

## **SUCCESS STORIES UNDER WATERSHED DEVELOPMENT COMPONENT OF PRADHAN MANTRA KRISHI SINCHAYEE YOJANA (WDC-PMKSY) ERSTWHILE INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)**

While the project duration of WDC-PMKSY/IWMP project varies from 4-7 years and as a result the WDC-PMKSY/IWMP projects are yet to be completed, some impacts are now visible in many parts of the country. The construction of water harvesting structures under IWMP has helped in improving the water availability and incomes to the farmers living in the project areas. Some of the successful interventions under WDC-PMKSY/IWMP which have impacted the livelihoods of rural poor and contributed in enhancing their incomes are given in the subsequent paragraphs.

### ***Construction of Soil and Water Conservation Structures in Gunjala village of Adilabad district, Telangana***

Gunjala, a tribal village of Tamsi Mandal in Adilabad district of Telangana ( Gunjala micro watershed - IWMP-I /2009-10) had been suffering from three major problems (i) very low ground water table (below 300-400 ft.), (ii) unavailability of reliable natural water source and (iii) absence of any man made water harvesting structures. To address these problems, water retaining structures like loose boulder structures (97 nos), rock field dams (31 nos), percolation tanks (2 nos) and check dams (3 nos.) were constructed with an expenditure of Rs.39.12 lakhs under IWMP project. The Intervention improved water harvesting potential of the watershed, and increased productivity of the land. The harvested water was used for supplementing irrigation. There was significant increase in the productivity of cotton (from 6.5 Q/acre to 10 Q/acre) and redgram (from 1.4 Q/acre to 3 Q/acre). These water retaining structures also improved the groundwater level. The change was visible in terms of the increased income flows to the command area households





***Construction of Major Check Dam under Integrated Watershed Management Programme (IWMP) in Sanarpatti Block, Dindigul District., Tamil Nadu***

Shri Saravanan of Kothalapulipatti in Vangamanuthu micro watershed project under Sanarpatti Block in Dindigul District (IWMP-III/ 2011-12) had been suffering from the heavy flow of runoff water from the nearby hillock during the rainy season without giving benefit to any of the farm land in this area. The agriculture in the area mainly depends on well irrigation only. The felt need of a checkdam was explained during the Gram Sabha and the Watershed Committee of the IWMP decided to construct a major check dam under entry point activity. Accordingly a chekdam was constructed. The water stagnated in the checkdam to a length of 200 mts during rainy season which increased the water level in well up to 25 mts from its normal level of 4 to 5 mts. The increase in water level motivated Shri Sarvanan to sow pulses, tomato as first crop and to go for second crop in a year and it fetched an additional income of Rs.1,15,000/-.



***Strengthening of Livelihoods of Landless poor in Mudram doddi micro watershed of Chittoor district, Andhra Pradesh.***

In the Mudram doddi Micro Watershed of Chittoor district IWMP-I/ 2009-10, 61 families were devoid of land. Access to formal credit system was a major problem faced by these poor landless people. 8 JLG groups were formed with the help of APMAS, the implementing agency of the IWMP Micro Watershed Project. In this they have started saving Rs.100 per member per month. Second month onward they



started internal landing with Rs.300 to Rs.500. As a whole, the formation of the JLGs they started earning Rs.9000 per month. Their entrepreneurial drive increased and they started venturing into more profitable livelihoods.

***Construction of Well which quenched the thirst of people of Khandow of Adilabad district IWMP-I/2009-10, Telangana***

Hundred and two families of Gond tribe living in Khandow village of Adilabad district, under Khandow Micro Watershed IWMP-I/2009-10 were suffering from the scarcity of drinking water during summer. The Centre for People's Forestry (CPF), the implementing agency of IWMP in the Khandow village constructed water absorption trenches across the foot hills and constructed 10 loose boulder structures and 15 rock fill dams with a total cost of Rs.1.5 lakh. These interventions improved the water level of well substantially and sufficient water is available in the well during summer and the people have more productive time now.



