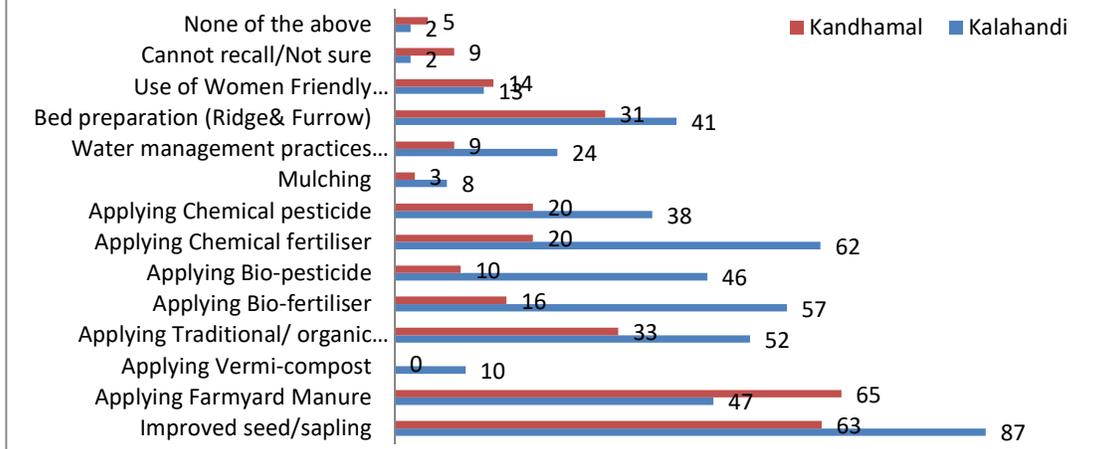
The response to **receiving inputs** (Seed, plat, fertilizer, pesticides, implements from above sources is similar, i.e. 22%)

Out of the response base of 329 combined for both the districts, 92.4% stated that they get **seeds/planting material** from TARINA followed by 22% with Kandhamal having high percentage of 44.7% also gets services from open markets. In Kandhamal, 48.5 % states receiving old care project 23.8% KVK as source of similar support.

On **learning of improved kitchen garden practices**, 78.9% respondents (with 86.5% in Kalahandi and 62.5% in Kandhamal) learned improved seed and sapling, 7% learnt applying vermi-compost, respondent in the percentage of thirties learnt application of traditional /organic pesticides, bio-fertilizer, chemical fertilizer 40% respondents learnt application of bio-pesticides, chemical pesticides, bed preparation. Use of women friendly implements is learned by 13% respondents for both the district.

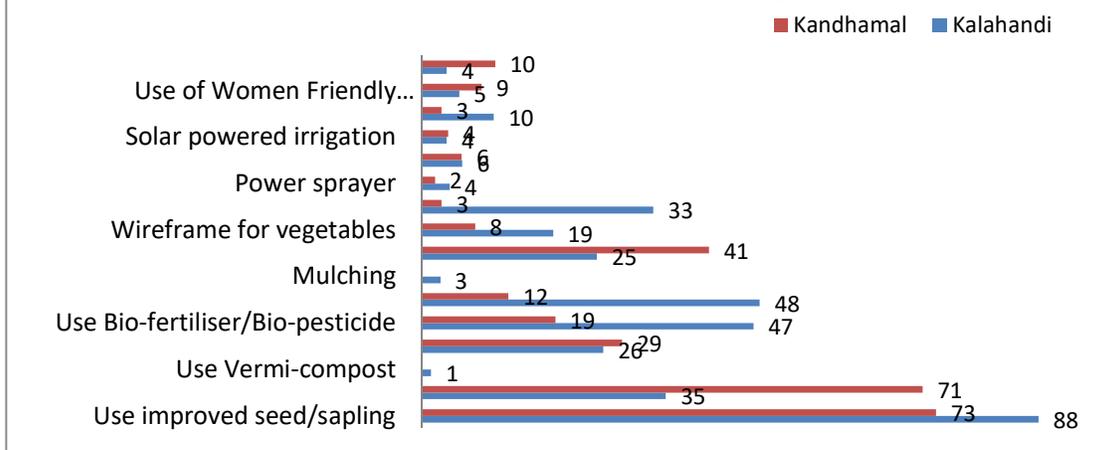


### Improved production practices learnt ( in % )



As far as **learning sources for improved kitchen garden practices** is concerned, the major source is mentioned as TARINA by an aggregate of 86.8% respondents with a district variation of 14.1% less respondents saying TARINA in Kandhamal district. A significant 57% respondents in Kandhamal assigned source of information to previous CARE project followed by KVK with 12.3% respondents. Learning from family and community is also mentioned as an important source of information by one tenth respondents in aggregate for both the districts.

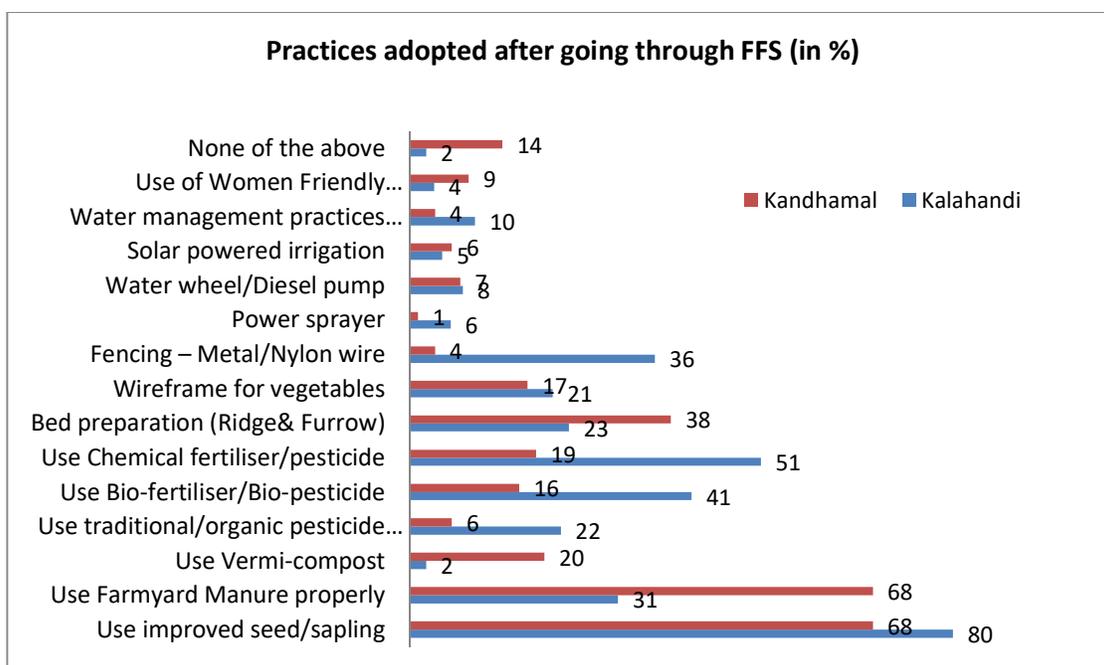
### Production practices adopted after training ( in % )



**Exposure time of respondent to KG/HG interventions** shows that 28.5% have had exposure more than one year ago, 26.6% between 4-6 months, and 33.7% between 4-12 months and almost 8% within 3 months. That shows that majority of the respondents have had exposure with 4-12 months' time and have participated in the study. However, since it is the midline survey the minimum exposure for majority participants should have been at least one year to have clear picture of impact of TARINA Interventions.

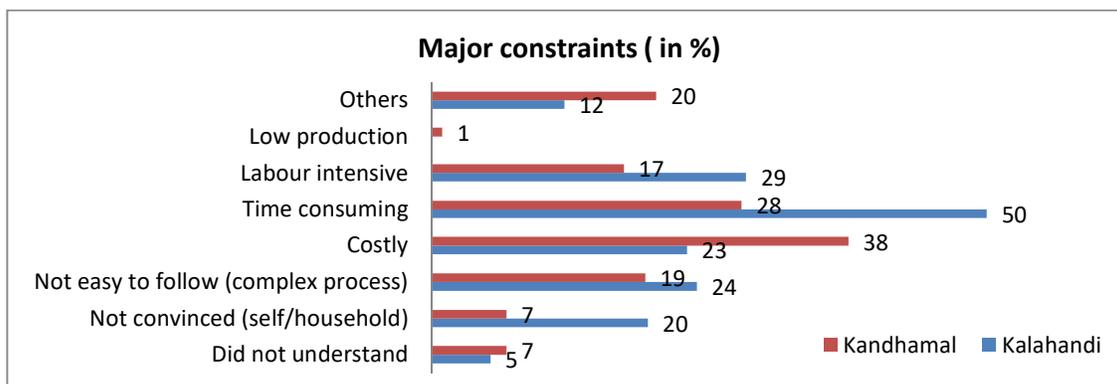


**On adoption of learning mostly received from TARINA** as reported by majority participants in the above points. Overall 83% respondents adopted improved seed and sapling, following by farm yard manure. 46.5%(not exactly in modern terms but traditionally made in farm land with cow dung and leaves and other waste bio-degradable products), 38% respondents using bio-fertilizer/bio-pesticides (Kalahandi is higher than average, i.e. 47.3%), 36.7% respondents using chemical fertilizers/pesticides (Kalahandi above average with 48.2%), 30.0% respondents doing bed preparation (Kandhamal above average with 40.9%), 23.4% respondent fencing traditionally(with mostly Kalahandi contributions 33.4%), 15.2% with wireframe vegetables cultivations (Kalahandi majority cultivation with 18.7%) and water management practices adopted by 7.9%(with 10.2% in Kalahandi). Apart from that there is less than 5% adoption of power sprayer, water wheel, diesel pump, solar power irrigation. Important to note that there are 5.7% respondents for both the districts who have not adopted any of the practices due to them being single households, having very little land, and sick and old to continue with the practices.



The major constraint as reported in the study reveal that 43% respondents (with 50.4% in Kalahandi) believe its time consuming to adopt all practices, followed by 27.83% respondents (Kandhamal with 37.86%) considers that adoption of the practices is costlier, 25% thinks it is labour intensive and 22.63 stated all the practices are not easy to follow. These are important because TARINA intervention promotes all these practices considered as practical, fits to the need of marginal farmers and above all it reduces costs and drudgery in agriculture. Significantly, no one said that it results in low production and inversely indicates to better production and better productivity. 15.6% respondents state they need more understanding and knowledge to precisely understand utility of adoption of better package of practices.



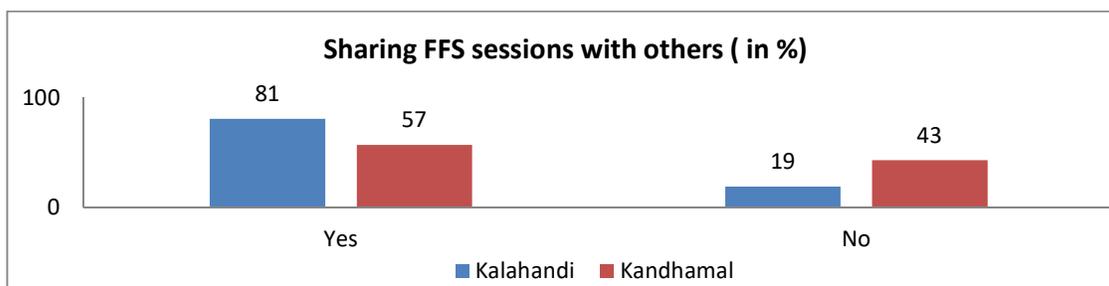


**Demonstration on KG/HG:**

Out of a total base of 248 who attended demonstration on KG/HG, 77% of respondents said they attended in 2017 with a majority (87.9%) saying that they attended demonstrations organised by TARINA on KG/HG. On adoption of technology learnt from demo, similar percentage of participants adopted technology for KG/HG.

Near about 60% of the respondents in aggregate for both the districts stated that they have been **consulted to identify women friendly technologies for KG/HG in FFS**. And 10% more respondents than the previous stated that, they have been consulted on choosing demonstration sites for the farmers by TARINA programme personnel.

73% of respondents stated that they had **shared the learning experience with other household members in their village**.



