

ICAR KVK, MYRADA, ERODE DISTRICT - TAMILNADU

KVK's Experiences in Participatory Integrated Development of Watersheds in Erode Dt

Introduction:

At present in India, the Watershed is a people movement for development of land and water resources, and for enhancing productivity on a sustainable manner. The watershed approach enables an integrated development of agriculture and allied activities in the needy area. In watershed area, it is necessary to build the people institutions at village level for social compatibility and sustainability of the program.

MYRADA's (Host institution) involvement of participatory watershed development dates back to 1984-85, beginning with the PIDOW project (Participatory Integrated Development of Watersheds) in Gulbarga of Karnataka.

MYRADA published the following resource books for the benefit of watershed area farmers, extension functionaries who involves and monitoring the watershed programme at the field level.

- *The Interventions of a Voluntary Agency in the Emergence and Growth of People's Institutions for Sustained and Equitable Management of Micro- Watersheds*
- *Resource Management In Rainfed Drylands An Information Kit*
- *A Manual for Capacity Building of People's Institutions Managing Watersheds*

In 1991-92, our KVK started to work on individual land development activities and construction of some watershed structures here and there. By 1993, KVK initiated its effort to promote participatory integrated watershed program in Oosimalai in Bargur hills, through a process of learning by doing, KVK associated with more than 32 watersheds in Erode Dt through appropriate people institutions, subsequently, KVK coordinate with ongoing watersheds like NWDPRA in the district

District information:

The Erode district has been divided into 4 agricultural divisions namely Erode, Gobichettipalayam, Bhavani and Dharapuram of which KVK watershed intervention is in the part of Bhavani and Dharapuram.

The total area of the forest is 2, 32,920 hectares (28.3% of the total district area.) of which, 94% of the area lies in Talavadi, Anthiyur, Sathyamangalam and Bargur where interventions are predominantly executed.

Climatic zone: Western zone

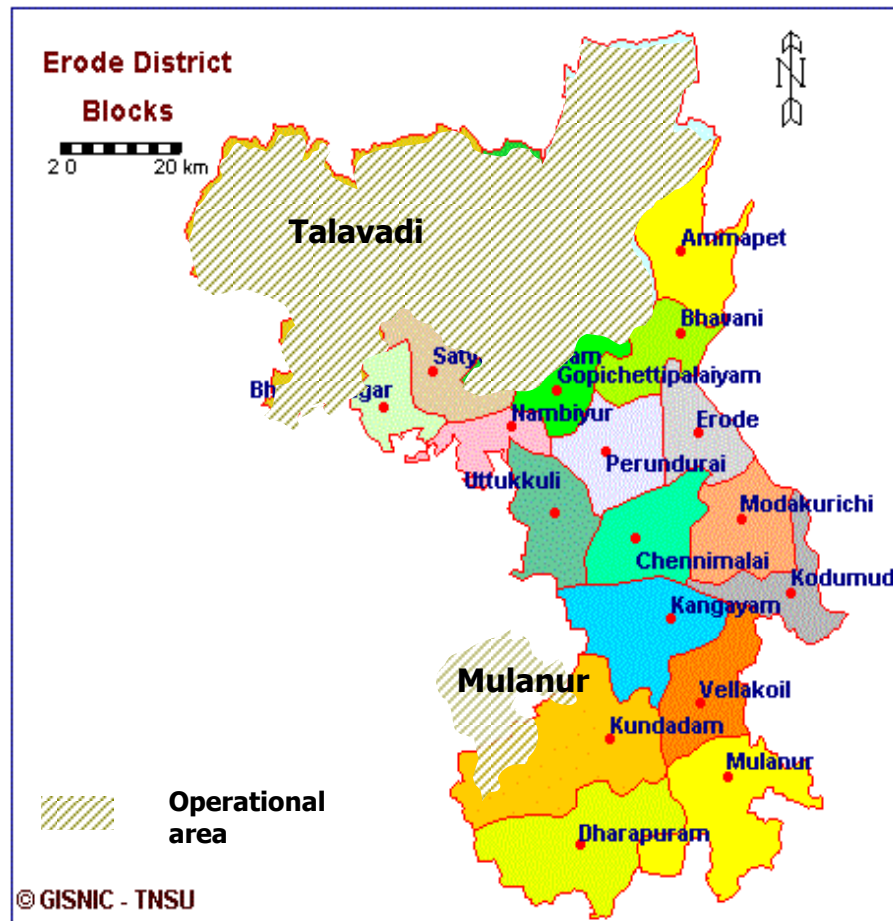
Rainfall (in mm)

