Government of Odisha

Baseline Survey of Socio-Economic and Physical Situation of the Project Area

Odisha Forestry Sector Development Project, Phase-II

Odisha Forestry Sector Development Project, Phase-II
Odisha Forestry Sector Development Society
Forest, Environment and Climate Change Department, Govt. of Odisha

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CTRAN Consulting Ltd.
Bhubaneswar, Odisha

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Abbreviations

AJY	Ama Jangala Yojana
ANR	Assisted Natural Regeneration
CAMPA	Compensatory Afforestation Fund Management & Planning Authority
CSR	Corporate Social Responsibility
DPF	Demarcated Protected Forest
DTP	Desk Top Publishing
EC	Executive Body
EDC	Eco-Development Committee
FA	Forest Area
GA	Geographic Area
GB	General Body
GBH	Grith at Breast Height
GCH	Grith at Collar Height
GIM	Green India Mission
GIS	Geographic Information System
GKS	Gaon Kalyan Samiti
GP	Gram Panchayat
HH	Household
IGA	Income Generation Activity
INR	Indian Rupee
IRS	Indian Remote Sensing
ISFR	Indian State of Forest Report
ITDA	Integrated Tribal Development Agency
JFM	Joint Forest Management
JICA	Japan International Cooperation Agency
KBK	Kalahandi, Balangir and Koraput Region
LBCD	Loose Boulder Check Dams
MDF	Moderately Dense Forest
MGNREGS	Mahatma Gandhi National Rural Employment Generation Scheme
MSME	Micro Small and Medium Enterprise
MT	Metric Ton
NPV	Net Present Value
NRLM	National Rural Livelihood Mission
NTFP	Non-Timber Forest Produce / Product
OC	Other Caste
OEMF	Odisha Environment Management Fund
OF	Open Forest
OFSDP	Odisha Forestry Sector Development Project
OFSDS	Odisha Forestry Sector Development Society
OLM	Odisha Livelihood Mission
OMBADC	Odisha Mineral Bearing Area Development Corporation
OMC	Odisha Mining Corporation
PF	Protected Forest
PIA	Project Implementing Agency
RF	Reserve Forest
RFA	Recorded Forest Area
SC	Scheduled Caste
SEPLS	Socio-Ecological Production Landscapes and Seascapes
SHG	Self Help Group
SMC	Soil Moisture Conservation
SPSS	Statistical Package for Social Science
ST	Scheduled Tribe
UF	Unclassed Forest
VDF	Very Dense Forest
VLFPC	Village Level Forest Protection Committee
VSS	Vana Surakshya Samiti
WS	Watershed
W&S	Water and Sanitation

Executive Summary

Introduction: Odisha Forestry Sector Development Project (Phase-II) is designed to strengthen the forestry sector of the State, through forest conservation, development, and sustainable use through community participation, and improving livelihoods of forest dependent communities with long term goals of environmental conservation and poverty alleviation. The baseline study followed "observational" quasi experimental design. Following stratified random sampling, the study covered 26 Forest Ranges in 12 Forest Divisions, 156 VSS, 156 SHGs and 967 households. Both structured and semi-structured tools were administered to capture required information from different stakeholders.

The interventions under OFSDP-II are broadly classified in to two major components, namely (a) intervention through JFM mode, and (b) intervention through non-JFM mode. The components to be implemented under JFM mode are, (1) Institution building, involving VSS and SHGs for initiatives like forest conservation, fire protection, sustainable forest management and soil moisture conservation measures, (2) Livelihood promotion / strengthening initiatives through IGA and convergence, (3) Fire protection measures, and (4) Bio-diversity conservation. The components to be implemented under non-JFM mode in areas surrounding the areas covered under JFM mode are, (a) Soil and moisture conservation measures, (b) Farm forestry initiatives, and (c) Capacity building of staff and VSS members.

Vana Surakshya Samiti (VSS): VSS are constituted mostly taking members from one village (control: 100.0 percent, intervention: 94.70 percent) with average number of households per VSS being 122 in case of control and 107 in case of intervention. Average number of male members per VSS is marginally higher than female members, i.e., 176 males in control and 161 in intervention.

The average number of members in the EC have been 14 in control with 63.39 percent male and 41.84 percent female. In intervention, average EC member per VSS has been 16 with 52.53 percent male and 47.47 percent female. Average forest area assigned to VSS for management is about 90.61 ha., in control and 106.44 ha. in intervention. The VSSs have been organizing their GB meetings annually. During the year 2019-20, some VSS organized one GB meeting (control: 25.00 percent; intervention: 9.85 percent) while two GB meetings were organized by 58.33 percent VSS in control and 61.36 percent VSS in intervention. In around 28.79 percent VSS in intervention and 16.67 percent VSS in control, more than 2 GB meetings were also organized. In around 16.67 percent VSS in control and 68.18 percent VSS in intervention, special GB meetings were also organized. Organization of executive committee meeting observed to be less than 12 times per year in 58.33 percent VSS in control and 16.67 percent VSS in intervention. The VSSs have been maintaining different documents to record their functioning. Number of records maintained at VSS level observed to be better in intervention pockets in comparison to control.

Capacity Building: On an average 33.63 percent EC members in control and 40.34 percent EC members in intervention have received training on different themes. Apart from EC members, other members of the GB have also been trained, i.e., 0.15 percent in control and 0.79 percent in intervention.

Key Activities by VSS: The VSSs have been involved in a number of activities like (a) forest protection (100.0 percent in control and intervention), (b) wildlife protection (control: 58.33

percent; intervention: 70.45 percent), (c) bio-diversity conservation / protection (control: 33.33 percent; intervention: 51.52 percent), (d) management of catchment area (control: 37.50 percent; intervention: 61.36 percent), (e) conservation / management of water resources (control: 33.33 percent; intervention: 56.06 percent), (f) micro plan preparation (intervention: 100.0 percent; no VSS in control), (g) prevention of encroachment (control: 12.50 percent; intervention: 15.15 percent), (h) coordination with other dept. schemes / program (control: 4.17; intervention: 50.76 percent) etc. Association of VSS in product market linkage (including NTFP) or protecting eco sensitive zone is not observed.

Forest Protection and Management: Members from 73.03 percent households in control and 90.95 percent households in intervention have been involved in different activities of VSS. However, in case of meetings of VSS, 28.6 percent households in control and 54.4 percent households in intervention have higher degree of participation; followed by moderate participation by 41.1 percent households in control and 34.8 percent households in intervention. Forest conservation and management trainings have been conducted by the Forest Department from time to time for VSS members in general and 15.1 percent households in control and 46.0 percent in intervention have received such trainings.

Benefit from Forest Resources: The villagers / VSS members have been deriving different economic benefits from the forest in different seasons. On an average, about 29.37 percent households from 58.33 percent VSS in control and 33.12 percent households from 63.64 percent VSS in intervention collect dry leaf and green fodder (grass) from the forest for domestic purposes with an average of 4.86 MT (5.67 quintal per year per HH) and 3.24 MT (5.37 quintal per year per HH) respectively. Intermediate forest yields like pool and firewood are collected by 51.85 percent households from 79.17 percent VSS in control and 49.55 percent households from 69.70 percent VSS in intervention with an average collection of 10.09 MT (10.01 quintal per year per HH) and 5.98 MT (7.39 quintals per year per HH) respectively. Different types of non-timber forest produce (NTFP) are collected (seasonal basis) by 39.20 percent households from 54.17 percent VSS in control and 38.14 percent households from 57.58 percent VSS in intervention with an average collection of 4.46 MT per year (3.51 quintal per year per HH) and 4.17 MT per year (5.13 quintal per year per HH) respectively. Collection of NTFPs by families in the forest fringe villages are more (number of households collecting NTFP and volume of collection) in comparison to households living in habitations that are relatively in a distant place from the forest. Dependency on major harvests (timber / wood) is limited to 6.07 percent households in 16.67 percent VSS in control and 14.64 percent households in 25.76 percent VSS respectively, which is again dependent upon obtaining clearance from the VSS.

Self-Help Group (SHG): The project intends to provide alternative opportunities of income generation for people by promoting self- help groups existing at the village level. All the villages observed are having women SHG/s, organized, and promoted by different entities. In most of the villages (control: 62.5 percent, intervention: 50.8 percent), there are more than 5 SHGs existing on an average; and in 3.8 percent intervention villages (no village in control), at least one women SHG is existing. So, in 100.0 percent control and 96.2 percent intervention villages, more than one WSHG is existing. Majority of the SHGs (control: 45.8 percent; intervention: 45.5 percent) are formed between 2016 to 2018, i.e., in the last 4-5 years and least number of SHGs (control: 4.2 percent; intervention: 3.8 percent) are formed after 2018. On an average, 66.7 percent members of the SHGs in control and 73.5 percent in intervention belong to poor economic category.

SHG Governance and Management: All the SHGs, in both control and intervention have bank account (100.0 percent) in the nearest bank branches. The SHGs have been maintaining different documents / registers like (a) meeting register (100.0 percent SHGs in control and intervention), (b) cash book (100.0 percent SHGs in control and intervention), (c) loan register

(control: 29.2 percent; intervention: 49.2 percent), (d) loan repayment register (control: 29.2 percent; intervention: 47.7 percent) etc. Majority of the SHGs (control: 79.2 percent; intervention: 65.2 percent) conduct meeting on regular basis in >90 percent cases whereas regularity of meeting has been less in 3.0 percent SHGs in intervention (no SHG in control).

Thrift and Internal Credit: All the SHGs (100.0 percent in control and intervention) have been involved in thrift and credit activities to meet their financial requirements. The norm of group level saving is mostly on monthly basis (control: 95.8 percent; intervention: 96.2 percent). However, some groups also having weekly thrift norm (control; 4.2 percent; intervention: 3.8 percent). The SHGs make thrift by collecting uniform amount from the members to meet the emergency needs of the members. Per member saving per period (weekly / monthly) varies between Rs.10.00 to Rs. 100.00 as per the group norm.

Average savings per group in intervention areas has been Rs. 51,363.57 which is comparatively higher than control areas 41,741.96. On an average, per member savings is Rs. 4,012.91 in control and Rs. 4,716.85 in intervention, irrespective of the day of formation of group or their membership in the group. Ranking of SHGs based on their member savings illustrate that 39.13 percent SHGs in control and 33.59 percent SHGs in intervention areas are having group savings of > Rs. 50,000. On the other hand, 4.35 percent SHGs in control and 2.29 percent SHGs in intervention are having average group savings amounting to <=Rs.10,000.00.

In case of average individual savings of members at the group level, average savings of the members is in the range of >Rs.3,000/- & <=Rs. 5,000/- in 30.4 percent groups in control and 32.1 percent groups in intervention respectively. Per member savings in the range of >Rs.5,000/- is in 34.8 percent SHGs in control and 30.5 percent SHGs in intervention. Individual savings amount with the group differs based on the year of formation, year of membership in the SHG, and amount of saving per month. Credit is outstanding with the members in 70.83 percent control SHGs with an average of Rs.8,914.17 and 67.42 percent intervention SHGs with an average of Rs.6,825.54.

External Credit Linkage: Of the total SHGs, 58.3 percent SHGs in control and 46.2 percent SHGs in intervention accessed credit (from different sources) in last 3 years. Looking at the age of the group and credit linkage (SHG-Bank linkage), it is pertinent that many SHGs (control: 41.7 percent, intervention: 52.3 percent) have not taken any credit from the bank due to various reasons like no plan for credit utilization, absence of specific credit needs, own fund or funds accessed from different sources is adequate to meet their internal demand, no such business development plan that demands credit linkage, poor performance of the SHG for which banks would have found unsuitable for providing credit, outstanding of earlier credit etc. Average bank credit per group linked with the banks in last 3 years has been Rs. 2,04,291.43 in control and Rs. 1,72,570.80 in intervention, irrespective of times of linkage with the banks. Bank credit found outstanding with around 33.3 percent SHGs in control (average of Rs. 1,50,389.50) and 27.3 percent SHGs in intervention (average of Rs. 87,282.05).

Involvement in IGA: Involvement of SHGs in IGA (both individual and group) found in 54.17 percent groups in control and 46.97 percent groups in intervention. Further, of the total groups involved in IGA, 61.54 percent in control and 41.94 percent in intervention are involved in group IGA. Individual IGA observed in 38.46 percent SHGs in control and 58.06 percent SHGS in intervention. Individual IGA is more prominent in intervention whereas SHGs involved in group IGA is higher in control.

Different IGAs have been taken up by the SHGs / members of the SHGs but in majority cases, it has been agricultural activities. Prevalence of IGA activities in aggregation, processing, value addition, supply chain management and over and above in off-farm and non-farm sector is rare.

In the IGAs, selected members of the SHGs are involved. Of the total SHGs involved in IGA, in 46.2 percent SHGs, <=25.0 percent members are involved in control, whereas in intervention <=25.0 percent members are involved in 62.9 percent SHGs. In many SHGs, basically where group based IGAs have been taken up, participation of members is more. On an average, >75.0 percent members are observed involved in IGA activities in 38.5 percent SHGs in control and 29.0 percent SHGs in intervention respectively.

Biodiversity: The plant biodiversity assessment was conducted in 35 sites, falling under 35 VSS in OFSDP-II intervention area. The mean area of the covered VSS found to be 97.95 ha. About 51.43 percent VSS are having assigned area in the range of 50 to 100 ha., followed by 22.86 percent in 100 to 150 ha. and 14.29 percent having assigned area above 150 ha. Activities that have been taken up are like (a) ANR with gap plantation, (b) ANR without gap plantation, (c) block plantation, (d) fuel & fodder plantation and (e) plantation of NTFP species. Of the total assigned forest area, the average area taken up for treatment under ANR with Gap (200) is around 24.18 ha. and implemented by 31.43 percent VSS. About 28.57 percent VSS have taken up ANR with gap plantation (400) in average area of 63.15 ha. whereas 2.86 percent VSS has taken up ANR with gap plantation (800) in 37.0 ha. ANR without gap, block plantation, fuel fodder plantation and NTFP plantation is taken up in 15.0 ha. by 2.86 percent VSS, in an average of 12.25 ha. by 11.43 percent VSS, in an average area of 19.33 ha. by 8.57 percent VSS and in an average area of 17.60 ha. by 14.29 percent VSS respectively (*These figures relate to Batch-I and II VSS only as Batch-III and batch-IV VSS are in various stages of being constituted*).

To understand plant diversity, two indices are computed, i.e., Shannon-Wiener Index (H) and Simpson Index (D). As per Shannon-Wiener Index, 5.7 percent sites fall in to "Rank 1" (low diversity), 45.7 percent in "Rank 2", 48.6 percent in "Rank 3" and no site found in "Rank 4" (high diversity). As per Simpson's Diversity Index (Reciprocal Index), 14.3 percent sites fall in to "Rank 1" (low diversity), 34.3 percent in "Rank 2", 34.3 percent in "Rank 3" and 17.1 percent in "Rank 4" (high diversity).

Forest Fire Protection and Management: In VSS assigned area, incident of forest fire is reported to happen occasionally, i.e., once in control area in case of 8.33 percent VSS in 2018-19 and 4.17 percent VSS in 2019-20. In intervention areas, 3.79 percent VSS experienced and managed forest fire in 2018-19 which was happened once. In the year 2019-20, forest fire occurred in 3.79 percent VSS once and 1.52 percent VSS twice which was managed by them with the support of forest officials.

Farm Forestry Promotion: Under OFSDP-II, different farm forestry models have been promoted to encourage forestry outside forests. Adoption of farm forestry models is observed in 16.78 percent households in the control and 34.24 percent households in the intervention. Households belonging to other social categories (OC) are having better adoption in comparison to SC and ST households in both intervention and control. Further economically better off households have higher adoption rate in control areas (22.73 percent) whereas poor households have better adoption in intervention area (35.01 percent). Farm forestry is better adopted by semi-medium and medium farmers in comparison to marginal and small farmers. However, marginal and small farmers in intervention areas are more involved in farm forestry in comparison to control. Average area devoted for farm forestry is about 0.16 ha. in case of uncultivable waste land in control and 0.21 ha. in case of intervention areas with a total area of 5.61 ha. in control and 36.41 ha. in interventions. Area devoted for farm forestry has been relatively higher in case of semi-medium and medium farmers in control and medium and small farmers in intervention areas.

Human Wildlife Conflict: Wild animal impacting agricultural field is reported by many villagers in the forest fringe villages. Villagers normally manage the situation and try to keep the wild animals out of their fields. But Human animal conflict is also reported in some of the studied villages. It has been one of the causes for poor cropping intensity and thereby poor agricultural income of the farmers. Due to wild animals, crop damage is reported to be common in these villages and gross farm output has been

low. In many villages, farmers are of the opinion of having fencing with solar power to prevent wild animals from entering agricultural land and human habitations.

Livelihood Scenario: Around 70.8 percent villages in control and 90.1 percent villages in intervention have more than 75.0 percent houses that are considered poor (having ration card). In the study households, 92.76 percent households in control and 93.06 percent in intervention areas are having ration card and hence can be considered poor. Looking by holding of ration card by social categories (of the total card possessor), it is evident that ST households are having higher enrolment in comparison to other social categories. Further, looking by card holding in each social category, it is observed that percentage of SC (97.44 percent) households of the total SC household and percentage of ST households (92.91 percent) of the total ST households have higher enrolment in comparison to OC households in both control and intervention areas.

Engagement and Income: Agriculture has been the primary occupation of most of the able-bodied members, followed by wage / daily wage. About 30.92 percent persons in control and 38.93 percent in intervention are primarily engaged in agriculture. Wage (agriculture / daily wage) has been the primary occupation of 28.11 percent people in control and 25.56 percent in intervention. For a segment of population, 7.5 percent in control and 8.48 percent in intervention, NTFP collection and its selling is the primary occupation. People engaged in salaried job, both temporary and permanent, amounts to 9.24 percent in control and 9.33 percent in intervention. People also remain engaged in different other income generating activities, considered secondary sources of income. Wage related engagement and NTFP collection has been major secondary sources of income for people, irrespective of intervention and control.

About 74.64 percent members in control and 71.67 percent in intervention are having average annual income in the range of <60,000. Looking by sex, it is pertinent that 61.02 percent male and 93.99 percent female fall into the lowest range in control and 57.47 percent male, and 92.09 percent female fall into the lowest income range in intervention. So, a greater number of females, engaged in different occupations, have lower income in comparison to their male counterpart. More percentage of male members observed in second (>60,000 <=1,20,000) and third (>1,20,000) income category in both control and intervention areas. Majority of the households across the social structures (SC, ST and OC) fall in to second category (>= 60,000 & <=1,20,000), followed by third category (> 1,20,000).

Land Holding: About 80.59 percent households have own land in control and 90.05 percent in intervention area. If operational holding is considered, 85.20 percent households in control and 93.21 percent households in intervention have land. Percentage of landless families (families not having own land) found to be 19.41 percent in control and 9.95 percent in intervention areas. If operational holding is taken into account (including other land cultivated), percentage of landless families reduces to 14.80 percent in control and 6.79 percent in intervention area. Majority of the households are marginal farmers in control (64.47 percent) as well as in intervention (60.33 percent), having land holding below one ha. It is followed by small farmer (Control: 12.83 percent; Intervention: 22.47 percent) with holding size between one to two ha. So, together, marginal, and small farmer accounts to 77.30 percent of the total households holding land (own land) in control and 82.81 percent in intervention. Semi-medium and medium farmer accounts to 1.64 percent and 1.64 percent in control and 5.73 percent and 1.51 percent in intervention, respectively. No large farmer is observed in the sample who have more than 10 ha. of land.

Average land holding (own) of marginal farmers has been 0.48 ha. in control and 0.54 ha. in intervention. Small farmers, on an average hold 1.38 ha. in control and 1.44 ha. in intervention. Semi-medium and medium farmers in control holds on an average 2.69 ha. and 7.13 ha. respectively. Marginally higher average holding observed in case of semi-medium farmers in

intervention, i.e., 3.00 ha. Irrespective of different land holding categories, households own 0.81 ha. in control and 1.01 ha. in intervention area.

About 85.11 percent ST households having own land, while 78.23 percent OC households and 71.79 percent SC households have own land in case of control areas. In case of intervention, 92.37 percent ST households, 84.09 percent SC households and 87.45 percent OC households have own land. The average land holding is lowest among the SCs (0.59 ha.) whereas families belonging to ST and OC categories have average holding of 0.71 ha. and 1.0 ha. respectively. So, from land holding perspective, SC households are the most marginal among other social groups.

Crop Production: Paddy has been the prime among the crops during Kharif (Control: 89.80 percent farmers; Intervention: 95.17 percent farmers). Some farmers also cultivate Paddy during Rabi season, where irrigation facility is available. Average area devoted for paddy cultivation has been 0.72 ha. in control and 0.88 ha. in intervention. Average crop productivity of different crops found less than the State average whereas some other crops having same level of crop productivity to that of the State average.

Product Mapping for Cluster Development: In general, agricultural, horticultural and NTFP produces are important in the studied pockets. Livestock sector has been emerging in many villages and reflects prominence. Pigeon pea (Arhar) has been the major production in 22.0 percent VSS and production growth potential to the tune of 120.8 percent can be achieved in 22.0 percent VSS. Black gram is commonly grown by farmers in 35.6 percent VSS and production growth potential is about 187.7 percent in case of 35.6 percent VSS. Green gram production is prominent in 39.4 percent VSS and the mapped production growth potential is 135.8 percent in 31.8 percent VSS. Groundnut is one of the major commodities produced by 12.1 percent VSS which is having production growth potential of 95.0 percent covering all the 12.1 percent producing VSS.

Skill Base: The studied villages have persons with different skill base in different areas such as tailoring, handloom, handicraft, driving, mechanical, electrician etc. Looking at the total population of able bodied between 18 and 60, the skill base is found to be poor. Employable skill base of the members in different skill categories observed in 15.63 percent people of sample households in control and 19.05 percent in intervention. Comparing persons having different skill base by sex, it is evident that around 21.97 percent male and 8.73 percent female in control; and 25.94 percent male and 11.58 percent female in intervention area are having different skills. Of the total, who have got skill-based training, 40.0 percent in control and 45.16 percent in intervention got employment in different places with average monthly remuneration of around Rs. 10,000.00 in control and Rs.12,500.00 in intervention.

Household Expenditure: Food expenditure of 35.53 percent households in control and 34.70 percent households in intervention observed >=57.0 percent of the total household expenditure, whereas remaining households have food expenditure <57.0 percent of their total expenditure. Taking monthly per capita expenditure benchmark of Rs. 695.00 (Rs.37, 530 per family per year with average family size of 4.5) for Odisha (Tendulkar committee estimation), it is observed that 88.16 percent households in control and 88.39 percent households in intervention are having annual expenditure more than Rs. 37,530.00, which means 11.84 percent households in control and 11.61 percent households in intervention do less expenditure than the benchmark and continue to be below the poverty line. Considering national benchmark of Rs. 816.00 per capita expenditure (Rs. 44,064 per family per year with average family size of 4.5), it is observed that around 81.25 percent households in control and 81.00 percent in intervention spend more than the benchmark. Alternatively, 18.75 percent households in control and 19.00

percent households in intervention having annual expenditure less than the stipulated poverty benchmark price.

Indebtedness: The households have been taking credit from different formal and semi-formal / informal sources to meet their financial requirements. About 36.18 percent families in control and 31.37 percent families in intervention found having credit from single or multiple sources. Among different sources, credit taken by families from money lender/s observed comparatively less (control: 3.62 percent, intervention: 1.81 percent). Credit from banks / formal financial institutions is accessed by 6.91 percent families in control and 13.12 percent in intervention, whereas credit from cooperatives (agricultural cooperatives) is accessed by 13.49 percent households in control and 14.63 percent in intervention. Local SHGs have been the primary lender to majority of the households as most of the households have membership in the SHG. Around 36.18 percent households have taken credit from SHGs in control and 31.37 percent in intervention. Average credit amount outstanding per household observed to be highest among all the sources in case of banks (control: Rs. 1,30,990.48, intervention: Rs. 75,224.83) and cooperatives (control: Rs. 32,492.68; intervention: Rs. 32,170.10). Though SHGs have been one of the prime credits providing institutions at the local level, average credit outstanding per household who have taken credit from SHG has been low in comparison to some other credit sources.

Looking at the credit accessibility and outstanding by social stratification, it is evident that families belonging to OC have better accessibility to banking system (11.29 percent) and cooperatives (26.61 percent) in comparison to SC (banking: 5.13 percent; cooperative: 2.56 percent) and ST (banking: 3.55 percent; cooperative: 4.96 percent) families in control. Similar situation is also observed in case of intervention areas. In case of poor and non-poor households, bank credit outstanding is higher in case of non-poor in both control and intervention along with credit outstanding with cooperatives in intervention. But percentage of poor households having credit outstanding with SHG is more than non-poor in intervention as well as in control.

Migration: Members from 10.53 percent households in control and 10.86 percent households in intervention migrate to different places in search of employment. Place of migration has been to States like Andhra Pradesh, Karnataka, Kerala, Gujarat, Tamil Nadu, Maharashtra etc. People also found migrating to different districts within the State of Odisha. Average annual income of migrating people (last year) was around Rs. 93,600.00 in control and Rs.83,661.76 in the intervention. People, who migrate within the State for casual labour, receive advance for migrating to the destinated place, and average amount of advance, in general, is Rs. 3,000.00 per person.

Requirement for Livelihood Enhancement: People / households have different livelihood related requirements, like availability of institutional credit facility is a priority of 15.13 percent households, flexible repayment of institutional credit (second ranked by 44.88 percent), on time credit availability as per the need (ranked second by 39.14 percent) etc.


OFSDP - II
TRAINING ON COMMUNITY MOBILIZATION


ଓଡ଼ିଶା ବନାଞ୍ଚଳ ଉନ୍ନୟନ ପ୍ରକଳ୍ପ
ବନାଞ୍ଚଳ
ODISHA FORESTRY SECTOR DEVELOPMENT PROJECT • PHASE-II

Section I: Introduction and Background

1.0 Introduction:

Odisha Forestry Sector Development Project (Phase-II) is designed to strengthen the forestry sector of the State, through forest conservation, development, and sustainable use through community participation, and improving livelihoods of forest dependent communities with long term goals of environmental conservation and poverty alleviation. The rationale of the project is linked with Odisha's Forestry Vision, need for improving the quality of forests in the State and improving livelihood of people focusing on socially marginal communities etc. The project aims at improving the forest ecosystem by promoting sustainable forest management and biodiversity conservation through Joint Forest Management (JFM) approach including institutional capacity development, thereby contributing to environmental conservation and harmonized socio-economic development of Odisha. The objective of the project looks at (a) restoration of degraded forest to augment forest resources, (b) secure sustainable forest management by improving forest administration, community organizations and other stakeholders, (c) conserve and better manage the biodiversity, (d) promoting inter-sectoral convergence, (e) improve income of target forest dependents and improve their livelihood options.

The project, as per the implementation plan, will cover 50 Forest Management Units (FMUs) under 12 Territorial Forest Divisions and 2 Wildlife (W/L) Divisions in 10 Districts of the state. As the project envisages joint forest management approach, 1,200 *Vana Surakshya Samittees* (VSSs) are planned to be associated in the execution of different project activities in four distinct batches of implementation. About 3,600 women Self-Help Groups (SHGs) would be assisted with capacity development and livelihood improvement. The project is having five broad components, i.e., (a) sustainable forest management, (b) livelihood enhancement and promoting Income Generation Activities (IGA), (c) capacity building and institution development, (d) sustainable bio-diversity management, and (e) preparatory works.

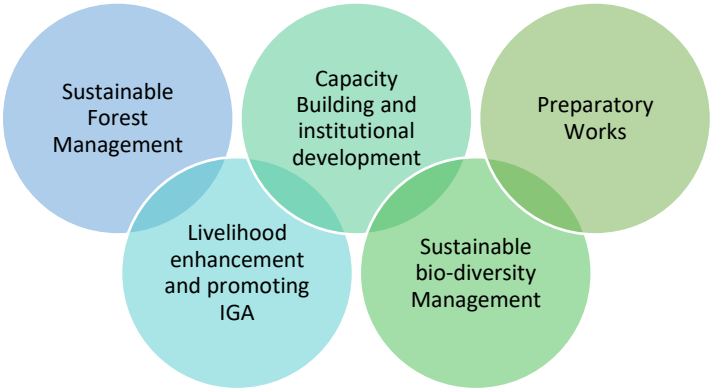

Figure 1: Project Components

The project components, objectively envisages;

- Restoration of degraded forests and augmentation of forest resources through people's participation; Securing sustainable forest management by improving community participation;
- Capacity building of community organizations and other stakeholders;
- Conservation and scientific management of the biodiversity;
- Promote Alternative Income Generation Activities;
- Promotion to inter-sectoral convergence for better livelihood and improvement of income of the targeted forest dependent communities.

Figure 2: Project Objectives

1.1 Objective and Scope of the Study:

Specific objectives of conducting baseline study and physical situation analysis were[1]; (a) to prepare the baseline (socio-economic and physical situations) of Odisha Forestry Sector Development Project - II; (b) use of GIS technologies during the study, i.e., geotagging of the houses covered under the study; (c) recording of all the sample sites through GPS coordinates; (d) conducting the study in collaboration with the project units (DMU and FMUs); (e) to capture the situations in the control villages/sites for reference and comparison; and (f) to capture the gender segregated data and its analysis.

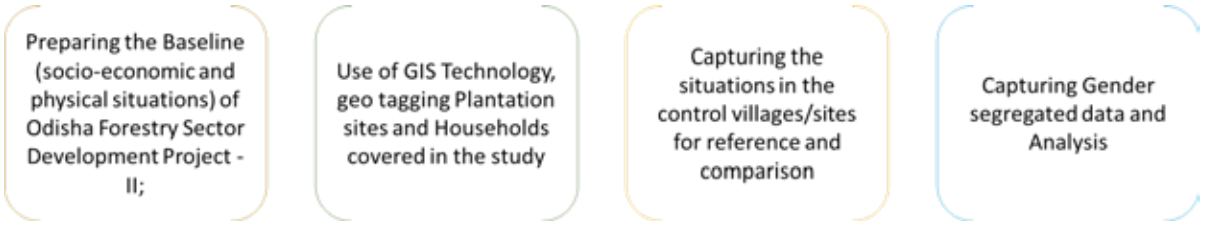

Figure 3: Scope of the Study

The overall scope of work looks at developing a baseline on socio economic condition of the project and control households and a baseline on physical situation of the project area. Taking into account the overall scope of the study, and further looking at the components of intervention, the baseline socio economic study and baseline physical situation was assessed. With respect to physical situation assessment, the coverage of degraded forest area and type of tree species, average height of the tree's and average GBH of the existing trees etc. were assessed. Similarly, with respect to socio economic baseline, in addition to the profile of the forest fringe households, the current livelihood, income, employment and consumption pattern etc. were also assessed.

1.2 Approach and Methodology

The baseline study followed "observational design" linking the project perspective to the expected study outputs. The study was exploratory and empirical evidence based, adopting mixed method approach. The baseline study design adheres to quasi experimental design, with reference to intervention and comparable group study.

[1]With reference to the Terms of Reference (TOR)

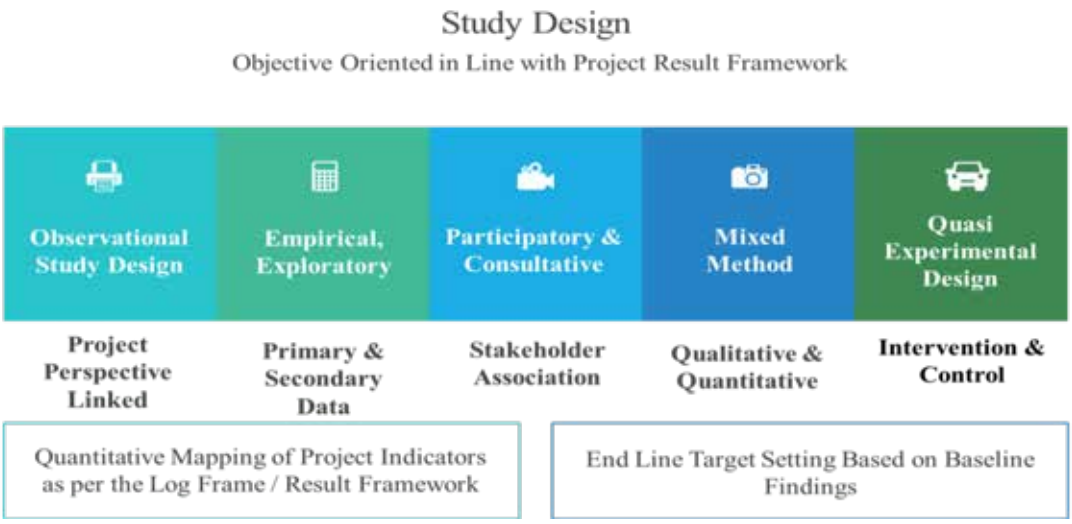

Figure 4: Study Design

As a part of study methodology, available literature related to the project were reviewed with analysis of existing database / information of the project. The desk review was followed by consultation meeting/s with the project officials and finalization of study strategy. Primary information was collected from different stakeholders at the sample project (intervention) and non-project sites (comparable area), through interview, focus group discussion and physical measurement of plantation sites. It was also encompassed consultations with forest officials at the sample project sites.

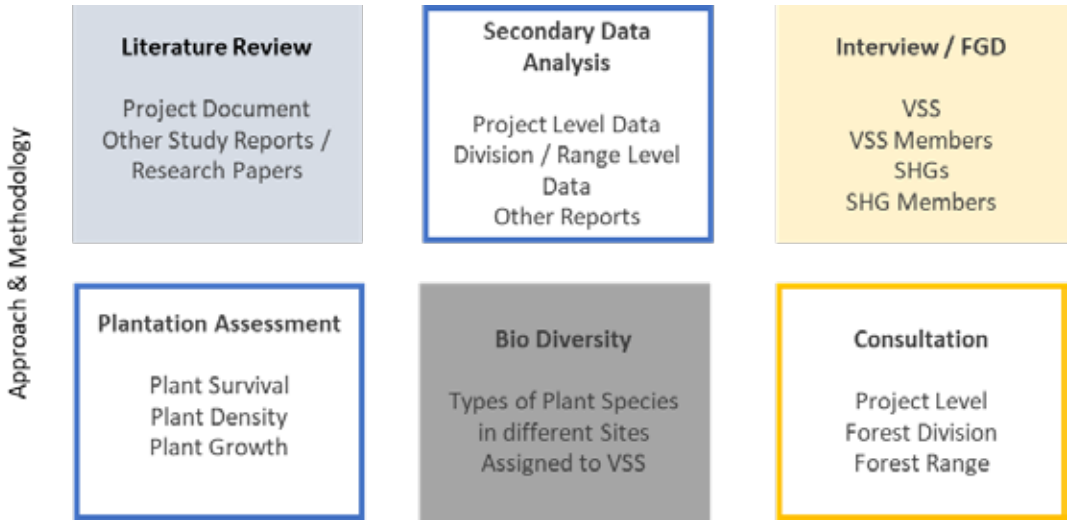

Figure 5: Methodological Approach

1. Participatory and consultative mode of execution, involving stakeholders in the study process;
2. Secondary data collection and its analysis, apart from primary data;
3. Statistically significant sample frame that is representative to the project universe;
4. Mapping indicator specific baseline values for future evaluation of the project;
5. Covering project components and activities that are linked to project intervention;
6. Designing tools (mixed method of data collection) that are responsive to the project aspects;
7. Use of technology for capturing data (GIS application);
8. Use of statistical software for data analysis (SPSS / R);
9. Peer review and client feedback mechanism for quality improvement.

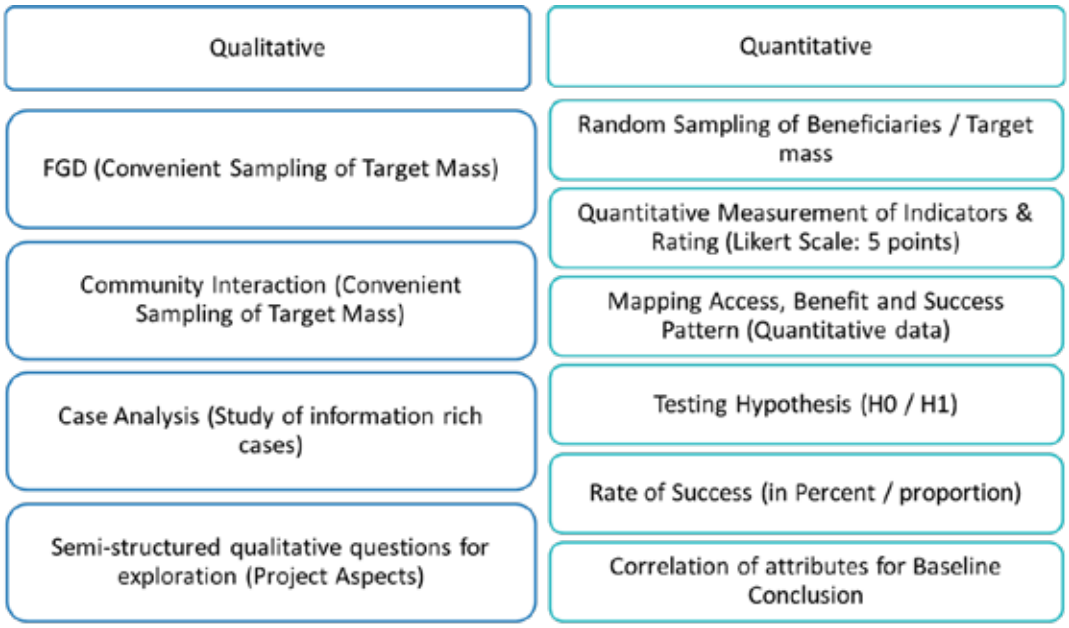

Figure 6: Mixed Method Overview

The study design and the adopted approach and methodology suitably incorporates the suggestions of the officials of the Forest and Environment Department, Government of Odisha. The methodology was discussed with the officials of the OFSDP-II from time to time and finalized incorporating their valuable suggestions. Further, for elaborate discussion on the study approach and methodology, an exclusive meeting was organized on 13th of January 2020 under the chairpersonship of Additional Chief Secretary to Government, F&E Dept., Govt. of Odisha. The suggestions made by the house were made a part of the study design suitably.

1.2.1 Sample Frame:

OFSDP-II is planned to be implemented through 1,200 VSSs and approximately 3,600 women SHGs in selected project Forest Divisions. Along with intervention area, control areas were also covered for comparative analysis of baseline situation. The overall sample frame for the study is presented in the matrix below. Details of sampling strategy are discussed in subsequent sub-sections. As the study aims at baseline socio economic survey of households in the project area and mapping of physical situation of the degraded forest areas taken up for plantation under the project, both the activities were taken up simultaneously in selected Forest Division and Ranges. In this process, VSSs protecting concerned plantation on degraded forests and the members of VSS were covered for the baseline of physical situation as well as the household socio economic parameters.

1.2.2 Sampling of Forest Ranges:

The available GIS maps of OFSDS / OFSDP was used to demarcate geographical areas under OFSDP-II and deriving the sample Ranges for coverage under the baseline. The existence of VSS and forest area (Ha.) under their jurisdiction was also analyzed using the GIS maps. Out of the total 50 intervention Ranges selected under OFSDP-II, Batch-I and Batch-II covers 32 Ranges, i.e., 64.0 percent of the project Ranges. The study covered a total of 26 sample Forest Ranges (intervention area) across 12 Forest Divisions, i.e., 81.3 percent of the total Forest Ranges under the project in Batch-I and Batch-II. Distribution of sample Forest Ranges by Forest Division is presented in the table.

Table 1: Forest Ranges and Sample Coverage; OFSDP II

SN	Forest Division	No. of Intervention Ranges			Sample Ranges Covered			
		Batch I	Batch II	Total	Control		Intervention	
					No.	% of Intervention Ranges	No.	% of Intervention Ranges
1	Athamallik	1	1	2	2	100.0	2	100.0
2	Baripada	2	3	5	2	40.0	3	60.0
3	Boudh	1	1	2	2	100.0	2	100.0
4	Dhenkanal	1	1	2	2	100.0	2	100.0
5	Ghumsar (N)	1	1	2	2	100.0	2	100.0
6	Ghumsar (S)	1	1	2	2	100.0	2	100.0
7	Jharsuguda	1	2	3	2	66.7	3	100.0
8	Karanjia	1	1	2	1	50.0	1	50.0
9	Rairangpur	2	3	5	2	40.0	3	60.0
10	Sambalpur	2	1	3	1	33.3	2	66.7
11	Subarnapur	1	1	2	2	100.0	2	100.0
12	Sundergarh	1	1	2	2	100.0	2	100.0
	Total	**15**	**17**	**32**	**22**	**68.8**	**26**	**81.3**

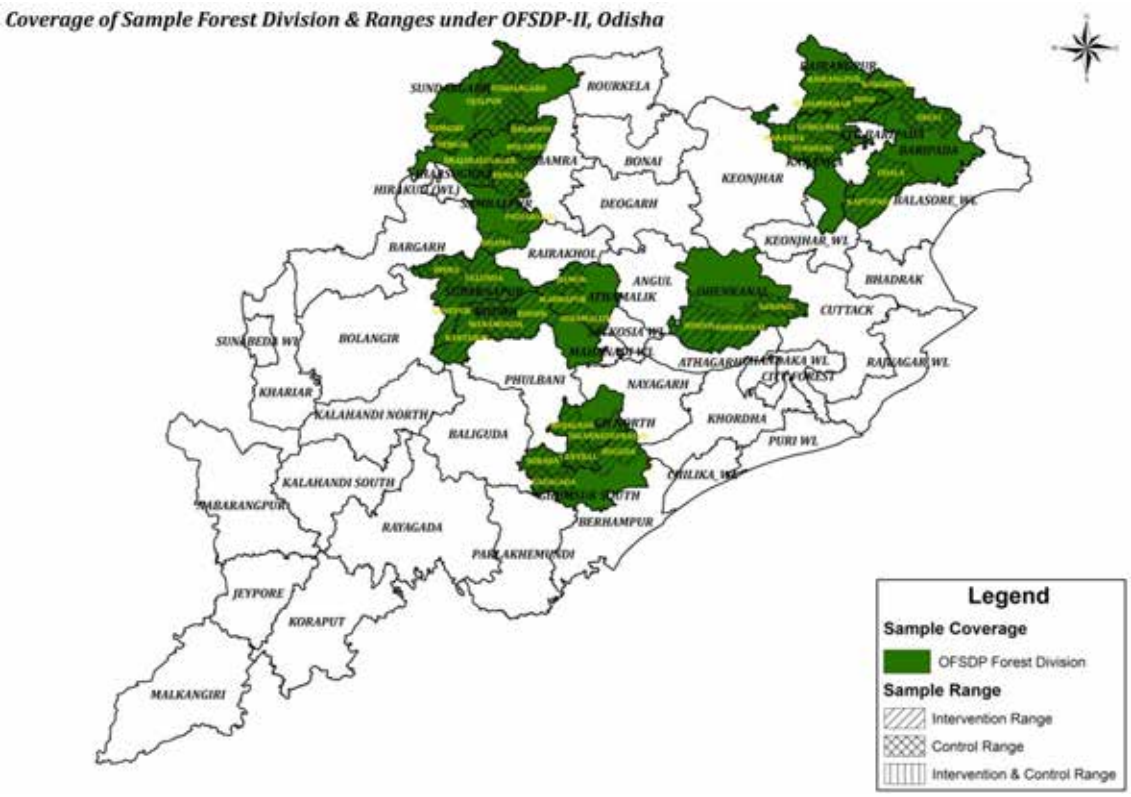

Figure 7: Coverage of Sample Forest Division and Ranges

1.2.3 Selection of Control / Comparable Sample:

For developing a baseline, control villages were selected (in consultation with district level forest officials), more or less of same type of non-contiguous forest fringe villages where OFSDP-II is not planned for implementation. As per earlier decision, control villages as well as sites were selected within the same Forest Division / Forest Range assuming the homogeneity of socio-economic characteristics in a given Division, and non-contiguous characteristics are deliberately chosen so as to undermine

project externalities among the control group. List of selected control areas of OFSDP-II is presented in the matrix.