17% of the respondents stated that they **undertook aggregated input purchase for KG/HG**. It's obvious that TARINA had not focussed much on the aspect as per its mandate and the respondents voluntarily undertook the same. Similar trend is also witnessed in respect of aggregation of produce with 8.8% respondents initiating such collective sale of produce with their personal choice.

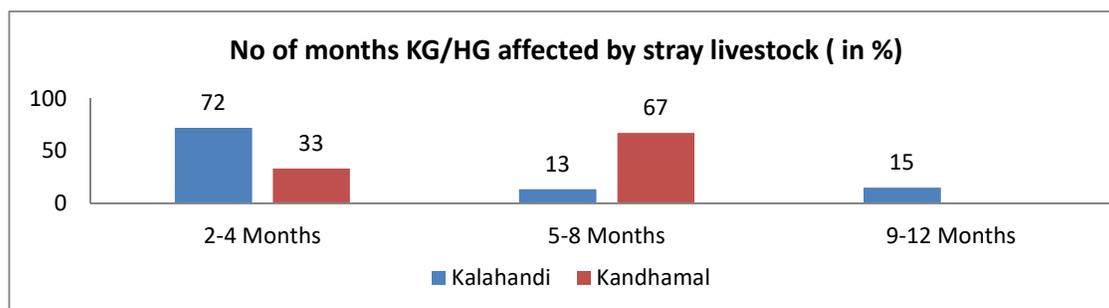
Nearly two third of the respondents **utilise farm /household waste for KG/HG**. That typically means the rest of the participants should be mobilised and sensitised on this by the programme. It is also pertinent to state here that since the household waste is normally from the kitchen waste and water that flows from the room through an outlet and collected in one place is used for growing plants that add to the household vegetable basket, yet women in FGDs reflected upon the scarcity of water and its minimal use impacting on very less waste generated in kitchen. That could be the reason for which majority of the respondents could not use household waste for kitchen garden.



Half of the participants in aggregate stated that the FFS sessions shared parameters to measure the effectiveness of farming techniques; almost 80% of respondents for both the districts have learned the positive and negative aspects of various techniques used in KG/HG.

99% respondents in aggregate for both the districts (with as high as 93% in Kandhamal district) **have fencing around KG/HG** (including contours using stones as a traditional practice) to protect the crop from damage by stray animals and birds. But, there are also one third respondents who have no fencing around their KG and HG area.

**Learning from FGD suggests that traditional fencing is not always able to provide guard to crops in KG/HG against wild and stray animals and birds** as these are loosely put with dried plants and not strong enough and animals always push through the same and enter the KG/HG and destroy crops. Therefore, 63.8% of the respondents felt that traditional fencing is not effective to safeguard crops in KG/HG. On the other hand, one third of the respondents believed that the fencing they have is effective enough to safeguard crops from stray animals and birds. A negligible percentage of 2 % felt that it was not effective for them.

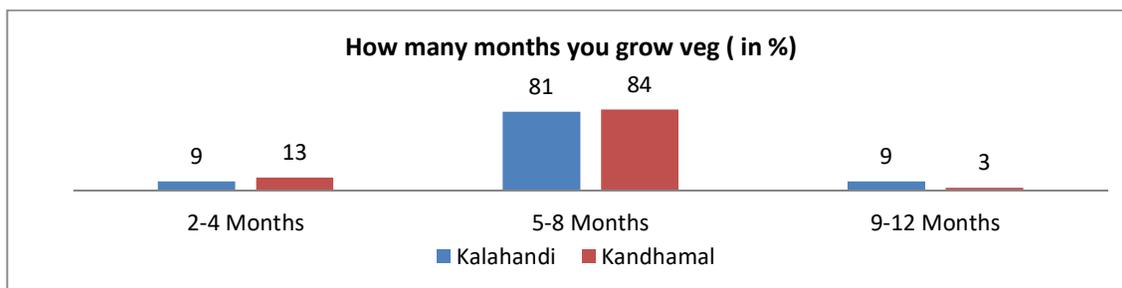


**The KG/HG crop damage due to stray livestock**, animals are mostly felt for a period of 5 months in average by all the respondents. With 24.5% respondents stated damage are made for a period of 3 months, 21.9% stated the damage is done for 4 months and 22.8% stated it is felt for a period of 6 months. Only a low percentage of 8.7% stated the damage due to lack of fencing around KG/HG is felt all across 12 months in a year. This is a major challenge for the programme since it look s like a major threat to continue HG/KG activities and it’s critical for TARINA to engage with agencies who specialises in ‘wire on’ intervention.

**The seasonality of crop damage** due to stray animals and birds are mainly in Rabi and Khariff with 50% and 21.4% respondents respectively citing it as a problem.

Out of a total base response of 329 (22 in Kalahandi and 105 in Kandhamal) , majority ( 70.5%) stated **that KG/HG activities are spread out** by 6 months, followed by 3% respondents for 3 months, 5.7% respondents for 8 months and 4.5% for a period a 12 months. It is important that both the studied districts are mainly rain fed with very less irrigation facilities and mostly crops are grown during the rainy season and winter season. In summer, there are also issues in access to adequate water for household use. Furthermore, poor rain fall also brings down water level in wells and hand pumps owned by individuals whereby the KG/HG activities are discontinued. Therefore, the KG/HG activities are also influenced by above factors and where the water availability is consistent respondents go for year round KG/HG activities.

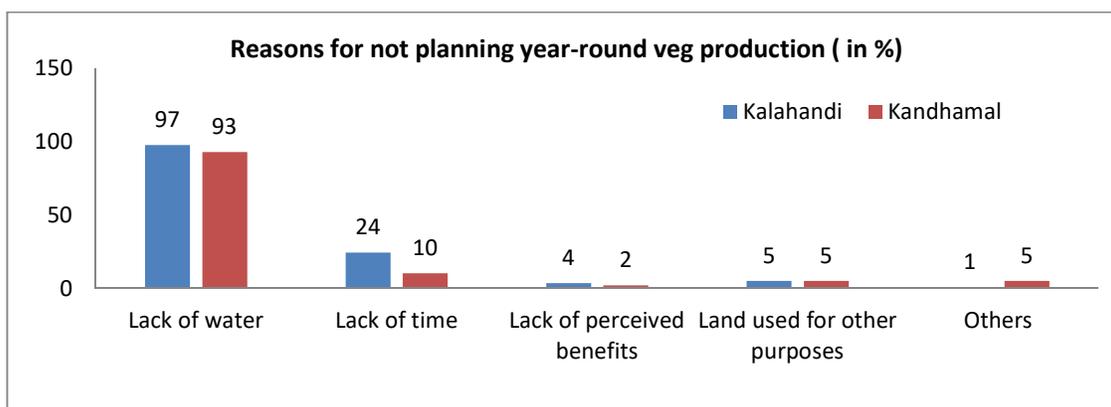




As far as **crop production from KG/HG** is concerned, 33%, 26.9% and 24.4% of the participants stated that they had very low, low and moderate yield respectively in the season of Feb- April. 15% respondents stated their yield was very high during the season.

In summer, the **yield from KG/HG** is very low as stated by 80% of respondents for both the districts. In August to October month, there is very high yield of vegetables from KG/HG as reported by 53% of respondents for both the districts. 24% categorised the yield as very low to low with nearly one fifth (22.5%) stated the yield in moderate range. Similar trend is marked in Nov- Jan period with a clear majority (around 78% respondents) stating the production range is high to very high. 12.9% respondents for both the districts stated to have moderate quantity of crop production from KG/HG in this season.

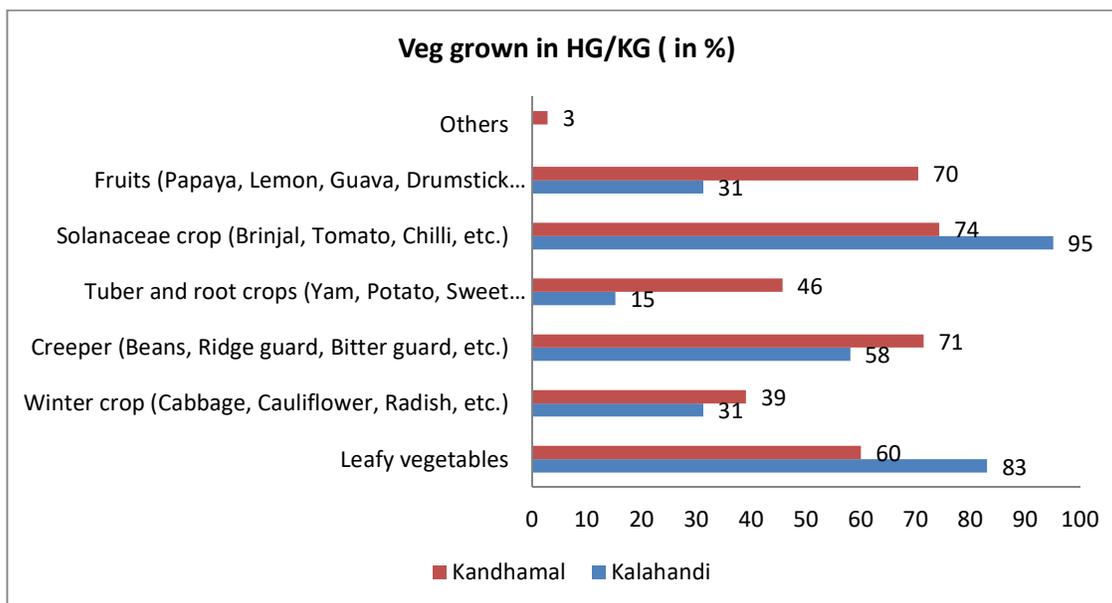
10% stated that they have **planned for year round cultivation of crop in KG/HG**. There are also issues as mentioned above i.e. availability of water, crop damage due to wild, stray animals and birds, pest attacks on solanaceae and leafy vegetables etc. Besides, there are also households who are engaged in agriculture cultivation, wage labour in the season that did not provide them adequate time for planning of crops in KG/HG



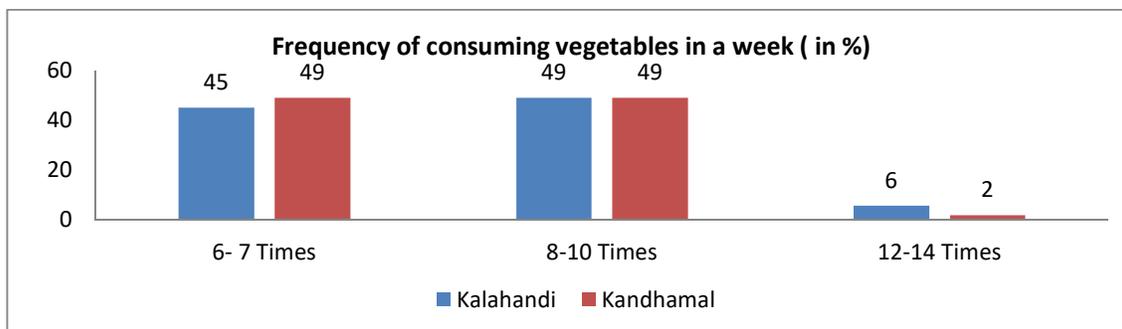
**The major constraints stated by the respondents in ensuring proper management of KG/HG** activities are lack of water( 95.9%) , lack of time( 19.6%) followed by land used for other purposes ( 5%)

Out of a total respondents base of 329 ( 224 in Kalahandi and 105 in Kandhamal) **the major crops grown** are solanaceae (88%) , leafy vegetables( 75.6%), creepers( 62%) , fruits ( 43.7%), winter crops (33.7%), tuber and roots ( 24.9 %). 82% respondents stated that solanaceae, 38% stated that leafy vegetables, 34.6% stated that winter crops, 17% stated that creepers, 9% stated that fruits, 5% stated that tuber and root crops are mostly attacked by pests.





On **frequency of eating green vegetables in a week**, the responses are spread out from the range of 6-14 times. 20% stated to have 6 times consumption of vegetables in a week, 22.8% stated to have 10 times, a little fraction more than one fourth of the total respondents stated to have 7-8 times vegetable consumption in a week. There are 3.9% respondents who stated that they consumed vegetables twice a day or all the days in a week which is a good indicator for TARINA intervention.



