

Bafla Watershed – A Rising Sun

Abstract

Providing sustainable livelihood for the people inhabiting in hills and terrains has always been a challenging task for development actions. People living in this difficult area have very limited options- uncertain seasonal agricultural activities, some amount of livestock rearing and mostly dependent on forest resources. With small land holdings, lack of water resources, there has been excessive dependency on forest resources. This has not only caused irreparable damage to the environment but also threatened the very sustainability of livelihood support system. This happens mostly because of lack of enough knowledge and skill amongst people for effective management of natural resources. There is a lot of scope in these areas to provide a sustainable livelihood through land (agriculture/horticulture) and livestock based activities, which can be realized through effective management of land, water and forest resources. Thus, watershed development and its management makes substantial impact on the the livelihoods of the people. Bafla watershed development initiated by Gram Vikas , though in a very small way, is on the path of becoming a successful development intervention by making provision for a secured livelihood of three revenue villages of Kalahandi District in Orissa.

The case study initially written by Gitanjali Das and later developed by Dr Braja S Mishra of The Livelihood School of BASIX

1. Introduction:

Since more than two decades there has been a shifting of focus of development efforts from resources and products to people and their sustainable livelihoods through efficient management of natural resources. Livelihood of this vast population of the country is dependent largely on agriculture and which in turn depend on land and water resources. In terms of scarcity and crisis, it is the water which comes first. Therefore, during seventies watershed development initiative was looked as a way of redressing the degradation of natural resource base and increasing land productivity. Two decades later it was realized that mere physical development of watersheds would not lead to desired objective unless the social, financial, and institutional dimensions were integrated into the process to reap the benefits. As a result, during nineties the idea of people-centered and sustainable livelihood approach became the focus of development initiative. Thus, watershed development became the means for land and forest augmentation, minor irrigation, provision of drinking water and sanitation.

In a country like ours where there are large tracts of land are hills, terrain, arid, and non-irrigated, particularly in the *ghat* regions ; scientific water harvesting has become a boon for a large populace depending on rain fed agriculture system. Orissa is one of the States of India, where majority population depend on rain fed agriculture and vast tract of land in the north, south, and western part of State are hills, terrain, and arid. Further, within the State of Orissa the District of Kalahandi has got the infamous distinction of having encountered frequent droughts , high poverty index and quite a few starvation deaths. The Block of Thuamul Rampur of Kalahandi is one of the most backward Blocks of Orissa. With this backdrop when we came to know from some our friends working with NGOs that the Bafla-Watershed development programme (located in the Thuamul Rampur Block) was in the process of ensuring secured livelihood for the people of three revenue villages, our curiosity aroused naturally to study the project and its deliverables. The objective was to develop a case study and document the knowledge which in turn would help other practitioners, academics and policy makers to get some insights about the dynamics and impact of the intervention. Hence the initiative was made by The Livelihood School .

Bafla- Watershed programme was under taken by a non-government organization called Gram Vikas, in two *Gram Panchayats* of Thuamul Rampur Block (mandal) of Kalahandi District. This was the major activity under the Integrated Tribal Development Programme of the organization , known as 'Bafla Project' .

1.1. Objective of the study :

- To understand the challenging situation people encountered for a secured livelihood in denuded hills, terrain and arid land,

- To understand the strategies adopted to replace the conventional and environmentally dangerous practice of shifting (slash and burn) cultivation, and
- To understand the revival and sustainability of natural based resources through watershed development thereby ensuring a secured livelihood

1.2. Methodology :

Though efforts have been made to capture the extent of progress in all watersheds, in three villages emphasis has been given to get more details from one, which has started giving visible impact

Primary data have been collected through the following methods :

- Village and resource mapping through PRA
- Focused group interview involving the men and women
- Focused group interview with SHG members
- Face to face interview with few selected individuals beneficiaries
- Individual face to face interview with GV staff
- Transect walk in the watershed structure, land and habitat

Secondary data have been collected from :

- GV records
- District information from the website
- Literature on watersheds

2. The Context:

2.1. The Region:

The District of Kalahandi is situated in the south western part Orissa. The district has a high concentration of Scheduled Tribe and Scheduled Castes. About 93 percent of its population live in rural areas where the level of poverty is very high (more than 60% house holds are below poverty line). To the contrary, the district is rich in natural resources like forest, land and large number of labour force. The Block of Th. Rampur (Thuamul Rampur), is a hilly region with an elevation ranging from 600m to 1229m from the sea level.. Paradoxically the area is well known for its drought, despite receiving maximum rainfall of 2750mm to minimum 1376mm ! It has many perennial mountain streams. All these mountain streams converge to Indravati River at different points. There is a dam called Indravati Dam on the river . Major portion of the reservoir of Indravati Dam covers various Blocks of Kalahandi District. However, ironically the District is very poorly irrigated as well as electrified. . The landscape is of mixed character as it extends from dense forest to degraded hills. The ravines comprise the upper course of numerous perennial narrow streams. Soil is mostly red, loose sandy loam, and loamy . The vegetation is mainly *Sal*, *Bamboo*, *Babul*, *Siris*, *Neem*, *Pippal*, *Mango*, *Tamarind* and *Mahua*.