Table 2: Control Ranges in OFSDP-II

Sl. No.	OFSDP II	
	Division	**Control Range**
1	Athamalik	Bamur
2	Baripada	Deuli
3	Boudh	Manamunda
4	Dhenkanal	Sadangi
5	Ghumsur North	Central
6	Ghumsur South	Badagada
7	Jharsuguda	Brajarajanagar
8	Karanjia	Karanjia
9	Rairangpur	Bisoi
10	Sambalpur	Rengali
11	Subarnapur	Binka
12	Sundargarh	Sundargarh

1.2.4 Sampling of VSS:

The sampled OFSDP-II Forest Ranges (Batch I and II) covered a total of 609 VSS (in 26 Ranges), i.e., on an average, each Range is having about 23 VSS. In order to select the VSS sample, proportion distribution of VSS in sample Range under each Forest Division is calculated for OFSDP-II. Based on proportionate distribution of VSS, numbers of sample VSS were estimated across each Forest Range and Forest Division. Details of proportionate distribution of VSS across Forest Ranges and number of samples VSS covered is presented in the matrix.

Table 3: Distribution of Sample VSS per Range & Division in OFSDP-II

Division	Intervention Range	Intervention VSS	Proportion	Sample	Division Sample
Athamalik	Athamalik	20	3.28	4	10
	Madhapur	25	4.11	5	
Baripada	Bangiriposi	19	3.12	4	14
	Kaptipada	24	3.94	5	
	Udala	25	4.11	5	
Boudh	Boudh	20	3.28	4	8
	Kantamal	19	3.12	4	
Dhenkanal	Dhenkanal	25	4.11	5	11
	Hindol	27	4.43	6	
Ghumsur North	Jagannath Prasad	25	4.11	5	10
	Mujagada	25	4.11	5	
Ghumsur South	Buguda	20	3.28	4	8
	Sorada	20	3.28	4	
Jharsuguda	Bagdihi	20	3.28	4	11
	Kolabira	30	4.93	7	
Karanjia	Dudhiani	20	3.28	4	8
	Gurguria	20	3.28	4	
Rairangpur	Badampahar	26	4.27	6	16
	Bisoi	20	3.28	4	
	Rairangpur	26	4.27	6	
Sambalpur	Dhama	20	3.28	4	9
	Padiabahal	25	4.11	5	
Subarnapur	Sonepur	25	4.11	5	10
	Ullunda	24	3.94	5	
Sundargarh	Hemgiri	30	4.93	7	13
	Ujalpur	29	4.76	6	
Total	**26 Ranges**	**609**	**100.00**	**132**	**132**

***Note**: Additional two Ranges are selected for adjustment in case of requirement*

After the finalization of number of VSS per Forest Range, VSSs were selected through stratification. The VSS in different Ranges and Forest Divisions are having forest area of different size (in ha.) under its operational jurisdiction. For the selection of VSS for baseline study, operational area of VSS was considered as the criteria for stratification and selection. The objectives of considering forest area for VSS stratification was (1) to understand the management principles in case of higher forest area Vs lower forest area (VSS is objectively designed and formed for forest protection / management), (2) forest based livelihood security and alternate means of livelihood in different forest area coverage, (3) volume of collection and selling of produces and emergence of any specific forest based production clusters around forest area of different size, (4) mapping the opportunity and viability of promoting NTFP / other production specific clusters in different forest bases, and (5) infrastructural facilities and services that are prevailing at the village level with different forest area coverage.

For the stratification and selection of VSS, the difference of operational forest area of VSS under each Forest Range from the mean area (in ha.) was estimated. VSS are selected from three different Ranges, based on their deviation from the mean, i.e., higher positive deviation (higher forest area than the mean forest area), negative deviation (lower forest area from the mean value) and VSS having forest area around the mean value (marginally higher or lower than the average value). Graphical presentation of stratification and selection of sample is presented below as an example. Based on this principle, VSS were selected and covered under the baseline study.

VSS	Area
Dudhianali	63.99
Jadupur	53.73
Tangianisa	63.58
Hariharpur	57.84
Kamalpur	62.66
Kundapur	80.82
Rangpur	52.87
Gopalpur	54.78
Mahendrapur	152.81
Nuagarh	67.46
Kaierighati	58.49
Hingmandal	195.00
Rajing	83.02
Aida	94.77
Kalamati	83.19
Kutugaon	58.98
Sugripali Badabandha	54.84
Titigaon	54.62
Kendupati Dalki	64.56
Pataka Dahimal	96.18

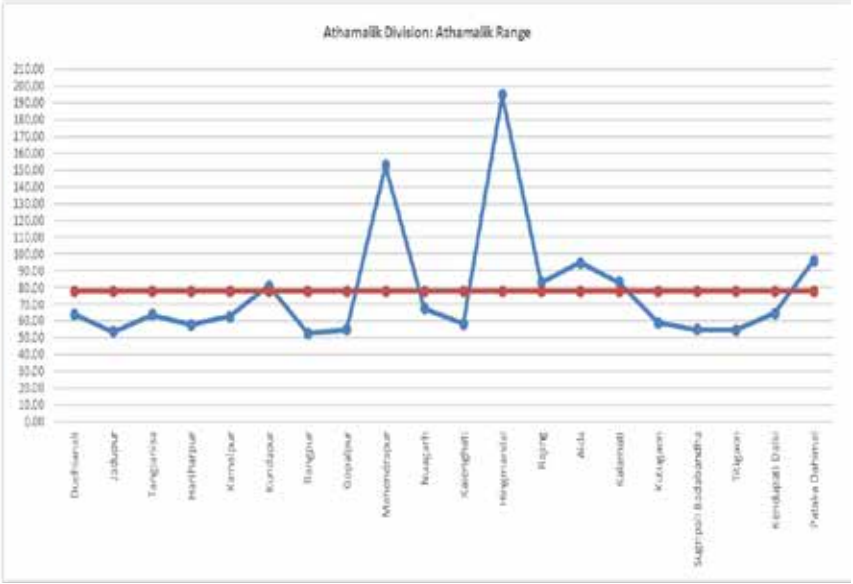

Figure 8: Distribution of VSS based on Area Coverage and Mean Area (in Ha.)

Based on the distribution of VSS, taking the mean value as the cut-off, total sample VSS in different Forest Ranges and Forest Divisions are selected. Detail distribution of VSS is presented in the table below.

Table 4: Distribution of VSS and Households in OFSDP-II (Intervention Area)

Division	Intervention Range	> Mean		Around Mean		< Mean		Sample	
		VSS	HH	VSS	HH	VSS	HH	VSS	HH
Athamalik	Athamalik	2	10	1	5	1	5	5	25
	Madhapur	2	10	2	10	2	10	5	25
Baripada	Bangiriposi	1	5	1	5	2	10	4	20
	Kaptipada	2	10	2	10	2	10	5	25
	Udala	1	5	2	10	2	10	5	25
Boudh	Boudh	2	10	1	5	1	5	4	20
	Kantamal	1	5	2	10	1	5	4	20

Division	Intervention Range	> Mean		Around Mean		< Mean		Sample	
		VSS	HH	VSS	HH	VSS	HH	VSS	HH
Dhenkanal	Dhenkanal	2	10	1	5	2	10	5	25
	Hindol	2	10	2	10	2	10	6	30
Ghumsur North	Jagannath Prasad	1	5	2	10	2	10	5	27
	Mujagada	2	10	2	10	2	10	6	30
Ghumsur South	Buguda	2	10	1	5	1	5	5	25
	Sorada	1	5	2	10	2	10	4	19
Jharsuguda	Bagdihi	1	5	2	10	1	5	3	15
	Kolabira	3	15	2	10	2	10	8	40
Karanjia	Dudhiani	2	10	2	10	1	5	9	45
Rairangpur	Bahalda	2	10	2	10	2	10	5	25
	Bisoi	1	5	1	5	2	10	4	20
	Rairangpur	2	10	2	10	2	10	6	30
Sambalpur	Dhama	2	10	1	5	1	5	5	25
	Padiabahal	2	10	1	5	2	10	5	26
Subarnapur	Sonepur	2	10	2	10	1	5	6	30
	Ullunda	1	5	2	10	2	10	5	26
Sundargarh	Hemgiri	2	10	2	10	3	15	6	30
	Ujalpur	2	10	2	10	2	10	7	35
Total	**25 Ranges**	**44**	**220**	**44**	**220**	**44**	**220**	**132**	**663**

***Note**: Additional two Ranges are selected for adjustment in case of requirement; VSS: Vana Surakshya Samiti; HH: Household*

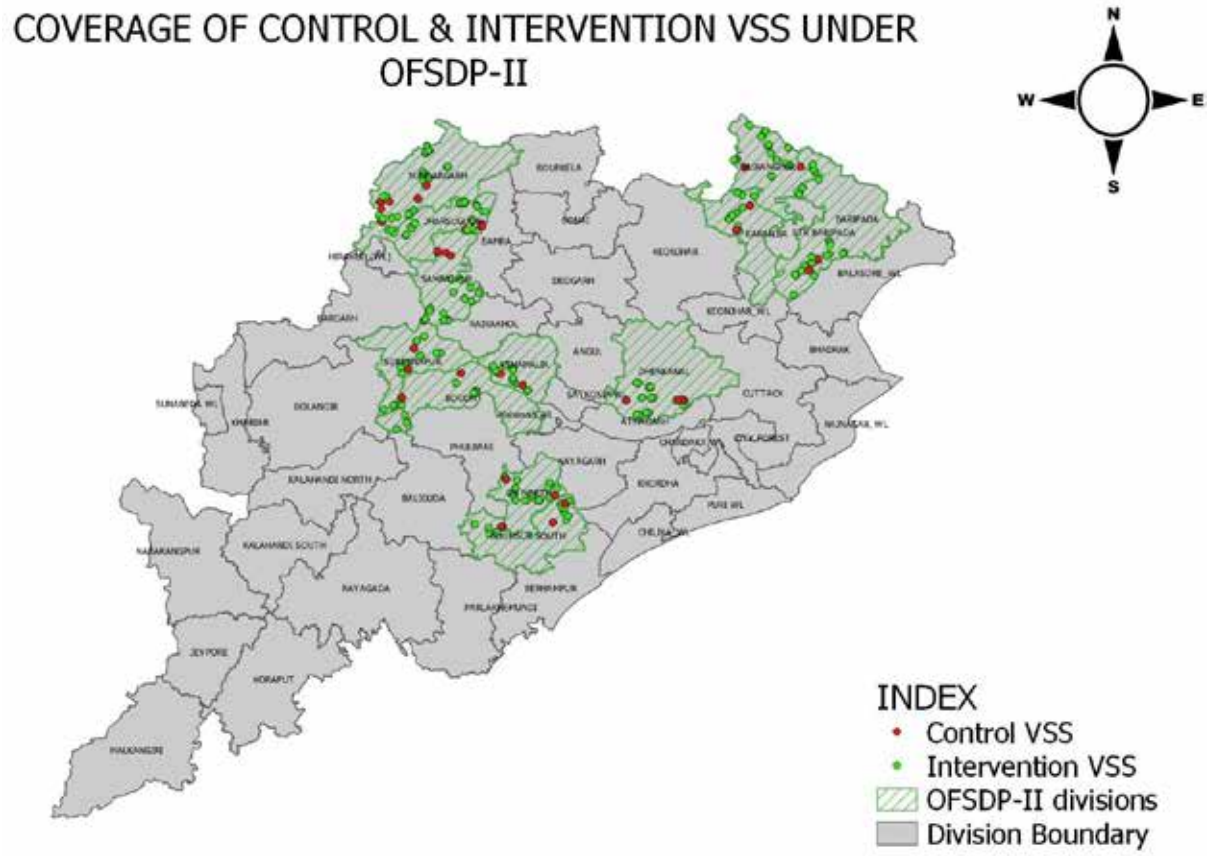

Figure 9: Intervention & Control VSS / Villages Covered in the Baseline

1.2.5 Sampling of Households:

In order to undertake socio economic baseline, sampling of households constitutes to be the foremost step. The study covered 5 households (about 10.0 percent covering SHG households) were sampled out from each of the project village / selected VSS on the basis of "Stratified Random Sampling" by

considering social category and economic category as stratums. Further the Stratified Random Sampling was followed as per the rule of proportionality. So that according to the percentage share of each stratum in the total population, households correspondingly equal in proportion were considered in the overall sampling. By considering 5 households per project village, the study covered a total sample of 663 households in project area and 304 households in control area. The Range / Division wise number of sample households covered under the study is presented in the matrix (Table 5).

1.2.6 Sampling of SHG:

The OFSDP-II project is expected to cover about 3,600 SHGs, i.e., an average of three SHGs per VSS. The study covered one SHG from each VSS village, i.e., a total of 132 SHGs from OFSDP-II Divisions / Ranges. The SHGs were covered, taking in to account the criteria of (a) SHGs being nurtured by the VSS (functionally low in performance) and SHGs that are already part of the local federation (cluster / GP level federation) (functionally better off) (Table 5).

1.2.7 Overall Sample Coverage:

The project is planned to be implemented in 50 Forest Ranges under 14 Forest Divisions (including 2 W/L Divisions) covering 10 administrative Districts in Odisha. The project is expected to cover 1,200 VSSs and approximately 3,600 women SHGs in the proposed project sites. The baseline study covered a total of 12 Forest Divisions[2], excluding the W/L Divisions, i.e., 100.0 percent coverage of Territorial Forest Divisions falling under the project purview. Of the total 50 Forest Ranges, the study covered 24 Ranges (48.0 percent) from 12 Forest Divisions and 32 intervention Ranges (Batch-I and Batch-II) of OFSDP-II, and 12 non-intervention (control / comparable) Forest Ranges from the Forest Divisions under the project. So, a total of 36 Forest Ranges (intervention + comparable) were covered under the study.

From each proposed intervention pocket, VSS were selected proportionately. The study covered a total of 132 VSS from intervention and 24 VSS from control Ranges. As the project envisages SHGs as a medium for livelihood promotion, the baseline also covered a total of 132 SHGs from intervention and 24 SHGs from control Forest Ranges within the jurisdiction of the project Forest Divisions. Further, from each intervention Forest Division and Range, 5 households were selected from each VSS which includes SHG members of that household. Number of households covered per VSS remain same whereas total number of households per Range differs based on the number of VSS coverage. Detail sample frame is presented in the matrix below (Table 5).

Table 5: Sample Frame for OFSDP-II

SN	Forest Divisions	Forest Ranges			VSS			SHG			Household		
		I	C	T	I	C	T	I	C	T	I	C	T
1	Athamallik	2	2	2	10	2	12	10	2	12	50	26	76
2	Baripada	3	2	3	14	2	16	14	2	16	70	25	95
3	Boudh	2	2	2	8	2	10	8	2	10	40	26	66
4	Dhenkanal	2	2	2	11	2	13	11	2	13	55	26	81
5	Ghumsur (N)	2	2	2	11	2	13	11	2	13	57	24	81
6	Ghumsur (S)	2	2	2	9	2	11	9	2	11	44	25	69
7	Jharsuguda	3	2	3	11	2	13	11	2	13	55	26	81
8	Karnajia	1	1	1	9	2	11	9	2	11	45	25	70
9	Rairangpur	3	2	3	15	2	17	15	2	17	75	25	100
10	Sambalpur	2	1	2	10	2	12	10	2	12	51	25	76
11	Subarnapur	2	2	2	11	2	13	11	2	13	56	26	82
12	Sundragarh	2	2	2	13	2	15	13	2	15	65	25	90
	Total	**26**	**22**	**26**	**132**	**24**	**156**	**132**	**24**	**156**	**663**	**304**	**967**

[2]As decided in the initial consultation meetings with officials of OFSDP-II

Note: I: Intervention; C: Control / Comparable; T: Total; Forest Ranges are not additive as control groups were selected from the same Forest Range.

Apart from community institutions (VSS and SHG) and households from intervention and control area, the study also covered infrastructural facilities and services that are supportive for the promotion of income generation activities.

1.2.8 Sampling of Plantation Sites:

From each studied intervention Range (Ranges as per the intervention sample frame), one plantation site was taken up for assessing the physical situation of the plantation. So overall 35 sample sites were assessed under the baseline study to understand the physical situation of the plantation sites, such as height, girth etc. of the plants grown in different plantation sites. Representative number of plots were taken from different grids of the plantation site for assessment. Plantation sites covered under the baseline assessment is presented below.

Table 6: Sample of Plantation Sites; OFSDP II

Forest Division	No. of Sample	Forest Division	No. of Sample
Athamallik	4	Karanjia	2
Baripada	3	Rairangapur	3
Boudh	2	Sambalpur	3
Dhenkanal	1	Subarnapur	3
Ghumusr (N)	3	Sundargarh	4
Ghumsar (S)	3	**Total**	**35**
Jharsuguda	4		

1.2.9 Study Tools:

Both structured and semi-structured tools were developed to capture primary and secondary information from different stakeholders, i.e., VSS households, VSS, SHG members, SHGs etc. The tools developed by stakeholder category are presented below (refer annexure for tools).

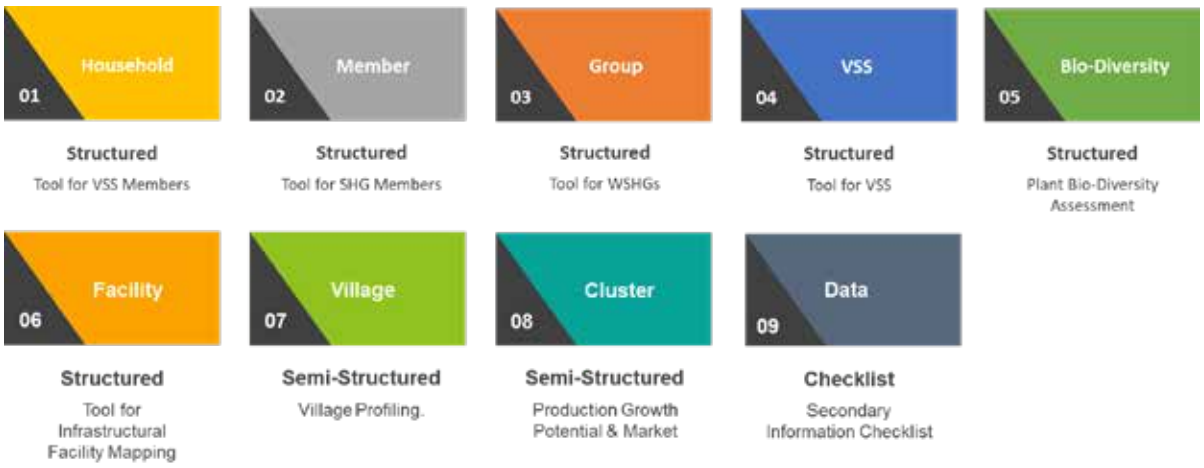

Figure 10: Study Tools

Table 7: Study Tools by Stakeholder Category

Particular	Tools	Tool Type
Stakeholders		
VSS	VSS Operation Tool	Structured
	FGD Tool	Open Ended
SHG	Rating Tool	Structured

Particular	Tools	Tool Type
Household (HH)	HH Schedule	Structured
	SHG Member Schedule	Structured
Forest, Livelihood & Other		
Infrastructure	Village Infrastructure Profiling	Structured
Forest Degradation	Measurement Matrix	Semi-Structured
Range / Division	Secondary Information Checklist	Structured

1.3 Study Limitations:

The study was conducted when COVID-19 pandemic situation was prevailing and there was restriction on movement and social interactions. Because of government regulations and fear of contamination, focus group discussions and community interaction processes were impacted upon. The scheduled field study was delayed by several months due to government regulatory measures like restrictions on movement, shut down, lock down, declaration of containment zones at the local level and non-availability of transport facility. Village level restrictions for entry of people coming from outside further impacted the study. People were also hesitant to be a part of the assessment process due to the fear of COVID-19 contamination. The adverse situation during the pandemic period delayed the overall assessment process and impacted upon area coverage. The initial plan to cover different control Ranges under the study for assessment was impacted severely due to prevailing rate of contamination, locally (district / block / GP level) declared containment zone and overall unpleasant environment. Due to such conditions, in many cases, the study team members were not able to enter the control study area for conducting the study as per earlier design. Hence, to meet the objective of the study, without compromising with the overall design frame, sample areas were selected from same Ranges that are not under project intervention. Further, certain required information, which was expected to be available with different stakeholders, could not be accessed, either due to non-availability of information or it was not up to date. However, abiding the guidelines of the Government and maintaining required precautionary measures (wearing mask, maintaining physical distance, repeated hand sanitization etc.), the team completed the study covering required sample.


FOREST ENVIRONMENT AND
CLIMATE CHANGE DEPARTMENT
OFSDP - II
ON COMMUNITY MOBILIZATION
TNOTI F.M.U - BARIPADA U.M.


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ବଣାୟନ
ODISHA FORESTRY SECTOR DEVELOPMENT PROJECT • PHASE-II

Section II: Community Organizations

2.1 Community Organizations:

Different community organizations are existing in the villages of both intervention and control areas, but women SHG (WSHG) and VSS are in prominence among all the community organizations. Some of the community organizations like farmers group / producer group are in an emerging stage and their functioning is not that prominent like SHG and VSS. However, membership of the households in more than one community organization is common. Government has formed GKS at the village level for community health care and health management. While the villages are having one WS committee or VSS, average number of WSHG found to be 7-8 at village level as universal coverage approach is being adopted for involvement of women in SHGs.

Table 8: Community Organizations; OFSDP II

OFSDP II		**Community Groups**							
		Farmer Group	**WSHG**	**W&S Committee**	**GKS**	**WS Committee**	**Cultural Gr.**	**Producer Group**	**VSS / JFMC**
Control	V (%)	8.3	91.7	4.2	54.2	-	54.2	8.3	100.0
	Av.	4.00	8.05	1.00	1.00	-	1.92	2.00	1.00
Intervention	V (%)	11.5	96.9	3.1	64.1	8.4	56.5	4.6	96.9
	Av.	1.47	7.85	1.00	1.00	1.00	1.39	1.17	1.00
Total	**V (%)**	**11.0**	**96.1**	**3.2**	**62.6**	**7.1**	**56.1**	**5.2**	**97.4**
	Av.	**1.76**	**7.88**	**1.00**	**1.00**	**1.00**	**1.47**	**1.38**	**1.00**

Note: V (%): Percentage of Villages / VSS, Av.: Average No. of Community Organizations, WSHG: Women Self-Help Group, W&S: Water and Sanitation, GKS: Gaon Kalyan Samiti, WS Committee: Watershed Committee, VSS: Vana Surakshya Samiti, JFMC: Joint Forest Management Committee

The community organizations are involved in different activities, based on the objective of their existence. While women SHGs are more into thrift and credit, IGA and awareness building; VSS are involved in forest protection and sustainable management of forest resources. The farmer's groups are informal associations of village farmers who have been engaged in activities like leaf plate making and vegetable cultivation, apart from their other agricultural activities. This section discusses about assessment observations for VSS and SHG in detail as they are the key community institutions who have been involved in the project processes. However, different activities performed by other community organizations and their aspirations / requirements are presented in a matrix in this section.

2.2 Vana Surakshya Samiti (VSS):

2.2.1 Overview of VSS:

The Government of Odisha, in agreement with the National Forest Policy, 1988, adopted Joint Forest Management (JFM) approach and sought community participation for protection, regeneration and management of the forest wealth. The Odisha Village Forest Rules, 1985 were formulated which envisage preparation of a Management Plan for every village forest and sought co-operation of the community in protection of the forest. In 1988, a resolution was formally passed by the State Government to introduce a scheme of protection of peripheral reserve forest areas with participation of the adjoining villagers by forming a Village Level Forest Protection Committee (VLFPC). The scope of this resolution was enhanced further in 1990 to include the Protected Forests. To make the forest-people interface more effective, the Forest & Environment Department issued a resolution in 1993,

highlighting involvement of local communities in protection of adjoining forests and formation of *Van Samrakshyana Samiti* (VSS) (now called Van Surakhsha Samiti). The 2008 and 2011 resolution, read with 2015 amendment, of the Government of Odisha, Forest and Environment Department, extended the participatory approach to all types of forests. Eco-development was adopted as a strategy to improve the livelihood of local people and thereby securing their support for conservation.

The Van Surakhsha Samiti or VSS were formed to promote community participation based sustainable forest management in the state of Odisha. Promotion and strengthening of VSS has been a part of government flagship scheme like OFSDP (Phase-I and Phase-II) and "Ama Jangala Yojana" of Odisha. The AJY scheme planned to promote sustainable use of forest and income generation at the same time for forest dwellers and others dependent on it. The scheme is to be implemented in 30 Territorial and Wildlife Divisions of Odisha from 2016-17 to 2021-22. It also aims to involve as many as 7000 VSS. The target of VSS was later reduced to 500 VSS per year since 2017-18 due to reduced fund flow.

AJY was conceived based on the major lessons learnt from JICA assisted Odisha Forestry Sector Development Project Phase-I. The learnings from OFSDP-I paved the path for the scheme and a lot of technical inputs from Phase I were included in the AJY scheme to make it sustainable. The strengthening & empowerment of the VSS/EDC & SHG members with adequate capacity building was one of the major lessons learnt from Phase-I. In addition to this much needed financial, managerial and handholding support to the community was also included in the AJY Scheme. Further based on the lessons learnt from OFSDP-I, equal emphasis was laid on alternate opportunities for income generation and livelihood support to the forest fringe dwellers. For monitoring & evaluation the web-based GIS developed during Phase I was used in implementation of AJY Scheme.

The VSS is defined as an independent, formal, democratic village-based community institution comprising adult resident inhabitants of a village constituted for the development/management of assigned forests as per section 3 of the Odisha JFM Resolution, 2011 and resolution of 2015[3]. The objectives behind promoting VSS are;

1. To protect, manage and develop forest areas under its management;
2. To receive the benefits/concessions/incentives and distribute the same among members;
3. To plan interventions for management of the assigned forest area based on scientific principles;
4. To serve as interface between villagers and forest department, villagers and other line departments, villagers and other community-based institutions;
5. To represent the villagers in VSS related matters in any public forum;
6. To facilitate and promote activities, which are integral part of the program including micro planning, restoration of degraded forests, income generating activities or any other activity in furtherance of the program;
7. To form and manage producer groups under the ambit of National Rural Livelihood Mission;
8. To form and manage other institutions (such as SHGs) within the VSS/EDC for the benefit of the program;
9. Revolving fund with soft loans to SHG; and
10. Corpus fund generation and management.

2.2.2 Constitution of VSS/EDC:

In general, there is one VSS/EDC for a single village. One VSS may also cover more than one village or there may be more than one committee in a village of larger size. Other forest protection groups, if any, are also covered as per the resolution. Each VSS has a General Body (GB) and Executive Committee (EC) for smooth and democratic functioning of VSS for the realization of the objectives. As per the resolution, all adult members of the village can be the members of the VSS/EDC. They may pay

[3] Annual Report-Ama Jangal Yojana (AJY). Odisha Forestry Sector Development Project (Phase-II). 2018

an enrolment fee determined by the General Body (GB) of VSS/EDC. The local Palli Sabha is having a role in constitution of the VSS / EDC and minuting the resolution and onward submission for registration at the Forest Division level. VSSs/ EDCs have been formed throughout the State, covering all the Forest Circles / Forest Divisions, as per the assessed potential, as a part of participatory forest management system.

Table 9: Status of JFM in Odisha

Total No. of VSS	Total No. of EDC	Total assigned Area (Sq. km.)				Total Families involved (in lakh)		
		RF	PRF/DPF	Other	Total	SC	ST	General
13,218	542	6,738.40	3,264.69	2,188.96	12,192.05	2.68	7.18	6.36

Source: Govt. Document
Note: RF: Reserve Forest; PRF: Protected Reserve Forest; DPF: Demarcated Protected Forest

Every VSS has an Executive Committee (EC), constituted by election of the Chairperson, Vice-Chairperson, Secretary, Treasurer, and a minimum of 11 members. To promote participation of women it is mandated that 10 percent of the EC members must be women. In addition to this, individuals from SC/ST category are encouraged to join the EC. The number of such individuals should be in proportion to their membership in VSS/EDC[4]. The EC has a tenure of 3 years and the Range Officer is responsible for conducting elections as Returning Officer. The numbers of VSS promoted at the end of March 2017 are 2,346 in 24 Forest and Wildlife Divisions[5].

The composition of EC as mandated by the Government of Odisha under Joint Forest Management Resolution, 2015 are;

1. Chairperson
2. Vice-Chairperson
3. Secretary (Local Forest Guard/ Local Forester)
4. Treasurer
5. Ward Members(s) concerned
6. Members

In the study area, VSS are constituted mostly taking members from one village (control: 100.0 percent, intervention: 94.70 percent), irrespective of intervention and control area. Average number of households per VSS has been 122 in case of control and 107 in case of intervention. Average number of members in the VSS is 319, with an average of 339 members in control and 315 members in intervention. Looking at sex composition, the average number of female members in the VSS is 163 in control and 154 in intervention. Average number of male members per VSS is marginally higher than female members, i.e., 176 males in control and 161 in intervention.

Table 10: Membership in VSS: OFSDP

Particulars	Average Member: OFSDP II		
	Control	Intervention	Total
VSS Member: Male	176	161	163
VSS Member: Female	163	154	156
VSS Member	**339**	**315**	**319**
EC Member: Male	9	9	9
EC Member: Female	6	8	8
EC Member	**14**	**16**	**16**

The average number of members in the EC have been 14 in control with 63.39 percent male and 41.84 percent female. In intervention, average EC member per VSS has been 16 with 52.53 percent male and 47.47 percent female. While the executive body comprises of both male and female members,

[4] Course Material- Capacity building programme on implementation of AJY, Volume-1. OFSDS.
[5] Annual Report-Ama Jangal Yojana (AJY). Odisha Forestry Sector Development Project (Phase-II). 2018

chairperson has been male in most of the VSS (control: in 95.83 percent; intervention: 93.18 percent) whereas vice chairperson position is mostly occupied by females in intervention (91.47 percent). Secretary and Treasures are mostly male members (control: 86.36 percent; intervention: 77.27 percent). Distribution of office bearers by their sex is presented in the matrix.

Table 11: Percentage Distribution of Key Office Bearers (EC) by Sex; OFSDP II

Positions	Male & Female (VSS %) by Control and Intervention (OFSDP II)			
	Control		Intervention	
	Male	Female	Male	Female
Chairperson	95.83	4.17	93.18	6.82
VC	52.94	47.06	8.53	91.47
Secretary	86.36	13.64	77.27	22.73
Treasurer	94.44	5.56	95.42	4.58

Note: VC: Vice Chairperson

Average forest area assigned to VSS for management is about 90.61 ha., in control and 106.44 ha. in intervention. In 56.52 percent cases, forest area was assigned to VSS for management before 2014-15 in control whereas 0.76 percent VSS in intervention found having assigned with forest area during that period in the studied VSS. Around 21.74 percent VSS in control and 99.24 percent VSS in intervention was assigned with forest area for management during 2014-15 and afterwards. Further, in case of 17.39 percent VSS in control and 83.33 percent VSS in intervention, forest area was assigned to VSS in 2018-19 and afterwards. Hence, it can be said that VSS that are assigned with forest area in recent years are at a learning and emerging stage. Forest type assigned to VSS generally fall in to "moderately dense" category in both intervention and control areas.

Table 12: Assignment Forest Area (Ha.) and Year of Assignment; OFSDP II

Control / Intervention	VSS Covered (No.)	Total Assigned Area (Ha.)	Assigned Average Forest Area per VSS (Ha.)	Year of Assignment of Forest Area (VSS %)		
				Before 2014-15	2014-15 & After	2018-19 & After
Control	24	1,812.04	90.61	56.52	21.74	17.39
Intervention	132	14,072.79	106.44	0.76	99.24	83.33
Total	**156**	**15,884.83**	**104.09**	**9.03**	**87.74**	**73.55**

Note: In case of control, information about year of assignment of forest area to VSS for few VSS is not available.

2.2.3 VSS Governance and Management:

The VSS/EDC has been entrusted with the responsibility of conserving and protecting the forests, wildlife, and biodiversity. It also manages the water resources and catchment areas for protecting resources in assigned areas. The EC, however, is responsible for carrying out the day-to-day business for VSS/EDC. Also, there are three types of membership of the VSS/EDC, i.e., General, Nominated and Ex-officio[6].

1. Adult resident members of village/hamlet are member of the General Body of the VSS/EDC;
2. People like local school-teachers, NGO representatives, local health workers, *anganwadi* workers, panchayat representatives, government department representatives from Gram Panchayat/block. These members are nominated by VSS/EDC or program authorities with the consent of concerned GB as members of the Executive Committee;
3. The concerned forester or the forest guard is the ex-officio Secretary of the Executive Committee.

There are two dedicated committees of a VSS / EDC, namely General Body and Executive Committee.

[6] Course Material- Capacity building programme on implementation of AJY, Volume-1. OFSDS.

2.2.3.1 General Body (GB) Meeting:

The General Body meeting of the VSS is held once in 6 months. These meetings can take place more frequently if needed. The Chairperson convenes the meeting with one-week advance notice. The meetings take place in VSS Office-cum-Meeting Place. For effective functioning of VSS, a low-cost meeting place is constructed by VSS under built up area of 400 sq. ft[7].

During the year 2019-20, some VSS organized one GB meeting (control: 25.00 percent; intervention: 9.85 percent) while 2 numbers of GB meetings were organized by 58.33 percent VSS in control and 61.36 percent VSS in intervention. In around 28.79 percent VSS in intervention and 16.67 percent VSS in control, more than 2 GB meetings were also organized during the year.

Table 13: GB Meetings per Year (Last Year); OFSDP II

Control / Intervention	No. of GB Meetings in Last Year (% of VSS); OFSDP II				Total
	1 (Once)	2 (Twice)	3 (Thrice)	> 3 (> Thrice)	
Control	25.00	58.33	4.17	12.50	100.0
Intervention	9.85	61.36	13.64	15.15	100.0
Total	**12.18**	**60.90**	**12.18**	**14.74**	**100.0**

2.2.3.2 Special GB Meeting:

In around 16.67 percent VSS in control and 68.18 percent VSS in intervention, special GB meetings were also organized to discuss various aspects of forest management. Of the total VSS, who organised special GB meetings, 45.56 percent VSS in intervention and 75.0 percent VSS in control organised it once; 35.56 percent VSS in intervention (no VSS in control) organised special GB meeting twice. More than two special meetings were also found organised by 25.00 percent VSS in control and 18.89 percent VSS in intervention. Special GB meetings by intervention and control VSS is presented in the matrix.

Table 14: Special GB Meetings per Year (Last Year); OFSDP II

Control / Intervention	VSS (%) with Special GB Meetings	Special No. of GB Meetings in Last Year (% of VSS); OFSDP II				Total
		1	2	3	>3	
Control	16.67	75.00	0.00	25.00	0.00	100.00
Intervention	68.18	45.56	35.56	12.22	6.67	100.00
Total	**60.26**	**46.81**	**34.04**	**12.77**	**6.38**	**100.00**

2.2.3.3 Women Participation in GB:

Average participation of women in the VSS GB meeting is termed moderate (average) in 58.33 percent VSS in control and 59.09 percent VSS in intervention. Poor participation of women in VSS GB meetings reported in 41.67 percent VSS in control and 40.91 percent VSS in intervention. Key areas of discussion in the GB have been (a) protection of forest from fire, (b) plantation, (c) VSS financials (income and expenditure) etc. Discussion on livelihood related aspects in the GB meetings of VSS was found limited to few cases.

Table 15: Participation of Women in GB Meetings; OFSDP II

Control / Intervention	Av. Participation of Women in GB (% VSS); OFSDP II		Total
	Moderate	Poor	
Control	58.33	41.67	100.00
Intervention	59.09	40.91	100.00
Total	**58.97**	**41.03**	**100.00**

Note: Moderate participation refers to at least 25 percent of women members participate in GB meeting. Less than 25. Percent considered to be poor participation. It is mapped based on the responses of the VSS members.

[7] Guidelines for constitution of VSS Office-cum-Meeting Place under AJY Scheme. AJY CFPMP Cell OFSDS. 2016.

2.2.3.4 Meeting of Executive Committee:

Organization of Executive Committee meeting (Executive Committee meeting is to be held once in two months) was observed to be less than or equal to 6 times (<=6) in 16.67 percent VSS in control and 5.30 percent VSS in intervention. Around 41.67 percent VSS in control and 11.36 percent in intervention organized their EC meetings between 6 to 12 (>6 & <12) times during the same period, i.e., 2019-20. So, organization of Executive Committee meeting was observed to be less than 12 times per year (once per month on an average) in 58.33 percent VSS in control and 16.67 percent VSS in intervention. On the other hand, 83.33 percent VSS in intervention and 41.67 percent VSS in control organized >=12 EC meetings during the year 2019-20.

Table 16: No. of EC Meetings Organized by VSS; OFSDP II

Control / Intervention	No. of Annual EC Meetings (Last Year) (% VSS); OFSDP II			Total
	<=6	>6 & <12	>=12	
Control	16.67	41.67	41.67	100.00
Intervention	5.30	11.36	83.33	100.00
Total	**6.25**	**13.89**	**79.86**	**100.00**

2.2.4 Maintenance of Records:

The VSSs have been maintaining different documents to record their functioning. Number of records maintained at VSS level observed to be better in intervention pockets in comparison to control. For example, "resolution register" is maintained in all the intervention VSS whereas in control VSS, maintenance of this record is comparatively less. Different records maintained by VSS in intervention and control areas is presented in the matrix.

Table 17: Different Records Maintained / Available at VSS Level; OFSDP II

Maintenance / Availability of Records (% of VSS); OFSDP II							
VSS Records	**Particulars**	**Control**	**Intervention**	**VSS Records**	**Particulars**	**Control**	**Intervention**
Resolution Registers (EC/GB)	Not Available/Maintained	4.17	0.0	Stock Register	Not Available/Maintained	100.0	77.27
	Available/Maintained	95.83	100.0		Available/Maintained	0.0	22.73
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Asset Register	Not Available/Maintained	95.83	90.15	Grant Receipt	Not Available/Maintained	100.0	93.94
	Available/Maintained	4.17	9.85		Available/Maintained	0.0	6.06
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Cash Book	Not Available/Maintained	83.33	0.0	Cheque Book	Not Available/Maintained	95.83	0.0
	Available/Maintained	16.67	100.0		Available/Maintained	4.17	100.0
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Ledger Book	Not Available/Maintained	91.67	73.48	Plantation Journal	Not Available/Maintained	100.0	63.64
	Available/Maintained	8.33	26.52		Available/Maintained	0.00	36.36
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Visitor Register	Not Available/Maintained	91.67	92.42	Purchase Register	Not Available/Maintained	100.0	98.48
	Available/Maintained	8.33	7.58		Available/Maintained	0.00	1.52
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Bank Passbook	Not Available/Maintained	75.0	0.0	Check Book Register	Not Available/Maintained	95.83	67.42
	Available/Maintained	25.0	100.0		Available/Maintained	4.17	32.58
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Notice Register	Not Available/Maintained	100.0	84.09	Membership Register	Not Available/Maintained	95.83	84.85
	Available/Maintained	0.0	15.91		Available/Maintained	4.17	15.15
	Total	**100.0**	**100.0**		**Total**	**100.0**	**100.0**
Micro Plan	Not Available/Maintained	100.0	0.0	No Records	Not Available/Maintained	95.83	100.0
	Available/Maintained	0.0	100.0		Available/Maintained	4.17	0.0
	Total	**100.0**	**100.0**			**100.0**	**100.0**

2.2.5 Financial Resource Accessibility and Management:

The Vana Suraksha Samitis are formal institutions at community level composed of resident adult members from villages. These community-based organisations function with the support of OFSDS, Dept. of Forest and Environment, Government of Odisha. The constituted community organizations (VSS) for forest protection and management have been given important in the interventions of OFSDP

II. Under OFSDP II, fund is channelized directly to VSS account for operation, management, and maintenance of the assigned forest area. The VSSs have their bank account in the nearby bank branch to manage financial transactions. All the VSS covered under OFSDP II are having dual account; one account (locally known as VSS account; also referred as VSS Project Account) is used for project related funds transaction and the other account of VSS (known as Village Forest Development Fund, VFDF) is used for depositing fines collected, membership fee, interest received from VSS account etc. So, VSS Project Account is exclusively maintained for project related funds transaction and other account is for rest of the business of the VSS. In VFDF account, member secretary of the VSS is not having any role and funds transaction happens through President and Treasurer. In case of VSS Project Account, financial transaction is done by the Member Secretary (person from forest dept.; concerned forester or local forest guard) and Treasurer of the VSS. Disbursement of funds to the beneficiaries, persons engaged in different forest related works (plantation, soil & moisture conservation measures, survey and demarcation etc.), service providers, vendors etc. is made through Direct Bank Transfer.

2.2.6 Capacity Building:

The capacity development is "the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time"[8]. Capacity building measures have been taken to improve the skill and knowledge base of the VSS members. To improve VSS governance and functioning, emphasis has been given for capacity building of EC members. On an average 33.63 percent EC members in control and 40.34 percent EC members in intervention have received training on different themes. Apart from EC members, other members of the GB have also been trained, i.e., 0.15 percent in control and 0.79 percent in intervention. Theme of trainings have been financial management, book-keeping, nursery raising, SMC measures, vermi composting, preparation of micro plan, forest protection and management, orientation on OFSDP, VSS management, mushroom farming, fishery, wildlife protection etc. Apart from this, VSS members / villagers in common have also received different trainings under various schemes / programs.

Table 18: VSS Members (%) Trained; OFSDP II

Control / Intervention (OFSDP II)	EC Members (%)	Other GB Members (%)
Control	33.63	0.15
Intervention	40.34	0.79
Total	**39.44**	**0.68**

Table 19: Household Actions for Forest Protection and Management; OFSDP II

SN	Specifications	Household Actions
1	Forest Fire	1. Generating awareness among the VSS Members; 2. Information to forest department on fire incident; 3. Cleaning of forest area and creating fire lines; 4. Extinguishing forest fire / attempt to control forest fire.
2	Wild Animal Attack	1. Animal tracking; 2. Generating awareness among the VSS members to restrict movement of people and domestic animals in adjacent forest area; 3. Inform villages / other VSS members; 4. Inform forest department; 5. Keep distance from wild animal; 6. Make sound, noise, show fire, use light to keep wild animals away; 7. Remain in the safe place; 8. Making barricade / trenches.
3	Theft / Illegal Cutting of Woods	1. Apprehend the thief, inform & handover to forest officials; 2. Inform to villagers / other VSS members; 3. Levy fine on forest offenders; 4. Create awareness among the villagers / locals; 5. Seize illegally cut woods and instruments used; 6. Watch and ward of assigned area.

[8] Andie Davis and Tsegaye lemma. Capacity Development: A UNDP Primer. UNDP CDG Primer Report.2009

SN	Specifications	Household Actions
4	Plantation	1. Participate in plantation works through VSS; 2. Periodic monitoring and social auditing; 3. Watch and ward of plantations undertaken.
5	Forest Area Encroachment	1. Generating awareness on encroachment related issues; 2. Inform to VSS and discuss the matter in the VSS; 3. Report / information to local forest officials; 4. Taking up plantation in the encroached area after eviction.

2.2.7 Key Activities by VSS:

The VSSs have been involved in a number of activities like (a) forest protection (100.0 percent in control and intervention), (b) wildlife protection (control: 58.33 percent; intervention: 70.45 percent), (c) bio-diversity conservation / protection (control: 33.33 percent; intervention: 51.52 percent), (d) management of catchment area (control: 37.50 percent; intervention: 61.36 percent), (e) conservation / management of water resources (control: 33.33 percent; intervention: 56.06 percent), (f) micro plan preparation (intervention: 100.0 percent; no VSS in control), (g) prevention of encroachment (control: 12.50 percent; intervention: 15.15 percent), (h) coordination with other dept. schemes / program (control: 4.17; intervention: 50.76 percent) etc. Association of VSS in product market linkage (including NTFP) is not observed.

Table 20: Participation of VSS in Different Activities; OFSDP II

SN	Key Activities	Activities Taken up by VSS (% VSS); OFSDP II	
		Control	Intervention
1	Forest Protection	100.0	100.0
2	Wildlife Protection	58.33	70.45
3	Biodiversity Protection	33.33	51.52
4	Management of Catchment Area	37.50	61.36
5	Conservation / Management of Water Resources	33.33	56.06
6	Protecting Other Eco-Sensitive Area	0.00	0.00
7	Micro Plan Preparation	0.00	100.0
8	Plantation of Indigenous NTFP Species	45.83	62.88
9	Plantation of Medicinal Plants	50.00	63.64
10	Prevention of Encroachment	12.50	15.15
11	Product Market Linkage	0.00	0.00
12	Coordination with Other Dept.	4.17	50.76

2.2.8 Forest Protection and Management:

As VSS has been a local institution, members from 73.03 percent households in control and 90.95 percent households in intervention have been involved in different activities of VSS. However, in case of meetings of VSS, 28.6 percent households in control and 54.4 percent households in intervention have higher degree of participation; followed by moderate participation by 41.1 percent households in control and 34.8 percent households in intervention.

