

## Model village plan under MGNREGA in Ghantasada Village of Balangir District, Odisha



### Infrastructure for Climate Resilient Growth in India (ICRG) Programme

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## 1. Background

Agriculture in Odisha is the mainstay of majority of the populace and thus, holds the key to socio-economic development of the State. The State has cultivated area of 61.80 lakh hectares out of which 29.14 lakh hectares is high land, 17.55 lakh hectares medium land and 15.11 lakh hectares low land. The State is broadly divided in to 4 Physiographic zones those are further subdivided into 10 agro-climatic zones. Further, about 4 lakh hectares is exposed to saline inundation, 3.54 lakh hectares to flooding and 0.75 lakh hectares to water-logging, particularly in the deltaic areas. With more than 2/3rd of crops grown rainfed, a good harvest is much dependent on a favourable monsoon.

The climate of the state is tropical, characterised by high temperature, high humidity, medium to high rainfall and short and mild winters. The normal rainfall of the State is 1451.2 mm. The actual rainfall received, vary from district to district. About 84% of rainfall is received during the period from June to September. Even though the quantum of rainfall is quite high, its distribution during the monsoon period is highly uneven and erratic. As a result, flood, drought and cyclone visit regularly with varying intensity. The frequent occurrence of these natural calamities badly affects the production of kharif rice, the major crop of the State. Similarly, in drought years, there is considerable loss in production of pulses and oilseeds both during kharif and rabi(Source: Drought Management plan of Odisha 2015, Deptt. Of Agriculture, Govt. of Odisha)

### 1.1. MGNREGS implementation in Odisha and role of ICRG

In a state like Odisha, effective implementation of MGNREGS is the key to balance the degraded ecosystem in the rural areas and enhance the livelihoods security of rural population.

Progress parameters	FY 2018-2019	FY 2017-2018	FY 2016-2017	FY 2015-2016
Approved Labour Budget[In Lakhs]	950	900	800	760.06
Persondays Generated so far[In Lakhs]	611.5	922.17	774.48	894.46
Women Persondays out of Total (%)	42.1	41.86	39.82	38.02
Average days of employment provided per Household	33.09	39.98	38.09	44.78
Differently abled persons worked	7262	9329	6303	5586
% of Expenditure on Agriculture & Agriculture Allied Works	64.53	71.34	65.92	52.29
Total Exp(Rs. in Lakhs.)	1,63,694.67	2,50,479.89	2,13,572.78	2,05,148.18

The state has been able to spend about Rs 2500 crore for creating persondays of about 922 lakh as of last financial year. The %age of expenditure in agriculture and allied activities has been increasing and it was 71% in last FY. Differently abled people are also getting more and more engagement under the scheme.

Infrastructure for Climate Resilient Growth Programme (ICRG) is being implemented in 35 Blocks of 5 districts of Odisha (Mayurbhanj, Keonjhar, Balangir, Kalahandi and Nuapada). Later on 11 more Blocks and one new district (Bargarh) have been added in the programme. Demonstration of Climate Resilient Works (CRWs) through integrated approach is the key focus under ICRG in Odisha. The programme builds the capacity of administrative and technical staff at different level to take up climate change specific plans under MGNREGS and incorporate the climate resilient designs in the MGNREGS works. While demonstrating the CRWs leveraging resource from other schemes and programmes is also the priority for the programme.

### 1.2. Need for demonstration of model villages under MGNREGS

Though the concept of model Gram Panchayat (GP) has been conceived since the inception of the ICRG programme in Odisha, Model Village Programme has been prepared based on net planning approach to saturate MGNREGA works in the village taking consideration of water availability ( both supply and demand) , historical rainfall pattern and future projection.. At the pilot stage, 2 villages are taken to make them model villages. The idea is to saturate the MGNREGS works in the villages so that maximum resource can be effectively utilised. Series of discussions have been made with PRIs, Block officials and CSOs before finalizing the Gram Panchayats/villages for demonstration purpose. Following criteria have been followed for selection process of Model Villages.

- **Vibrant Gram Panchayats**– Because of the financial and functional strength of a Panchayat is extremely useful in preparing need based plans, executing the plans in a time-bound manner, vibrant and strong GPs are considered for showcasing results. The governance system of the GPs and the capacity of PRIs were studied in detail for selecting the GPs.
- **Potential for piloting new initiatives** – Introducing innovations are the key for demonstrating the impact for which the GP has to offer avenues for experimenting with new initiatives. Hence it is important that the GP officials and the institution leaders must be in a position to move out of their comfort zone and accept the concept of change while introducing innovations.
- **MGNREGS Potential in the GP**- Because MGNREGS is the platform for implementing ICRG and the base for leveraging resources from other schemes for synergy, it must be effectively implemented in the GP. Right kind of plan, timely execution of works, proper monitoring system in place, active role of PRIs, need based works in place are some of the parameters taken up to ensure effective implementation of MGNREGS in the GP.

- **High potential GP-** The GP must come under the high potential category meaning that the scope of fund absorption must be very high from different schemes, presence of diverse groups, availability of natural resources and focus of the local administration. This must invite implementation of schemes like, ITDA, WADI, NRLM, PMKSY, IWMP etc.
- **Presence of historically marginalized groups-** Across the State the poor access of vulnerable groups to MGNREGS and other flagship schemes has been an issue. At the same time climate change projection reports that these groups are likely to be highly impacted by climate change in future. Hence their presence in the GPs are considered as well for selection.
- **Geographical coverage-** While selecting the GPs the sensitivity of the blocks and panchayats to climatic change was considered based on the climate modelling study report, Vulnerability assessment reports etc. Hilly and plain terrains were also taken into consideration for selection of GPs/villages.

### 1.3. Key approaches and planning process followed during Model Village

*Net planning preparation in Ghantasada Village of Titilagarh Block, Balangir district, Odisha.*

ICRG Team facilitated preparation of Model Village Plan through participatory and technical approach involving all sections of the village, Gram Panchayat Sarpanch, Gram Rojgar Sevak (GRS) , PRI member, Village Mate, Women SHG leaders etc. Following key strategies were followed for preparing the model village plans in both the villages.