Road communication is poor with an ill-maintained road connecting Th. Rampur), Block Head Quarters to the District Head Quarters at Bhawanipatna. The study area comes under two *Gram Panchayats* namely Odri and Gopinathpur of Th. Rampur Block. The northern and eastern part of the Block is forested while the southern part of the block, bordering the District of Rayagada, is largely degraded due to indiscriminate exploitation of forests. One can see only very sporadic forest patches.

The main source of water is natural streams from the hills. People of Odri and Gopinathpur *Gram Panchayats* solely depend on stream water even for drinking purposes. Attempts made by government to supply potable water through deep bore well failed at many places because of low water level and rocky bed.

Demographic composition of the study area is a mixed one. They comprise Scheduled Castes(around 25%), Scheduled Tribes (around 55%) and other backward caste Hindus(around 20%). Amongst the tribal population *Paraja* is the major tribe.

The present study focuses three villages, located adjacent to each other, are considered to be most interior villages of Thuamul Rampur Block having virtually no road communications. The existing roads are mostly in very bad shape , can not be used during rainy season. People have practically no access to Block Head Quarters (situated at a distance of 35 km) during rainy season. It so happens that people of some Gram Panchyats are cut off from the rest of the world, do not get any food grains or kerosene supplied under PDS continuously for more than 40/50 days due to heavy rains , flash floods and disruption in road communication. There is no electricity and no health facilities up to a distance of 35 km; no High School up to a distance of 15 km ! In fact, it is really difficult to imagine its disadvantageous situation unless one visits and experiences there.

Agriculture used to be the major livelihood activities in the area. Conventionally people mostly used to practice shifting cultivation (slash and burn, locally known as *Danger* or *Podu*) apart from cultivation of terrain during *khariff*. For some specific community like the *Gouda* (milkmen) animal husbandry is a supplementary source of livelihood. Besides, people go for wage labour mostly available in different infrastructure building activities of the Government within a radius of 10 km and collecting fire wood from far off forests and selling them . People migrating to far off place in search of livelihood are not very common here. Very few migrate in true sense.

Because of continuous shifting cultivation and indiscriminate deforestation over a period of time the hillocks got denuded and the fertility level of hill slopes declined fast. The streams are also squeezing and during peak summer people of some villages find it very difficult to get drinking water ! The women need to walk miles to fetch water. The situation got aggravated when heavy rains wash away all the top soil of the hills leaving only the rocks and boulders. One patch of hill slope is cultivated for two to three *khariff*

seasons and then is given up due to decline in its fertility. A new patch is acquired for the purpose. Shifting cultivation is practiced in the following way :

- 1st season – the land being bit fertile they grow pulses such as *Kandul*
- 2nd season – with declining fertility they grow Ragi and *Kosla* (Cereals)
- 3rd season – with still lower fertility they grow *Alsi* (Niger- oilseed)

In the process the forest is destroyed; agricultural productivity declines fast; massive soil erosion occurs; the natural streams dry up; and all together cause immense drudgery for the people.

The social maladies like alcoholism, gambling, laziness, and caste conflicts together with malnutrition and diseases like Malaria, TB etc have made people’s life almost to a sub-human level!

2.2 Intervention by Gram Vikas (GV)

Gram Vikas started its operation in 1979 in various parts of Orissa. Its Thuamul Rampur (Th. Rampur) project came into being in the late eighties. Around mid nineties Gram Vikas extended its health and elementary education programme to a few far off Gram Panchayats like Odri and Gopinathpur. The programme was later on discontinued on account of finding it difficult to monitor the programme from its Th. Rampur project office located at a distance of 35 km away with dilapidated road. In the late nineties some conscious people from Odri and Gopinathpur approached GV to resume its operation and especially initiate some programme for livelihood promotion . With all considerations GV made a feasibility study and decided to start a Project in the area namely Integrated Tribal Development Programme at Bafla in the year of 2001. So, the intervention was to a large extent demand driven.

GV studied the socio-economic profile of the area and found that getting a secured livelihood was the biggest challenge for the people, apart from poor state of health and education. Having its substantial experience in the field of promoting natural resource based livelihood activities; it decided to take up three revenue villages for watershed development which would facilitate livelihood promotion activities.