S.No.	Season	Rainfall (mm)
a.	Annual average	660.10
b.	North East Monsoon	307.60
c.	South West Monsoon	183.40
d.	Winter season	21.5
e.	Summer season	147.6
e.	Number of Rainy days	35.50

Soil series of the implemented watershed areas:

- **Talavadi Series** - Moderately deep to deep red, non calcareous, slightly acidic, Insitu soils developed from highly weathered gneiss.
- **Irugur Series** - Dark Reddish brown to Red moderately deep, neutral, non- Calcareous, slightly acidic, Insitu soils developed from highly Weathered gneiss.
- **Vannapatti series** – Very slightly acidic to neutral, moderately deep-to-deep, Insitu soils

Watershed Locations in KVK operational area



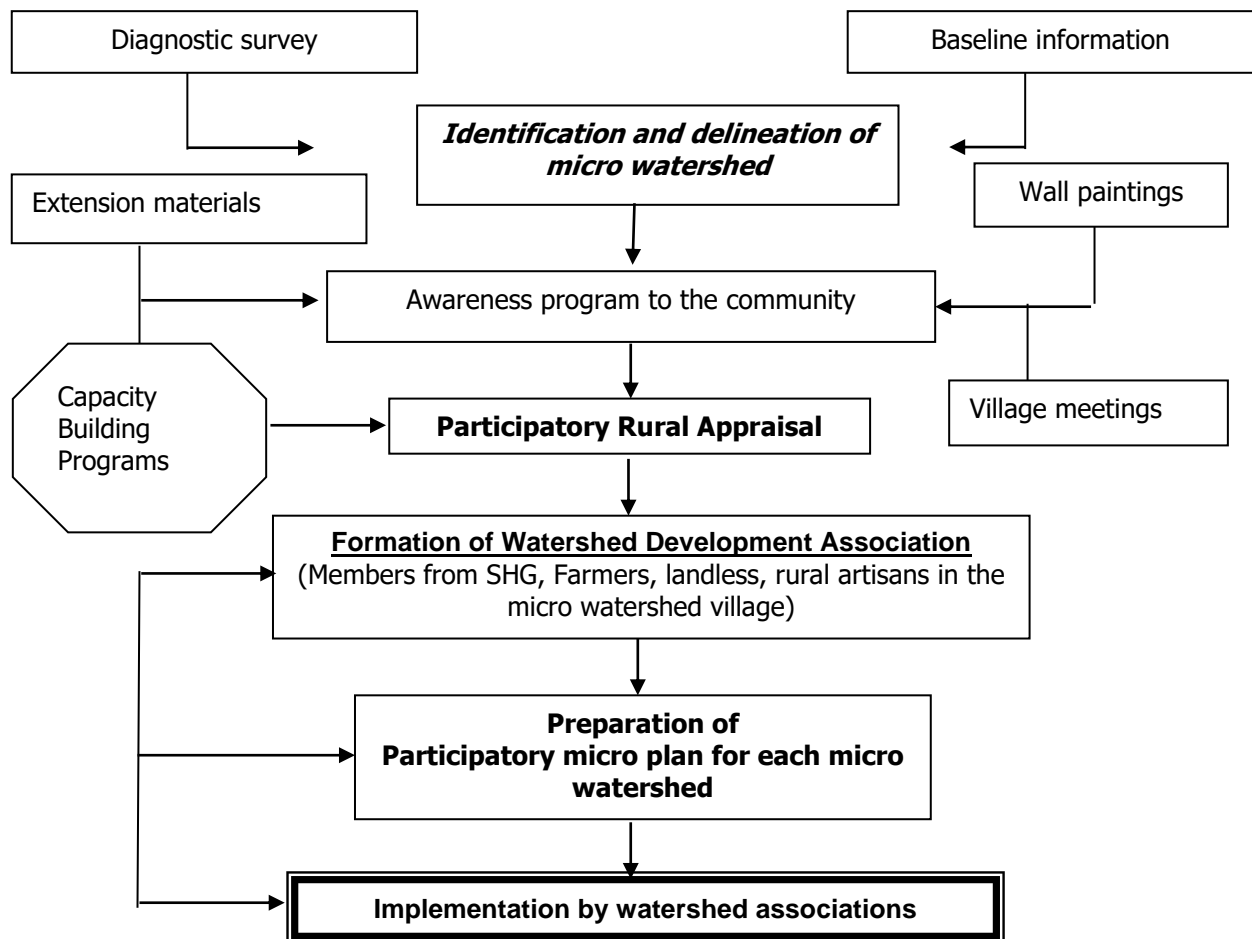
Basic criteria for selection of watershed area:

- ✧ Severity of Land degradation
- ✧ Preponderance of resource poor people.
- ✧ Lack of earlier investment through any other watershed development projects
- ✧ Willingness of community to participate in all aspects of the program.