- Household level Baseline Data Collection
- Collection of Cadastral Map from Tehsil Office
- RoR download from Bhulekh Portal
- Social Mapping with villagers
- Well Being Ranking of all Households (WBR) based on present living standard of communities and ranking them in-to 4 categories ( Well-off, Manageable, Poor and Very Poor ) as per the indicators and icons fixed by the villagers.
- Focused Group Discussion (FGD) on various issues related to MGNREGA Assets and Potential NRM Works , Drought Occurrence, Agriculture Productivity, Cropping Pattern , Migration, Livelihoods of Vulnerable Communities, Livestock , Irrigation and Ground Water Status , Women Institutions (SHGs) , Drinking Water Scarcity etc.
- Identification and Mapping of Existing Assets , Forest cover and Pasture land.
- Transact walk to various patches , assets, Water Harvesting Structures, Barren land etc. to understand the existing water table and availability , soil texture , cropping pattern
- Identification of NRM works proposed , Plot Numbers, Beneficiary and marking in the treatment map with different intervention icons.



- Plot wise Net Planning of NRM and Livelihood Assets (Community and Individual Assets) with various categories of Households under MGNREGA and other schemes.
- Preparation of Agriculture based livelihood interventions integrating the Water structures (Existing and Proposed) for doubling income of farmers with innovation on agriculture.
- Preparation of Off-farm livelihood plan with the poorest communities for enhancing their income.
- Preparation of Institution and Capacity Building Plan of Model Village and promotion of Farmers' Producer Organization.
- Analysis of active card holders, person-days , completion of works at GP level
- Preparation of Present and Proposed Treatment Map with plot wise planning.
- Water Budgeting (Measurement in existing water bodies, capacity calculation for current and future water bodies, present water supply and water demand and future requirements)
- Preparation of broad prospective Action Plan on saturation approach under MGNREGA and Budgeting of activities /NRM works.
- Sharing and approval of action plan with the village communities



### Criteria suggested by Villagers for Well Being Ranking of Households

Category of Well Being	Indicators suggested by Villagers as per present well-being
Very Poor	<ul style="list-style-type: none"> <li>• Mostly households having low income and take credit for managing their livelihoods for more than 6 months in a year .</li> <li>• Women headed households</li> <li>• Asset less Households</li> <li>• Single Women headed households with no dependent to support them</li> <li>• Distress Migrant households</li> <li>• Household who need Support of others for their survival.</li> </ul>
Poor	<ul style="list-style-type: none"> <li>• Wage Earners who take credit to manage their livelihoods for 3-4 months in a year.</li> <li>• Migrate to other places for earning their income</li> <li>• Small land holders and farmers</li> <li>• Kuchha house ( other than IAY houses)</li> </ul>
Manageable	<ul style="list-style-type: none"> <li>• Earn income from various sources (Agriculture, Livestock and service sector) and does not take credit for managing basic livelihoods throughout the year.</li> <li>• Children go to education up-to 10<sup>th</sup> standard and more</li> <li>• Pucca/ Semi-Pucca houses ( Other than IAY)</li> </ul>
Well Off	<ul style="list-style-type: none"> <li>• Manage livelihood of family throughout the year without taking credit.</li> <li>• Having Surplus income and gives credit to others</li> <li>• Mostly regular salaried, Big Farmer , Good earning through business</li> <li>• Good Health condition</li> <li>• Having Pucca house</li> </ul>

#### Titilagarh Block Profile :

Titilagarh is one of the 14 Blocks of Balangir District in Odisha which has 22-gram panchayats, 133 villages and a total of 30,879 households. Titilagarh Block of Balangir District is known for continuous dry spell, drought and temperature during summer raises up-to 48 °C. According to the 2011 census, the total population of the block is 1,18,942 out of which the percentage of SC population is 19 % and ST population is 20 %. The percentage of vulnerability households of this block is 41.61 % which includes women headed households, differently able small marginal farmers and migrants.

The study undertaken by Indian Institute of Science (IISc) Bengaluru under ICRG programme to understand the climate change scenario of the block is mentioned in the table.

#### 1.4. About Ghantasada Village

Ghantasada Village under Adabahal Gram Panchayat of Titilagarh Block in Balangir District is about 10 KMs away from Block HQ and it is 68 Kms away from District HQ Balangir in Odisha. It comes under Western Central Table Agro-climatic Zone in Odisha. The Village has 182 households and a total population of 729. Agriculture, Wage Employment and Livestock rearing (Small Ruminants) are the key source of income of the Villagers. About 70% of the households of the village belong to SC & ST Category. There are 120 active job card holders in the village and MGNREGA has been implemented in this village since 2008.

Ghantasada Village at a Glance	
Name of the Village:	Ghantasada
Name of the GP:	Adabahal
Name of the Block:	Titilagarh
Name of the District:	Balangir
Distance from Block HQ :	10 KMs
Total Nos of HHs:	182
Total Nos. of ST HHs:	65
Total Nos of SC HHs:	60
Total Population:	729
Male Population:	377
Female Population:	352

#### 1.5. Climate of Ghantasada (as per block level data)

The study undertaken by Indian Institute of Science (IISc) Bengaluru under ICRG programme to understand the climate change scenario of the block is mentioned in the table.

The climate of Bolangir District especially Titilagarh Block is characterized by a very hot dry summer and highly erratic distribution of South West monsoon rains. Temperature mainly stretching from April to June and the maximum temperature is 49 Degree C. The wind speed in the area is very slow and the project area comes under 'West Central Table Land' agro-climatic zone characterized by hot and sub-humid climate. Though the predicted data said

Historical (1984-2014)	
Historical mean maximum temperature	37°C
Highest temperature recorded	45°C
Change in mean maximum temperature	0.36°C
Mean JJAS rainfall in mm	1229
Coefficient of variation (CV) in %	32.6
Total number of rainy days for 30 years	2491
Average number of rainy days/year	83
Number of years with normal sowing rains	4
Number of years with abnormal sowing rainfall	26
Number of years with mild drought condition	10
Projected (2021-2050)	
Change in temperature relative to historical by 2035	0.88°C
Mean JJAS rainfall in mm	1180
Coefficient of variation (CV) in %	33.2
Total number of rainy days	2687
Average number of rainy days/year	90
% increase in number in rainy days	7.3

that the number of rainy days is going to increase form 83 days to 90 days, However the average JJAS rainfall if going to decrease in future from 1229 to 1180 mm.