In its Bafla project GV has taken up nine revenue villages of two Gram Panchayats of Th.Rampur Block as the area of operation. Out of nine in three villages watershed development activities have been taken up since 2003. They are :

Sl.No.	Name of Revenue Village	Hamlets covered in Watershed	Gram Panchayat
1	Bada Bafla	Tikirapada, Goudapada, Kiramaska, Pergunipada, Chanchrapada	Gopinathpur
2	Tangiri	Goudapada,	Odri
3	Dalguda	Entire village	Odri

Topography of the villages covered under watershed :

1. Bada Bafla - more than 80% hillocks mostly denuded except only few patches of forest cover guarded by villagers being motivated by GV
2. Tangiri Goudapada – around 50% hillocks with a few patches of forest cover preserved by the people of Goudapada being motivated by GV
3. Dalguda – no hillocks but undulating terrain

Amongst three villages, watershed in Tangiri-Goudapada was completed earlier to a large extent and there was a lot of visible impact as a result. Its early completion can be ascribed to better awareness, understanding, and acceptance level of the people of Goudapada. This condition was precisely the basis for selecting Tangiri-Goudapada as the focus of case study. Besides, substantial observation has also been made to capture the progress and dynamics of other two watersheds.

The village Tangiri consists of three hamlets namely Goudapada (Milkmen community), Majhipada (Scheduled Tribes community) and Harijanpada (Scheduled Castes community). The names of hamlets denote the type of community living therein. A single *kacha* road over the ridge of hills connects this village to the Block Head Quarters. The hamlets are situated close to each other having 115 households.

Goudapada hamlet of Tangiri has 32 households with a population of 169 (83 male and 86 female). The major source of livelihood is agriculture and animal husbandry. Besides, wage labour supplements their need during lean season.

Table – 1 : Land Holding (in acre) as per HH of Tangiri - Goudapada

Sl. No.	Farmers	No. of HH	Land size (Acre)
1	Marginal	7	Less than 1ac
2	Small	15	1 – 2.5 ac
3	Medium	7	2.5 – 5 ac
4	Large Farmer	5	Above 5 ac

Source : Gram Vikas Base Line Survey-2001

Most of the landholding in the whole region in general and the hamlet in particular is combination of individually owned land as well as occupied land from the forests (under revenue forest land). The amount of land owned (private land) is around 150 Acres whereas approximately 90 acres of land of revenue forest is occupied in different proportion by different people. No reserve forest is contiguous to the area. Four households are found to be landless as per the revenue record. Naturally the occupied

land are mostly up and mid land varying from 1ac – 8ac. The table below gives the detail of land holding in the hamlet.

Table -2 : Types of land

Sl.No.	Type of land	Partially irrigated by stream	Non-irrigated	Cultivated	Occupied Land
1	Up land (podu)	0	35.14	35.14	35.14
2	Up land (permanent)	0	18.86	18.86	18.86
3	Mid land	0	123.63	123.63	40.91
4	Low land	21.80	0	21.80	0

Source : Gram Vikas Base Line Survey-2001

Only low land is somewhat naturally irrigated by the streams where people cultivate paddy in *Khariff* season. Other lands are used for *Podu* cultivation where the main crops are, paddy, niger, kosla, kango, black gram, maize etc

Table -3: Livelihood pattern of the villagers

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<i>Podu</i>	*				*	*	*	*	*	*	*	
Settled agriculture					*	*	*	*	*	*	*	
Wage labour					*	*				*	*	
Wood collection	*	*	*	*	*	*	*	*	*	*	*	*
Collecting foods from forest		*	*	*	*							
Animal husbandry	*	*	*	*	*	*	*	*	*	*	*	*

People , by and large, share similar type of livelihood pattern for the whole year irrespective of their size of land holding and man power available in the households. With all difficulties the conventional source of livelihood provide food requirement only for about 4-6 months, leaving a food deficit for another 8 - 6 months. The months of greatest food stress is April to May and mid- August to October. The situation slightly improves after October with the onset of harvesting of maize, ragi and paddy . Alsi (Niger) a cash crop grown in the upland and is harvested in the month of January, which is the celebrating month for the people over here as they sell the whole produce for ready cash. They celebrate "*Makar*" festival and the marriage season commences. The whole village set to the jungle to collect forest foods such as *sag* (leaf vegetable), tubers,

mushroom etc. Availability of wage labour is low, approximately around 60 – 90 days per annum that too with low wage varying between 25-35 Rupees

Before making intervention in watershed development GV took substantial amount of time (around more than one year) in making the people to agree the conditions to be created . There was a kind of memorandum of understanding that people of the hamlet would stop *Podu* cultivation in the occupied hillocks. It was a difficult choice before them and there was some apprehension in the minds of few people that strategically GV would take away the hillocks for reviving the forest rendering them with no land for farming. There was a situation of push and pull in the community – some were for and some against the intervention by GV. And, GV waited till the point when people settled down to the agreement.

GV sent some of its project staff for exposure visit to various organizations like Watershed Organisation Trust(WOTR) and Sadguru Foundation (having expertise in watershed development) to gain technical and management training. Though as per the norm of government, the team should consist of 5 specialists from various disciplines, GV believes in demystifying technology which a barefoot practitioner can implement. So it trained its entire field staff on different aspect of a watershed project by exposing them to different projects by different organizations. As per strategy, GV appoints a Supervisor, known as “Gram Sathi” who lives in the village, organize the people, facilitates the implementation activities and supervises.

