Project on

Soil and Water Conservation for a Sustainable Improvement of local Agriculture and Living conditions for Marginalized Families in Tiruchuli Taluk,

Virudunagar District, Tamilnadu

STUDY OF THE LOCATION, SOIL TYPES, SLOPE AND TOPOGRAPHY OF THE PROPOSED WATERSHEDS IN NARIKUDI & TIRUCHULI BLOCKS JULY 2013



Supported by Kindernothilfe, Germany (KNH) & Federal Ministry of Economic Co-operation and Development (BMZ) Government of Germany

Implemented by Resource Centre for Participatory Development Studies – RCPDS Madurai, Tamilnadu, India.



INDEX

Introduction	01
A Brief Note on The Traditional Lake Systems And Their Present Status	02
Processes Adopted for the "slope/topography/ Watershed Mapping"	05
Recommendations Based on Field Visits And Topographic Survey	08
Individual Lake toposheet	14
Annexure - I	
Each Lake Location Maps	65
Intervention farmers for Soil and Water conservation	81
Annexure - II	
TOR for Consultant	82
Framework on the selection of consultant to conduct this study	83



Abbrivation

KNH - Kindernothilfe

BMZ - Federal Ministry of Economic Cooperation and

Development, Germany

RCPDS - Resource Centre for Participatory Development Studies

GIS -

FTL - Full Lake Level

MWL - maximum water level

TBL - Lake bund level

FMB - Field Measurement Book

PRA - PARTICIPATORY RURAL APPRAISAL

SSI - Semi Structured Interviewing

FGD - Focus Group Discussion

Soil and Water Conservation for a Sustainable Improvement of local Agriculture and Living conditions for Marginalized Families with the Funding Support of KNH/BMZ and Implementation by RCPDS, Madural, India

INTRODUCTION

Kindernothilfe (KNH) with the funding support from the Federal Ministry of Economic Cooperation and Development, Germany (BMZ) has approved the project entitled "Soil and Water Conservation for a Sustainable Improvement of local Agriculture and Living conditions for Marginalized Families" to be by the Resource Centre for Participatory Development Studies (RCPDS), Madurai, India with effect from May 2013. The project area spreads over 3 Panchayats in Tiruchuli Block and 6 Panchayats in Narikudi Block in Virudhunagar District of Tamilnadu State in India to benefit directly about 8,860 families. The overall project objective is:

"To improve the living conditions of the inhabitants of nine panchayats by means of sustainable resource protection, a more environmentally responsible use of resources, diversification of sources of income and provision of sanitation equipment". The specific project objectives are:

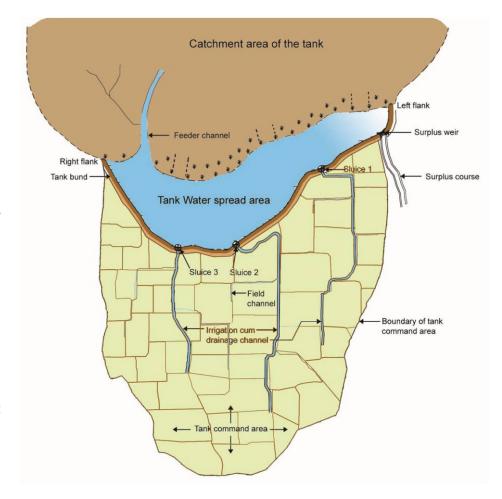
- ❖ 1,500 farming families dependent on irrigated farming (under rain-fed lake systems) grow and harvest food crops on a regular basis.
- ❖ 4,000 farming families dependent on rain-fed farming grow food crops in ways that conserve water and land.
- 1,600 landless families and women-led households improve their regular income possibilities.
- 2,500 families improve their sanitation equipment and personal hygiene.
- The target communities have access to various state institutions and public services.

The project is planned for a period of 4 years starting from 2013 to 2016. Detailed activities with time-frame are prescribed for achieving each objective and being implemented accordingly. With regard to the first two objectives, the first activity as per the schedule is the "slope/topography/watershed mapping", which is a pre-requisite for planning and implementing the other required activities. The project strategically planned for a independent social bench marks study along the technical slope/topography/watershed mapping to mainstream ongoing monitoring and impact assessment. Since the processes are is more of technical nature, and for carrying out the activity economically, the task was entrusted to a consultant having the required expertise and experience in planning for the lake rehabilitation and soil & moisture conservation works through lake based watershed development as well access to technical field staff who could assist in the study process. Thus the study team, including the senior consultant, consist of three members - two technical assistants. The processes adopted in completing this activity are narrated in the forth coming paragraphs.

2. A BRIEF NOTE ON THE TRADITIONAL LAKE SYSTEMS AND THEIR PRESENT STATUS

As the project activities are proposed under the selected rain-fed lakes (irrigated agriculture) and in their catchment areas (rain-fed agriculture), it is felt necessary to brief about the traditional lake systems and their maintenance status before going in to the details of processes made for the topographical mapping of the project areas.

India has a long history of human intervention in the management water for agriculture, because of the country's distinctive climate –intense monsoons followed by protracted droughts. To offset the vagaries of monsoon, water



harvesting structures called "lakes" (earthen bunded small storage reservoirs formed in the natural depressions of the land) have been ingeniously designed and formed by our ancient native rulers and chieftains over the past several centuries. A lake system consists of catchment area with supply channel, lake structure having earth bund provided with sluice(s) for regulating the supply of the stored water for irrigation and surplus weir for the safe disposal of excess water at appropriate locations, and command area with adequate irrigation channels. A lake may also get its supply from the surplus of the upper lake where it is a part of the chain of lakes. Generally, rain-fed farming is practiced in the catchment areas of these lakes, while the water stored in the lakes facilitate irrigated agriculture in their command areas. These lakes also catch and hold the nutrient-rich top soil eroded from their catchment areas due to run-off caused by intermittent spells of heavy rainfall during the monsoons so that it can be transported back to the needy crop lands for filling up the eroded patches of farm lands and as manure to crops. Thus, these lakes, as the common property resources, serve the vital purpose of conserving both the prime natural resources namely, the soil and water which in turn facilitate their multiple uses such as irrigation, flood control, drought mitigation, ground water recharging in addition to other socio-economic and ecosystem services. A schematic representation of a hypothetical lake system is presented below for a fair understanding.

The lake is woven thickly into the social fabric of the rural community. lakes are unique structures and potent instruments playing a very important role in poverty alleviation, social transformation and development of rural areas. Thus, the lakes play a crucial role for the rural masses as they promote their livelihood, economic and health prospects.

lakes once owned by the local community were made as the property of the Government during the British rule and the users were made responsible for maintaining the lakes by "Kudimaramathu" (maintenance by community). After independence, the Government was keen on creating major irrigation schemes, leaving the maintenance of the existing age old lake systems to the users. Since agriculture became non-remunerative, farmers also lost interest in maintaining the lakes after 1960's. Since the State Governments have not paid adequate attention in maintaining their own lake systems till late 1980s, other rural development works and encroachments caused delinking of lakes in



many places. This situation prompted the affluent farmers to sink open wells / bore wells of their own in the lake command areas reinforcing the heterogeneity among the lake users in their collective action for maintaining the lake system. Such marvelous and widespread rural life supporting lake systems have got deteriorated in the recent past due to poor maintenance by the Government agencies and lack of interest among the users, caused by:

- The lakes are not able to catch and store the designed quantity of water due to siltation, physiographic changes in the catchment, encroachments in the water spread area and along the supply channels, etc.
- Agriculture is not found to be remunerative
- Since the lakes are small scale water resources spread over a large geographical area, Govt. could not pay effective attention on their maintenance due to paucity of funds.

Because of the deteriorated lake systems and their catchment areas, the vulnerable section of the rural population such as the marginal and small farmers and the marginalized community have become the worst affected.

In Tamilnadu alone, there are about 39,000 such lakes with command areas ranging between 4ha and 1,000 hectare and classified under "minor irrigation". About 14,000 lakes, each irrigating more than 40ha are managed by the State Irrigation Department and the remaining 25,000 lakes, each irrigating less than 40ha are managed by the State Rural Development and Panchayat Raj Department. All the land survey



records are maintained by the State Revenue Department and other technical records on watersheds, topography, soil, geology, water resources, etc. are maintained by different line departments. So, for planning a development work around a lake system, it is required to approach different agencies for collecting the preliminary data.

Village Ponds:

Like lakes, village ponds are also small rural rain water harvesting structures, but differ in their construction and use. Ponds are formed by digging the ground to the required size to store rain water closer to the dwelling places for domestic/social uses. In some places ponds are used mainly for cattle use and are called as cattle ponds. Also, there are drinking water ponds along the coastal areas where the ground water is saline and not suitable for drinking. All such ponds do not have either sluices for drawing water or weirs for disposing off the surplus water from the pond. But to enable access for domestic use, steps are provided in appropriate places based on the need. They have inflow cum out flow channels. Since such ponds store water for a longer period, villagers use them in a few places for fish rearing also. Ponds are generally maintained by the Village Panchayats.

3. PROCESSES ADOPTED FOR THE "SLOPE/TOPOGRAPHY/ WATERSHED MAPPING"

Since the movement of soil and water, the prime natural resources, is governed by the natural slope of the land, slope/topography/watershed mapping becomes necessary for studying the nature of drainage pattern and the intensity of soil erosion for planning appropriate conservation

measures needed in the catchment area, structural components and in the command area of the lake system aiming at optimum agricultural production.

During the reconnaissance survey of the project areas, it was found that the general slope of the terrain was very mild (about 1%-2%) and no severe soil erosion by rainfall runoff was noticed. In general, the soils in the catchment areas are very poor. Many lands had been left fallow and infested with prosophis juliflora (a highly drought resistant thorny bush) in vast areas including the lake water spread areas. For preparing a good topographical map, contour lines are to be drawn by conducting grid surveying with leveling instruments/ Total Station equipments. Considering the vast area of hundreds of hectares of land for each lake system covered with thorny bushes in many places, the cost and time required for such a survey will be prohibitively high as the survey could be conducted only after clearing the thick thorny bushes. Also, as felt by the farmers, such a precision is not essential to achieve the project objectives. In such a situation, it has been decided to prepare the topographical maps for the project areas with the use of valuable secondary data available, with a reasonable level of accuracy by carrying out the following activities.

- Collection of secondary data available with different Government agencies.
 - Reconnaissance survey of the project areas jointly with the local farmers.
 - Verification of the location of the proposed areas by using GPS instrument.

- Validating the data collected from different sources.
- Minimum use of survey equipments for test checking with ground truths.
- Preparation of maps including the topographical map for each area by using GIS.

To explain briefly about the actual processes made for the required mapping, different authenticated records and data collected from various agencies and the significance of their use in the methodology are detailed below.

Lake Memoir:

It is an important record of a lake system prepared by the Government to depict all the relevant details about its location with Revenue Survey number and geographical coordinates, villages covered, hydrologic particulars such as catchment area, sources of water, yield, water spread area, command area, etc. and hydraulic particulars such as lake's structural details, full lake level (FTL), maximum water level (MWL), lake bund level (TBL), location of sluices & their sill levels, etc. Lake memoirs for all the lakes having command area of less than 40 ha are kept at the Panchayat Union offices concerned. This is the basic record used for the mapping after verifying the location of the lake at site with the help of GPS instrument.

Village Map and FMB sketch: Village map is a land survey map prepared in the scale 1: 5,000, depicting all the lands of the village with boundaries assigned with survey numbers and classification of lands according to their use and ownership. The FMB (Field Measurement Book) sketch provides a map in the scale 1: 2,000 for any individual survey number. For instance, we can have an authenticated map of a lake with its water spread area by indicating its survey number. These records are maintained by the Village Administrative Officers of the State Revenue Department. Required village maps and FMB sketches collected for the project areas by the project staff are scanned and used for preparing the base map of the selected lake system demarcated with the catchment area, water spread area and command area.

Topographic sheet:

It is a topographic map with geographic coordinates prepared by the Survey of India Organization, Government of India in the scale 1: 50,000 with contour lines at 20 m interval for the entire country and they are available in parts with matching numbers for the convenience of the users. This map depicts direction of slope of the terrain, streams and water bodies. It is a restricted document available to the bona fide users only. Parts of the topographic sheets covering the project villages are collected and the project areas are marked in them using the geographic coordinates so as to have a general idea about the nature of slope, drainage lines (water ways), lakes and ponds in and around the project areas. This map is useful in interpreting the slope and for drawing the contour lines on the project area map.

Watershed Atlas:

It is a document prepared by the Tamilnadu Agricultural Engineering Department showing the watersheds and micro watersheds with their code numbers delineated in each river basin along with the details of their areas, soil erosion status and villages covered. This document helps to delineate the catchment area of any lake system in the village map corresponding with the lake memoir details.

Geological data: Geology deals with metamorphism of rocks that are formed over vast periods of time. These data are maintained by the State Ground Water Department which can throw light on the soils formed in the areas and ground water movement. The geological data obtained for the project areas is presented in a separate map.

Soil Atlas:

It is the document prepared by the State Agricultural Department based with the soil data obtained from the Soil Survey Department for each



district. By using these data, general soil map for project areas is prepared. Soil analysis needed for soil fertility amendments and crop selection is done separately by taking soil samples from the randomly selected sample fields in the catchment and the command areas and tested them at the soil testing laboratory. The laboratory recommendations and outcomes are attached to this report in the coming sections.

Preparation of Slope/Topography/ Watershed Map for each project area:

As explained already in the beginning, the slope/topography/watershed map is prepared for each lake system by delineating the catchment area, lake water spread area and its command area over the village maps by using the above mentioned secondary data. Contour lines are drawn by interpreting the land slope from the relevant topographic sheets and field observations. In a few places leveling instrument has been used to test check the contour levels with reference to the lake FTL and MWL. Slope directions are marked by means of "arrows" in the map. This map is prepared with geographical coordinates by layering with different thematic maps using GIS. As each lake system covers vast land area, these maps are prepared with a larger scale. Hence the limitation is that they can not be used directly for marking the development activities planned. For this purpose, the village maps have to be used with more clarity. For preparing the maps required with geographical coordinates by using GIS, the consultant engaged a GIS expert who prepared thematic layers by using ARC/INFO software. Thematic layers such as geology and soil have been converted in to digital format for further analysis if needed later. Integration of different thematic layers is shown in a flow chart as under.

The flow chart showing the integration of thematic layers using GIS

Maps produced:

By adopting the processes explained as above, the following maps with geographical coordinates are produced.

Map showing the location of all the project areas in Tiruchuli and Narikudi blocks of Virudhunagar district in Tamilnadu.

- Map showing the geological formations in the project areas.
- Map showing the major soil types in the project areas.
- Location of each lake system shown in the village map.
- Location of each lake system shown in the topographical map.
- Topographical map with slope directions and contour lines for each lake system.

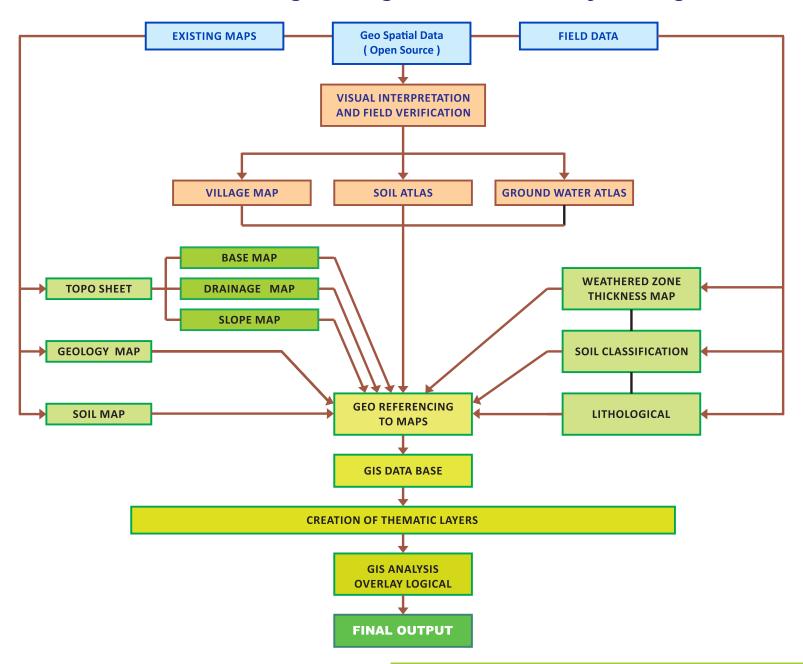
4. RECOMMENDATIONS BASED ON FIELD VISITS AND TOPOGRAPHIC SURVEY

On the outset it is acknowledged that the proposal is well thought out and made in co-ordination with local communities, which can be reaffirmed during the field visits for topography study. After carrying out this assignment by making field visits along with the local farmers in the project areas, the consultant offered a few recommendations as detailed below with a pragmatic approach for further discussions with the community in order to make appropriate decisions for achieving the project objectives.