***Dug out of a Farm pond in Chandramakulapalli of Chittoor district, Andhra Pradesh.***

The farmer K.Santosh Reddy, the resident of Chandramakulapalli village of Punganur Mandal in Chittoor district constructed a big farm pond (15m width 15m length and 2m height) under IWMP Project sanctioned in 2010-11 with the help of Project Implementing Agency (PIA) i.e., DHAN Foundation. Earlier, Santhosh Reddy used to grow tomato, cauliflower, capsicum & paddy depending on the season. However, as IWMP kick started, he received technical inputs from DHAN Foundation regarding bund strengthening and water storage on large scale. He started



practicing mixed cropping.

Through mixed cropping technique ( Cultivated tomato, bajra, raagi, paddy, corn) , he has harvested 3 bags of raagi and 30 bags of paddy from 1 acre of land. From the corn (cultivated corn in the border of the field for cattle), he has saved Rs 5000/-, which he would had otherwise spent in buying animal feed.



*Picture above: Farm pond constructed and Santosh Reddy in his field.*

***Construction of Tanka at Government Primary School Aklavya Nagar, Barmer- IWMP-XXVI, Rajasthan***

Barmer a desert district receives average annual rainfall of 277mm. Sources of water in the area are negligible and people of this area, spend most of their time in search of water. Due to scarcity of water, teaching, learning and mid-day meal (MDM) was severely affected in school.

To address the above problem, rainwater harvesting structure namely, *Tanka* of 50,000 litres capacity was constructed under IWMP project-26, at government Primary School “Aklavya Nagar” which falls under Jajwa panchayat. The cost of tanka construction was Rs 1,09,988. Aklavya nagar village under Jajwa panchayat is mainly dominated by people of Schedule caste community. Toilet in the school remained unclean and dirty due to non-



**Tanka Construction at primary School Aklavya nagar**

availability of water. After construction of *Tanka* at government primary school, situation has now changed. Now MDM programme at school is implemented smoothly as drinking water is available in the school premises. Also, availability of water helped in maintaining cleanliness of school toilet which was earlier left unused due to scarcity of water. Hence, construction of *Tanka* at government primary school has improved the teaching, learning and the environment at school.

### ***Empowerment of rural women in Bharatpur district IWMP 5/10-11, Rajasthan***

In Village Morda in Gram Panchyat Samraya Weir Block of District Bharatpur has created an impact through self help groups for empowerment of Rural women in the area. A group of 10 women was formed on 20.08.11 by WDT Member Smt. Beena Goyal and named the group as Prabhat . Group opened a Bank A/c and do regular saving of 50/- per member per month and created a corpus fund for their internal loaning to meet out their personal as well as productive needs. Smt. Rajen Dei, President and Smt. Rajwati , Treasure of the Group conveyed that they have deposited Rs. 11,000 /- in their Bank A/c. After successful saving and interloaning and got a loan of Rs. 25000/- from IWMP Project for increasing their Income Generating (IG) Activities.

They started IG Activity of Bagwani (horticulture) in Village Morda, SHG members have skill of farming and made a IG Plan. Group took a Fruit Garden on rent basis of Rs. 50,000/- and after production of Guava, they sold of Rs. 80,000/- and got the profit of Rs. 30,000/-. Thus Group is taking a garden on rent basis every season and sell the production and get income.

All the members are regular in repaying their loans in time and have created an environment of satisfaction through Income Generation for upgrading their life. Others are following the concept of Self Help Group for their development in the project area.



### ***Nala Bund Nurtures Local Community in Chamarajanagara District, Karnataka***

Nala bunds are embankments constructed across nala for checking velocity of runoff, increasing water percolation and improving soil moisture regime. Main objectives of nala bunding are (i) to impound surface runoff coming from far off catchments and (ii) to facilitate percolation of stored water into soil sub strata with a view to raise ground water level in the zone of influence of nala bund and (iii) to hold the silt flow which would otherwise reach the multipurpose reservoirs downstream and reduce their useful life.