As a strategy, GV works with an integrated approach focusing on health, education along with livelihood promotion for the community in its intervention plan. In the initial stage it took up land development, social forestry, grain bank etc. Accordingly GV formed three village committees taking the people each for education, health, and secured livelihood. Each committee has specific roles related to their portfolio. One male and one female from each hamlet are selected to represent in the general-purpose committee formed at project level, to coordinate the activities. Village committee is also responsible for accessing government facilities, including vaccines for immunization, getting medicines stocks for common ailments etc. As the government run health center is largely defunct, GV runs a project level dispensary to provide essential medicines . Serious health cases are referred to the government hospital. Mothers are periodically counseled on child health care and nutrition.

2.2.1 Watershed Development Programme : Strategy

With an objective to ensure food security, check *Podu* cultivation ,reviving the natural resources like water and forests , GV initiated watershed development in the Goudapada hamlet of Tangiri. Taking ahead the work, a base line socio-economic survey was conducted way back in 2001 in the area over two phases along with resource mapping of the selected village. For six months, many motivational meetings were carried out. Initially GV started with formation of SHGs focusing on saving and credit as a strategy towards secured livelihoods. After these groups and village committees started

functioning, GV encouraged the villagers to find out strategy for regenerating the forest. After 3-4 meetings with the villagers, the villagers were convinced to contribute a patch of land for social forestry with an assurance that they would not do *Podu* on the same land. They not only made a point to allow the vegetation to grow, but also protect it from the poachers. Repeated *Podu* cultivation in the hill slopes left it almost unfit for agriculture. So, the task became easier to promote social forestry. They were convinced that once vegetation grows it would be easier for the womenfolk to get firewood, which they otherwise were collecting from far flung areas.

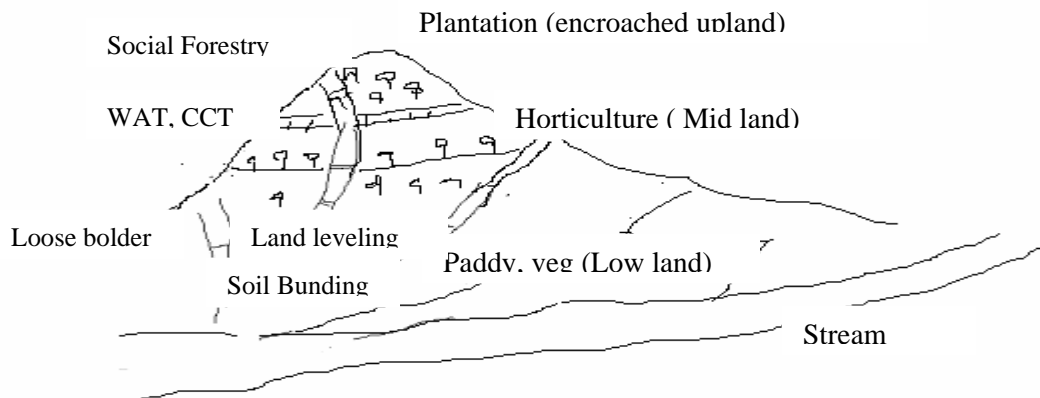
For developing the wasteland, GV offered the idea of planting 10,000 wild plants on the proposed land. In the month of June – July 2001, varieties of wild plants were planted such as Bamboo, *Gamhar*, *Karanj*, *Mahaneem*, Tamarind and others. These particular plants were chosen, as after 4-5 months these varieties would not require to be protected from cattle grazing.. Giving watch guard was the responsibility of community. GV supported the cost of fencing. Interestingly, the survival rate of the plants was more than 60%.

Realising a favourable condition for watershed development GV in later part of 2001 took up strategy for enhancing food security and improving environmental resistance to drought through effective land, water and forest management practices. Changing mind set and visualizing the benefits from an alien system of land and water management was really a difficult time for the community. The staff of GV too had to toil a lot in keeping their fingers crossed.

Three selected villagers were taken for exposure to WOTR, near Nagpur and some villages in Orissa where GV had already completed a few watershed programmes. Their visit instilled some amount of confidence to carry forward the work. Technical feasibility study in collaboration with villagers was carried out and detailed planning was chalked out over a period of three months. The planning was to cover the total area of three hamlets under watershed intervention, though the first programme covered only Goudapada hamlet.

Watershed committee was formed in the village for implementing, managing and supervising the activities along with ensuring quality and making payments to people engaged as labour in time. This committee was also responsible for presenting the plan and the expenses in village meetings, which used to be held once in a month. It was also responsible to liaise between GV, Government Departments and Bank. Each of these committees comprises of 4 men and 3 women. The women members are the representatives from the Self help Groups. The rationale behind encouraging women's involvement was very clear as because they were the ones doing a major part of work in agriculture apart from , collecting fire wood and fetching water. Women are an integral part of project planning, implementation and monitoring process. But the fact remained that it was the GV staff that were virtually looking after the day to day activities relating to watersheds and giving handholding support in reaching out to government offices and bank.