KVK implemented the watershed programme directly:

Sl.No	Name of the Block	Name of the Watershed villages	No. of Micro watersheds
1	Anthiyur	Oosimalai, Vellimalai and Eppathampalayam	3
2	Talavadi	NWDPRA : Talamalai, Doddapuram, Neithalapuram, Chikkalli, Iggalore, Marur, Gumtapuram, Talavadi, Hosur, Ramapuram Mallanguli, Geerahalli, Gumatapuram, H.P.Doddi and M.P.Doddi	10 5
4	Sathy	Ittarai, Hosatti, Bejaletti, Galidimbam, Devaranatham. Annakarai, Kadaganahalli, Diggarai, Sollekereyur Basavannapuram, Senkadu, Jeevanagar, Periaulliampalayam, Chinnaulliampalayam	5 4 5
		TOTAL	32

Activity Flow Chart:



Funding sources from different organization:

Funding source	Amount spent in Rs
PLAN International	9,50,000.00
NOVIB, The Netherlands	9,89,418.00
German Agro Action	46,76,995.00
HIDA, Canada	14,37,636 .00
IWDP Phase – II (<i>Ministry of Rural Development, GOI</i>).	8,84,000.00
X th Restructured NWDPR (Ministry of Agriculture, GOI)	1,56,60,799.00
Integrated Watershed Development Programme - IV & V	6,72,000.00
Total	2,38,33,212.00

Capacity building programme conducted for Watershed Development Association:

Year	Particulars			
	No. Of WDA	Members in WDA	No. of Training conducted	Total Members participated
2009-10	7	431	30	1148
2010-11	5	357	27	684
2011-12	3	135	26	650
2012-13	11	1,250	47	744
2013-14	10	1,650	53	1004
2014-15	10	1720	74	1261
2015-16	2	184	25	1912
2016-17	6	520	30	1165
2017-18	10	1565	35	931
2018-19	10	1628	28	702
Total	74	9440	375	10201

Major topics covered in the training programmes are;

- **Institution building and its importance**
- **Maintenance of books of accounts at group level**
- **Roles and responsibility of WDA members and office bearers**
- **Repair and maintenance of farm implements**
- **Post-harvest management**
- **Promotion of livestock in watershed areas**

Extension materials published

- 31 editions of farm newsletter were published and 46,500 copies were circulated to various stakeholders related to watershed and allied.
- 5 editions of farmers calendar were released in Kannada and Tamil and 23,000 copies were circulated and the concept pictured were,
 - ✓ *Rainwater harvesting*
 - ✓ *Natural farming*
 - ✓ *IFS, LEISA Concept*
 - ✓ *Participatory Watershed Management*
 - ✓ *Integration and utilization of various farm related inputs and eco – friendly Technologies for sustainable agriculture*

Folders published:

- Soil sampling methods
- Grain storage
- Participatory watershed management in IWDP
- Participatory watershed management in X Restructured NWDPR

Booklets:

- Grain storage
- Natural farming
- Vermi composting
- Watershed components
- Information Corner Board - Booklet
- Perquisite for the registration of watershed association.

Exposures organized:

- Natural farming, Practicing farmers in Erode Dt
- Agri-Expo, Coimbatore
- PTD and Farmers Field School, AME Trichy
- Agri in tech
- Rainwater harvesting and Vermicomposting
- Medicinal and aromatic plants
- Dry land technology, BAIF, Pune
- Central Soil and water conservation research and training center, Ooty
- Farmers day, TNAU, Coimbatore
- Watershed exposure visit, BAIF Tiptur
- Watershed exposure visits MYRADA Kamasamudaram.
- Visit to micro irrigation and fertigation plant, Kuppam, (Israel collaborated)

Wall painting:

- 5,625 Sq. ft. of Wall painting on various aspects related to participatory watershed.

Activities carried out in watershed

Sl.No	Type of work	Units	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Earthen Bunds	Rmt	25000	36200	10584	4660	14345	19605	21670	29875	39550	48560	250049
2	Bund plantations	Nos.	45585	89500	26030	97500	39760	49670	53950	54300	61850	57650	575795
3	Fodder on Bunds	Ha	120	80	2	19	11	6	27	19	37	51	372
4	Boulder Bunds	Rmt	13,450	14125	2065	3181	--	--	--	--	--	--	32821
5	Diversion Drain	Rmt	2300	4817	10063	500	1210	1785	2460	4345	4450	4795	36725
6	Nala treatment	Rmt	--	1000	3000	700	865	790	1250	1150	1890	2760	13405
7	Land leveling	Ha	5	6	12	8	112	126	152	138	154	164	877
8	Gully checks	Nos.	42	49	4	6	141	137	148	154	79	51	811
9	Pond de-silting	No	6	1	2	5	8	5	9	13	11	7	67
10	Silt application	Ha	--	40	8	--	16	9	2	11	--	--	86
11	Vermicomposting	No	11	18	34	30	40	46	52	64	55	48	398
12	Compost pit	No.	35	55	35	12	--	4	3	7	9	11	171
13	Tank rehabilitation	No.	--	1	--	--	--	2	--	1	--	--	4
14	Sunken pond	No.	3	6	--	2	--	--	--	4	5	7	27
15	Contour canal	No	7	4	--	4	--	--	--	--	--	--	15
17	Farm Pond	No	13	12	--	--	--	6	7	4	--	--	42
Total			86577	145914	51839	106627	56508	72191	79730	90085	108090	114104	911665