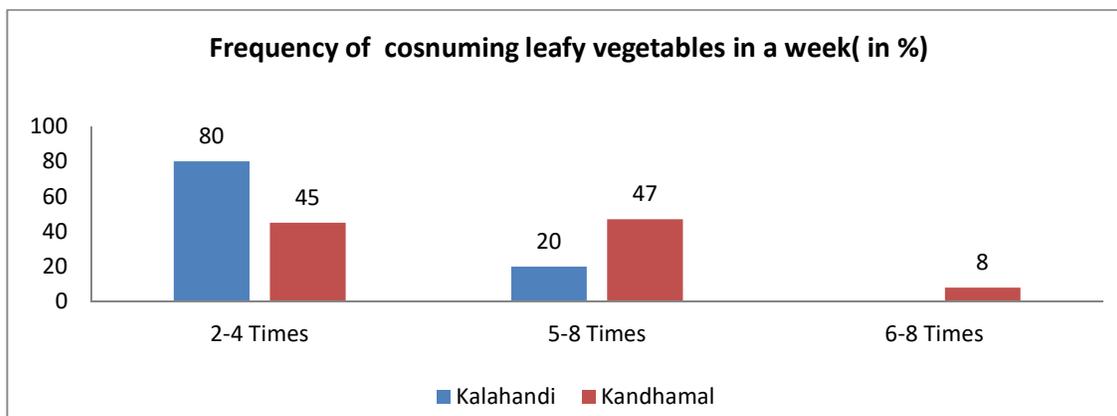
**The frequency of fruit consumption** is mostly once to twice a week as stated by the respondents. The division is almost equal in percentage of forties for the respondents in both the districts. 7% of the respondents stated to have taken fruits in their diet three to four times a week.

The quantity of fruits consumed per week by respondents revealed that a major percentage (71%) had consumed of 1 Kg per week on an average for both the districts. Out of base response of 250(170 for Kalahandi and 80 for Kandhamal), 15% of respondents in aggregate for both the districts consumed 2 kg of fruits per week and 4 percent respondents have 3-5 kgs of fruits consumed per week.

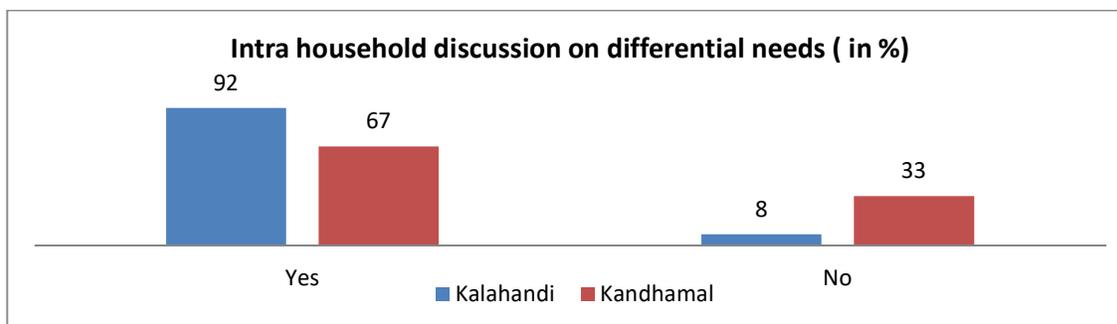
69% of the respondents out of a base response of 329 **consumed leafy vegetables** 3-4 times a week followed by an almost equal percentage of 13.9% and 13% consumed 5-6 times and 7 times respectively taking all the respondents of both the districts. This consumption pattern of leafy



vegetables is less than the pattern of vegetable consumption identified in the study mentioned in above section.



42.9% respondents stated that they consumed leafy vegetables of 1 kg per week, 32.6% said they had 2 kg per week, 15% stated that they had 3 kg per week. The mean average for respondent taking leafy vegetables per week is 2kgs per respondents.

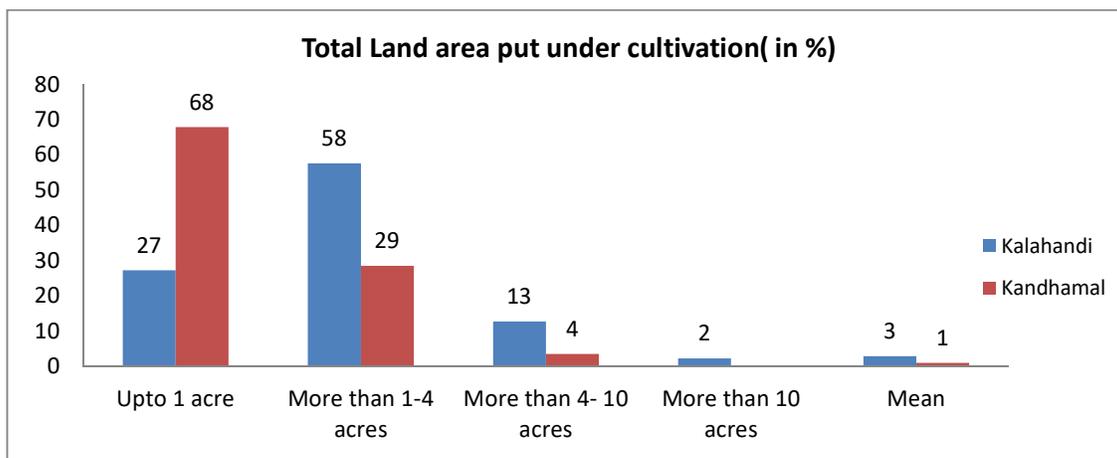


On **intra household discussion on differential needs of foods for its members**, 84% of respondents (Kalahandi with higher percentage of 92%) stated that they had discussion with family members. This is a good indicator that learning from trainings and orientations are shared within the household that would go a long way to enhance the knowledge, attitude and practice of all family members with regards to nutritional needs and initiating proper approach to vitiate that.



## Chapter 5

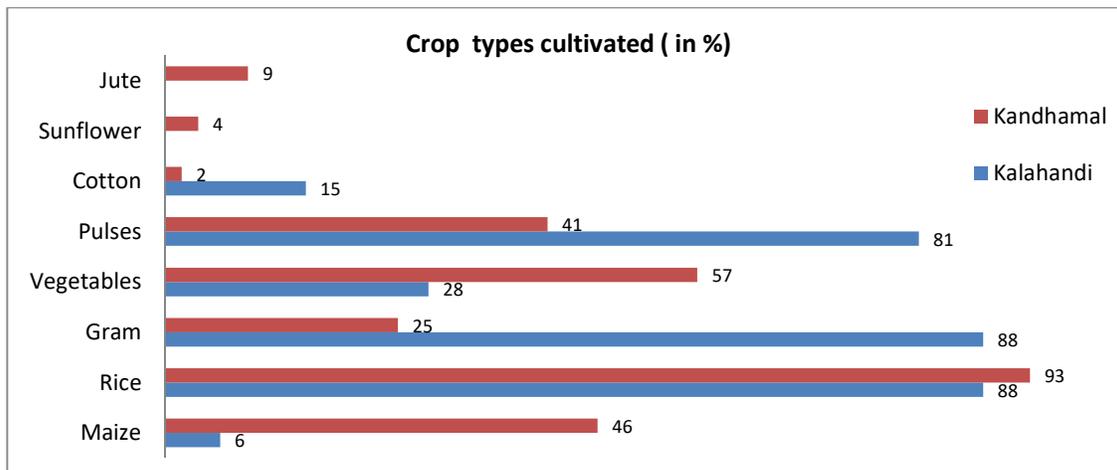
### Knowledge, Attitude and Practice in Crop Diversification: Land under Cultivation:



Out of the base response of 304 in Kalahandi and 56 in Kandhamal, the average mean area cultivated per respondent is 3 acres in Kalahandi where as 1 acre in Kandhamal. Out of a total response base of 562 (413 for Kalahandi and 149 for Kandhamal) , a major percentage ( 24% for both the districts) of respondents own one acre of land , followed by 18% with 2 acres of land and near about 11 % with 1.5 acres and 3 acres respectively. The above graphs show that in Kalahandi a major percentage of respondents (58%) put 1-4 acres of land under cultivation whereas in Kandhamal maximum respondent (68%) put up to one acre of land under cultivation. On overall basis more acreage of land is put under cultivation in Kalahandi than Kandhamal.



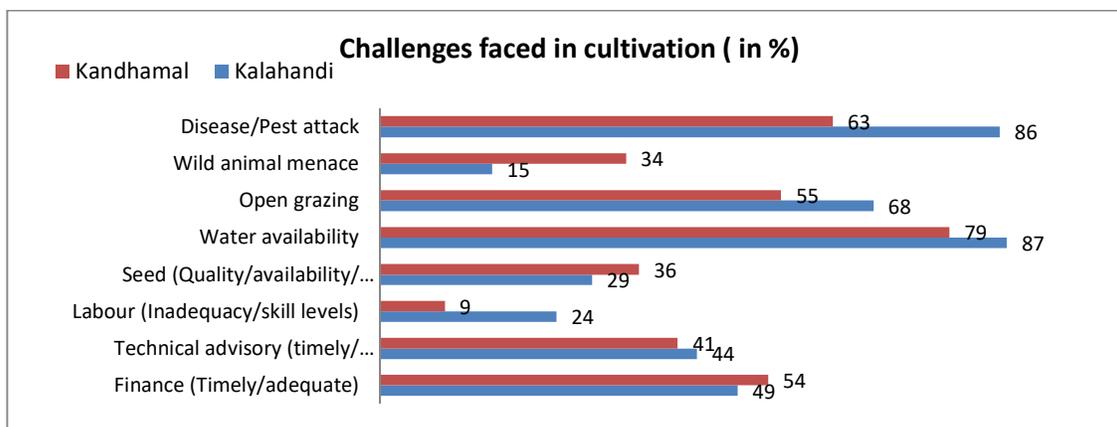
**Crop Cultivation diversity:**



Out of base of 304 in Kalahandi and 56 in Kandhamal, the type of crop cultivation for **both the districts** shows similar trend dominated by rice cultivation (88.6%), gram (78.6%), and pulses (74.7%) in aggregate. Maize cultivation (46%) is mainly undertaken in Kandhamal district where as Cotton cultivation (15% respondents) is mainly found in Kalahandi. In Pulses, which is mainly focussed in TARINA programme is cultivated by 81% respondents in Kalahandi and 41% in Kandhamal. The same trend is also marked in vegetable cultivation where Kandhamal (57%) has double the percentage of Kalahandi (28%).

In the knowledge front, more number of respondents in Kalahandi (97.7%) understands nutritional value of pulses than respondents in Kandhamal (75%). Here, there is a need for TARINA to intervene with respondents in Kandhamal in enhancing their knowledge.

**Challenges faced in cultivation before and during TARINA Programme:**

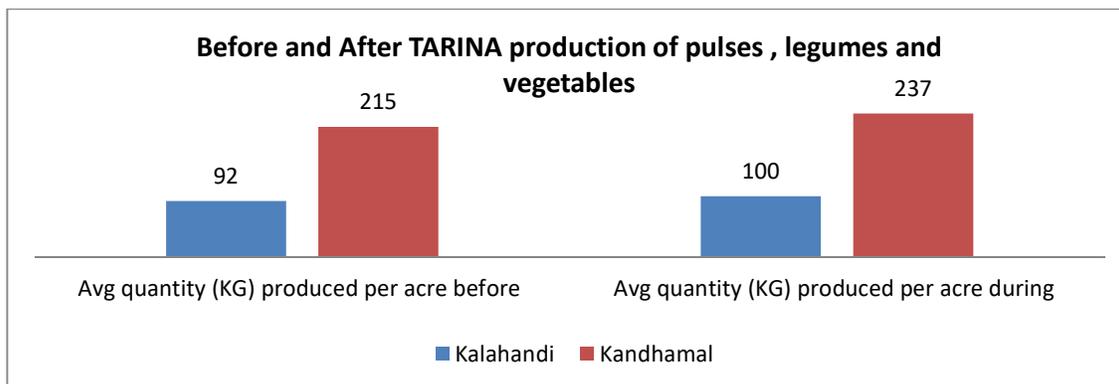


The major challenges faced in Pulses cultivation are mainly disease and pest attack (81.9% for both districts), with Kandhamal reporting less than (i.e. 63%). Water availability for 85%, open grazing (66%) and finance (50%) for both the districts. 43% on an average required technical advisory support and 21.9% respondents stated issues of skilled labourer and their availability are



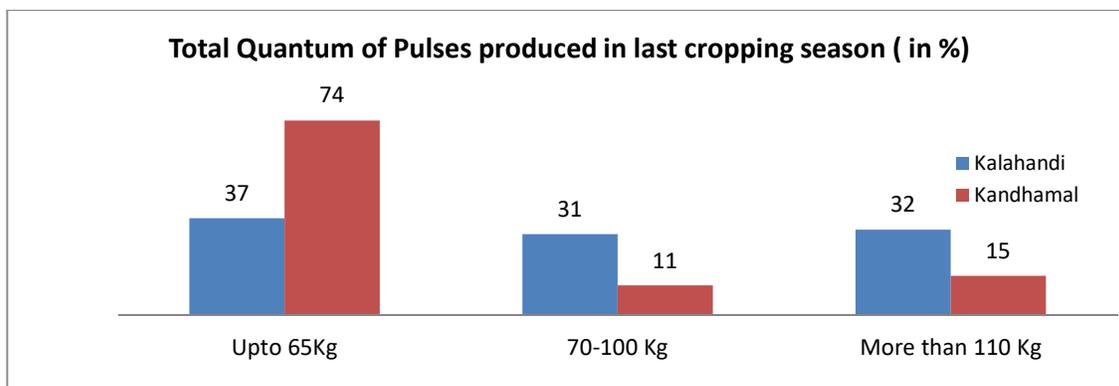
the major constraints in pulses cultivation. Kandhamal has constraints of wild animal menace (34%) followed by Kalahandi (15%).