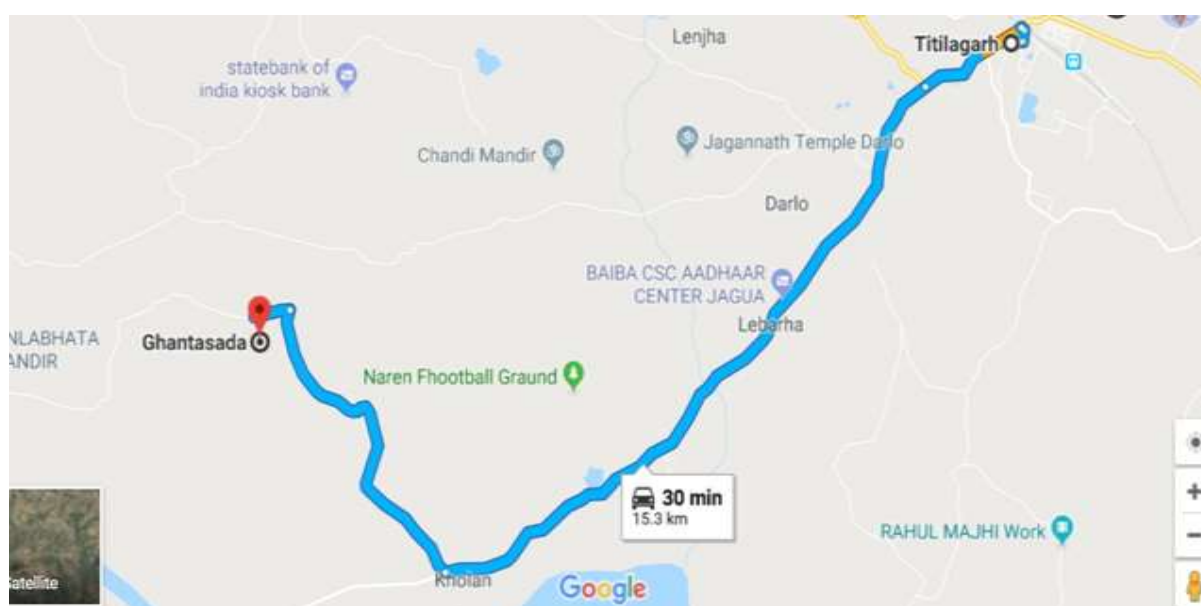


## 1.6. Topography of Ghantasada:

The village is surrounded by Shiyalsukuri village in East side, Adabahal and Dunriguda in west side, Makripada and Khandapadar in north side and Gandargada village in south side. In the south side Gandargada village ends with the foot hill of a large stone. The boundary of the Ghantasada village starts at the foothill. Runoff of one side of that hill flows to Ghantasada village from south to north. The village has moderate undulating topography with three types of land- Upland, medium and low land. Except from south side, no runoff water flows from other villages into Ghantasada village. Thus the upland of Ghantasada itself contributed water to medium and low land and also acts as ridge line of watershed. There is a single point at the west south side that further drains the excess runoff water of the Ghantasada village to Adabahal village. Except a large patch in the north of village reserved for Pasture land else most of the upland patches are cultivable land and thus slight erosion found in the pasture land only.

Ghantasada: Land use details	
Total Geographical Area:	314 Ha
Forest area	5.4 ha
Area under non agricultural use	53.68 ha
Barren and Uncultivable land area	8.05 ha
Permanent pasture & other grazing land area	5.16 ha
Cultivable waste land	4.7 ha
Net sown area	236.99 ha
Longitude:	83.0662515 E
Latitude:	20.2603402 N
*Source: SECC 2011	

### Location Map of Ghantasada Village, Titilagarh Block.



### 1.7. Key issues in the Village

As per the discussion with the villagers of Ghantasada Village during PRA exercises, following key issues were emerged.

- Regular dry spells and drought leading to damage of Kharif Crop in alternative years.
- Low Crop Productivity
- Lack of Assured Irrigation Facilities
- Limited scope for Rabi Crop
- Limited Number of Water Bodies to harvest rain water
- Ground Water level is drying up
- Availability of Barren & Waste Land and opportunity for treatment
- Issues of Un-employment and distress migration
- 80% Households are under Poor and Vulnerable Category as per Well Being Ranking.
- Potential for Vegetable cultivation during Kharif .

### 1.8. Process followed for preparation of Model Village Plan

ICRG team facilitated preparation of model village action plan in the village with the participation of community, SHGs members, PRIs members and MGNREGS functionaries. Action plan map is one of the important map as from the map we can avail the information plot wise where the structures to be constructed & necessary treatment to be done. At first the boundary of Ghantasada village is identified. Before making the action plan map the villagers are directed to involve in social mapping of their village. They made it by providing all information about the 180 HHs of Ghantasada. They have identified the ST, OBC, Vulnerable HHs like woman headed which is very essential for planning process.

The villagers converted the cadastral map in to resource map indication the up land, low land, medium land, barren land, forest cover, water bodies in to different colours. The villagers are mobilized & identified their individual plot with accuracy & precision and existing resources in their plot. From the Google map using software & merging the plot wise ROR in Google map we get to know about the drainage line & water flow line, barren patch, low land, up land, forest cover etc plot wise & beneficiaries wise details in full accuracy. The need & demand of villagers along with the available suitability of location to carry out rain water management works, plantation, primary bund, check dam, farm pond were identified and marked in the cadastral map. Moreover, the cadastral map is converted to action plan map by showing different essential works to be done with different colours in the map. Processes followed for preparation of plan steps wise are as below:

## 1.9. Demographic profile of the village

Caste Wise Distribution of Population of Ghantasada Village				
Caste	No. of HHs	Male	Female	Total
Gen	1	2	2	4
SC	60	129	126	255
ST	65	118	116	234
OBC	54	128	108	236
Total	180	377	352	729

## 1.10. Well Being Ranking of the Village

Category wise Well Being of HHs in Ghantasada Village.				
Very Poor and Vulnerable HHs	Poor HHs	Manageable HHs	Well Off HHs	Total HHs
47	110	21	2	180