Table 21: Participation of Households in Different Activities; OFSDP II

Key Activities	HH (%) Participated; OFSDP II	
	Control	Intervention
Forest Protection	77.63	94.27
Wildlife Protection	58.88	70.59
Biodiversity Protection	10.20	33.48
Management of Catchment Area	19.74	49.47
Management of Water Resources	22.04	42.53
Protecting other Eco-Sensitive Area	5.92	17.04
Micro Plan Preparation	13.49	73.45
Mitigating / Preventing Forest Fire	51.64	66.67
Plantation of Indigenous NTFP Species	42.11	62.44
Plantation of Medicinal Plants	30.26	58.97

Key Activities	HH (%) Participated; OFSDP II	
	Control	Intervention
Prevention of Encroachment	8.88	19.76
Product Market Linkage (Individual Level)	4.28	16.29
Coordination with Other Dept.	2.63	14.03
Dealing with Human-Animal Conflict	20.72	27.90

Forest conservation and management trainings have been conducted by the Forest Department from time to time for VSS members in general and 15.1 percent households in control and 46.0 percent in intervention have received such trainings. Topics covered in the training are (a) community mobilization, (b) fire protection mechanisms, (c) micro plan preparation, (d) wildlife protection, (e) documentation / record keeping, (f) survey and demarcation, (g) nursery raising, (h) SMC works, (i) plantation etc. Apart from forest protection and management, livelihood related trainings have also been imparted like (a) mushroom cultivation, (b) agricultural trainings, (c) farming technologies, (d) goat farming etc.

2.2.9 Linkage with Other Institutions:

Functional linkage of SHG and VSS as community level institutions is limited to attending meeting of VSS by SHG members (as they are also the members of the VSS). In case of trainings and awareness activities, SHG members also participate along with other VSS members. The SHGs have been involved in different IGA supported by other department/s where VSS is not having any role in enterprise promotion or management of IGA. During COVID 19 pandemic situation both VSS and SHGs facilitated awareness activities at the village / local area to sensitize people on health care and sanitation. When activities like forest cleaning, fire line maintenance, plantation etc. are taken up, female members participate but not as an SHG rather as villagers and members of VSS. Similarly, the proposal for the formation of Executive Committee of the VSS is approved by the Palli Sabha, empowering EC to function as a sub-committee of the local GP for forest protection and management as prescribed in the provisions of FRA. Further, the micro plan is also approved in the Palli Sabha, according to the provisions of FRA.

However, support from forest department has been immense to VSS to strengthen them and involve them in the forest protection and management. VSS has been involved in different activities taken up by the dept. like demarcation of forest area, pillar posting, fire line creation and treatment, preparation of micro plan, plantation, forest protection etc. VSS have also been involved in SMC works taken up inside the forest area. Other department have also been supporting the VSS members in providing their support provisioned under different schemes / programs like input support by agriculture and horticulture dept., horticultural support for plantation of horticultural crops, promotion of mushroom cultivation, LPG gas connection, credit / financial support by Mission SHAKTI / OLM, vaccination camp by F&ARD dept. etc.

2.2.10 Access to and Benefit from Forest Resources:

A large proportion of population depends on forest and its resources. As per the ISFR 2019 report, the total fuelwood collected annually from forest is as much as 85,290 MT. Other than this, the collection quantity of fodder, small timber and bamboo is high as well. The major species of tree in the forest of Odisha (the top five species) are *Shorea robusta, Lannea grandis, Buchnania Lanzan, Terminalia tomentosa and Cleistanthus collinus.* Other than this the major NTFP species that support the income of forest dwellers are as mentioned in the table:

Table 22: Relatively Abundant Species in Odisha

Species	Relative Abundance (in percentage)
Shorea robusta	57.91
Madhuca indica	17.11
Buchnania lanzan	12.48
Schleichera oleosa	3.02
Semecarpus anacardium	2.98

Source: ISFR 2019

People residing in the forest fringe villages have different degree of dependency on forest resources, like fuelwood, fodder, bamboo, and small timber. Among these, the consumption of fuelwood and fodder is normally high followed by small timber.

(Consumption of Forest Resources in Odisha; Source: ISFR 2019)

The villagers / VSS members have been deriving different economic benefits from the forest in different seasons. Attempt is made to understand economic dependency of the households on the available forest resources (excluding environmental benefits). Average of about 29.37 percent households from 58.33 percent VSS in control and 33.12 percent households from 63.64 percent VSS in intervention collect dry leaf and green fodder (grass) from the forest for domestic purposes with an average of 4.86 MT (5.67 quintal per year per HH) and 3.24 MT (5.37 quintal per year per HH) respectively. Sometimes, it is also shared with the neighbours at the time of their need. Intermediate forest yields like small timber and firewood are collected by 51.85 percent households from 79.17 percent VSS in control and 49.55 percent households from 69.70 percent VSS in intervention with an average collection of 10.09 MT (10.01 quintal per year per HH) and 5.98 MT (7.39 quintals per year per HH) respectively. Different types of non-timber forest produce (NTFP) are collected (seasonal basis) by 39.20 percent households from 54.17 percent VSS in control and 38.14 percent households from 57.58 percent VSS in intervention with an average collection of 4.46 MT per year (3.51 quintal per year per HH) and 4.17 MT per year (5.13 quintal per year per HH) respectively.

Collection of NTFPs by families in the forest fringe villages are more frequent (number of households collecting NTFP and volume of collection) in comparison to households living in habitations that are relatively in a distant place from the forest. Dependency on major harvests (timber / wood) is limited to 6.07 percent households in 16.67 percent VSS in control and 14.64 percent households in 25.76 percent VSS respectively, which is again dependent upon obtaining clearance from the VSS. Average annual collection per VSS has been 30 numbers in control and 17 in intervention. Overall, majority of the households at the village level, especially in the forest fringe villages, are dependent upon forest resources for different reasons. Percentage of households depending upon forest resources from VSS is presented in the matrix.

Table 23: Forest Dependency by VSS; OFSDP II

Control / Intervention		VSS (%) and HH (%) Dependency on Different Forest Resources; OFSDP II				
		Leaf / Fodder	Small Timber / Firewood	Kendu Leaf	NTFP	Major Harvest
Control	VSS %	58.33	79.17	62.50	54.17	16.67
	HH %	29.37	51.85	42.87	39.20	6.07

Control / Intervention		VSS (%) and HH (%) Dependency on Different Forest Resources; OFSDP II				
		Leaf / Fodder	Small Timber / Firewood	Kendu Leaf	NTFP	Major Harvest
Intervention	VSS %	63.64	69.70	61.36	57.58	25.76
	HH %	33.12	49.55	39.44	38.14	14.64
Total	VSS %	62.82	71.15	61.54	57.05	24.36
	HH %	32.47	49.94	40.03	38.33	13.17

Table 24: Major NTFP Products; OFSDP II

Major NTFPs Available	Control and Intervention; OFSDP			
	Intervention		Control	
	VSS, where Available (%)	Avg. Quantity of Collection per VSS (Qt.)	VSS, where Available (%)	Avg. Quantity of Collection per VSS (Qt.)
Amla	8.33	1.50		
Bahada	9.09	2.25		
Broom	9.09	207.5		
Char	31.82	3.97	37.50	2.56
Harida	6.06	1.47		
Harida & Bahada	4.55	2.83		
Kendu	10.61	8.65		
Kendu Leaf	14.39	1020.84	16.67	375
Kusum Seeds	12.88	10.49		
Mahua	73.48	206.62	79.17	181.42
Mushroom	5.30	6.71		
Sal Leaf	29.55	4457.69	25.00	1,900.0
Sal Seed	21.21	29.41	29.17	24.71
Tamarind	11.36	20.93		
Tola	22.73	49.30	33.33	78.38

Initially it was thought of that forest area assigned to different VSS may have some degree of bearing on their performance. It was hypothesized that there is no difference (H_0: $\mu_0 = \mu_1$) in organizing GB meeting, an indication of performance of VSS with different assigned forest area for management. The study finds this true as there is no significant difference in forest area assigned and conducting GB meetings. The practice of organizing GB meeting is more uniform across the VSS, irrespective of the assigned area. Though less than two GB meetings per year organized in some VSS where assigned forest area, on an average, is more than some other VSS, but such trend is sporadic in nature. Similar situation prevails in terms of documentation and organizing EC meetings.

2.2.11 Forest Protection and Management Requirements:

The members of VSS have expressed different needs, which are categorized in to 11 broad areas and needs are presented against each broad area. The identified needs are categorized in to (a) forest protection needs, (b) wildlife protection needs, (c) biodiversity conservation needs, (d) catchment area management / restoration needs, (e) water resource management needs, (f) protection of eco sensitive areas, (g) micro planning, (h) plantation of indigenous species, (i) plantation of medicinal plants, (j) prevention of encroachment, and (k) product market linkage.

Table 25: Forest Protection and Management Requirements

SN	Specifications	Forest Protection & Management Requirements
1	Forest Protection	1. Periodic awareness program, 2. Watch & ward on rotational basis, 3. Fire line work twice annually, 4. Proper green fencing / fencing of the forest area, 5. Periodic cleaning of forest floor, especially before onset of summer, 6. Better coordination between VSS and forest officials, 7. Controlling and rotational grazing of animals in the forest areas,

SN	Specifications	Forest Protection & Management Requirements
		8. Fire extinguisher / fire protection equipment to VSS / villagers, 9. Required number of guards to protect forest, 10. Barbed wire fencing.
2	Wildlife Protection	1. Drinking water facility in the forest for wild animals, 2. Construction of trenches to prevent elephant entry in to villages, 3. Livelihood diversification / support to prevent poaching, 4. Wire fencing to protect wild animals, 5. Increasing forest area to improve wildlife habitat, 6. Increasing awareness and training to VSS for wildlife management, 7. Plantation of fodder plants for wild animals.
3	Biodiversity Protection	1. Increasing plantation of indigenous species, 2. Forest fire control measures, 3. Preventing entry of domesticated animals to forest area, 4. Training VSS on biodiversity assessment and its management, 5. Plantation of different plant species, 6. Protection of indigenous species.
4	Protection of Catchment Area	1. Periodic maintenance and supervision of catchment area, 2. Soil moisture conservation measures in the catchment, 3. Increasing the plantation in the catchment area.
5	Water Resources Management	1. Bunding around existing water sources, 2. Water conservation measures, 3. Pond / check dam construction, 4. Renovation and restoration of water bodies.
6	Identification of Eco Sensitive Zone	1. Identification of eco sensitive zone/s, 2. Declaring eco sensitive areas as regulated area, 3. Special activity as per the micro plan.
7	Micro Plan Preparation	1. Greater involvement of VSS in plan preparation, 2. Situational analysis before preparing plan, 3. Implementation of all planned activities as per the micro plan, 4. Making convergence as part of the micro planning, 5. Periodic updating of micro plan, covering emerging needs, 6. Micro plan focusing on village development along with forest management.
8	Plantation of Indigenous Species	1. More plantation of species that provide NTFP for income growth, 2. More plantation of indigenous species.
9	Plantation of Medicinal Plants	1. Special training to villages on medicinal values of trees / herbs, 2. Special focus on plantation of medicinal plants along with other species, 3. Mapping existing medicinal plants, 4. Considering medicinal plants as a part of livelihood approach, 5. Promotion of medicinal plants in the forest & non-forest area.
10	Prevention of Encroachment	1. Active involvement of VSS in prevention of encroachment, 2. Evacuation of encroached area by VSS & dept., 3. Plantation of trees in the encroachment areas, 4. Periodic demarcation and assessment of forest area, 5. Pillar posting to prevent encroachment of forest area, 6. Strict action against the encroaching people by Govt. officials.
11	Product Market Linkage	1. Identification & quantification of available NTFP, 2. Awareness of people on scientific gathering of NTFP, 3. NTFP aggregation strategy for better market price, 4. VSS / SHG can be the aggregator of NTFP for marketing, 5. Training on NTFP value addition, 6. Market information on NTFP selling price, 7. Need storage and transportation facility for products / commodities from forests.

2.3 Self-Help Group (SHG):

2.3.1 Overview:

The SHGs have been formed and nurtured to provide an opportunity for earning by taking up economic activities. This also helps in reducing dependency on money lenders, giving access to formal financial institutions, creating an environment where resources are generated among the members and used to meet the requirements and overall, a strategic medium for empowerment. SHG is a group formed by the community, which has specific number of members. In such a group the poorest would come together for emergency, disaster, social reasons, economic support to each other, have ease of conversation, social interaction and economic interactions[9]. Women Self-Help Groups (WSHGs) are the mode of engaging women in various livelihood generation activities that not only empower women socially but also economically and decreases biases against them. The inclusion of SHGs in this project is to not only achieve the objects of the project but also to promote women empowerment in the longer run. The SHGs need to graduate into clusters to increase the reach to higher markets and processing initiatives.

Based on the objective of the project, emphasis has been given to self-help groups (SHGs) for the promotion and strengthening of household livelihood. As SHGs are already an organized informal community structure, existing at the village level, they are in a more suitable position for promotion of income generation activities. All the studied villages observed having women SHG/s, organized, and promoted by different institutions / organization, including private entities. The studied villages, on an average is having around 6-7 women SHGs, and they have been involved in different socio-economic activities. In most of the villages (control: 62.5 percent, intervention: 50.8 percent), there are more than 5 SHGs existing on an average; and in 3.8 percent intervention villages (no village in control), at least one women SHG is existing. So, in 100.0 percent control and 96.2 percent intervention villages, more than one WSHG is existing.

Table 26: Village Categorization by SHG Prevalence; OFSDP II

Control / Intervention	Ranking of Villages by Number of SHGs (% Distribution); OFSDP II				Total
	=1	>1 & <=3	>3 & <=5	>5	
Control	0.0	16.7	20.8	62.5	100.0
Intervention	3.8	23.5	22.0	50.8	100.0
Total	**3.2**	**22.4**	**21.8**	**52.6**	**100.0**

2.3.2 Age of SHGs:

Categorization of SHGs by their year of formation reveals that majority of the SHGs (control: 45.8 percent; intervention: 45.5 percent) are formed between 2016 to 2018 (i.e., in the last 4-5 years) and least number of SHGs (control: 4.2 percent; intervention: 3.8 percent) are formed after 2018. So, most of the SHGs are more than 4 years old and all the SHGs have been at different functional stages.

Table 27: Distribution of SHGs by Year of Formation; OFSDP II

Control / Intervention	Year of Formation of SHGs (% Distribution); OFSDP II					Total
	Before 2010	2010 to 2014	2014 to 2016	2016 to 2018	After 2018	
Control	16.7	16.7	16.7	45.8	4.2	100.0
Intervention	32.6	9.1	9.1	45.5	3.8	100.0
Total	**30.1**	**10.3**	**10.3**	**45.5**	**3.8**	**100.0**

[9] JICA & MoEFCC. Joint Forest Management: A Handbook.

2.3.3 SHG Governance and Management

As a community organization, major governance mechanism revolves around periodicity of meetings, qualitative discussion among the members of the SHGs and group / member level transactions they carry out. About 4.17 percent SHGs in control and 2.27 percent SHGs in intervention villages are having their own functional office / space to carry out their day-to-day activities. As majority of the SHGs in control and intervention villages do not have their own space for functioning, normally commonly available village structures or houses of the members are used for functioning. For financial transaction, SHG have their bank account (100.0 percent) in the nearest bank branches.

2.3.4 Inclusion of Poor:

Membership profile of the SHGs shows mixed socio-economic groups in the SHGs with the prioritized inclusion of members from STs (based on their prevalence) and economically poor sections. On an average, 66.7 percent members of the SHGs in control and 73.5 percent in intervention belong to poor economic category (based on village specific relative perception on economic classification). Hence, the SHGs are the emerging community level organizations that have been promoting and supporting alternative income generation opportunities for the people belonging to poor economic status.

Table 28: SHG Members by Economic Status; OFSDP II

Control / Intervention	Distribution of Members in SHG by Economic Category (%); OFSDP II		Total
	<=75.0	>75.0	
	Relatively Better Off	Relatively Poor	
Control	33.3	66.7	100.0
Intervention	26.5	73.5	100.0
Total	**27.6**	**72.4**	**100.0**

Table 29: Poor Relatively Poor Households in SHG; OFSDP II

Control / Intervention	Poor Household (%) in SHG			
	<25 %	26% to 50%	51% to 75%	76% to 100%
Intervention	3.03	2.27	6.06	88.64
Control	4.17	0.00	0.00	95.83

Note: Distribution of poor households is from total poor households in SHG

2.3.5 Record Keeping:

The SHGs have been maintaining different documents / registers to record their activities. Major documents maintained are like (a) meeting register (100.0 percent SHGs in control and intervention), (b) cash book (100.0 percent SHGs in control and intervention), (c) loan register (control: 29.2 percent; intervention: 49.2 percent), (d) loan repayment register (control: 29.2 percent; intervention: 47.7 percent) etc. Documents are being updated periodically by the SHG members or with the support of Cluster Resource Persons (CRP).

Table 30: Records Maintained by SHGs (%); OFSDP II

SN	Records / Registers Maintenance	SHGs (%); OFSDP II		
		Control	Intervention	Total
1	Minutes Book (Meeting Register)	100.0	100.0	100.0
2	Loan Register	29.2	49.2	46.2
3	Ledger Book	45.8	37.1	38.5
4	Member List	100.0	100.0	100.0
5	Asset Register	0.0	4.5	3.8
6	Petty Cash Book	25.0	37.9	35.9
7	Savings Register	100.0	100.0	100.0
8	Loan Repayment Register	29.2	47.7	44.9
9	Bank Reconciliation Statement	20.8	14.4	15.4
10	Cash Book	100.0	100.0	100.0

Note: With reference to documents produced and status of records reviewed during the study.

2.3.6 SHG Meetings:

Meetings of the SHGs are mostly organized on monthly basis but in certain cases, it is also organized bi-monthly. Distribution of SHGs by regularity of meetings demonstrate that majority of the SHGs (control: 79.2 percent; intervention: 65.2 percent) conduct meeting on regular basis in >90 percent cases whereas regularity of meeting has been less in 3.0 percent SHGs in intervention (no SHG in control).

Table 31: Frequency of Meeting; OFSDP II

Intervention / Control	Frequency of Meeting at SHG Level (SHG %)				
	Weekly	Fortnightly	Monthly	Bi-monthly	No Schedule
Intervention	3.79	-	96.21	-	-
Control	4.17	-	95.83	-	-

Table 32: Regularity of Meetings; OFSDP II

Control / Intervention	SHG Distribution (%) by Meeting Regularity (%); OFSDP II				Total
	<=50%	>50<=70%	>70<=90%	>90%	
Control	0.0	12.5	8.3	79.2	100.0
Intervention	3.0	10.6	21.2	65.2	100.0
Total	**2.6**	**10.9**	**19.2**	**67.3**	**100.0**

2.3.7 Thrift and Internal Credit:

The practice of disciplined thrift can help members of SHGs from approaching money lenders and paying high interests. Regular savings can help in avoiding the burden of debt and loan from external parties. The SHGs make thrift by collecting uniform amount from the members to meet the emergency needs of the members. Per member saving per period (weekly / monthly) varies between Rs.10.00 to Rs. 100.00 as per the group norm. All the SHGs (100.0 percent in control and intervention) have been involved in thrift and credit activities to meet their financial requirements. The norm of group level saving is mostly on monthly basis (control: 95.8 percent; intervention: 96.2 percent). However, some groups also having weekly thrift norm (control; 4.2 percent; intervention: 3.8 percent).

Average per group savings in intervention areas has been Rs. 51,363.57 which is comparatively higher than control areas 41,741.96. Looking at individual savings (savings of the individual member with the group), it is evident that on an average, per member savings is Rs. 4,012.91 in control and Rs. 4,716.85 in intervention, irrespective of the day of formation of group or their membership in the group. The pattern remains same at the individual level, i.e., higher the group savings, higher per member savings and vice versa.

Ranking of SHGs based on their member savings illustrate that 39.13 percent SHGs in control and 33.59 percent SHGs in intervention areas are having group savings of > Rs. 50,000. On the other hand, 4.35 percent SHGs in control and 2.29 percent SHGs in intervention are having average group savings amounting to <=Rs.10,000.00.

Table 33: SHG Rating by Per Group Savings; OFSDP II

Control / Intervention	Ranking of SHGs (%) by Group Savings; OFSDP II					Total
	<=10,000	>10,000 <=20,000	>20,000 <=30,000	>30,000 <=50,000	>50,000	
Control	4.3	17.4	8.7	30.4	39.1	100.0
Intervention	2.3	13.0	19.8	31.3	33.6	100.0
Total	**2.6**	**13.6**	**18.2**	**31.2**	**34.4**	**100.0**

In case of average individual savings of members at the group level, average savings of the members is in the range of >Rs.3,000/- & <=Rs. 5,000/- in 30.4 percent groups in control and 32.1 percent groups in intervention. Per member savings in the range of >Rs.5,000/- is in 34.8 percent SHGs in control and 30.5 percent SHGs in intervention. Individual savings amount with the group differs based on the year of formation, year of membership in the SHG, and amount of saving per month.

Table 34: SHG Rating by Per Member Savings; OFSDP II

Control / Intervention	**Ranking of SHGs (%) by Per Member Savings (Rs.); OFSDP II**					**Total**
	<=1,000	**>1,000 <=2,000**	**>2,000 <=3,000**	**>3,000 <=5,000**	**>5,000**	
Control	4.3	17.4	13.0	30.4	34.8	100.0
Intervention	2.3	15.3	19.8	32.1	30.5	100.0
Total	**2.6**	**15.6**	**18.8**	**31.8**	**31.2**	**100.0**

It is expected that with the age of the group, amount of savings will increase, and highest amount of group savings would be with the groups that are oldest. But because of consistent performance issues, many old SHGs have less amount of group savings in comparison to groups that are formed afterwards. In case of Control, 33.3 percent SHGs, those are formed between 2014 to 2016 having group savings <=10,000 and in case of intervention, 8.3 percent groups fall into the same category. In comparison to this, the groups, which were formed between 2016 & 2018 have no group in the same group savings range in control and only 1.7 percent groups observed in case of intervention. Ranking of the groups by average group savings and year of formation is presented in the matrix.

Table 35: Average Group Savings by Year of Formation of SHG; OFSDP II

Control / Intervention	**Year of Formation Rank**	**Group Savings Ranking (SHG %); OFSDP II**					**Total**
		<=10,000	**>10,000 <=20,000**	**>20,000 <=30,000**	**>30,000 <=50,000**	**>50,000**	
Control	<=2010	0.0	0.0	0.0	25.0	75.0	100.0
	>2010 & <=2014	0.0	0.0	0.0	25.0	75.0	100.0
	>2014 & <=2016	33.3	0.0	0.0	0.0	66.7	100.0
	>2016 & <=2018	0.0	27.3	18.2	45.5	9.1	100.0
	>2018	0.0	100.0	0.0	0.0	0.0	100.0
	Total	**4.3**	**17.4**	**8.7**	**30.4**	**39.1**	**100.0**
Intervention	<=2010	2.4	7.1	9.5	21.4	59.5	100.0
	>2010 & <=2014	0.0	0.0	25.0	33.3	41.7	100.0
	>2014 & <=2016	8.3	8.3	8.3	16.7	58.3	100.0
	>2016 & <=2018	1.7	16.7	28.3	43.3	10.0	100.0
	>2018	0.0	60.0	20.0	0.0	20.0	100.0
	Total	**2.3**	**13.0**	**19.8**	**31.3**	**33.6**	**100.0**
Total	<=2010	2.2	6.5	8.7	21.7	60.9	100.0
	>2010 & <=2014	0.0	0.0	18.8	31.3	50.0	100.0
	>2014 & <=2016	13.3	6.7	6.7	13.3	60.0	100.0
	>2016 & <=2018	1.4	18.3	26.8	43.7	9.9	100.0
	>2018	0.0	66.7	16.7	0.0	16.7	100.0
	Total	**2.6**	**13.6**	**18.2**	**31.2**	**34.4**	**100.0**

Discussion with SHGs divulges that credit is outstanding with the members in 70.83 percent control SHGs with an average of Rs.8,914.17 and 67.42 percent intervention SHGs with an average of Rs.6,825.54.

Table 36: Credit Outstanding; OFSDP II

Control / Intervention	SHGs with Outstanding Credit (SHG %)	Average Credit Outstanding Per Gr. (Rs.)	Average Credit Outstanding Per Member (Rs.)
Control	70.83	91,303.06	8,914.17
Intervention	67.42	73,372.07	6,825.54
Total	**67.95**	**76,247.79**	**7,160.51**

2.3.8 External Credit Linkage

The SHG-Bank Linkage Program (SHG-BLP) and Swarna Jayanti Gram Swarojgar Yojana (SGSY) has provided opportunities to rural individuals and as a group in form of SHG to earn from their skills. The SGSY scheme was implemented for financing in group mode for betterment of BPL families. Whereas the SHG-BLP provides finances to poor families via SHGs without collateral. The two programs provide opportunities for creating sustainable livelihood sources to the poor families in rural areas. These programs have also helped in reducing the gender gap in financial inclusion in India. As per the reports of Findex Database 2017, this gap has reduced from 20% in 2014 to 6% in 2017. Therefore, financially empowering women has led to their active participation in household finances[10].

The values of SHGs linkage with bank and loan disbursement has increased over past years. In Odisha, with total SHGs being 7.03 lakh as of Mar 31st, 2020, their value calculated to be INR 1,81,137.2 lakhs. The percentage of women exclusive SHGs is high among total with as many as 6.47 lakh out of total SHGs with SHG savings of INR 1,67,536.9 lakhs. The loan disbursed in Odisha to SHGs in 2019-20 valued at INR 2,36,334.16 lakh. Out of this the value of loan disbursed to all women SHGs (INR 2,36,334.16 lakh), share of NRLM/SGSY is INR 2,02,222.5 lakh for 1.17 lakh SHGs.

Table 37: Credit Sources for SHGs; OFSDP II

Intervention / Control	Status of External Credit link at SHG level; OFSDP II		
	% Of SHGs availed loan from Banks	% Of SHGs availed loan from NRLM	% Of SHGs availed loan from Others
Intervention	23.48	18.18	0.00
Control	12.50	12.50	4.17

Note: Credit accessed in 2019-20

Of the total studied SHGs, 58.3 percent SHGs in control and 46.2 percent SHGs in intervention accessed credit (from different sources) in last 3 years. Looking at the age of the group and credit linkage (SHG-Bank linkage), it is pertinent that many SHGs (control: 41.7 percent, intervention: 52.3 percent) have not taken any credit from the bank due to various reasons like no plan for credit utilization, absence of specific credit needs, own fund or funds accessed from different sources is adequate to meet their internal demand, no such business development plan that demands credit linkage, poor performance of the SHG for which banks would have found unsuitable for providing credit etc.

Table 38: Year of Formation of SHG & Credit Accessibility; OFSDP II

OFSDP II	Year of Formation (Rank)	Bank Credit (No. of Times) by SHG (%): Last 3 Years					Total
		0	=1	>1 <=3	>3 <=5	>5	
Control	<=2010	25.0	25.0	50.0			100.0
	>2010 & <=2014	50.0	25.0	25.0			100.0
	>2014 & <=2016	50.0	25.0	25.0			100.0
	>2016 & <=2018	36.4	45.5	18.2			100.0
	>2018	100.0	0.0	0.0			100.0
	Total	**41.7**	**33.3**	**25.0**			**100.0**
Intervention	<=2010	44.2	34.9	18.6	2.3		100.0
	>2010 & <=2014	25.0	33.3	33.3	8.3		100.0
	>2014 & <=2016	25.0	41.7	33.3	0.0		100.0

[10] The status of Microfinance in India, 2019-20. NABARD.

OFSDP II	Year of Formation (Rank)	Bank Credit (No. of Times) by SHG (%): Last 3 Years					Total
		0	=1	>1 <=3	>3 <=5	>5	
	>2016 & <=2018	66.7	21.7	11.7	0.0		100.0
	>2018	80.0	20.0	0.0	0.0		100.0
	Total	**52.3**	**28.8**	**17.4**	**1.5**		**100.0**
Total	<=2010	42.6	34.0	21.3	2.1		100.0
	>2010 & <=2014	31.3	31.3	31.3	6.3		100.0
	>2014 & <=2016	31.3	37.5	31.3	0.0		100.0
	>2016 & <=2018	62.0	25.4	12.7	0.0		100.0
	>2018	83.3	16.7	0.0	0.0		100.0
	Total	**50.6**	**29.5**	**18.6**	**1.3**		**100.0**

In the state of Odisha, the amount loan disbursed stands at INR 3,69,789.89 lakh in 2019-20. The number of SHGs that has been disbursed these loans are as many as 3.29 lakh in Odisha. Out of these 3.12 lakh SHGs are all women SHGs with value of loan disbursed of 3,48,021.1 lakh[11].

The value of loan disbursed has increased over past years, that is since 2017 until 2020. Average bank credit per group linked with the banks in last 3 years has been Rs. 2,04,291.43 in control and Rs. 1,72,570.80 in intervention, irrespective of times of linkage with the banks. Bank credit found outstanding with around 33.3 percent SHGs in control (average of Rs. 1,50,389.50) and 27.3 percent SHGs in intervention (average of Rs. 87,282.05).

Source of funds for SHGs have been primarily its members (in the form of savings and interest paid for the credit). Credit accessibility through associated federations is also observed in 12.5 percent SHGs in control and 17.42 percent intervention SHGs. Average funds accessibility by SHGs from federations in intervention areas is observed to be Rs. 91,286.96 and Rs. 50,000.00 in control area. Accessibility of funds by SHGs from other sources like government schemes / programs (excluding Mission SHAKTI / NRLM), CSR activities, NGOs etc. are limited to less than 5.0 percent SHGs in both control and intervention areas.

2.3.9 Involvement in IGA:

Involvement of SHGs in IGA (both individual and group) found in 54.17 percent groups in control and 46.97 percent groups in intervention. Further, of the total groups involved in IGA, 61.54 percent in control and 41.94 percent in intervention are involved in group IGA (group IGA refers to any one activity that is being carried out by a group of members of the SHG collectively. It also refers to a particular activity performed by members individually). Individual IGA observed in 38.46 percent SHGs in control and 58.06 percent SHGs in intervention. Individual IGA is more prominent in intervention whereas SHGs involved in group IGA is higher in control.

Different IGAs have been taken up by the SHGs / members of the SHGs but in majority cases, it has been agricultural activities where funds are invested. Prevalence of IGA activities in aggregation, processing, value addition, supply chain management and over and above in off-farm and non-farm sector is rare. In the IGAs, selected members of the SHGs are involved. Of the total SHGs involved in IGA, in 46.2 percent SHGs, <=25.0 percent members are involved in control, whereas in intervention <=25.0 percent members are involved in 62.9 percent SHGs. In many SHGs, basically where group based IGAs have been taken up, participation of members is more. On an average, >75.0 percent members are observed involved in IGA activities in 38.5 percent SHGs in control and 29.0 percent SHGs in intervention.

[11] The Status of Microfinance in India, 2019-20; NABARD

Table 39: Involvement of SHG / Member in IGA

Sectors of Engagement	Members in SHG (%) involved in IGA; OFSDP II	
	Control	Intervention
Agriculture	100.00	85.61
Fishery	-	1.52
Animal Husbandry	-	3.03
Value Addition (NTFP, Leaf Plate Making)	16.67	1.52
Service (MDM Etc.)	-	-
Business	-	-
Other	-	0.76

***Note**: Agriculture refers to field crop cultivation, including cotton farming; mushroom cultivation, and vegetable cultivation. Value addition covers leaf plate making, dish wash preparation, tamarind processing, bidi preparation, weaving, and broom making. Animal husbandry refers to goat rearing, and dairy farming. Business refers to shop keeping / petty business. Multiple IGA activities at group level, i.e., different members within a SHG are engaged in different activities.*

While involvement of groups / its members in IGA is around 50.0 percent, it was believed that the SHGs who are having significant percentage of members from economically poor section, are more involved in IGA activities in comparison to groups where percentage of members from poor economic background is comparatively less. It was observed that no such difference persists (P>0.05) among the studied groups (irrespective of control / intervention). Even where proportionately less members are from poor economic categories, the group or its members are involved in IGA.

2.3.10 SHG Leadership Responsibilities:

The leadership of SHGs have been taking different steps to support its members in different aspects like providing guidance to members on IGA, solving problem of individual members, conflict resolution etc. Different activities taken up by the current leadership of SHGs are presented in the matrix. The overall trend, irrespective of intervention and control, shows that when it comes to managing financial matter of the SHG, leadership is quite supportive to members. But in some other respects, like business activity promotion, preparing group level plans for IGA, collaboration and negotiation with others etc. performance of the groups have been poor. Such poor leadership support across SHGs reflects that the capacity of the leaders in such aspects has been poor to provide such services to its members.

Table 40: SHG Leadership Support to Members; OFSDP II

SHG Leadership Support Aspects	Control / Intervention; OFSDP II	
	Control	Intervention
Providing guidance to members on IGA	50.0	51.5
Assisting in information sharing among members	91.7	95.5
Helping define problems and identify solutions	100.0	100.0
Facilitating appraisal of member performance	83.3	80.3
Encouraging members to offer ideas and opinions	79.2	84.1
Resolving conflicts / Disputes among members	100.0	100.0
Conducting meetings and facilitating group decisions	100.0	100.0
Organizing, implementing and coordinating group plans	25.0	40.2
Facilitating financial transactions during group meetings	100.0	100.0
Maintaining and keeping records of accounts	100.0	100.0
Maintaining a bank account	100.0	100.0
Representing the group's interests to outside bodies	8.3	19.7
Negotiations and doing business with others	-	1.5
Rendering truthful and correct accounts to members	100.0	100.0
Selecting leaders on consensual basis	100.0	100.0
Developing functional systems and procedures	25.0	19.7
Mechanism for rotation of leadership	29.2	34.1
Changing leadership in case of requirement	58.3	62.1
Training / Capacity Building of Members	75.0	78.8

2.3.11 Capacity Building:

The NRLM helps in capacity building of SHGs by providing continuous capacity building of the targeted families, SHGs, SHG federations, NGOs and other key stakeholders. It also deploys ICT for knowledge disseminations and increasing the effectiveness of the training programs. Also, there are other NABARD financed schemes for capacity building of SHGs such as training for SHG-BL program, Micro Enterprise Development Program, Livelihood and Enterprise Development Programs and collaboration with NRLM for a) training of trainer's program b) conduct of Village Level Programs c) Smooth transition of WSHGs promoted in NRLM intensive blocks to SRLMs.[12]

The NRLM has developed a handbook for capacity building of staff and therefore the functioning of the SHGs. The SHGs and concerned staff are trained for SHG concept and management, financial inclusion of SHG, bookkeeping, Micro Credit Plan, Participatory Training Methods, Gender sensitization, and training for food nutrition and WASH activities[13]. However, studies have suggested that the effectiveness of the trainings depend on the type of training, duration of training, intend of attending the training. It also suggested that 62.5% of the members suggested that the trainings are useful whereas, 5% believe the trainings are not effective.

Similarly, the staff members of partner NGOs, forest guard and forester are trained for 1) formation of SHGs 2) Process of formation of SHGs 3) Characteristics and functions of SHGs and 4) Bank Linkage of SHGs under OFSDP for effective formation of SHG and their functioning[14].

2.3.12 Benefit due to SHG Involvement:

Association of households in SHGs found helpful in many ways for the families. Accessibility to banking institutions has increased due to involvement in SHG. There has been improvement in credit accessibility, enhancement in household savings, better household investment capacity, awareness on different schemes / provisions of government etc. Detail ranking of benefits of the households due to their association in the SHG is presented in the table. However, it is worth noting that the impact is not exclusive to SHG involvement, rather other endogenous and exogenous (overall environment) factors have also some influence upon the outcomes.

Table 41: Benefit Due to SHG Involvement, Households; OFSDP II (Control)

SN	Impact Aspects	OFSDP II Control			
		No Change	Marginal (+)	Higher (+)	NR
1	Accessibility to Banks / Financial Institutions	6.58	64.80	25.00	3.62
2	Having Bank Account for Transactions	11.84	53.62	28.62	5.92
3	Availability of Credit	13.82	43.75	25.66	16.78
4	Individual Savings	14.80	48.36	33.22	3.62
5	Starting Business / Enterprise / IGA	15.13	17.76	4.28	62.83
6	Household Food Expenses	42.76	46.05	8.55	2.63
7	Household Investment Capacity	22.70	62.50	11.84	2.96
8	Household Savings	14.80	62.17	16.45	6.58
9	Expenses in Household Assets (New)	50.66	29.61	4.28	15.46
10	Expenditure in Children's Education	39.80	32.89	9.87	17.44
11	Household Health Care Expenses	38.16	33.55	11.51	16.78
12	Awareness of Schemes / Provisions	28.62	52.63	15.13	3.62
13	Social / Business Mobility	32.89	51.32	12.83	2.96
14	Access to Market (Purchase / Selling)	36.51	49.67	9.87	3.95
15	Entertainment Expenses	49.01	24.67	6.58	19.73

Note: NR: No Response. Some SHG members also have the opinion about negative changes in their household front which cannot be attributed to their involvement in SHG or caused due to SHG.

[12] NABARD sponsored schemes. (https://www.nabard.org/content1.aspx?id=688&catid=683&mid=)
[13] NRLM Resource Cell, NIRDPR. NRLM Handbook on staff capacity building.
[14] OFSDS. AJY CB Manual-Training Module No. 3.

Table 42: SHG Impact on Households; OFSDP II (Intervention)

SN	Impact Aspects	OFSDP II Intervention			
		No Change	Marginal (+)	Higher (+)	NR
1	Accessibility to Banks / Financial Institutions	3.47	65.76	25.79	4.98
2	Having Bank Account for Transactions	10.71	52.04	30.02	7.24
3	Availability of Credit	11.16	54.45	20.66	13.73
4	Individual Savings	15.99	46.91	31.98	5.13
5	Starting Business / Enterprise / IGA	12.52	16.44	4.83	66.21
6	Household Food Expenses	43.44	44.34	6.64	5.58
7	Household Investment Capacity	24.59	61.24	8.90	5.28
8	Household Savings	16.44	57.01	18.85	7.70
9	Expenses in Household Assets (New)	49.02	29.86	7.09	14.03
10	Expenditure in Children's Education	44.34	32.43	6.49	16.74
11	Household Health Care Expenses	39.67	35.75	7.99	16.59
12	Awareness of Schemes / Provisions	19.31	57.32	18.40	4.98
13	Social / Business Mobility	25.64	52.79	16.14	5.43
14	Access to Market (Purchase / Selling)	36.65	49.62	8.90	4.83
15	Entertainment Expenses	49.02	26.09	6.03	18.86

Note: NR: No Response. Some SHG members also have the opinion about negative changes in their household front which cannot be attributed to their involvement in SHG or caused due to SHG.

2.3.13 Rating of SHGs:

The studied SHGs were rated on different parameters, i.e., membership from poor socio-economic background (ST and economically poor), SHG governance and management, financial transactions, social involvement and involvement in forest and environment related activities. Rating of SHGs in different aspects and overall rating is presented in the matrix below.

Table 43: Ranking of SHGs; OFSDP II

OFSDP II	SHG Ranking				
	R.1	R.2	R.3	R.4	R.5
Inclusiveness (ST / Poor HH)	**S: <=50**	**S: >50 <=65**	**S: >65 <=75**	**S: >75 <=85**	**S: > 85**
Control	4.2	4.2	20.8	33.3	37.5
Intervention	6.8	7.6	15.2	31.8	38.6
Total	6.4	7.1	16.0	32.1	38.5
Awareness (Schemes / Programs)					
Control	16.7	12.5	20.8	25.0	25.0
Intervention	6.8	16.7	27.3	26.5	22.7
Total	8.3	16.0	26.3	26.3	23.1
Overall Ranking of SHG					
Control	0.0	12.5	33.3	41.7	12.5
Intervention	1.5	12.1	28.0	49.2	9.1
Total	1.3	12.2	28.8	48.1	9.6

Table 44: SHG Ranks by Year of Formation; OFSDP II

OFSDP II	SHG Formation Rank	SHG Ranks (SHG Distribution by %); OFSDP II				
		R.1	R.2	R.3	R.4	R.5
		S: <=50	S: >50 <=65	S: >65 <=75	S: >75 <=85	S: > 85
Control	<=2010		25.0	75.0		0.0
	>2010 & <=2014			25.0	50.0	25.0
	>2014 & <=2016				75.0	25.0
	>2016 & <=2018		18.2	36.4	45.5	
	>2018					100.0
	Total		12.5	33.3	41.7	12.5
Intervention	<=2010	2.3	14.0	20.9	58.1	4.7
	>2010 & <=2014		16.7	50.0	33.3	
	>2014 & <=2016		8.3	41.7	41.7	8.3

OFSDP II	SHG Formation Rank	SHG Ranks (SHG Distribution by %); OFSDP II				
		R.1	R.2	R.3	R.4	R.5
		S: <=50	S: >50 <=65	S: >65 <=75	S: >75 <=85	S: > 85
	>2016 & <=2018		11.7	28.3	46.7	13.3
	>2018	20.0			60.0	20.0
	Total	1.5	12.1	28.0	49.2	9.1
Total	<=2010	2.1	14.9	25.5	53.2	4.3
	>2010 & <=2014		12.5	43.8	37.5	6.3
	>2014 & <=2016		6.3	31.3	50.0	12.5
	>2016 & <=2018		12.7	29.6	46.5	11.3
	>2018	16.7			50.0	33.3
	Total	1.3	12.2	28.8	48.1	9.6

Note: S: Score. R: Rank

Total savings generated by groups are found significantly different in control and intervention villages, including significant difference in per member savings at the SHG level in both the cases ($p<0.05$). So, the assumption of no difference in average group savings and member savings across control and intervention (H_0: $\mu_0 = \mu_1$) SHGs stands rejected (H_1: $\mu_0 \neq \mu_1$, $p<0.05$). There is no difference in average group and individual savings among SHGs based on percentage of members from poor economic category. So, the assumption about higher percentage of poor member may impact on savings is rejected as significant difference is not observed in groups that have more economically poor member and groups that have less ($p>0.05$).

2.4 Key Requirements of Community Organizations:

Table 45: Requirements of Community Organizations

Community Organization	Key Activities	Key Requirements
Farmer's Group	1. Leaf Plate Making 2. Vegetable Cultivation	1. Capacity Building: Mushroom Cultivation 2. Capacity Building: Lead Plate Making 3. Leaf Plate Making Machine Support 4. Quality Seeds for vegetables
Women SHGs	1. Awareness Creation 2. Thrift and Credit 3. Different IGA for Livelihood 4. MDM Management 5. Association in Plantation (rarely)	1. Bank Linkage for Credit 2. Capacity Building: IGA Specific 3. Machinery Support for Leaf Plate Making 4. Credit for IGA Activities 5. Market Linkage Support 6. Skill Base Development 7. IGA specific Machinery / Equipment Support
W&S Committee	1. Maintenance of Motor Pump for Drinking Water Supply	No Specific Needs (Some asked about Financial Support)
GKS	1. Community Awareness (Health) 2. Village / Road Cleaning 3. Conducting Meetings 4. Implementing Health & Sanitation Activities of Govt.	Financial and non-financial support from Govt.
Watershed Committee	Water Conservation & Management	Irrigation Facility
Cultural Group	Organize Cultural Programs	Govt. Support (Financial)
Producer Group	1. Vegetable Collection & Selling 2. IGA Activities like Incense Stick Making, Backyard Poultry, Fishery, Stitching Masks and School Uniform	1. Stock Room for Produces 2. Capacity Building Training (IGA) 3. Credit Support 4. Market Linkage (for higher price)
VSS	1. SMC Works, including Check Dam 2. Fire Protection 3. Forest Protection and Management 4. Wild Animal Protection 5. VSS Management Activities	1. Separate Funds for VSS Management 2. Forest Boundary / Ag. Field Boundary 3. Charger Light and Furniture 4. Cashew Based Farm Forestry 5. NTFP Marketing Support

Community Organization	Key Activities	Key Requirements
		6. More Plantation of Fruit Bearing Trees 7. NTFP Storage Facility (Room) 8. VSS Building Construction 9. Support for IGA 10. Capacity Building: IGA Specific

2.5 Conclusion:

The SHGs in Odisha have increased in number and become more active in past few years. The improved income generation activities and growing demand of NTFP based products has brought an added advantage and opportunities for growing profits. However, certain challenges on the progress of the SHG members and related activities are yet to be addressed in totality. The ignorance of participants, inadequate training and flow of information, unavailability of local market facilities and marketing linkages, lack of processing equipment, infrastructure unavailability, weaker management of finances, lower returns etc. are some of the challenges. This affects the level of involvement of SHG members and hence, hinders the income from ongoing IGAs. The long-term effect of these challenges either lead to exit of members, friction among members or disinterest. Therefore, to avoid dissolution of groups, it is necessary to keep them engaged with income generating activities by imparting continuous training at time intervals for skill development, product making and value addition, market linkages etc.