**Approx quantity of pulses, legumes and vegetables produced before and during TARINA programme:**



The above graph provides a comparative picture of production which shows that there has been slight increase in production in both the districts. Probing the same further, there are also other considerations of exposure duration of participants to Crop diversification programme, variable acres of land put last on which the production is reported, climatic suitability of pulses promoted (there are issues in harvest as found out among participants) and irrigation coverage is minimal

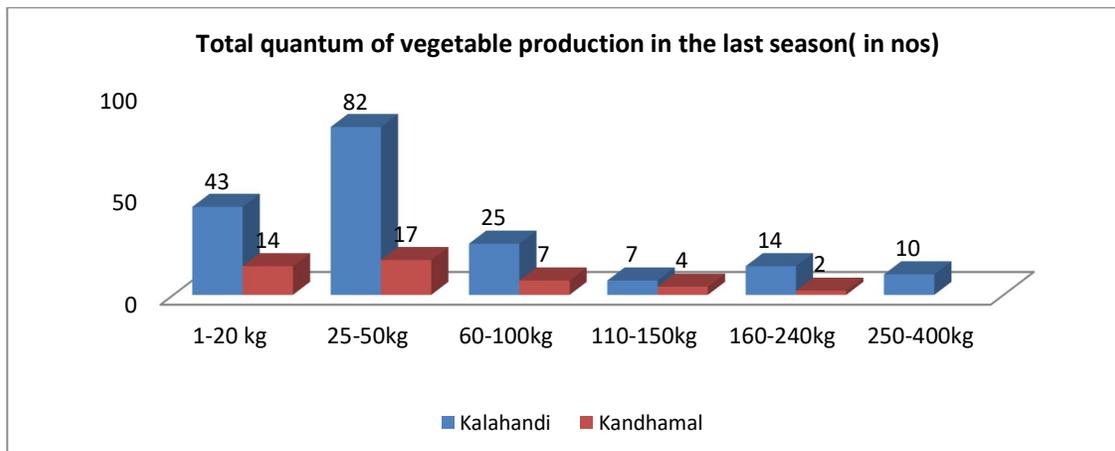
**Total quantum of Pulses produced in the last cropping season:**



Out of the base response of 296 in Kalahandi and 27 In Kandhamal, the total quantum of pulses produced in both the district shows contrasting trends with majority of respondents (74%) in Kandhamal having produced pulses up to 65 Kgs and the rest percentage is divided equally between production of 70-100 Kgs and more than 110 Kgs. Kalahandi has also an equal proportion of respondents in all the three range of pulses production.



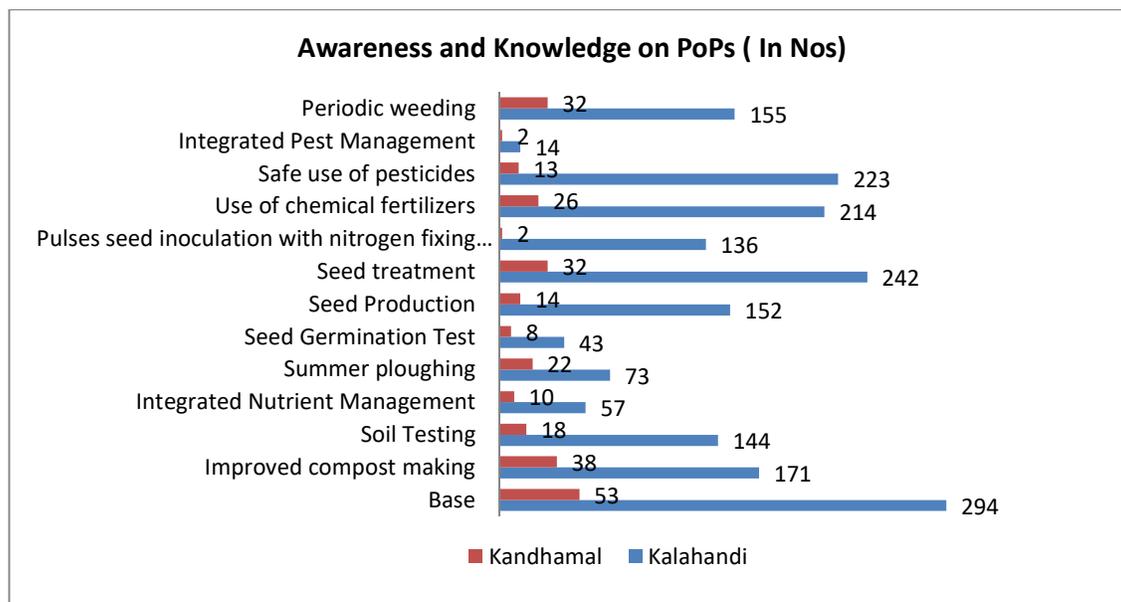
**Total quantum of vegetables produced during the last cropping season:**



The total quantum of vegetable produced during the last cropping season provides wide ranging responses. Out of the total base response of 199 in Kalahandi and 44 in Kandhamal, the major outcomes identified from the aggregate responses are i.e. 11% (mainly 23 out of 29 number of respondents) in Kalahandi cultivated 50 Kgs of vegetables in the last season. The other major chunk of 15% respondents produced 30 Kgs of vegetables followed by 11.9% respondents in aggregate (with equal number for each district) produced 50 Kgs and 6% (15 numbers of respondents) of respondents in Kalahandi produced one quintal of vegetables in the last season. On an overall basis 43 respondents produced up to 20 Kgs of vegetables where as 14 number of respondents produced the same quantity of vegetables in the last cropping season.



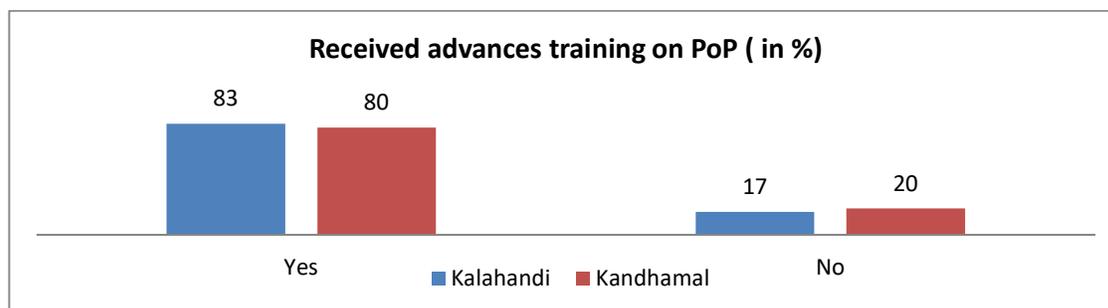
**Awareness on Cultivation Package of Practice (PoP)**



The results shows that respondents over 50% in Kalahandi have been aware on PoPs i.e. improved seed production and periodic weeding with more than 70% respondents aware on seed treatment, use of chemical fertilisers and use of pesticides.

In Kandhamal, more than 50% respondents are aware about seed treatment, periodic weeding and above 70% on improved compost making.

**Receiving Training on Cultivation PoP:**



Out of the total response base of 360 (Kalahandi 324 and Kandhamal 56), average of 82.5% across both the district have received training on PoP for pulses cultivation with marginal variation between the districts.

**Time of Training Received on PoP:**

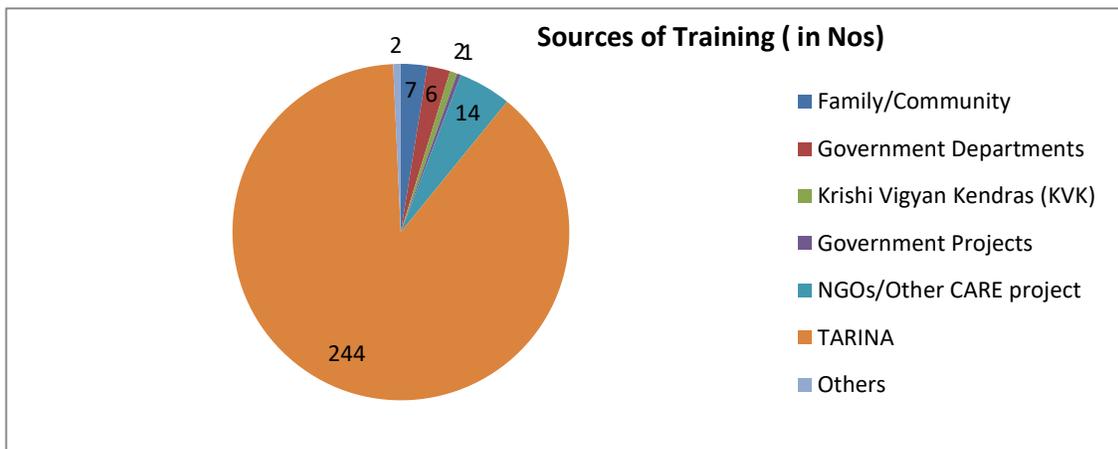
Out of those 82.5% who received training on PoP, one third received the training between 7-12 months, 21.9% received training between 4-6 months, and rest 13% received the training very recently within the last 3 months. There are less than one third (31%) respondents who stated



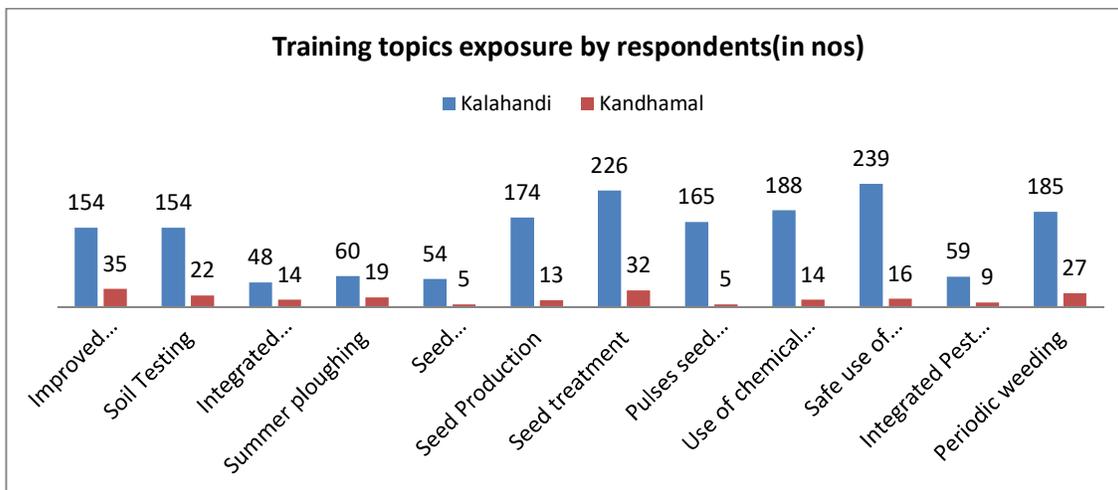
that they received the training in over 12 months time from now. The only difference between the districts is 15.6% of the respondents received training very recently between last 1-3 months.