Rehabilitation of lakes and ponds:

- Priority is to be given for clearing the supply channels feeding the lake without any obstructions.
- Lake rehabilitation works should be carried out before the commencement of the monsoon after completing social monitoring mechanisms, other preliminaries.
- While repairing the sluices, care should be taken to maintain the
 original sill level. If the sill level becomes higher, dead storage will
 increase. If it becomes lower, commandability of lands will get
 affected. For effective regulation of flow from the sluice without any
 leakage, the traditional wooden plug-rod shutter is to be provided
 instead of costly iron paddle shutters.
- While repairing the surplus weir also, care should be taken to maintain the original sill level. If the sill level becomes higher, the FTL of the lake will increase and the private lands adjoining the foreshore may get submerged. If it becomes lower, the storage capacity of the lake will get reduced. The repair works should focus on arresting the leakages from the lake.
- While desilting the lake bed, care is needed not to disturb the lake bed within 3m from the toe of the lake bund. The silt removed from the bed is to be spared for using in the agricultural fields.
- It is recommended to plant some useful trees like tamarind in the lake foreshore in the strip of common land available between the lines of FTL and MWL if the lake farmers agree for future maintenance. As there is intrinsic risk of cattle grazing, this

The flow chart showing the integration of thematic layers using GIS



- suggestion may be tried in one or two lakes on a trial basis with local participation.
- Since the lake (structural components) is under the control of the state RD & PR Department, it is necessary to get permission from the panchayat concerned by way of passing an appropriate resolution to ensure "no objection" for carrying out the project activities.

Soil and moisture conservation works in the catchment areas:

- Since the general slope of the project areas is very mild, localized treatment for the eroded patches (to be identified by the farmers) of the land is recommended. Also, there is no need for treating the entire catchment area to conserve soil and moisture.
- Given the project focus and scope, it is recommended to concentrate conservation measures limited to the waterways that feed the lake.
- Field bunding may be done in the areas susceptible for rainfall runoff/erosion.
- Farmers are to be advised to complete the ploughing operation across the slope to capture optimal rain water which will facilitate insitu moisture conservation.
- Facilitate farmers to take up summer ploughing every year to improve the soil permeability through appropriate motivation, since 'summer ploughing' is considered to be the most effective and simplest technique of moisture conservation.

- Application of farm yard manure and lake silt is to be encouraged for improving the moisture holding capacity of the soil. Mulching with the locally available materials is will also be useful.
- Wherever gully control works are taken up, care should be given to
 ensure free flow of soil-free water in to the lake situated below. So,
 small loose rock dams is recommended to be the appropriate
 measure.
- Since the spreading of proshophis juliflora has become a menace to the rain fed farming, the farmers need to be sensitized as their lands are being wasted/under-utilized. Farmers who come forward to take up food crop cultivation by removing the proshophis juliflora in their fields should be complemented and are to be given priority in the other support components, such as credit from revolving fund.



• From the past experience in Tamilnadu, it is cautioned that 'vetiver grass' is not suitable for our soil and climatic conditions; instead the project may consider planting agave or similar drought tolerant plants which are not destroyed by cattle..

Practicing organic farming in rain fed agriculture:

·Since the use of chemical fertilizers which require timely application of water will not yield the desired result in rain-fed agriculture, soil health management/development is necessarily to be done with the application of farm yard manure, lake silt, sheep/goat penning, etc. Similarly, pest management is to be made by organic pesticides for getting quality food crop production.

Irrigated agriculture development in the lake command area:

Water availability in the lake and the duration mainly depend on the rainfall. So, a planned and judicious use of the available water is more important for irrigation under lake fed agriculture. The lake farmers are to be motivated for clearing the irrigation channels before the commencement of crop season and to practice summer ploughing without fail so as to facilitate absorption of more rain water and conducive for easy puddling of soil with the use of lesser lake water. Farmers are to be trained in water management for paddy which is the mono crop raised during the monsoon season. It should be made mandatory to engage common paid irrigators (neerkatti) to ensure equity in irrigation without any over-use or wastage of lake water. It is found that a new drought resistant variety of paddy named 'Anna 4' is more suitable for lake irrigated agriculture and awareness is to be created.

General:

- The suggestions made are based on the problems perceived by us. But the farmers who live with their system know better about their farming problems to be solved. So, there is a need to bring out the real problems causing the present state of affairs by having focus group discussions or other interactive sessions in order to find out pragmatic solutions jointly with target communities synchronizing with the opportunities available through the present project.
- The project should give more importance for the trainings and demonstrations needed for the farmers and to instill confidence about profitable agriculture.
- There are many Government programs implemented for the benefit of the farming community. The farmers and their associations are to be enabled to reap their entitlements piercing through the deficiency in the delivery system.

Further actions proposed:

- Commencing lake rehabilitation works duly considering the recommendations
- Analysis of soil samples collected from specific watersheds and getting recommendations from soil testing laboratory
- Preparing list of Farmers in the catchment and command according to the delineated watershed
- A detailed PRA resource mapping of the catchment and the lake (water spread) need to be done by RCPDS by using facilitators conversant with PRA skills to evolve contextual problems, physical issues related to catchments, sluice, spillover structures, etc., faced by independent lakes, its users and the Panchayats.

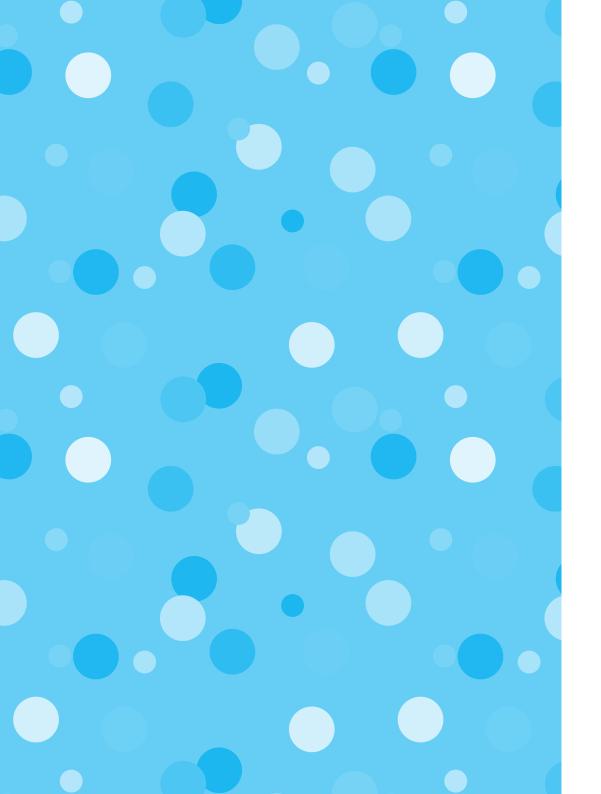
This study will develop details such as...

- Identification of supply channels and the status
- Identification of vulnerable eroded patches and gullies in the catchment
- Land use pattern and ownership situation
- Identification of field bunding opportunities along the contourline
- Identification of progressive farmers with various reclamation interventions including removal of proshophis juliflora.
- Promote field bunding in the vulnerable areas of catchment
- Introduce 'Neerkatti' concept in one or two lakes as model and for replication
- Design appropriate curriculum for training and demonstrations based on the identified needs

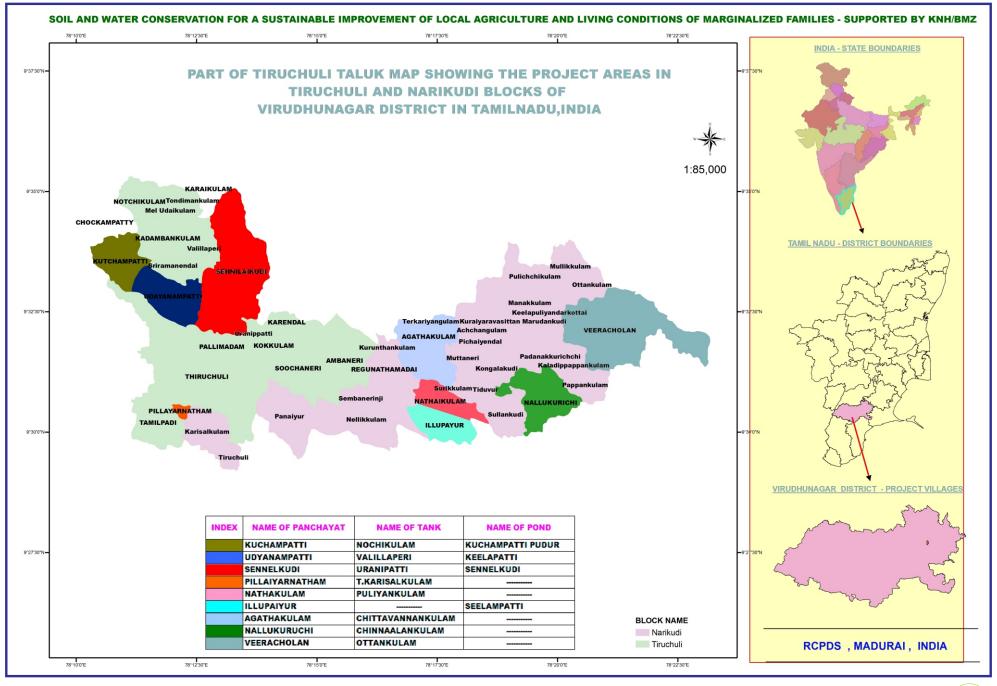


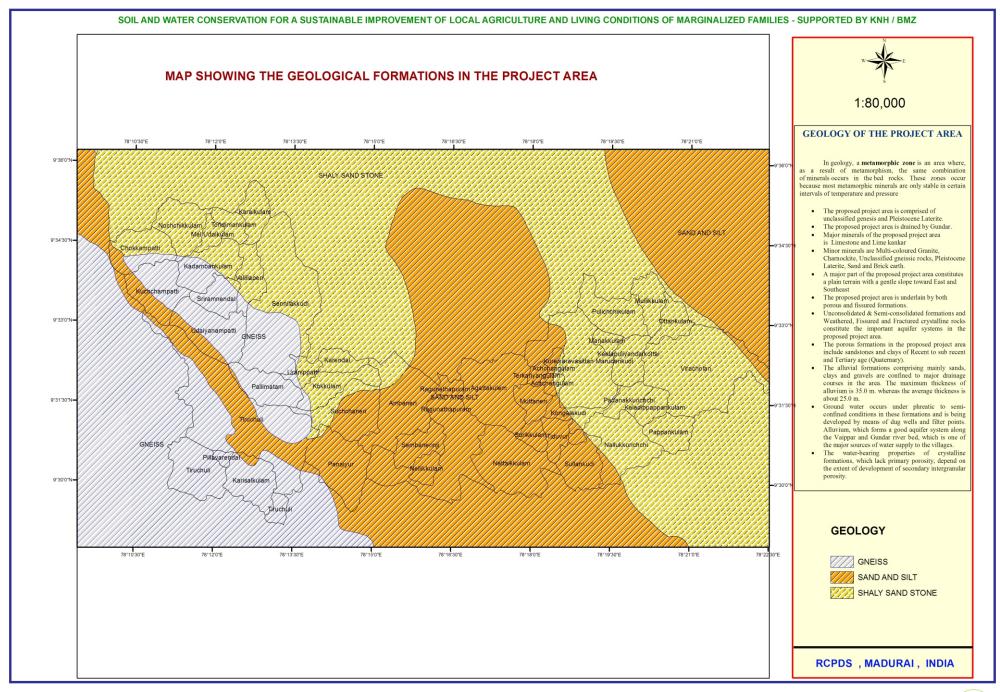
Each of the lake report will have separate section:

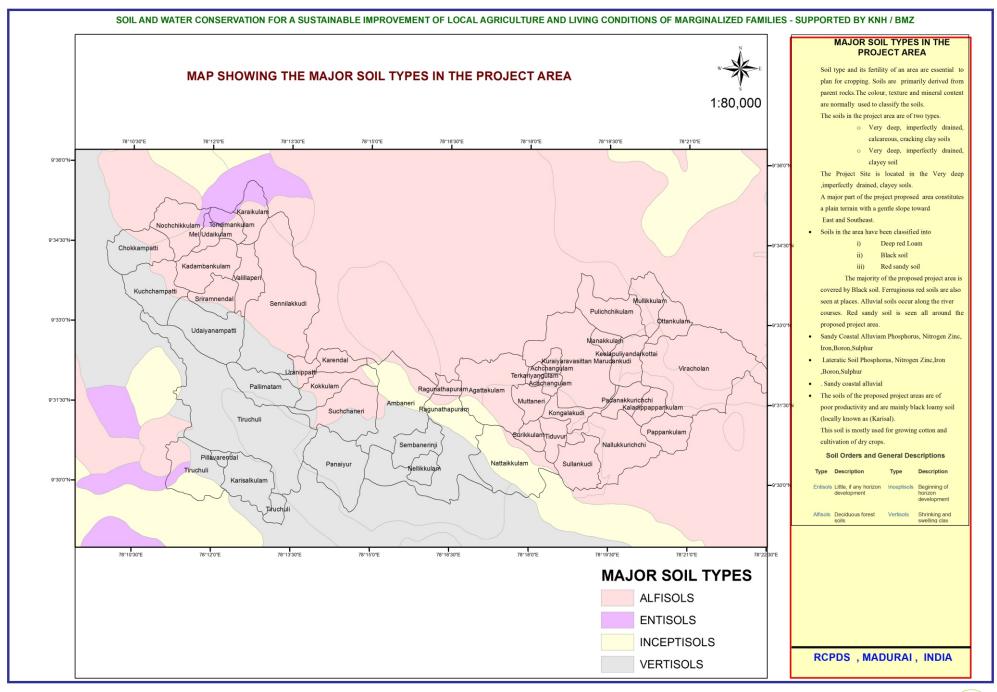
- 1. Location map
- 2. Topography sheet
- 3. Specific micro watershed details
- 4. Soil samples and report for the lake
- 5. PRA resource map of catchment with info on eroded patches, gullys, current status and treatment plan
- 6. List of land holders in the catchment
- 7. Water spread area and command map with correctional measures using PRA
- 8. List of farmers in the command

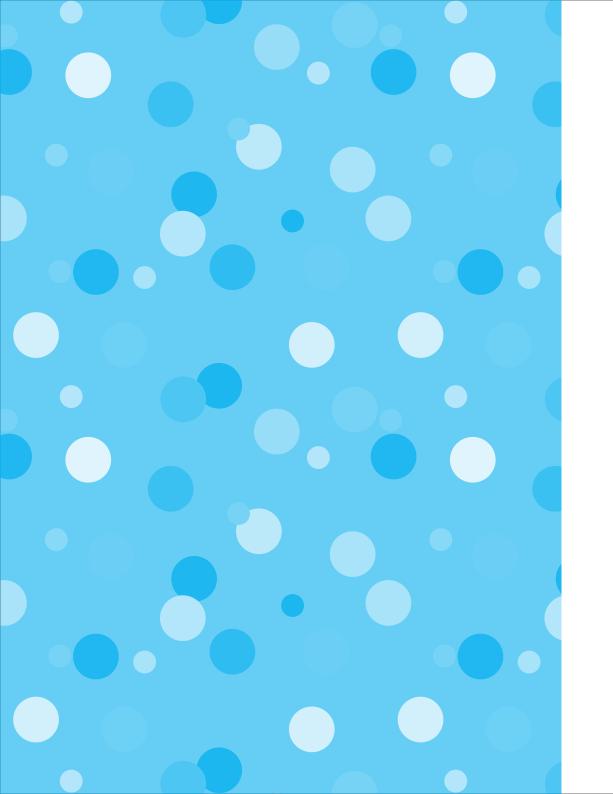


Part of Tiruchuli Map Showing
The Project Areas in
Tiruchuli And Narikudi Blocks
of Virudhunagar District in
Tamilnadu, India



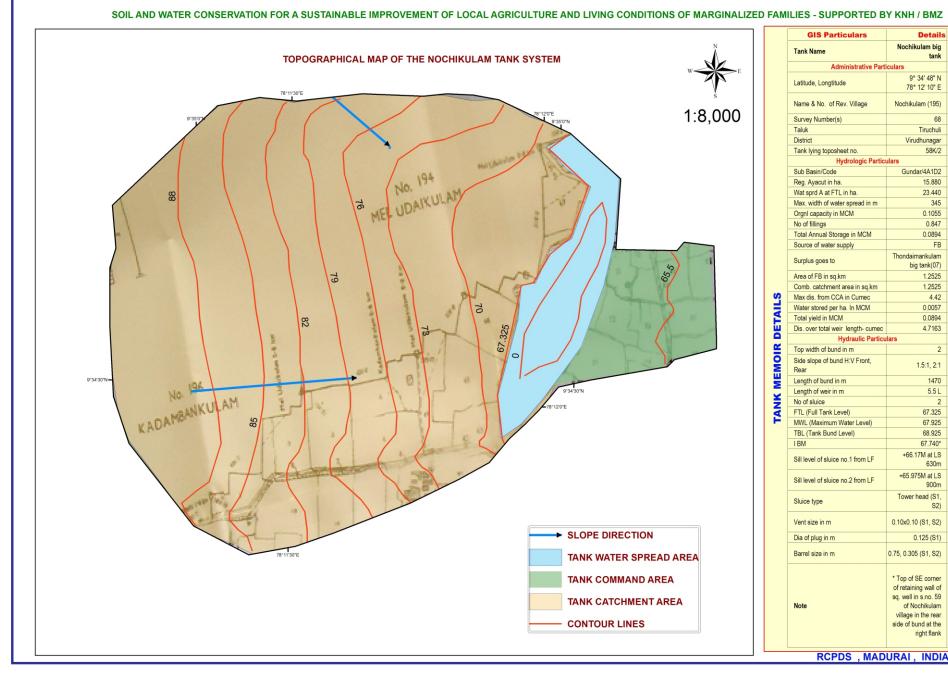






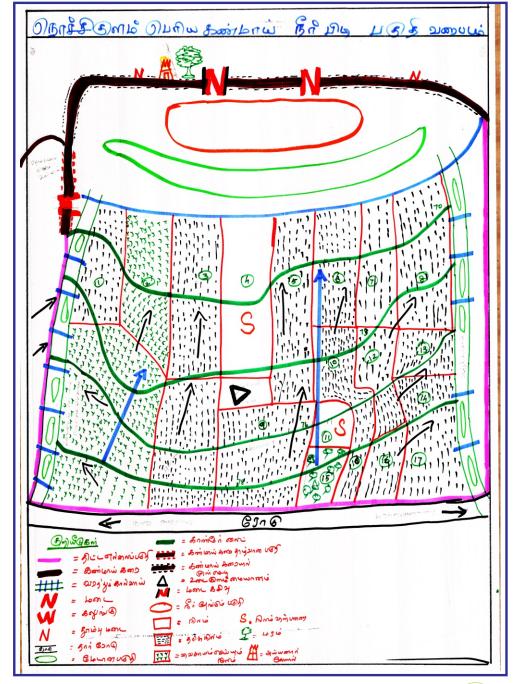
Nochikulam Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis



GIS Particulars	Details
Tank Name	Nochikulam big tank
Administrative Parti	
Latitude, Longtitude	9° 34' 48" N 78° 12' 10" E
Name & No. of Rev. Village	Nochikulam (195)
Survey Number(s)	68
Taluk	Tiruchuli
District	Virudhunagar
Tank lying toposheet no.	58K/2
Hydrologic Particu	
Sub Basin/Code	Gundar/4A1D2
Reg. Ayacut in ha.	15.880
Wat sprd A at FTL in ha.	23.440
Max. width of water spread in m	345
OrgnI capacity in MCM	0.1055
No of fillings	0.847
Total Annual Storage in MCM	0.0894 FB
Source of water supply	
Surplus goes to	Thondaimankulam big tank(07)
Area of FB in sq.km	1.2525
Comb. catchment area in sq.km	1.2525
Max dis. from CCA in Cumec	4.42
Water stored per ha. In MCM	0.0057
Total yield in MCM	0.0894
Dis. over total weir length- cumec	4.7163
Hydraulic Particu	
Top width of bund in m	2
Side slope of bund H:V Front, Rear	1.5:1, 2:1
Length of bund in m	1470
Length of weir in m	5.5 L
No of sluice	2
FTL (Full Tank Level)	67.325
MWL (Maximum Water Level)	67.925
TBL (Tank Bund Level)	68.925
IBM	67.740*
Sill level of sluice no.1 from LF	+66.17M at LS 630m
Sill level of sluice no.2 from LF	+65.975M at LS 900m
Sluice type	Tower head (S1, S2)
Vent size in m	0.10x0.10 (S1, S2)
Dia of plug in m	0.125 (S1)
Barrel size in m	0.75, 0.305 (S1, S2)
Note	* Top of SE corner of retaining wall of sq. well in s.no. 59 of Nochikulam village in the rear side of bund at the right flank
RCPDS , MAD	URAI, INDIA

TRANSECT - 6) Brile Bom Lorie					
3	W NIXXXXX	**************************************	53		
உகத் <u>ய்றவு நூ</u>	- திரை திரழ்வாக உள்ளது - கூறையால் இடைம கூடுவேல் இள் உள்ளது - மண் அரிமாலும் உள்ளது	- திரை நன்றாக உள்ளது - குறையுல் திரைம கலிவேல் இல் 2வ்ளு	- Bong Brigar Zinimes - Emu Bersu Mi Zinimes - Umi Arrum Zinimes		
ர் தேங்கிட் படு	- Lorin 61-5) 2 mm/y -	-Lomi Blog 2mmg			
மடை	= book 2 @ & ? oi boom & b & 2 mmy = B i & & 2 2 mmy	上の町上 みのあみ上の前 包ゅう 2 かのより一場 あめり がっかり			
Bey 2 LI GWOSG	= 100%, 5 A.A DNi = \$2005@@in2ing	= 90%, 584 6mi = 10%, 500 umm = Emu & cession 2000 my	= 100./. 5 n 4 Bris = Farus & C 8 20 2 2 my		
सिशाल्य	= CLGANGiy AgiG	=669 BNBN Y BY18	-924 DABAS 4943		
فالعمم اله المحد	= Lowin HALONGONG Spring 2 20 mg = MNG & DNA SIM		= 6 mi 21 m (0 m) 21 g) & 6 = 20 m 2 y J m) vc 2 m my		
व्याक्नी सं मुक्ते करण	Deliber / som com Baros & som is win	= တိမ် ဖ် ဖောက်	= Domin & & NA; 09-65 com = 10-000 A And		
ก ริงฮ อยกพ่รัธกล่	= 2mi UBA 6mi EA 2miny = Bri 2000 wi = OBrivy 2mili2mi 21ghi	= อกพัสโกล 6mi อกคับ 2mimy = กลงบับ อกพัสภาพ องค์ไล นั	= 50 mg 2 min 2 2 mg 2		



PARTICIPATORY RURAL APPRAISAL REPORT NOCHIKULAM LAKE

Date of PRA facilitation : 31-07-2013

Facilitated by : Nirmal, Nagendran and Chelladurai

No of participants : 28

Catchment - 12M 8F Command - 5M 3F

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

 Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- 100% lands are not used for cultivation
- Most of the lands are with thorny bushes
- Terrain slope is from North to South, West to East and South to North

- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- High Silt level
- Loss of top soil due to erosion
- Gully formed in both supply channel

Issues in the water spread and structural renovation

- Lake bund is weak at 2 points
- Water spread is full of Prosophis Julia Flora
- Silt accumulated on central part of the lake
- Wastage of water due to the leak of sluice structure
- Structural damage in the Sluice
- Sluice is blocked with overflowing silt
- No shutter in Sluice

These were presented to larger community consisting of members from catchment, command; landless who are dependent on agriculture including the women headed households for final correction and to ensure their participation in the implementing stage.

Actions proposed by community members for implementation by the project:

- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder to the command to be lined up
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention
- Farmers to be exposed to cost viable agriculture Optius

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Nochikulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	0.2 Good Condition	Medium 7.6	

SOIL TEST				
	Less	Medium	High	Remarks
O.C%	-	-	-	
N	77	-	-	
Р	4.3	-	-	
К	-	101	-	

	B.B.M				
Fe	2				
Mn	-	2.8			
Zn	0.6				
Cu	0.6				
В	-				

Suggestions for Manure

Nutrimix					
N 54 Urea 119					
P2O5	40	40 Super Phospate			
K2O 36.6 Meuriate of Potash 61					

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
12.5 2.0					-

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	2	4	4		
Phospo Bacteria	2	4	4		

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

Suggestions:

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Nochikulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	High	0.1 Good Condition	Medium 6.2	

SOIL TEST						
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	85.3	-	-			
Р	2.5	-	-			
К	-	162	-			

	B.B.M					
Fe	1.7	-				
Mn	-	2.7				
Zn	0.9	-				
Cu	0.4	-				
В	-					

Suggestions for Manure

Nutrimix				
N Urea				
P2O5		Super Phospate		
K2O Meuriate of Potash				

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					

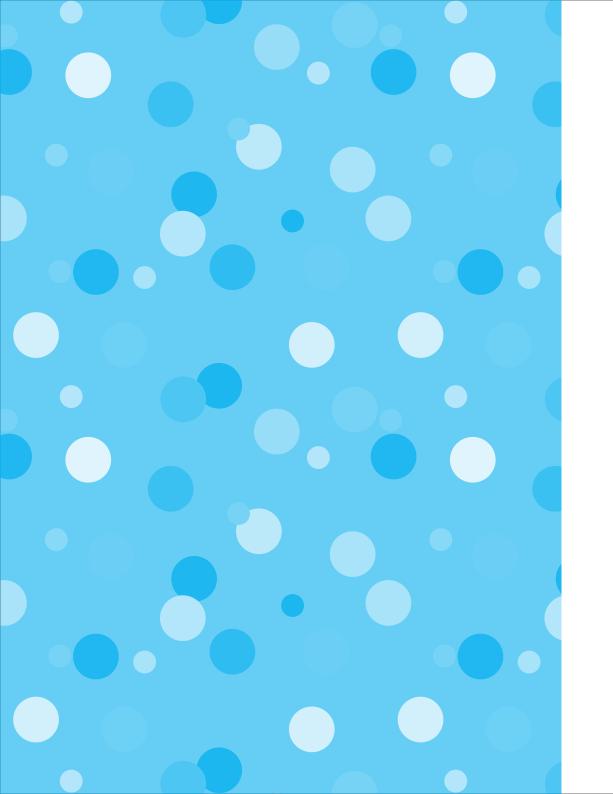
Nutritious Manure					
Risobium	Seeds	Planting	Land		
	-	-	-		
Phospo Bacteria	-	-	-		

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

Suggestions:

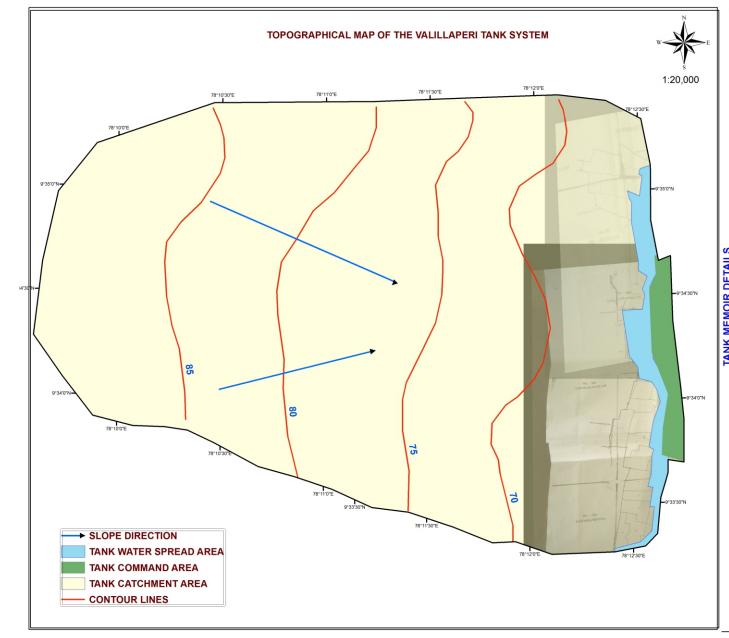
- Cumbu, Sorghum, Cotton, Grams, Species can be ploughed
- Use Pest and Disease management & Cattle Manure



Vaalilaperi Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis

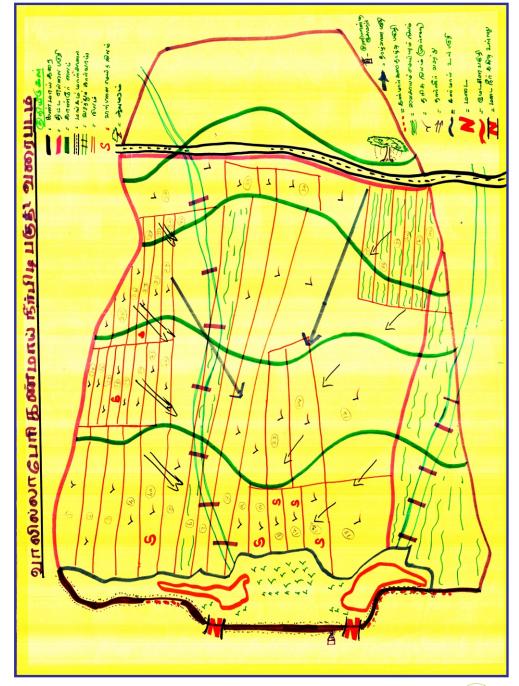
SOIL AND WATER CONSERVATION FOR A SUSTAINABLE IMPROVEMENT OF LOCAL AGRICULTURE AND LIVING CONDITIONS OF MARGINALIZED FAMILIES - SUPPORTED BY KNH / BMZ



GIS Particulars	Details
Tank Name/code	Vallilaperi tank/4A1D2/38/02
Administrative Pa	
Latitude, Longtitude	9° 34' 23" N 78° 15' 35" F
Name & No. of Rev. Village	Tiruchuli (161)
Survey Number(s)	1
Taluk	Tiruchuli
District	Virudhunagar
Tank lying toposheet no.	58K/2
Hydrologic Particulars	
Cascade/Code	Sennilakudi
Cascade/Code	Cascade/4A1D2/38
Sub Basin/Code	Gundar/4A1D2
Reg. Ayacut in ha.	27.750
Wat sprd A at FTL in ha.	51.390
Max. width of water spread in m	380
OrgnI capacity in MCM	0.2696
No of fillings	0.504
Total Annual Storage in MCM	0.1360
Source of water supply	FB, Sriramanendal(03), Nochikulam small (04)
Surplus goes to	Sennilaikudi tank(01)
Surplus through	Channel
Capacity of tank above in MCM	0.21951
Area of FB in sq.km	1,507
No of Tanks Above	2
Comb. catchment area in sq.km	3.501
Max dis. from CCA in Cumec	12.34
Water stored per ha. In MCM	0.005043
Total yield in MCM	0.136
Dis. over total weir length- cumec	12.8
Hydraulic Partic	
Top width of bund in m	2
Side slope of bund H:V Front, Rear	1.5:1, 2:1
Revetment	Not Revetted
Length of bund in m	2310
Length of weir in m	40.15 L
No of sluice	40.15 L
	65.345
FTL (Full Tank Level)	
MWL (Maximum Water Level)	65.705
TBL (Tank Bund Level)	66.705
I BM	66.215*
Sill level of sluice no.1 from LF	+64.18M at LS 630m
Sill level of sluice no.2 from LF Sill level of sluice no.3 from LF	+63.77M at LS 1470m +63.965M at LS 1875m
Sluice type	Head wall (S1, S2, S3)
Vent size in m	0.10x0.10 (S1, S2, S3)
Dia of plug in m	0.15 (S1, S2, S3)
Barrel size in m	0.30 (S1, S2, S3)
Note	* Top of kandam stone at the junction of s.no. 16, 22 & 1 of Vallilaperi

RCPDS, MADURAI, INDIA

TRANSECT American sin sin con in the contraction of				
110000	and the state of t	学学学学学学		
	WAR WAR		होटी पर्यक्षिकार कर ह	
குஷ்டாம்		5-2		
8 50009	AND MARINE COM	- 5000 mainnes 2 ming		
	2 mmy - 5000 9m	- seesid (Om and) show 2-ming	- 80 Ban @ w 3124	
C: C: C: CO	AA) a Coa Ching - Low Coa Couns	- Abasas a struct		
हितं दरकंकाः त्वरी	2 mmy	- diengres 2 mmy - 29 034 2 mmy	- both Glosy Bulnes 2 mings	
LonL	- 57164 200 cód 200 0050 in 5522 200 000	- gricy 2 on its 2 in m		
	- Law stanting	_ Lossi Stancity 2 mmy		
டுர்படி படு டுலங்கள்	しょにい めえある	_ 40 Li 20 M 20 M		
= நிலட்2 பகலகம்	-10/ 2563 คิงคั้งลูก่ มนาติบกบไว่ง 2กำหา	- Demound 50000 20000	= 5 %. Nwm Unity or 2 ming	
	= 90% MNNSA	- வெல் உறற்புகளை 2 _{விண்டு}	= 95/ 50200 2ming	
ድ ብ ଥ	504/Qi assing	- 6. 10.002.10.1.		
	_ లుడపేనినుయెశ్రీ రాగ్రాపేకింకి హిలిలు 2మ గార్థు.	- രേത്തെത്ത്യ മുൾ മറു ഉണ്ടു.	- ⁹ 9 ന്റെ ഉത്തിൽ എന്നു - ജറക ക്കിച്ച 2 ന്നു	
वं क्रिकायकार्थ कि	- சிரிவு திறைவாக	- Lyson Garris sir Ami	– யூகும் கூடிக் அசு	
	2 mingon Buggain Cui bin Dagy	enmin 200 Bi Dry-	ANY Deview Land	
	Smich Daine	alur sopos any	DOUTE maishors	
	- Onona Domio Am	and was appeared	Dry Dry 53 46 sin	
	Gowing 200 Rin oring	- 9384 som 2100065	Speries & Samila	
	paying along the sales	Cal min ALL		
	tens 2 mings.			
	- 3- Majo Bryice			
	2004/ 99 4466			
மன்னின் தன்கை	- 8984/ 2mi Cy	-கூரிப் மாம் மன் மன் மன்	- & ned/ wend -	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	bein Borto &	eng 2f	_ osciem	



PARTICIPATORY RURAL APPRAISAL REPORT VAALILAPERI LAKE

Date of PRA facilitation : 31-07-2013

Facilitated by : Nirmal, Nagendran and Chelladurai

No of participants : 35

Catchment - 15M 10F Command - 5M 5M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

• Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- 90% lands are not used for cultivation
- Most of the lands are with thorny bushes
- Terrain slope is from North to South, West to East and South to North

- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- High Silt level due to excess water flow from Sri Ramanendal lake
- Loss of top soil due to erosion
- Gully formed in both supply channel
- Road formed in the centre of the lake increased the slope level
- Storage of water in the centre of the lake and not passing through the sluices

- Lake bund is weak at 2 points
- Water spread is full of Prosophis Julia Flora
- Silt accumulated on central part of the lake
- Wastage of water due to the leak of sluice structure

- Structural damage in the Sluice
- Sluice is blocked with overflowing silt
- No shutter in Sluice

- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder to the command to be lined up
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention
- Farmers to be exposed to cost viable agriculture Optius

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Vaaliaperi - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	2.26 Good Condition	Medium 7.5	

SOIL TEST					
	Less	Medium	High	Remarks	
O.C%	-	-	-		
N	73.5	-	-		
Р	4.0	-	-		
К	46	-	205		

B.B.M					
Fe	2.1				
Mn	-	3.1			
Zn	0.3				
Cu	0.7				
В	-				

Suggestions for Manure

Nutrimix				
N 54.5 Urea 12				
P2O5	40	Super Phospate	250	
K2O	56	Meuriate of Potash	93	

Micro Nutritious						
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	12.5	2.0	-	-	

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	2	4	4		
Phospo Bacteria	4	4	4		

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

- Increase the Quantity of Pest and Disease Control Manure/ Cattle Manure
- Make the Stagnant water to flow

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Vaaliaperi - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 6.7	

SOIL TEST						
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	77.6	-	-			
Р	2.1	-	-			
К	45	-	-			

	B.B.M				
Fe	2.2	-			
Mn	-	2.6			
Zn	0.6	-			
Cu	0.8	-			
В	-				

Suggestions for Manure

Nutrimix				
N Urea				
P2O5		Super Phospate		
K2O Meuriate of Potash				

Micro Nutritious						
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium						
-	-	-	-	-	-	

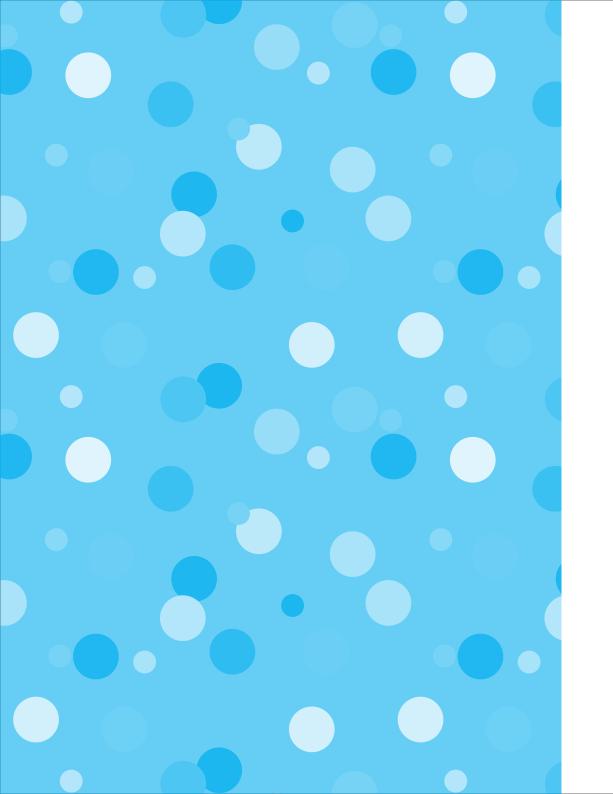
Nutritious Manure						
Risobium	Seeds	Planting	Land			
	-	-	-			
Phospo Bacteria	-	-	-			

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

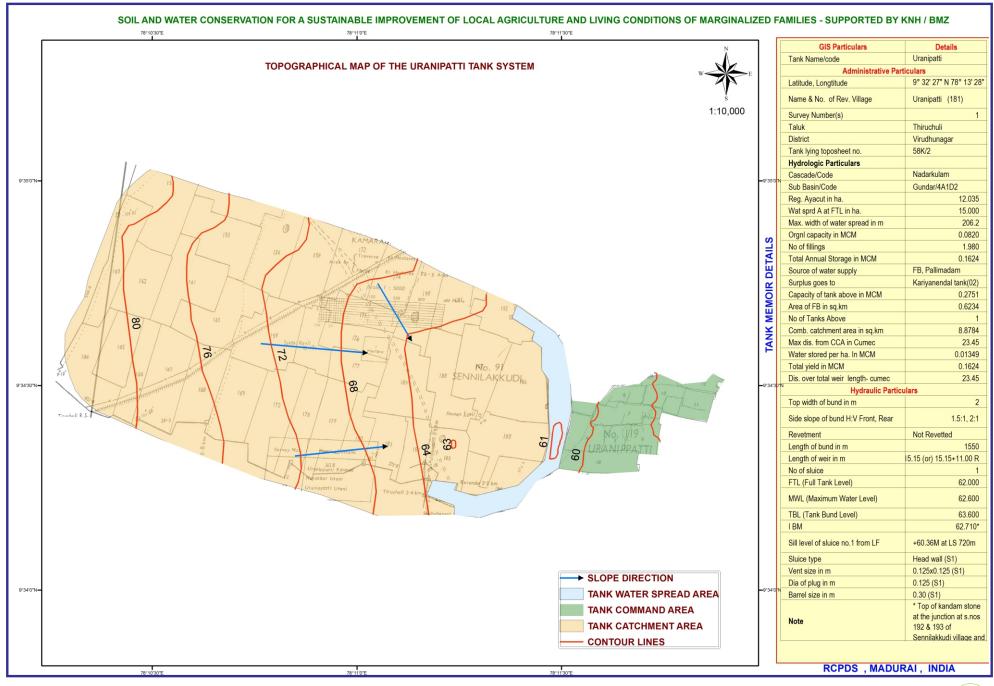
Suggestions:

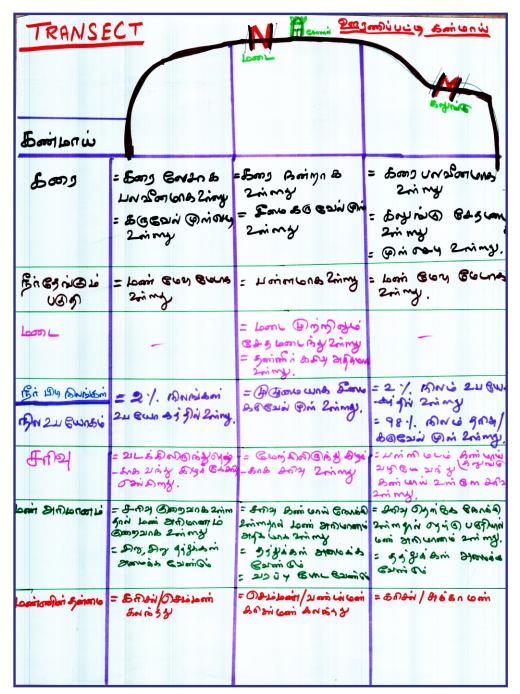
• Cumbu, Sorghum, Cotton and Grams can be ploughed

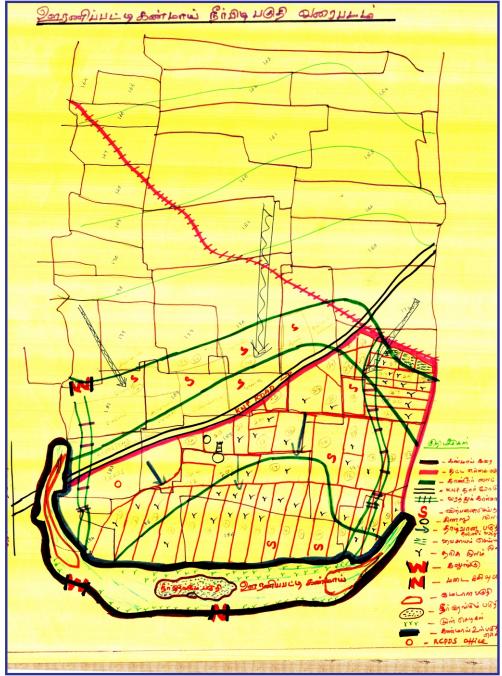


Uranipatty Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis







PARTICIPATORY RURAL APPRAISAL REPORT URANIPATTI LAKE

Date of PRA facilitation : 05-08-2013

Facilitated by : Nirmal, Nagendran and Chelladurai

No of participants : 32

Catchment - 13M 9F Command - 5M 5M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

• Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- 98% lands are not used for cultivation
- As the land is not used for many years most of the lands are with thorny bushes

- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- Loss of top soil due to erosion
- Terrain slope is from North to South, West to East and South to North
- Gully formed in both supply channel
- Feeder channel is blocked
- As the land are fallowed the supply channel is silted thus encroachment takes place
- Water flow is comparatively less and the supply to the feeder channel is decreased

- Water spread is full of Prosophis Julia Flora
- Silt accumulated on central part of the lake

- Wastage of water due to the leakage in sluice structure
- Structural damage in the Sluice
- lake bund is weak at 2 points
- Sluice is blocked with overflowing silt
- Feeder channel to the command is not in a good condition

- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder to the command to be lined up
- Seed planting according to the soil quality
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Uranipatti - Command

Nature of the Soil

Date	Soil Texture	Soil Texture Calcium Carbonate EC (Dsm)		РН	Remarks
	Sandy Loam Soil	Maximum	0.1 Good Condition	Medium 6.46	

SOIL TEST						
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	82.3	-	-			
Р	2.16	-	-			
К	-	84	-			

B.B.M					
Fe	1.7				
Mn	-	2.4			
Zn	0.4				
Cu	0.8				
В	-				

Suggestions for Manure

Nutrimix						
N	51.3	114				
P2O5	40	Super Phospate	240			
K2O	46.6	Meuriate of Potash	77.6			

Micro Nutritious						
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodiu						
-	-	12.5	2.0	-	-	

Nutritious Manure						
Risobium	Seeds	Planting	Land			
	2	4	4			
Phospo Bacteria	4	4	4			

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

S	П	σ	σ	ρ	St	7	n	n	S	•

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Uranipatti - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 6.5	

	SOIL TEST					
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	68.3	-	-			
Р	1.6	-	-			
К	-	52.3	-			

	B.B.M				
Fe	1.9	-			
Mn	-	2.4			
Zn	0.6	-			
Cu	0.8	-			
В	-				

Suggestions for Manure

Nutrimix				
N Urea				
P2O5		Super Phospate		
K2O Meuriate of Potash				

Micro Nutritious						
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	-	-	-	-	

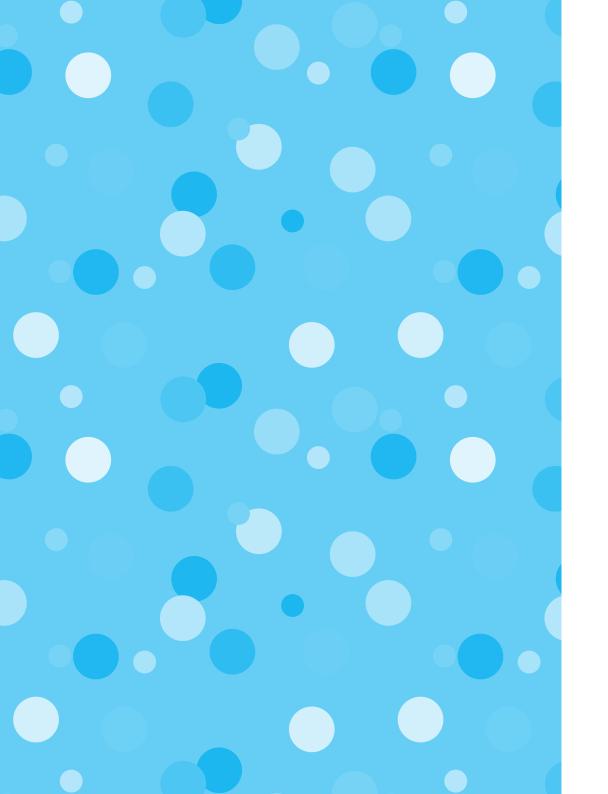
Nutritious Manure					
Risobium	Seeds	Planting	Land		
	-	-	-		
Phospo Bacteria	-	-	-		

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

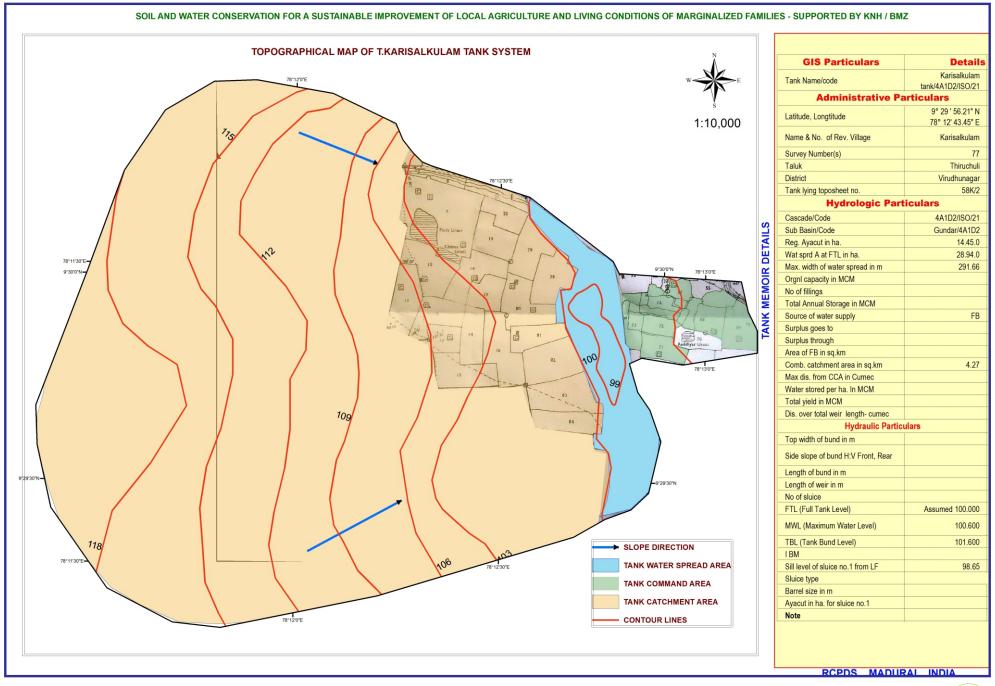
Suggestions:

• Cumbu, Sorghum, Cotton and Grams can be ploughed

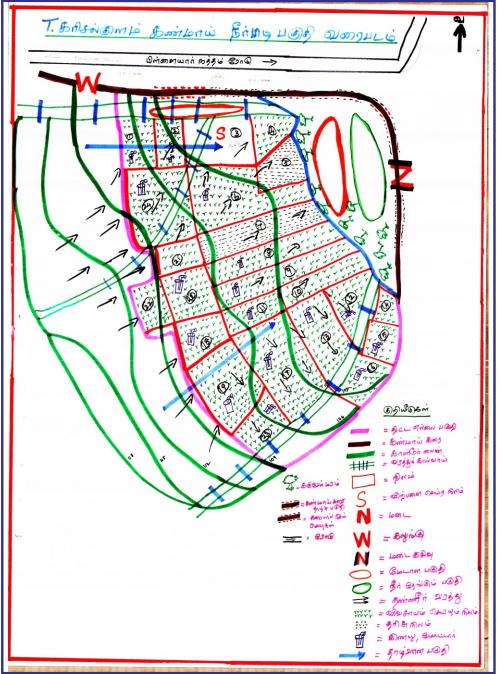


T. Karisalkulam Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis







PARTICIPATORY RURAL APPRAISAL REPORT T.KARISALKULAM LAKE

Date of PRA facilitation : 07-08-2013

Facilitated by : Nirmal, Nagendran and Chelladurai

No of participants : 32

Catchment - 15M 7F Command - 5M 5M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- · Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- · Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

• Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

The fallowed land acts as a catchment but the land is covered with thorny bushes which decreases the flow of the water

Terrain slope is from North to South, West to East and South to North

Silt move towards the lake due to slope and erotic monsoon

90% lands are not used for cultivation

Loss of top soil due to erosion

Gully formed in both supply channel

Feeder channel to be lined up

- Water spread is full of Prosophis Julia Flora
- Silt accumulated on central part of the lake
- Lake bund is weak through which water might be diverted due to overflow and breakage
- Wastage of water due to the leak of sluice structure
- Structural damage in the Sluice
- Sluice is blocked with overflowing silt

- Bund to be Strengthened
- Feeder to the command to be lined up
- Sluice to be repaired
- Removal of Bushes
- Lake to be deepened and De-Silted at the sluice level
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention
- Farmers to be exposed to cost viable agriculture

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department T.Karisalkulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	0.2 Good Condition	Medium 8.3	

	SOIL TEST					
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	76.6	-	-			
Р	4.0	-	-			
К	-	-	155			

	B.B.M				
Fe	1.9				
Mn	-	2.7			
Zn	0.6				
Cu	1.1				
В	-				

Suggestions for Manure

Nutrimix					
N	54	Urea	120		
P2O5	40	Super Phospate	250		
K2O 18 Meuriate of Potash 30					

Micro Nutritious						
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	12.5	2.0	-	-	

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	2	4	4		
Phospo Bacteria	2	4	4		