### **The emerging need of Honnahalli Village – Community Pond**



Honnahalli is a village in Chamarajanagara District & Taluk, Badagalpura, having a population of 1490, out of which 596 belong to SC/ST. Livestock strength of this village is 1294. The average rainfall of this area is 680mm. With the introduction of the IWMP program in the area, the local community leaders expressed that their village needs a storage pond to impound runoff water during the rainy season and to use the stored water subsequently to meet the drinking water needs for cattle and other purposes. The community also felt that the pond would facilitate the recharge of ground water in the vicinity.



Having understood the villagers' problem, Watershed Development Team visited the Nala in survey no **166**(GPS code for this Nala is: N=11°48'102" E=076°50.990) along with the community leaders and identified the location which is technically feasible and suitable to impound the runoff water.

#### **Execution of the Project:**

The Nala bund construction work was initiated as part of the EPA activity during Batch-I/ 2009-10. The total expenditure involved to construct the nala bund is Rs.2,07,191/-. There are around 30-40 farmers are involved within the 1 Km catchment area of nalabund(Gokatte). The local people were involved in monitoring the construction work in each stage. They expressed that their participation by monitoring the work has led to a better understanding of how the soil and water conservation structures fit into the overall watershed development programme.



### **Benefits of the Nala bund accrued to people:**

This nala bund is situated at a distance of 1 km from the village. It is filled thrice in a year. It is not only useful for the individual farmers but also to local people for their daily needs mainly drinking water for their livestock, washing the cloths, cleaning of utensils taking bath etc. About 10-15 farmers also use the water to provide protective irrigation to their crops. Nalabund has helped to improve the water table in the vicinity of structure. There are 20 bore wells below the nala bund which are being recharged regularly.

### ***“Green Gold”- Cultivation of Creeper Vegetable Cultivation in Visdaliya village, Mandvi block, Surat District, Gujarat***

The total geographical area of village is 164 Ha. Most of the villagers are engaged in agricultural activities for their livelihood. Forest department provides land for agriculture purpose on lease basis which is known as ‘*Sanad land*’. Paddy and vegetable cultivation is the main crop for earning and for domestic consumption purpose. Integrated Watershed Management Programme (IWMP) had started its interventions in the village in 2010-11 (IWMP 6- *Ambapor* project) which includes 19 villages. Under this project 4700 Ha was proposed for treatment.

Mahendrabhai Mangabhai Chaudhari, a tribal farmer who owns 0.3 Ha (0.75 acre) of land in the village has benefited by renovation work done in his openwell and a gabion structure constructed in the nearby nalla that flows through his land. This activities under IWMP has helped in reducing soil erosion and recharging groundwater thus enhancing his agriculture productivity. He used to cultivate *kharif* paddy, which yielded about ***40-45 quintals in 2/3<sup>rd</sup> of his land and vegetables in 1/3<sup>rd</sup> of his remaining land***. His annual income was approx. Rs. 1,00,000/- from agriculture upto the last year.



Cultivation of Bitter gourd with Chilies as an intercropped in Kharif season



Cultivation of Bottle gourd with Tomato as an intercropped in Rabi season

IWMP programme has provided subsidy of Rs. 24000/- for cultivation of creeper vegetable to him in the month of May, 2013 for

enhancing his agricultural productivity. The subsidy includes **100 RCC pole, 67 Kg galvanise wire and 10 pheromone traps in 0.11 Ha (0.27 acre) of land**. In *Kharif* season he cultivated bitter gourd as main crop and chillies as an intercrop. The total production of bitter gourd and chilly was **480 Kg** and **224 Kg** respectively. The total earning was Rs. 37000/- by selling both these vegetables in the nearby markets of Mandvi and Zhankhvav. Beside this, his own consumption amounts up to Rs **3000/- approximately**.