**Source of receiving Training on Cultivation PoP:**

For 94.9% respondents TARINA was the major source of receiving training. In Kandhamal district for KVK (for 15.5%) and NGO/Other CARE project (57.7%) were other important sources of getting such information.



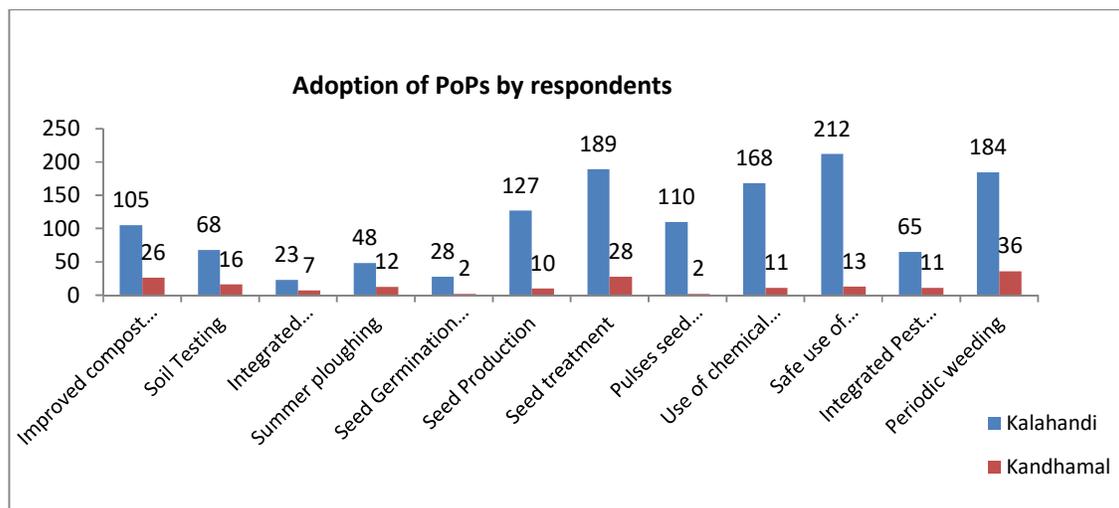
**PoP topics exposure by Training:**



On exposure to topics, out of the base response of 252 in Kalahandi and 45 in Kandhamal, the responses from both the districts vary. In Kalahandi majority of participants said topics i.e. safe use of pesticides (94.8%), seed treatment 89.6%), use of chemical fertiliser (74.6%), and seed production (69%). In Kandhamal a majority percentage of participants said to have learnt improved compost making( 77.7%), seed treatment( 71.1%), periodic weeding( 60%) and soil testing ( 48.8%).



**Adoption of Package of Practices:**



Out of the base response of 252 in Kalahandi and 52 in Kandhamal, on adoption of PoPs, periodic weeding majority respondents (74%), and seed treatment (73%) are major practices adopted by respondents for both the districts. In safe use of pesticides, Kalahandi (84%) has done better than Kandhamal (28.8%) as well as in chemical fertiliser where Kalahandi (66.6%) is more than double the respondents in Kandhamal (24%). Kandhamal showing better adoption rates in summer ploughing (26.6%) and soil testing (35.5%) and improved compost making (57.7%)

**Perceived benefits by adoption of PoPs:**

34% respondents in Kalahandi and 59% of respondents in Kandhamal ranked improved compost making as number one in deriving benefits followed by 31% and 28% of respondents as number two.

46% in Kalahandi and 47% in Kandhamal ranked soil testing as number one followed by 5% and 37% in respective districts as number two.

In Integrated Nutrition Management, 25% respondents in Kalahandi and 23% in Kandhamal ranked it as second in deriving benefits from.

Summer ploughing has been ranked one by 32% respondents in Kalahandi and 15% respondents in Kandhamal. 14% respondents and 23% respondents in Kalahandi and Kandhamal ranked it second and 6% and 31% respondents for the respective districts ranked it as three in terms of deriving benefit from its adoption. 45% respondents in Kalahandi and 23% in Kandhamal ranked it as lowest in deriving benefits.

In seed germination test, respondents in Kalahandi got perceived benefit and 12%, 20% and 13% ranked it as first to third in Kalahandi with none in Kandhamal. 33% respondents and 67% respondents in Kalahandi ranked it fourth and fifth as far as benefits from adoption of this PoP are concerned.

In seed production, 34% respondents in Kalahandi and 10% in Kandhamal ranked number one followed by 16% and 10% respectively in the second rank in getting benefits from its adoption.



31% of respondents in Kalahandi and 27% in Kandhamal ranked seed treatment adoption as one followed by 13% and 23% respondents in second rank for respective districts. One fifth of the respondents in both the districts ranked it as number three on getting benefits out of the PoP adoption.

In pulses seed inoculation with nitrogen fixing bacterial culture, 27% respondents of Kalahandi ranked it as number one followed by 6% respondents in number two.

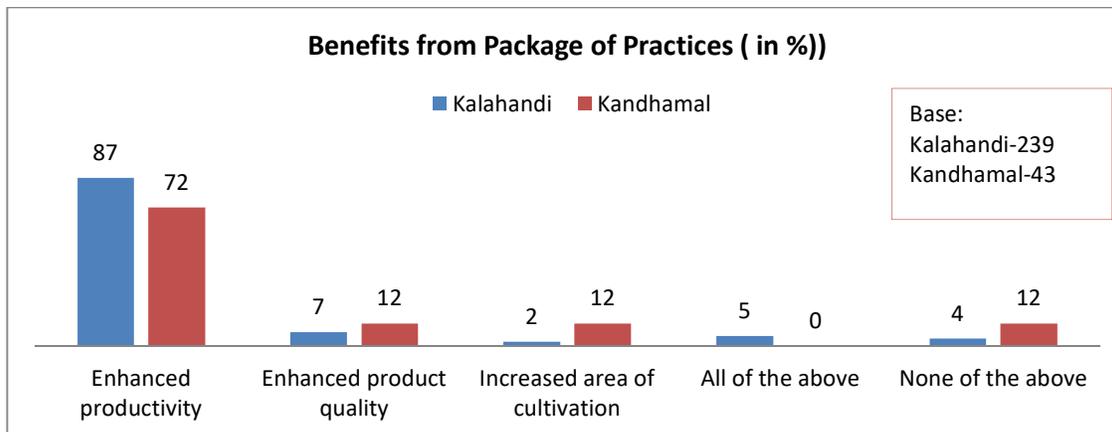
47% of respondents in Kalahandi ranked adoption of using chemical fertiliser as number one with none in Kandhamal ranking it in number one. However, 43% respondents and 29% respondents in Kandhamal ranked it as number two and three respectively in deriving benefits.

41% of respondents in Kalahandi ranked safe use of pesticides as number one in getting benefits of adoption followed by 18% and 50% respondents in Kalahandi and Kandhamal ranking it as number three.

In integrated pest management, 73% respondents in Kalahandi ranked it as number one followed by 20% respondents in Kandhamal ranking it as number two in deriving benefits from its adoption.

In periodic weeding, 35% respondents in Kalahandi and 19% in Kandhamal ranked it one in getting benefits of its adoption where as 16% of the respondents in Kandhamal ranked it as second. 46% respondents in Kalahandi and 38% of respondents in Kandhamal ranked it last in getting benefits from adoption.

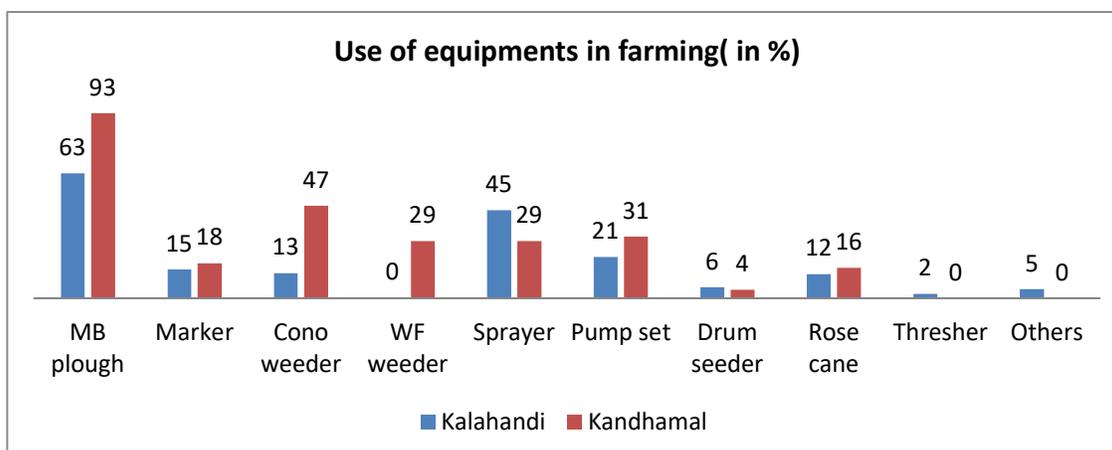
**Respondents benefited from Adoption of PoPs:**



In aggregate, 85% of the respondents stated that adopting the better package of practices led to increased productivity and less than 10% stated that it resulted in increased product quality and increased area of cultivation.



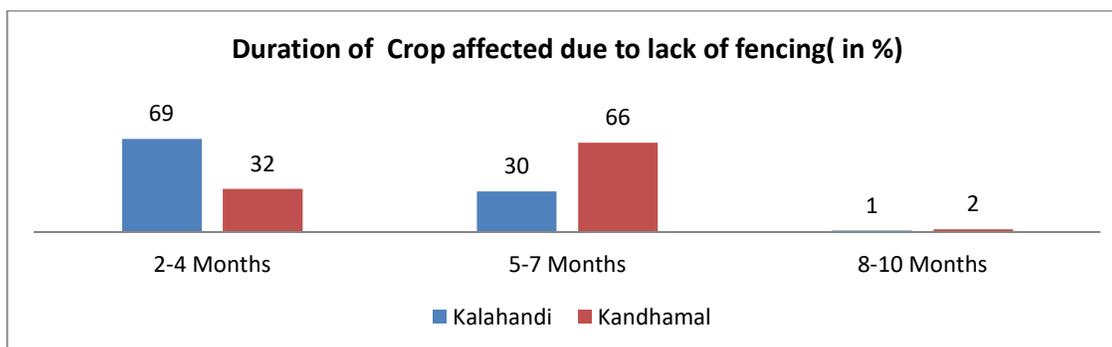
**Using Equipments:**



On an average for both the districts, 71% adopted and used some agri-equipments in their farm. And those who used mostly used the MB plough (68.3% in average with more in Kandhamal (93%) followed by sprayer (41.8% in average and lesser percentage in Kandhamal (28.8%), Pump sets (average 22.6% with 31% for Kandhamal). In an average of 18.7% respondents using Cono-weeder, more number of respondents ( 46.6% ) in Kandhamal was using it. Rose cane was used by 12.8% respondents on overall for both the districts.

Majority (94.6%) in Kandhamal have physical fencing to protect produce from livestock /animals/poultry whereas only 27.6% in Kalahandi have physical fencing. On the effectiveness of the fencing, 23% respondents in Kalahandi and 22.6% respondents in Kandhamal said it was effective in protecting the crops.73.8% in Kalahandi and 69.8% in Kandhamal stated that the existing fencing is partially effective to safeguard crop from animals and birds. 83.9% respondents in Kandhamal guarded their crop and 66% respondents in Kalahandi guarded their crop area continuously.

