



# KOZHIKODE DISTRICT



## Endline Evaluation of PMKSY-WDC Watershed Projects

### REPORT: TUNERI BLOCK (Kozhikode District)

#### Tuneri Block Panchayath- A Brief History

Tuneri Block Panchayath lies in Vadakara Taluk of Kozhikode District with an area of 143.97 km<sup>2</sup>. The project started in the year 2011-2012 and the date of project completion was 31/08/2018. The total area of the project was 5712 ha out of which 5042 ha area was treated. The project started with an estimation of Rs. 856.80 Lakh and the actual expenditure incurred was Rs. 307.66 Lakh. The project covered 11 watersheds and 5 Gram Panchayaths (GPs). The Gram Panchayaths included in this block are Chekiyad, Nadapuram, Tuneri, Valayam and Vanimel. The project area lies at an altitude varying from 20 to 940 meters from the Mean Sea Level (MSL) and is undulating in nature. The area warrants extensive soil and water conservation measures for the proper management of these precious natural resources. Many parts of the project area experience severe water scarcity during summer. The major river in the study area is Mahe river, which originates from the forests of Wayanad and enter into the study area at Chelathodu Watershed and flows towards south west direction through Chelathodu, Puthukayam- Mannolthodu, Mankavilthodu, Jathiyeri, Vishnumangalam and Kayalottuthazhe watersheds.