KVK associated with 38 micro watersheds in erode Districts. The Impact study was drawn from three micro watersheds with assistance from TNAU, Coimbatore.

Location 1 = Annakarai, Location 2 = Bejallati, Location 3 = Doddahalla, from Germalam area

Table : 1

Watershed	Soil conserved along earthen bunds		Soil arrested and harvested at gully checks	
	Before	At Present	Before	At Present
Location 1	Nil	1.0 ft. to 1.5 ft.	Nil	0.800 tons per gully
Location 2	Nil	2.0 ft. to 2.5 ft.	Nil	1.000 tons per gully
Location 3	Nil	1.0 ft. to 2.0 ft.	Nil	0.750 tons per gully

From this we can conclude that

- Approximately 1.3 to 2 ft. of soil per year is held along bunds that would otherwise have left the fields and settled somewhere else.
- In this process, sloping lands are leveled and enabled for cultivation. Seeing this, farmers are increasing bund heights on their own. In some areas (e.g. Mallangulli) reclamation of marginal lands is at the rate of 0.17Ha / Hectare for every 10 ha treated.
- Annually, it is estimated that an average of 0.850 Tons of soil are arrested at gully checks. Farmers periodically collect the same to apply to their fields.

Table 2

Watershed	Average water level in wells (ft.)		Duration of water in ponds/streams (months)		
	Before	At Present	Before	At Present	% change
Location 1	3.0	7.0	08	12	(+) 50
Location 2	5.0	12.0	10	12	(+) 20
Location 3	30.0	40.0	09	12	(+) 33

- On an average, the water levels in wells **situated in and around watershed areas** have increased by **55.26%** after watershed treatments have been carried out. **(Of course, this figure is now lower due to very poor rainfall for last two seasons.)**
- On an average, duration of water availability in ponds and streams **in the watershed areas** has increased by **33%** after watershed treatment.

Table 3

Watershed	Crop Replacement Index /Ha	
	Before	After
Location 1	Ragi (0.70), castor/sun hemp (0.05), other minor millet (0.15), lablab/horse gram (0.10)	Ragi (0.16), groundnut (0.06), maize (0.68), lablab, castor and sun hemp (0.10)
Location 2	Ragi with intercrop (0.80), other minor millet and dry land paddy (0.20)	Ragi and intercrop (0.75), dry land paddy and greens (0.05), vegetables and pulses (0.20)
Location 3	Ragi (0.68), mulberry (0.10), maize (0.05), beans (0.02), lablab and castor (0.10)	Maize (0.80), beans (0.05), potato (0.05), ragi (0.05), fodder (0.02), marigold (0.03)

From this we can conclude that area cultivated with low value crops (e.g. ragi) decreased from 73% of the total cultivated area in our watersheds to 32%. Higher value crops (e.g. groundnut, maize, vegetables, etc) increased from 27% of the cultivated area to 68% of the cultivated area after watershed treatment.

Table 4				
Watershed	On Farm Employment (man days per year)		Migration Percentage	
	Before	After	Before	After
Location 1	90	120	20	05
Location 2	85	110	68	10
Location 3	95	135	Nil	Nil
<ul style="list-style-type: none">On an average, on-farm employment has increased by over 35.18% after taking up watershed treatments.The percentage of population migrating in search of work has decreased from the earlier 29% to 5%.				

Table 5 : Index of Crop Productivity					
Watershed	Ragi (Quintals per acre)		Maize (Quintals per acre)		
	Before	After	Before	After	% Increase
Location 1	3 – 5	6 – 8	Nil	17	--
Location 2	3 – 4	6 – 7	Nil	Nil	--
Location 3	5 – 6	10 – 12	12	19	58.33

From this we can conclude that

- Ragi yields have gone up by 88% on an average, after watershed treatments.
- However, simultaneously, Ragi itself is being replaced by a higher value crop like maize, which was previously not grown in the watershed areas.