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ODISHA FORESTRY SECTOR DEVELOPMENT PROJECT • PHASE-II

Section III: Sustainable Forest / Bio-Diversity Management

3.1 Forest Area and Trend of Forest Coverage:

The Recorded Forest Area (RFA) gives the extent of forest in terms of legal status or definition of land as "forest" irrespective of actual forest canopy cover. The area under forest has increased in past years. The RFA of India as per ISFR 2019 is 7,67,419 sq. km. and the RFA for the state of Odisha is reported to be 61,204 sq. km. Both this value has increased since the year 2017.

Table 46: Status of Forest in India and Odisha

State	Geographical Area	Recorded Forest	Protected Forest	Unclassed Forests	Total RFA	% Geographical Area
India	3,287,469	434,853	218,924	113,642	767,419	23.34
Odisha	155,707	36,049	25,133	22	61,204	39.31

Source: ISFR, 2019

Although, the forest cover in India has increased in the past years, the percentage of very dense forest remains lowest with only 3.02 percent. There is slight variation in percentage of open forest with 9.26 percent and moderately dense forest with 9.39 percent. This makes up the total 21.67 percent of forest cover in India. The increase that has been observed since 2017 until 2019 is highest in the area of open forest with 2,702 sq. km.; however, the increase in very dense forest during this period is only 1,120 sq. km. and is only 154 sq. km. in moderately dense forest[15]. Similar trend is observed in the forest cover of Odisha with forest cover of 51,619 sq. km. (33.15 percent of GA). The total area of very dense forest in the state has increased by 3 sq. km. only, whereas moderately dense forest has increased by 182 sq. km. and open forest by 89 sq. km[16].

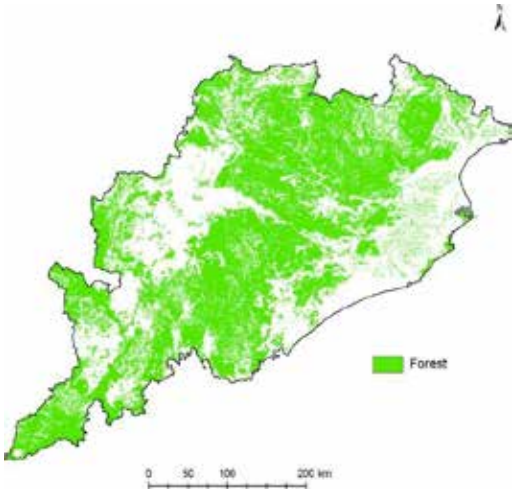

Figure 11: Forest Cover map of Odisha

Forest of Odisha is well stocked, diverse, multi-storied and dense in nature. Recorded Forest Area (RFA) in the State is 61,204 sq. km. (39.31% of State geographical area) of which 36,049 sq. km. (58.90 percent of recorded forest area) is Reserved Forest (RF), 25,133 sq. km. is Protected Forest (PF) (40.75 percent of recorded forest area), and 22 sq. km. is Unclassed Forests (UF) (0.35 percent of the recorded forest area). The state has raised 6,30,896 ha of plantations in the last two years. Two National Parks and 19 Wildlife Sanctuaries constitute the Protected Area network of the State covering 5.19% of its geographical area. In terms of forest canopy density classes, the State has 6,969.71 sq. km. under Very Dense Forest (VDF), 21,551.93 sq. km. under Moderately Dense Forest (MDF) and 23,096.87 sq. km. under Open Forest (OF). Forest Cover in the State has increased by 273.51 sq. km. as compared to the 2017 ISFR assessment.

[15] Forest Survey of India. India State of Forest Report. 2019
[16] Forest Survey of India. India State of Forest Report. 2019

Figure 12: Forest Area (FA) to Geographical Area (GA)

Categorization of forest area percentage to total geographical area of the district reveals that in five districts, less than 10.0 percent of the geographical area is covered under forest (Balasore, Bhadrak, Jagatsingpur, Kendrapada and Puri); seven districts have forest area to the tune of >= 10.0 percent and <25 percent (Cuttack, Jajpur, Jharsuguda, Khurdha, Koraput, Nuapada and Subarnapur); five districts have forest area in the range of >=25 & <35 percent of the district geographical area (Bargarh, Dhenkanal, Ganjam, Kalahandi and Nabarangpur); eight districts have forest area to the total geographical area in the range of >=35 & <50 percent (Angul, Bolangir, Malkangiri, Mayurbhanj, Nayagarh, Rayagada, Sambalpur, and Sundargarh). Remaining five districts, namely, Boudh, Debagarh, Gajapati, Kandhamal and Keonjhar have >=50 percent of the geographical area covered under forest.

3.2 Forest Degradation and its Impact on Local Habitations:

The FAO has defined forest degradation as the reduction of the capacity of a forest to provide goods and services[17]. The forest depletion is a major concern due to industrialization, urbanization and overuse of resources. The Net Present Value (NPV) as calculated for the Indian forests is worth $1.7 trillion in 2017[18]. This is the total economic value of the forest stands in the country. The degradation of forest also leads to the flooding of region, resulting in losses of crop, infrastructure, and life. These flooding occur due to two major effects, (1) by reducing the tree fountain effect and (2) by soil compaction and poor soil structure[19]. There is also supply and demand gap with regard to forest products.

As explained by a study (Aggrawal. A et al.), the demand supply gap of firewood, timber and fodder is prevailing in almost all the states. Along with this the ISFR 2011 provided an estimate of consumption and production of forest products such as wood, firewood and livestock dependence on forests[20].

[17] Markku Simula. Forest Resource Assessment, working paper 154. Towards defining forest degradation: comparative analysis of existing definitions. 2009

18 Umashanker Singh. Deforestation in India and climate change.2018

[19] Rima Kumari, Ayan Banerjee et al. Deforestation in India: Consequences and sustainable solutions.

[20] A. Aggarwal, Paul V, and S. Das. Forest Resources: Degradation, livelihoods and climate change. 2009

Table 47 Dependency on Forest Resources

Forest Products	Demand in MT	Sustainable Supply in MT	Gap/unsustainable Harvest in MT
Firewood	228	128	100
Fodder (green and dry)	1594	741	853
Timber	55	41	14

Source: ISFR 2019

Table 48 Forest Resource Consumption and Production

Forest Products	Consumption	Production
Wood (RWE in m cum)	48.0	45.95
Firewood from forests (million tonnes)	58.47 (27.14%)	19.254
Livestock dependence on forest (in million)	199.58 (38.49%)	

Source: ISFR 2019

3.3 Forest Development and Management Activities:

The government of India has been implementing three major schemes, i.e., (1) National Afforestation Program for improvement of degraded forest lands and ecological restoration, (2) National Mission for Green India for improving the forest cover and cross sectoral activities on landscape basis and, (3) Forest Fire Prevention and Management Scheme for controlling forest fires and prevention across the country. As much as INR 343.08 crore has been released under Green India Mission (GIM) for afforestation activities in an area of 126,916.32 ha[21]. Various approaches have been adopted for forest and biodiversity conservation such as dedicated biosphere reserves, national parks, preservation of sacred groves, seed bank etc.[22].

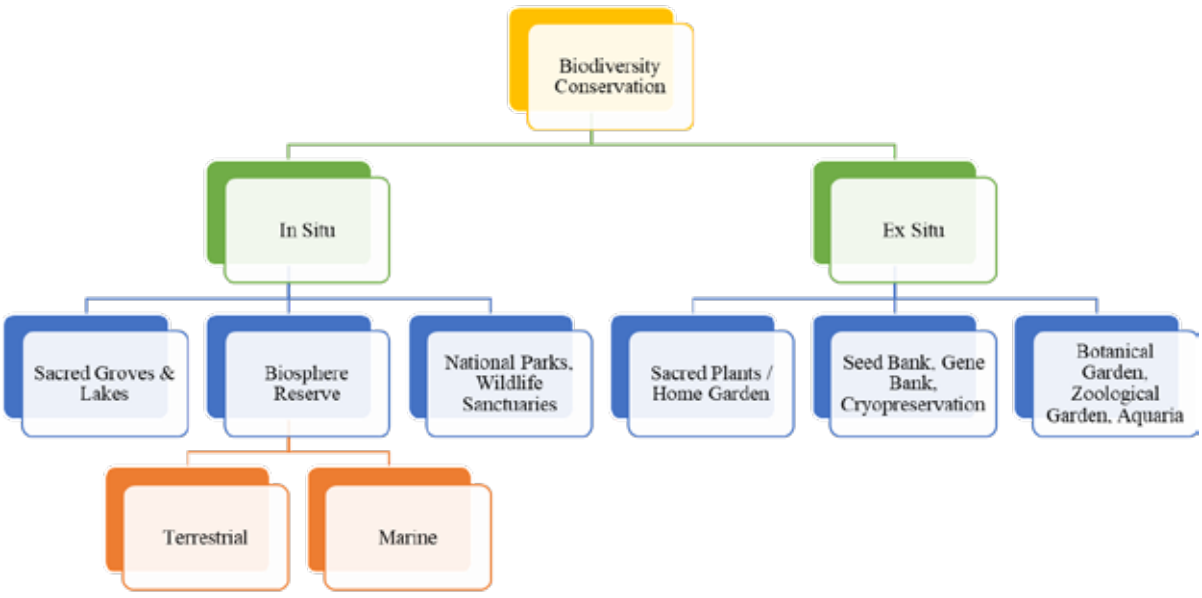

Figure 13: Approaches for Biodiversity Conservation

The OFSDP-II project in the state of Odisha aims to improve the forest cover of the state and restore the degraded land along with increased income of forest dependent communities. The project objectively looks at (a) restoration of degraded forest and augment forest resources, (b) secure sustainable forest management by improving forest administration, community organizations and other stakeholders, (c) conserve the biodiversity, (d) promote inter-sectoral convergence, and (e) improve income of target forest dependents and their livelihood options. The project has undertaken activities

[21] Ministry of Finance, GoI. Economic Survey 2019-20, Volume 2. 2020.
[22] M.S. Umesh Babu and Sunil Nautiyal. Conservation and management of forest resources in India: Ancient and current perspectives. 2015

such as need based interventions in forest and forestlands, capacity building for people-led forest management, poverty alleviation by promotion of income generation activities, adopting watershed approach at Division level and cluster-approach at VSS level for JFM site selection.

Afforestation activities were taken up during the year 2010-11 to 2017-18 under various schemes in Odisha. The details of the same has been describe in the table below[23].

Table 49: Afforestation Activities in Odisha

Year	AR (in ha.)	ANR with Gap Planation (in Ha.)	ANR without Gap Plantation (in Ha.)	Total Plantation (in Ha.)	Avenue Plantation (in RKM)	Seedlings Planted (in lakh)	Seedlings Distributed (in lakh)
2010-11	70,842	60,084	1,02,519	2,33,445	241	1,086.10	128.34
2011-12	22,950	10,291	1,48,946	1,82,187	769	358.92	195.92
2012-13	18,603	20,230	68,454	1,07,287	3,107	321.66	211.92
2013-14	24,966	38,023	40,296	1,03,285	4,506	467.53	304.14
2014-15	24,600	60,253	1,14,038	1,98,891	4,755	692.17	550.00
2015-16	16,576	98,540	2,41,975	3,57,091	4,607	487.98	460.96
2016-17	15,322	1,27,973	2,58,121	4,01,416	5,838	497.75	376.57
2017-18	5,523.17	20,366.94	2,08,524.96	2,34,415.07	3,234.50	159.57	145.14
Total	1,99,382.17	4,35,760.94	11,82,873.96	18,18,017.07	27,057.50	4,071.68	2,372.99

Note: Afforestation Activities under OFSDP I; Source: https://odishaforest.in/en/afforestation/

3.4 Forest Quality:

The quality of forest has been classified under 4 categories on the basis of tree cover, i.e., Very Dense, Moderately Dense, Open Forest Scrub and Non-Forest.

Table 50: Type of Forests

Forest Type	Criteria
Very Dense Forest	All Lands with tree cover (Including mangrove cover) of canopy density of 70% and above
Moderately Dense Forest	All lands with tree cover (Including mangrove cover) of canopy density between 40% and 70% above
Open Forest	All lands with tree cover (Including mangrove cover) of canopy density between 10% and 40%
Scrub	All forest lands with poor tree growth mainly of small or stunted trees having canopy density less than 10 percent
Non-Forest	Any area not included in the above classes

As discussed, the quality of the forests has changed in the last years which is reflected in the table describing variation in type of forests since 2017 and percentage of change. The forest area in the studied Ranges / Divisions that are assigned to and managed by VSS, mostly fall into moderately dense category.

Table 51 Quality of Forest Cover

State	Total Forest Cover 2019 in sq. km	VDF 2019 in sq. km	MDF 2019 in sq. km	OF 2019 in sq. km	Change in area of VDF in sq. km since 2017	Change in area of MDF in sq. km since 2017	Change in area of OF in sq. km since 2017	Total Change in sq. km
India	7,12,249	99,278	3,08,472	3,04,499	1,120	154	2,702	3,976
Odisha	51,619	6,970	21,552	23,097	3	182	89	279

Source: ISFR 2019; VDF: Very Dense Forest; MDF: Moderately Dense Forest; OF: Open Forest

[23] https://odishaforest.in/en/afforestation/

3.5 Existing Nurseries, Production and Plantation Support:

A nursery is a managed site designed to produce seedlings grown under favourable conditions until they are ready for planting. A total of 5,217 nursery sites have been developed in the state of Odisha, raising around 15,50,41,375 number of seedlings across 52 forest circles by 2020. These seedlings were raised to fulfil the requirement under the various schemes and purposes such as CAMPA, Green Mahanadi Mission, increasing green cover, MGNREGS, National Afforestation Program, OEMF, OFSDP, District Mineral Fund, CSR, OMC funding, OMBADC, Bald Hill Plantation Special and miscellaneous[24]. The OFSDP project has also promoted central nurseries (6 nos.) and temporary nurseries to ensure supply of quality planting materials to different Forest Divisions and Ranges.

3.6 Farm Forestry Promotion:

Farm Forestry, in general, refers to growing trees on farmlands for commercial purposes like timber production or for variety of non-commercial purposes like groundwater control, prevention of soil erosion, prevention of polluting nutrients in the soil etc. The farm forestry has a number of positive outcomes like (a) production of quality small timber products, (b) increase in farm incomes, (c) create scope of employment, and (d) provide ecosystem services and environmental benefits. Farm forestry incorporates commercial tree growing into farming systems. It is the management of trees for a specific purpose within a farming context. However, farm forestry is the outcome that, to a large extent, is dependent upon the decision of the landholder. The performance of farm forestry depends upon the interest, resources and involvement of landholders and their ability to manage farm forestry effectively.

The objective of the farm forestry under OFSDP-I project was to promote tree plantation and tree-based farming on private land. This encouraged the VSS to plant trees and support farmers to plant trees alongside the farms for forest restoration. Two models were considered for the purpose of farm forestry, (1) timber/tree born oil/NTFP, and (2) pulp wood model. The objective of the farm forestry under the project was[25]:

1. Increasing availability of timber, small timber, firewood and tree biomass from private land for enhancing income to household by meeting market demand as well as household consumption to reduce pressure on their forest under restriction;
2. Rehabilitating lands on slopes through provision of nitrogen fixing plants/trees;
3. Capacity building of farmers to create tree plantations as a viable enterprise.

The farm forestry was implemented in the extension phase of OFSDP-I, i.e., during the year 2013-14 to 2015-16. Different tree species planted under farm forestry, like[26]; Teak (*Tectona grandis*), Gamhar (*Gmelina arborea*), *Acacia manginum, Dalbergia sisso, Dalbergia latifolia,* Bija (*Pterocarpus marsupium*), Mahanimb (*Ailanthus excelsa*), Haldu (*Adina cardifolia*), Siris (*Albizzia lebbeck*), Karanj (*Pongamia pinnata),* Neem (*Azadirachta indica*), Simarouba (*Simarouba glauca*), Aonla (*Emblica officinalis),* Harida (*Terminalia chebula*), Baheda (*Terminalia bellerica),* Jack fruit (*Artocarpus heterophyllus*), *Acacia auriculiformis*, Eucalyptus spp., *Casuarina equisetifolia*, *Casuarina junghuniana.* The area covered under farm forestry during OFSDP Phase-I was about 9,487.11 ha.

[24]Odisha Forest Management System. https://odishaforestgis.in/ofms-report/
[25] OFSDS & JICA. Farm Forestry Guideline, Odisha Forestry Development Project. 2012.
[26] http://ofsds.in/ofsdp_detail_extention.html

Table 52: Details of Farm Forestry

SN	Total Divisions	Farm Forestry (2013-14)			Farm Forestry (2014-15)			Total	
		FMUs	Farmers	Area (ha.)	FMUs	Farmers	Area (ha.)	Farmers	Area (Ha.)
1	Angul	5	176	126.88	4	116	61.30	292	188.18
2	Balliguda	5	195	97.81	2	126	57.60	321	155.41
3	Bonai	5	259	131.88	5	217	76.29	476	208.17
4	Balasore (WL)	2	19	5.65	-	-	-	19	5.65
5	Bhadrak (WL)	2	74	36.55	-	-	-	74	36.55
6	Jeypore	6	630	592.25	6	2289	1,720.00	2,919	2,312.25
7	Keonjhar	5	923	293.59	4	814	218.03	1,737	511.62
8	Koraput	5	1,130	996.27	5	4,871	3,752.52	6,001	4,748.79
9	Parlakhemundi	-	-	-	6	591	325.50	591	325.5
10	Phulbani	5	101	47.30	7	323	157.40	424	204.7
11	Rayagada	7	154	116.54	7	471	374.90	625	491.44
12	Rourkela	3	308	130.11	6	244	168.74	552	298.85
	Total		**3,969**	**2,574.83**		**10,062**	**6912.28**	**14,031**	**9,487.11**

Source: http://ofsds.in/ofsdp_detail_extention.htm]

3.7 Adoption of Farm Forestry:

Under OFSDP II, different farm forestry models have been promoted like (a) Agri-Horti-Silvi (mixed) model, (b) Timber model, (c) Pulpwood model, (d) Horti-NTFP model, and (e) field bund-dyke model. Adoption of farm forestry models is observed in 16.78 percent households in the control and 34.24 percent households in the intervention areas. Households belonging to other social categories (OC) are having better adoption in comparison to SC and ST households in both intervention and control. Further economically better off households have higher adoption rate in control areas (22.73 percent) whereas poor households have better adoption in intervention (35.01 percent). Looking by land holding categories, it is evident that farm forestry is better adopted by semi-medium and medium farmers in comparison to marginal and small farmers. However, marginal and small farmers in intervention areas are more involved in farm forestry in comparison to control.

Table 53: Farm Forestry by Households; OFSDP II

Categories	Particulars	HH with Farm Forestry (%)	
		Control	Intervention
HH with Farm Forestry	HH %	16.78	34.24
Farm Forestry by Social Gr.	Other Caste (OC, %)	25.00	39.75
	Scheduled Caste (SC, %)	15.38	25.00
	Scheduled Tribe (ST, %)	9.93	31.84
	Total	**16.78**	**34.24**
Farm Forestry by Economic Gr.	Poor (%)	16.31	35.01
	Better Off (%)	22.73	23.91
	Total	**16.78**	**34.24**
Farm Forestry by Land Holding	Marginal Farmer (%)	17.86	35.75
	Small Farmer (%)	28.21	40.27
	Semi-Medium Farmer (%)	40.00	47.37
	Medium Farmer (%)	60.00	60.00
	Total	**16.78**	**34.24**

Average area devoted for farm forestry is about 0.16 ha. in case of uncultivable waste land in control and 0.21 ha. in case of intervention areas with a total area of 5.61 ha. in control and 36.41 ha. in interventions. Area devoted for farm forestry has been relatively higher in case of semi-medium and medium farmers in control and medium and small farmers in intervention areas.

Table 54: Area (Ha.) Under Farm Forestry: OFSDP II

Categories	Particulars	Area Under Farm Forestry	
		Control	Intervention
Average Area	Area under Farm Forestry (Ha.)	0.16	0.21
Farm Forestry Area by Holding Category	Marginal Farmer (Ha.)	0.11	0.18
	Small Farmer (Ha.)	0.19	0.28
	Semi-Medium Farmer (Ha.)	0.30	0.17
	Medium Farmer (Ha.)	0.33	0.51
	Total	**0.16**	**0.21**
Farm Forestry Area by Social Group	Other Caste (OC, Ha.)	0.16	0.18
	Scheduled Caste (SC, Ha.)	0.08	0.29
	Scheduled Tribe (ST, Ha.)	0.19	0.23
	Total	**0.16**	**0.21**

3.8 Plant Preference:

Preference has been given to timber and fruit bearing species like Teak (*Tectona grandis*), Eucalyptus (*Eucalyptus globulus*), Mango (*Mangifera indica*), Cashew (*Anacardium occidentale*), Sal (*Shorea robusta*), Acasia, Kusum, Mahua, Lemon, Orange, Guava, Kendu etc. The plants are planted mostly in bund of agricultural land, followed by uncultivable waste land. Adoption of farm forestry model inside the cultivated land is less. Farm forestry model expected to be beneficial to the adopted families in different ways like, getting fruits for consumption and sale, wood for furniture, firewood for family use, and different major benefits they have been accessing from the local forest (except NTFP).

3.9 Causes of Non-Adoption:

The households who have not adopted farm forestry model are due to various reasons like insufficient land, anticipated impact on crop productivity due to shade of tree species, low plant survival rate due to wild animal attack, poor irrigation facility, no space available in the existing cultivated land etc. It is observed that while uncultivated and culturable waste land are lying barren, owning farmers have not adopted farm forestry in such category of land due to such apprehensions.

Table 55: Reasons of Poor/Non-Adoption of Farm Forestry

SN	Reasons of not Practicing Farm Forestry	SN	Reasons of not Practicing Farm Forestry
1	Affect Agricultural Production	9	No Quality Planting Materials as no Nursery Nearby
2	Higher Plant Mortality due to Domestic Animals	10	Plant will not Grow in the existing Soil (Low Soil Productivity)
3	Growth of Field Crops Impacted Upon	11	Destruction due to Wild Animals (Monkey Menace)
4	Reduce Crop Production	12	Yet to Receive any such Support for farm forestry
5	Fertility / Productivity of Land will Reduce	13	Problem of Watch and Ward in Growing Stage of Plants
6	No Irrigation Facility to Water Plants	14	Having only Forest Land
7	Not Required as House is in the Forest Fringe	15	Not Interested in Plantation Crops
8	No / Insufficient Land Available for farm forestry		

3.10 Farm Forestry and Income:

It is commonly accepted that farm forestry gives better return to the farmers in comparison to agricultural mono cropping. However, farmers have a different understanding on farm forestry. During interaction, farmers expressed that farm forestry would reduce the crop production because of shades on the field crops and reduction in crop area due to planting of horticultural / forest species. Farmers were also of the opinion that they do not have required land available for plantation of fruit bearing and forest species. In the study, it is observed that income of the households, who have existing farm forestry is comparatively higher than those who do not have farm forestry, irrespective of control and

intervention areas. The difference in level of income is statistically significant ($p<0.05$) between families having farm forestry and families not having farm forestry, keeping all other factors constant. It is to mention that these families have adopted farm forestry for years and projects have initiated the process to augment the coverage further. So, the assumption of equal income of families having or not having farm forestry is rejected (H_1: $\mu_0 \neq \mu_1$, $p<0.05$).

3.11 Human-Wildlife Conflict and Redressal of Issues:

Wild animal impacting agricultural field is reported by many villagers in the forest fringe villages. Villagers normally manage the situation and try to keep the wild animals out of their fields. But Human wildlife conflict is also reported in some of the studied villages. It has been one of the causes for poor cropping intensity and thereby poor agricultural income of the farmers. Due to wild animals, crop damage is reported to be common in these villages and gross farm output has been low. In many villages, farmers are of the opinion of having fencing with solar power to prevent wild animals from entering agricultural land and human habitations.

Table 56: Human Wildlife Conflict; OFSDP II

OFSDP II	Human Animal Conflict: 2018-19 (VSS %)						Human Animal Conflict: 2019_20 (VSS %)			
	No Conflict	Once	Twice	Thrice	More than Thrice	Total	No Conflict	<= 2 Times	> 2 Times	Total
Control	100.0					100.0	100.0			100.0
Intervention	94.70	3.03	0.76	0.76	0.76	100.0	98.48	0.76	0.76	100.0
Total	**95.51**	**2.56**	**0.64**	**0.64**	**0.64**	**100.0**	**98.72**	**0.64**	**0.64**	**100.0**

Note: No human wildlife conflict is reported as per the VSS record. However, people in general have the opinion of damage of crops by wild animals. Interaction between human and wildlife is not negative in-spite of impact of wildlife on resources and hence it is in general not considered human wildlife conflict.

3.12 Forest Fire Protection and Management:

Incident of forest fire is reported to happen once in control area in case of 8.33 percent VSS in 2018-19 and 4.17 percent VSS in 2019-20. In intervention areas, 3.79 percent VSS experienced and managed forest fire in 2018-19 which was happened once. In the year 2019-20, forest fire occurred in 3.79 percent VSS once and 1.52 percent VSS twice which was managed by them with the support of forest officials. Occurrence of forest fire (number of times) and percentage of VSS managed it is presented in the matrix.

Table 57: Forest Fire Protection and Management; OFSDP II

	Forest Fire 2018-19			Forest Fire 2019-20			
	No Forest Fire	Once	Total	No Forest Fire	Once	Twice	Total
Control	91.67	8.33	100.00	95.83	4.17	0.00	100.00
Intervention	96.21	3.79	100.00	94.70	3.79	1.52	100.00
Total	**95.51**	**4.49**	**100.00**	**94.87**	**3.85**	**1.28**	**100.00**

Note: Incident of forest fire refers to forest fire in the area assigned to VSS only

3.13 Biodiversity:

The plant biodiversity assessment was conducted in 35 sites, falling under 35 VSS in OFSDP II intervention area. The mean area of the covered VSS found to be 97.95 ha. About 51.43 percent VSS are having assigned area in the range of 50 to100 ha., followed by 22.86 percent in 100 to 150 ha. and 14.29 percent having assigned area more than 150 ha. Ranking of VSS based on assigned forest area is presented in the matrix.

Table 58: VSS Ranking Based on Assigned Forest Area (Ha.)

Assigned Forest Area (in Ha.) Category (VSS %)				Total
=50	50 to 100	100 to 150	>150	
11.43	51.43	22.86	14.29	100.0

Major species, that are found in maximum sites are Sal (28.57 percent sites), Mahua (28.57 percent sites), Sahaj (20.0 percent sites), Kendu (14.29 percent sites), and Chara (28.57 percent sites) etc. The mean minimum and mean maximum height of the plants and GBH / GCH is presented in the matrix.

Table 59: Mean Minimum and Mean Maximum Height and GBH; OFSDP II

Natural Species	Av. No of Plant	Mean Max. Height (Mt.)	Mean Min. Height (Mt.)	Mean Max. GBH (Cm.)	Mean Min. GBH (Cm.)
Achu	29	6.1	0.9	45.7	7.6
Asana	4	10.0	6.0	20.0	11.0
Bahada	2	6.0	4.0	15.0	12.0
Bamboo	5	4.0	2.4	26.0	20.0
Bandhan	5	3.0	1.0	13.0	9.0
Banyan Tree	17	7.6	3.0	127.0	20.3
Bhalia	2	5.0	3.0	16.0	10.0
Chara	10	5.3	2.1	32.7	14.6
Dhatki	10	5.0	2.0	20.0	12.0
Gohira	2	4.0	1.0	5.0	2.0
Guduchi	2	5.0	2.0	20.0	18.0
Halanda	15	3.0	17.8	7.0	10.2
Jamu	13	6.5	2.0	51.0	27.0
Kalachua	11	3.4	0.9	20.3	7.6
Karada	98	4.0	1.5	15.5	10.0
Kasi	5	6.0	1.5	45.0	15.0
Kendu	17	4.4	10.9	29.3	15.0
Khainsa	7	3.0	1.5	14.0	8.0
Khajuri	4	10.0	7.0	41.0	34.0
Kilakiruma	25	1.8	0.9	20.3	10.2
Limba	2	5.5	2.8	27.3	14.0
Mahi	11	3.1	1.7	26.8	15.9
Mahula	10	7.6	8.5	61.2	17.3
Nilagiri	12	6.7	4.6	27.9	17.8
Palasa	10	3.8	1.3	17.0	9.3
Piasala	4	4.0	1.8	24.0	12.5
Rohani	15	2.0	1.0	5.0	3.0
Sahaj	19	6.8	2.3	38.1	14.6
Sal	20	9.7	4.3	49.9	21.0
Simili	4	6.0	2.0	55.0	23.0
Sina	35	3.0	2.0	12.0	8.0
Sneha	7	10.0	4.0	56.0	28.0
Som	19	5.5	3.0	38.1	20.3
Teak	5	2.0	1.0	8.0	6.0
Eucalyptus	5	15.0	10.0	83.0	70.0
Veru	2	4.0	2.0	23.0	12.0

Note: Plants are in local name

3.13.1 Plant Regeneration:

Different species found regenerating in different areas and Jamu found to be the major regenerating species in maximum number of sites (45.7 percent sites) followed by Kusum (17.1 percent sites) and Sahaj in (8.6 percent sites) in OFSDP areas.

Table 60: Regeneration of Plant Species; OFSDP II

SN	Species	Sites (%)
1	Chara	2.9
2	Jamu	45.7
3	Karada	8.6
4	Kendu	2.9
5	Kusuma	17.1

SN	Species	Sites (%)
6	Limba	2.9
7	Mahula	2.9
8	Sahaj	8.6
9	Sala	2.9
10	Veru	8.6

3.13.2 Herbs and Shrubs:

Apart from tree species, several herb and shrub species were also observed in the sites. Average prevalence of number of herbs and shrubs by its type is presented in the tables.

Table 61: Type of Shrubs; OFSDP II

SN	Shrubs	Sites (%)	Average No.
1	Araguna	2.9	1.00
2	Atundi	2.9	3.00
3	Badhun	2.9	1.00
4	Baincha	2.9	1.00
5	Bajramuli	2.9	3.00
6	Balbehadria	2.9	1.00
7	Beni Manja	2.9	1.00
8	Bhuinkuruma	2.9	1.00
9	Dhataki	8.6	3.67
10	Dom Kuruda	2.9	2.00
11	Gohira	2.9	1.00
12	Jarjatia	2.9	9.00
13	Jhatiki	5.7	4.00
14	Jhumka	2.9	1.00
15	Kalakhakada	2.9	2.00
16	Kanteikoli	2.9	1.00
17	Karada	2.9	4.00
18	Kelakuruma	2.9	8.00
19	Keruan	5.7	12.50
20	Khajuri	5.7	8.00
21	Kolatha	5.7	14.00
22	Kukuda Chheli	2.9	7.00
23	Kurei	8.6	3.00
24	Palasa	2.9	20.00
25	Talamuli	2.9	30.00
26	Telkuruma	8.6	5.00

Table 62: Type of Herbs; OFSDP II

SN	Herbs	Sites (%)	Average No.
1	Bana Chakunda	2.9	5.00
2	Bana Kolatha	100.0	9.46
3	Beluagrass	2.9	1.00
4	Bena	2.9	120.00
5	Bhuinkamuda	5.7	33.50
6	Bhurleuri	2.9	4.00
7	Bisalyakarani	2.9	5.00
8	Broom	2.9	30.00
9	Chana Ghasa	5.7	5.50
10	Dadadhia	2.9	25.00
11	Duba	5.7	41.50
12	Dubula	2.9	16.00
13	Jhampa	5.7	2.00
14	Jhipa	2.9	12.00
15	Karat Grass	2.9	50.00
16	Khadika Jhadu	5.7	15.00

SN	Herbs	Sites (%)	Average No.
17	Khira Kunch	2.9	2.00
18	Kolathia	5.7	17.50
19	Mamubhanaja	2.9	15.00
20	Mathakanda	2.9	4.00
21	Panasi	5.7	11.50
22	Phulkedia	2.9	9.00
23	Pokasunga	2.9	1.00
24	Puru	5.7	2.50
25	Sinkula	8.6	40.00
26	Suanti	2.9	6.00

3.13.3 Plant Biodiversity Index:

In order to understand plant diversity (trees, herbs and shrubs) in the assessed plots (plot of 1000 Sq. Mt. for plantation / tree species, 25 Sq. Mt. for shrubs and 1 Sq. Mt. for herbs) that represent the studied forest area, two indices are computed, i.e., Shannon Index (also known as Shannon-Wiener Index) (H) and Simpson Index (D). The observations against each index are discussed below.

3.13.3.1Shannon-Wiener Index:

Shannon-Wiener Index was computed to understand plant diversity in the assessed plots. Based on species abundancy, the index was computed separately for each category of operation (ANR with gap plantation, block plantation, NTFP plantation, Fuel and fodder plantation, and ANR without gap plantation etc.). The score (H) obtained for each operational category is further ranked to understand the distribution of sites by plant diversity. The "**Rank 1**" refers to low diversity and "**Rank 4**" is termed as high diversity. In OFSDP II, 5.7 percent sites fall in to "**Rank 1**", 45.7 percent in "**Rank 2**", 48.6 percent in "**Rank 3**" and no site found in "**Rank 4**".

Table 63: Distribution of Sites by Bio-diversity Index (Shannon Index)

SN	Ranks	Measurement Sites (OFSDP II)
1	Rank 1 (<=1.0) (Low Diversity)	5.7
2	Rank 2 (>1.0, <=2.0)	45.7
3	Rank 3 (>2.0, <=3.0)	48.6
4	Rank 4 (>3.0) (High Diversity)	0.0
Total		**100.0**

Table 64: Shannon Index of Sites: OFSDP II

SN	Plantation / Silviculture	VSS / Sites	Index	Rank
1	ANR with Gap (400)	Rama Sahi	1.68	2
2	ANR with Gap (400)	Katha Karanjia	2.05	3
3	ANR with Gap (200)	Kala Tamaka	2.11	3
4	ANR with Gap (200)	Balarampur	1.18	2
5	ANR with Gap (200)	Burudi	2.26	3
6	Block Plantation	Marsigaon	0.91	1
7	NTFP Plantation	Kuamara	1.88	2
8	NTFP Plantation	Uparbeda	2.05	3
9	NTFP Plantation	Bhagabati	1.97	2
10	Block Plantation	Tithipali	2.17	3
11	ANR with Gap (800)	Debandha	2.85	3
12	ANR with Gap (200)	Saradahikoar	2.44	3
13	ANR with Gap (400)	Santun	1.48	2
14	ANR with Gap (200)	Tilkamal	2.49	3
15	ANR with Gap (400)	Doulathapur	2.19	3
16	Fuel Fodder	Naktideula	1.74	2
17	Fuel Fodder	Mahendrapur	2.04	3
18	Block Plantation	Rajing	1.69	2

SN	Plantation / Silviculture	VSS / Sites	Index	Rank
19	ANR with Gap (200)	Gudapal	1.85	2
20	ANR with Gap (200)	Limdihi	2.07	3
21	Block Plantation	Kulutenguri	1.03	2
22	Fuel Fodder	Chhamunda	0.81	1
23	ANR without Gap	Ainajharan	1.33	2
24	ANR with Gap (200)	Beheramunda	2.47	3
25	NTFP Plantation	Guneipali	1.56	2
26	ANR with Gap (200)	Jaybudia	2.09	3
27	NTFP Plantation	Handatopa	1.97	2
28	ANR with Gap (200)	Sudung	1.47	2
29	ANR with Gap (200)	Pitamal	1.54	2
30	ANR with Gap (400)	Tirikupa	1.99	2
31	ANR with Gap (400)	Badapathara	1.92	2
32	ANR with Gap (400)	Jayamangal	2.31	3
33	ANR with Gap (400)	Chancharapalli	2.63	3
34	ANR with Gap (400)	Suliapalli	2.54	3
35	ANR with Gap (400)	Sandhabali	2.79	3

Apart from combined index (for all observed species in tree, herb and shrub category), Shannon index was computed separately for tree species (plantation and natural species), herbs and shrubs in assessment sites. The index value of sites is presented below by operation (ANR with gap, ANR without gap etc.) for plantations taken up in assessment sites, natural species existing and shrubs and herbs observed in the site.

Table 65: Shannon Index by Operation: OFSDP II

SN	Plantation / Silviculture	VSS / Site	Plantation		Natural		Shrubs		Herbs	
			H	Rank	H	Rank	H	Rank	H	Rank
1	ANR with Gap (200)	Kala Tamaka	1.39	2	0.79	1	0.00	1	1.11	2
2	ANR with Gap (200)	Balarampur	0.54	1	1.53	2	0.00	1	1.33	2
3	ANR with Gap (200)	Burudi	1.32	2	1.35	2	0.00	1	1.36	2
4	ANR with Gap (200)	Saradahikoar	1.34	2	1.21	2	0.54	1	1.30	2
5	ANR with Gap (200)	Tilkamal	1.92	2	0.96	1	0.00	1	1.48	2
6	ANR with Gap (200)	Gudapal	1.41	2	2.08	3	0.00	1	1.33	2
7	ANR with Gap (200)	Limdihi	1.61	2	0.00	1	0.23	1	0.63	1
8	ANR with Gap (200)	Beheramunda	1.90	2	1.34	2	0.69	1	0.50	1
9	ANR with Gap (200)	Jaybudia	0.75	1	1.81	2	0.00	1	0.69	1
10	ANR with Gap (200)	Sudung	1.43	2	0.00	1	0.00	1	0.00	1
11	ANR with Gap (200)	Pitamal	0.29	1	1.49	2	0.00	1	0.67	1
12	ANR with Gap (400)	Rama Sahi	1.43	2	0.00	1	0.00	1	0.66	1
13	ANR with Gap (400)	Katha Karanjia	1.40	2	0.36	1	0.00	1	1.26	2
14	ANR with Gap (400)	Santun	0.77	1	0.00	1	0.00	1	1.33	2
15	ANR with Gap (400)	Doulathapur	1.41	2	0.00	1	0.64	1	1.37	2
16	ANR with Gap (400)	Tirikupa	0.00	1	1.61	2	0.00	1	0.64	1
17	ANR with Gap (400)	Badapathara	1.37	2	0.00	1	0.94	1	0.69	1
18	ANR with Gap (400)	Jayamangal	0.68	1	1.77	2	0.30	1	0.96	1
19	ANR with Gap (400)	Chancharapalli	1.09	2	2.06	3	0.00	1	1.07	2
20	ANR with Gap (400)	Suliapalli	1.79	2	1.49	2	0.00	1	0.68	1
21	ANR with Gap (400)	Sandhabali	1.70	2	2.00	2	0.87	1	1.05	2
22	ANR with Gap (800)	Debandha	2.18	3	2.09	3	0.00	1	0.00	1
23	ANR without Gap	Ainajharan	0.00	1	0.00	1	0.64	1	0.00	1
24	Block Plantation	Marsigaon	0.69	1	0.00	1	0.00	1	0.00	1
25	Block Plantation	Tithipali	2.06	3	0.00	1	0.00	1	1.10	2
26	Block Plantation	Rajing	0.57	1	0.00	1	0.68	1	1.15	2
27	Block Plantation	Kulutenguri	0.73	1	0.00	1	0.00	1	1.34	2
28	Fuel Fodder	Naktideula	1.30	2	0.00	1	0.00	1	0.69	1
29	Fuel Fodder	Mahendrapur	1.31	2	0.00	1	0.00	1	1.32	2
30	Fuel Fodder	Chhamunda	0.13	1	0.00	1	1.16	2	0.33	1
31	NTFP Plantation	Kuamara	1.35	2	0.00	1	0.00	1	0.67	1
32	NTFP Plantation	Uparbeda	1.63	2	0.00	1	0.00	1	0.99	1
33	NTFP Plantation	Bhagabati	1.81	2	0.00	1	0.00	1	0.77	1

SN	Plantation / Silviculture	VSS / Site	Plantation		Natural		Shrubs		Herbs	
			H	Rank	H	Rank	H	Rank	H	Rank
34	NTFP Plantation	Guneipali	0.90	1	0.00	1	1.33	2	1.10	2
35	NTFP Plantation	Handatopa	1.68	2	0.00	1	0.00	1	0.60	1

3.13.3.2 Simpson's Diversity Indices:

Three related indices under Simpson's Diversity Index were calculated, i.e., (a) Simpson's Index (D), (b) Simpson/s Index of Diversity, and (c) Simpson's Reciprocal Index. Index value of the sites (Reciprocal Index) is presented below by type of plantation / silvicultural area. Based on the Reciprocal Index Value, the sites were ranked to understand distribution of sites by diversity index. The "**Rank 1**" refers to low diversity and "**Rank 4**" is marked as high diversity. The Simpson's Diversity Index was computed separately for each site by nature of operation (ANR with gap plantation, block plantation, NTFP plantation, Fuel and fodder plantation, and ANR without gap plantation etc.). In case of OFSDP II, of the total sites, 14.3 percent falls in to "**Rank 1**" (low diversity), 34.3 percent in "**Rank 2**", 34.3 percent in "**Rank 3**" and 17.1 percent in "**Rank 4**" (high diversity). Index value of each site covered under the study is presented in the table.

Table 66: Distribution of Sites by Bio-diversity Index (Simpson's Reciprocal Index)

SN	Ranks	Sites (OFSDP II)
1	Rank 1 (<=3.0) (Low Diversity)	14.3
2	Rank 2 (>3.0, <=6.0)	34.3
3	Rank 3 (>6.0, <=9.0)	34.3
4	Rank 4 (>9.0) (High Diversity)	17.1
Total		**100.0**

Table 67: Simpson's Index: OFSDP II

SN	Plantation / Silviculture	VSS / Sites	Index	Rank
1	ANR with Gap (200)	Kala Tamaka	5.10	2
2	ANR with Gap (200)	Balarampur	1.97	1
3	ANR with Gap (200)	Burudi	7.87	3
4	ANR with Gap (200)	Saradahikoar	7.76	3
5	ANR with Gap (200)	Tilkamal	10.36	4
6	ANR with Gap (200)	Gudapal	4.03	2
7	ANR with Gap (200)	Limdihi	5.99	2
8	ANR with Gap (200)	Beheramunda	7.58	3
9	ANR with Gap (200)	Jaybudia	5.09	2
10	ANR with Gap (200)	Sudung	3.86	2
11	ANR with Gap (200)	Pitamal	3.00	1
12	ANR with Gap (400)	Rama Sahi	4.09	2
13	ANR with Gap (400)	Katha Karanjia	5.87	2
14	ANR with Gap (400)	Santun	3.12	2
15	ANR with Gap (400)	Doulathapur	8.00	3
16	ANR with Gap (400)	Tirikupa	7.08	3
17	ANR with Gap (400)	Badapathara	6.19	3
18	ANR with Gap (400)	Jayamangal	9.34	4
19	ANR with Gap (400)	Chancharapalli	14.11	4
20	ANR with Gap (400)	Suliapalli	11.57	4
21	ANR with Gap (400)	Sandhabali	15.08	4
22	ANR with Gap (800)	Debandha	14.82	4
23	ANR without Gap	Ainajharan	7.50	3
24	Block Plantation	Marsigaon	2.31	1
25	Block Plantation	Tithipali	7.52	3
26	Block Plantation	Rajing	4.35	2
27	Block Plantation	Kulutenguri	2.36	1
28	NTFP Plantation	Kuamara	6.60	3
29	NTFP Plantation	Uparbeda	7.94	3
30	NTFP Plantation	Bhagabati	5.02	2
31	NTFP Plantation	Guneipali	3.42	2

SN	Plantation / Silviculture	VSS / Sites	Index	Rank
32	NTFP Plantation	Handatopa	7.40	3
33	Fuel Fodder	Naktideula	5.30	2
34	Fuel Fodder	Mahendrapur	6.73	3
35	Fuel Fodder	Chhamunda	1.50	1

3.14 Plantation in Project Area:

In case of OFSDP-II, activities that have been taken up are like (a) ANR with gap plantation (200), (b) ANR with gap plantation (400), (c) ANR with gap plantation (800), (d) ANR without gap plantation, (e) block plantation, (f) fuel & fodder plantation and (g) plantation of NTFP species. The details of the sample plots with geo-coordinate are presented in the matrix below.