Social map of the village Ghantasada

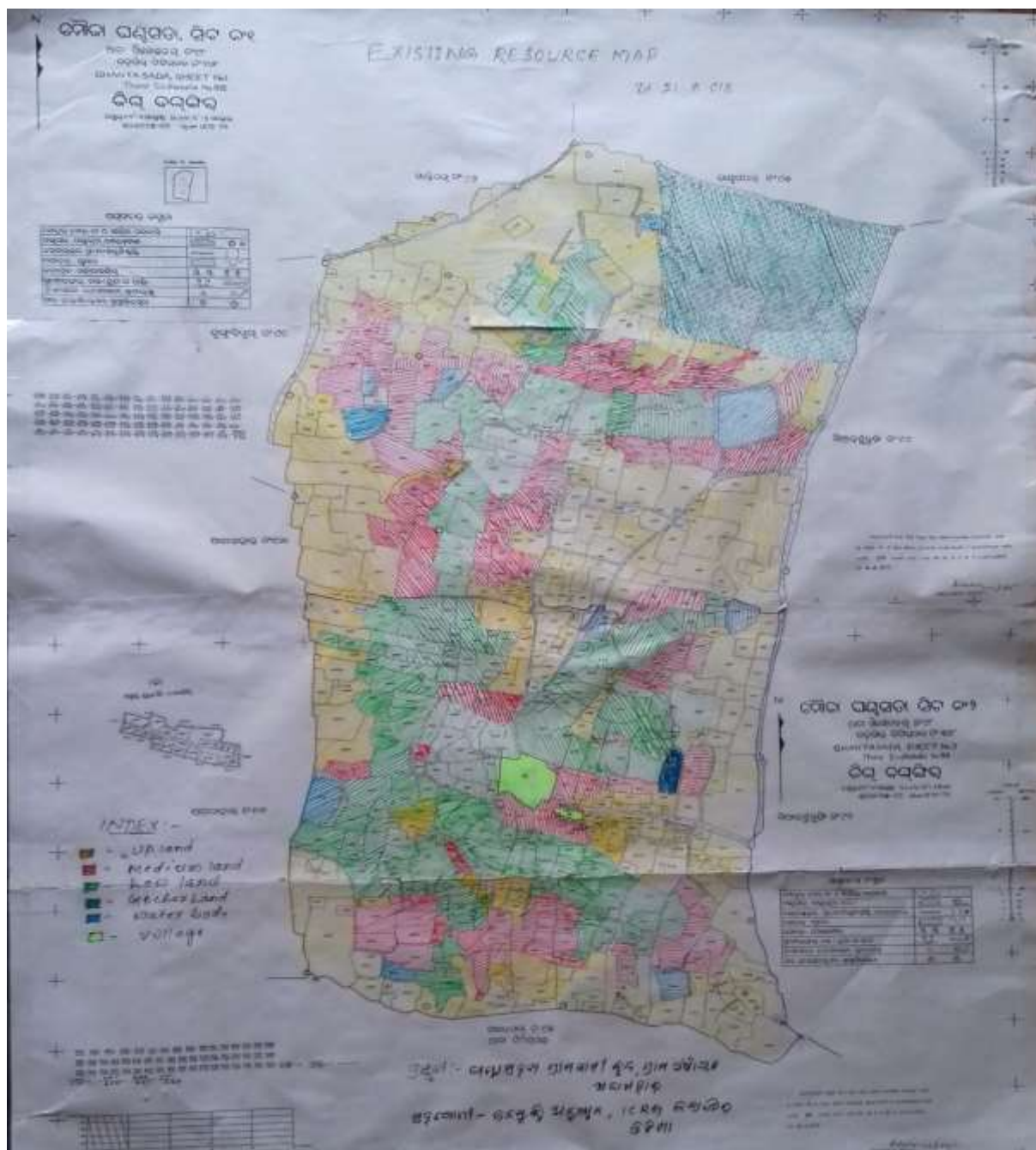
During this exercise, it is also found that there are **7 disable HHs** and also one special SHG for disable members exist in the village. There are **12 women headed HHs** out of those one HH belongs to SC category, 9 are from ST and 2 are from OBC category.

1.11. Land holding details /land type and existing resources of Ghantasada village

Sl. No.	Land Details	Nos. of plots	(Area in Ha.)
1	Total Geographical Area	958	314 ha
2	Up land	344	161.4
3	Medium land	210	84.8 ha
4	Low land	132	67.2
5	Other (forest, HHs area, pond, road, pasture etc)	272	21.2

- Source: Bhulekh, Odisha

**Land type and resource map of the village Ghantasada:**





In the above map, the plots with yellow colour and shaded are upland, red with shaded are medium land green with shaded are low land. Light green with shaded and tree symbol in the north east corner plots are forest, pasture and other fallow land. This patch is fully for the use of community and marked as community land. The red coloured part is the habitat area where the villagers are living. There is another small habitat area found in the village and that has been built in last 20 years period and not reflected in the revenue map. The blue coloured are water bodies mainly ponds, earthen embankment, tank etc. The village does not have any stream. The low land plots are served as drainage line of the village. Most of the water bodies are situated in the medium land or in the transition of either up-medium or medium low land. There are total of 13 large and small size water bodies found in the village. Black coloured circle are dug wells. The village has potential to explore ground water through dug well as water found in lowest depth in low and medium land, however the village has only 10 existing dug wells. Out of 10, there 4 masonry wall dug wells, 4 ring wells and 2 kuchha well without any ring or masonry wall. During transect walk and interacting with community it is found that except the extreme south part of the village rest part are suitable to dug ring type well as soil depth is high and some existing well ring wells are found working and irrigating vegetable crops almost 4 ha of area during *Rabi* season. The village though have some bore wells but villagers said that they have tried digging bore well and gone up 350 to 400 ft depth but they did not get success in digging bore well and thus there is no functional bore well found in the village.

The village Ghantasada has total geographical area of 314 ha consisting of 958 plots as per Bhulekh, Odisha (last updated in 1975-76). More than 50 percent (actual 51.4%) land area is considered as upland area and mostly cotton, Arhar, cotton+ Arhar along with some other pulses and oilseeds and few plots with upland paddy are the upland crops in the village. Among this crop cotton is the highest grown crop using ridge and furrow method. Medium lands are mostly covered with paddy but in many medium land plots cotton and arhar are also found during transect walk. Total medium land percentage is 27%. Though the total lowland plot numbers are lower than the medium land plots, however as per cadastral map low land plots are in larger size and hence its share is 21.4 percent of total land area of the village. But the present scenario the number of low land plots are high as many lots are divided now and also numbers of ownership has increase since last 40-45 years. These low lands are mostly paddy grown area with good fertile soil and mostly ensure the food security of the village HHs if there is a good and normal rainfall year. The village has almost 6.75% of land area with total 272 plots for Gharabari (Habitat) area, pond, forest, pasture land, road, and other uses. Following map is depicted the above description well.