Due to decent rainfall during 2013, he had harvested the crop prior to its actual season. In *Rabi* season, he has cultivated bottle gourd as main crop and tomato as intercrop and earned Rs. 39000/- by selling **2150 Kg** bottle gourd and **1620 Kg** tomatoes excluding his own consumption amounts up to Rs. **3000/- approximately**. Accumulating both the season he has earned net profit of nearly Rs. **70000/-** from 0.27 acre of land through vegetable cultivation. Now his annual income is approximately Rs. **1,65,000/-** from agriculture in this year.



Figure 1: Creeper vegetables Bitter gourd



Figure 2: Creeper vegetables Bottle gourd

According to him this system can yield better profit in small acreage of land. Before that he used to cultivate vegetable but the quality was poor due to direct contact of water and soil. Hence the produces were unable to fetch good market price. The wastage was also more in earlier system of cultivation. Beside this, intercropping is possible with “*Mandva*” system, hence augmenting the income exponentially. After viewing this positive impact most of the farmers demands the same. Total 300 farmers in three blocks namely, Mandvi, Mangrol and Umarpada of Surat district have adopted such a system through IWMP. Three training programme were organized by District Watershed Development Unit (DWDU) with the help of KVKs in Mandvi, Mangrol and Umarpada blocks on cultivation practices of vegetable crops for better yield.

The *mandva* method is considerably protected from pest and termite attack and also enhances vegetable production. The quality of produces is also of grade A due to less contamination from soil and water borne diseases. Most of these cultivators are small and marginal farmers and this intervention has brought a significant change in their livelihood. It is highly accepted in Surat



district and there is a huge scope to replicate this activity in other places with similar condition. Creeper vegetable in *Rabi* season with lifesaving irrigation could bring substantial profits which will enhance the livelihood status of millions of farmers.

**Hence, this can be aptly said as “Green Gold” for this farmer.**

***Construction of a Farm Pond in Arutla Micro Watershed (Batch-II) Arutla Project Manchal Mandal, Ranga Reddy District, Telangana***

Under IWMP, a Farm Pond was constructed in the field of Sri Ravula Paravathulu in Arutla village of Machal Mandal, Ranga Reddy District. Prior to the execution of farm pond, the entire land was fallow. After execution of the Farm pond, the land was brought under cultivation.



With the harvested rainwater, Sh.Parvathulu cultivated Paddy crop in 2 acre which produced **40** quintals paddy. In 2.0 acres of land, he cultivated vegetables like Brinjal, Ridge gourd with drip irrigation. In another 1.0 acre of land, he cultivated leafy vegetables like spinach, coriander, and selling them on daily basis in surrounding villages. Further, he also started Pisciculture by releasing fingerlings in to the farm pond.

## SUCCESS STORIES OF SOLAR WATER PUMPING SYSTEM IN SAIHA DISTRICT

**Name of Project** : IWMP Saiha – III  
**Name of PIA** : CH. Lalmuanpuia, DHO, Siaha.p  
**Total Project Cost** : 510 Lakhs  
**Village Covered** : Tuipui Ferry, Riasikah, Rawmibaw, Phalhrang, Tuisumpui.

Under IWMP Saiha – III project, two villages Riasikah and Rawmibaw were facing acute scarcity of water almost every month except during rainy seasons. People in the villages did not have enough water for supporting their livelihood besides their farms and crops.



So, during 2014-15, a thoughtful PIA took innovative steps for the introduction of solar water pumping system (German Technology) for the said two village for providing required water for crops and farms.

Since the total outlay fund was only Rs. 20.1 Lakhs under IWMP for Riasikah and Rawmibaw falling short of the required amount for introducing Solar Water Pumping Machine it was Converged with Rs. 10 Lakhs of fund available under MIDH (Horticulture) pumping Machine was purchased and pumping of water from Sairil river was successfully started and operationalised which is 1.7 KM away from Rawmibaw village.