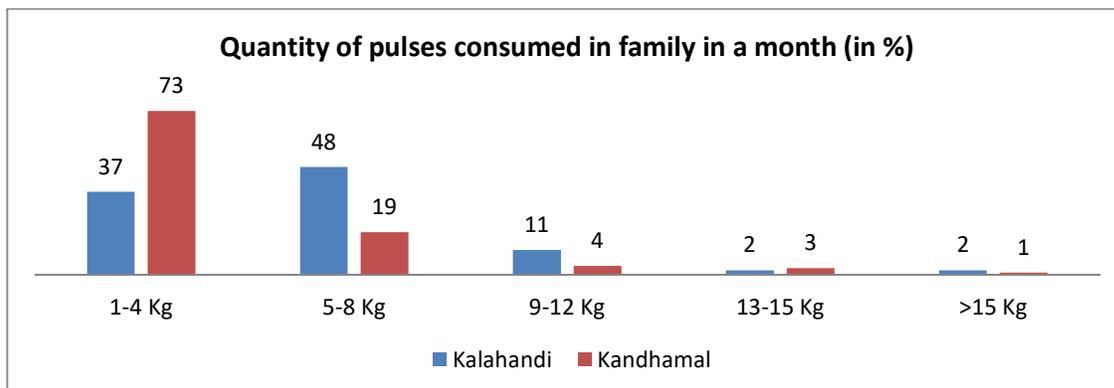
**Duration of month's crop affected in a year due to lack of fencing:**



44% respondents expressed that the crop area is affected by stray animals and birds for a period of 3-4 months a year where as 31.6% in Kalahandi stated the crop damage due the above reason spreads up to 6 months along with 56% respondents in Kandhamal expressed the same concern for

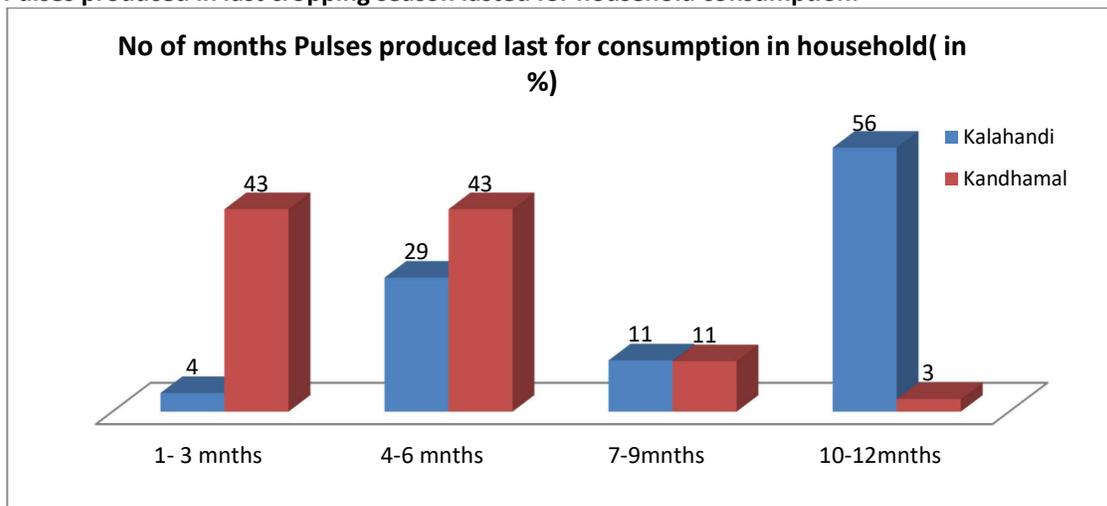


crop damage. This shows the quality of fencing respondents have for their crop protection. During the FGDs it was also raised and most of the participating women stated that in most cases the fencing does not withstand the cattle, monkeys and wild animals and even the fowls and birds to protect the crop. This is a concern for most beneficiaries and TARINA need to take this up with appropriate agencies to deal with the issue. The seasonality of crop damage is equal in Rabi and summer seasons.



Out of the total respondents base of 353 (Kalahandi 299 and Kandhamal 54), the frequency of consumption of pulses per month are once to twice for 9% respondents, thrice for 15.5% respondents, four times for 17.5% respondents, five times for 22% respondents, six times for 8.7% respondents, seven to eight times for 12.7% respondents, 9-10 times for 7% respondents, twelve to fifteen times for 4.5% respondents. The major chunk (more than 50% of the respondents) has eaten pulses 3-5 times a month.

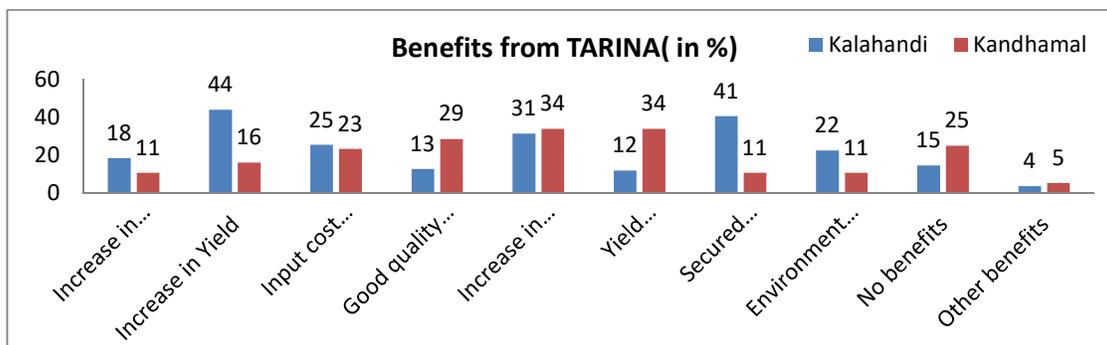
**Pulses produced in last cropping season lasted for household consumption:**



Responses on how many months the pulses /legumes/ vegetables last in the household for consumption, in aggregate nearly one fourth (24.6%) of the respondents for both the districts said that it lasts for 6 months; 13.6% said that it last for 10 months and 13.9% said that it lasts for 1-5 months. In Kalahandi, a majority of (53%) respondents said that it's last for 12 months of consumption.



**Benefits under TARINA:**

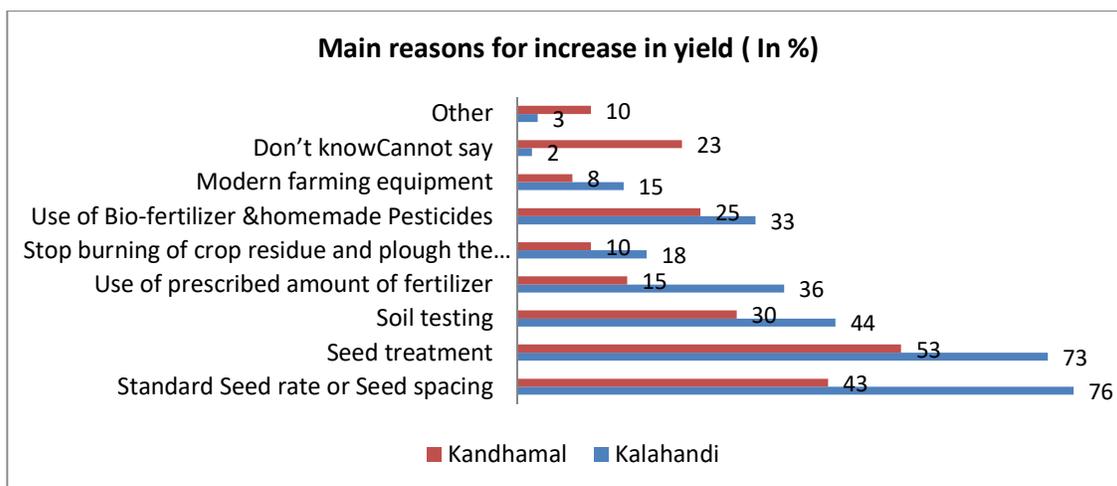


Respondents said that benefits have been received under different aspects of TARINA intervention, but the most striking benefits the respondents identified are increase in yield ( 43.8%), secured farming practice (40.5%), increase in household consumption (31%), input cost reduction (25%) in Kalahandi district. In Kandhamal, beneficiaries have mostly benefitted in increase in household consumption (33.9%), yield assessment (33.9%), good quality produce (28.5%), input cost reduction (23.2%).

The main support received under TARINA by participants are guidance on cultivation practices (81.%), availability of fertilisers/ seeds (63.7%), skill building training (41%) and guidance on latest techniques (63.7%) on an average for both the districts. In all these, respondents in Kalahandi is more benefitted than respondents in Kandhamal except in availability of fertiliser/ seeds where 10% more respondents in the district have received the support.

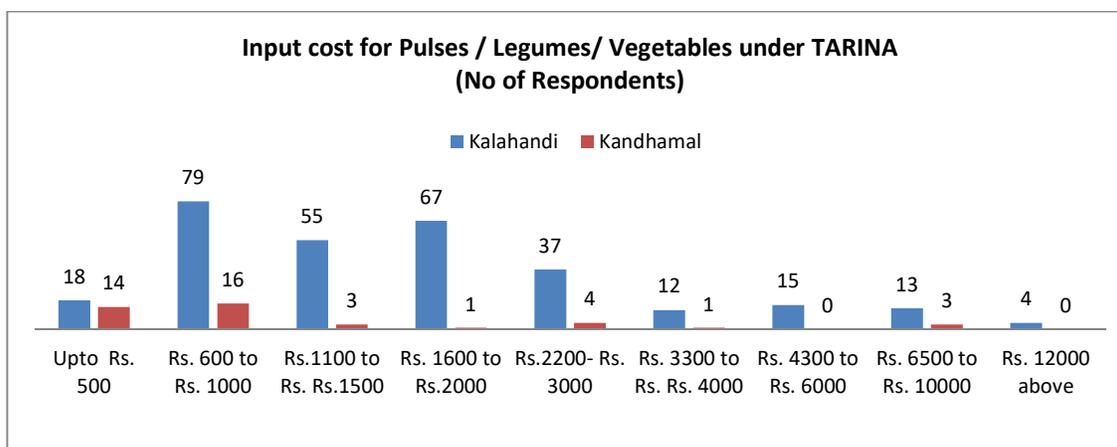
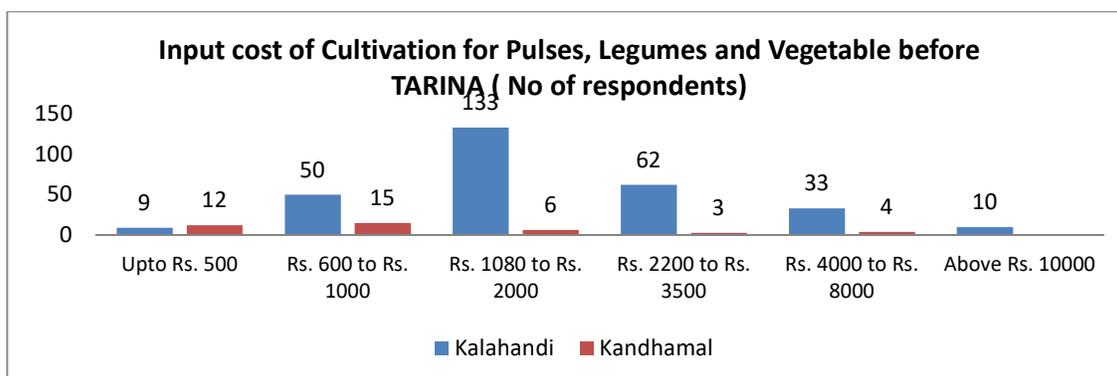
Looking at both the districts, there is similarity in benefits received in aspects of input cost reduction and increase in household consumption. There are 15.8% who said they have not benefitted in any way by TARINA programme.

**Main reasons for increase in yield:**



On the main reasons for increase in yield, the important reasons stated by the respondents are soil testing (41.6%), seed treatment (69.8%), standard seed rate (71.5%) and use of prescribed amount of fertilisers (33.5%) and use of bio fertiliser (31.5%) in average for all the respondents in both district.