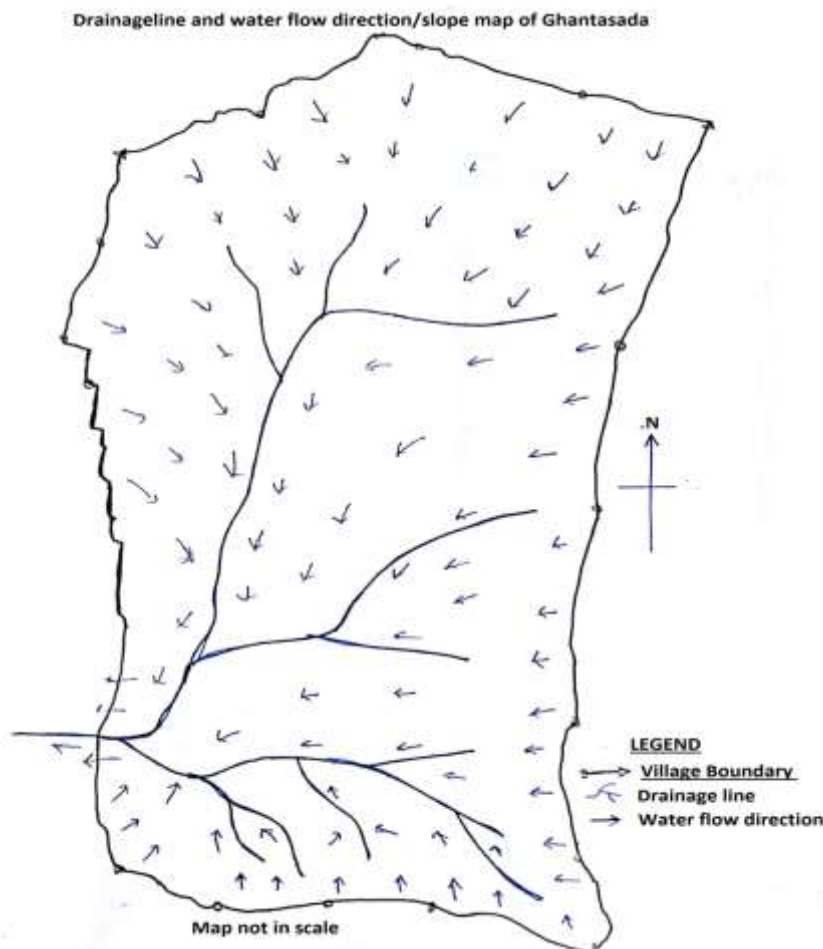
#### 1.12. Drainage map of Ghantasada:

As mentioned earlier, Ghantasada village is surrounded by its up land that worked as ridge line in almost all side of the village except in south side where there is a large stone hill situated and fall in another revenue village. So, except south side the ridge line fall in another village, otherwise the ridge line of all three side falls in the village either due to upland, or due to the village approach roads. The runoff of whole village passes from upland to medium land and then to low land and flows out from village in the west side to Adabahal village clearly shown in the drainage map below. Hence the entire village falls in a single micro watershed. In fact the boundary of the micro

watershed also falls to other village in the south side. Hence the village has huge potential to catch rainfall water in its upland and medium land following ridge to valley approaches as the villagers need to depend on other village where a watershed ridge fall in two or more villages. The villagers can also allow water to recharge or percolate down in their upland to solve the issue of drought or moisture stress in the medium and low land as the harvested water and subsurface flow for their upland will only flow to their low as per principle of surface and subsurface flow for shallow water bearing strata.

### 1.13. Slope map of Ghantasada

Though the village having undulating topography, however the undulation is not high and haphazard, that make the villagers difficult to cultivate their land. As found in the drainage map and land type, the village organization of cultivable and other plots are situated in such a way that entire land of the village are distributed in three different terrace- those are up, medium and low. In each terrace the slope individual plots are not that high. The altitude differences from one terrace (up to medium and medium to low) to another may be more than a meter, but within a terrace the slope of plots are moderate except in few patches. During transect walk in it is found that in south side the slope of upland plots are high and also not treated hence some gullied found there as huge runoff water flows from the stone hill. Similarly in the north side in north east corner there is community pasture and other common land that too have little higher slope and thus slight soil erosion traces in that patch. During field transaction it is observed that the village having 10-15 ha area with 3-5% slope in the south side, 20-30 ha area with 2-3% slope in the north side, more than 175 ha falls in 1-2% and rest (almost all low land and some medium land) falls in 0-1% slope.





#### 1.14. Water Budgeting of Ghantasada (water demand and supply assessment) :

To compute the water demand and supply, water budget calculation template developed during the Saksham training of MGNREGA was used. The major finding of the water budget assessment is represented in the table below.

Total water for agriculture requirement has been calculated as 89.8 ha-m and water for animal and human has been calculated as 1.42 Ha.m. Total water requirement has been calculated as 91.2 Ha.m. The available runoff from the area is 124.6 Ha.m. The water deficiency to address the requirement is 76.1 Ha.m. Based in the available discharge of 109.6 Ha.m, maximum of 82.2 ha-m can be harvested to meet the requirement and it is more than calculated deficit.

##### D.1: Drinking water requirement

Description	Number	Daily (Litres) (source: SAMARTHYA)	Water Required (Daily)
Human	729	45	32805
Large Ruminant (Animals)	148	35	5180
Small Ruminant	115	8	920
Poultry-Birds	350	0.25	87.5
	Total		38992.5
<b>Water Required Annually (Cum) (<math>D10*365/1000</math>)</b>		<b>14232.26</b>	
<b>Water Required Annually (Ha.M)</b>		<b>1.42</b>	

##### D.2: Crop water requirement

	Crop	Area (Hect.)	required per (Ha-M)	Present Water Requirement (Ha.M)	Supply from groundwater	additional Requirement
<b>Khari</b>	Mung	3.2	0.2	0.6	0.0	0.6
	Black gram	2.8	0.2	0.6	0.0	0.6
	Horse Gram	2	0.2	0.4	0.0	0.4
	Cotton	48	0.45	21.6		21.6
	Cotton + Arhar	22	0.45	9.9	0.0	9.9
	Arhar	18	0.4	7.2	0.0	7.2
	Paddy	112	0.4	44.8	0.0	44.8
	Total	208		85.1		85.1
<b>Rabi</b>	Vegetable	11.6	0.45	5.2	1.8	3.4
	Black gram	1.6	0.45	0.7	0.0	0.7
	Horse Gram	1.2	0.45	0.5	0.0	0.5

				6.5		4.7
	Total crop water requirement					89.8

Note: Highlighted supply of GW is from 5 functional dug wells. The kharif water requirement for paddy, cotton and arhar has been considered only for dry spell and after rainy season i.e. life saving during rainy season and post rainy season irrigation for cotton and arhar.