Two water intakes costing Rs. 1.75 and 1.35 Lakhs were constructed near Sairil river with a capacity of 20000 Liters and from this intake – 140 mm gravitational pipelines were all connected to the upland farm of Rawmibaw and water directly enters into the reservoir and on the main reservoir it is again connected with GI Pipe to individual water tanks at the farms and till now 20 farms directly get water regularly everyday at a regular interval from 7:00 am to 3:00 pm and really increase the crop productivity.



Intake – II is connected with pipelines of 40 mm size through which water flows to Riasikah reservoir situated at the farms supplying water to 10 farms lands regularly everyday at the same interval through their individual Water tanks.



With available converged fund of Rs. 30.1 Lakhs Solar Water Pumping Machine of the cheapest price was purchased and the pumping machine is now pumping 18000 Liters of water everyday which means that 1 Farms get 600 Liters of water approximately every day.

Before the implementation of IWMP, this village is the driest within Saiha district and no crops can be grown due to water scarcity and people never tries to depend on farming for their livelihood, but since after the introduction of IWMP along with SWMPS, people were really impressed by the successful innovation and now 30 families cultivated crops of different varieties and they are very happy that they can depend on farming for their livelihood and also the barred and waste land came to productive use which turns out really a success stories throughout Siaha District.



## BEST PRACTICE UNDER DWCDC CHAMPHAI IWMP CHAMPHAI PROJECT-I/2009-10 D.O, SOIL & WATER CONSERVATION

**Name of Project** : IWMP Champhai I/2009-10  
**Name of PIA** : DO Soil Khawzawl  
**Total Project Cost** : 663.15 Lakhs  
**Village Covered** : Kawlkulh, Chhawrtui, Dulte, Puilo.

Issue	Explanation
<b>Name</b>	“Piggery Farm at Chhawrtui” – Construction of Pig Sty (20 Sow Unit) for Self Help Group at Chhawrtui Village under Livelihood Development Fund, IWMP Champhai-I/2009-10. This kind of construction has never been done before.
<b>Context and relevance</b>	Among livestock, Pig is one of the most important animal in Mizoram since pork is the most preferred food item. During 2013-14, 6925.25 MT pork was produced in the state (Statistical Handbook of Mizoram by Directorate of Economic and Statistics, Govt. Of Mizoram). However, the supply of pork does not meet demand. So, Pig Farming has a special significance and can play an important role for improving socio-economic status of the weaker section of the society.
<b>Methodology/operation</b>	Efforts was made to form SHG under Livelihood Development at Chhawrtui Village (215 Households). In the initial state of the Project, 4 SHGs were formed with different activities like Petty Trade, Poultry Rearing, Pig Rearing. However, there was lack of market due to small scale of production and less population. As a result, SHG is no long active. Three years after implementation of the Project, there was Rs. 13 Lakhs unspent balance under Livelihood Development Fund for their Village. Project Manager, DWCDC and PIA made an arrangement to construct RCC Structure Pig Sty 70ft. X 30ft. (20 Sow Unit) including Water Storage Tank of 10,000 litres capacity and feed storage godown for rearing in a scientific way. Two SHGs are engaged for rearing 20 Sow. Watershed Committee and Village Council were entrusted to look after the Pig Sty.