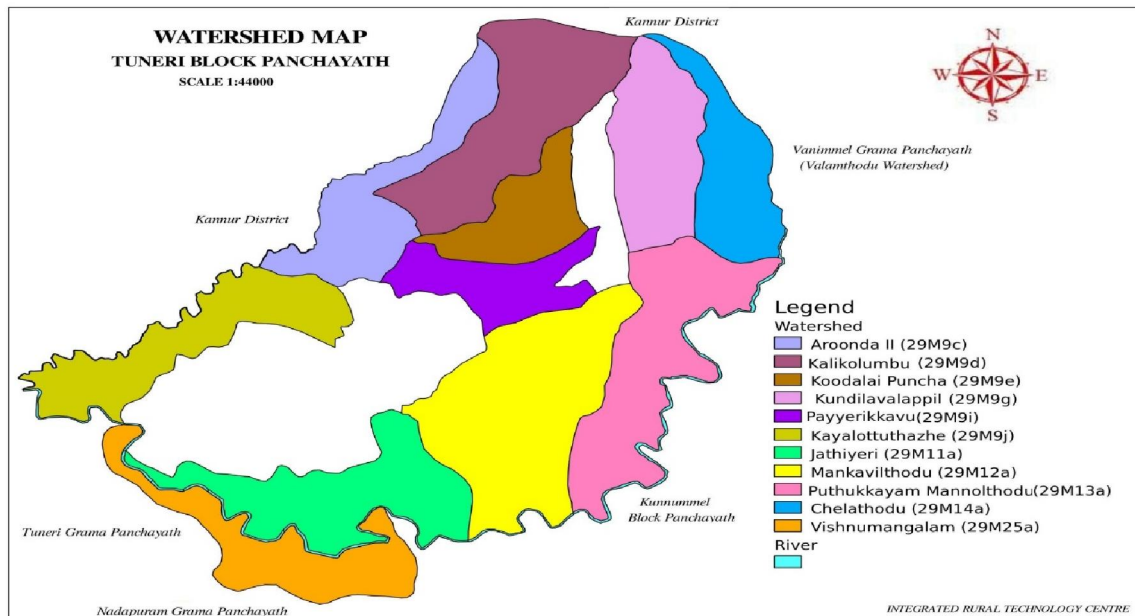


Fig. Map of the project area –Tuneri Block Panchayath

**Table1: List of watersheds and its area and location.**

SI.No	Name of Watersheds	Area ( Ha)	Latitude	Longitude	Consists of
1	Aroonda II	266	11 <sup>0</sup> 45'02'' to 11 <sup>0</sup> 47'46''	75 <sup>0</sup> 39'25'' to 75 <sup>0</sup> 41'32''	3 & 4 wards of Chekyad GP
2	Kalikolumb	695	11 <sup>0</sup> 45'36'' to 11 <sup>0</sup> 47'58''	75 <sup>0</sup> 40'46'' to 75 <sup>0</sup> 42'40''	3, 4 and 5 wards of Valayam GP and 4 <sup>th</sup> ward of Chekyad GP
3	Koodalaipuncha	363	11 <sup>0</sup> 45'16'' to 11 <sup>0</sup> 46'47''	75 <sup>0</sup> 40'45'' to 75 <sup>0</sup> 42'15''	3, 4 and 5 wards of Valayam GP
4	Kundilavalappil	360	11 <sup>0</sup> 45'24'' to 11 <sup>0</sup> 47'39''	75 <sup>0</sup> 42'26'' to 75 <sup>0</sup> 43'19''	7, 8, 11 wards of Vanimel GP and 4 <sup>th</sup> ward of Valayam GP.
5	Payerikavu	238	11 <sup>0</sup> 44'29'' to 11 <sup>0</sup> 45'41''	75 <sup>0</sup> 40'27'' to 75 <sup>0</sup> 42'21''	3, 5, 6 wards of Valayam GP and 3 <sup>rd</sup> , 4 <sup>th</sup> wards of Chekyad GP.
6	Kayalottuthazhe	621	11 <sup>0</sup> 43'29'' to 11 <sup>0</sup> 45'21''	75 <sup>0</sup> 37'18'' to 75 <sup>0</sup> 40'13''	1,2,3,5,13,14 & 15 wards of Chekyad GP.
7	Jathiyeri	670	11 <sup>0</sup> 42'03'' to 11 <sup>0</sup> 43'41''	75 <sup>0</sup> 38'09'' to 75 <sup>0</sup> 41'11''	9,10,11,12,13 and 14 wards of Valayam GP, 1 and 2 wards of Vanimel GP and 9,10,11 and 12 wards of Chekyad GP.
8	Mankavilthodu	1070	11 <sup>0</sup> 42'15'' to 11 <sup>0</sup> 45'04''	75 <sup>0</sup> 40'36'' to 75 <sup>0</sup> 42'42''	1,2,3,4,5,6,7,13,14,15 and 16 wards of Vanimel GP and 5,6,7,8,9,10 and 11 wards of Valayam GP.
9	Puthukayam - Mannolthodu	545	11 <sup>0</sup> 42'29'' to 11 <sup>0</sup> 45'35''	75 <sup>0</sup> 42'01'' to 75 <sup>0</sup> 43'58''	7,8,11,12,13,14 and 15 wards of Vanimel GP.
10	Chelathodu	433	11 <sup>0</sup> 45'17'' to 11 <sup>0</sup> 47'43''	75 <sup>0</sup> 42'58'' to 75 <sup>0</sup> 43'58''	Vanimel GP
11	Vishnumangalam	451	11 <sup>0</sup> 41'32'' to 11 <sup>0</sup> 43'29''	75 <sup>0</sup> 38'01'' to 75 <sup>0</sup> 40'42''	1, 2, 3 and 4 wards of Nadapuram GP and 3 <sup>rd</sup> , 4 <sup>th</sup> wards of Tuneri GP.



The project area has a population of 49275 with 11986 families. The majority of population under the project area consists of small scale farmers and agricultural labourers. The major occupations of the people in this area is Agriculture and Agricultural related activities. Coconut is the major crop cultivating in the project area. Arecanut, pepper, rubber, cashew, Banana and Tapioca are also cultivated in this area.

Evaluation team from CWRDM visited Tuneri block on 11/12/2018 and held discussions with some of the project team members and also with the present and former Block Panchayath Presidents. Later they also made a field visit and inspected the interventions made in the Watershed areas along with the officials/ staff of Block who have associated with the implementation of the project. The interventions carried out in the watershed areas are summarised in the following table.

**Table 2: Interventions carried out in the watershed area**

Sl.No.	Work/activity	Sub category	Details	
			Unit	Quantity
1	Natural Resource Management works:			
i.	Land development (Productive use)	Afforestation	Ha	8.75
ii.	Soil and Moisture conservation	Field bunds-contour Bunding	Ha.	423.5
		Centripetal terracing	Ha	71
iii.	Vegetative and Engineering structure	Checks and plugs	Nos.	5
		Side protection	Nos.	2
iv.	Water harvesting structures (new)	Farm ponds	Nos.	1
		Check dams	Nos.	4
		Percolation tanks/ ground water recharge structures	Nos.	1979
		Well construction	Nos.	4
v.	Water harvesting structures (old rejuvenated)	Farm ponds	Nos.	5
		Check dams	Nos.	1
		Well renovation	Nos.	26
vi.	Production system and micro-enterprise	Poultry	Nos.	19
		Fisheries	Nos.	1
		Others	Nos.	417
2	Livelihood security	Self Help Groups	Nos.	144
3	Others	User groups	Nos.	167
<b>Summary</b>				



Total water harvesting structures created	Nos.	1988
Total water harvesting structures rejuvenated	Nos.	32
Additional area brought under protective irrigation	Ha	285
Number of farmers benefited out of project	Nos.	4647
Direct employment created in the project area	Mandays	35868

The team had an interaction with some of the watershed project beneficiaries and as per their opinion, entry point activities and other NRM interventions implemented in the watershed areas were very much beneficial for them.