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department T.Karisalkulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.5 Good Condition	Medium 7.5	

SOIL TEST					
	Less	Medium	High	Remarks	
O.C%	-	-	-		
N	68	-	-		
Р	1.8	-	-		
К	-	131	-		

B.B.M				
Fe	2.5	-		
Mn	-	2.9		
Zn	0.4	-		
Cu	0.5	-		
В	-			

Suggestions for Manure

Nutrimix				
N		Urea		
P2O5		Super Phospate		
K2O Meuriate of Potash				

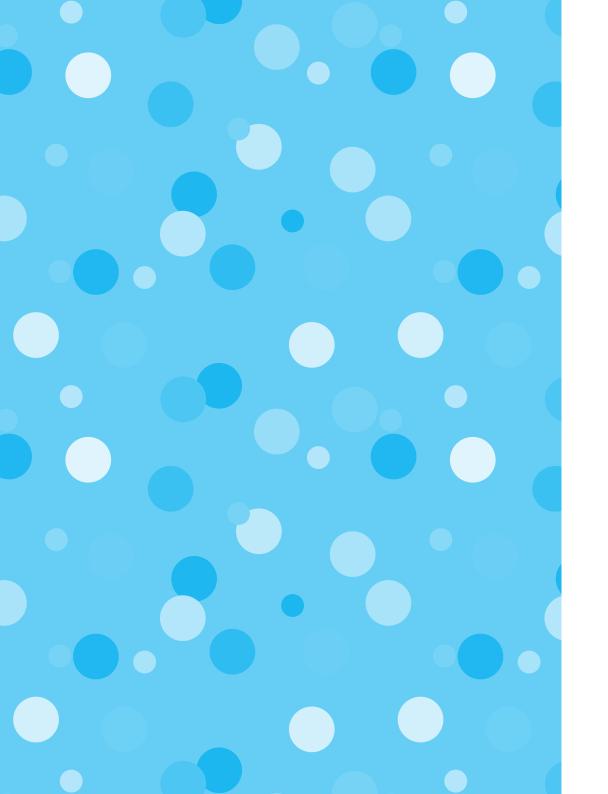
Micro Nutritious					
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium				
-	-	-	-	-	-

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	-	-	-		
Phospo Bacteria	-	-	-		

Recommendation for Organic Manure

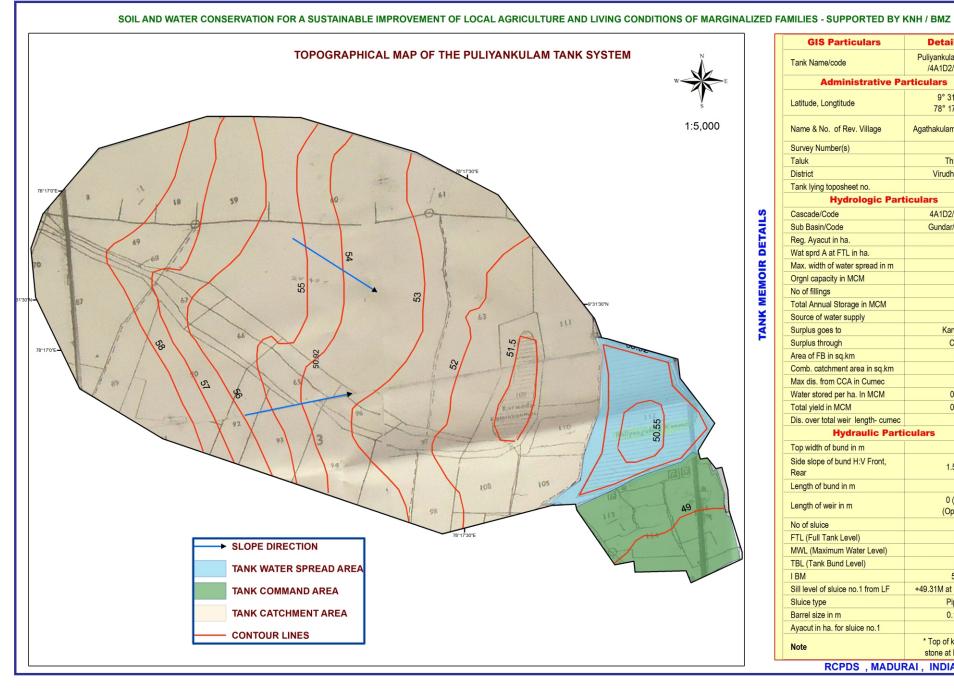
Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

- Cumbu, Sorghum, Cotton, Grams, Species can be ploughed
- Use Pest and Disease management & Cattle Manure

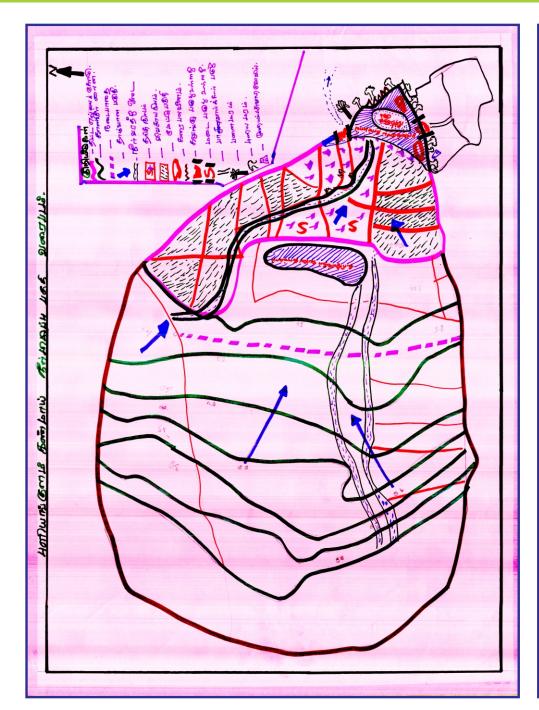


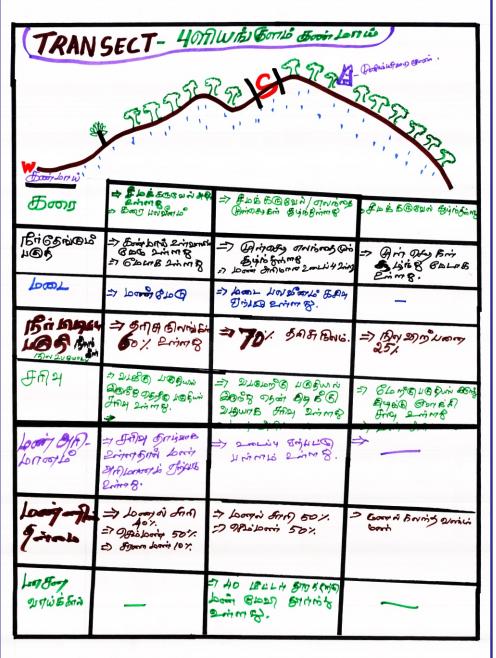
Puliyankulam Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis



GIS Particulars	Details
Tank Name/code	Puliyankulam tank /4A1D2/ISO/32
Administrative Pa	rticulars
Latituda Lamatituda	9° 31' 44" N
Latitude, Longtitude	78° 17' 47" E
Name & No. of Rev. Village	Agathakulam (110)
Survey Number(s)	112
Taluk	Thiruchuli
District	Virudhunagar
Tank lying toposheet no.	58K/6
Hydrologic Part	
Cascade/Code	4A1D2/ISO/32
Sub Basin/Code	Gundar/4A1D2
Reg. Ayacut in ha.	6.280
Wat sprd A at FTL in ha.	9.790
Max. width of water spread in m	340
Orgnl capacity in MCM	0.0767
No of fillings	1.000
Total Annual Storage in MCM	0.0767
Source of water supply	FB
Surplus goes to	Kanal odai
Surplus through	Channel
Area of FB in sq.km	0.2356
Comb. catchment area in sq.km	0.2356
Max dis. from CCA in Cumec	29.34
Water stored per ha. In MCM	0.01232
Total yield in MCM	0.01681
Dis. over total weir length- cumec	29.34
Hydraulic Parti	culars
Top width of bund in m	2
Side slope of bund H:V Front, Rear	1.5:1. 2:1
Length of bund in m	1175
Length of weir in m	0 (or) 3 R
	(Open cut)
No of sluice	1
FTL (Full Tank Level)	50.920
MWL (Maximum Water Level)	51.370
TBL (Tank Bund Level)	52.370
I BM	51.790*
Sill level of sluice no.1 from LF	+49.31M at LS 870
Sluice type	Pipe (S1)
Barrel size in m	0.15 (S1)
Ayacut in ha. for sluice no.1	
Note	* Top of kandam
	stone at RF end





PARTICIPATORY RURAL APPRAISAL REPORT PULIANGKULAM LAKE

Date of PRA facilitation : 06-08-2013

Facilitated by : Pitchai, Palani and Murugaeswari

No of participants : 28

Catchment - 12M 8F Command - 4M 4M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

 Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- 80% lands are not used for cultivation
- Most of the lands are with thorny bushes
- Terrain slope is from West to East and North-west to South-east

- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- Loss of top soil due to erosion
- Gully formed in both supply channel

- Lake bund is weak
- Structure of weir is completely damaged
- Water spread is full of thorny bushes
- Silt accumulated on central part of the lake
- Wastage of water due to the leakage in sluice structure
- Structural damage in the Sluice
- Sluice is blocked with overflowing silt
- No shutter in Sluice

- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder to the command to be lined up
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention
- Farmers to be exposed to cost viable agriculture Optius

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Puliangkulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	PH	Remarks
	Sandy Loam Soil	Maximum	0.3 Good Condition	Medium 8.2	

	SOIL TEST						
	Less	Medium	High	Remarks			
O.C%	-	-	-				
N	82.6	-	-				
Р	4	-	-				
К	-	68	-				

	B.B.M					
Fe	2.8					
Mn	-	2.4				
Zn	0.5					
Cu	1.0					
В	-					

Suggestions for Manure

Nutrimix					
N 51 Urea 112					
P2O5	40	Super Phospate	250		
K2O	Meuriate of Potash	91.3			

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	12.5	2.0	-	-

Nutritious Manure						
Risobium	Seeds	Planting	Land			
	2	4	4			
Phospo Bacteria 4 4 4						

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Puliangkulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 6.5	

	SOIL TEST						
	Less	Medium	High	Remarks			
O.C%	-	-	-				
N	75.6	-	-				
Р	1.5	-	-				
К	-	52.6	-				

	B.B.M					
Fe	2.4	-				
Mn	-	2.8				
Zn	0.4	-				
Cu	0.7	-				
В	-					

Suggestions for Manure

Nutrimix					
N Urea					
P2O5		Super Phospate			
K2O Meuriate of Potash					

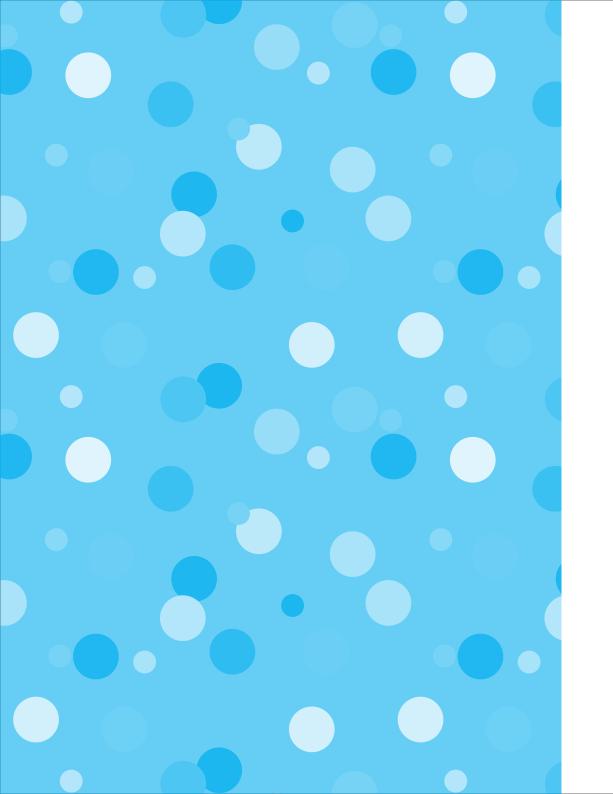
Micro Nutritious							
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium						
-							

Nutritious Manure				
Risobium	Seeds	Planting	Land	
	-	-	-	
Phospo Bacteria	-	-	-	

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

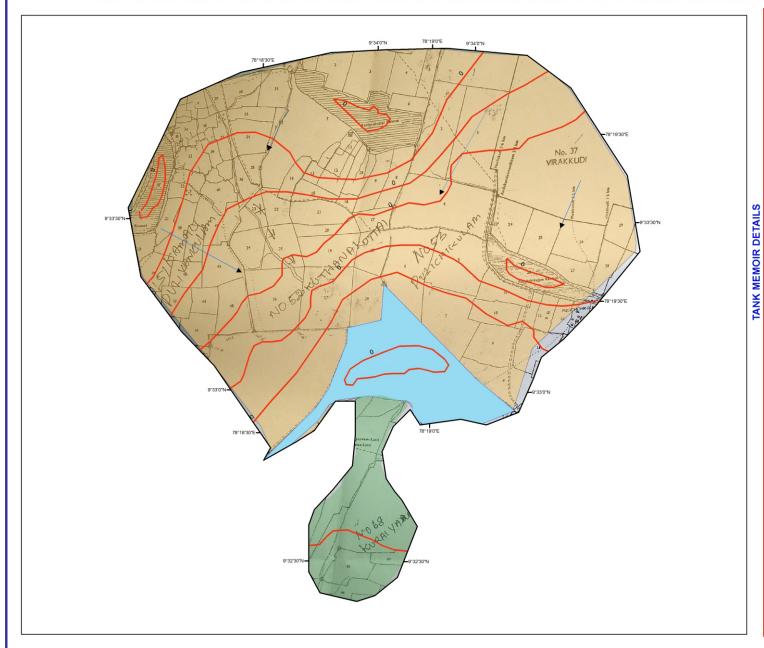
- Cumbu, Sorghum, Cotton and Grams can be ploughed
- Use calcium carbonate 1010kg/acre before 10 days of cultivation



Cittavanankulam Lake

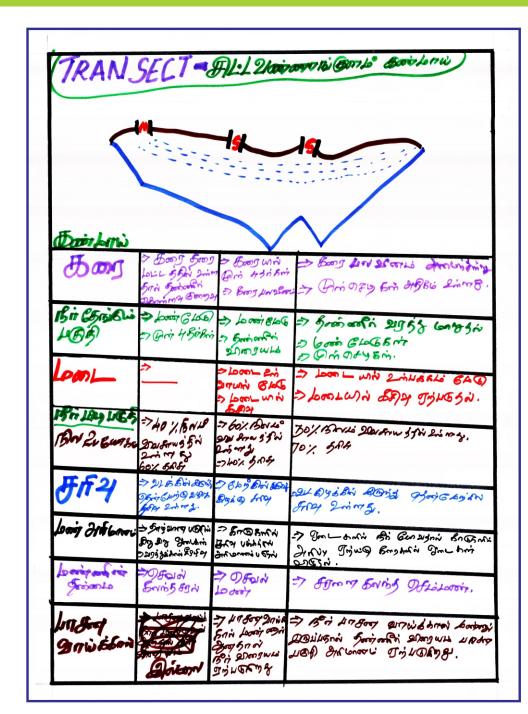
- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis

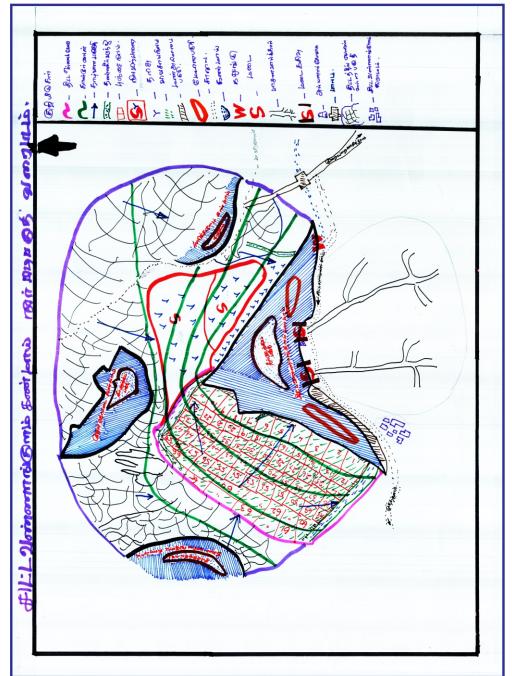
SOIL AND WATER CONSERVATION FOR A SUSTAINABLE IMPROVEMENT OF LOCAL AGRICULTURE AND LIVING CONDITIONS OF MARGINALIZED FAMILIES - SUPPORTED BY KNH / BMZ