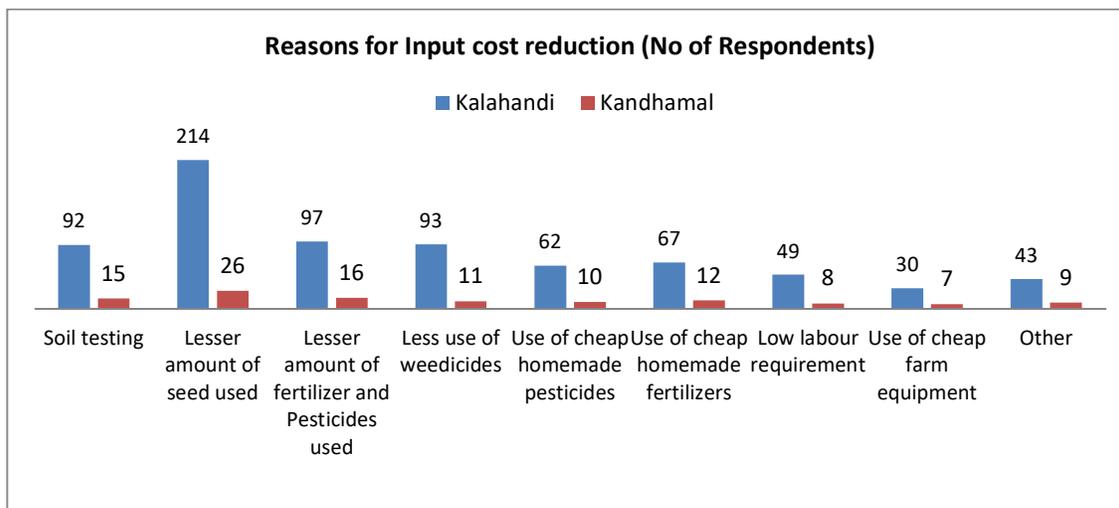
**Input cost of Cultivation for Pulses, Legumes and Vegetable before TARINA**



Input cost for pulses cultivation before TARINA reveals that 25.5% spent Rs. 99 to Rs. 999, 35% spent in the range of Rs.1000 to Rs 1999, 26% spent Rs. 2000 to Rs 2999, 11.5% spent in the range of Rs. 3000 to Rs 3999, 4% spent in the range of Rs. 4000 to Rs 4999 and 8% of the respondents spent Rs. 5000 to Rs. 10000 in pulses cultivation. The mean cost of production of all the respondents for both the district is Rs. 2493/- (in Kalahandi) and Rs. 1360/- (in Kandhamal)

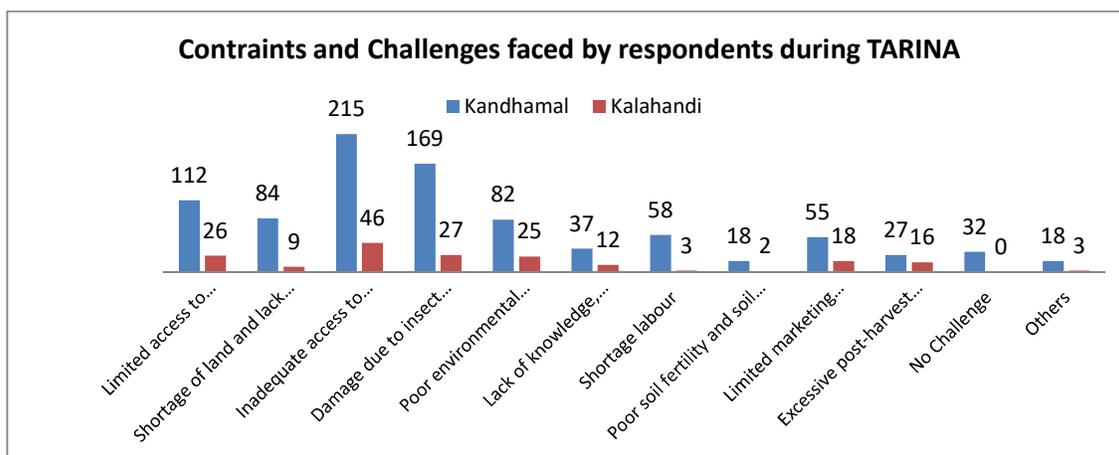


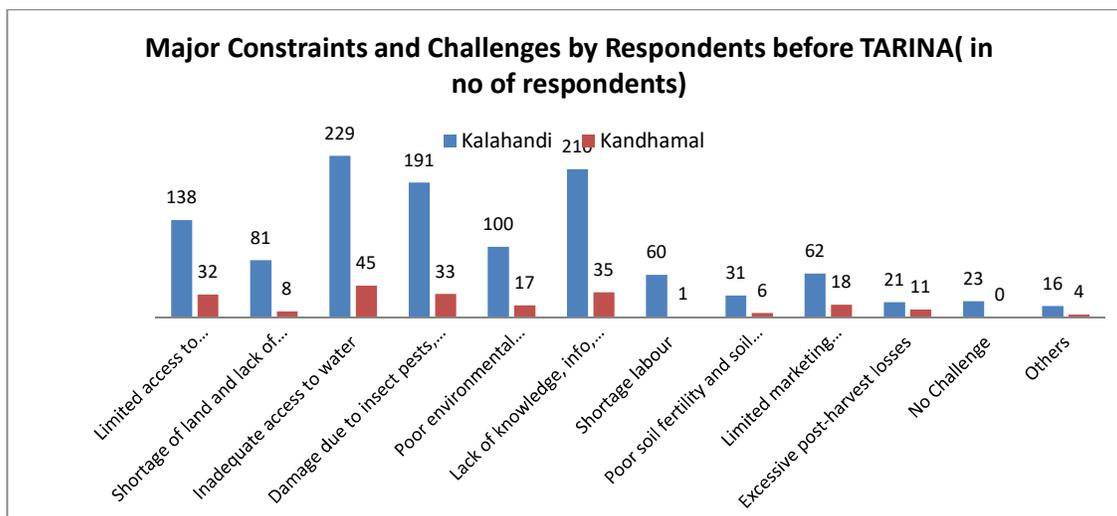
**Reasons for Input cost reduction:**



The most striking reasons for input cost reduction as per maximum number of respondents in districts varies. In Kalahandi majority percentage of 71% stated lesser amount of seed used, followed by one third of total respondents stated lesser use of fertilisers and less used of weedicides and soil testing are the main reasons for reduction in cost of inputs. In Kandhamal, 48% stated lesser amount of seed used followed by lesser amount of fertilisers( 28%) and soil testing (20%) and use of cheap homemade fertilisers (22%) as major areas where the cost on inputs have been reduced.

**Challenges and constraints faced before and during TARINA programme:**





Out of the base of 302 in Kalahandi and 56 in Kandhamal, the major challenges faced by beneficiaries before TARINA as reported by the respondents are lack of knowledge, information and advisory services (68%), damage due to insects and pests attack (62%), limited access to agriculture inputs (47%). Comparing the above major constraints with during TARINA constraints, the respondents have expressed some degree of amelioration in constraints faced earlier. The key positive changes there is lesser degree of constraints felt in access to water, damage due to insects and pests, knowledge about crop cultivation, access to agricultural inputs, with an increase of 2% overall in the category of respondents having no constraints. There is one concern of post harvest loss reported by respondents mainly due to unpredictable weather conditions, preservation techniques, storage etc which TARINA programme should be focussing on in the next part of the intervention.



## Chapter-6

### Summary of Findings

#### i) Selected Survey Findings at a Glance

- Out of 150 NGTK intervention respondents, 82.5% (117) respondents were members of SHGs and 30% had exposure to SHGs for more than two years.
- CARE- TARINA training on NGTK reflected in the study entails that most respondents (87%) received training on Snake and Ladder in Kalahandi, followed by 81% on Tricolour Food Chart.
- In Kandhamal, 50% of respondents received such or similar information from sources i.e. ASHA, AWW and other field presence (NGOs). In a way, this shows an indication that there has been good penetration of government outreach services with respect to women and gender empowerment interventions.
- A majority (86%) respondents in Kalahandi and (69% respondents) Kandhamal have had inter-community sharing of information.
- There are 98.7% and 88.7% respondents in Kalahandi and Kandhamal respectively who reported to have shared the information with members of their household.
- People's participation in local governance - 94% in Kalahandi and 55.7% in Kandhamal.
- **Making agricultural decisions on crop choice domain** - more than one third (36.7%) respondents in both the districts said to have significant contribution.
- **Decision of taking agricultural loan** - One out of ten respondents has full input, 4 out of 10 have moderate input. 4 out of 10 respondents do not have any input.
- **Decision making of Agriculture and livestock insurance** - one fifth of the respondents has high to full inputs. 44% respondents for both the districts with similar percentage have no input in the above decision making process.
- **Decision making on technology adoption and mechanization in agriculture** - one fifth of the respondents say that they have high input. A high percentage of respondents (29%) express they have no influence or input in the above decision making.
- **Decision making process to select fertilizers and pesticides to be used in agriculture farming** - 3 out of 10 respondents said that they have full or high input. 43% have no input in decision making.
- **Contribution to decision making process of NTFP collection** - 52.8% in Kandhamal & 33.7% in Kalahandi. In Kalahandi majority (50.6%) respondents say they have no input in the above decision making process.
- **Input on selling of crop and produce decision** – On an average, 32.6% (Kalahandi – 43%, Kandhamal – 21%) have no input in the process. Putting together the full and high inputs, 43% respondents in both the districts have contributed significantly in the decision making process with Kandhamal on the advantage with combined higher percentage of 55%
- **Decision making in Agriculture and allied matters, buy & sell livestock** - 32.8% have no inputs in the decision making.
- **Decision making process to work as agricultural labourer** - Kandhamal district shows a better result as nearly 62% respondents said they had full or high inputs in the decision
- **Decision making on availing non-agricultural loan** - 34.9% respondents said they did not have any input in the decision.
- In Kandhamal almost 71% of women have either full or high **input on whether to have or when to have children** with both the districts responses averaging at 67%.
- **Decision about children's health care** - 84% for both the districts have high / full inputs.



- **In healthcare for self**, 73% of respondents have high or full input
- 58% of respondents of both the districts said to have full or high input on **decision of buying foods**.
- **Decision of selecting menu for the household**, on average 77.9% respondents had high or full input for both the districts.
- Having the **final authority to take decisions**, half of the respondents (50.6%) agreed that decisions have been taken jointly between male & female members (Kalahandi 68%, Kandhamal 31%).
- **Decision on use of household income** - 23.8% women respondents who had full input, 36.7% women respondents who had very high input followed by 30.6% respondents' women with moderate input.
- **Decision on better access to food** - 74.6% respondents in Kalahandi (42% in Kandhamal) stated that the decision is arrived jointly by both the sexes.
- 48% of respondents stated that **decision on control on food** is mutually decided by both male and female members
- 40% stated that pulses and lentils, fruits and vegetables and the entire above category improve nutrition
- **On what activities, will promote health and nutrition** - distribution of fruits and vegetables (43%), introducing balanced diet (39.8%) and awareness on equitable distribution of food (22.3%).
- 56% of the respondents stated that **decision around food and nutrition** is taken by both male and female members.
- A majority of (92%) respondents of both districts said they had discussion about food and nutrition in their household
- 54% respondent women **played a major role in day to day household activities (cooking, serving food and baby care)**
- Growing diverse foods (68%) and buying diverse foods (53%) are the major steps taken by respondents to **ensure balanced diet** in the household.
- **Cracking the myths on gender stereotypes** - an aggregate of 46.9% (even higher percentage of 64.5% for Kalahandi) of women respondents felt men's role should be to provide care for the young and the sick.
- A whopping 91% respondents for both districts stated that women should undertake fasting for the welfare of the members of the household.
- Majority of respondents, 91% in Kalahandi and 74.8% in Kandhamal believed that growing mix of tubers, greens, fruits and vegetables in Kitchen garden/Home garden would ensure greater access to nutritional security of the household.
- Nearly 100% respondents stated that **joint financial management by men and women** should be carried out in the household.
- Majority (52%) respondents from both the districts with higher percentage of 70.4% respondents in Kandhamal relied on ASHA, ANM for **pregnancy related information**.
- On the knowledge part of **what and how the pregnant women should be given food choices**, an aggregate of 65% of the respondents for both the districts stated that she should eat normally.
- While **identifying the eating habits**, half of the respondents stated that pregnant women are given more milk.
- A majority of (70%) respondents for both the districts (with Kalahandi 90.9% respondents) said pregnant women eat pulses and lentils more than usual.