Table 68: Sample Sites; OFSDP II

SN	Division	Range	Name of the VSS	Type of Plantation	Geo-Coordinate of Plot (N.)	Geo-Coordinate of Plot (E.)
1	Athamallik	Madhapur	Doulathapur	ANR with Gap (400)	20^0 52' 1.00"	84^0 22' 58.5"
2	Athamallik	Madhapur	Naktideula	Fuel Fodder	20^0 50' 70.3"	84^0 23' 95.2"
3	Athamallik	Athamallik	Mahendrapur	Fuel Fodder	20^0 45' 67.5"	84^0 31' 33.8"
4	Athamallik	Athamallik	Rajing	Block Plantation	20^0 46' 78.1"	84^0 29' 67.2"
5	Baripada	Udala	Marsigaon	Block Plantation	21^0 37' 30.4"	86^0 38' 24.5"
6	Baripada	Udala	Kuamara	NTFP Plantation	21^0 37' 43.8"	86^0 43' 54.0"
7	Baripada	Bangirposi	Uparbeda	NTFP Plantation	22^0 13' 47.9"	86^0 37' 31.4"
8	Boudh	Santum	Santun	ANR with Gap (400)	20^0 45' 0.18"	84^0 7' 28.0"
9	Boudh	Tilkamal	Tilkamal	ANR with Gap (200)	20^0 36' 2.99"	83^0 45' 2.98"
10	Dhenkanal	Dhenkanal	Saradahikoar	ANR with Gap (200)	20^0 36' 0.52"	85^0 40' 64.0"
11	Ghumusar (N)	Jagannath Prasad	Tirikupa	ANR with Gap (400)	20^{0}04' 42.1"	84^{0}72' 78.3"
12	Ghumusar (N)	Mujagada	Badappathara	ANR with Gap (400)	19^{0}97' 24.58"	84^{0}51' 90.42"
13	Ghumusar (N)	Jagannath Prasad	Jayamangal	ANR with Gap (400)	20^{0}04' 67.95"	84^{0}51' 98.60"
14	Ghumusar (S)	Buguda	Chancharapalli	ANR with Gap (400)	19^{0}85' 83.86"	84^{0}88' 24.72"
15	Ghumusar (S)	Buguda	Suliapalli	ANR with Gap (400)	19^{0}77' 94.60"	84^{0}34' 54.57"
16	Ghumusar (S)	Sorada	Sandhabali	ANR with Gap (400)	19^{0}93' 88.70"	84^{0}81' 96.17"
17	Jharsuguda	Belpahar	Jaybudia	ANR with Gap (200)	21^0 80' 09.96"	83^0 80' 16.28"
18	Jharsuguda	Bagdihi	Handatopa	NTFP Plantation	21^0 95' 14.89"	84^0 18' 32.15"
19	Jharsuguda	Kolabira	Sudung	ANR with Gap (200)	21^0 91' 40.64"	84^0 31' 45.26"
20	Jharsuguda	Bagdihi	Pitamal	ANR with Gap (200)	21^0 96' 33.2"	84^0 13' 50.39"
21	Karanjia	Dudhiani	Rama Sahi	ANR with Gap (400)	22^0 02' 14.4"	86^0 01' 00.6"
22	Karanjia	Dudhiani	Katha Karanjia	ANR with Gap (400)	21^0 52' 48.76"	85^0 59' 50.17"
23	Rairangapur	Bisoi	Kala Tamaka	ANR with Gap (200)	22^0 13' 45.8"	86^0 24' 49.2"
24	Rairangapur	Rairangapur	Balarampur	ANR with Gap (200)	22^0 20' 35.4"	86^0 21' 43.7"
25	Rairangapur	Rairangapur	Burudi	ANR with Gap (200)	22^0 09' 10.15"	86^0 24' 77.62"
26	Sambalpur	Padiabahal	Gudapal	ANR with Gap (200)	21^0 38' 73.6"	84^0 22' 04.0"
27	Sambalpur	Padiabahal	Chhamunda	Fuel Fodder	21^0 31' 84.8"	84^0 16' 23.4"
28	Sambalpur	Dhama	Guneipali	NTFP Plantation	21^0 24' 92.75"	83^0 94' 50.87"
29	Subarnapur	Ulunda	Bhagabati	NTFP Plantation	20^0 56' 53.3"	83^0 50' 52.9"
30	Subarnapur	Subarnapur	Tithipali	Block Plantation	20^0 59' 46.54"	83^0 68' 82.87"
31	Subarnapur	Subarnapur	Debandha	ANR with Gap (800)	20^0 54' 61.46"	83^0 68' 22.92"
32	Sundargarh	Ujalpur	Limdihi	ANR with Gap (200)	22^0 12' 79.14"	83^0 93' 57.84"
33	Sundargarh	Ujalpur	Kulutenguri	Block Plantation	22^0 30' 86.94"	83^0 90' 96.2"
34	Sundargarh	Hemgiri	Ainajharan	ANR without Gap	21^0 91' 59.01"	83^{0}83' 75.75"
35	Sundargarh	Hemgiri	Beheramunda	ANR with Gap (200)	21^0 87' 87.82"	83^0 60' 87.82"

In 2019-20, plantation activities were taken up in OFSDP II area under ANR with gap plantation of different models (200, 400 and 800 models), block plantation and plantation of fuel fodder species. Plantation of NTFP species was taken up in 2020-21 along with ANR with gap plantation (different models), block plantation, and fuel fodder plantations.

In 2019-20 ANR with gap plantation (200 model), higher number of plants per plot found to be (a) Bada Chakunda, (b) Sana Chakunda, (c) Subabul and (d) Karanja. Number of other plant species found to be less in number, like Gambhari, Akasia, Kanchana, Nim, Kusuma and Blackberry. In 400 model of ANR with gap, plant species of higher number found are AInla, Sisu, Teak, Sirisa, Sala, Karanja etc. and

comparatively a smaller number of plants found are Gambhari and Tamarind. More or less similar trend observed in plantations taken up under different models in different years and number of species and number of plants varies by plantation types.

3.14.1 Treatment Area Under Plantation:

Of the total assigned forest area, the average area taken up for treatment under ANR with Gap (200) is around 24.18 ha. and implemented by 31.43 percent VSS. About 28.57 percent VSS have taken up ANR with gap plantation (400) in average area of 63.15 ha. whereas 2.86 percent VSS has taken up ANR with gap plantation (800) in 37.0 ha. ANR without gap, block plantation, fuel fodder plantation and NTFP plantation is taken up in 15.0 ha. by 2.86 percent VSS, in an average of 12.25 ha. by 11.43 percent VSS, in an average area of 19.33 ha. by 8.57 percent VSS and in an average area of 17.60 ha. by 14.29 percent VSS respectively.

Table 69: Plantation / Treatment Area (Ha.) of the Assigned Area; OFSDP II

Plantation / Silviculture	VSS (%)	Average Treatment Area (Ha.)
ANR with Gap (200)	31.43	24.18
ANR with Gap (400)	28.57	63.15
ANR with Gap (800)	2.86	37.00
ANR without Gap	2.86	15.00
Block Plantation	11.43	12.25
Fuel Fodder	8.57	19.33
NTFP Plantation	14.29	17.60
Total	**100.00**	**32.70**

Of the total assigned forest area to the VSS, percentage of area taken up for minimizing the degraded forest area and improving forest coverage is further classified in to 4 categories to understand percentage of degraded area coverage to total assigned area. Distribution of VSS based on percentage of degraded area taken up for treatment of the total assigned area is presented in the matrix.

Table 70:: Area (% of Assigned Area) Under Different Measures; OFSDP II

Plantation	Ranking of Area (% of Assigned Area in Ha.) Covered under Different Measures				
	<=5%	5% to 10%	10% to 15%	15% to 20%	>20%
ANR with Gap (200)	18.2	18.2	9.1		54.5
ANR with Gap (400)	0.0	20.0	20.0		60.0
ANR with Gap (800)					100.0
ANR without Gap					100.0
Block Plantation	50.0	25.0			25.0
Fuel Fodder	66.7				33.3
NTFP Plantation		60.0			40.0
Total	**17.1**	**22.9**	**8.6**		**51.4**

Under different activities taken up, in majority cases (51.4 percent), > 20.0 percent area of the total assigned forest area has been taken up for treatment to improve the forest cover in the degraded forest land. Only in case of block plantation and NTFP plantation, treatment area is 5.0 percent to 10.0 percent of the total assigned area.

3.14.2 Activities for Rejuvenation in Treatment Area:

Different operations for rejuvenation of degraded forest area have been taken up since 2019-20 by the respective VSS under the project support. Key operations that have been taken up are like ANR with gap plantation (different models), ANR without gap, bock plantation, plantation of fuel / fodder species and NTFP plantation. Forest rejuvenation / degraded forest treatment measures, that have been taken up in OFSDP II areas are as below.

Table 71: Year of Operation in Selected Sites

Plantation	Year of Operation by VSS (%)	
	2019-20	2020-21
ANR with Gap (200)	27.3	72.7
ANR with Gap (400)	80.0	20.0
ANR with Gap (800)	100.0	
ANR without Gap		100.0
Block Plantation	75.0	25.0
Fuel Fodder	66.7	33.3
NTFP Plantation		100.0
Total	**48.6**	**51.4**

3.14.3 Spacing and Preferred Species:

In block plantation and ANR with gap plantation, spacing of 2.5 mt. is maintained whereas, in plantation of fuel and fodder species, spacing of 2.0 mt. is observed and 5 mt. spacing is maintained in the plantation of NTFP species. Different plants observed in the assessment site based on type of plantation measures taken is presented in the matrix.

Table 72: Species Planted under Different Plantation Measures

ANR with Gap (200)	ANR with Gap (400)	ANR with Gap (800)
Ainla, Akasia, Ambada, Arjuna, Bada Chakunda, Bahada, Bamboo, Barakoli, Gambhari, Jackfruit, Jamu, Kaintha, Kanchana, Karanja, Khaira, Kusuma, Lemon, Limba, Mango, Panisilili, Phasi, Piasala, San Chakunda, Simaruba, Sirisa, Sisu, Subabul, Tamarind, Teak	Ainla, Akasia, Bobul, Chakunda, Dhala Sorisha, Gambhari, Jamu, Kaintha, Kala Sirisha, Karanja, Khaira, Limba, Mahalimba, Sala, Simaruba, Sirisa, Sisu, Tamarind, Teak	Ainla, Bada Chakunda, Bamboo, Dhala Sorisha, Gambhari, Jamu, Kala Sirisha, Karanja, Khaira, Limba, Simaruba, Sisu, Sunari
Block Plantation	**Fuel Fodder**	**NTFP Plantation**
Ainla, Akasia, Bada Chakunda, Bahada, Bamboo, Barakoli, Cashow, Gambhari, Jamu, Khaira, Limba, Piasala, Sala, Simaruba, Sirisa, Sisu	Akasia, Arjuna, Asana, Gambhari, Jackfruit, Jamu, Khaira, Kumbhi, San Chakunda, Sirisa, Sisu, Subabul	Ainla, Arjuna, Bahada, Gambhari, Jackfruit, Jamu, Karanja, Kusuma, Limba, Mahula, Mango, Ou, Piasala, Sisu, Tamarind

3.14.4 Growth Pattern in Plantation Sites of Treatment Area:

In ANR with gap plantation (different models), plantation has been taken up in block mode finding the gaps within the forest area. For which plant count is plantation sites observed to be higher than the stipulated norms. Plants that were planted in 2019-20 under ANR with gap plantation (200 model), mean maximum height of the plants found to be 1.5 mt. and mean minimum height found to be 0.8 mt. The mean maximum GBH/GCH is 16.5 cm. and mean minimum GBH/GCH observed to be 9.4 cm. In ANR with gap (400 model) planted in the same year (2019-20), mean maximum plant height measured to be 5.1 mt. and mean minimum plant height is 3.2 mt. The mean maximum GBH/GCH is 18.8 cm. and mean minimum GBH/GCH is 10.2 cm. In case of ANR with gap plantation (800 model), height of the plants observed to be low in comparison to other two models, i.e., mean maximum height of 0.9 mt. and mean minimum height of 0.6 mt. Plantation taken up in the same year under block plantation shows mean maximum height of 0.5 mt. and mean minimum height of 0.2 mt. As plants are less than one mt., no GBH/GCH measurement was taken. The observed variation in plant growth is attributed to a number of factors like species planted, type of soil and adopted plant management measures.

Table 73: Plant Growth Characteristics by Year & Type of Plantation

Year	Type of Plantation	Mean Max. Height (Mt.)	Mean Min. Height (Mt.)	Mean Max. GBH/GCH (Cm.)	Mean Min. GBH/GCH (Cm.)
2019-20	ANR with Gap (200)	1.49	0.95	15.33	10.09
	ANR with Gap (400)	3.78	3.22	19.36	9.86
	ANR with Gap (800)	0.88	0.57		
	Block Plantation	1.13	0.55	14.00	5.00
	Fuel Fodder	1.73	0.68	11.86	3.75
	Total	**2.16**	**1.67**	**17.05**	**9.22**
2020-21	ANR with Gap (200)	0.76	0.41	14.00	8.00
	ANR with Gap (400)	0.78	0.43		
	Block Plantation	1.10	0.25		
	Fuel Fodder	0.83	0.53		
	NTFP Plantation	0.97	0.64	12.67	8.83
	Total	**0.83**	**0.47**	**12.86**	**8.71**

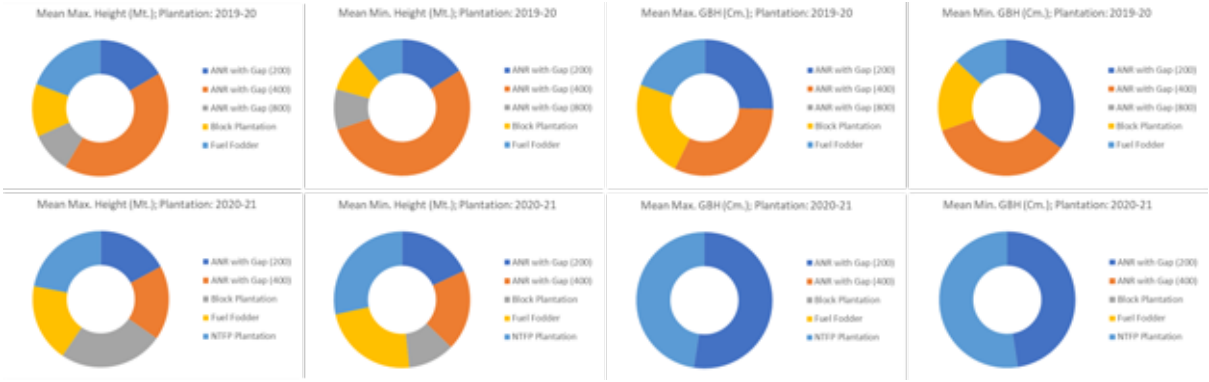

Figure 14: Plantation Activity: OFSDP II

3.15 Conclusion:

The need of the hour is co-existence with forest and green cover. The growing population and critical biodiversity need to exist sustainably. The practice of monoculture and artificial afforestation will not be as helpful as naturally occurring forests that maintain biodiversity. Therefore, it is necessary to depend on forest in such a way that the degradation does not occur, and species diversity is maintained, even in afforestation activities. The communities residing within and on fringes of forest depend heavily on these forests and therefore, the knowledge dissemination for preserving the natural resources is important. However, making the already existing practices beneficial such as NTFP collection, sacred groves etc. can be further encouraged. The necessary training for NTFP collection, product value, processing of raw material and marketing will be provided to increase the benefits of rural and tribal communities. However, to improve the green cover of rural areas and to sequester the carbon the practice of farm forestry should be encouraged. Certain misconceptions and lack of information about profitability of farm forestry was found to be discouraging the farmers from adopting these practices. But a good flow of information to the people with exposure visit and demonstration can improve the forest cover outside forest and enhance the income of the farmers.


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ction IV: Livelihood Scenario

l Household & Population:

the OFSDP II intervention villages, average number of households is 123 per village. The control ages are having on an average around 99 households. The residing households are from different ial and economic categories and social / caste composition of the studied villages differ between ıtrol and intervention. In intervention and control villages, number of ST households are found nparatively higher, followed by OC households. Distribution of households by social structure is sented below.

le 74: Average and Total Households; OFSDP II

aste	Control			Intervention			Total		
	No. of Village	Average HH	Total HH	No. of Village	Average HH	Total HH	No. of Village	Average HH	Total HH
SC	16	14.44	231	84	29.39	2,469	100	27.00	2,700
ST	22	51.23	1,127	123	63.63	7,827	145	61.75	8,954
OC	18	56.94	1,025	105	55.02	5,777	123	55.30	6,802
Total	**24**	**99.29**	**2,383**	**131**	**122.69**	**16,073**	**155**	**119.07**	**18,456**

e: SC: Scheduled Caste; ST: Scheduled Tribe; OC: Other Caste

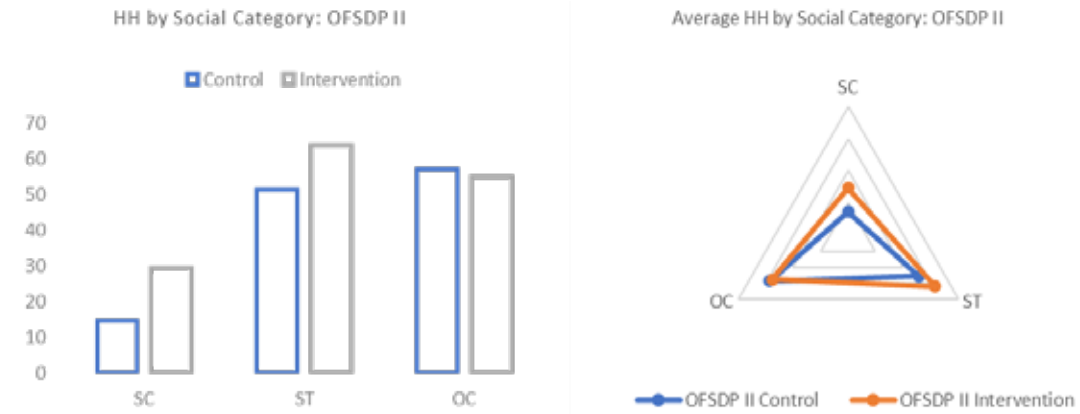

Figure 15: Household Distribution; OFSDP II

ther, the studied villages were categorized by number of households, irrespective of their caste wise tribution. Based on this classification, it is observed that 26.7 percent villages in intervention and 8 percent villages in control are in <=50 households per village category. Around 50.0 percent ages in control and 33.6 percent villages in intervention fall in to the >50 & <=100 households per age category. The category >100 & <=150 HH is having 8.3 percent villages of control and 16.0 cent villages of intervention. The remaining 20.8 percent villages of control and 23.7 percent villages intervention fall into the village category of >150 households per village.

le 75: Village Categories by HH; OFSDP II

FSDP II	Ranking of Villages by No. of HH (% Distribution)				Total
	<=50 HH	>50 & <=100 HH	>100 & <=150 HH	>150 HH	
ntrol	20.8	50.0	8.3	20.8	100.0
tervention	26.7	33.6	16.0	23.7	100.0
tal	**25.8**	**36.1**	**14.8**	**23.2**	**100.0**

The studied villages were also ranked based on the population, irrespective of the social categories. The ranking was done based on four scales, i.e., (1) village with <=200 population, (2) village with population between >200 & <=400, (3) village with > 400 & <= 600 population, and (4) village with > 600 population. Ranking of villages by population distribution is presented in figure and matrix.

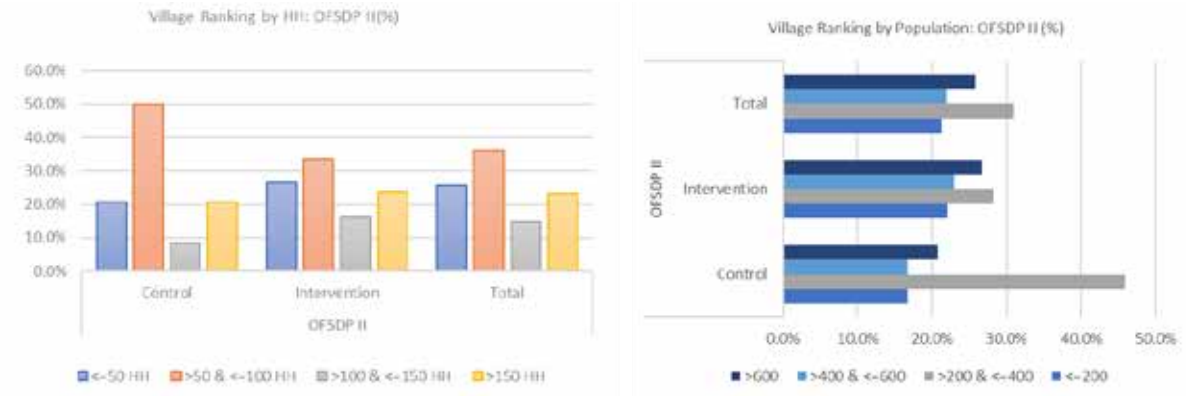

Figure 16: Village Categorization: HH & Population; OFSDP II

Table 76: Village Categorization by Population; OFSDP II

OFSDP II	Ranking of Villages by Population (% Distribution)				Total
	<=200	>200 & <=400	>400 & <=600	>600	
Control	16.7	45.8	16.7	20.8	100.0
Intervention	22.1	28.2	22.9	26.7	100.0
Total	**21.3**	**31.0**	**21.9**	**25.8**	**100.0**

4.2 Housing Condition:

The studied villages are having different types of houses, i.e., kutcha, pucca and mixed. Percentage of Kutcha houses are relatively higher in intervention villages in comparison to control whereas percentage of pucca houses is comparatively higher in control villages. Proportion of mixed type of houses to total houses are more or less same in intervention and control villages. Further, it is evident that percentage of kutcha houses in both intervention and control villages is higher than pucca and mixed houses.

Table 77: House Type: Village Level; OFSDP II

Control / Intervention	House Type (Village / VSS Level; %)			
	Kutcha	Pucca	Mixed	Total
Control	36.42	37.73	25.85	100.0
Intervention	40.45	32.93	26.62	100.0
Total	**39.93**	**33.55**	**26.52**	100.0

Figure 17: House Type in Studied Village / VSS Level; OFSDP II

The villages are categorized based on house types, i.e., <=50 kutcha / pucca / mixed houses (R I), >50 & <=100 kutcha / pucca / mixed houses (R II), >100 and <=150 kutcha / pucca / mixed houses (R III), and > 150 kutcha / pucca / mixed houses (R IV). Ranking of villages based on this ranking is presented in the matrix and figure below.

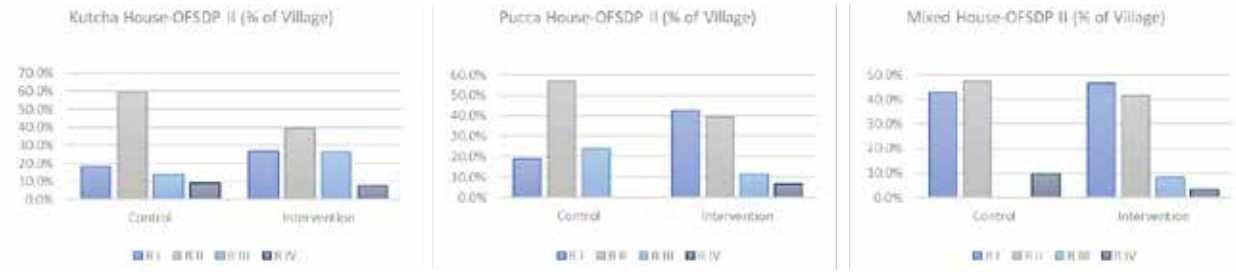

Figure 18: Household Distribution of House Type: OFSDP II

Table 78: Ranking of Villages by House Type; OFSDP II

House Type	Ranks	Control	Intervention	Total
Kutcha Houses	<=50	18.2	26.9	25.7
	>50 & <=100	59.1	39.2	42.1
	>100 & <=150	13.6	26.2	24.3
	>150	9.1	7.7	7.9
	Total	**100.0**	**100.0**	**100.0**
Pucca House	<=50	19.0	42.6	39.2
	>50 & <=100	57.1	39.3	42.0
	>100 & <=150	23.8	11.5	13.3
	>150	0.0	6.6	5.6
	Total	**100.0**	**100.0**	**100.0**
Mixed House	<=50	42.9	46.6	46.0
	>50 & <=100	47.6	41.5	42.4
	>100 & <=150	0.0	8.5	7.2
	>150	9.5	3.4	4.3
	Total	**100.0**	**100.0**	**100.0**

***Note**: C: Control, I: Intervention, T: Total*

In case of sample households, on an average, 27.90 percent are kutcha houses, 28.81 percent are mixed houses and 43.29 percent are pucca houses in the intervention villages. In the control sites, kutcha houses found to be 26.97 percent whereas mixed and pucca houses are 25.66 percent and 47.37 percent, respectively. Percentage of pucca houses of the covered sample VSS and SHG members in both control and intervention villages are comparatively higher than kutcha and mixed house type. Further, percentage of kutcha house type is comparatively less in control villages in comparison to intervention whereas percentage of mixed house type is comparatively more in intervention villages in comparison to control.

Figure 19: House Type in Village / VSS: OFSDP II

As observed, most of the households having their own house (control: 100.00 percent, intervention: 99.7 percent) Majority of houses people live in are pucca (control: 47.37 percent, intervention: 43.29 percent). Difference between percentage of mixed and kutcha houses, of the total houses in control and intervention is marginal.

Table 79: House Type; OFSDP II

Particulars	Control	Intervention
Own House	100.0	99.7
House Type		
Kutcha	26.97	27.90
Pucca	47.37	43.29
Mixed	25.66	28.81
Total	**100.0**	**100.0**

4.3 Economic Condition:

To understand the economic status, ration card was considered as the benchmark, i.e., households having ration card (under NFSM) are considered poor in comparison to households not having ration card. In the category of more than 75.0 percent houses, having ration cards (i.e., belonging to poor category), there are 70.8 percent villages from control and 90.1 percent villages from intervention. Categorization of villages by percentage of households having ration card is presented in the figure and matrix.

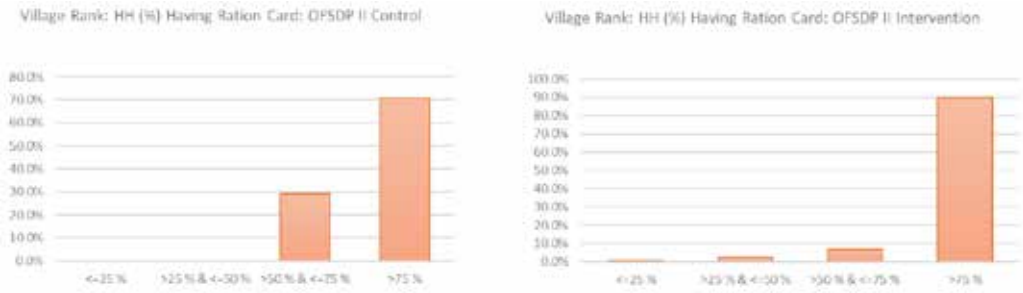

Figure 20: Village Ranking by Ration Card Holding: OFSDP II

Table 80: Village / VSS by HH Having Ration Card; OFSDP II

Control / Intervention	Categorization of Villages by Percentage of HH Having Ration Card				Total
	<=25 %	>25 % & <=50 %	>50 % & <=75 %	>75 %	
Control	0.0	0.0	29.2	70.8	100.0
Intervention	0.8	2.3	6.9	90.1	100.0
Total	0.6	1.9	10.3	87.1	**100.0**

In OFSDP II, 92.76 percent households in control and 93.06 percent in intervention areas are having ration card.

Figure 21: NFSM Card Holding: OFSDP II

Table 81: Ration Card Holder; OFSDP II

Control / Intervention	Ration Card (HH %)		Total
	Having Ration Card	Not Having Ration Card	
Control	92.76	7.24	100.00
Intervention	93.06	6.94	100.00
Total	**92.97**	**7.03**	**100.00**

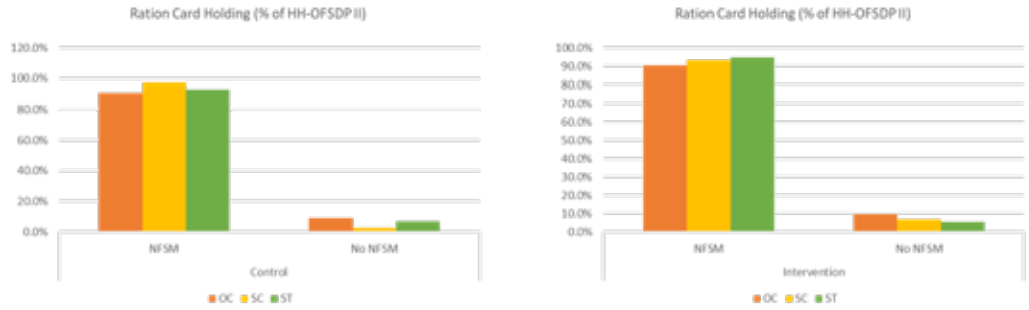

Figure 22: Household Distribution by Ration Card Holding: OFSDP II

In all the social categories, majority of the households are having ration card in both control and intervention areas. Looking by holding of ration card by social categories (of the total card possessor), it is evident that ST households are having higher enrolment in comparison to other social categories, followed by households belonging to OC categories among the total card holders. Further, looking by card holding in each social category, it is observed that percentage of SC (97.44 percent) households of the total SC household and percentage of ST households (92.91 percent) of the total ST households have higher enrolment in comparison to OC households in Control areas. Similar situation is observed in case of samples of intervention villages of OFSDP II.

Table 82: Holding of NFSM Card by Social Categories; OFSDP II

Control / Intervention	SC	ST	OC	Total
Control	13.48	46.45	40.07	100.0
Intervention	6.65	58.35	35.01	100.0
Total	**8.79**	**54.62**	**36.60**	**100.0**

Note: Distribution by social category from total card holding; OC: Other Caste; SC: Scheduled Caste; ST: Scheduled Tribe

Table 83: Holding Ration Card by Social Category; OFSDP II

	Coverage Under Ration Card (HH % From Each Category)	
Social Category	**Control**	**Intervention**
SC	97.44	93.18
ST	92.91	94.74
OC	91.13	90.38
Total	**92.76**	**93.06**

Note: Distribution by social category based on households of each social category; OC: Other Caste; SC: Scheduled Caste; ST: Scheduled Tribe

4.4 Educational Infrastructure:

Pre-school facility is available through Anganwadi centres in both control and intervention villages (95.8 percent control and 89.3 percent intervention villages are having pre-school facility). The remaining villages, where such facility is not available, are tagged to the nearest A*nganwadi* centre for pre-school education. Total existing pre-schools are in a functional stage in both control and intervention areas, though number of children attending the school varies.

Table 84: Educational Facility; OFSDP II

Educational Institution	Village (%)		
	Control	Intervention	Total
Pre-School	95.8	89.3	90.3
Primary	75.0	84.0	82.6
Secondary	12.5	9.9	10.3

Primary school is available and functioning in 75.0 percent control and 84.0 percent intervention villages. Though, secondary schools are not available in most of the villages in both control and intervention areas, facility is available in the nearby locations for the education of children. But some villages also having secondary schools, i.e., 9.9 percent villages in intervention and 12.5 percent control village. Some villages having students from tribal communities, also have access to nearby *Ashram* and *Sewashram* educational institutions. Different issues are associated with such educational institutions, such non-availability of electricity facility, poor or no availability of toilet facility, road to educational institution is in poor condition, drinking water problem in school etc.

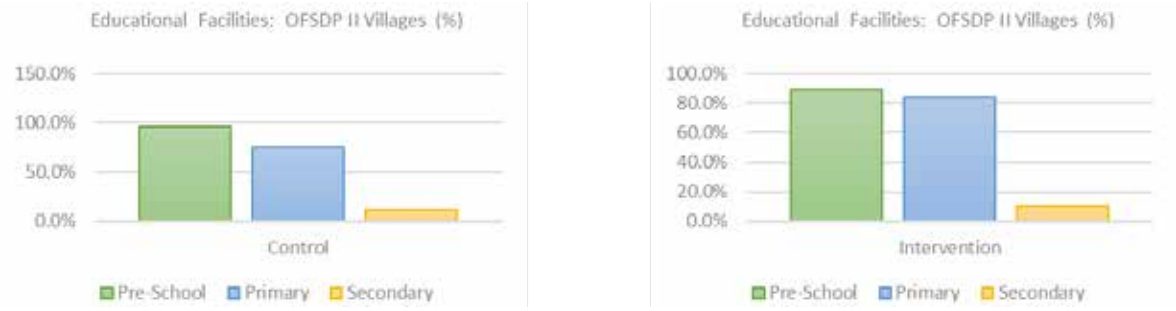

Figure 23: Educational Facilities at Village Level; OFSDP II

4.5 Health Infrastructure:

Anganwadi centre is available in all the villages, or the villages are tagged to the nearest Anganwadi centre to access health care facility in both intervention and control villages. In villages where Anganwadi centre is physically not present, the distance of nearest Anganwadi centre is on an average less than one km. Average distance of sub-centres is about 3 to 4 km. from the villages in both intervention and control areas. Distance of PHC in both the cases (intervention and control areas) ranges between 6-8 km and CHC from 10 to 15 km. Distance of district headquarter hospital / other hospital has been 25 to 32 km from the villages. It is to note that in many villages, people prefer to go to the CHC rather than PHC as distance of CHC is less and health care facility is better. Similarly, where PHC is nearby, people prefer to access PHC facilities than facilities available in the sub-centre. Due to less or no accessibility by majority of the villagers, awareness about ayurvedic or homoeopathic dispensaries is low. However, average distance of such facilities ranges between 16 to 21 Km. Dependency on local quacks seems reducing with increasing awareness, but some people also found accessing their services at the time of need.

Table 85: Average Distance of Different Health Care Facilities; OFSDP II

Control / Intervention	Average Distance of Health Care Facilities (in Km.)							
	AWC	Sub-Centre	Clinic	PHC	CHC	Hospital	Ay. Dispensary	Ho. Dispensary
Control	0.0	4.1	7.3	6.6	10.8	24.5	20.5	16.0
Intervention	0.2	3.7	8.9	7.9	15.7	31.5	20.9	21.6
Total	**0.2**	**3.7**	**8.7**	**7.7**	**15.1**	**30.6**	**20.9**	**20.9**

Note: 0.0 refers to health facility is available in the village or within one km. The average distances of the facilities from the village are mapped only for the villages where such facility is not available within one km. distance. Ay.: Ayurvedic; Ho: Homoeopathic

4.6 Drinking Water Source:

All the intervention and control villages are having open well facility which is used for drinking, bathing and other purposes. Average no. of open wells in control and intervention villages is 6. In some villages, water quality of some of the existing open wells is reported poor but water remain available throughout the year and deficiency is minimal. Apart from open wells, all the villages also have tube well / bore wells, mostly used for drinking purpose. Apart from quality specific issues, as reported in some control and intervention villages, water remain available throughout the year, even during summer season. Average number of tube wells per village have been 5-6, depending upon the population and requirement of the villagers.

Stand posts (pipe supply) for fetching water is not common in all the control or intervention villages. About 25.0 percent villages in control and 27.0 percent intervention villages are having stand posts for water supply. While water availability in these stand posts remain adequate, quality of water reported poor in some cases. Majority of the villages do not have pipe water supply in both intervention and control areas. Majority of the villages in the intervention and control areas are having 2-3 tanks / ponds. These sources are used mostly for bathing, washing and livestock drinking purpose. But water availability in some of these tanks remain inadequate in summer. Around 83.0 percent control and 78.0 percent intervention villages are having such water structures at the village level. Where such tanks / ponds are not available, they depend upon nearby tank / pond of other villages.

Majority of the households access portable drinking water from tube / bore well (Control: 68.75 percent; Intervention: 72.25 percent), followed by open well. Pipe water supply is also available at household level (Control: 14.47 percent; Intervention: 2.87 percent).

Table 86: Drinking Water Sources for Households; OFSDP II

	Primary Source of Drinking Water (HH %)						
Control / Intervention	**Tube/Bore Well**	**Pond/Nala**	**Open Well**	**River / Stream**	**Pipe Water**	**Other**	**Total**
Control	68.75	3.62	11.84	0.99	14.47	0.33	100.00
Intervention	72.25	1.21	22.93	0.60	2.87	0.15	100.00
Total	**71.15**	**1.96**	**19.44**	**0.72**	**6.51**	**0.21**	**100.00**

Note: Source dependency varies, and households also access water from different other sources at the time of need.

Accessibility to portable drinking water by house type shows that while majority are dependent upon tube well / bore well, accessibility of mixed houses is comparatively higher to tube well / bore well than families living in kutcha houses in both intervention and control. Accessibility to open well sources is higher in case of families having kutcha houses than mixed houses in both intervention and control. Dependency on pond / nala / river / steam is marginal and for limited period. So, for portable drinking water, high dependency is on tube / bore well source, followed by open well.

Table 87: Drinking Water Sources by House Type; OFSDP II

		Primary Source of Drinking Water (HH %)						
Control / Intervention	**House Type**	**Tube / Bore Well**	**Pond / Nala**	**Open Well**	**River / Stream**	**Pipe Water**	**Other**	**Total**
Control	Kutcha	67.07	4.88	9.76	1.22	17.07	0.00	100.00
	Pucca	63.89	2.78	15.28	0.69	17.36	0.00	100.00
	Mixed	79.49	3.85	7.69	1.28	6.41	1.28	100.00
	Total	**68.75**	**3.62**	**11.84**	**0.99**	**14.47**	**0.33**	**100.00**
Intervention	Kutcha	70.81	1.62	25.41	0.00	2.16	0.00	100.00
	Pucca	68.99	1.39	25.09	0.35	4.18	0.00	100.00
	Mixed	78.53	0.52	17.28	1.57	1.57	0.52	100.00
	Total	**72.25**	**1.21**	**22.93**	**0.60**	**2.87**	**0.15**	**100.00**
Total	Kutcha	69.66	2.62	20.60	0.37	6.74	0.00	100.00
	Pucca	67.29	1.86	21.81	0.46	8.58	0.00	100.00

		Primary Source of Drinking Water (HH %)						
Control / Intervention	**House Type**	**Tube / Bore Well**	**Pond / Nala**	**Open Well**	**River / Stream**	**Pipe Water**	**Other**	**Total**
	Mixed	78.81	1.49	14.50	1.49	2.97	0.74	100.00
	Total	**71.15**	**1.96**	**19.44**	**0.72**	**6.51**	**0.21**	**100.00**

Note: Source dependency varies, and households also access water from different other sources at the time of need.

In case of social categories, majority of SC households fetch drinking water from tube / bore well in control whereas majority of ST households fetching water from tube / bore well in intervention areas. Social and economic category wise dependency on different sources of water for drinking purpose is presented in the matrix.

Table 88: Drinking Water Source by Social Category; OFSDP II

Control / Intervention	**Social Category**	**Primary Source of Drinking Water (HH %)**						
		Tube / Bore Well	**Pond / Nala**	**Open Well**	**River / Stream**	**Pipe Water**	**Other**	**Total**
Control	OC	59.68	2.42	9.68	0.81	26.61	0.81	100.00
	SC	84.62	0.00	7.69	0.00	7.69	0.00	100.00
	ST	72.34	5.67	14.89	1.42	5.67	0.00	100.00
	Total	**68.75**	**3.62**	**11.84**	**0.99**	**14.47**	**0.33**	**100.00**
Intervention	OC	67.36	1.26	24.27	1.26	5.44	0.42	100.00
	SC	65.91	4.55	22.73	0.00	6.82	0.00	100.00
	ST	76.05	0.79	22.11	0.26	0.79	0.00	100.00
	Total	**72.25**	**1.21**	**22.93**	**0.60**	**2.87**	**0.15**	**100.00**
Total	OC	64.74	1.65	19.28	1.10	12.67	0.55	100.00
	SC	74.70	2.41	15.66	0.00	7.23	0.00	100.00
	ST	75.05	2.11	20.15	0.58	2.11	0.00	100.00
	Total	**71.15**	**1.96**	**19.44**	**0.72**	**6.51**	**0.21**	**100.00**

Note: Source dependency varies, and households also access water from different other sources at the time of need.

Table 89:: Drinking Water Source by Economic Category; OFSDP II

Control / Intervention	**Economic Category**	**Primary Source of Drinking Water (HH %)**						
		Tube / Bore Well	**Pond / Nala**	**Open Well**	**River / Stream**	**Pipe Water**	**Other**	**Total**
Control	Poor	70.21	3.55	10.64	1.06	14.18	0.35	100.00
	Non-Poor	50.00	4.55	27.27	0.00	18.18	0.00	100.00
	Total	**68.75**	**3.62**	**11.84**	**0.99**	**14.47**	**0.33**	**100.00**
Intervention	Poor	73.58	1.13	21.88	0.65	2.76	0.00	100.00
	Non-Poor	54.35	2.17	36.96	0.00	4.35	2.17	100.00
	Total	**72.25**	**1.21**	**22.93**	**0.60**	**2.87**	**0.15**	**100.00**
Total	Poor	72.53	1.89	18.35	0.78	6.34	0.11	100.00
	Non-Poor	52.94	2.94	33.82	0.00	8.82	1.47	100.00
	Total	**71.15**	**1.96**	**19.44**	**0.72**	**6.51**	**0.21**	**100.00**

Note: Source dependency varies, and households also access water from different other sources at the time of need.

4.7 Sanitation Facility:

In majority of the villages, more than 75.0 percent households have toilet facility, in both control and intervention areas. Around 62.5 percent villages in control and 61.8 percent villages in intervention have >75.0 percent households who have toilet. Distribution of villages by percentage of households having toilet facility is presented in figure and matrix. Some of the villages also have community toilet facility for the use of villagers.

Table 90: Ranking of Villages (%) by % of HH with Toilet: OFSDP II

Control / Intervention	Ranking of HH Percent with Toilet				Total
	<=25 %	>25 % & <=50 %	>50 % & <= 75 %	> 75 %	
Control	4.2	20.8	12.5	62.5	100.0
Intervention	9.2	14.5	14.5	61.8	100.0
Total	**8.4**	**15.5**	**14.2**	**61.9**	**100.0**

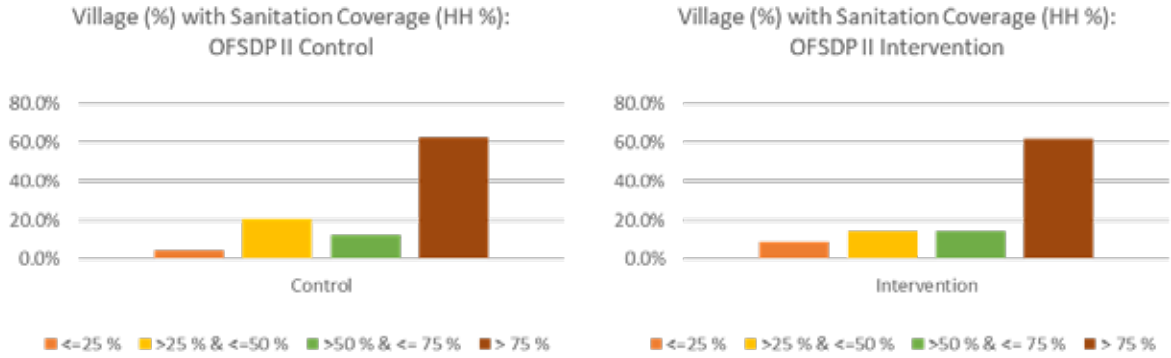

Figure 24: Village Sanitation Facility; OFSDP II

In case of studied sample, 79.93 percent households have toilet facility in control and 74.06 percent households in intervention area. So, percentage of households with toilet facility is marginally higher in control in comparison to intervention. Percentage of household with toilet facility in control and intervention areas is presented in the matrix.

Table 91: Households Having Toilet; OFSDP II

Control / Interventions	Household with Toilet (%)		Total
	Having Toilet	No Toilet	
Control	79.93	20.07	100.00
Intervention	74.06	25.94	100.00
Total	**75.90**	**24.10**	**100.00**

Availability of toilet facility found to be higher in case of ST households (82.27 percent) in control and OC households in intervention (76.15 percent). Percentage of SC and ST households having toilet is comparatively more in control than intervention along with OC households. Households by social category having toilet facility is presented in the matrix.