Initially , GV encouraged social forestry in a patch of 30 acre on the top of the hill, which was largely un-surveyed area by the revenue department. The idea was very clear from the beginning to start the treatment from the hills and gradually flow down to the low land. It could very well avoid conflict within the villagers for the priority of land treatment and the benefits could not be seen in the lower land unless the top portion is treated first. The earthwork started in March 2002. For deciding on the nature of structures to be developed they surveyed the land and drew the contour map. Analysis of the slope of the terrain, valleys, ridge was done with the help of this map. Identifying the location of various types of soil erosion, sheet, and reel and gully erosion was the hallmark of this survey. Further all efforts had been taken to make maximum use of the locally available resources . They included the local manpower, which provided them immediate wage earning, use of stone boulders, soil, etc. Various structures were built in the project area, which lays a clear emphasis on their strategy “Comprehensive Ridge to Valley Treatment”. First step was to construct Continuous Contour Trench (CCT) and Water Absorption Tank (WAT), which acts as speed breaker for the surface run off water and thus preventing soil erosion and recharging the water level, as it slowly percolates down. This has been constructed throughout the hill. People were happy to get assured wage in lieu of their labour during lean season. They were asked by GV to do some *shramdan* (contributing labour free of cost), but they hesitated to accept the concept of contributing free labour . However, with a lot of persuasion they agreed the formula that, for any earthwork in government(occupied) land, the labour contribution would be 20% and for private land the labour contribution would be 45%.



Picture – 1: Describing the land based activities

When the first payment was made after ten days, it was probably for the first time in their life each villager earned Rs. 500/- on an average as cash in hand ! When the first payment was made, all of them spent in purchasing food for a week. This was the first time they had not gone to jungle for collecting wild food ! Part of expenditure also went

for liquor consumption, which was of course not unusual. GV conducted regular meeting to instill saving habit by avoiding wasteful expenditure. As a result it was decided that 10% of the earning would be compulsorily saved in SHG, 5% of the earning would go to village fund which could be utilized for repairing various structures after the project period is over. Some were interested to open individual account in the bank but it was not made compulsory.

After more than two years of implementation of work, more than 80% of land preparation was done in Gaudapada with construction of farm bunds and land leveling. Quite a few Loose Boulder Gully Plugging (LBPG) were constructed in the gullies. These structures have been erected as per the size of the gullies formed with an average height of 3 ft from the top end. The effectiveness of these structures in checking soil erosion is evident from the fact that fertility level has gone up with better yield in agriculture. Farm Bunding and Bench Terracing have been done in large part of land where slope of the land is in the range of 5% - 8%. Farm bunding with the help of soil and small pebbles has been erected to check the run off rain water and increase its absorption so as to increase the intensity of cropping. This is seen very prominently.

2.2.2 Using the land judiciously

As the lands were treated, GV motivated the farmers to go for horticulture where they planted Cashew and Mangoes in the upland without changing the existing cropping pattern. The saplings were arranged by GV from the Horticulture Department of the Government. Prior to intervention they used to grow *Kosla*, Ragi etc in this land. In mid-land, the focus was on paddy and horticulture. In the first year, the survival of Mango and Cashew was nil as only four farmers had planted 10 plants each and did not take required care and nurture like fencing, manuring and some amount of watering. This happened because they were not used to take so much care for plants. Next year, Cashew plants were distributed free of cost and towards the fencing cost, GV contributed 50%. Interested farmers who planted Mango had to purchase sapling at the rate of Rs. 6/- per plant. The farmers were demonstrated on pot irrigation in *Rabi* and *Khariff* season, which ensured the survival of the plants. It was made compulsory for all the farmers to fence all the plants.

As the upper lands were treated, the benefits started to be seen in the lower land. The villagers were introduced for the first time to cultivate summer paddy along with paddy in *Khariff* season. As they were totally ignorant regarding cultivating vegetables, the GV staff demonstrated radish, brinjal and ladies-finger in just 5 dc of land as *Rabi* crop in 2002. Only radish could survive and gave a good production. Next year, 8 villagers cultivated radish on their own initiative and GV ensured supply of quality seed, fertilizers and demonstrated the Package of Practices to both male and female during all the activities. GV introduced cultivation of tomato, onion and brinjal by treating the land with backyard manure. There was good yield from tomato and not so good in others.

However, it generated a lot of enthusiasm in them as buying the vegetables from market was beyond their reach. The farmers were trained in improved cropping practices. Gradually with the availability of water the number of people taking vegetable cultivation continued to rise and in 2005 almost all started doing more or less. In summer, GV introduced pumpkin, cucumber and ridge guard in the home stead land and low land. Apart from self consumption they started selling the surplus. Getting hard cash in hand encouraged them to take up cultivating cabbage, cauliflower, garlic, spinach, green chili and host of other vegetables. The changed cropping pattern from mono to multi has increased the utilization of natural manure which otherwise used to be wasted. Till date, there exist barter systems in the villages for buying the groceries in exchange of paddy, millets, maize etc. GV initiated to make them acquainted with the modern system of measures and mercantization

Going commercial in agriculture has aroused conflicts at different points of time amongst the farmers regarding distribution of water. GV tacitly keeps itself away and allowing them to deal it with their own reasons and judgments in the village meetings.