- 78% of women respondents for both the districts believed that **women should not eat particular foods during pregnancy.**
- Out of the response base of 320, a majority of respondents (67.19%) have **kitchen garden area of one tenth of an acre**
- 91% stated that both **male and female jointly contribute to KG/HG.**
- The **efforts put in by males in both districts in KG/HG activities** are equal to that of women as per majority of the respondents
- Out of the response base of 329 combined for both the districts, 92% stated that they get **seeds/planting material** from TARINA.
- On **learning of improved kitchen garden practices**, majority 78.9% (with 86.5% in Kalahandi and 62.5% in Kandhamal) learned improved seed and sapling.
- **On learning sources for improved kitchen garden practices**, the major source is mentioned as TARINA by an aggregate of 86.8% respondents.
- **Exposure time of respondent to KG/HG interventions** shows that 28.5% have had exposure more than one year ago, 26.6% between 4-6 months, and 33.7% between 4-12 months.
- **On adoption of learning mostly received from TARINA** as reported by majority participants in the above points, an overall about 83% respondents adopted improved seed and sapling, following by farm yard manure.
- Major constraints as reported in the study reveal that 43% (with 50% in Kalahandi) believe it is time consuming to adopt all practices.
- 75% of respondent have **attended demonstration on KG/HG.**
- Near about 60% of the respondents in aggregate for both the districts stated that they have been **consulted to identify women friendly technologies for KG/HG in FFS.**
- 73% of respondents stated that they had **shared the learning experience with other household members in their village.**
- Nearly two third of the respondents **utilise farm /household waste for KG/HG.**
- Almost 80% of respondents for both the districts have learned the positive and negative aspects of various techniques used in KG/HG.
- 75.9% respondents in aggregate for both the districts (with as high as 93% in Kandhamal district) **have fencing around KG/HG** (including contours using stones as a traditional practice) to protect the crop from damage by stray animals and birds.
- 63.8% of the respondents felt that traditional fencing is not effective to safeguard crops in KG/HG.
- **The seasonality of crop damage** due to stray animals and birds are mainly in Rabi and Khariff with 50% and 21% respondents respectively citing it as a problem.
- Out of a total base response of 329 (22 in Kalahandi and 105 in Kandhamal), majority ( 70.5%) stated that **KG/HG activities are spread out** by 6 months.
- In summer, the **yield from KG/HG** is very low as stated by 80% of respondents for both the districts.
- Production very high during August – October (53% respondents) & November – January (78% respondents).
- **The major constraint stated by the respondents in ensuring proper management of KG/HG** activities are lack of water (95.9%).
- Out of a total respondents base of 329 ( 224 in Kalahandi and 105 in Kandhamal) **the major crops grown** are solanaceae(88%) , leafy vegetables (75.6%), creepers( 62%) , fruits (43.7%), winter crops (33.7%), tuber and roots ( 24.9%).
- 82.3% respondents stated that solanaceae crops are mostly attacked by pests.



- There are 3.9% respondents who stated that they consumed vegetables twice a day or all the days in a week.
- **The frequency of fruit consumption** is mostly once to twice a week as stated by the respondents.
- The **quantity of fruits consumed per week** by respondents revealed that a major percentage (71%) had consumed a quantity of 1 Kg per week on an average for both the districts.
- 69% of the respondents out of a base response of 329 **consumed leafy vegetables** 3-4 times a week.
- 42.9% respondents stated that they consumed leafy vegetables of 1 kg per week, 32.6% said they had 2 kg per week.
- On **intra household discussion on differential needs of foods for its members**, 84% of respondents (Kalahandi with higher percentage of 92.4%) stated that they had discussion with family members.
- **Average area cultivated per respondent** is 3 acres in Kalahandi whereas 1 acre in Kandhamal.
- In Kalahandi a major percentage of respondents (57.5%) put 1-4 acres of land under cultivation whereas in Kandhamal maximum respondent (67.8%) put up to one acre of land under cultivation.
- Out of base of 304 in Kalahandi and 56 in Kandhamal, the type of crop cultivation for both the districts shows similar trend dominated by rice cultivation (88.6%), gram (78.6%), and pulses (74.7%).
- In Pulses, which is mainly focused in TARINA programme is cultivated by 80.92% respondents in Kalahandi and 41% in Kandhamal.
- More number of respondents in Kalahandi (97.7%) understands the nutritional value of pulses than respondents in Kandhamal (75%).
- The major challenges faced in Pulses cultivation are mainly disease and pest attack (81.9%), Water availability (85.2%), open grazing (66.1%) and finance (50%) for both the districts. 43.3% on an average required technical advisory support.
- Majority of respondents (74%) in Kandhamal having produced pulses up to 65 kgs and the rest percentage is divided equally between production of 70-100 kgs and more than 110 kgs.
- Over 50% in Kalahandi have been aware on Package of Practices (PoPs) i.e. improved seed production and periodic weeding with more than 70% respondents aware on seed treatment, use of chemical fertilisers and use of pesticides.
- In Kandhamal, more than 50% respondents are aware about seed treatment, periodic weeding and above 70% on improved compost making.
- Average of 82.5% across both the district has received training on PoP for pulses cultivation with marginal variation between the districts.
- For 94.9% respondents TARINA was the major source of receiving training.
- On exposure to topics, the responses from both the districts vary. In Kalahandi majority of participants said topics i.e. safe use of pesticides (94.8%), seed treatment 89.6%), use of chemical fertiliser (74.6%), and seed production (69%). In Kandhamal a majority percentage of participants said to have learnt improved compost making (77.7%), seed treatment (71%), periodic weeding (60%) and soil testing (48.8%).
- On adoption of PoPs, periodic weeding (74%), and seed treatment (73%) are major practices adopted by respondents for both the districts.
- In aggregate 85% of the respondents stated that adopting the better package of practices led to increased productivity.



- On an average for both the districts 71% adopted and used some agri-equipments on their farm. And those who used mostly used the MB plough, followed by sprayer.
- Majority (94.6%) in Kandhamal have **physical fencing to protect produce from livestock /animals/poultry** where as only 27.6% in Kalahandi have physical fencing.
- The most striking benefits of the TARINA intervention the respondents identified are increase in yield (43.8%), secured farming practice (40.5%), increase in household consumption (31%), input cost reduction (25%) in Kalahandi district. In Kandhamal beneficiaries have mostly benefitted in increase in household consumption (33.9%), yield assessment (33.9%), good quality produce (28.5%), and input cost reduction (23%).
- **The main support received under TARINA** by participants are guidance on cultivation practices (81.4%), availability of fertilisers/ seeds (63.7%), skill building training (41.2%) and guidance on latest techniques( 63.7%) on an average for both the districts.
- The main reasons for increase in yield stated by the respondents are soil testing (41.6%), seed treatment(69.8%), standard seed rate (71.5%) and use of prescribed amount of fertilisers (33.5%) and use of bio fertilizer (31.5%) in average for all the respondents in both district.
- In Kalahandi majority percentage of 71 % stated lesser amount of seed used as the major cause for input cost reduction, compared to 48% in Kandhamal.
- **The major challenges faced by beneficiaries before TARINA** as reported by the respondents are lack of knowledge, information and advisory services (68%), damage due to insects and pests attack (62%), limited access to agriculture inputs (47%).

## ii) Intervention Specific Observations

### NGTK

In inputs contributed to decisions regarding various aspects of livelihoods and daily routine, the impact of the intervention varies.

- Women's input in decision making on crop choice is high, in Agri loan it's moderate, in agriculture / livestock insurance it is low. On contributing inputs towards decision on technology adoption / mechanisation, and also in use of fertilisers/pesticides the intervention impact is moderate. Impact on providing input in decision making of collection of NTFP is moderate and same as in case of inputs by women farmers in decision of buying and selling livestock and input in decision on work as agricultural labourer.
- On the knowledge intervention on foods improving nutrition and activities improving nutrition, the impact of the intervention is low. Impact of the intervention on women's input in decision on visiting friends and relatives, in decision of having children and in buying food is high. Whereas the intervention impact on women in giving inputs to decisions on children's health care and own health care, and selecting household menu is very high.
- In having control on food items such as egg, meat, fish, milk and milk products, the impact of the intervention is good. While on the aspect of women accessing egg, meat, fish and milk products, the intervention impact is minimal.
- In decision making and practice, the impact of the intervention is very high with regards to taking decisions about food and nutrition in household, having intra household discussion about food and nutrition and, financial management.



**Kitchen Garden:**

- Impact of intervention in practice of growing vegetables with joint responsibility by both men and women, equal labour contribution in kitchen garden/Home garden activities is very high and encouraging for the intervention. In raising awareness and knowledge about sources of availability of KG/HG input the intervention impact is high.
- In uptake of knowledge on various topics of KG/HKG the impact of intervention is moderate. Likewise, the intervention impact is moderate in adoption of KG/HKG practices particularly in adoption of vermin compost, mulching, using seed dribbler/trans-planter etc. Intervention impact on coverage of women with demonstrated application of knowledge in KG/HG intervention is encouraging.
- Impact of FFS demonstration on women farmers is low. Further, impact of intervention on aggregated purchase of inputs and sale of produce is minimal.
- On knowledge about women farmers on FFS sessions focussing on women related issues in KG/HG intervention and understanding about positive and negative aspects of KG/HKG activities is high..
- Intervention impact on practice of using households waste for KG/HG activities is moderate.
- Impact of intervention on motivating for fencing around KG/HKG is low.
- The impact of KG/HG activities on adoption of varieties of vegetables is high and encouraging.
- On adoption of appropriate and adequate knowledge to deal effectively with crop damage due to pest attack the impact is moderate..
- Having discussion among men and women in household about differential needs of food, the impact of the intervention is high.

**Crop diversification:**

- Intervention impact on knowledge and awareness about nutritional value of pulses/vegetables is very high which indicates that coverage under knowledge input in TARINA has been effective and successful in reaching out to large number of women farmers.
- Impact of intervention in contributing to the knowledge of women farmers on advanced package of practice is very high.
- On recalling of knowledge imparted to women farmers' i.e. integrated nutrition management, seed germination test, integrated pest management, the intervention has moderate impact.
- In adoption of package of practices for seed treatment, safe use of pesticides, periodic weeding the intervention has high impact. Impact of intervention on adoption of agri-equipments by women farmers is high. The intervention has good impact on adoption and use of MB plough, sprayer and pump sets by women farmers.
- Intervention impact on adoption of fencing has low impact on the women farmers. There is high impact on reduction in input cost i.e. standard seed rate and seed treatment where as there are low impacts on adoption of other activities by women farmers.
- There is positive impact in reduction of input cost for pulses, legumes and vegetables cultivation.
- The impact of TARINA programme on key outputs i.e. increased yield, secured farming practice and increase in household consumption is low.



## Chapter-7

### Recommendation

During the course of the study, mainly strengths and a few gaps became evident. In this section, certain recommendations are being placed to address the said gaps. The recommendations are as follows.

- Involving and orienting grass root government outreach workers i.e. AWW, ANM through the TARINA activities would support in curbing gender stereotyping with respect to food and nutrition among women in general and pregnant women in particular.
- Focussed approach to organise orientation of project participants on myths and misconception around foods and nutrition, balanced diet especially for young and adult women needs to be devised.
- More intense orientation and training on NGTKs is needed because most beneficiaries are being introduced for these concepts for the first time and they fail to appreciate and understand their importance during the initial training
- More training and orientation on gender roles, balanced diet on improving nutrition, access to nutrition security and healthy practice and nutrition for pregnant women should be intensified.
- Attitudinal training of women on health & nutritional improvement through adoption of better Kitchen garden/Home gardening practices would lead to all project participants adopt practices.
- Efforts should be on increasing water and irrigation sources, water harvesting initiatives and efficient water management inputs to clusters where acute water and irrigation shortage is felt for a majority months in a year to enable KG/ HKG activities throughout the year.
- Roping in funds & technology from government, CSR bodies & other stakeholders in devising cost effective, efficient and durable fencing for small holders would benefit participants involved in home garden and kitchen garden initiative.
- Crop specific intervention under crop diversification component
  - Selection of resilient varieties of pulses, legumes and vegetables based on agro climatic suitability
  - Ensuring participants' easier access to input outlets,
  - Refresher training on PoP specially focussed on crop protection, nutrition management, application of fertilisers and pesticides, preparation of bio fertilisers and bio pesticides etc.
  - Timely advisory support in case of crisis
- More focus on demo plots and their better promotion among the local farmers would ensure faster and wide spread adoption of pulses cultivation.
- Technical support and timely advisory on crop protection measures and weather forecasts against climate hazards (erratic rainfall, flash floods etc), plant disease and pest attack would be beneficial to participants in optimising their return from cultivation of pulses.
- Better crop planning along with facilitating increased water sourcing; efficient water management techniques- mulching, bore well, well, pond, drip, low cost green house in vegetable cultivation should be promoted more among progressive participants in convergence with Agriculture Department to showcase results that would create interest among other project participants to follow and imbibe gradually. This will be specifically beneficial for kitchen gardens taken up in larger plots of land.

Though the program is women centric, men of the household should be oriented occasionally under the TARINA program. This will create greater buy-in for the program at the household level and facilitate more intense participation of women in the program.