Table 92: Households with Toilet by Social Category; OFSDP II

Control / Intervention	Social Category	Having Toilet	No Toilet	Total
Control	SC	76.92	23.08	100.00
	ST	82.27	17.73	100.00
	OC	78.23	21.77	100.00
	Total	**79.93**	**20.07**	**100.00**
Intervention	SC	68.18	31.82	100.00
	ST	73.42	26.58	100.00
	OC	76.15	23.85	100.00
	Total	**74.06**	**25.94**	**100.00**
Total	SC	72.29	27.71	100.00
	ST	75.82	24.18	100.00
	OC	76.86	23.14	100.00
	Total	**75.90**	**24.10**	**100.00**

Looking by availability of toilet facility by house type, it is evident that majority of pucca houses, in both control and intervention are having toilet facility of the total households having toilet. Coverage of mixed house type is comparatively better in intervention (28.51 percent) and kutcha houses in control (26.75 percent).

Table 93: Availability of Toilet Facility by House Type (%); OFSDP II

House Type	Control	Intervention	Total
Kutcha	26.75	25.46	25.89
Pucca	49.79	46.03	47.28
Mixed	23.46	28.51	26.84
Total	**100.00**	**100.00**	**100.00**

Availability of toilet facility by poor (ration card holder) and non-poor (no ration card) shows that majority of the households are having toilet facility in case of both poor and non-poor households. But percentage of non-poor of the total non-poor households having toilet facility is comparatively higher than poor households having toilet facility of the total poor households in control. In case of intervention, difference is marginal between poor and non-poor having toilet facility.

Table 94: Toilet Facility by Poor & Non-Poor; OFSDP II

Control / Intervention	Ration Card	Having Toilet	No Toilet	Total
Control	Poor (Ration Card)	79.08	20.92	100.00
	Non-Poor (No Ration Card)	90.91	9.09	100.00
	Total	**79.93**	**20.07**	**100.00**
Intervention	Poor (Ration Card)	74.07	25.93	100.00
	Non-Poor (No Ration Card)	73.91	26.09	100.00
	Total	**74.06**	**25.94**	**100.00**
Total	Poor (Ration Card)	75.64	24.36	100.00
	Non-Poor (No Ration Card)	79.41	20.59	100.00
	Total	**75.90**	**24.10**	**100.00**

Further, of the total households having toilet facility (distribution of households from the total households having toilet), poor are in a better situation in comparison to non-poor about availability of toilet facility. This is mostly because majority of the households in both control and intervention fall into poor category (having ration card).

Table 95: Toilet Facility; Poor and Non-Poor; OFSDP II

Control / Intervention	Ration Card	Having Toilet	No Toilet	Total
Control	Poor (Ration Card)	91.77	96.72	92.76
	Non-Poor (No Ration Card)	8.23	3.28	7.24
	Total	**100.00**	**100.00**	**100.00**
Intervention	Poor (Ration Card)	93.08	93.02	93.06
	Non-Poor (No Ration Card)	6.92	6.98	6.94
	Total	**100.00**	**100.00**	**100.00**
Total	Poor (Ration Card)	92.64	93.99	92.97
	Non-Poor (No Ration Card)	7.36	6.01	7.03
	Total	**100.00**	**100.00**	**100.00**

4.8 Electrification:

All the villages in control are found to be having electricity supply, while 96.95 percent villages are electrified in intervention villages. About 94.41 percent houses in control and 92.01 percent houses in intervention are having electricity connection. Looking at percentage of houses electrified, it is evident that different type of houses (kutcha, pucca and mixed) is covered under rural electrification.

Table 96: Households Electrified; OFSDP II

Control / Intervention	Electrified	To be Electrified	Total
Control	94.41	5.59	100.00
Intervention	92.01	7.99	100.00
Total	**92.76**	**7.24**	**100.00**

Table 97: Household Electrification by Social Category; OFSDP II

Control / Intervention	Social Category	Electrified	To be Electrified	Total
Control	SC	92.31	7.69	100.00
	ST	91.49	8.51	100.00
	OC	98.39	1.61	100.00
	Total	**94.41**	**5.59**	**100.00**
Intervention	SC	95.45	4.55	100.00
	ST	90.79	9.21	100.00
	OC	93.31	6.69	100.00
	Total	**92.01**	**7.99**	**100.00**
Total	SC	93.98	6.02	100.00
	ST	90.98	9.02	100.00
	OC	95.04	4.96	100.00
	Total	**92.76**	**7.24**	**100.00**

Household electrification by social category shows that in control areas, percentage of OC households having electricity is marginally higher than ST and SC households, whereas percentage of SC households have been electrified is comparatively higher in intervention. Household electrification by economic categories shows that poor households have better access to electricity in intervention villages whereas coverage of non-poor households is marginally higher in control areas.

Table 98: Household Electrification by Economic Category; OFSDP II

Control / Intervention	Economic Category	Electrified	To be Electrified	Total
Control	Poor (Ration Card)	94.33	5.67	100.00
	Non-Poor (No Ration Card)	95.45	4.55	100.00
	Total	**94.41**	**5.59**	**100.00**
Intervention	Poor (Ration Card)	92.06	7.94	100.00
	Non-Poor (No Ration Card)	91.30	8.70	100.00
	Total	**92.01**	**7.99**	**100.00**
Total	Poor (Ration Card)	92.77	7.23	100.00
	Non-Poor (No Ration Card)	92.65	7.35	100.00
	Total	**92.76**	**7.24**	**100.00**

Of the total households electrified in control and intervention in different house types, marginally higher percentage of pucca houses are electrified in control (95.14 percent). Percentage of pucca and mixed houses electrified are more or less same in intervention and control villages. But of the total households electrified, majority are pucca houses (Control: 47.74 percent, Intervention: 44.43 percent) in both intervention and control. Status of households electrified by house type in control and intervention is presented in the matrix.

Table 99: Household Electrification by House Type; OFSDP II

Control / Intervention	House Type	Electrified	To be Electrified	Total
Control	Kutcha	91.46	8.54	100.00
	Pucca	95.14	4.86	100.00
	Mixed	96.15	3.85	100.00
	Total	**94.41**	**5.59**	**100.00**
Intervention	Kutcha	84.32	15.68	100.00
	Pucca	94.43	5.57	100.00
	Mixed	95.81	4.19	100.00
	Total	**92.01**	**7.99**	**100.00**
Total	Kutcha	86.52	13.48	100.00
	Pucca	94.66	5.34	100.00
	Mixed	95.91	4.09	100.00
	Total	**92.76**	**7.24**	**100.00**

Table 100: Household Electrification (%) by House Type; OFSDP II

House Type	Control (HH Electrified %)	Intervention (HH Electrified %)
Kutcha	26.13	25.57
Pucca	47.74	44.43
Mixed	26.13	30.00
Total	**100.00**	**100.00**

4.9 Rural Connectivity (All Weather Road):

All the control villages are having all weather road, whereas 98.5 percent villages in the intervention area are having all weather road. All the villages, in control and intervention area are having road connectivity to their GP headquarters. Existing road connectivity to GP with all-weather road in majority of villages, helps in promoting business activities, especially for product marketing and strengthening the supply chain.

4.10 Infrastructural Facilities:

Different livelihood supportive infrastructures and facilities were mapped to understand distance of such facilities from the villages and, in case of taking up different livelihood promotional activities, these facilities can be utilized. Further, wherever it is required, additional facilities can be created to support livelihood promotional activities.

Table 101: Infrastructural Facilities & Distance; OFSDP II

OFSDP II		Daily / Weekly Market	Livestock Market	Cold Storage	Warehouse / Godown	NTFP Selling Centre	Process Unit	Ag. Centre	Packaging Unit	Transport Service
Control	V (%)	100.0	87.5	62.5	70.8	50.0	79.2	41.7	29.2	83.3
	Av.	5.73	15.86	26.40	24.47	2.17	6.39	7.50	21.29	10.15
Intervention	V (%)	100.0	88.5	57.3	74.0	49.6	71.8	43.5	32.1	80.2
	Av.	6.20	16.47	31.43	19.56	5.06	6.55	13.49	33.74	10.82
Total	**V (%)**	**100.0**	**88.4**	**58.1**	**73.5**	**49.7**	**72.9**	**43.2**	**31.6**	**80.6**
	Av.	**6.13**	**16.38**	**30.59**	**20.29**	**4.61**	**6.53**	**12.60**	**31.96**	**10.71**

Note: V (%): Percentage of Villages, Av.: Average Distance, Ag. Centre: Aggregation Centre; Responses of villages on certain facilities and services is not clear like aggregation centre, packaging house etc. as they are not aware of such facilities due to no accessibility to such units.

Table 102: Infrastructural Facilities & Distance; OFSDP II

OFSDP II		AI Centre / Veterinary Distance	Bank Branch	Post Office	Agri. Co-op Society	TDCC Office	Bus Stop	Railway Station	Block Office	Dist. HQ
Control	V (%)	100.0	100.0	100.0	95.8	41.7	100.0	100.0	100.0	100.0
	Av.	5.92	7.48	4.63	6.09	49.30	4.75	46.00	11.96	66.25
Intervention	V (%)	100.0	100.0	96.2	96.9	40.5	97.7	98.5	99.2	99.2
	Av.	6.95	9.42	3.80	8.69	53.62	6.20	42.65	16.65	66.75
Total	**V (%)**	**100.0**	**100.0**	**96.8**	**96.8**	**40.6**	**98.1**	**98.7**	**99.4**	**99.4**
	Av.	**6.79**	**9.12**	**3.93**	**8.29**	**52.94**	**5.97**	**43.18**	**15.92**	**66.67**

Note: V (%): Percentage of Villages, Av.: Average Distance

Some livelihood supportive infrastructures like cold storage, processing & packaging units etc. are at a distant place from different villages. But certain facilities like daily / weekly markets, veterinary centre etc. are located at shorter distance from the villages and are commonly accessible to the people. Transportation means like railway station or place of availability of transport services (roadway transport service) are relatively at a distant place from the villages. Hence, commodity transportation through these means can be utilized in a more cost-effective manner when scale of production and its market linkage is improved which will make the venture economically viable.

4.11 Engagement and Income:

Agriculture has been the primary occupation of most of the able-bodied members, followed by wage / daily wage. About 30.92 percent persons in control and 38.93 percent in intervention are primarily engaged in agriculture. Wage (agriculture / daily wage) has been the primary occupation of 28.11 percent people in control and 25.56 percent in intervention. For a segment of population, 7.5 percent in control and 8.48 percent in intervention, NTFP collection and its selling is the primary occupation. People engaged in salaried job, both temporary and permanent, amounts to 9.24 percent in control and 9.33 percent in intervention. Getting pension has been one of the sources of income for 8.57 percent people in control and 7.81 percent in intervention. People are also engaged in petty business (control: 8.17 percent; intervention: 5.06 percent) and small-scale processing / trading (control: 0.4 percent, intervention: 0.67 percent). Engagement in Artisan (arts & crafts) works (control: 1.20 percent, intervention: 0.85 percent) and getting remittance (control: 0.54 percent, intervention: 0.92 percent) is comparatively less in both control and intervention.

Table 103: Primary Occupation of People (%); OFSDP II

Primary Occupation	Control	Intervention	Total
Ag. & Allied	30.92	38.93	36.42
Wage	28.11	25.56	26.36
NTFP	7.50	8.48	8.17
Petty Business	8.17	5.06	6.04
Local Trading	0.40	0.67	0.59
Salaried	9.24	9.33	9.30
Arts & Crafts	1.20	0.85	0.96
Remittance	0.54	0.92	0.80
Pension	8.57	7.81	8.05
Other	5.35	2.38	3.31

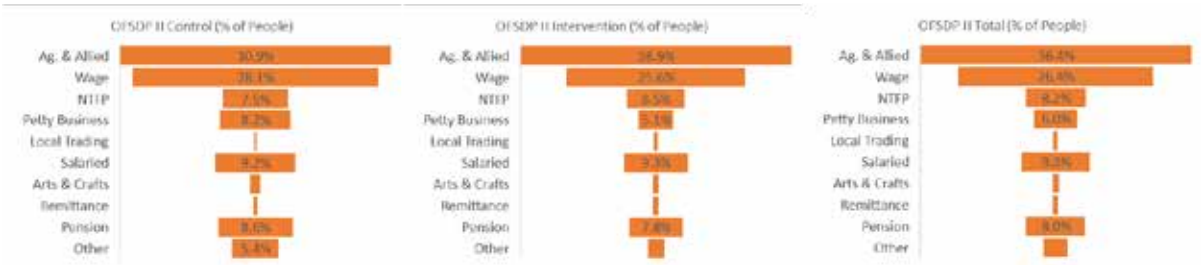

Figure 25: Occupational Distribution of Households (Primary); OFSDP II

People also remain engaged in different other livelihood activities, considered to be secondary sources of income. Wage related engagement and NTFP collection has been major secondary sources of income for people, irrespective of intervention and control. Apart from this, agriculture and allied sector engagement and pension has been the secondary source of income for the people in both intervention and control areas.

Table 104: Secondary Occupation of People (%); OFSDP II

Secondary Occupation	Control	Intervention	Total
Ag. & Allied	23.82	19.95	21.08
Wage	33.52	34.58	34.27
NTFP	27.98	31.07	30.17
Petty Business	5.54	5.44	5.47
Local Trading	0.00	0.79	0.56
Salaried	0.55	1.47	1.21
Arts & Crafts	0.55	0.79	0.72
Remittance	0.28	0.11	0.16
Pension	3.60	3.51	3.54
Other	4.16	2.27	2.82

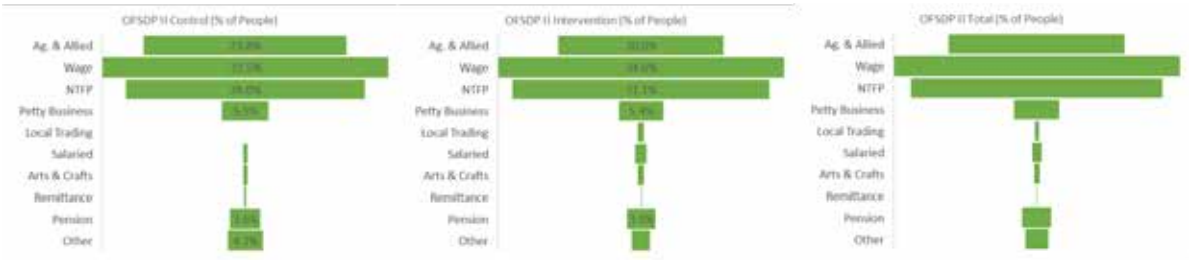

Figure 26: Engagement in Secondary Occupations; OFSDP II

The persons engaged in different primary occupations and their association in different secondary occupation is presented in the matrix. It is observed that in control area, 60.0 percent people who remain engaged in agricultural activities are also involved in wage (daily wage / agricultural wage), followed by 20.0 percent people who primarily engaged in agriculture and allied activities, also collect, and sell NTFP.

Table 105: Primary and Secondary Occupation of Persons; OFSDP II

Primary	Secondary Occupation (Persons in %)										Total
OFSDP-II	**Ag. & Allied**	**Wage**	**NTFP**	**Petty Business**	**Small Trading**	**Salaried**	**Artisan**	**Remittance / Migration**	**Pension**	**Other**	
Control											
Ag. & Allied	1.1	60.0	20.0	6.9		1.1	0.6	0.6	4.6	5.1	100.0
Wage	46.6	0.0	43.2	4.5		0.0	0.0	0.0	2.3	3.4	100.0
NTFP	16.7	50.0	0.0	0.0		0.0	16.7	0.0	16.7	0.0	100.0
Petty Business	66.7	11.1	14.8	0.0		0.0	0.0	0.0	7.4	0.0	100.0
Small Trading	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0
Salaried	57.9	5.3	26.3	5.3		0.0	0.0	0.0	0.0	5.3	100.0
Artisan	75.0	25.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0
Pension	20.0	13.3	40.0	13.3		0.0	0.0	0.0	0.0	13.3	100.0
Other	46.7	0.0	53.3	0.0		0.0	0.0	0.0	0.0	0.0	100.0
Total	**24.6**	**32.9**	**27.7**	**5.4**		**0.6**	**0.6**	**0.3**	**3.7**	**4.3**	**100.0**
Intervention											
Ag. & Allied	0.8	56.8	24.9	7.5	0.8	1.9	1.2	0.2	4.4	1.5	100.0
Wage	47.1	1.6	42.9	1.6	0.5	0.0	0.0	0.0	3.7	2.6	100.0
NTFP	20.8	41.7	25.0	0.0	4.2	0.0	0.0	0.0	4.2	4.2	100.0
Petty Business	61.5	10.3	15.4	2.6	2.6	2.6	0.0	0.0	0.0	5.1	100.0
Small Trading	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Salaried	52.8	7.5	26.4	3.8	0.0	0.0	1.9	0.0	1.9	5.7	100.0
Artisan	71.4	0.0	14.3	0.0	0.0	14.3	0.0	0.0	0.0	0.0	100.0
Pension	20.8	4.2	66.7	0.0	0.0	0.0	0.0	0.0	0.0	8.3	100.0
Other	66.7	0.0	27.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Total	**20.5**	**35.0**	**30.4**	**5.1**	**0.8**	**1.3**	**0.8**	**0.1**	**3.6**	**2.4**	**100.0**
Total											
Ag. & Allied	0.9	57.6	23.6	7.3	0.6	1.7	1.1	0.3	4.4	2.4	100.0
Wage	47.0	1.1	43.0	2.5	0.4	0.0	0.0	0.0	3.2	2.9	100.0
NTFP	20.0	43.3	20.0	0.0	3.3	0.0	3.3	0.0	6.7	3.3	100.0
Petty Business	63.6	10.6	15.2	1.5	1.5	1.5	0.0	0.0	3.0	3.0	100.0
Small Trading	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Salaried	54.2	6.9	26.4	4.2	0.0	0.0	1.4	0.0	1.4	5.6	100.0
Artisan	72.7	9.1	9.1	0.0	0.0	9.1	0.0	0.0	0.0	0.0	100.0
Pension	20.5	7.7	56.4	5.1	0.0	0.0	0.0	0.0	0.0	10.3	100.0
Other	57.6	0.0	39.4	3.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Total	**21.7**	**34.4**	**29.6**	**5.2**	**0.6**	**1.1**	**0.8**	**0.2**	**3.6**	**2.9**	**100.0**

***Note**: NTFP collection by households / people in forest fringe villages is common. Even people who are engaged in different other secondary occupation, also collect NTFP.*

Average income of the household and its members from different sources of engagement is considered to understand the income levels in different categories. About 74.64 percent members in control and 71.67 percent in intervention are having average annual income in the range of <60,000. Looking by sex, it is pertinent that 61.02 percent male and 93.99 percent female fall into the lowest range in control

and 57.47 percent male, and 92.09 percent female fall into the lowest income range in intervention. So, a greater number of females, engaged in different occupations, have lower income in comparison to their male counterpart. More percentage of male members observed in second (>60,000 <=1,20,000) and third (>1,20,000) income category in both control and intervention areas. Distribution of members by sex falling into different income categories in control and intervention areas is presented in the matrix.

Table 106: Average Annual Income Rank of Persons; OFSDP II

OFSDP II	Sex	Income Rank of Earning Members (% of Persons)			Total
		<60,000	>60,000 <=1,20,000	>1,20,000	
Control	Male	61.02	29.18	9.80	100.0
	Female	93.99	5.06	0.95	100.0
	Total	**74.64**	**19.22**	**6.14**	**100.0**
Intervention	Male	57.47	31.63	10.90	100.0
	Female	92.09	6.21	1.69	100.0
	Total	**71.67**	**21.21**	**7.13**	**100.0**
Total	Male	58.55	30.88	10.57	100.0
	Female	92.68	5.86	1.46	100.0
	Total	**72.58**	**20.59**	**6.82**	**100.0**

Average annual income of male engaged in different occupations has been comparatively higher than that of female. The income difference between male and female is significant, irrespective of the sector of employment ($p<0.05$, sig.: .000). In control area, observation remains the same whereas significant difference is observed between male and female headed households, with households headed by male members ($p<0.05$, sig.: .000) having higher income.

Like individuals (persons), same ranking parameters were used to rank households into different income slabs. Majority of the households across the social structures (SC, ST and OC) fall in to second category (>= 60,000 & <=1,20,000), followed by third category (> 1,20,000). Distribution of households by social groups in different income slabs in control and intervention areas is presented in the matrix.

Table 107: Average Income Ranking of Households; OFSDP II

Control / Intervention		Average Household Income Rank (% of HH)			Total
		< 60,000	>= 60,000 & <=1,20,000	> 1,20,000	
Control	SC	30.77	38.46	30.77	100.0
	ST	23.40	51.06	25.53	100.0
	OC	14.05	36.36	49.59	100.0
	Total	**20.60**	**43.52**	**35.88**	**100.0**
Intervention	SC	9.30	58.14	32.56	100.0
	ST	19.47	47.89	32.63	100.0
	OC	15.48	44.77	39.75	100.0
	Total	**17.37**	**47.43**	**35.20**	**100.0**
Total	SC	19.51	48.78	31.71	100.0
	ST	20.54	48.75	30.71	100.0
	OC	15.00	41.94	43.06	100.0
	Total	**18.38**	**46.21**	**35.41**	**100.0**

4.12 Household Income Difference:

4.12.1 Engagement and Income:

Income difference by occupational engagement is observed among the persons engaged in different livelihood activities. The significant difference in income level by occupational category is presented in the matrix.

Table 108: Occupations and Significance in Income Difference; OFSDP II

Total Income Sources & Difference Significance		**Intervention**		**Control**	
		P Value	**Sig.**	**P Value**	**Sig.**
Agriculture & Allied	Wage	p<0.05	0.032		1.000
	NTFP	p<0.05	0.000	p<0.05	0.000
	Petty Business/Shop	p<0.05	0.001	p<0.05	0.001
	Trading / Processing		0.980		0.993
	Salaried	p<0.05	0.000	p<0.05	0.000
	Artisan / Traditional Skill		0.303		0.965
	Migration/Remittance		0.990		1.000
	Pension	p<0.05	0.000	p<0.05	0.013
	Other		0.992		0.454
Wage	Agriculture & Allied	p<0.05	0.032		1.000
	NTFP	p<0.05	0.002	p<0.05	0.000
	Petty Business/Shop	p<0.05	0.000	p<0.05	0.000
	Trading / Processing		1.000		0.996
	Salaried	p<0.05	0.000	p<0.05	0.000
	Artisan / Traditional Skill	p<0.05	0.045		0.935
	Migration/Remittance		0.715		1.000
	Pension	p<0.05	0.019	p<0.05	0.040
	Other		1.000		0.621
NTFP	Agriculture & Allied	p<0.05	0.000	p<0.05	0.000
	Wage	p<0.05	0.002	p<0.05	0.000
	Petty Business/Shop	p<0.05	0.000	p<0.05	0.000
	Trading / Processing		0.997		1.000
	Salaried	p<0.05	0.000	p<0.05	0.000
	Artisan / Traditional Skill	p<0.05	0.000	p<0.05	0.024
	Migration/Remittance	p<0.05	0.035		0.960
	Pension		1.000		0.859
	Other		0.284		0.826
Petty Business/Shop	Agriculture & Allied	p<0.05	0.001	p<0.05	0.001
	Wage	p<0.05	0.000	p<0.05	0.000
	NTFP	p<0.05	0.000	p<0.05	0.000
	Trading / Processing		0.216		0.589
	Salaried		0.791		0.417
	Artisan / Traditional Skill		1.000		1.000
	Migration/Remittance		0.999		0.999
	Pension	p<0.05	0.000	p<0.05	0.000
	Other	p<0.05	0.028	p<0.05	0.000
Trading / Processing	Agriculture & Allied		0.980		0.993
	Wage		1.000		0.996
	NTFP		0.997		1.000
	Petty Business/Shop		0.216		0.589
	Salaried	p<0.05	0.022		0.176
	Artisan / Traditional Skill		0.269		0.897
	Migration/Remittance		0.868		0.999
	Pension		1.000		1.000
	Other		1.000		1.000
Salaried	Agriculture & Allied	p<0.05	0.000	p<0.05	0.000
	Wage	p<0.05	0.000	p<0.05	0.000
	NTFP	p<0.05	0.000	p<0.05	0.000
	Petty Business/Shop		0.791		0.417
	Trading / Processing	p<0.05	0.022		0.176
	Artisan / Traditional Skill		1.000		0.799
	Migration/Remittance		0.815		0.961
	Pension	p<0.05	0.000	p<0.05	0.000
	Other	p<0.05	0.000	p<0.05	0.000
Artisan / Traditional Skill	Agriculture & Allied		0.303		0.965
	Wage	p<0.05	0.045		0.935
	NTFP	p<0.05	0.000	p<0.05	0.024
	Petty Business/Shop		1.000		1.000

	Trading / Processing		0.269		0.897
	Salaried		1.000		0.799
	Migration/Remittance		0.989		1.000
	Pension	p<0.05	0.001		0.211
	Other		0.197		0.430
Migration/Remittance	Agriculture & Allied		0.990		1.000
	Wage		0.715		1.000
	NTFP	p<0.05	0.035		0.960
	Petty Business/Shop		0.999		0.999
	Trading / Processing		0.868		0.999
	Salaried		0.815		0.961
	Artisan / Traditional Skill		0.989		1.000
	Pension		0.070		0.997
	Other		0.915		0.999
Pension	Agriculture & Allied	p<0.05	0.000	p<0.05	0.013
	Wage	p<0.05	0.019	p<0.05	0.040
	NTFP		1.000		0.859
	Petty Business/Shop	p<0.05	0.000	p<0.05	0.000
	Trading / Processing		1.000		1.000
	Salaried	p<0.05	0.000	p<0.05	0.000
	Artisan / Traditional Skill	p<0.05	0.001		0.211
	Migration/Remittance		0.070		0.997
	Other		0.505		1.000
Other	Agriculture & Allied		0.992		0.454
	Wage		1.000		0.621
	NTFP		0.284		0.826
	Petty Business/Shop	p<0.05	0.028	p<0.05	0.000
	Trading / Processing		1.000		1.000
	Salaried	p<0.05	0.000	p<0.05	0.000
	Artisan / Traditional Skill		0.197		0.430
	Migration/Remittance		0.915		0.999
	Pension		0.505		1.000

4.12.2 Income by Skill:

Average income of persons will skill is comparatively higher than persons without skill. The income difference is also significant between skilled and unskilled persons ($p<0.05$, sig.: .002), irrespective of their skill area and post skill training engagement / placement. Similar situation observed in control area where skilled persons have better income than unskilled ($p<0.05$, sig.: .000).

4.12.3 Income by Social Category:

Among social categories, difference in income is not significant ($p>0.5$; sig.: .143), i.e., average annual income of all social groups (SC, ST & OC) is not significantly different, though, average annual household income of ST is less among all the groups and average annual household income of OC is comparatively higher than SC and ST. In case of control, average annual household income of households belonging to OC category is comparatively higher than SC and ST, followed by households belonging to SC category. However, income difference between SC and ST ($p>0.5$; sig.: .900) and between SC and OC ($p>0.5$; sig.: .057) is insignificant; but significant income difference is observed between ST and OC households ($p<0.5$; sig.: .000). So, it can be concluded that ST households have less income in comparison to SC and OC households.

4.12.4 Income by Economic Category:

The assumption about income difference of households by holding / not holding of NFSM card is found to be true (H_1), i.e., there is significant different in annual household income ($p<0.05$, sig.: .002) between families holding card and families not having card. In case of control, the difference between households having card and households not having card is insignificant ($p>0.05$, sig.: .073)

4.12.5 Income by House Type:

Though, average annual income of households having pucca house is comparatively higher than other house categories (followed by mixed and kutcha house), difference in annual income is not significant ($p>0.05$, sig.: .187) statistically. So, income of a family is not related to house type. In other sense, a household having kutcha house may also have higher income than a household having a pucca house. Similar trend observed in control area (kutcha and pucca: $p>0.05$, sig.: .638; kutcha and mixed: $p>0.05$, sig.: .981; pucca and mixed: $p>0.05$, sig.: .515).

4.12.6 Income by Women Headed Household:

The assumption (H_0) of equal income between a male and female headed household, irrespective of sector of engagement is rejected ($P<0.05$, sig.: .000) as mean income difference is significant between male and female headed household, favouring the former. In case of control significant difference in income between male and female headed household is not observed ($p>0.05$, sig.: .270).

4.12.7 Income by Land Holding Categories:

Farmers with medium size land holding (though their number is less) are having higher level of income in comparison to other land holding categories, followed by semi-medium, small and marginal farmers. While difference in income level is not significant between marginal farmer and landless ($p>0.05$; sig.: .903), income difference is significant between marginal and small farmer ($p<0.05$; sig.: .003), marginal and semi-medium farmer ($p<0.05$; sig.: .006) and marginal and medium farmer ($p<0.05$; sig.: .000). Income difference is also significant between small and marginal farmer ($p<0.05$; sig.: .003) and small and medium farmer ($p<0.05$; sig.: .000). Difference in income is also significant between semi-medium and medium farmer ($p<0.05$; sig.: .000). It reveals that land holding is having important bearing on household income as agricultural dependency of families is higher in comparison to any other sectors of engagement. In case of control, difference is significant between marginal and medium farmer ($p<0.05$, sig.: .000) and between small and medium farmer ($p<0.05$, sig.: .012).

In case of operational holding, income difference is not significant between landless and marginal farmer ($p>0.05$; sig.: .431), landless and small farmer ($p>0.05$; sig.: .997) and landless and semi-medium farmer ($p>0.05$; sig.: .696) as landless households also cultivate other land (share in, leased in and other land). But income difference is significant between landless and medium farmer ($p<0.05$; sig.: .000) and among different other holding categories. In case of control, difference is significant between landless and semi-medium farmer ($p<0.05$, sig.: .023); landless and medium farmer ($p<0.05$, sig.: .016); marginal and small farmer ($p<0.05$, sig.: .016); marginal and semi-medium / medium farmer ($p<0.05$, sig.: .002).

4.12.8 Income by Farm Forestry:

Income difference between households adopted farm forestry and households yet to adopt farm forestry is not significant ($p>0.05$; sig.: .667) as the households who have farm forestry, have adopted in recent years and yet to realise the benefit of farm forestry. However, difference is significant in control ($p<0.05$, sig.: .008).

4.12.9 Income by Skill Based Employment:

As discussed, members of some households have received skill-based training in different trades / vocations. Some of them were also employed in different places. But difference in level of income of persons falling to two categories, i.e., the income level of persons who got employment after skill training and those not employed, observed to be insignificant ($p>0.05$; sig.: .824). The reasons are due to leaving the job by the employed skilled persons, low remuneration in the working place, multi sector engagement of skilled person not employed elsewhere etc. Similar trend observed in case of control ($p>0.05$, sig.: .759).

4.12.10 Income by Expenditure Groups:

The households, who are in the expenditure level of >37,530 INR have higher income and the households who are in the expenditure benchmark of <37,530 INR are having lower annual income. The income difference between these two expenditure groups is significant (intervention: $p<0.05$; sig.: .000; control: $p<0.05$, sig.: .000)). Income difference was also found to be significant in case of families having income in the category of > 44,064 INR and <= 44,064 INR (intervention: $p<0.05$, sig.: .000; control: $p<0.05$, sig.: .000), favouring the former category of households.

4.13 Land Holding:

Land holding is assessed from farming perspective in two different categories, i.e., own land holding (having hereditary or acquired land that have ROR in the name of the family) and operational holding (land cultivated either through share in or leased in or any other land under cultivation by the family). About 80.59 percent households have own land in control and 90.05 percent in intervention area. About 85.20 percent households in control and 93.21 percent households in intervention have operational land holding. Percentage of landless families (families not having own land) found to be 19.41 percent in control and 9.95 percent in intervention areas. If operational holding is taken into account (including other land cultivated), percentage of landless families reduces to 14.80 percent in control and 6.79 percent in intervention area.

Table 109: Farmer Categories; OFSDP II

Holding Category	Own Land (HH %)		Operational Land (HH %)	
	Control	Intervention	Control	Intervention
Landless	19.41	9.95	14.80	6.79
Marginal	64.47	60.33	63.16	55.66
Small	12.83	22.47	17.76	27.90
Semi-Medium	1.64	5.73	2.63	7.99
Medium	1.64	1.51	1.64	1.66
Total	**100.00**	**100.00**	**100.00**	**100.00**

Categorization of households on the basis of land holding reflects that majority are marginal farmers in control (64.47 percent) as well as in intervention (60.33 percent) areas, having land holding below one ha. It is followed by small farmer (Control: 12.83 percent; Intervention: 22.47 percent) with holding size between one to two ha. So, together, marginal, and small farmer accounts to 77.30 percent of the total households holding land (own land) in control and 82.81 percent in intervention. Semi-medium and medium farmer account to 1.64 percent and 1.64 percent in control and 5.73 percent and 1.51 percent in intervention, respectively. No large farmer is observed in the sample who have more than 10 ha. of land.

Table 110: Average Land Holding; OFSDP II

Control / Intervention	Average land Holding (Ha.)	
	Own Land (Ha.)	Operational Holding (Ha.)
Control	0.81	0.84
Intervention	1.01	1.11
Total	**0.95**	**1.03**

Average land holding (own) of marginal farmers has been 0.48 ha. in control and 0.54 ha. in intervention. Small farmers, on an average hold 1.38 ha. in control and 1.44 ha. in intervention. Semi-medium and medium farmers in control hold on an average 2.69 ha. and 7.13 ha. respectively. Marginally higher average holding observed in case of semi-medium farmers in intervention, i.e., 3.00 ha. Irrespective of different land holding categories, households own 0.81 ha. in control and 1.01 ha. in intervention area.

Table 111: Average Land Holding, Own & Operational; OFSDP II

Farmer Category	Own Land (Ha.)		Operational Land (Ha.)	
	Control	Intervention	Control	Intervention
Marginal	0.48	0.54	0.51	0.58
Small	1.38	1.44	1.36	1.45
Semi-Medium	2.69	3.00	2.48	2.86
Medium	7.13	5.62	6.74	5.80
Total	**0.81**	**1.01**	**0.84**	**1.11**

Further land holding by social categories reflect that, 85.11 percent ST households having own land, while 78.23 percent OC households and 71.79 percent SC households have own land in case of control areas. In case of intervention, 92.37 percent ST households, 84.09 percent SC households and 87.45 percent OC households have own land. The average land holding is lowest among the SCs (0.59 ha.) whereas families belonging to ST and OC categories have average holding of 0.71 ha. and 1.0 ha. respectively. So, from land holding perspective, SC households are the most marginal among other social groups.

Table 112: Farmer Category by Social Segments; OFSDP II

	Household (%)					
Particulars	**Landless**	**Marginal**	**Small**	**Semi-Medium**	**Medium**	**Total**
Control						
OC	21.77	58.87	12.10	4.03	3.23	100.0
SC	28.21	64.10	7.69	0.00	0.00	100.0
ST	14.89	69.50	14.89	0.00	0.71	100.0
Total	19.41	64.47	12.83	1.64	1.64	**100.0**
Intervention						
OC	12.55	59.00	21.34	4.60	2.51	100.0
SC	15.91	47.73	29.55	6.82	0.00	100.0
ST	7.63	62.63	22.37	6.32	1.05	100.0
Total	9.95	60.33	22.47	5.73	1.51	**100.0**
Total						
OC	15.70	58.95	18.18	4.41	2.75	100.0
SC	21.69	55.42	19.28	3.61	0.00	100.0
ST	9.60	64.49	20.35	4.61	0.96	100.0
Total	12.93	61.63	19.44	4.45	1.55	**100.0**

Average land holding by social categories reflect that households of OC categories have better average own land holding (control 1.00 Ha.; intervention: 1.10 Ha.) in comparison to other social groups in both control and intervention areas. Further, ST households have marginally higher average own land holding in comparison to SC households in both control and intervention. Similar trend is observed in case of operational holding.

Table 113: Average Land Holding by Social Categories; OFSDP II

Social Category	Control		Intervention	
	Own Land (Ha.)	Operational Land (Ha.)	Own Land (Ha.)	Operational Land (Ha.)
SC	0.59	0.69	0.91	1.04
ST	0.71	0.77	0.96	1.05
OC	1.00	0.98	1.10	1.21
Total	0.81	0.84	1.01	1.11

4.13.1 Land Holding by Socio-Economic Categories:

There is no significant difference in land holding by social category ($p>0.05$, sig.: .745; SC & ST: $p>0.05$, sig.: .963; SC & OC: $p>0.05$, sig.: .990; ST & OC: $p>0.05$, sig.: .718) in intervention. In control,

the land holding pattern also reflects insignificant difference among the social categories (SC & ST: p>0.05, sig.: .202; SC & OC: p>0.05, sig.: .085; ST & OC: p>0.05, sig.: .787).

Further difference in land holding by economic category (ration card holder & non-holder) is significant in intervention (p<0.05, sig.: .024) but not in control (p>0.05, sig.: .273). Significant difference is also not observed in land holding in case of male and female headed households in intervention (p>0.05, sig.: .241) and control (p>0.05, sig.: .159), though average land holding by male headed households are marginally higher than female headed households.

4.14 Agricultural Production:

Farmers have been cultivating different crops during production seasons. Paddy has been the prime among the crops during Kharif (Control: 89.80 percent farmers; Intervention: 95.17 percent farmers). Some farmers also cultivate Paddy during Rabi season, where irrigation facility is available. Average area devoted for paddy cultivation has been 0.72 ha. in control and 0.88 ha. in intervention.

Table 114: Different Crops Grown in Kharif and Rabi

Crops	Kharif	Rabi	Crops	Kharif	Rabi
Pigeon Pea (Arhar)	√	√	Kosala Saga	√	
Banana	√		Maize	√	√
Beans		√	Millet-Ragi	√	√
Bitter Gourd		√	Mustard		√
Black Gram	√	√	Okra		√
Brinjal	√	√	Onion		√
Cabbage		√	Paddy	√	√
Cauli flower		√	Pointed Gourd	√	√
Chilly	√	√	Potato	√	√
Cotton	√		Peas	4	3
Cow Pea	√	√	Pumpkin	√	√
G. Nut	√	√	Radish		√
Ginger	√		Sesame	√	√
Green Gram	√	√	Tomato	√	√
Horse Gram	√	√	Vegetables (Other)	√	√
IVY Gourd	√				

Farmers have different crop priorities and accordingly the available area is devoted for specific crops. As land holding size play an important role in area devoted for crops, there is difference in crop productivity by crop types as well as by holding categories. Average area devoted by farmers of different categories, average production and productivity of crops is presented in the matrix.

Table 115: Average Area, Production & Productivity by Holding Categories; OFSDP II

Particulars	Average Area (Ac.)		Average Production (Qt.)		Average Productivity (Qt./Ac.)	
	Control	Intervention	Control	Intervention	Control	Intervention
Paddy						
Marginal	1.37	1.54	15.47	17.47	11.36	11.49
Small	3.02	2.90	35.62	34.27	11.79	12.34
Semi-Medium	3.42	5.02	40.00	59.76	12.20	11.90
Medium	7.50	7.21	95.40	87.75	12.40	12.24
Maize						
Marginal	0.00	0.78	0.00	8.25	0.00	23.54
Semi-Medium	0.00	0.20	0.00	0.80	0.00	4.00
Finger Millet						
Marginal	0.00	0.50	0.00	0.30	0.00	0.60
Small	0.00	1.50	0.00	1.00	0.00	0.75

Particulars	Average Area (Ac.)		Average Production (Qt.)		Average Productivity (Qt./Ac.)	
	Control	Intervention	Control	Intervention	Control	Intervention
Groundnut						
Marginal	0.21	0.51	0.83	2.08	3.63	5.75
Small	1.00	0.50	5.00	2.00	5.00	3.75
Medium	0.00	2.00	0.00	5.00	0.00	2.50
Sesame						
Marginal	0.50	1.00	0.10	1.54	0.20	1.43
Small	1.00	1.00	0.90	1.97	0.90	1.97
Semi-Medium	0.00	0.75	0.00	0.55	0.00	0.75
Mustard						
Marginal	0.37	0.53	0.19	2.13	0.54	1.90
Small	8.00	0.93	9.00	1.28	1.13	1.23
Semi-Medium	0.20	0.00	0.30	0.00	1.50	0.00
Black Gram						
Marginal	0.88	0.56	1.38	0.78	1.48	1.35
Small	0.60	0.32	0.80	0.44	1.33	1.39
Semi-Medium	0.00	0.94	0.00	1.17	0.00	1.31
Medium	3.00	0.00	4.23	0.00	1.41	0.00
Green Gram						
Marginal	0.75	0.74	1.12	1.14	1.46	1.51
Small	1.18	1.14	1.96	1.72	1.75	1.48
Semi-Medium	0.00	2.04	0.00	3.01	0.00	1.52
Medium	2.33	0.75	3.58	0.85	1.51	1.20
Pigeon Pea						
Marginal	0.18	0.32	0.50	0.90	2.75	2.78
Small	0.00	1.05	0.00	2.88	0.00	2.87
Medium	6.00	0.50	17.00	1.50	2.83	3.00
Chilly						
Marginal	0.04	0.08	0.08	0.16	2.00	2.52
Small	0.02	0.31	0.10	0.95	5.00	3.25
Semi-Medium	0.50	0.00	2.00	0.00	4.00	0.00
Garlic						
Marginal	0.00	0.01	0.00	0.11	0.00	11.00
Small	0.00	0.04	0.00	0.50	0.00	12.50
Semi-Medium	0.00	0.02	0.00	0.20	0.00	10.00
Ginger						
Marginal	0.00	4.00	0.00	125.00	0.00	31.25
Small	0.00	1.12	0.00	36.25	0.00	31.88

***Note**: Some Landless families (not having registered land in the name of the family) are also involved in agricultural activities through share in or cultivating other land.*

The crop productivity is estimated for different types of crops grown by the farmers in the field. Significant difference is not observed in crop productivity in different crop categories. Significant difference in crop productivity (different crop type) is observed among social categories, families of different social category having different crops (interaction effect of crop category and social category) and different holding categories having different crops (interaction effect of land holding and crops grown). Average crop productivity of different crops in intervention and control areas is presented in the table.

Table 116: Crop Productivity (Qt./Ac.); OFSDP II

Crops	Crop Productivity (Qt./Ac/)		Crops	Crop Productivity (Qt./Ac/)	
	Control	Intervention		Control	Intervention
Cereal			**Spices**		
Paddy	11.40	11.73	Ginger		31.70
Maize		19.63	Chilly	3.00	2.75
Finger Millet		0.78	Garlic		11.13
Cereal Total	**11.40**	**11.80**	**Spices Total**	**3.00**	**8.13**
Pulses			**Vegetables**		
Pigeon Pea	2.77	2.84	Onion	30.29	33.65
Black Gram	1.41	1.36	Potato	30.85	20.53
Green Gram	1.58	1.52	Tomato	37.01	37.07
Pulses Total	**7.75**	**2.91**	Brinjal	46.23	35.38
Oil Seeds			**Vegetable Total**	**37.63**	**29.51**
Mustard		1.60			
G. Nut	3.83	4.30			
Sesame	0.55	1.39			
Oil Seeds Total	**2.18**	**2.05**			

4.15 Emerging Production Clusters and Support Requirement:

Manufacturing more than 8,000 products, the MSME employs 40% of labour force and 20% of it is in rural areas.[27] The major artisanal clusters responsible for production of creative and artistic products that varies from pottery to jewellery to textile products are as listed below.

Table 117 Artisanal Clusters of Odisha (Laghu Udyog Nigam)

Location	Product	Location	Product
Angul	Brass and copper Art ware	Jharsuguda	Cane of Bamboo Basketries
	Cane of Bamboo Basketries	Kendrapada	Cane of Bamboo Basketries
	Earthen ware/pottery	Keonjhar	Cane of Bamboo Basketries
Balasore	Cane of Bamboo Basketries		Jute Carpets & Rugs
Baragarh	Bleach/Dye/Print Sild Tex		Metalware
	Brass and Copper Art ware	Khalikote	Conch-shell
	Cane of Bamboo Basketries		Folk Paintings
	Crocheted Textile Product		Stone Carving
	Earthenware & Pottery		Theatre, Costumes & Puppets
	Silver jewellery		Wood Carving
Barpali	Dolls & Toys	Khiching	Stone Carving
	Textiles Handlooms	Khmda	Appliqued Bed covers etc
Berhampur	Cane & Bamboo		Brass & Copper Art ware
	Dolls & Toys	Koraput	Metalware
	Metal Images Folks		Shopping bag/ fancy Items
	Wood Turning & Laquerware		Wood Turning & Laquerware
Bhograi	Wood Inlay	Kujang	Zari
Bolangir	Cane of Bamboo Basketries	Mayurbhanj	Metalware
Boudh	Bleach/Dye/Print Silk Jen	Narangpur	Wood Turning & Laquerware
Boulgadia	Stone Carving	Nawarangpur	Crocheted Textile Product
Cuttack	Horn & Bone		Earthenware & Pottery
	Metalware	Nayagarh	Brass & Copper Art ware
	Pottery & Clay	Nuapada	Cane of Bamboo Basketries
	Textiles Hand Printed	Phulbani	Lead based articles
	Wood Inlay		Folk Paintings
	Bleach/Dye/Print Silk Jen		Stone Carving
	Cane of Bamboo Basketries		Textiles Hand Embroidered
	Cane of Bamboo Basketries		Textiles Handlooms
	Gold/ Silver gift Items		Wood Carving

[27] Sonia Mukherjee. Challenges to Indian micro small scale and medium enterprises in the era of globalization. 2018.