Total investment made by GV was to the tune of Rs. 4,62,593.00 for 32 households having 249 acres of land. Thus, acreage investment was Rs.2800.00, which was nearly the standard allocation of fund for a watershed plus program by the government. GV received some support fund from the Christian Aid to start the work and later on got substantial support from SCIAF of Scotland.

2.2.3 Landless households and the ones whose land fall beyond the watershed area

There were some land of some households falling beyond the watershed area. They were encouraged for horticulture and livestock development activity. Some of them are involved in share cultivation with farmers whose lands are treated. With rising agricultural activities the demand of natural manure grew and some of households started making backyard manure with cow dung and leaves to sell others requiring it.

Diversification of livelihood options through skill building has been another area of intervention, especially for landless. Three young men were trained in masonry as very few local masons were available for different construction work, particularly initiated by government. Though it requires more than six months to develop the skill, they work as helpers initially and become mason (*Rajmistri*) subsequently earning from Rs 50 to Rs 100. A highly skilled mason some times fetches Rs 120 to Rs 130. For them there is no dearth of work. They often get call to work at a distance of 30-50km. GV in its programme for rural sanitation utilizes the masons for constructing the toilets in the villages. Besides, training has been provided to SHG members in leaf plate making and broom binding, which helps them in improving the existing skills and enhancing the income by utilising the available resources. In the year 2004 they earned Rs 200 to Rs 400 each by selling broom and leaf plates in a season (January-February).

Self-sufficiency from masonry

Sana Gauda is an old man of Gaudapada has 5 family members to look after. He is among the three landless families with an occupied land of 2 ac. Sana is engaged in agriculture. His son Gopal was trained in masonry during 2003. Like others he had food security for 4-5 months. During training period Gopal was paid stipend and after the training was over he started earning Rs 60 per day on an average. During rainy season, he went to Utkal Alumina (a new industrial project coming up at a distance of 55km) site and got Rs.100.00 per day. Now- a - days he is a busy man, booked in advance. He has purchased a gold nose-ring for his mother, for which he is proud of. Presently he charges Rs.150.00 per day and also has engaged another fresh mason as assistant.

2.2.4 People's contribution in community development

In 2001, GV opened a Non Formal Education center keeping a facilitator(teacher) from the village itself , the only person who had completed 7th standard. The payment to teacher used to be made from the village fund for two months and GV was paying for eight months. The condition has been laid down that as the financial situation of people improves the village fund shall increase its contribution and GV shall decrease. It made substantial impact, as a result the practice was emulated in two adjoining villages. After completion of elementary education some selected children are sent to the Residential School run by GV at Th.Rampur. Thus, an aspiration to get exposed to wider world through education is on rise.

2.2.5 Conflict resolution – a step ahead

As the programme strictly prohibited farmers of the hamlet from resorting to *Podu* cultivation in the Goudapada, there was no such control over the people of Majhipada (Tribal hamlet). When the watershed programme started the people of Majhipada did not join apprehending that the hillocks would be taken away from them. However, over a period of three years when they witnessed that people of Goudapada were getting enough water round the year; reaping multi-crops; and improving financial condition, they became very jealous. Some miscreants of Majhipada, with tacit support from the hamlet as a whole, set in fire in the adjoining vegetations on the hill which burnt a sizeable patch of forest promoted by the people of Goudapada. The people of Goudapada were quite upset but did not dare to take the people of Mahjipada into task fearing still a bigger reprisal. They approached GV to come to their help. Strategically GV did not interfere overtly but kept on mobilizing them to go for a direct dialogue with the people of

Majhipada to resolve the matter and ensure that the misdeed was not repeated again. They took some time to organise themselves and muster moral strength to initiate a dialogue. However, the people of Majhipada were adamant and mentioned that they would continue to do so. Learning their negative attitude GV pitched in and asked for an amicable solution, especially to protect the forest resources and end the feud. They still remained adamant and declined for a face to face dialogue. As a last resort GV encouraged people of Goudapada to file an FIR with the local police station. When police intervened the people of Majhipada bent down, apologized and gave an undertaking that the misdeed would never be repeated. Consequently they approached GV to initiate watershed programme in their area too. However, GV kept them waiting till it was convinced that their unity was solid. GV has a plan to initiate the intervention during 2007.

3. Impact:

The promotion of agriculture and horticulture was initiated simultaneously with the construction of various structures. While the upland and mid land in the area is rain fed, the low lands and part of mid lands are irrigated with water flowing from the streams. With the rise of water level and revival of streams villagers changed the cropping pattern.