Issue	Explanation
<b>Impact</b>	There will be bulky production of Piglets, around 320-370 Piglets annually which will automatically enhance the market linkage that is likely to improve Socio-economic Status of the Village. (Cost of 1 Piglet = Rs. 4000-5000)
<b>Timespan</b>	For Significant result, it might take 1.6 – 2 Years.
<b>Level</b>	PIA will be the best for undertaking this activity.
<b>Resource requirements</b>	This Activity was done under Livelihood Development Fund. Total cost was 15 Lakhs including cost of construction of Pig Sty, cost of Piglets, cost of feeds, and cost of medicine and other equipment and facilities.
<b>Replication and up-scaling</b>	It can be replicated for wider scales as tools for planning, convergence with MGNREGA and for Project sustainability. <ol style="list-style-type: none"> <li>1. Issuance of specific orders might be required as there is no provision for construction activities under Livelihood Development Fund.</li> <li>2. Animal Husbandry Department might be required for partner in connection with Planning and managerial activities.</li> <li>3. Training for SHG in relation with managerial activities is required.</li> </ol> No replication has been done yet.
<b>Knowledge Transfer</b>	It is easy to transfer the knowledge. Alternate agencies are not required
<b>Sustainability</b>	Activities have been undertaken since April 2015. Chhawrtui Village is tribal community for whom pig keeping is an integral part to their way of life so undoubtedly, the community will be able to undertake it on their own. The construction is completed and 20 gilts are being reared by 2 SHGs.
<b>Exposure Visits</b>	Watershed Committee and SHGs are the most appropriate target group.



*Inaugurated by Hon'ble Minister H.Rohluna, School Education, Industries & Trade & Commerce on 1<sup>st</sup> December, 2015.*

## **Success story of Muttala Watershed (IWMP-10/2009-10) of Anantapuramu district of Andhra Pradesh**

Muttala is a remote backward village of Atmakur Mandal of Anantapuramu district. Because of low rainfall and depleted ground water the farmers in the village used to migrate to other villages and districts to find their livelihood. Government of India has sanctioned a watershed to this village during 2009-10. The total area of the watershed is 2405 Hectares with a total allocation of Rs. 304.21 lakhs. The village community was continuously trained on the benefits of watershed management because of which they got involved right from planning stage to implementation stage.

The watershed committee could able to spend the total allocation made to the village out of which, the expenditure towards NRM is Rs. 284.81 lakhs. 53 Water Harvesting structures were constructed with an expenditure of Rs. 107.43 lakhs. Rs. 135.27 lakhs were spent on horticulture.



Apart from IWMP funding works were taken up in convergence with EGS funds. Rs. 290 lakhs of EGS fund was spent to create assets in this village. Rs. 216.61 lakhs was spent on Horticulture plantations to SC, ST and SF&MF farmers.

A study was carried out by AP State Remote Sensing Agency to know the impact of the Watershed implementation. The Agency has made the evaluation based on the satellite maps of 2012 and 2016. The impact created by the Watershed is as follows.

1. Agricultural Land is increased by 5.93% (304.24Ha), due to conversion of Wastelands
2. Forest Cover is increased by 1.07% (54.82Ha)