### D.3 Details of slope:

Slope	Topography	Area
0 - 1%	Low lands (Farm lands) & few medium land plots	100
1-2%	medium and few upland plots (Pastures & Open Area)	175
3- 5%	Foot hill upland (Pastures & Open Area)	39
Above 5 %	Upper reaches & Forest area	0
	Total	314

### D.4: Amount of Runoff

Amount of runoff (To be calculated from Strange's table method)				Rainfall:1219.2 mm
Types of Run-Off	Area (Hect.)	% of Runoff	run-off (Cum)	run-off (Ha.M)
Good Run-off Area	39	46.5	5669.28	22.1
Average Run-off Area	175	34.8	4242.816	74.2
Bad Run-off Area	100	23.2	2828.544	28.3
<b>Total</b>	314			124.6

Note: JJAS mean average rainfall of Titlagarh is 1229 mm.

### D.5: Stored water in harvesting structures

S.N.	Name of Structure	Existing Structures	
		No./Area in Ha	Storage Capacity (Ha.M)
1.	Pond (Talab) 15 no's	7.64	15.08
2.	Farm Pond		0
3.	Anicut		0
4.	CCT (Area in Ha.)		0
5.	MPT		0
6.	SGPT		0.0000
	Total		<b>15.08</b>

#### D.6: Ghantasada village water budget:

S.N.	Name of Village	Volume (Ha.M)
1	Water for Agriculture (Table D.2)	89.8
2	Water for Animal & Human (Table D-1)	1.42
3	Total water required (D1+D2)	91.2
4	Available run-off from rain water (Table D.4)	124.6
5	Harvested Runoff from Water Harvesting Activities (D.5)	15.1
6	Water deficiency/Surplus (5-3)	-76.1
7	Water can/to be harvested to meet up the requirement (75 % of available run-off -harvested run-off) ( $D77*75/100-D78$ )	82.2
8	<b>Available discharge water at exit (4-5)</b>	109.6

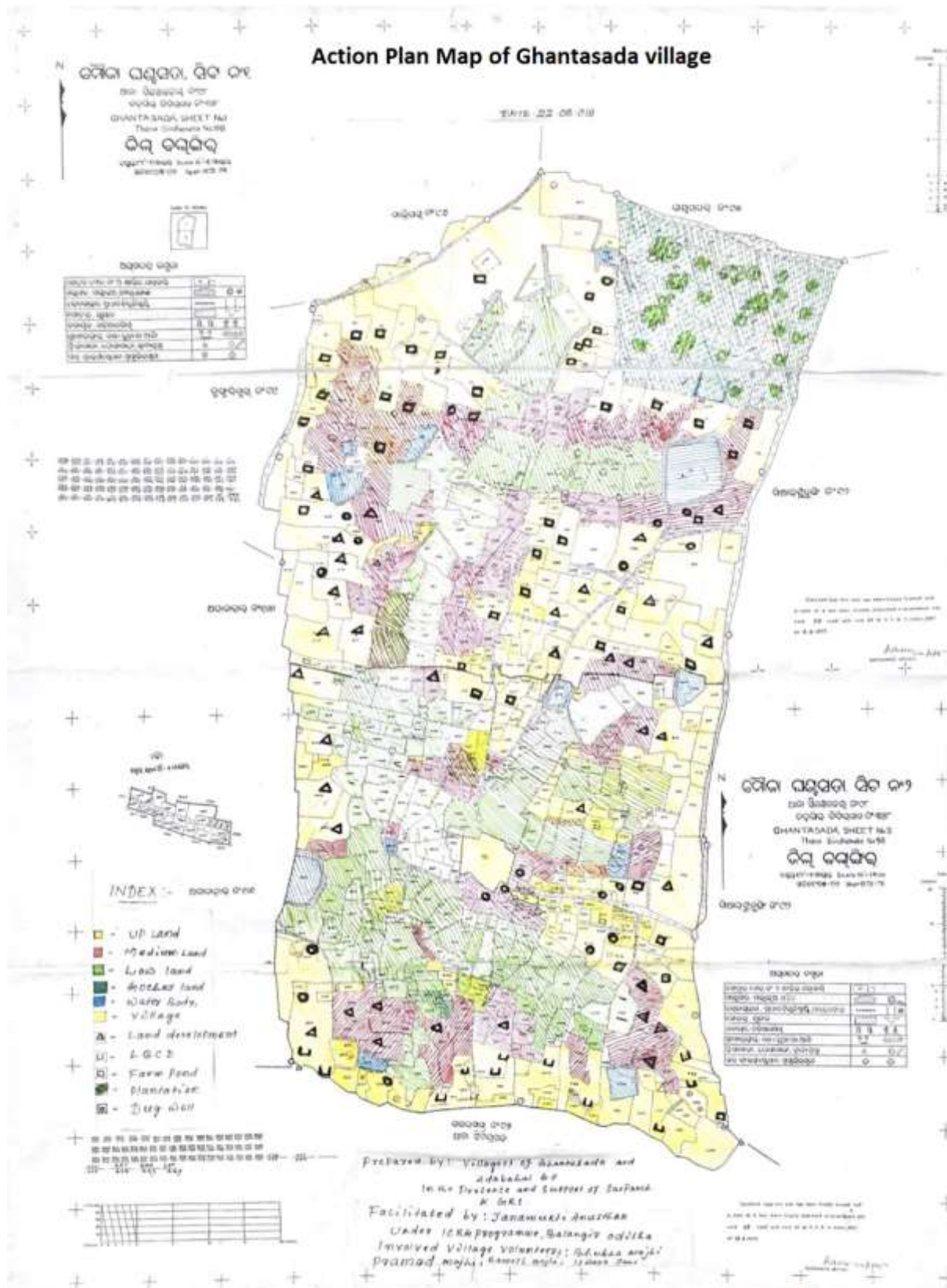
#### 1.15. Action plan of Ghantasada village:

The action plan has been developed on basis of the aim to enhance productivity in agriculture and thus doubling the farmer's income. As there are various category of HHs such as women headed, disable, poor, marginal, landless etc, only lad based activities are not sufficient to plan to enhance the income of every HHs. Thus along with land based activities through MGNREGA, activities such as goat, cow, poultry shed etc were planned for landless and low land holding HHs. Similarly other non land base livelihood activities are also discussed with SHG women, mapped their skills and then with the consensus of SHG women, some on farm and off farm livelihoods activities are also planned and proposed with the support of other line department. Hence the entire village plan is categories in the following two parts:

##### 1.15.1: MGNREGA work Plan

Looking the issues of the village after PRA exercise including transact walk, there are 8 different types of NRM work has been identified for the village Ghantasada to increase the irrigated area and enhance the agricultural productivity of the village. These activities are taken in integration so that the efficacy and durability of each asset can be assured. In the pasture land, plantation has been proposed with integration of 30x40 models, so that plant survival rate can increase and ensure soil moisture during dry spell and to promote better growth of the plant. LBCDs are taken the catchment of water harvesting structures and also in the catchment of land development area. Dug wells are proposed mostly in the downstream plots of different types of water harvesting structure to tap the subsurface flow from those renovated water harvesting structures. In some water harvesting structures fisheries are already going on and it was found that community is more interested to do fish cultivation in all village pond through SHGs or through contract basis. Farm ponds are mostly proposed in the land development area or in medium land where upland are proposed for land development activities through field bunds. Non NRM work such as cow, shed, goat shed and poultry shed are also taken as livelihoods enhancement to create alternative livelihoods in the village and also to support agricultural production. These non NRM activities further integrated with construction of compost pits to produce compost manure in the village using cow dung, goat dung

and poultry waste. These will further help the villager to keep village clean by managing solid waste and also would enhance soil fertility and thus would increase farm productivity. The proposed NRM activities are shown in the action plan map below and also budgeted in the table below:



**Budget Summary of Ghantasada village:**

Sl no	Activity	Area in ha	Nos. of beneficiaries	No of Plant	Material Cost	Labour cost	Amount (Rs.)	
<b>A. NRM Activities</b>								
1	30x40 model with Cashew Plantation	10.77	Community land	2000	530000	1090187	1620187	
2	LBCDs	6	Community land and individual land of 6 farmers		59414	46231	105646	
3	Earthe Bunds (type-1&2, CS=0.7 and 0.94 sq.m)	47.10	Individual land of 70 HHs		179370	3587403	3766774	
4	Dug wells (RCC ring type)	14.91	Individual HHs for 25 HHs		765000	409369	1174369	
5	Farm ponds (12x15x3) cum	11.88	Individual HHs for 26 HHs		554320	2695680	3250000	
6	WHS (earthen embankment types) 4 nos.	1.74	in Community land, HHs benefited=32		211212	4224247	4435460	
7	Renovation Tank, 3 nos.	0.41	in community and 1 individual HHs land, HHS benefited 12		51760	1035194	1086953	
8	Renovation of Pond 3 nos.	1.90	in community land, HHs benefited= 40		1700000	2428756	4128756	
<b>Sub Total A: NRM Activities</b>					<b>4051077</b>	<b>15517067</b>	<b>19568144</b>	
<b>B. Non NRM Activities</b>								
1	Cow shed		12 HHs		1017000	339000	1356000	
2	Poultry Shed		7 HHs		204750	68250	273000	
3	Goat Shed		7 Hhs		231000	77000	308000	
4	Compost pits		30 HHs		315000	105000	420000	
<b>Sub total B: Non NRM Activities</b>					<b>1767750</b>	<b>589250</b>	<b>2357000</b>	
<b>Total</b>					<b>2000</b>	<b>5818827</b>	<b>16106317</b>	<b>21925144</b>
<b>Note</b>			<b>No of plant</b>	<b>2000</b>	<b>Nos.</b>			
			<b>Material Cost</b>		<b>5818827</b>	<b>27%</b>		
			<b>Labour Cost</b>		<b>16106317</b>	<b>73%</b>		
			<b>Total MGNREGA budget</b>		<b>2192514</b>			
			<b>Person day generated</b>		<b>88496</b>			

### **1.15.2: Livelihoods and convergence plan:**

Gantasada village faces regular drought and dry spell during Kharif season due to erratic and scanty rainfall in the Adabahal Gram Panchayat of Titilagarh Block. Paddy is the main crop of the farmers during Kharif season growing in about 70 Ha. Besides, the farmers grow Cotton inter cropping with Arhar in 38 Ha, only Arhar in 10 Ha, other pulses in 8 Ha ( Green, Black and Horse Gram) and grow vegetable in 4 Ha, during Rabi . 10 Nos of SHGs with 106 members are active in the model Village. Other Off- farm activities in the village are goat rearing, sheep rearing , poultry etc.

The Village is having issues of both water scarcity and underutilization of available water . Kharif Paddy crop is affected by dry spells in up and medium land and the available water resources in the existing dug wells are not fully utilized by farmers during Rabi crop due to various reasons. So there is potential for promotion of Rabi Crop like Mustard, Sunflower, Potato, Onion , Vegetables linking existing water bodies ( Dug Wells, Ponds etc) which may help some farmers doubling their income. Dedicated Human Resource Support is required for mobilization of communities, farmers , market linkage , convergence etc with line departments and making things happen to improve cropping intensity thereby enhancing income.

The Livelihood Plan has been prepared after transact walk to all patches in the village area, discussion with Villagers, SHG members on present cropping pattern, potential areas of intervention in the farm, non-farm and off-farm sectors based on water availability, market potential, skill of farmers, local climate scenario and taking demand from various sections of the society like Women SHGs, Farmers, Vulnerable Households. Convergence with other line departments like Agriculture , Horticulture , Animal Resources OAIC, Odisha Livelihood Mission etc has been mapped for implementation of livelihood plan . As per need, Framers' Producer Organization (FPO) may be formed for backward and forward linkage of the farm and improving non-farm production system to ensure better price . Further, better package of practices (PoPs) in in the farm sector with existing and future climate prospective has been planned to be introduced in Paddy, Pulses, vegetable and other horticulture crops ( introduction of Organic farming, climate resilient seed varieties in paddy, water saving technology , improved method of production like SCI/SRI , Integrated Pest Management and Integrated Nutrition Management practices , Soil health management etc. ) through Farmers Field Schools (FFS) . Fishery activities may be promoted in the existing water bodies where there is availability of water throughout the year . Regular vaccination of small ruminants, breed improvement in goaterly has been planned in the model village. Poultry units has been proposed for improving nutrition supplements and enhancing income, mushroom farming, goat rearing, infrastructure support for value addition of agriculture produce and off-farm activities have been proposed by the SHG members. Regular capacity building of the communities and strengthening of Village Institutions are also highly required for better implementation of model village plan . The Villagers have also proposed Individual Assets under MGNREGA ( Dug well, Farm Pond , Goat shed, Poultry shed etc. ) for improving their livelihoods. The details of Off and On-farm action plan is annexed in the model village plan document. The proposed activities will lead to doubling income of farmers.