Table – 4 : Change in cropping pattern

Season	Land	Pre-intervention	Post-intervention
Summer	Up-land	Nil	mango, cashew, pumpkin, cucumber
	Mid-land Un-irrigated	Nil	cashew, mango
	Irrigated	Nil	ladies finger, pumpkin, cucumber, ridge guard, sweet potato
	Low land	Nil	Summer paddy
Khariff	Up-land	niger, kango, kosla	niger, kosla, potato, mango, cashew
	Mid-land	paddy, kosla, niger, kango	paddy, kosla, niger, tomato, onion, cauliflower, brinjal, chili, mango and cashew
	Low land	paddy	Paddy
Rabi	Up-land	Nil	mango, cashew
	Mid-land	Nil	tomato, brinjal, pea, radish, potato, cauliflower, cabbage, chilli, ladies finger

	Low land	Nil	tomato, brinjal, pea, radish, potato, cauliflower, cabbage, chili, ladies finger
	Home stead land (Kitchen Garden)	Nil	papaya, drumstick and banana

Now they purchase the seed, fertilizer and pesticides collectively, thereby minimizing some cost . Of course GV plays the key role in linking to a supply chain of inputs. Natha Gouda, the President of Watershed Committee has been entrusted the responsibility to transport the inputs and store them in his house. The price of backyard manure has also gone up, which used to have no money value just three years ago! Each family earns an average additional income of Rs 600 to Rs 8000 per annum by selling the manure . Out of incremental income 23 farmers have purchased bullocks and other livestock like goat, chicken, etc.

People have invested a substantial amount of money in purchasing assets like gold ornaments, bi-cycle, radio , agricultural implements etc. Seven families have invested up to Rs. 5000 – Rs. 7000 for repairing and constructing their houses. Their expenditure pattern has also undergone changes. There are rising requirements for better food, clothes during festivals. People being engaged in their land for larger part of the year, their need for wage labour has substantially come down.

An Individual Case for example

Lochan Gauda is a young and energetic man in his mid 30's. His family consists of his wife, parents, two daughters and two sons. The eldest child is 15years old and youngest 2 years. He has 16ac of land and out of which 8 ac is occupied forest falling outside the treated area. The break up shows, he has 1 ac upland,14 ac mid land and 75 dc of low land. He receives 16kg of rice from the government Public Distribution Centre under Antyodaya Annapurna Yojana Here is a comparative picture of his income in 2001 and 2005.

Table – 5 : Income and expenditure (2001and 2005)

Income - 2001	(Rupees)	Income - 2005	(Rupees)
Rice (Rs.5 per kg)	1250.00**	Paddy	3000.00 @
Other cereals and millets*	1860.00**	Summer paddy	1400.00
Wage and agri labour	450.00	Maize	300.00
Maize	300.00	Niger	1400.00

Niger	1200.00**	Vegetable***	8400.00
		Sheep(livestock)	2800.00
		Mustard	600.00
		Wage labour	5670.00
Total	5060.00	Total	23,570.00

@ : The production was much below the expectation

* Includes *Kosla*, Ragi, *Kango*, Kating, Black gram,

** the price denote the net income

***Includes tomato (twice), cabbage, onion, radish, brinjal (total production from the field)

The table above shows a radical change in his livelihood activities carried out in the year 2001 and 2005. The income has increased more than four folds. He has a range of options and agriculture has become the main livelihood activity, no more a subsistence one. His income shall further rise substantially once the banana and mango he planted starts fruiting. Earlier he used to go to forest to get wild fruits/vegetables three days a week, which serve his requirement for one day only. He spends that time in his own fields now. His wife used to go for wage labour., but no more goes now. He is utilizing his land effectively by taking up three crops a year. He is happy to see his fields green throughout the year His wife Sumana., when asked to make a comment, she looks at with full of happiness. Her children want change in food menu everyday , she boasts. When asked, how many mango and banana plants he planted, he mentioned less number than the actual, saying “rich man never reveals his real assets !”.

Like Lochan, there are other 17 families who are no longer dependent on wage labour . Their major livelihood is settled agriculture. However, there are still four families, who seem to be lethargic and have not yet taken much interest in harnessing their land or livestock.

The table below gives a glimpse of the situation before and after intervention.

Table – 6: Comparison between pre and post intervention

Sl. No	Elements	Pre-Intervention (no of families)	Post-intervention (no of families)
1	Shifting Cultivation	32	0
2	Settled Agriculture	7	32
3	3 crops a year	0	20
4	Horticulture	0	21
5	Vegetable selling	0	16
6	Food security	0	37
7	Wage labour	32	15

8	Radio	0	4
9	Cycle	0	17
10	Gold and silver	2	19
11	House repairing and extension	0	11

There is significant change in their interface with outside world. Opening a Bank Account, which was like a dream, for their small deposit is certainly a step forward. Their improved economic condition has brought enough confidence and right consciousness. They put pressure on the dealer of PDS when the stuff is not distributed in right time and in right quantity. Now people are not shy of talking to outsiders or government officials, boasts Natha Gouda. People have tasted the benefit of selling their produce directly to the consumers without being exploited by the middlemen. Social awareness on ill effects of alcoholism, health and hygiene is also slowly creeping into their life. There is growing moral pressure on alcoholics. As a result alcoholism has come down to a great extent

The SHG of the village is not only engaged in saving and credit activities but also in asset building. They have purchased two motor pump sets with assistance from Swarnajayanti Gram Swarojgar Yojajana (SGSY). The pump sets are given on hire to people at reasonable rate.