GIS Particulars	Details
Tank Name/code	Chita Vannankulam
Administrative De	kanmoi/4A1D2/29/19
Administrative Pa	9° 33 ' 10.827" N
Latitude, Longtitude	78° 18' 54.248" E
Name & No. of Rev. Village	Kurayaravasithan (70)
Survey Number(s)	169
Taluk	Thiruchuli
District	Virudhunagar
Tank lying toposheet no.	58K/6
Hydrologic Part	
Cascade/Code	Pitchankudi Cascade/4A1D2/29
Sub Basin/Code	Gundar/4A1D2
Reg. Ayacut in ha. (38.29
Assessed)	
Wat sprd A at FTL in ha. Max. width of water spread in m	38.24
OrgnI capacity in MCM No of fillings	
Total Annual Storage in MCM	
Source of water supply	FB.Pulichikulam
Surplus goes to	Kuraiyaravasitan
Surplus through	big(17), Pitchangudi
Capacity of tank above in MCM	
Area of FB in sq.km	
No of Tanks Above	
Comb. catchment area in sq.km	3.8524
Max dis. from CCA in Cumec	
Water stored per ha. In MCM	
Total yield in MCM	
Dis. over total weir length- cumec	
Hydraulic Partic	ulars
Top width of bund in m	
Side slope of bund H:V Front, Rear	
Length of bund in m	
Length of supply channel in m	
Length of weir in m	
No of sluice	
FTL (Full Tank Level)	Assumed 100.000
MWL (Maximum Water Level)	100.600
TBL (Tank Bund Level)	101.600
IBM	
II BM	
Sill level of sluice no.1 from LF	98.45
Sluice type	
Vent size in m	
Dia of plug in m	
Barrel size in m	
Ayacut in ha. for sluice no.1	
Note	

RCPDS, MADURAI, INDIA





PARTICIPATORY RURAL APPRAISAL REPORT CHITTAVANANGKULAM LAKE

Date of PRA facilitation : 05-08-2013

Facilitated by : Pitchai, Palani and Murugaeswari

No of participants : 30

Catchment - 10M 5F

Command - 10M 5M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

• Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues in Catchment:

- Most of Agricultural land is sold out
- Water flow is not to the lake rather it flows outside due to high silt level
- 60% of the land are not used for cultivation

- Silt move towards the lake due to slope and erotic monsoon
- Terrain slope is from North to South-West, West to East, North-East to South West

- Lake bund is weak `
- Feeder channel is not proper
- Most of the lands are full of Prosophis Julia Flora
- Silt accumulated on central part of the lake
- Wastage of water due to the leak of sluice structure
- Structural damage in the Sluice
- No shutter in Sluice
- Sluice is blocked with overflowing silt
- Supply Channels are covered with thorny bushes

- Bund to be Strengthened
- Feeder to the command to be lined up
- Lake to be deepened and De-Silted at the sluice level
- Sluice to be repaired and fixed with shutter
- Blockage in the sluices to be cleared
- Removal of Bushes with the help of local people
- Supply channels with catchment to be cleaned up and Gully checks to be fixed

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Chittavanangkulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	0.1 Good Condition	Medium 6.46	

	SOIL TEST				
	Less	Medium	High	Remarks	
O.C%	-	-	-		
N	90	-	-		
Р	2.8	-	-		
К	-	84	-		

B.B.M		
Fe	1.73	
Mn	-	2.6
Zn	0.6	
Cu	0.9	
В	-	

Suggestions for Manure

Nutrimix				
N	55.6	Urea	123.6	
P2O5	40	Super Phospate	250	
K2O	48.3	Meuriate of Potash	80.3	

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					Sodium
-	-	12.5	2.0	-	-

Nutritious Manure				
Risobium	Seeds	Planting	Land	
	2	4	4	
Phospo Bacteria	4	4	4	

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

RCPDS-BMZ-KNH

Soil Test Report Confirmed by Agricultural Department Chittavanangkulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 5.9	

SOIL TEST					
Less	Medium	High	Remarks		
-	-	-			
68.3	-	-			
1.8	-	-			
-	52.3	-			
	- 68.3	Less Medium - - 68.3 - 1.8 -	Less Medium High - - - 68.3 - - 1.8 - -		

	B.B.M					
Fe	1.8	-				
Mn	-	2.4				
Zn	0.4	-				
Cu	0.6	-				
В	-					

Suggestions for Manure

Nutrimix					
N Urea					
P2O5		Super Phospate			
Meuriate of Potash					

Micro Nutritious						
Feso ₄	Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	-	-	-	-	

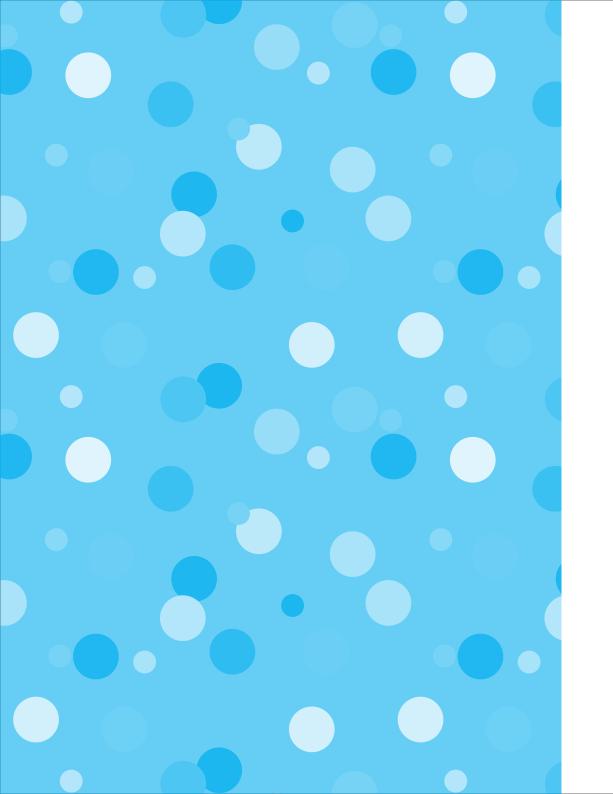
Nutritious Manure						
Risobium	Seeds	Planting	Land			
	-	-	-			
Phospo Bacteria	-	-	-			

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

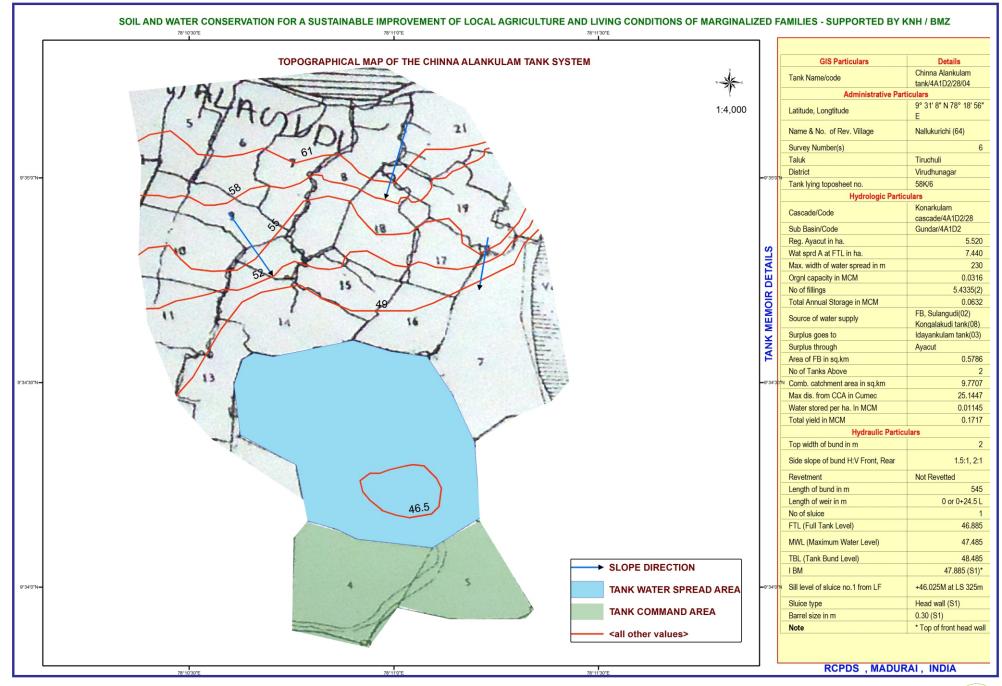
Suggestions:

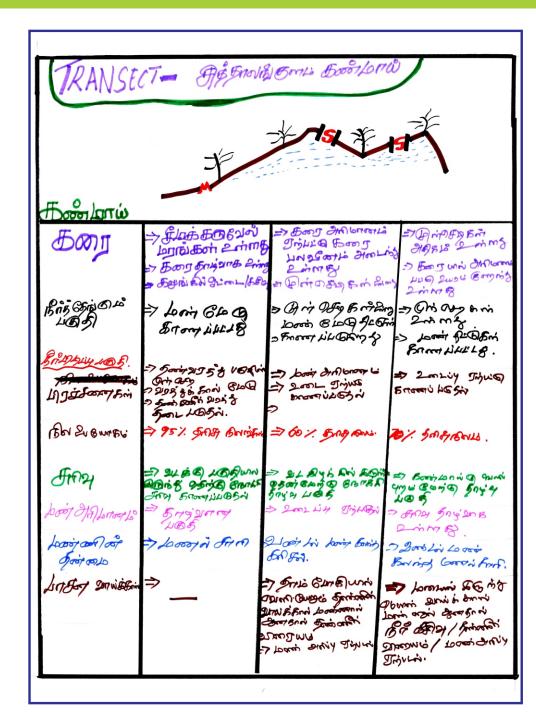
• Sorghum, Cotton and Grams can be ploughed

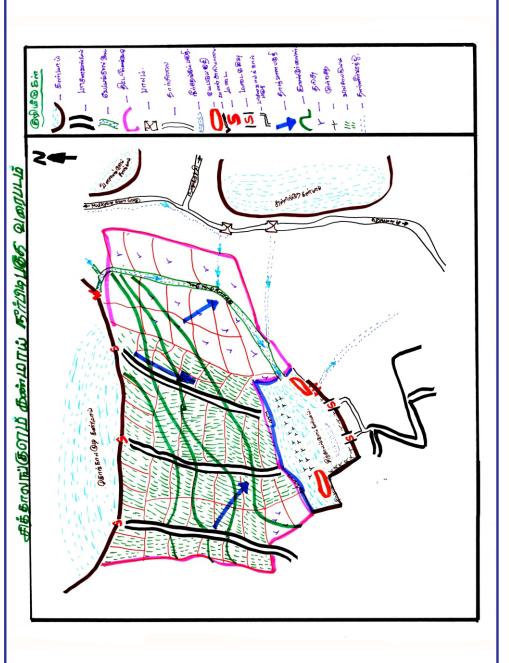


Chithaalankulam Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis







PARTICIPATORY RURAL APPRAISAL REPORT CHITTALANGKULAM LAKE

Date of PRA facilitation : 07-08-2013

Facilitated by : Pitchai, Palani and Murugaeswari

No of participants : 31

Catchment - 14M 5F

Command - 5M 7M

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

• Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- Due to high silt level in Veepankulam lake the flow of water is diverted to other lakes.
- 90% lands are not used for cultivation
- Most of the lands are with thorny bushes

- Terrain slope is from West to South East and from North to South
- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- High Silt level
- Loss of top soil due to erosion
- Supply channel to be excavated
- Gully formed in both supply channel

Issues in the water spread and structural renovation

- Lake bund is weak
- Water spread is full of Prosophis Julia Flora
- Silt accumulated on central part of the lake
- Wastage of water due to the leak of sluice structure
- Structural damage in the Sluice

- Sluice is blocked with overflowing silt
- No shutter in Sluice

These were presented to larger community consisting of members from catchment, command; landless who are dependent on agriculture including the women headed households for final correction and to ensure their participation in the implementing stage.

Actions proposed by community members for implementation by the project:

- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder to the command to be lined up
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Catchment famers to be supported with land reclamation intervention
- Farmers to be exposed to cost viable agriculture Optius

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Chittalangkulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	0.1 Good Condition	Medium 6.46	

	SOIL TEST					
	Less	Medium	High	Remarks		
O.C%	-	-	-			
N	90	-	-			
Р	2.8	-	-			
К	-	84	-			

	B.B.M					
Fe	1.73					
Mn	-	2.6				
Zn	0.6					
Cu	0.9					
В	-					

Suggestions for Manure

Nutrimix					
N	55.6	Urea	123.6		
P2O5	40	Super Phospate	250		
K2O 48.3 Meuriate of Potash 80.3					

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
12.5 2.0					

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	2	4	4		
Phospo Bacteria	4	4	4		

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

Suggestions:

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department

Chittalangkulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 5.9	

SOIL TEST						
	Less	Medium	High	Remarks		
0.0%	-	-	-			
N	68.3	-	-			
Р	1.8	-	-			
К	-	52.3	-			

B.B.M					
Fe	1.8	-			
Mn	-	2.4			
Zn	0.4	-			
Cu	0.6	-			
В	-				

Suggestions for Manure

Nutrimix				
N Urea				
P2O5		Super Phospate		
K2O Meuriate of Potash				

Micro Nutritious					
Feso ₄ MnSo ₄ ZnSo ₄ PuSo ₄ Porax Sodium					
-	-	-	-	-	-

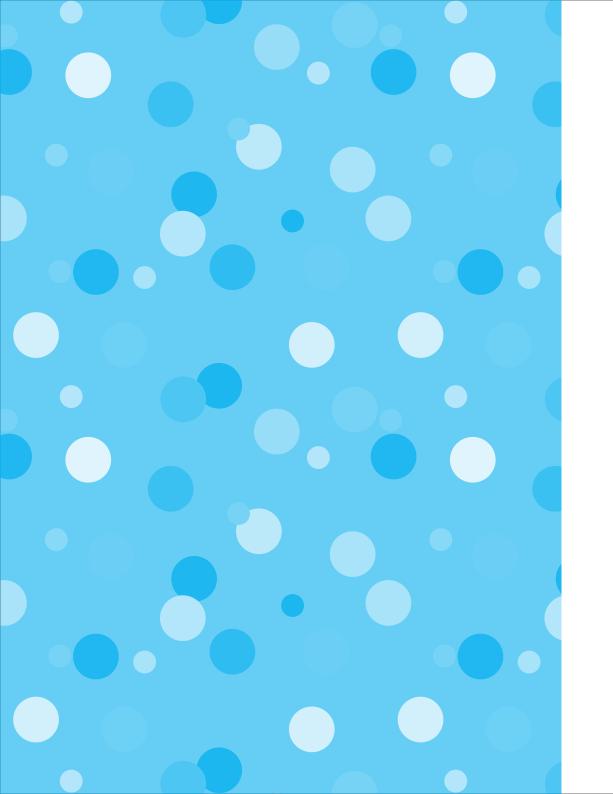
Nutritious Manure					
Risobium	Seeds	Planting	Land		
	-	-	-		
Phospo Bacteria	-	-	-		

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

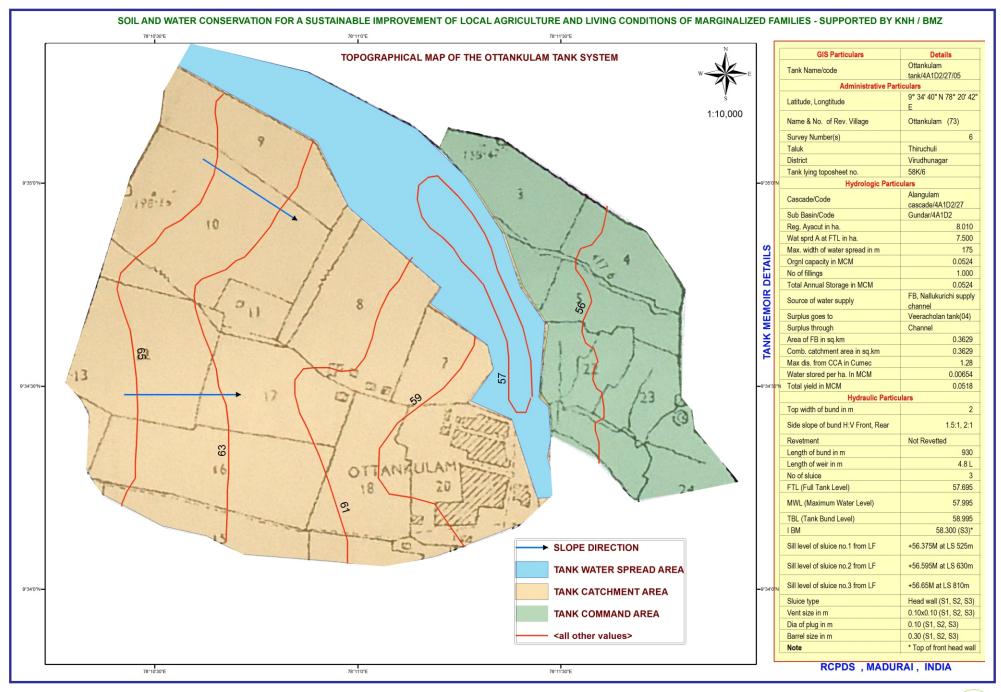
Suggestions:

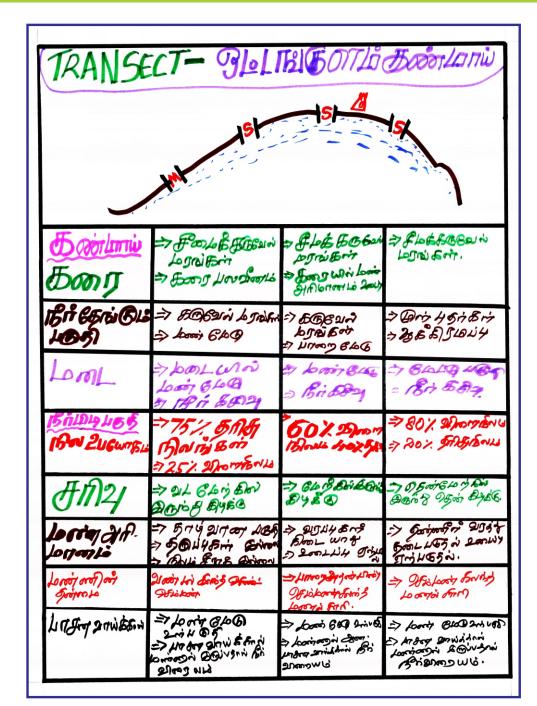
• Sorghum, Cotton and Grams can be ploughed

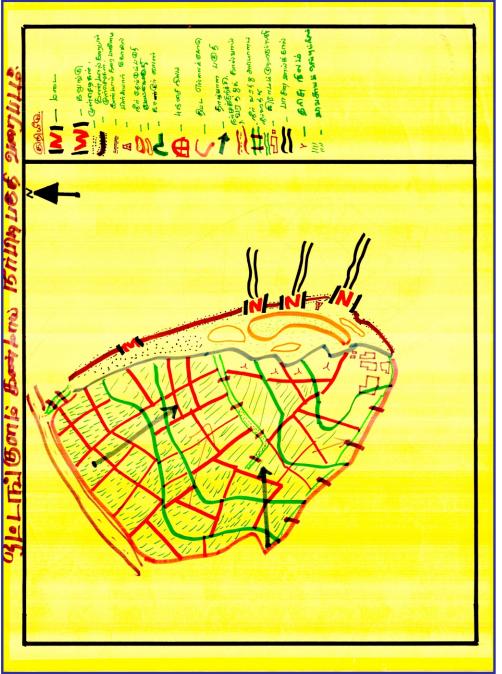


Ottankulam Lake

- Watershed Map
- PRA Map
- PRA Report
- Soil Analysis







PARTICIPATORY RURAL APPRAISAL REPORT OTTANKULAM LAKE

Date of PRA facilitation : 05-08-2013

Facilitated by : Pitchai, Palani and Murugaeswari

No of participants : 34

Catchment - 14M 10F Command - 5M 5F

Tool's used:

- Transect walk
- Semi Structured Interviewing (SSI)
- Focus Group Discussion (FGD)
- Resource mapping of catchment and water spread
- Triangulation

Process followed:

Facilitators jointly with the local respondents walked through the catchment by doing spiral transect to identify problems on firsthand visualising and cross checking with local community representatives.

Secondly a formal focus group discussion held to get an insight on the issues identified from the transect. Later the group set on to draw a resource mapping to get visual overview of the lake and catchment

 Issues of consideration which include Slope, Source of water, Extent of erosion and gully's, Land use pattern, Structures status on the Water spread

Issues identified from the Catchment:

- Supply channel is broken and the water passes through veerachozhan and so there is less amount of water flow in ottankulam lake
- 60% lands are not used for cultivation

- As the land is not used for many years most of the lands are with thorny bushes
- Terrain slope is from North to South, West to East and South-East to North-East
- Silt move towards the lake due to slope and erotic monsoon, hence bund should follow contour line
- High Silt level
- Loss of top soil due to erosion
- Gully formed in both supply channel
- Feeder to the command is blocked
- Water is not supplied in the adequate time for agriculture

Issues in the water spread and structural renovation

- Lake bund is weak
- Water spread is full of Prosophis Julia Flora

- Silt accumulated on central part of the lake
- Wastage of water due to the leak of sluice structure
- Structural damage in the Sluice
- Sluice is blocked with overflowing silt

These were presented to larger community consisting of members from catchment, command; landless who are dependent on agriculture including the women headed households for final correction and to ensure their participation in the implementing stage.

Actions proposed by community members for implementation by the project:

- Supply channels with catchment to be cleaned up and Gully checks to be fixed
- Lake to be deepened and De-Silted at the sluice level
- Bund to be Strengthened
- Feeder channel to be lined up
- Sluice to be repaired and fixed with shutter
- Removal of Bushes
- Catchment famers to be supported with land reclamation intervention
- armers to be exposed to cost viable agriculture Optius

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Ottankulam - Command

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Maximum	0.2 Good Condition	Medium 7.5	

	SOIL TEST				
	Less	Medium	High	Remarks	
O.C%	-	-	-		
N	88.6	-	-		
Р	2.8	-	-		
К	-	205	-		

	B.B.M				
Fe	2.4				
Mn	-	2.4			
Zn	0.6				
Cu	0.6				
В	-				

Suggestions for Manure

Nutrimix				
N	49	Urea	108	
P2O5	40	Super Phospate	250	
K2O	21.6	Meuriate of Potash	36.3	

Micro Nutritious					
Feso ₄	MnSo₄	ZnSo₄	PuSo₄	Porax	Sodium
-	-	12.5	2.0	-	-

Nutritious Manure					
Risobium	Seeds	Planting	Land		
	2	4	4		
Phospo Bacteria	4	4	4		

Recommendation for Organic Manure

Pest& Disease Management	2.5	(Ton/Acre/)
Cattle Manure	5	(Ton/Acre/)

Suggestions:

RCPDS-BMZ-KNH Soil Test Report Confirmed by Agricultural Department Ottankulam - Catchment

Nature of the Soil

Date	Soil Texture	Calcium Carbonate	EC (Dsm)	РН	Remarks
	Sandy Loam Soil	Medium	0.1 Good Condition	Medium 6.5	

	SOIL TEST				
	Less	Medium	High	Remarks	
O.C%	-	-	-		
N	-	-	-		
Р	-	-	-		
К	-	-	-		

	B.B.M				
Fe	-	-			
Mn	-	-			
Zn	-	-			
Cu	-	-			
В	-				

Suggestions for Manure

Nutrimix				
N		Urea		
P2O5		Super Phospate		
K2O		Meuriate of Potash		

Micro Nutritious					
Feso ₄	MnSo ₄	ZnSo₄	PuSo₄	Porax	Sodium
-	-	-	-	-	-

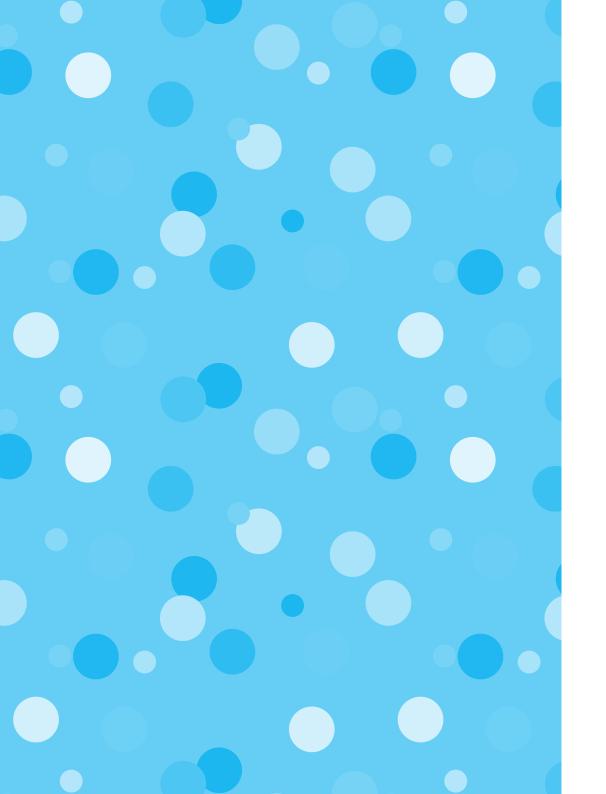
Nutritious Manure					
Risobium	Seeds	Planting	Land		
	-	-	-		
Phospo Bacteria	-	-	-		

Recommendation for Organic Manure

Pest& Disease Management	(Ton/Acre/)
Cattle Manure	(Ton/Acre/)

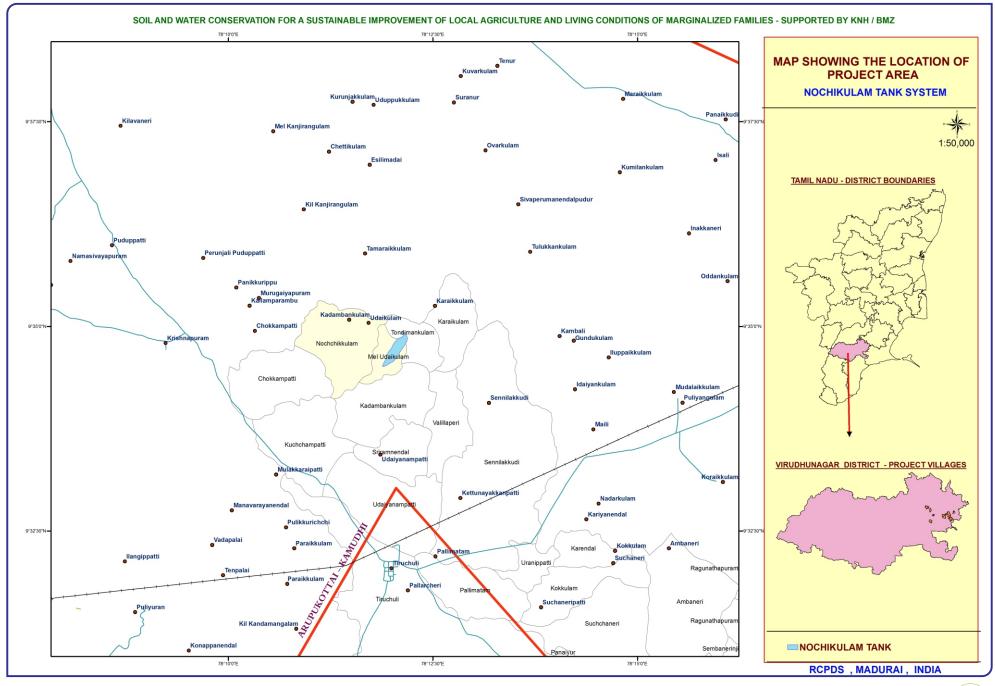
Suggestions:

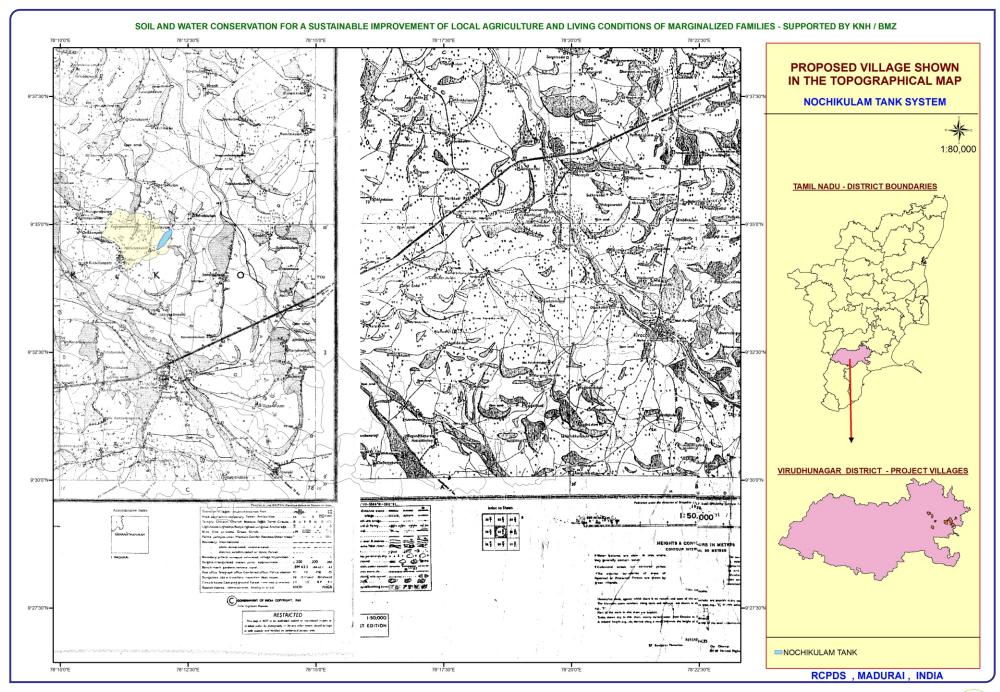
- Cumbu, Sorghum, Cotton and Grams can be ploughed
- Use calcium carbonate 670kg/acre before 10 days of cultivation