Location	Product	Location	Product
	Metal Brass and Copper Art ware	Puri	Dolls & Toys
	Silver jewellery		Jewellery
Dharakot	Wood Turning & Laquerware		Metalware
Dhenkanal	Pottery & Clay		Appliqué Handicrafts
	Brass & Cupper Art ware		Cane of Bamboo Basketries
	Finishing Articles		Coconut Fiber Articles
Gajapati	Brass and Copper Art ware		Lead based articles
	Cane of Bamboo Basketries		Stone Artware
Hayarbhaiy	Brass & Copper Art ware	Rayagada	Cane of Bamboo Basketries
	Cane of Bamboo Basketries		Earthier ware/pottery
	Earthenware & Pottery	Sambalpur	Metalware
	Stone Artware		Pottery & Clay
Jagatsinghpur	Cane of Bamboo Basketries		Wood Carving
	Lead based articles		Brass & Copper Art ware
Jajpur	Brass & Copper Art ware		Cane of Bamboo Basketries
	Cane of Bamboo Basketries		Earthier ware/ pottery
	Silver jewellery	Sonepur	Bach/Dye/Print Silk Tex
Jeypore	Horn & Bone		Cane of Bamboo Basketries
Tarva	Metalware	Sundargarh	Earthenware & Pottery
			Metalware

Source: http://laghu-udyog.gov.in/clusters/clus/rclus.htm

The table below lists the top five clusters from Odisha that are major in fruit and vegetable production. The districts also produce other fruits and vegetables, but its scale of production is limited.

Table 118: Top 5 District-wise Production Clusters of Fruits and Vegetables

District	Estimated Total Production (in 1000 MT)	Major Fruits	Major Vegetables
Keonjhar	753	Mango, Limes, Lemons, Guava	Brinjal, Tomato, Cauliflower, Cabbage
Balangir	626	Banana, Mango, Watermelon, Jackfruit	Onion, Brinjal, Tomato, Cabbage, Pumpkin
Mayurbhanj	597	Mango, Limes, Lemons, Banana	Brinjal, Tomato, Cauliflower, Cabbage, Sweet Potato, Okra, Pumpkin
Ganjam	542	Mango, Limes, Lemons, Banana	Brinjal, Tomato, Cauliflower, Cabbage, Sweet Potato, Okra, Pumpkin
Sundargarh	524	Mango, Limes, Lemons, Banana, Jackfruit	Brinjal, Tomato, Cauliflower, Cabbage, Sweet Potato, Okra

Source: Ministry of Food Processing Industries (https://mofpi.nic.in/sites/default/files/indicative_list_of_identified_agri-horti_production_clusters_fruits_vegetables_0_0.pdf)

The major challenges are market competition, access to market whether domestic or international, safeguarding the intellectual properties such as artisanal knowledge and innovations and promotion of cottage industry and small-scale industries.[28] Other than this skill training and management are yet other important challenges. The upgradation of technology is also the need of the hour for improved production and supply[29].

In most of the studied villages / area, there is no cluster promotion activities observed. However, there has been potential for certain commodities. Current production system is more scattered and largely confined to agricultural commodities. Forest based commodities (NTFPs) have also some degree of potentials in these villages. Assessment reveals that to attain scale of operation, size of the clusters have to be large enough so that volume of production of different commodities can be improved. Secondly, processing oriented clusters are also non-existing and scope is also limited due to low level of production and poor aggregation and supply chain management. Mapping of different commodities by Forest Division is presented in the following table.

[28] http://laghu-udyog.gov.in/clusters/clus/indsme.htm
[29] Sonia Mukherjee. Challenges to Indian micro small scale and medium enterprises in the era of globalization. 2018.

4.15.1 Product Mapping for Cluster Development:

To understand the cluster development potentials, different produces / commodities are mapped with the VSS members, including existing skill base at the community level in the consultation process. Two aspects were examined, i.e., current level of existence (production / skill base) and the potential. Key requirements to attain the mapped potentials were also explored for different categories. The cluster characteristics were mapped for 7 key areas, i.e., (a) agriculture, (b) horticulture, (c) livestock, (d) handloom, (e) handicraft, (f) NTFP, and (g) skill base. In general, it is observed that agricultural, horticultural and NTFP produces are major ones in the studied pockets. Handloom and Handicraft is not prominent, barring a few pockets. Livestock sector has been emerging in many villages and reflects prominence. The assessment reflects that any production or processing cluster that is expected to come up may be based on the existing commodities. However, specific measures may be useful to promote certain other commodities, looking at the existing potential and market demand.

Pigeon pea (Arhar) has been the major production in 22.0 percent VSS and production growth potential to the tune of 120.8 percent can be achieved in 22.0 percent VSS. Black gram is commonly grown by farmers in 35.6 percent VSS and production growth potential is about 187.7 percent in case of 35.6 percent VSS. Green gram production is prominent in 39.4 percent VSS and the mapped production growth potential is 135.8 percent in 31.8 percent VSS. Groundnut is one of the major commodities produced by 12.1 percent VSS which is having production growth potential of 95.0 percent covering all the 12.1 percent producing VSS. Details of agriculture / horticulture commodity specific potentially is presented in the table.

Table 119: Production Potential Map for Cluster Development; OFSDP II

Particulars	Current Production (P) and Growth Potential (GP)					Current Production (P) and Growth Potential (GP)			
	Current		Potential			Current		Potential	
	V %	P (MT)	V %	GP (%)		V %	P (MT)	V %	GP (%)
Agriculture					**Horticulture**				
Pigeon Pea	22.0	44.3	22.0	120.8	Brinjal	21.2	775.6	20.5	87.2
Black Gram	35.6	115.0	35.6	187.7	Cauli Flower	5.3	845.0	5.3	74.6
Gram	11.4	87.0	11.4	54.6	Chilly	3.8	32.0	3.8	123.1
Green Gram	39.4	160.5	31.8	135.8	Onion	3.0	28.8	3.0	62.8
Ground Nut	12.1	24.0	12.1	95.0	Potato	6.1	220.1	5.3	35.5
Horse Gram	22.7	51.1	22.0	93.7	Tomato	10.6	126.4	10.6	69.6
Maize	10.6	30.7	10.6	59.3	Cashew	8.3	44.2	2.3	66.1
Finger Millet	6.8	33.2	6.8	38.3	Jack Fruit	3.8	7.5	1.5	20.0
Mustard	4.6	7.8	4.6	61.5	Mango	29.5	842.1	17.4	1.9
Sesame	7.6	36.8	7.6	41.0	Vegetables	21.2	387.8	12.1	31.5
Red Gram	0.0	0.0	0.0	0.0					

Note: V: VSS (%); P: Production (MT); GP: Growth Potential (%)

Table 120: Key Requirements for Product Cluster Development; OFSDP II

Key Requirements	Agriculture	Handloom	Horticulture	Livestock	NTFP	Skill
OFSDP II Control						
Capacity Building						5.6
Fund Support			0.8		0.4	
Insurance				31.3		
Irrigation Facility	2.3		0.8			
Quality Breed				10.4		
Quality Inputs (Seed, Fertilizer, Pesticide)	2.3					
Quality Nursery (for Hybrid Planting Materials)			0.8			
Quality Seeds & Inputs on Time	3.2					
Skill Development Training						1.9
Soil Test	2.7					
Storage Structure (TDCC / Other)					18.8	
Subsidized Loan				6.3		

Key Requirements	Agriculture	Handloom	Horticulture	Livestock	NTFP	Skill
Technical Guidance	1.4					
OFSDP II Intervention						
Capacity Building						4.7
Fund Support	0.1					
Insurance				36.0		
Irrigation Facility	4.9		0.3			
Mason						0.1
Quality Brid				6.8		
Quality Inputs (Seed, Fertilizer, Pesticide, Plan	3.7		0.8			
Quality Nursery (for Hybrid Planting Materials)			0.2			
Quality Seeds & Inputs on Time	2.0					
Shed for livestock				1.7		
Skill Development Training						0.6
Soil Test	1.3					
Solar Frenching for Crop Protection	0.1		0.2			
Storage Structure (TDCC / Other)					16.9	
Subsidized Loan				2.8		
Technical Guidance	1.8					
Value Addition & Market Linkage					0.5	

4.16 Skill Base:

The studied villages have persons with different skill base in different areas such as tailoring, handloom, handicraft, driving, mechanical, electrician etc. While skilled persons in certain areas are less like handloom and handicraft, a greater number of skilled persons were observed in some other areas in both control and intervention villages, like tailoring, driving and mason works. However, looking at the total population of able bodied between 18 and 60, the skill base found to be poor. Some villages also have persons with traditional skills like potter, black smith, barber etc. but their presence is limited. Available skill base of the villages (average number of skilled persons) is presented in the matrix.

Table 121: Village Skill Base; OFSDP II

OFSDP II		Village Skill Base (% of Villages)								
		Tailoring	Handloom	Handicraft	Driving	Mechanic	Electrical	Electronics	Beautician	Mason
Control	V (%)	87.5	4.2	29.2	95.8	41.7	45.8	12.5	8.3	87.5
	Av.	4.8	20.0	2.7	8.3	2.2	2.2	2.3	2.5	11.0
Intervention	V (%)	74.8	1.5	22.9	81.7	20.6	41.2	14.5	5.3	87.8
	Av.	5.8	23.5	2.6	7.2	3.4	2.6	2.3	1.7	9.1
Total	**V (%)**	76.8	1.9	23.9	83.9	23.9	41.9	14.2	5.8	87.7
	Av.	5.6	22.3	2.6	7.4	3.1	2.5	2.3	1.9	9.4

Note: V (%): Percentage of Villages / VSS, Av.: Average No. of Persons having the Skill; Percentage of villages is cumulative (cannot be added up to 100.0 percent) as different skill sets persist in the same village.

Table 122: Skill Base Development Requirements

Skills	Key Requirements
Tailoring	Skill Development Training Creating Scope for Stitching Works
Driver	Support for Vehicles Purchase Availability of Vehicle on Rental Basis Further Skill Building (Other People)
Mason	Wage Payment as per Skilled Worker

4.16.1 Employable Skill Base at Household Level:

Employable skill base of the members in different skill categories observed in 15.63 percent people of sample households in control and 19.05 percent in intervention. Poor skill base is observed in both intervention and control areas. Comparing persons having different skill base by sex, it is evident that around 21.97 percent male and 8.73 percent female in control; and 25.94 percent male and 11.58 percent female in intervention area are having different skills (calculated taking population >6 & <60 years).

Table 123: Persons (%) having Skill Base; HH Level; OFSDP II

OFSDP II Control & Intervention	Persons (%) Having Skill Base		
	Male	Female	Total
Control	21.97	8.73	15.63
Intervention	25.94	11.58	19.05
Total	**24.72**	**10.70**	**18.00**

Among different sets of skill that support for employment in control and intervention area are like carpenter, computer operator, driving, electrician, mason, and tailoring etc.

Table 124: Household Level Skill Base; OFSDP II

Skill Base	Control	Intervention	Skill Base	Control	Intervention
Agriculture / Farming	√	√	Goldsmith	√	
ANM / Nursing	√	√	Incense Stick Making		√
Aquaculture	√		ITI	√	√
Artisan		√	JCB Operator		√
Barber		√	Leaflet Making	√	√
Beautician	√		Mason	√	√
Bidi Making		√	Mechanical	√	√
Blacksmith	√		Mushroom Cultivation		√
Carpenter	√	√	Nursery Preparation	√	
Computer / DTP	√	√	Painter	√	√
Cooking (Professional)	√	√	Paper Plate Making		√
Dairy		√	Plastic Processing		√
Dance	√		Plumber		√
Diploma		√	Tailoring	√	√
Driving	√	√	Teaching	√	√
Electrician	√	√	Type and Steno	√	
Fitter	√	√	Welding	√	√

4.16.2 Skill Based Training:

While govt. has been focusing upon skill development, members of about 14.80 percent households in control and 14.03 percent households in intervention have received skill-based training on different skills / trades. The major skill areas / trades on which members have been trained by control and intervention is presented in the matrix.

Table 125: Skill Training Areas; OFSDP II

Skill Training Areas	Control	Intervention	Skill Training Areas	Control	Intervention
Accounts Keeping	0.00	0.15	Mason	0.99	0.45
Incense Stick Making	0.00	0.15	Mason, Tailoring	0.33	0.00
ANM	0.33	0.00	Business Management	0.00	0.30
Borewell and Pipe Fitting / Repair	0.00	0.15	Mechanical	0.33	0.30
Carpenter	0.00	0.15	Mushroom Cultivation	0.00	0.15
Computer / DTP	2.30	2.11	Nursery	0.33	0.00
Dairy Farming	0.33	0.30	Painter	0.33	0.00
Doormat Making	0.99	0.00	Paper Plate Making	0.00	0.15
Driving	2.96	1.36	Para squad training	0.00	0.15
Electrician	0.33	1.21	Plantation	0.00	0.30
Fishery	0.33	0.45	Plumber	0.00	0.15
Fitter	0.33	0.45	Tailoring	3.29	3.17
Forest Training	0.00	0.15	Teacher / Teaching	0.00	0.15
Gold Smith	0.33	0.00	Agriculture / farming	0.00	0.75
Gold Smith; Tailoring	0.33	0.00	Vehicle Mechanic	0.00	0.15
Honey Farming	0.00	0.15	Welding	0.00	0.15
Horticulture	0.00	0.15			
ITI	0.66	0.75			

Of the total, who got skill-based training, 40.0 percent in control and 45.16 percent in intervention got employment in different places (inter and intra state like Bangalore, Chhattisgarh, Dhenkanal, Burla, Bonai etc.) with average monthly remuneration of around Rs. 10,000.00 in control and Rs.12,500.00 in intervention. For various reasons, some skilled / trained people did not get employment, and reasons are found to be (a) poor salary structure, (b) inadequate workplace facility, (c) employment in distant place (d) family problem (not able to move out) etc. Some trained persons preferred for self-employment adopting the acquired skill and, on an average, earning about Rs. 7,500.00 per month in control and Rs. 10,300.00 in intervention.

4.16.3 Skill Base Development Needs:

Households (control: 40.79 percent, intervention: 44.95 percent) have expressed additional skill-based training requirement in different skill areas like (a) tailoring, (b) goat rearing / dairy (animal husbandry), (c) mason, (d) computer operation and DTP, (c) driving, (d) Bamboo goods making, (e) mobile repairing etc. Developing skill base in farm forestry / agroforestry and agriculture / horticulture have also been one of the skill requirements of the families.

4.17 Household Expenditure:

Food expenditure of 35.53 percent households in control and 34.70 percent households in intervention is observed >=57.0 percent of the total household expenditure, whereas remaining households have food expenditure <57.0 percent of their total expenditure. Taking monthly per capita expenditure benchmark of Rs. 695.00 (Rs.37, 530 per family per year with average family size of 4.5) for Odisha (Tendulkar committee estimation), it is observed that 88.16 percent households in control and 88.39 percent households in intervention are having annual expenditure more than Rs. 37,530.00, which means 11.84 percent households in control and 11.61 percent households in intervention do less expenditure than the benchmark and continue to be below the poverty line. Considering national benchmark of Rs. 816.00 per capita expenditure (Rs. 44,064 per family per year with average family size of 4.5), it is observed that around 81.25 percent households in control and 81.00 percent in intervention expend more than the benchmark. Alternatively, 18.75 percent households in control and 19.00 percent households in intervention having annual expenditure less than the stipulated poverty benchmark price.

Table 126: Household Expenditure; OFSDP II

Control / Intervention	**Expenditure Rank-Odisha Poverty Line (HH %)**		**Expenditure Rank-India Poverty Line (HH %)**	
	>37,530	**<=37,530**	**>44,064**	**<=44,064**
Control	88.16	11.84	81.25	18.75
Intervention	88.39	11.61	81.00	19.00
Total	**88.31**	**11.69**	**81.08**	**18.92**

Table 127: Annual Household Expenditure by Social Categories; OFSDP II

Particulars	**Average Annual Expenditure**		
Social Category	**Control**	**Intervention**	**Total**
Scheduled Caste (SC)	69,481.03	86,303.41	78,398.92
Scheduled Tribe (ST)	65,523.69	72,341.61	70,492.90
Other Caste (OC)	91,810.47	84,965.39	87,316.61
Total	**76,753.61**	**77,805.48**	**77,473.77**
Economic Category			
Poor (Ration Card)	73,631.84	75,864.68	75,162.71
Non-Poor (No Ration Card)	1,16,769.09	1,04,329.78	1,08,414.33
Total	**76,753.61**	**77,805.48**	**77,473.77**

Particulars	Average Annual Expenditure		
Social Category	**Control**	**Intervention**	**Total**
Land Holding Categories			
Landless	73,820.34	72,027.34	72,887.40
Marginal	73,133.77	70,544.91	71,397.71
Small	77,269.74	88,405.42	86,095.36
Semi-Medium	1,21,260.00	95,890.37	98,840.33
Medium	2,04,732.00	1,77,820.60	1,86,791.07
Total	**76,753.61**	**77,805.48**	**77,473.77**

4.18 Household Expenditure Difference:

4.18.1 Annual Household Expenditure by Social Category:

The average annual expenditure of households belonging to OC categories is comparatively higher than SC and ST, followed by households belonging to SC category. However, average annual household expenditure difference between SC and ST ($p>0.05$; sig.: .145) and between SC and OC ($p>0.05$; sig.: .983) is insignificant, whereas, between ST and OC, the difference is significant ($p<0.05$; sig.: .003). In control, expenditure difference is insignificant between SC and ST ($p>0.05$, sig.: .893) but significant between SC and OC ($p<0.05$, sig.: .033) and between ST and OC ($p<0.05$, sig.: .000).

4.18.2 Annual Household Expenditure by Economic Category:

The average annual expenditure of households having NFSM card is comparatively less than households not having NFSM card. The average annual household expenditure difference between card holders and non-card holders is significant ($p<0.05$; sig.: .000) which confirms that families having NFSM card are incurring less expenditure in comparison to non-card holders. But in case of control, the difference is insignificant ($p>0.05$, sig.: .056)

4.18.3 Annual Household Expenditure by House Type:

No relation observed between house type and level of expenditure as expenditure difference between households having kutcha, pucca and mixed type is insignificant (between kutcha and pucca: $p>0.05$, sig.: .246; between kutcha and mixed: $p>0.05$, sig.: .229; between pucca and mixed: $p>0.05$; sig.: .979). similar trend observed in case of control (kutcha and pucca: $p>0.05$, sig.: .109; kutcha and mixed: $p>0.05$, sig.: .684; pucca and mixed: ($p>0.05$, sig.: .544)

4.18.4 Annual Household Expenditure by Women Headed Households:

The average annual expenditure of male headed households is comparatively higher than female headed households. The difference in average annual household expenditure between male and female headed household is also significant ($p<0.05$; sig.: .000) in intervention areas which confirms that households headed by male have better spending capacity in comparison to households headed by female. Significant difference between male and female headed households is not observed in control group ($p>0.05$, sig.: .145).

4.18.5 Expenditure by Land Holding Categories:

Among different land holding categories, average annual expenditure of medium farmers is highest among all the land holding groups, followed by semi-medium, small and marginal farmer. Annual household expenditure difference is significant between marginal farmer and other holding categories ($p<0.05$; sig.: .000), excluding marginal farmer and landless ($p>0.05$; sig.: .999). Household expenditure different is not significant between small and semi-medium farmer ($p>0.05$; sig.: .887) but significant between small and medium farmer ($p<0.05$; sig.: .000). Expenditure difference also observed significant between farmers of semi-medium and medium category ($p<0.05$; sig.: .000). In case of control, difference is observed between marginal and medium farmer ($p<0.05$, sig.: .000), between small and medium farmer ($p<0.05$, sig.: .000) and between semi-medium and medium farmer ($p<0.05$, sig.: .041)

Looking by operational holding, it is evident that landless households who have been operating other land (share in, leased in, other land types), have higher expenditure in comparison to marginal farmers. The expenditure trend remains same in rest of the holding categories, i.e., medium farmers have better expenditure among others, followed by semi-medium and small farmers. Difference in amount of expenditure is significant between landless and medium farmer ($p<0.05$; sig.: .000), marginal and other farmers ($p<0.05$; sig.: .000), excluding landless; small and marginal farmers ($p<0.05$; sig.: .000); small and medium farmers ($p<0.05$; sig.: .000); semi-medium and marginal farmers ($p<0.05$; sig.: .000); semi-medium and medium farmers ($p<0.05$; sig.: .000); and medium and all other land holding (farmer) categories ($p<0.05$; sig.: .000). In control, significant difference in expenditure level observed in case of landless and semi-medium farmer ($p<0.05$, sig.: .038), landless and medium farmer ($p<0.05$, sig.: .001), marginal and semi-medium farmer ($p<0.05$, sig.: .015), marginal and medium farmer ($p<0.05$, sig.: .000) and between small and medium farmer ($p<0.05$, sig.: .004).

4.19 Indebtedness:

The households have been taking credit from different formal and semi-formal / informal sources to meet their financial requirements. A maximum of about 36.18 percent families in control and 31.37 percent families in intervention were found to have credit from single or multiple sources. Among different sources, credit taken by families from money lender/s observed comparatively less (control: 3.62 percent, intervention: 1.81 percent) than other emerging / established credit sources. Credit from banks / formal financial institutions is accessed by 6.91 percent families in control and 13.12 percent in intervention, whereas credit from cooperatives (agricultural cooperatives) is accessed by 13.49 percent households in control and 14.63 percent in intervention. Local SHGs have been the primary lender to majority of the households as most of the households have membership in the SHG. Around 36.18 percent households have taken credit from SHGs in control and 31.37 percent in intervention. Taking credit from relative / friends (control: 11.84 percent households; intervention: 7.09 percent households), credit from agricultural input shops (control: 0.99 percent households; intervention: 0.60 percent households) and from different local traders (control: 0.33 percent households, intervention: 0.15 percent households) is also observed. Cumulatively, taking all the sources together, 81.25 percent households in control and 77.98 percent in intervention are having credit outstanding.

Table 128: Average Credit Outstanding by Households; OFSDP II

Credit Sources	Households (%)			Average Outstanding (Rs.)		
	Control	Intervention	Total	Control	Intervention	Total
Money Lender	3.62	1.81	2.38	17,727.27	14,108.33	15,839.13
Bank	6.91	13.12	11.17	1,30,990.48	75,224.83	86,068.15
Cooperative	13.49	14.63	14.27	32,492.68	32,170.10	32,265.94
SHG/Federations	36.18	31.37	32.89	13,519.55	10,811.91	11,748.52
Relatives/Friends	11.84	7.09	8.58	22,888.89	30,510.64	27,204.82
Ag. Input Shop	0.99	0.60	0.72	3,666.67	3,255.00	3,431.43
Local Traders	0.33	0.15	0.21	21,000.00	3,000.00	12,000.00
Shops	4.28	5.88	5.38	5,203.85	2,258.97	2,995.19
Others	3.62	3.32	3.41	25,909.09	21,403.27	22,905.21

Amount of credit taken from different sources varies depending upon the need and sanctioned by credit providing entity. Average credit amount outstanding per household is observed to be highest among all the sources in case of banks (control: Rs. 1,30,990.48, intervention: Rs. 75,224.83) and cooperatives (control: Rs. 32,492.68; intervention: Rs. 32,170.10) followed by relatives / friends (control: Rs. 22,888.89, intervention: Rs. 30,510.64). Though SHGs have been one of the prime credits providing institutions at the local level, average credit outstanding per household who have taken credit from SHG has been low in comparison to some other credit sources.

Table 129: Credit Outstanding by Social Category; OFSDP II

Credit Sources	Control (HH %)				Intervention (HH %)			
	SC	ST	OC	Total	SC	ST	OC	Total
Money Lender	5.13	1.42	5.65	3.62	2.27	1.58	2.09	1.81
Bank	5.13	3.55	11.29	6.91	6.82	12.11	15.90	13.12
Cooperative	2.56	4.96	26.61	13.49	20.45	10.79	19.67	14.63
SHG/Federations	43.59	31.91	38.71	36.18	29.55	30.26	33.47	31.37
Relatives/Friends	5.13	9.22	16.94	11.84	13.64	4.21	10.46	7.09
Ag. Input Shop	0.00	0.71	1.61	0.99	0.00	0.79	0.42	0.60
Local Traders	0.00	0.00	0.81	0.33	0.00	0.26	0.00	0.15
Shops	7.69	1.42	6.45	4.28	2.27	3.95	9.62	5.88
Others	2.56	0.71	7.26	3.62	4.55	2.37	4.60	3.32

Table 130: Average Amount of Credit Outstanding by Social Category; OFSDP II

Credit Sources	Control (Rs.)				Intervention (Rs.)			
	SC	ST	OC	Total	SC	ST	OC	Total
Money Lender	36,000.0	3,000.0	16,714.3	17,727.3	30,000.0	6,966.7	19,500.0	14,108.3
Bank	15,000.0	35,000.0	1,81,842.9	1,30,990.5	35,666.7	88,251.3	62,578.9	75,224.8
Cooperative	2,00,000.0	30,285.7	27,884.8	32,492.7	27,000.0	30,658.5	34,478.7	32,170.1
SHG/Federations	8,741.2	11,592.4	17,018.5	13,519.5	13,192.3	10,271.5	11,201.9	10,811.9
Relatives/Friends	27,500.0	10,846.2	29,904.8	22,888.9	20,500.0	7,125.0	47,880.0	30,510.6
Ag. Input Shop		2,000.0	4,500.0	3,666.7		3,423.3	2,750.0	3,255.0
Local Traders			21,000.0	21,000.0		3,000.0		3,000.0
Shops	1,583.3	1,850.0	7,400.0	5,203.8	1,000.0	2,233.3	2,330.4	2,259.0
Others	7,000.0	5,000.0	30,333.3	25,909.1	23,000.0	18,096.9	23,818.2	21,403.3

Looking at the credit accessibility and outstanding by social stratification, it is evident that families belonging to OC have better accessibility to banking system (11.29 percent) and cooperatives (26.61 percent) in comparison to SC (banking: 5.13 percent; cooperative: 2.56 percent) and ST (banking: 3.55 percent; cooperative: 4.96 percent) families in control. Similar situation is also observed in case of intervention areas in case of access to credit from banking sources. In control areas, credit support by relative / friends is also higher in case of OC (16.94 percent) in comparison to other social groups (SC: 5.13 percent; ST: 9.22 percent). But credit accessibility in case of SHG is more or less same in case of OC (control: 38.71 percent, intervention: 33.47 percent) and ST (control: 31.91 percent, intervention: 30.26 percent) whereas percentage of SC families (43.59 percent) have better accessibility to SHG based credit in control. In intervention, credit outstanding with SHGs have been higher in case of SC and OC families in comparison to ST. Households (percentage of households) by social categories having credit outstanding by source and amount (Rs.) is presented in the matrix.

Table 131: Credit Outstanding by Economic Category; OFSDP II

Credit Sources	Control (HH %)			Intervention (HH %)		
	Poor	Non-Poor	Total	Poor	Non-Poor	Total
Money Lender	3.90	0.00	3.62	1.94	0.00	1.81
Bank	6.38	13.64	6.91	12.80	17.39	13.12
Cooperative	14.18	4.55	13.49	14.26	19.57	14.63
SHG/Federation	37.94	13.64	36.18	31.93	23.91	31.37
Relatives/Friends	12.41	4.55	11.84	7.62	0.00	7.09
Ag. Input Shop	1.06	0.00	0.99	0.65	0.00	0.60
Local Traders	0.35	0.00	0.33	0.16	0.00	0.15
Shops	3.90	9.09	4.28	6.16	2.17	5.88
Others	3.19	9.09	3.62	3.40	2.17	3.32

Note: Poor refers to families having ration card and non-poor refers to families not having ration card

Further, in case of poor and non-poor households, bank credit outstanding is higher in case of non-poor in both control and intervention along with credit outstanding with cooperatives in intervention. But percentage of poor households having credit outstanding with SHG is more than non-poor in

intervention as well as in control. Percentage of poor and non-poor households having credit outstanding, and amount of credit outstanding is presented in the matrix.

Table 132: Average Amount of Credit Outstanding by Economic Category; OFSDP II

Credit Sources	Control (Rs.)			Intervention (Rs.)		
	Poor	Non-Poor	Total	Poor	Non-Poor	Total
Money Lender	17,727.27		17,727.27	14,108.33		14,108.33
Bank	1,14,944.44	2,27,266.67	1,30,990.48	62,437.47	2,01,500.00	75,224.83
Cooperative	32,680.00	25,000.00	32,492.68	29,982.95	53,555.56	32,170.10
SHG/Federation	12,777.10	40,000.00	13,519.55	10,649.13	13,727.27	10,811.91
Relatives/Friends	22,971.43	20,000.00	22,888.89	30,510.64	-	30,510.64
Ag. Input Shop	3,666.67	-	3,666.67	3,255.00	-	3,255.00
Local Traders	21,000.00	-	21,000.00	3,000.00	-	3,000.00
Shops	4,604.55	8,500.00	5,203.85	2,234.21	3,200.00	2,258.97
Others	23,333.33	37,500.00	25,909.09	21,184.38	26,000.00	21,403.27

Note: Poor refers to families having ration card and non-poor refers to families not having ration card

4.20 Migration:

Migration, in general, refers to movement of people from one's native place to other places with an intention to get a better scope of living along with other amenities of life. While "prospect-oriented" migration is observed with people having specific market exchangeable skill sets, "distress migration" comprise of people who are forced to migrate due to situational compulsion. It is basically the landless families, wage labourers, seasonally unemployed labourers, agricultural labourers etc. who are compelled to migrate, and, in many cases, it is primarily people belonging to socially backward classes like scheduled caste and scheduled tribes who resort to migration. Based on the nature of migration, the migrants can be grouped in to three broad categories, i.e., enforced migrants, voluntary migrants and distress migrants. The migrants who migrate because of the external forces are enforced migrants.

The labourers who are forced to migrate and accept the work (any work assigned to them at the migrated place) are the migrants of the enforced category. The second category of migrants (voluntary migrants) include the people who choose migration as a better option with an intent of having better education, job and to settle themselves. These migrants are prospect-oriented migrants, migrating with aspiration for improved quality of life. The third category of migrants (distress migrants) are caused due to deprivation and absence of livelihood in a particular region. Migrants under this category leave their native place due to poverty, absence of better alternatives, natural hazards like crop failure, flood, drought and other natural calamities.

Inter-State or intra-State migration, including rural-urban migration is not uncommon in Odisha. The KBK area, which also comprises scheduled area, is nationally known for distress migration. In the studied area, migration is not that rampant. It is observed that members from 10.53 percent households in control and 10.86 percent households in intervention migrate to different places in search of employment, leaving their original place of residence. Place of migration has been to States like Andhra Pradesh, Karnataka, Kerala, Gujarat, Tamil Nadu, Maharashtra etc. People also found migrating to different districts within the State of Odisha.

Table 133: Households (%) with Migrating Member and Place of Migration; OFSDP II

	HH (%) Having Migrating Person/s		
Place of Migration	Control	Intervention	Total
Andhra Pradesh	0.99	0.60	0.72
Chhattisgarh	-	0.15	0.10
Delhi	-	0.45	0.31
Goa	-	0.15	0.10
Gujarat	2.96	1.36	1.86
Inside Odisha	1.64	2.11	1.96
Karnataka	1.64	1.96	1.86

	HH (%) Having Migrating Person/s		
Place of Migration	**Control**	**Intervention**	**Total**
Kashmir	0.33	-	0.10
Kerala	1.32	1.06	1.14
Maharashtra	0.33	0.45	0.41
Other / Not Specific	-	0.45	0.31
Sikkim	-	0.15	0.10
Tamil Nadu	1.32	1.96	1.76
Total	**10.53**	**10.86**	**10.75**

In many villages, migration of both male and female is observed where exclusive migration of female is very minimal and, in most cases, it is with the male members. Number of households having male and female migrants is presented in the matrix. It is evident that some households have more than one migrant whereas some other households have only one migrant.

Table 134: Households (%) having Male & Female Migrants; OFSDP II

Place of Migration	**Households (%) Having Male and Female Migrants**					
	Control		**Intervention**		**Total**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Andhra Pradesh	0.99		0.60		0.72	
Chhattisgarh			0.15		0.10	
Delhi			0.45	0.15	0.31	0.10
Goa			0.15		0.10	
Gujarat	2.96	0.33	1.36		1.86	0.10
Inside Odisha	1.32	0.33	2.11	0.15	1.86	0.21
Karnataka	1.64		1.66	0.60	1.65	0.41
Kashmir	0.33				0.10	
Kerala	1.32		1.06		1.14	
Maharashtra	0.33	0.33	0.45	0.30	0.41	0.31
Other			0.45		0.31	
Sikkim			0.15		0.10	
Tamil Nadu	0.99	0.33	1.96	0.45	1.65	0.41
Total	**9.87**	**1.32**	**10.56**	**1.66**	**10.34**	**1.55**

Average annual income of migrating people (last year) was around Rs. 93,600.00 in control and Rs.83,661.76 in the intervention. People, who migrate within the State for casual labour, receive advance for migrating to the destinated place. Receiving advance is equal to signing the contract for migration and average amount of advance is about Rs. 3,000.00. Some migrating people also found receiving advance to migrate to Kerala, amounting to Rs. 75,000.00 on an average. The advance gets adjusted from their payoff in the migrating places.

Table 135: Income (Rs.) of Migrants (Last Year); OFSDP II

Place of Migration	**Average Annual Income (Rs.)**		
	Control	**Intervention**	**Total**
Andhra Pradesh	3,80,000.00	1,09,000.00	2,25,142.86
Chhattisgarh		12,000.00	12,000.00
Delhi		85,333.33	85,333.33
Goa		7,000.00	7,000.00
Gujarat	62,750.00	1,29,777.78	1,09,153.85
Inside Odisha	45,000.00	68,571.43	63,333.33
Karnataka	38,000.00	85,916.67	73,937.50
Kerala	56,250.00	77,166.67	68,800.00
Maharashtra	2,40,000.00	46,000.00	1,10,666.67
Other	15,000.00	85,333.33	67,750.00
Sikkim		16,000.00	16,000.00
Tamil Nadu	34,250.00	82,666.67	70,562.50
Total	**93,600.00**	**83,661.76**	**86,333.33**

4.21 Potentials for Livelihood Enhancement and Key Challenges:

More than 60% of rural people are dependent of agriculture-based livelihood although the contribution of agriculture output has been nearly 17% only. The non-agriculture livelihood could provide a greater share of profit and employment to such people. The root cause of problem for agricultural dependent income is the increasing number of small holder farmers and land degradation. This leads to reduction in mean plot size and therefore affecting the farm mechanization adversely. The rural non-farm employment includes manufacturing, food industries, automobile repair etc. For livelihood promotion, MGNREGA has been one of the opportunities for providing employment and source of income to people[30].

People / households have different livelihood related requirements, like availability of institutional credit facility is a priority of 15.13 percent households, flexible repayment of institutional credit (second ranked by 44.88 percent), on time credit availability as per the need (ranked second by 39.14 percent) etc. Ranking of livelihood support mechanism is presented in the table.

Table 136: Livelihood Related Requirements; OFSDP II

Control	Intervention
1. Exposure visits for livelihood promotion 2. Required NTFP Collection centre in local area 3. Creation of Wage Employment 4. Loan and Training for IAG Promotion 5. Required skill base training and engagement 6. Irrigation facilities for Agriculture and Horticulture 7. IGA Promotion on Goat Rearing 8. Required training for promotion of mushroom cultivation 9. Training and Loan facilities for Dairy Farming 10. Promotion of Fish Cultivation 11. Required more NREGS work 12. Aggregation Centre 13. Loan facilities for IAG on Poultry 14. Loan for Agriculture & Horticulture cultivation	1. Required training for promotion of mushroom cultivation 2. Required training on Tailoring for IGA Promotion 3. Required NTFP Collection centre in local area 4. Promotion of bee keeping 5. Promotion of Fish Cultivation 6. Required Irrigation facilities for Agriculture 7. Required more NREGS work 8. Promotion of Flory Culture 9. Aggregation Centre 10. Required loan for IGA Promotion 11. Market linkage 12. Exposure visits for livelihood promotion 13. Distribution of High Yield Seeds 14. NTFP Processing Unit 15. Sunflower Processing Unit 16. Training for Incense Stick Making 17. Training on Pickle Making 18. Promotion on Paper Plate Making 19. Required IGA promotion on Poultry, 20. IGA Promotion on Goat Rearing, 21. IGA Promotion on Leaf Plate Making 22. IGA Promotion on Dairy Farming 23. Required Cashew Processing Unit 24. Required Agricultural Value Addition Processing Unit 25. Loan for Agriculture & Horticulture

Table 137: Ranking of Livelihood Related Requirements; OFSDP II

SN	Livelihood Related Requirements	Rank 1	Rank 2	Rank 3
1	Institutional Credit (From Bank / Financial Institutions)	15.13	28.95	55.92
2	Flexible Repayment of Credit	8.58	44.88	46.53
3	Availability of Credit during Requirement (Timely)	10.86	39.14	50.00
4	Amount of Credit as per the Need	7.89	37.17	54.93
5	Generation of Business Ideas	23.36	36.18	40.46
6	Skill Based Training (Market Driven / Employable Skill)	28.71	28.38	42.90
7	Storage Structure for Harvested Produces	33.55	38.49	27.96
8	Linkage with Remunerative Market	26.82	38.74	34.44
9	Processing Unit for Commodities	33.55	35.53	30.92
10	Scope for Direct Selling in Different Other Markets	22.77	39.27	37.95
11	Transportation Facility to Market	15.18	48.18	36.63
12	Cold Storage for Fruits / Vegetables	38.94	36.63	24.42

[30] Prabhu Pingali et. al. Transforming Food Systems for a Rising India. 2019

SN	Livelihood Related Requirements	Rank 1	Rank 2	Rank 3
13	Support for Market Driven Production System	29.87	45.97	24.16
14	NTFP Storage Unit	32.67	29.70	37.62
15	NTFP Processing / Value Addition Unit	27.06	31.68	41.25
16	Product Specific Cluster Development	30.90	37.87	31.23
17	Input Support in Subsidized Rate	26.73	29.04	44.22
18	Livelihood Diversifications (IGA Support Mechanism)	28.48	43.38	28.15
19	Training on Business Promotion and Management	27.24	48.50	24.25
	Average Score	**24.65**	**37.77**	**37.58**

Note: Rank 1 refers to priority 1; Rank 2 refers to priority 2; and Rank 3 refers to priority 3

To understand key livelihood related issues and its relation to different seasons of a year, different livelihood related aspects were mapped by month. Responses of households (percentage of households) by different issues and its seasonal / monthly occurrence is presented in the matrix.

Table 138: Seasonality of Livelihood Issues; OFSDP II

Key Aspects		Agricultural Wage	Daily Wage	Crop Pest / Disease	Crop Loss due to Wild Animals	Abundant Agricultural Wage	Scarce Agricultural Wage	Abundant Daily Wage	High Market Price of Agricultural Crops	High Market Price of Horticultural Crops	High NTFP Production / Collection	High Market Price of NTFPs	Consumption Credit Requirement	Production Credit Requirement
Baisakha (Apr-May)	C	8.3	87.5	0.0	16.7	8.3	37.5	37.5	12.5	25.0	33.3	58.3	29.2	16.7
	I	8.4	85.5	0.0	19.1	14.5	30.5	38.2	6.9	16.8	34.4	53.4	23.7	10.7
	T	8.4	85.8	0.0	18.7	13.5	31.6	38.1	7.7	18.1	34.2	54.2	24.5	11.6
Jaistha (May-Jun)	C	8.3	87.5	0.0	16.7	8.3	33.3	33.3	12.5	33.3	12.5	33.3	33.3	16.7
	I	9.9	82.4	0.0	19.8	14.5	26.0	35.1	6.1	22.9	14.5	35.1	24.4	7.6
	T	9.7	83.2	0.0	19.4	13.5	27.1	34.8	7.1	24.5	14.2	34.8	25.8	9.0
Ashara (Jun-Jul)	C	91.7	83.3	20.8	20.8	45.8	4.2	12.5	0.0	25.0	8.3	37.5	16.7	20.8
	I	84.7	83.2	9.9	23.7	46.6	14.5	19.1	4.6	21.4	6.9	36.6	13.7	9.9
	T	85.8	83.2	11.6	23.2	46.5	12.9	18.1	3.9	21.9	7.1	36.8	14.2	11.6
Shrabana (Jul-Aug)	C	91.7	70.8	41.7	16.7	50.0	4.2	12.5	0.0	20.8	12.5	45.8	20.8	16.7
	I	93.9	80.2	43.5	22.9	54.2	8.4	20.6	3.1	22.9	5.3	41.2	17.6	10.7
	T	93.5	78.7	43.2	21.9	53.5	7.7	19.4	2.6	22.6	6.5	41.9	18.1	11.6
Bhadrab (Aug-Sep.)	C	75.0	70.8	75.0	25.0	41.7	4.2	8.3	0.0	33.3	12.5	37.5	25.0	12.5
	I	71.0	83.2	68.7	26.0	37.4	4.6	16.8	1.5	30.5	6.1	38.2	23.7	12.2
	T	71.6	81.3	69.7	25.8	38.1	4.5	15.5	1.3	31.0	7.1	38.1	23.9	12.3
Ashwina (Sep.-Oct.)	C	70.8	70.8	54.2	45.8	33.3	8.3	8.3	0.0	33.3	4.2	20.8	4.2	8.3
	I	64.9	82.4	45.0	39.7	31.3	6.9	16.0	2.3	32.1	7.6	30.5	10.7	9.9
	T	65.8	80.6	46.5	40.6	31.6	7.1	14.8	1.9	32.3	7.1	29.0	9.7	9.7
Kartika (Oct.-Nov.)	C	83.3	70.8	16.7	83.3	25.0	8.3	4.2	0.0	16.7	4.2	20.8	0.0	0.0
	I	72.5	76.3	10.7	81.7	27.5	8.4	13.7	3.8	22.1	7.6	27.5	1.5	4.6
	T	74.2	75.5	11.6	81.9	27.1	8.4	12.3	3.2	21.3	7.1	26.5	1.3	3.9
Margasira (Nov.-Dec.)	C	79.2	70.8	4.2	70.8	29.2	8.3	4.2	29.2	4.2	8.3	20.8	4.2	41.7
	I	66.4	78.6	0.8	74.0	29.0	13.0	15.3	31.3	8.4	7.6	24.4	3.8	40.5
	T	68.4	77.4	1.3	73.5	29.0	12.3	13.5	31.0	7.7	7.7	23.9	3.9	40.6
Pousa (Dec.-Jan)	C	12.5	70.8	0.0	33.3	4.2	33.3	29.2	41.7	0.0	8.3	25.0	8.3	33.3
	I	26.0	77.9	0.0	38.2	13.0	29.0	30.5	41.2	1.5	3.8	24.4	13.0	30.5
	T	23.9	76.8	0.0	37.4	11.6	29.7	30.3	41.3	1.3	4.5	24.5	12.3	31.0
Magha (Jan-Feb)	C	8.3	83.3	0.0	16.7	8.3	25.0	33.3	29.2	0.0	8.3	29.2	12.5	16.7
	I	9.9	85.5	0.0	24.4	12.2	23.7	32.8	26.0	0.0	6.9	31.3	12.2	9.2
	T	9.7	85.2	0.0	23.2	11.6	23.9	32.9	26.5	0.0	7.1	31.0	12.3	10.3
Phalguna (Feb-Mar)	C	8.3	83.3	0.0	16.7	8.3	25.0	33.3	8.3	4.2	8.3	41.7	12.5	12.5
	I	9.9	87.8	0.0	19.8	11.5	23.7	29.8	7.6	3.8	14.5	38.9	13.7	6.1
	T	9.7	87.1	0.0	19.4	11.0	23.9	30.3	7.7	3.9	13.5	39.4	13.5	7.1
Chaitra (Mar-Apr)	C	16.7	83.3	0.0	16.7	8.3	25.0	33.3	0.0	4.2	25.0	58.3	25.0	12.5
	I	11.5	87.8	0.0	19.8	13.7	24.4	29.8	3.1	3.8	31.3	47.3	26.7	5.3
	T	12.3	87.1	0.0	19.4	12.9	24.5	30.3	2.6	3.9	30.3	49.0	26.5	6.5

Note: C: Control, I: Intervention, T: Total

Table 139: Required Support for Livelihood Promotion; OFSDP II

SN	Parameter	Control	Intervention
1	Training for promotion of mushroom cultivation	Ö	Ö
2	Provide loan and Training on Tailoring	Ö	Ö
3	Required NTFP Collection centre in local area	Ö	Ö
4	Promotion of Bee keeping		Ö
5	Promotion of Fishery	Ö	Ö
6	Irrigation facilities for Agriculture and Horticulture	Ö	Ö
7	More Wage days under MGNREGS	Ö	Ö
8	Promotion of Floriculture		Ö
9	Establishing Aggregation Centre	Ö	Ö
10	Loan for IGA Promotion	Ö	Ö
11	Market linkage of Agricultural Product		Ö
12	Exposure visits for livelihood promotion	Ö	Ö
13	Distribution of High Yield Seeds		Ö
14	NTFP Processing Unit		Ö
15	Sunflower Processing Unit		Ö
16	Training for Incense Stick Making		Ö
17	Promotion of Onion Cultivation		Ö
18	Promotional Support-Bidi Making		Ö
19	Training and market linkage on Pickle Making		Ö
20	Loan for Cashew Trading Business		Ö
21	Paper Plate Making Training & Support		Ö
22	Poultry Farming (IGA Promotion)	Ö	Ö
23	Goat Rearing (IGA Promotion)	Ö	Ö
24	Leaf Plate Making (IGA Promotion)		Ö
25	Dairy Farming (IGA Promotion)	Ö	Ö
26	Cashew Processing Unit		Ö
27	Agricultural Value Addition Processing Unit		Ö
28	Loan for Agriculture & Horticulture cultivation	Ö	Ö

4.22 Conclusion:

To improve the livelihood condition of people, challenges of productivity, fragmented land, unskilled labour and technological gap should be addressed. The persisting challenges may be taken up in such a manner that the duration of livelihood insecure period is reduced with improved employment and income. The livelihood solutions would be more sustainable when supplementary source of income is promoted along with the current sector of engagement. As discussed, the participation of women in labour force is high but their level of income (direct cash income) has been low which can be improved through their engagement in profitable sectors with required skill base. In addition to this, the NTFP market is strong but yet not harnessed to the potential and even if that happens the sustainability will be the major concern and therefore multi fold solutions are required in the form of organizational support for resolving problems of poor livelihood and income sources.