Activities conducted in the watershed area includes: distribution of forest species seedlings to the farmers-with this an area of 8.75 ha is brought under forest, soil and moisture conservation activities like construction of filed bunds- contour bunding, centripetal terracing, checks and plugs, side protection, farm ponds, check dams, percolation tanks/ground water recharge structures, well construction and well renovation. With the introduction of these activities in the watershed areas, there is a noticeable improvement in availability of water to the residents for drinking, domestic and agricultural activities. Water table level of surrounding areas is also improved due to soil and water conservation measures. Around 15 wells in the watershed area noticed an increase in water level.

The investigation team from CWRDM has visited about 11 locations in different watersheds which include new wells constructed, well renovated, check dams constructed across streams, water distribution system, well recharge, VCB's renovated, temple pond renovated etc.

Moreover, construction of ponds not only provide drinking water facilities but also helps in bringing more area under cultivation of crops, especially paddy and mixed crops in that area. Some of the soil and water conservation measures undertaken in the tribal areas were also beneficial to the tribes as these activities help in improving their crop production.

Apart from the soil and water conservation activities, microenterprise activities like poultry, fisheries, goat rearing etc. were also introduced in the watershed areas. Rubber mats were supplied to those farmers who used to practice animal husbandry activities.

Various self-help groups were formed in the watershed areas. Separate user groups were also formed among the beneficiaries to look after different activities. There were number of groups which look after the cultivation of vegetables and other intercrops and each group consists of 10 to 35 members. After the introduction of this group like farming, from a



land of about 40 cents, farmers were able to harvest a high yield of 1200-1400 kg by cultivating different crops.

Different awareness programmes/seminars were also organised in different watersheds in the block. The programmes include World Soil Day Seminar on 5<sup>th</sup> December 2015, World Water Day on 22<sup>nd</sup> March 2016 and Earth Day on 22<sup>nd</sup> April 2016.

Training programmes on capacity building were organised in watershed areas for Joint Liability Groups. The activities undertaken in these programmes include food processing, like value addition of Jack fruit; skill training activities mainly on goat rearing etc. Around 25-35 women have participated in each training programme. Magazines/journals were released by incorporating all the works that were carried out in the different watersheds.

### **Summary of the Evaluation of Outcomes of PMKSY-WDC Project**

District: Kozhikode

Date of Visit: 11/12/2018

#### **Project Details:**

Project No: IWMP 1/2010-11.

Name of Block: **Tuneri.**

Sanctioned Area (ha): 5712

Sanctioned Cost (Rs in lakh): 856.80

Actual Expenditure (Rs in Lakh): 307.66 (35.90 %)

Name of Villages included in the project: - Chekyad, Edacheri, Purameri, Tuneri, Valayam, Vanimel and Vilangad and Nadapuram.

#### **1. Impact Details**

<b>Sl. No.</b>	<b>Items</b>	<b>Unit</b>	<b>Pre-project status</b>	<b>Status at the end of project</b>	<b>Remarks</b>
1	Average depth of water table in dug wells	m	9.4	8.4 -8.9	An increase of up to 1 m in many wells
2	Average depth of water table in tube wells	m	120	--	Very less bore wells. Not monitored.
3	Number of ground water structures (dug wells + tube wells + hand pumps) rejuvenated	nos.	--	2020	32 Farm ponds, check dams and open wells



					rejuvenated. 1988 structures created
4	Increase in Irrigation potential	ha	--	285	Life saving irrigation during critical period
5	Area of Wasteland brought under productive use (like agriculture, plantation , fodder ,etc)	ha	--	0	No waste land. Afforestation in 8.75 ha
6	Change in cropping / land use pattern (i) Area under Agriculture Crop (ii) Area under plantation / forest cover (iii) Area Under Wastelands	ha	--	8.75	More area brought under vegetables, banana etc
7	Area Under Agriculture Crop (i) Area under Kharif crop (ii) Area under rabi crop (iii) Area under double crop	ha	--	6 ha	Slight increase in area under kharif paddy
8	Cropping intensity	%	50%	60%	On an average 10 % increase
9	Increase in Yield /ha of crops (i) Rabi crop (ii) Kharif crop	qt/ha	25	26	An increase of 100 kg/ha. and 5 coconuts/ palm/year
10	Area of horticulture crop	ha	--	--	No marked change in horticulture crops
11	Employment in agriculture related activities among beneficiaries	Man days	-	35868	Mandays generated under project alone
12	Employment in non- agricultural sectors	Man days	-		The above figure is inclusive of non agri. sector also
13	Fodder production	qt	500 (5 ha)	800 (8 ha)	Cattle population increase 60 to 100
14	Fuelwood production	qt	--	--	Data not available
15	Number of milch cattle	Nos	60	100	One new farm started. Marked increase in cattle