As a whole the people assess their improved situation and have an aspiration of better future for them and for their children.

4. Analysis and cascading effects

Checking *Podu* cultivation and thereby promoting forest and water resources to provide a secured livelihood has been the focus of Bafla Project of Gram Vikas. The task of bringing *Podu* cultivation to a halt, though in a small way, has been undoubtedly a tough journey for the staff of GV. The task became a bit easier when some conscious people from Goudapada approached GV to intervene in improvement of agriculture and harvesting water. Organising a community, preventing them from their traditional style of farming (*Podu*), switching them over to a new set of farming practices has been the results of continuous interaction and motivation by the GV staff. The desire of the community for a change was probably the triggering point for the intervention. And, there are many facets to the success of the Tangiri-Goudapada watershed development programme. GV's intervention is based on systematic treatment of land from ridge to valley with active participation of the community. There were a number of government initiated watersheds programmes in the area, started before GV pitched in, but they have

not been able to give desired results. Probably it was a learning for GV to prove that watershed based livelihood intervention could be effective if certain conditions both for the community and service delivery system were created.

The access and entitlements of community to government and common property resources have been harnessed in a systematic way, though with active support from the GV. People get inputs from the agriculture and horticulture department, timely support to SHG from SGSY programme. To ensure the maintenance of the structure self sustaining, a clear mandate is given that structure built on the community land would be maintained from the village committee fund and in individual land would be responsibility of the respective individual. Thus an institutionalization of the process has set on. However, the real institutional sustainability is in question, as the community is still largely dependent on GV for any kind of negotiation with government agencies or input supplier.

Substantial impact of Goudapada watershed has not only created jealousy in other two adjoining hamlets- Majhipada and Harijanpada , but also organized them to start watershed structure in their area. They are not leaving any stone unturned while approaching GV. GV is deliberately going very slow. As a result, people of Majhipada have given a commitment that they would contribute their labour at a subsidized rate. Some preliminary work has also been started. Similarly in Harijanpada, people are trying to organize themselves.

Watershed development initiated by GV in the villages of Bada Bafla- Tikirapada and Dalguda have also started giving result, thus creating a lot of hope for the area. In Dalguda an enterprising tribal man Debri Majhi planted dry land banana in an area of 30 dc with the technical inputs from GV three years ago. Now his daily earning is around Rs 100 only from selling green banana.

Similarly good varieties of Mango like *Langra*, *Amrapali*, *Alphanso* and cashew plants have made the hillocks of Tikirapada and terrain of Dalguda green. Within a year or two it is expected to generate substantial income for the people. In Tikirapada, mango and cashew have been planted in the hill slopes (which is common property resource) by the community, which is an important achievement in the community organization.

Being impressed and encouraged with Tikirapada watershed, people of other hamlets of Bada Bafla started making some CCTs and WATs on their own and then approached GV for more support. GV has started giving support in Kiramaska, Pergunipada and Chanchrapada hamlets of Bada Bafla. May be after a period of five years there will be a sea change in the flora , fauna and livelihood portfolio of the people of that area.

5. Conclusion:

Effective watershed programmes at Bafla, Tangiri and Dalguda will go a long way not only in providing a sustainable livelihood but also reviving the rich forest and water

resources of the area. There are vast tracts of hillocks and terrains in the District of Kalahandi as well as in other Western Orissa Districts which are mostly deforested and suffer from perennial scarcity of water. The area has been always in the lime light for its continuous drought situation and high poverty level in the country. A number of poverty alleviation, livelihood promotion programmes have been undertaken in the area with assistance from the Central Government, DFID, World Bank and a host of other International donor agencies. Considering the enormity of investment in term of money, manpower and time, it can be said without casting aspersion on anybody that nothing substantial has been achieved, which can be replicated elsewhere. On the contrary with a reasonable investment, though in a small way, coupled with the commitment of GV's staff and greater community participation an exemplary achievement is in the process of unfolding. The Bafla Watershed project gives us an important lesson that in any development initiative there should be truly an integrated approach, continuity of the process and people's institutions to carry forward. Unfortunately in many of the government sponsored programmes the above elements exist partially and half heartedly. However, the impact of Bafla Watershed Programme looks like a rising sun in the backward Block of Th. Rampur of Kalahandi. Nevertheless, the very sustainability of people's institutions and its active role in managing the watershed is yet to be established. It may take few more years to capacitate the people to come up to that stage. Will GV shall be able to do it, a question which time can only answer.

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