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Section Five: Conclusion and Way Forward:

1. Degradation of forest resource is attributed to several factors but at the same time, measures have been undertaken to reduce such degradation and to improve the green cover. ANR measures have been taken along with block plantation. Looking objectively, these measures are intended not only for maintaining green cover, but also provide livelihood support to the forest fringe dwellers. Contextually, farm forestry models have also been promoted through VSS. But adoption rate has been poor due to various reasons. It is important that the apprehensions of people in this regard should be addressed amicably through exposure, business model development, educating people on long-term and short-term economic benefits and overall environmental benefits of farm forestry.

2. Human and animal conflict observed persisting in many villages for which farmers of certain category are compelled to keep their land barren. As marginal and small holding is high, enhanced cropping intensity by keeping the wild animals away from agriculture could be helpful to enhance people's livelihood by improving farm production and productivity. As crop loss due to wild animals is a common phenomenon, this could also be an input for adoption of farm forestry model with careful selection of species that get less impacted due to wild animals. Secondly, low crop intensity will also have an impact on the proposed development of production clusters, taking agricultural and horticultural produces, as volume of production for cluster development is important. Hence, careful planning is required in cluster development where emphasis can be given more on aggregation and value addition of forest and farm produces along with creating skill-based employment. However, it is also important to take concrete measures that reduces human animal conflict.

3. The biodiversity index reflects upon the practice of mono species plantation or poor plant diversity, even in plantation sites. Certain sites taken up under silvicultural operations also reflect low index value. So, it is pertinent that areas with poor plant diversity will be emphasised in coming years. To improve the biodiversity index, area / VSS specific focus is essential, and the project may examine the current level of biodiversity and an achievable plan can be prepared as a part of the micro plan to improve biodiversity.

4. The VSS and SHG, as community organisations, are found having poor functional linkage due to limited scope of working together and benefitting from each other. Objectively, both have been promoted and strengthened to serve specific purposes. While forest management has been the prime objective of VSS, thrift and credit are the core functions of SHGs. Functional domains of both the community organisations are different and hence points of association, as community organisations is expected to be in specific areas. The functional linkage could be through operational convergence like income generation, value addition and processing of NTFP, participation in cluster development measures, product marketing etc. It is expected that with increased project support, degree of association of these organisations will improve.

5. Involvement of SHGs or its members in different IGAs is observed to be limited to certain groups or members within the group. Secondly, credit investment by the members in majority cases is in agricultural activity. It indicates that agricultural investment requirement remains high for which accessed credit is mostly used for agricultural purposes. It also indicates that availability of credit for agricultural purposes is either inadequate or it is not available to majority of the families. In general, IGA is expected to be a supplementing livelihood activity that provide additional income to the family and support in managing and mitigating the distress situation. Looking at the prevailing situation, promotion of off-farm or non-farm based IGA

may require a separate strategy where association of private bodies may be encouraged. The private bodies may be encouraged to invest in potential sectors; engage the community organisations, including VSS; provide the technical and managerial support; and at the time of need also buy back the produces.

6. Cluster development has been one of the focused interventions under OFSDP II for strengthening additional income generation opportunities of people. Looking at the current level of production and even taking in to account the production enhancement potentials in agriculture and horticulture, it appears that village specific production cluster development would not be feasible. Even considering a group of nearby villages for developing a cluster around agricultural and horticultural produce will also be less beneficial. The reason being low volume of production, poor infrastructural facility for storage, no emphasis on market driven production system and poor commodity management practices. In cluster development approach, it may be helpful if focus of production system would be on high value crops that can cater to the need of specific market segment, and it is produced in volume to maintain the supply chain. Market driven post-harvest management practices would further add value to the overall approach.

7. In some of the villages, NTFP based cluster development potential is found to be emerging and expected to be beneficial for the people. Contextually, such initiative may be converged with Ban Dhan Vikas Kendras (BDVK) scheme of Govt. of India to leverage funds for establishing processing and value addition units. Infusion of advance technology in processing, value addition and preparation of market driven products would fetch a good return to the SHGs / VSS on their investment.

8. Employment opportunities can be created through skill development measures, focusing upon specific skill sets that have high market exchangeable potential. Along with skill development, it is equally important to facilitate forward linkages like development of bankable business plan, credit provisioning, rendering hand holding support, periodic inputs for skill enhancement etc. The proposed cluster development initiatives can also be developing skill-based clusters that provide service support to the nearby township and villages along with the development of product clusters.

9. Different livelihood related issues / challenges are found prevailing in different seasons and it may be addressed, based on most feasible solutions to reduce distress and minimise livelihood related insecurity. For example, when availability of wage is less, especially for wage earners, different wage-based employment can be provided under MGNREGA or by engaging them in different forest-based activities.

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OFSDP - II


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Annexure 1: List of Observed Plants

SN	Plants Observed		SN	Plants Observed	
	Local Name	**Scientific Name**		**Local Name**	**Scientific Name**
1	Acacia	*Acacia mangium*	21	Khaira	*Senegalia catechu*
2	Ainla	*Phyllanthus emblica*	22	Kumbhi	*Careya arborea*
3	Ambada	*Spondias dulcis*	23	Kusuma	*Schleichera oleosa*
4	Arjuna	*Terminalia arjuna*	24	Limba	*Azadirachta indica*
5	Asana	*Terminalia tomentosa*	25	Mahalimba	*Melia azedarach*
6	Bada Chakunda	*Cassia siamea*	26	Mahula	Madhuca indica
7	Bahada	*Terminalia belleirica*	27	Mango	*Mangifera indica*
8	Bamboo	*Dendrocalamus strictus*	28	Ou	*Dillenia indica*
9	Barakoli	*Ziziphus mauritiana*	29	Phasi	*Anogeissus acuminata*
10	Bobul	*Vachellia nilotica*	30	Piasala	*Pterocarpus indicus*
11	Kaju (Cashew)	*Anacardium occidentale*	31	Sala	*Shorea robusta*
12	Chakunda	*Cassia occidentalis*	32	San Chakunda	*Cassia occidentalis*
13	Dhala Sirisha	*Albizia procera*	33	Simaruba	*Simarua glauca*
14	Gambhari	*Gmelina arborea*	34	Sirisa	*Albizia lebbeck*
15	Jackfruit	*Artocarpus heterophyllus*	35	Sisu	*Dalbergia sissoo*
16	Jamu	*Syzygium cumini*	36	Subabul	*Leucaena leucocephala*
17	Kaintha	*Limonia acidissima*	37	Sunari	*Cassia fistula*
18	Kala Sirisha	*Albizia lebbeck*	38	Tamarind	*Tamarindus indica*
19	Kanchana	*Bauhinia variegate*	39	Teak	*Tectona grandis*
20	Karanja	*Millettia pinnata*			
Note: Plants observed in different Study Areas / Forest Ranges					


OFSDP - II
TRAINING ON COMMUNITY MOBILISATION


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Household Schedule

A. Background Information							
1 District:				2. Forest Circle:			
3. Block				4: Forest Division			
5. GP				6. Forest Range			
7 Village/Hamlet:				8 HOH Name:			
9. Social Category:	SC	ST	OC	10. Economic Category	1.BPL	2.APL	3.Other
11. Member in VSS	Yes	No	Don't Know	12.Member in SHG	Yes	No	Don't Know

B. Demographic Composition

Name	Age	Sex (M / F)	Relation with HOH	Education	Skill Base (Y/N)	Primary Occ.	Secondary Occ.	Tertiary Occupation
1								
2.								
3.								
4.								
5.								
6.								
7.								
8.								

Education: 1-Illiterate, 2-Literate, 3- Primary, 4-UP, 5-High School, 6-College, 7-Technical Education, 8-Other (Specify)
Note: If any member of the household is having any skill set, please specify the skill set

C. Household Assets and Amenities

1. House Ownership	1.Own	2.Rented	3.Other	2. House Type	1.Kutchha	2.Pucca	3.Mixed
3. No. of Rooms		4. Having Toilet	Yes / No	5. Household Electrified	1.Yes	2.No	
6. Hours of Power Supply Per Day (if supplied)				7. Power Quality	1.Poor/Fluctuation	2. Normal	
8. Drinking Water	1.Tube/Bore Well	2.Pond/Nala	3.Open Well	4.River/Stream	5.Pipe water	6.Other	
9. Fuel Used for Cooking	1.Cow Dung	2.Gas	3.Woods	4.Electricity	5.Straw	6.Other	
10. Housing constructed by:	Self / Govt.	11. Drinking Water:		1.Own Source	2.Comunity Source	3.Other	
12. Ag. Land Holding (Ac.)		13. Homestead Land (Ac.)			14.Total Land (Ac.)		
15. Irrigated Ag. Land (Ac.)	Ac.		16. Un-irrigated Ag. Land (Ac.)				

D. Agriculture and Agroforestry (Area in Acre, Production in Quintal)

Total Land Holding		Own Land:		Other Land:
Total Holding of Ag. Land (Ac.)	Total:		High:	Medium: / Low:
Total Cultivable Land:	Total Uncultivable Land		Total Cultivated Land:	Cultivable Waste Land:
Area Irrigated (Ac.)	1.Kharif		2.Rabi	3.Summer
Means of Irrigation	1.Kharif		2.Rabi	3.Summer
Do you practice agroforestry	Yes / No		If Yes, area under agroforestry	Ac.
Type of trees / shrubs planted	1.	2.	3.	4. / 5.
Key benefits of agroforestry	1.		2.	3.
Reasons, if not doing agroforestry	1.		2.	3.
Current use of uncultivable land	1.		2.	3.
Current use of cultivable waste	1.		2.	3.

Agricultural	**Kharif:**		**Rabi:**		**Summer:**		**Total**	
Field Crops & Plantation Crops	**Area**	**Production**	**Area**	**Production**	**Area**	**Production**	**Area**	**Production**
1.								
2.								
3.								
4.								
5.								
Total								

Produce Consumption and Selling Out

Particulars	**Kharif (Name the Crop)**			**Rabi (Name the Crop)**			**Summer (Name the Crop)**		
	C.1	**C.2**	**C.3**	**C.1**	**C.2**	**C.3**	**C.1**	**C.2**	**C.3**
Total Production (Qt.)									
Own Consumption (Qt.)									
Immediate sell out volume (Qt.)									
Place of sell out									
Average price per KG									
Late sell out volume (Qt.)									
Place of sell out									
Average price per KG									
Total Income (Rs.)									

E. Land Under FRA

Have you got land under FRA?	Yes / No	If Yes, Year of Getting Land Allotment		
Year of Getting ROR		Year of Getting Land Possession		
Total Land Given under FRA (in Acre)		Distance of Land from Home (in Km.)		
Agriculture Land Area (in Ac):		Homestead Land Area (in Decimal):		
Current Use of Homestead Land	1.Constructed House	2.Clutivating / Farming	3. Given to Other	4. Mortgaged
	5. Yet to be Utilized	6. Sold Out	7. Other (Specify)	8. Other (Specify)
Current Use of Agricultural Land	1.Constructed House	2.Clutivating / Farming	3. Given to Other	4. Mortgaged
	5. Yet to be Utilized	6. Sold Out	7. Other (Specify)	8. Other (Specify)

Suitability of Homestead Land for House Construction	1. Suitable	2. Not Suitable
Suitability of Agricultural Land for Farming	1. Suitable	2. Not Suitable

Type of Crops Grown on Agricultural Land under FRA (**If Land is under Cultivation**)

Kharif			**Rabi**			**Summer**		
Crop Type	**Area (Ac.)**	**Production (Qt.)**	**Crop Type**	**Area (Ac.)**	**Production (Qt.)**	**Crop Type**	**Area (Ac.)**	**Production (Qt.)**
1.			1.			1.		
2.			2.			2.		
3.			3.			3.		
4.			4.			4.		
5.			5.			5.		

Annual Income from Agricultural Land Under FRA (Rs.)	1.Kharif	Rs.	2.Rabi	Rs.	3.Summer	Rs.

Do you / your family members involve in any artisan work	Yes / No	If Yes, Specify Type		
Years of Association in artisan work		Annual income from artisan work (Rs.)		Rs.

F. HH Assets

Durable Asset Type	**Yes / No**	**Livestock Asset Type**	**Yes / No**	**Farm Implements**	**Yes / No**
1.Mobile Phone		1.Cow/ Buffalo		1.Power Tiller	
2.Television		2.Bullock		2.Tractor	
3.Refrigerator		3.Goat/Sheep		3.Harvester	
4.Bike/Two-Wheeler		4.Poultry/Chicken		4.Pump Set	
5.Four-Wheeler		5.Pig		5.Thresher	
6.Three-Wheeler		6.Other		6.Spray Machine	
7.Cycle				7.Other	
8.Air Condition					
9.Fan					
10.Water Filter					
11.Computer/Laptop					
12. Other					

G. Government Benefit Accessibility

Scheme / Program Provisions		**Benefited (Yes/No)**	**Scheme / Program Provisions**		**Benefited (Yes/No)**
1			**4.**		
2.			**5.**		

3.			**6.**		

H. Skill Based Training				
Have you received any training?			If Yes, Specify Trade	
When did you get Training (Year of Training)			Period of Training (in Months)	
Did you get Employment after Training	Yes	No	If Yes, Place of Employment	
Reasons, if not get Employment after Training				
Monthly Remuneration from Skill Based Employment			Rs.	
Monthly Remuneration from Skill Based Self Employment			Rs.	

I. IGA Business Economics (If Involved in IGA)				
Name of IGA you are Involved in			Year of Inception of IGA	
Type of IGA	1.Individual	2.Group	No. of Persons Engaged in IGA	
Who Manages the IGA	1.Male Member of the HH		2.Female Member of the HH	3.Both Male & Female
IGA is Seasonal or Annual	Seasonal	Annual	Monthly Income from IGA (Rs.)	
Days of Engagement in IGA	Per Week		Per Month	
Any family member is in SHG?	1.Yes	2.No	If Yes, Year of Joining SHG	
Who is the Owner of IGA			1.Male	2.Female	3.Both

Cash Inflow	**Monthly**	**Quarterly**	**Total Annual Sell**	**Cash Out flow (Annual)**	**Cost (Rs.)**
Units of Sell (No):				House Rent	
Total Value of Sell (Rs.):				Electricity	
Gross Income (Rs.):				Labour Cost	
Net Income (Rs.):				IGA Input Procurement	
Total Inflow				Repair & Maintenance of Machinery/Equipment	
				Other (specify)	
				Total outflow	
				Net Profit:	

J. Household Expenditure					
Heads of Expenditure	**Monthly (Rs.)**	**Annually (Rs.)**		**Monthly (Rs.)**	**Annually (Rs.)**
1. Food			8.Credit Repayment		
2.Clothing			9. Mobility (For Job Etc.)		
3.Health			10. Social (Life Cycle) / Religious		
4. Education			11. HH Assets		
5. Entertainment			12. Utility Payment (Bills)		
6.House Construction/ Maintenance			13. Others 2		
7. Ag. / Business Investment			14. Others 1		

K. Annual Household Income (Rs.)					
Source of Income	**Annual Income (Rs.)**		**Source of Income**	**Annual Income (Rs.)**	
1. Agriculture			7. Permanent Job		
2. Livestock			8. Wage (Agricultural / Daily)		
3. Fishery			9. Traditional Works		
4. NTFP			10. Remittance		
5. Trading / Business			11. Mushroom etc.		
6. Temporary Job			12. Other (Specify)		

L. Indebtedness						
Source	**Year**	**Purpose**	**Item Mortgaged**	**Cr. Amount (Rs.)**	**Outstanding (Rs.)**	**Annual Rate of Interest**
1. Money Lender						
2. Bank						
3. Cooperative						
4.SHG						
5. FPC / PO						
6. Relatives/Friends						
7. Ag. Input Shop						

M. Migration					
1.Migrating Adult Member	Male:	Female:	2.No. of Children Migrating:		
3.Place of Migration	State:	District:	4.Duration of Migration (Days)		
5.Season of Migration			6.Advance Received for Migration (Rs.)		
7.Income from Migration (Rs.)			8.Registered as Migrant Labour	1.Yes	2.No

N. Type of Benefits Received from Different Sources / Departments			
Institution / Agency	**Benefit 1**	**Benefit 2**	**Benefit 3**
Forest Department			
ITDA / Tribal Welfare			
Agriculture Directorate			
Horticulture Directorate			
Fishery Directorate			
Animal Husbandry Directorate			
Irrigation Dept.			
Odisha Lift Irrigation Corporation			
Panchayati Raj Dept.			
Education Department			
Health & FW Department			
Women & Child Dev. Dept.			
Bank / Financial Institutions			
Ag. / Other Cooperative			
Rural Development Dept.			
Social Welfare			
NGOs			
Other 1			
Other II			
Other III			
Other IV			
Other V			

O. Livelihood Related Requirements of the Households	
1.	2.
3.	4.

P. Forest Protection, Management & VSS					
Are you a member of VSS	Yes	No	Are you in Executive Committee	Yes	No
If Yes, Mention Position			Year of Formation of VSS		
Are you actively involved in VSS	Yes	No	Do you Participate in Meetings	Yes	No

Key Activities Taken Up					
Activities Taken Up (Put Tick)	**VSS**	**Self / HH**	**Activities Taken Up (Put Tick)**	**VSS**	**Self/HH**
Forest Protection			Plantation of Indigenous NTFP Species		
Wild Life Protection			Plantation of Medicinal Plants		
Biodiversity Protection			Prevention of Encroachment		
Protection of Catchment Area			Product Market Linkage (Volume)		
Protection of Water Resources			Coordination with Other Dept.		
Protecting other Eco-Sensitive Area			Issuing Transit Pass		
Micro Plan Preparation			Dealing with Human-Animal Conflict		
Mitigating / Preventing Forest Fire			Any Other Activity (Specify)		

Benefits Derived from Forest	1. Leave, Fodder, Grass Etc.		2. NTFPs (as stipulated)	3. Pool, Fire wood Etc.
	4. Timbers/Woods		5. Kendu Leaf	6. Other (Specify)
Have you received training on Forest Conservation / Management			Yes	No
If Yes, Training Topics	1.		2.	3.
Have you received other training	Yes	No	If Yes, Specify	
Are you interested in training	Yes	No	If Yes, Specify Training Themes	

What do you do in Following Situations			
1.Forest Fire	1.	2.	3.
2.Wild Animal Attack	1.	2.	3.

3.Theft of Timber / Woods	1.	2.	3.
4.Plantation	1.	2.	3.
5.Forest area encroachment	1.	2.	3.
6.Excess exploitation of forest	1.	2.	3.

Q. Suggestion / Opinion of the Family			
Area	**Suggestion 1**	**Suggestion 2**	**Suggestion 3**
Forest Protection			
Wild Life Protection			
Biodiversity Protection			
Protection of Catchment Area			
Protection of Water Resources			
Protecting Eco-Sensitive Area			
Micro Plan Preparation			
Plantation of Indigenous Species			
Plantation of Medicinal Plants			
Prevention of Encroachment			
Product Market Linkage (Volume)			

R. Membership in Organizations / Institutions							
Are you a member of any Organization	Yes	No		If Yes, Specify the Organization:			
What are the Key Functions of the Organization				1.	2.		
Membership in any other Organization							
Organization	**Yes**	**No**	**Position**	**Organization**	**Yes**	**No**	**Position**
PRI				Water & Sanitation Committee			
Farmer Cooperative				APMC			
Farmer Producer Organization				Village Dev. Committee			
Women SHG				Other (Specify)			
VSS							

S. Overall Opinion, if any	
1.	2.
3.	4.

Occupation Code:

Code	Occupation Type	Code	Occupation Type
1	Agriculture	9	Petty Business / Shop/ Repairing / Service Centre/ Self-Employed
2	Horticulture	10	Manufacturing/ Trading/ Processing Unit
3	Goat Rearing	11	Permanent/ Temporary Job/Salaried
4	Poultry	12	Artisan / Art & Craft/ Traditional (Black smith/Gold Smith etc.)
5	Dairy	13	Remittance/Migration
6	Fishery	14	Pension (Old age, widow, disable)
7	Daily Wage/Ag. Wage	16	Vegetable Cultivation
8	NTFP Collection & Selling	15	Other (Specify)

List and Code of Govt. Schemes / Programmes of Govt.

1. PAY / Mo Kudia/ Biju Pucca Ghar	17.Free Cooking Gas Connection?
2.Widowhood Pension	18.Books/Reading Materials
3.NOAP / SOAP (Old Age Pension)	19.Input Subsidy (Agri. / Horticulture)
4.Disable Pension	20.Crop Insurance
5.HARISCHANDRA Yojana	21. AAM ADMI BIMA YOJANA
6. Ration Card	22. Rastriya Swastya Bima Yojana
7.Job Card	23.Biju Krushka Kalyana Yojana
8.Electrification (RGGVY/BGJY)	24. Biju Swastya Bima Yojana
9.Skill Development Training (DDUGKY)	25.PM JAN DHAN YOJANA
10.Odisha Girls Incentive Programme (OGIP)	26.FRA Land (in Ac.)
11.Nutrition (SNP): Child	27.Homestead Land (BASUNDHARA)
12.Nutrition (SNP): Pg. Women	28.BANABANDHU KALYAN YOJANA
13.Nutrition (SNP): Nursing Mother	29. IGA
14.Financial Incentive Under MAMATA	30. Irrigation Benefit
15.Immunisation to Children	31.Other (Specify)
16.Pre-School Education (ICDS)	

Signature:

Tool for VSS

Particulars			Particulars		
A. Background Information					
Name of the VSS			No. of Villages Constituting the VSS		
Total No. of Members in the VSS			Total Female Members in the VSS		
Total No. of EC Members			No. of Females in the EC		
Name of the Chairperson			Name of the Vice-Chairperson		
Name of the Secretary			Name of the Treasurer		
VSS Registration No.			Forest Area under VSS Jurisdiction	Ha:	
B. Governance Aspects					
No. of Meetings of GB Per Year			No. of Meetings of EC Per Year		
No. of Special Meetings of GB Last Year			Av. Participation of Women in GB		
Key Areas of Discussion in the GB			1.		
			2.		
			3.		
C. Key Activities Taken up by the VSS					
Activities	Y/N	Area	**Activities**	Y/N	Area
Forest Protection			Plantation of Indigenous NTFP Species		
Wild Life Protection			Plantation of Medicinal Plants		
Biodiversity Protection			Prevention of Encroachment		
Protection of Catchment Area			Product Market Linkage (Volume)		
Protection of Water Resources			Coordination with Other Dept.		
Protecting other Eco-Sensitive Area			Issuing Transit Pass		
Micro Plan Preparation			Any Other Activity (Specify)		
Note: Please Collect Relevant Documents / Facts and Figures from the Concerned VSS					
D. Linkage with Other Institutions					
Functional Linkage of SHG & VSS			Functional Linkage of VSS and GP		
1.			1.		
2.			2.		
3.			3.		
Functional Support from Forest Dept.			Functional Support from Other Dept.		
1.			1.		
2.			2.		
3.			3.		
Note: Support from Forest Dept. Includes Support from SDLC and DLSC					
E. Benefits Derived from Forest					
Benefits	**No. of HH**		**Benefits**	**No. of HH**	
Leave, Fodder, Grass Etc.			NTFPs (as stipulated)		
Intermediate Yields (Pool, Fire wood)			Major Harvests (Timbers/Woods)		
Kendu Leaf			Other (Specify)		
F. VSS Capacity Building					
No. of VSS GB Members Trained			No. of EC Members Trained		
Areas of Training			1.		
			2.		
			3.		
No. of GB Members Got Exposure			No. of EC Members Got Exposure		
G. VSS Financials (Rs.)					
VSS Bank A/c No.			Name of the Bank / Branch		
Signatories of the A/c			1.	2.	
VSS Fund Receipt & Expenditure			**2018-19**	**2017-18**	**2016-17**
Funds Received from Govt.					
Funds Received from Other Sources					

Total Receipt				
Total Expenditure				
Balance Fund Available				
Note: Please examine the Financial Documents of the VSS with their Consent / Permission				
H. Record Keeping / Maintenance				
1.		4.		
2.		5.		
3.		6.		
I. Opinion Suggestion for Improving VSS Functionality				
1.		4.		
2.		5.		
3.		6.		

Note: Please refer documents available with VSS

Signature:

Tool for WSHG

A. Background Information							
Name of the District			Name of the Circle				
Name of the Block			Name of the Division				
Gram Panchayat			Name of the Range				
Name of the Village			Name of the Hamlet				
Total HH in the Village			No. of SHGs in the Village				
Name of the Respondent			Sex of the Respondent	1.Male	2.Female		
Cell No. of Respondent	+91		Position of the Respondent				
Name of the Cluster Federation of the SHG							
Name of the GP Level Federation of the SHG							
Name of the President			Name of the Secretary				
Whether the SHG is having office			1.Yes	2.No			
If Having Office	1.Own	2.Rented					
SHG having Bank A/c	1.Yes	2.No	If Yes, Details	Bank:	Branch:	A/C No.	
B. SHG Profile							
Name of the SHG			Year of formation of SHG				
No. of Total Member			No. of BPL/Poor Members of Total Member				
Savings Norm (Weekly/Monthly)			Per Member Savings Per Week/Month			Rs.	
Total Savings	Rs.		Av. Per Member Savings			Rs.	
Total Credit Outstanding (member)	Rs.		Av. Credit Outstanding per Member			Rs.	
No. of times SHG took Bank Loan			Cumulative Credit from Bank			Rs.	
Bank Loan by Year (Rs.)			2018-19:	2017-18:		2016-17	
Bank Loan Outstanding with SHG	Rs.		Annual Rate of Interest Charged by Bank				
Annual Rate of Interest Charged by SHG to Members							
C. Fund Sources and Amount							
Sources			**2018-19**	**2017-18**	**2016-17**	**Total (Since Inception)**	
Cluster Federations							
GP Level Federation (GPLF)							
SHG Members							
IGA/Activities							
Mission SHAKTI							
OLM / NLM							
Govt. Schemes / Programs							
CSR Activities / NGOs / Pvt. Institutions							
Banks (Credit Fund)							
MFI / SHPI / NBFC (Credit Fund)							
Grant from Different Sources							
Donations (Individual / Institutions)							
Other Sources (Specify)							
Total							
D. Assets and Liabilities							
Assets	2018-19		2017-18		2016-17		
Cash in Hand (Rs.)							
Cash in Bank (Rs.)							
Loan Outstanding (Rs.)							
Fixed Deposit (Rs.)							
Fixed Asset (Rs.)							
Liability							
Voluntary Savings (Rs.)							
External Loan Outstanding (Rs.)							
Equity (Other Sources) (Rs.)							
Compulsory Savings (Rs.)							
Other (Specify) (Rs.)							

E. Income and Expenditure						
Income	2017-18		2016-17		2015-16	
Interest from Bank						
Interest from FD						
Interest from Credit						
Income from Business (Net)						
Income from Services						
Donations						
Other Income (if any)						
Total Income (Rs.)						
Expenditure						
SHG Meeting/s						
Federation Meeting/s						
Books / Records / Stationary						
Office / House Rental						
Monitoring / Supervision						
Transportation (meeting etc.)						
Refreshments						
Salary / Honorarium						
Communication (Tel./Fax.)						
Repair & Maintenance-Assets						
Electricity / Other Utilities						
Bank Charges						
Interest paid-off-Outside Loan						
Audit Expenses						
Bad Debt, If any						
Total Expenditure (Rs.)						
Income Minus Expenditure						
F. Income Generation Activities						
Whether SHG is involved in IGA	1. Yes	2. No	If "Yes"	1.Group	2.Sub-Group	3.Individual
Type of IGA (Specify)	No. of Members		Average Loan Amount	Annual Rate of Interest	Period of Repayment	Average Loan Outstanding
1.						
2.						
3.						
4.						
5.						

G. Leadership Responsibilities of the SHG	**Yes**	**No**	**Details Highlighting Examples**
Providing guidance to members on IGA activities			
Assisting in information sharing among members			
Helping define problems and identify solutions			
Facilitating appraisal of member performance			
Encouraging members to offer ideas and opinions			
Resolving conflicts / Disputes among members			
Conducting meetings and facilitating group decisions			
Organizing implementing and coordinating group plans			
Facilitating financial transactions during group meetings			
Maintaining and keeping records of accounts			
Maintaining a bank account			
Representing the group's interests to outside bodies.			
Negotiations and doing business with others			
Rendering truthful and correct accounts to members			
Selecting leaders on consensual basis			
Developing functional systems and procedures			
Mechanism for rotation of leadership			
Changing leadership in case of requirement			
Training / Capacity Building of Members			

H. Type of Books Maintained by the SHG					
Minutes Book	1.Yes	2.No	Savings Register	1.Yes	2.No
Loan Register	1.Yes	2.No	Loan Repayment Register	1.Yes	2.No
Ledger Book	1.Yes	2.No	Bank Reconciliation Statement	1.Yes	2.No
Member List	1.Yes	2.No	Petty Cash Book	1.Yes	2.No
Asset Register	1.Yes	2.No	Cash Book	1.Yes	2.No
Petty Cash Book	1.Yes	2.No	Other Records (Specify)	1.Yes	2.No
I. Key Social Activities Taken up by the SHG			1.		
			2.		
			3.		
			4.		
			5.		
J. Key Financial Activities Taken up by the SHG			1.		
			2.		
			3.		
			4.		
			5.		
K. What has been the Impact of SHGs on Members			1.		
			2.		
			3.		
			4.		
			5.		
L. Key Suggestions of the SHG / Members					
1.			2.		
3.			4.		

SN	Indicators	Score
1	**Membership**	
a	Vulnerable and Forest Dependents (>80% are Tribal)	1.0
a.1	Vulnerable and Forest Dependents (<80% are Tribal)	0.5
b	Vulnerable and Forest Dependents (>80% are Forest Dependents)	1.0
b.1	Vulnerable and Forest Dependents (<80% are Forest Dependents)	0.5
c	Vulnerable and Forest Dependents (>80% are from Below Poverty Line households)	1.0
c.1	Vulnerable and Forest Dependents (<80% are from Below Poverty Line households)	0.5
d	Vulnerable and Forest Dependents (>80% belong to same Neighborhood)	1.0
d.1	Vulnerable and Forest Dependents (<80% belong to same Neighborhood)	0.5
e	Vulnerable and Forest Dependents (>80% are Landless)	1.0
e.1	Vulnerable and Forest Dependents (<80% are Landless)	0.5
	Sub-Total	**5.0**
2	**Awareness and Governance**	
A	Awareness about SHG Principles	
	>75% Members are aware	1.0
	<75% Members are aware	0.5
C	Awareness on rules and regulations of SHG	
	> 75% Members	1.0
	< 75% Members	0.5
D	Awareness of loan and savings status of group & Individual	
	>75% Members	1.0
	< 75% Members	0.5
E	Members have attended training programs on SHG/enterprise etc.	
	>75% Members	1.0
	< 75% Members	0.5
F	Awareness on roles and responsibility of the SHG leader/office bearers	
	>75% Members	1.0
	< 75% Members	0.5
B	Awareness about Forest & Wildlife Protection	
	>75% Members	1.0
	< 75% Members	0.5

G	Awareness on Principles of Eco-development	
	>75% Members	1.0
	< 75% Members	0.5
H	Awareness on Wild life regulations	
	>75% Members	1.0
	< 75% Members	0.5
1	Awareness about Livelihood Support by MGNREGA, OLM etc.	
	>75% Members	1.0
	< 75% Members	0.5
J	Awareness about Livelihood Opportunities (Members are aware about Ecctourism)	
	>75% Members	1.0
	< 75% Members	0.5
	Sub-Total	**10.0**
3	**Meetings (last 6 months)**	
A	Meeting (>90%) are held regularly (weekly/monthly) on a fixed date, time and place	10.0
B	Meeting (71 -90%) are held regularly (weekly/monthly) on a fixed date, time and place	8.0
C	Meetings (50-70%) are held regularly (weekly/monthly) on a fixed date, time and place	6.0
D	Meetings (<50%) are held regularly (weekly/monthly) on a fixed date, time and place	4.0
	Sub-Total	**10.0**
4	**Attendance in Meetings (Average attendance in last 6 months)**	
A	Above 90% in all group meetings	10.0
B	71 -90% in all group meetings	8.0
C	50‘70% in all group meetings	6.0
D	<50% in all group meetings	4.0
	Sub-Total	**10.0**
5	**Financial Transactions**	
A	All financial decisions and transactions (fund collections and loan disbursements) are made during meetings only	10.0
B	All financial decisions and fund collections are made during meetings only but loan disbursements done outside	7.0
C	All financial decisions and loan disbursements are made during meetings only but fund collections done outside	5.0
D	All financial transactions (fund collections and loan disbursements) outside meetings	2.0
	Sub-Total	**10.0**
6	**Regularity of Savings (in last 6 months)**	
A	>95% on time payment of savings by all members	10.0
B	85-94% on time payment of savings by all members	9.0
C	60-84% on time payment of savings by all members	6.0
D	<60% on time payment of savings by all members	3.0
	Sub-Total	**10.0**
7	**Internal Lending**	
A	Loans for IGA / Productive Investment (Direct Financial Gain)	10.0
B	Loans for IGA and Consumptive Expenditure (No Direct Financial Gain)	9.0
C	Loans only for Consumptive Expenditure (No Direct Financial Gain)	7.0
D	No internal lending/ Lending to outsiders	3.0
	Sub-Total	**10.0**
8	**Repayment**	
A	Monthly Installment (Regular monthly repayment of principal and interest in full as decided)	10.0
B	Monthly Installments (Regular monthly repayment of only principal/interest/principal and interest in other ratio)	7.0
C	Quarterly repayment / Lump sum(one-time) repayment	5.0
D	Irregular repayment	2.0
E	No Repayment	0.0
	Sub-Total	**10.0**
9	**Members Having Loan Overdue**	
A	Ail members are repaying regularly and no one is having any overdue	10.0
B	50-75% Members Having Overdue	6.0
C	< 50% Members Having Overdue	2.0
	Sub-Total	**10.0**
10	**Maintenance of Records**	
A	All Documents Maintained on Weekly / Monthly Basis Before the Meeting	5.0
B	Few are maintained on Weekly / Monthly Basis Before the Meeting	3.0
C	All Documents are Maintained Irregularly	1.0
	Sub-Total	**5.0**
11	**Social / Ecological Involvement**	
A	> 50% members Involved in Social Activities (village cleaning, conflict resolution, Liquor Prohibition etc.)	10.0
B	< 50% members Involved in Social Activities (village cleaning, conflict resolution, Liquor Prohibition etc.)	5.0
C	> 50% members Involved in Forest Protection Activities	10.0

D	< 50% members Involved in Forest Protection Activities	5.0
	Sub-Total	**10.0**
	Total	**100**
1	MEMBERSHIP PROFILE	5.0
2	GOVERNANACE ISSUES	10.0
3	CONDUCTING MEETINGS (last 6 months)	10.0
4	ATTENDANCE IN MEETING (Average attendance in last 6 months)	10.0
5	FINANCIAL TRANSACTIONS IN THE GROUP	10.0
6	REGULARITY OF SAVINGS (in last 6 months)	10.0
7	PATTERN OF INTERNAL LENDING	10.0
8	REPAYMENT PATTERN	10.0
9	NUMBER OF MEMBERS HAVING LOAN OVERDUE AS ON DATE OF GRADING	10.0
10	MAINTENANCE OF RECORDS	5.0
11	SOCIAL/ECOLOGICAL INVOLVEMENT	10.0
	TOTAL	**100.0**

Note: Please put figures against each variable for calculation

Tool for Plant Density & Bio-Diversity Assessment

OFSDP II Area	Yes	No		Yes	No
Intervention Area	Yes	No	Control Area	Yes	No
Name of the District:			Name of the Circle		
Name of the Block			Name of the Division		
Name of the GP			Name of the Range		
Name of the Village			Name of the Section		
Name of the VSS			Name of the Bit		
Area under VSS (Ha.)			Geo-Coordinate of Plot	N	
Total Forest Area (Ha.) of VSS				E	
Intervention Area (Ha.)			Plot No.		

SN	Name of the Species	No. of Plants	Age	GBH	Height

Tool for Village Infrastructural Facilities and Services

A. Background														
District						Forest Circle								
Forest Division						Forest Range								
Gram Panchayat (GP)						Revenue Village								
No. of Households		SC				ST						OC		
Population		SC	M:		F:	ST	M:		F:			OC	M:	F:
Type of Houses in the Village		Kutcha (No.)				Pucca (No.)						Mixed (No.)		
Village is Electrified		Yes			No	Village having all Weather Road						Yes		No
Village Connected to GP		Yes			No	Internal Concrete Road						Yes		No
No. of Families having Ration Card		Total:				No. of ST Families having Card						ST HH:		
Note: Please Collect Demographic Profile, Ration Card Holding and SECC Data from GP / Block														
B. Educational Infrastructure & Facilities														
School Type	Available Yes-1; No-2	Functional Regularity Yes-1; No-2	No. of Students			No. of Teachers		No. of Class Rooms	Facilities Provided (Put Tick) 1: Books 2: Dress 3: MDM 4: Cycle 5: Other					Key Issues / Challenges
			B	G	T	M	F		1	2	3	4	5	
Pre-School														
Primary														
Secondary														
Sewashram														
Ashram														
Other (Specify)														
C. Health Infrastructure & Facilities														
Facilities	Distance	Functional Regularity Regular-1; Irregular-2	No. of Doctors			No. of Paramedics		No. of Beds	Facilities Available 1: Free Medicine 2. Test lab. 3. Ambulance 4. Referral					Key Issues / Challenges
1.AWC														
2.Sub-Centre														
3.Clinic														
4.PHC														
5.CHC														
6. MHU														
7.Hospital														
8.Ay. Dispensary														
9.Ho. Dispensary														
10.Quack / Healer														
11.Other														
Note: Put "0" in Distance Column if the facility is within the village														
D. Drinking Water Source														
Source	Number	Water Quality				Adequacy (Yes / No.)						Key Issues / Challenges		
		Good	So-So	Poor		Summer	Winter	Rainy						
1.Open Well														
2.Bore Well														
3.Pipe (Stand)														
4.HH Supply														
5.Pond														
6.Stream														
7.River/NALA														

8.Other									
E. Sanitation Facilities									
1.No. of HH with Toilet Facility	1.Total			2.ST		3.SC		4. OC	
2.Community Toilet Facility	1.Yes	2.No		3. School with Toilet			1.Yes	2.No	
4.Community Hall with Toilet	1.Yes	2.No		5. Toilet in AWC			1.Yes	2.No	
6. Water Log Area	1.Yes	2.No		7. Water Drainage Facility			1.Yes	2.No	
8. Key Needs	1.			2.			3.		
F. Other Infrastructural Facilities / Services									
Facilities	**Place**	**Distance**		**Key Services Accessed By**			**Key Issues and Challenges**		
1.AI Centre / Veterinary									
2.Daily/Weekly Market									
3.Livestock Market									
4.Cold Storage									
5.Ware House/GODOWN									
6.Bank Branch									
7.Post /Sub-Post Office									
8.Agri. Cooperative Society									
9.TDCC Office									
10.NTFP Selling Centre									
11.Milling/Processing Unit									
12. Aggregation Centre									
13. Packaging Unit									
14. Transport Service									
15.Bus Stop									
16.Railway Station									
17.Block Office									
18.District Headquarters									
19.Police Station									
20.College									
21.Technical Institution									
22.Other (Specify)									
G. Community Organisations									
CBO Types	**No.**	**Members**		**Key Activities**			**Supported By**		**Needs**
1.Farmer Group									
2.Women SHGs									
3.W&S Committee									
4.GKS (Health Committee)									
5.Watershed Committee									
6.Cultural Group									
7.Producer Group									
8. VSS / JFMC									
8. Other (Specify)									
H. Local Level Planning									
Is there any local level planning	Yes	No		If Yes, at which level			1. GP		2. Village
How frequently is it organised				Quarterly	Half Yearly		Annually		Other
Whether activities are taken up as per the plan				1. Yes			2. No		
Who executes forest development activities				1.GP	2. VSS / JFMC	3.Dept.		4.All	5.Other
I. Overall Suggestion for Community Development									
I.1 Infrastructure, Facility and Services				**I.2 Livelihoods / Entitlement**					
1.				1.					
2.				2.					
3.				3.					
M. Suggestion for Sustainable Forest Management									
1.				2.					
3.				4.					
5.				6.					

Seasonal Calendar (Livelihood Specific)

Livelihood Trends / Shocks	Baisakha	Jaistha	Ashara	Shrabana	Bhadrab	Ashwina	Kartika	Margasira	Pousa	Magha	Phalguna	Chaitra
	Apr-May	May-Jun	Jun-Jul	Jul-Aug	Aug-Sep.	Sep.-Oct.	Oct.-Nov.	Nov.-Dec.	Dec.-Jan	Jan-Feb	Feb-Mar	Mar-Apr
Drought												
Flood												
Cyclone												
Heavy Rain												
Crop Pest / Disease												
Crop Loss due to Wild Animals												
Abundant Agricultural Wage												
Scarce Agricultural Wage												
Abundant Daily Wage												
Scarce Daily Wage												
High Market Price: Agricultural Crops												
Low Market Price: Agricultural Crops												
High Market Price: Hort. Crops												
Low Market Price: Hort. Crops												
High NTFP Production/Collection												
Low NTFP Production / Collection												
High Market Price of NTFPs												
Low Market Price of NTFPs												
Consumption Credit Requirement												
Production Credit Requirement												

Mapping Production & Cluster Potential

District:	Forest Circle	
Block:	Forest Division	
GP:	Forest Range	
Village:		
Cluster Characteristics by Type	**Current Production / Status**	**Potential**
Agricultural Crops		
1.		
2.		
3.		
Horticultural Crops		
1.		
2.		
3.		
Livestock / Animal Husbandry		
1.		
2.		
3.		
Handloom		
1.		
2.		
3.		
Handicraft		
1.		
2.		
3.		
NTFP		
1.		
2.		
3.		
Skill Base		
1.		
2.		
3.		
Other (Specify)		
1.		
2.		
3.		

ODISHA FORESTRY SECTOR DEVELOPMENT PROJECT, PHASE-II
Odisha Forestry Sector Development Society, SFTRI Campus,
Bhubaneswar, Odisha, India | Ph: 0674-2386084, 2386016
e-mail: webmail@ofsdp.org