## Livelihood Plan of Ghantasada Model Village, Balangir

### a. List of proposed On Farm activities through SHGs:

Sl no	Activities	Units	Unit cost	Amount	Nos. of beneficiaries	Convergence Department
1	Goat Rearing	450	5000	2250 000	45	Department of Animal Husbandry
2.	Poultry framing (with 20 chicks in each Shed)	07	40000	280000	07	Department of Animal Husbandry
3.	Cow rearing (high breed)	22	40000	880000	11	Department of Animal Husbandry
4	Sheep Rearing	60	4000	240000	6	Department of Animal Husbandry
5	Cotton Cultivation	31.5 Acre	4000	126000	45	Department of Textile
6	Vegetable farming	21 acre	5000	105000	11	Department of Horticulture
7	Introduction of drought resilient Paddy varieties	10 Acre	500	5000	10	Department of Agriculture
	Total			<b>3886000</b>	<b>135</b>	

### b. List of proposed Off Farm activities through SHGs:

Sl no	Activities	Units	Unit cost	Amount	Nos. of beneficiaries	Convergence Department
1	Grocery Shop	03	20000	60000	03	Dept of PR & DW (OLM)/ Dist Industries Center
2.	Tailoring Machine and shop	03	5000	15000	03	Dept of PR & DW (OLM) )/ Dist Industries Center
3.	Plate making machine	01	50000	50000	01	Dept of PR & DW (OLM) )/ Dist Industries Center
4	Grocery shop	01	50000	50000	01	Dept of PR & DW (OLM) )/ Dist Industries Center
5	Internet Cafe	01	50000	50000	01	Dept of PR & DW (OLM) )/ Dist Industries Center

	<b>Total</b>			<b>225000</b>	<b>09</b>	
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***c. Proposed Income activities planned for the Physically Challenged person***

Name of the member	Proposed Income Generation Activity	Name of SHG
Anjana Mahananda	Tailoring Shop	Maa Bhairabi SHG
Manju Banchhor	Cow rearing	Maa Tarini SHG
Mamata Bagarty	Goat Rearing	
Tanu Rana	Vegetable cultivation	
Subhadra Chhura	Goat Rearing	
Deepak Chhura	Vegetable cultivation	
Dhanurjaya Herna	Cow rearing	

### 1.16. Labour availability analysis and phasing of proposed MGNREGA works

The Ghantasada village having 230 job card holders and approximately 669 people registered as workers. Among these registered worker there approximately 332 women workers under MGNREGA to work. However, it is found that there are approximately 97, say 100, active job card holder exist in the village to participate in MGNRGA works to be carried out in the village as part of model village planning.

As per labour budgeting process, under MGNREGA, total village budget of a village is =Active job card holder x 100 person days x daily wages under MGNREGA. This is equal to 60 percent of total work budget excluding the Administrative charges. Considering this formula and 100 working days per HHs for 100 active job card holders with a present daily MGNREGA wage rate of Rs. 182, the total one year works budget for the village is 30.33 lakh. Considering, 80% of this budget can be spent on NRM works ( if GP and block provide maximum emphasis on NRM works) then Rs. 24,26 lakh, say 25 lakh can be spent in year on NRM work. As the total budget of the proposed MGNREGA work in the village is Rs. **2.19 crore**, thus, the entire plan can be implemented in 09 years considering availability of Budget, timely fund flow and smooth implementation of works.

***Phasing of NRM works as per labour availability and yearly budget limitation.***

As the plan was developed at the village and with community's participation, after preparation of budget, it was discussed with the villagers that almost all activities plan for the village are urgent in nature in the lenses of climate change, however the village budget limitation does not allow us to implement all proposed activities in shorter period. Then the issue was discussed thoroughly and suggestions solution was come out that the villager will increase the active job card holder by participating in MGNREGA works. By that way they can also increase their annual MGNREGA work budget. Thus villager considered that they will have 150 active job card holders in near future so that they can spend an amount f Rs 45.5 lakh in a year under MGNREGA and thus they would try to implement the whole planed activities in a 5 years period. After then demanded NRM work are distributed year wise to prepare an implementation plan. The plan is presented below in a table form so that during implementation this document can guide the implementers. During phasing of works some other factors are also considered, such as ridge to valley approaches, integration of activities and works those can bring resilience against drought and floods. In the first year mostly area treatment works are considered along with border plantation, so that the treatment of the

catchment area of water harvesting structures could be done before start working on new or renovation of a WHS. Emphasis was also given during distribution of yearly work on biophysical parameters such as highly eroded area, water logged area etc.

Sl No	Proposed activities	Amount in Rs.	Distribution of budget				
			Year-1	Year-2	year-3	Yeaar-4	Year-5
1	30x40 model with Cashew Plantation	1620187	540062	540062	540062	0	0
2	LBCDs	105646	105646	0	0	0	0
3	Earthen Bunds (type-1&2, CS=0.7 and 0.94 sq.m)	3766774	565016	565016	753355	941693	941693
4	Dug wells (RCC ring type)	1174369	234874	234874	234874	234874	234874
5	Farm ponds (12x15x3) cum	3250000	750000	625000	500000	625000	750000
6	WHS (earthen embankment types) 4 nos.	4435460	1108865	887092	887092	887092	665319
7	Renovation Tank, 3 nos.	1086953	362318	362318	362318	0	0
8	Renovation of Pond 3 nos.	4128756	825751	619313	619313	1032189	1032189
1	Cow shed	1356000	0	339000	339000	339000	339000
2	Poultry Shed	273000	0	78000	78000	117000	0
3	Goat Shed	308000	0	88000	88000	132000	0
4	Compost pits	420000	0	154000	84000	182000	0
	<b>Total</b>	<b>21925144</b>	<b>4492532</b>	<b>4492675</b>	<b>4486014</b>	<b>4490848</b>	<b>3963075</b>

## 2. Approval & Execution of Works

All the works proposed in the Plan will be approved following MGNREGA procedure and CSO partner of ICRG will facilitate the approval of action plan of model village in the Labor Budget of the Ghantasada Gram Panchayat of Titlagarh Block with support of Block and district MGNREGA Team.

## 3. Exist Strategy

ICRG Programme will mobilize communities and Block Officials for implementation Action Plan of Model Village for One Year. Facilitate formation of a User Group inside the Model Village who will be capacities by ICRG CSO Partner for sharing the activities, implementation and linking them to GP and Block MGNREGA Team for implementation of all proposed activities after withdrawing of support of ICRG CSO partner in the Village.