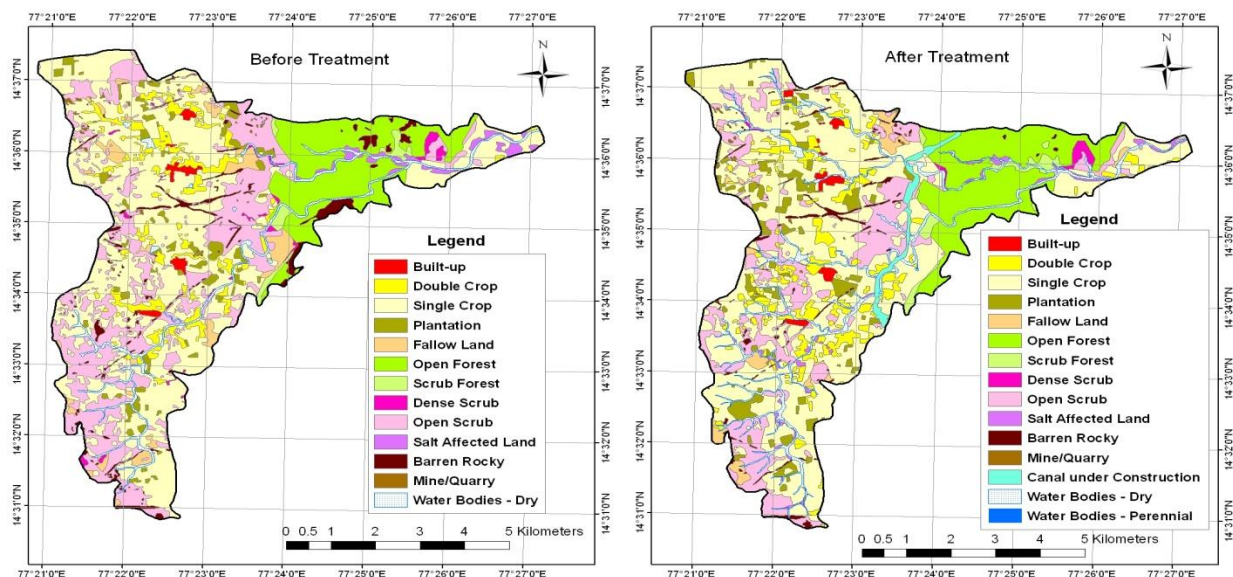


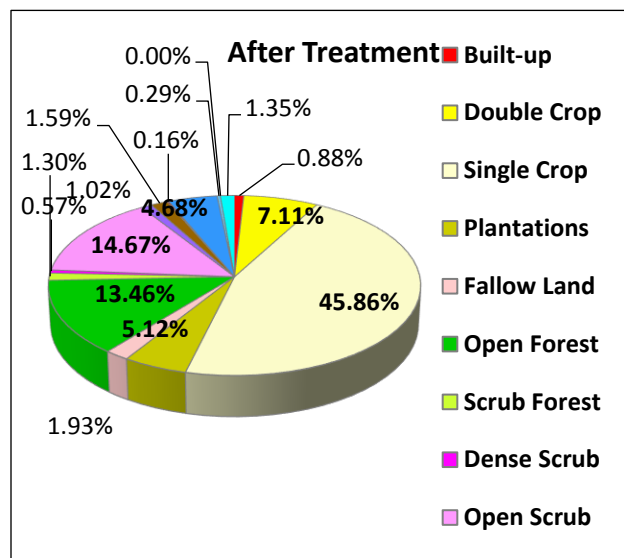
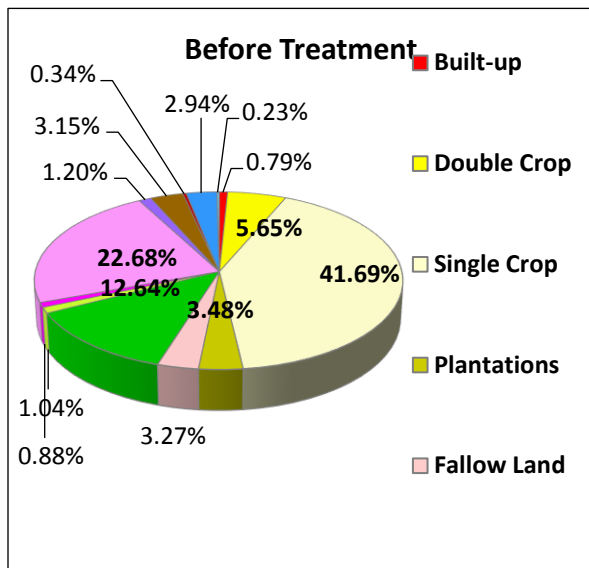
3. Wastelands are decreased by 10.23% (525.45Ha), due to conversion into Agricultural Land
4. The water spread area is increased by 3.15% (161.91Ha), due to construction of new water bodies like check dams, percolation tanks, Farm ponds etc.,



The results further shown the changes in the cropping pattern,

1. Increase in single crop by 2.66% (203.89 Ha)
2. Increase in Single Crop Developed into Double Crop by 9.51 % ( 729.36 Ha)
3. Single Crop Developed into Plantations by 1.63 % (124.69 Ha)
4. Decrease in Fallow Land by 6.40% (491.38 Ha)
5. Open Scrub Developed into Single Crop by 1.90% (145.75 Ha)
6. Decrease in salt affected land by 9.36 % (718.23 Ha)





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