					population
16	Milk production	Kl/yr	26	50	Milk production doubled. One Milk Co-op. Society formed
17	Duration of flow of water in streams (upto November/December/January/February.... May)		February	March	One month prolonged flow in streams in general.
18	Improvement of drinking water facility	Because of the groundwater recharge and rainwater harvesting measures, nearly 2000, drinking water availability has considerably increased. 4 new wells and 26 old ones renovated.			
19	No. of persons engaged in ancillary activities like fishery , poultry ,rural craftsmanship	nos	--	46	Additional Income generated.
20	Number of children enrolled in schools in the project area	nos	--	--	All the children are attending schools
21	Reduction in migration from rural to urban area in the project area	nos	--	---	Nearly 36,000 mandays created.
22	Annual mean household income	Rs	36,000	40,000	About 10 % increase for certain families
23	<p>Any other measureable indicator of impact assessment.</p> <p>i) Because of the check dam constructed across Puzhakkalakandithodu, at a cost of Rs. 10 lakh, nearly 40 wells were benefited on both the banks of the stream during summer. Water table was raised by 1 to 2 m.</p> <p>ii) The low cost rain water harvesting structures constructed in school and hospital is contributing in part to meet the water requirement of students and other stakeholders.</p> <p>iii) Total 4647 farmers were benefitted out of the project.</p> <p>iv) No. of SHGs : 144, Production system and micro enterprises : 437</p>				





A VCB constructed across the stream



Interview with the convener of a scheme



Rain water harvesting –well recharge



Interacting with a beneficiary



A newly constructed well in the project area



## CONCLUDING REMARKS - KOZHIKODE DISTRICT

- People have reported that entry point activities and other NRM interventions implemented in the watershed areas were very much beneficial for them.
- Construction of ponds and VCBs not only provide drinking water facilities but also helped in bringing more area under cultivation of crops, especially paddy and mixed crops in that area. Some of the soil and water conservation measures undertaken in the tribal areas were also beneficial to the tribes as these activities help in improving their crop production.
- Proper guidelines for the exit protocol is not issued under the project for fruitful continuation and taking up sustainable follow up activities of the interventions implemented.
- The production system management in the watershed has been properly taken care of and followed up.
- In all the watersheds it has been observed that there was some positive changes in improvement in the ground water table of the area due to the implementation of recharge structures and soil and water conservation measures like bunds, ponds, VCBs, percolation tanks etc.
- The irrigation potential was also found to increase in certain watersheds due to the construction of water storage/diversion structures like VCBs.
- Drinking water shortage was also addressed to certain extent by the installation of soil and water conservation, groundwater recharge and well recharge measures.
- Reasonably good employment (nearly 36,000) was generated for the people both in agricultural and non-agricultural sectors during the implementation of the PMKSY project. About 4700 farmers were benefitted. Also, the annual mean household income was improved.
- Delay in the availability of funds was a problem reported in all the Batch II projects and it has affected adversely the project in Tuneri Block also.
- VEOs are serving as watershed secretaries and their job is divided between Panchayaths and RDD. A capacity building initiative in the form of institutional training should be given to all VEOs for effective implementation of the projects, as they are not technically qualified to handle watershed development projects.
- Guidelines at Govt. level should be issued for convergence of works with MGNREGS and to take up balance of work if not completed as per DPR prepared.
- Technical Expert, a retired principal agricultural officer who has got knowledge about the area and various aspects of watershed project implementation was available for giving guidance and overall coordination of the project activities.

### Success stories

A check dam constructed across Puzhakkalakandy thodu, which is a tributary of Mahe river, at a total cost of Rs.9.94 lakh (estimated cost Rs. 12 lakh) is contributing to



water rise of 1- 2 m in the wells located on the banks of the stream during summer months. About 30 to 40 wells/families are benefitted out of this and hundreds of people from distant places are also coming to this check dam area for bathing and washing during the peak summer.

Different self-help groups were formed in the watershed areas. There were number of groups which look after the cultivation of vegetables and other intercrops and each group consists of 10 to 35 members. After the introduction of this group like farming, from a land of about 40 cents, farmers were able to harvest a high yield of 1200-1400 kg by cultivating different crops.