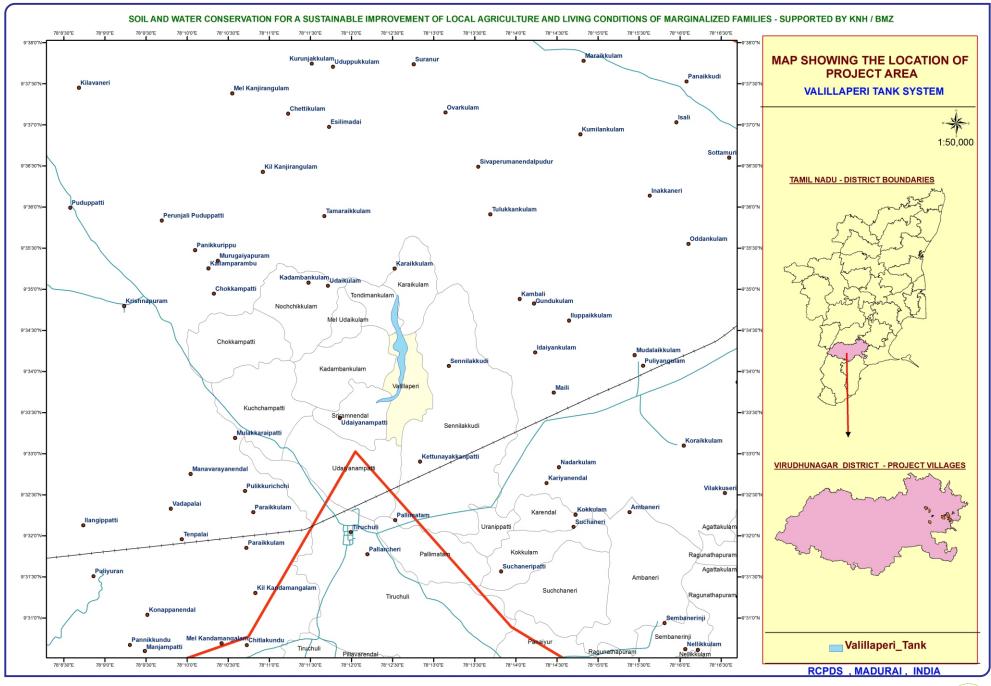


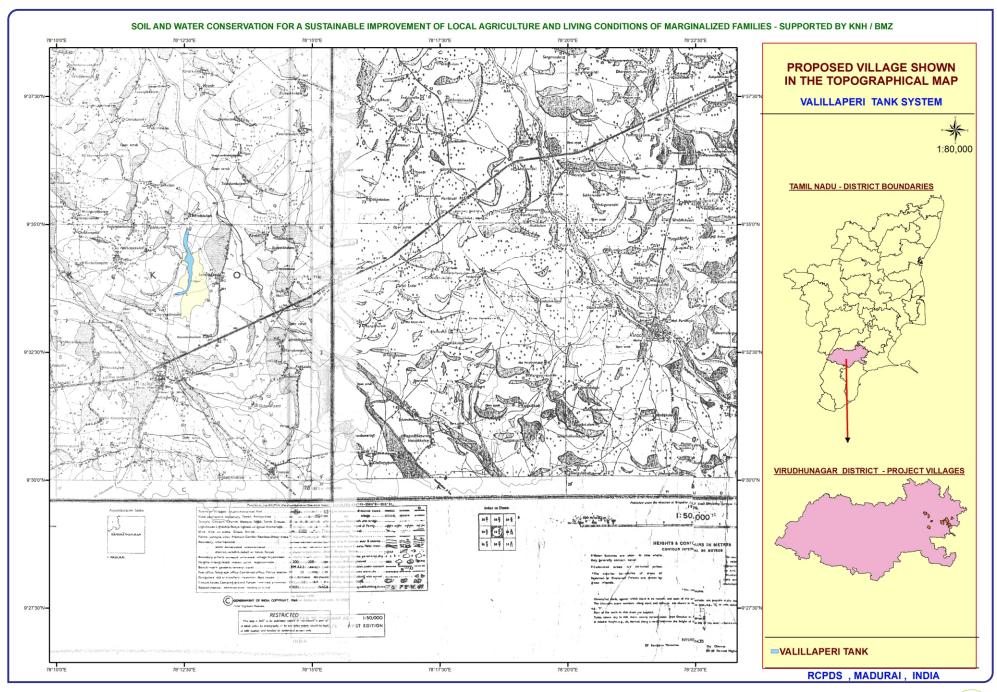
Annexure - I

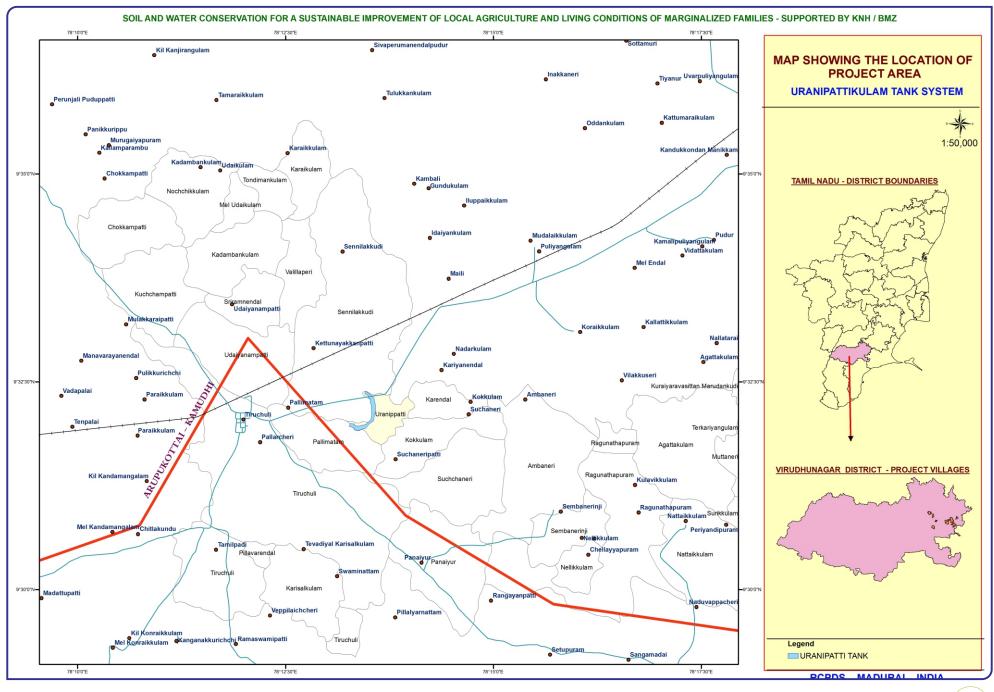
Each Lake Location Maps

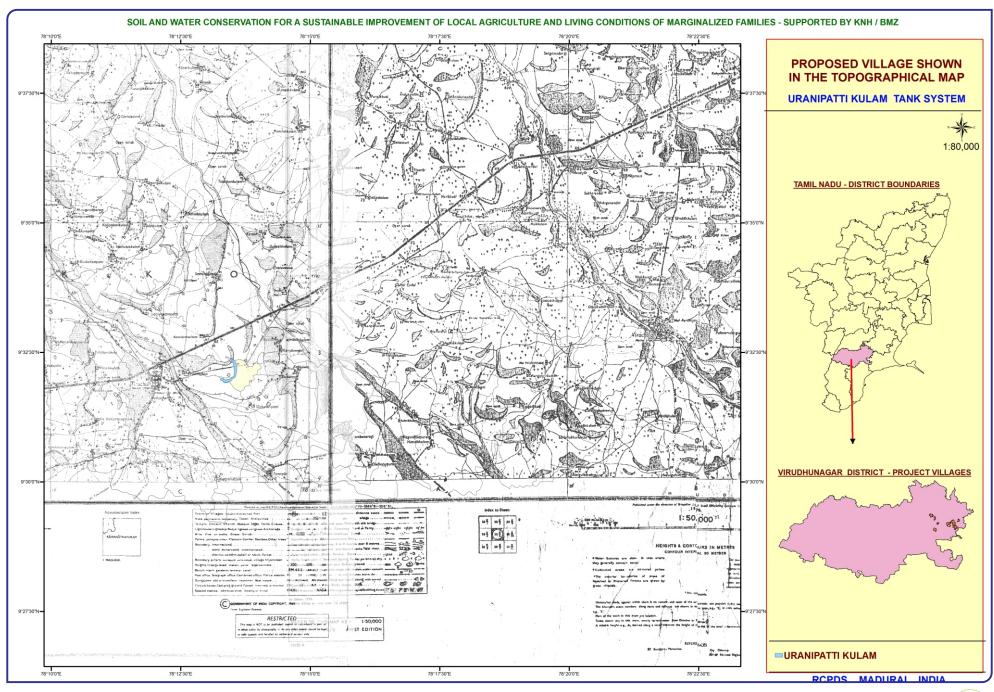


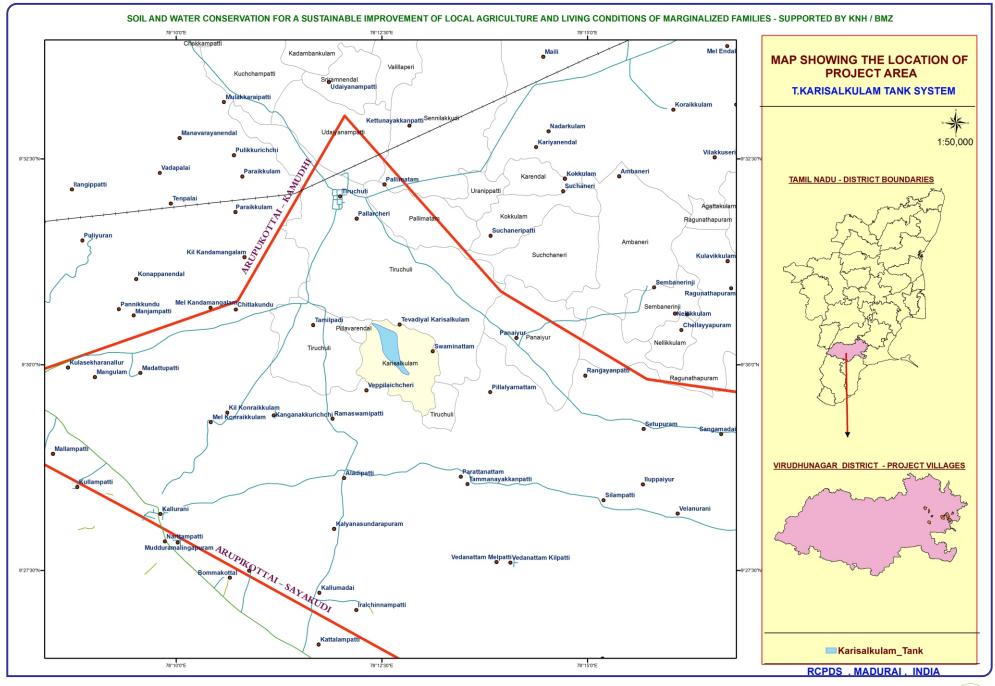


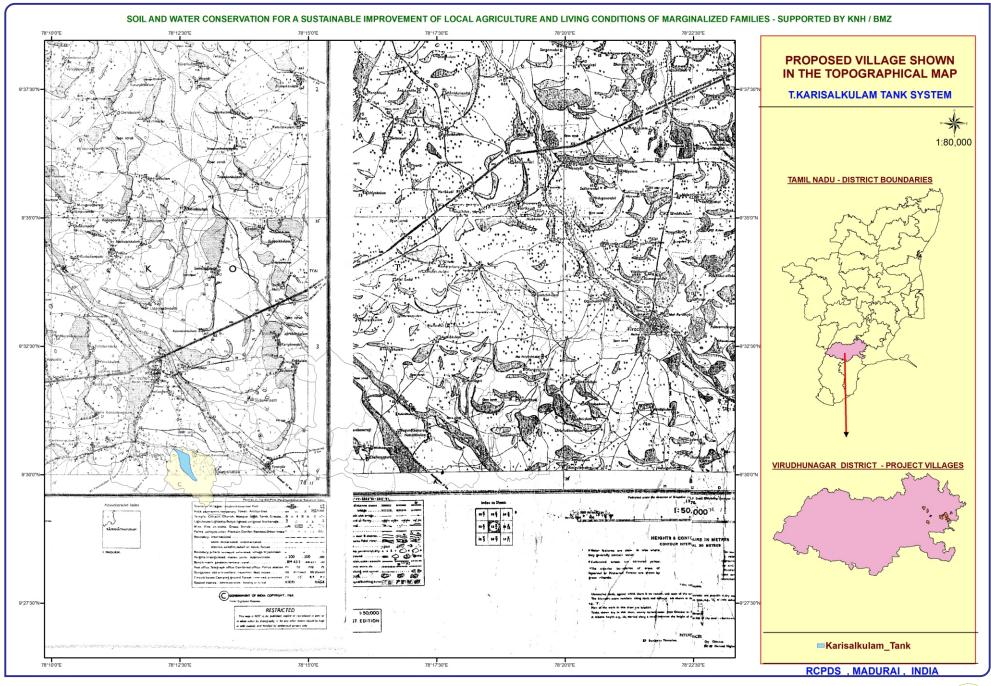


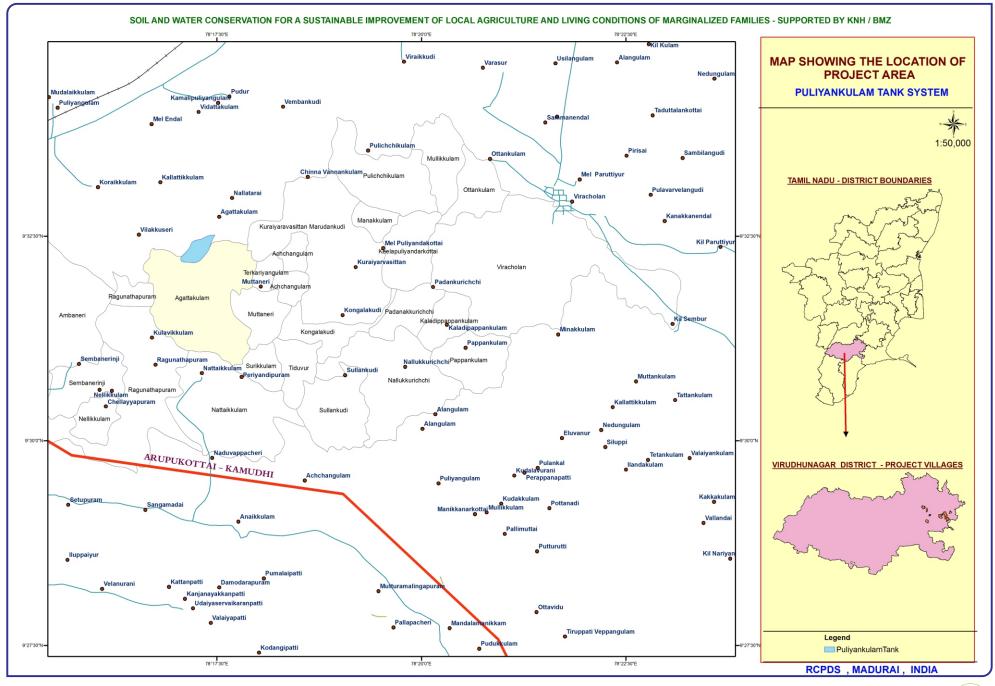


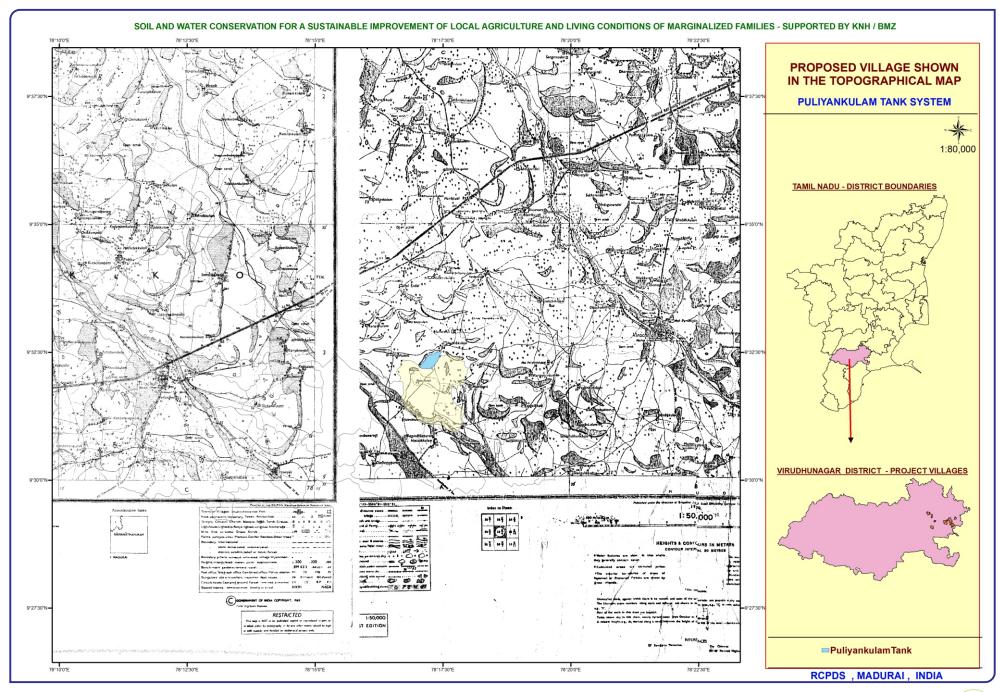


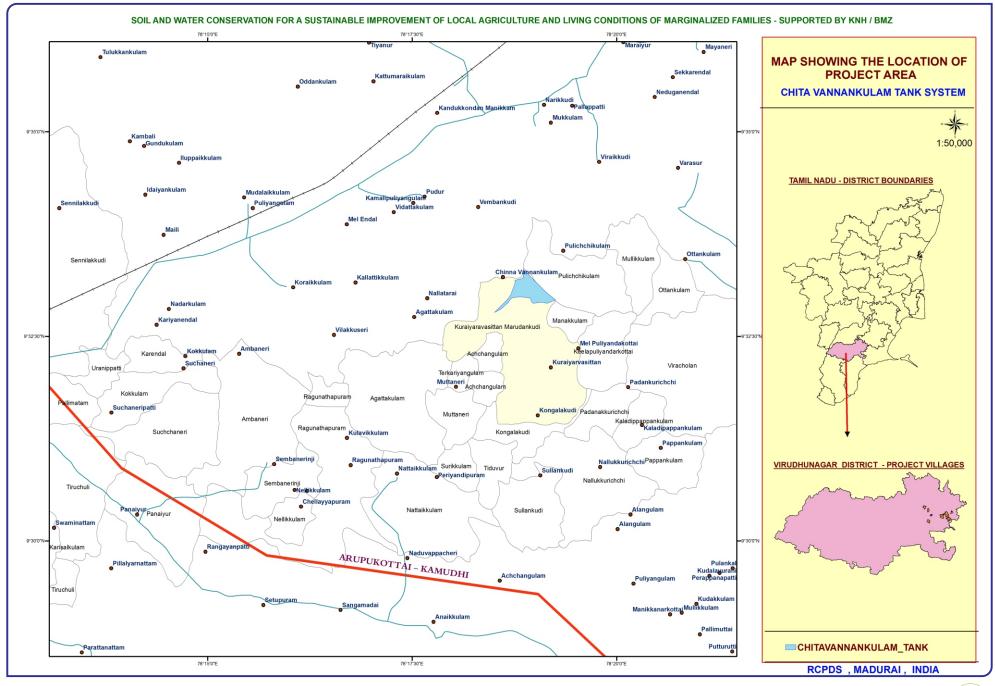


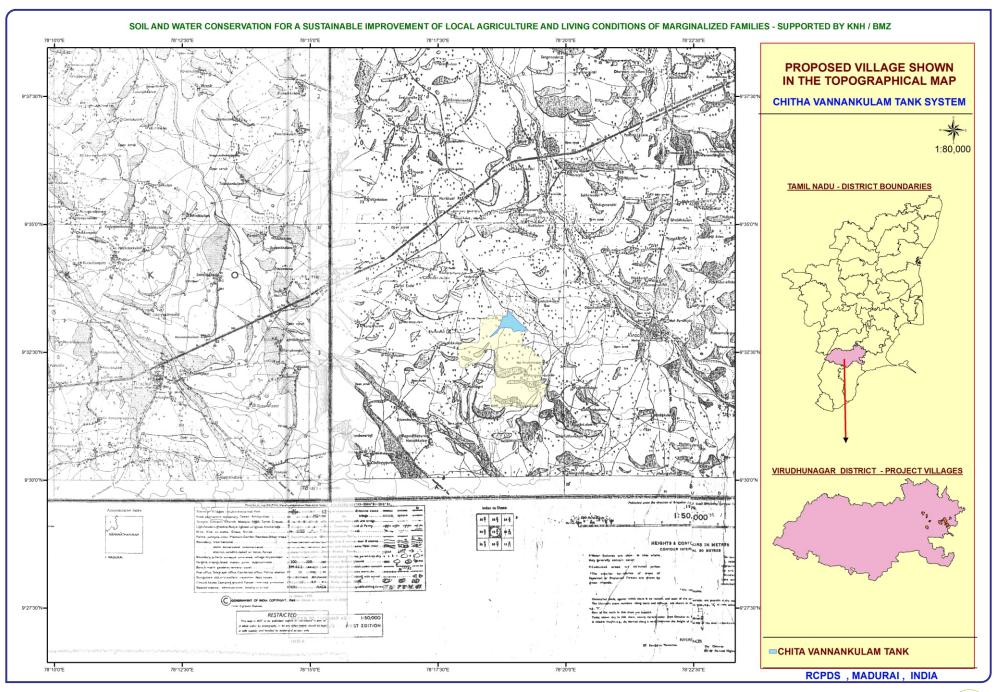


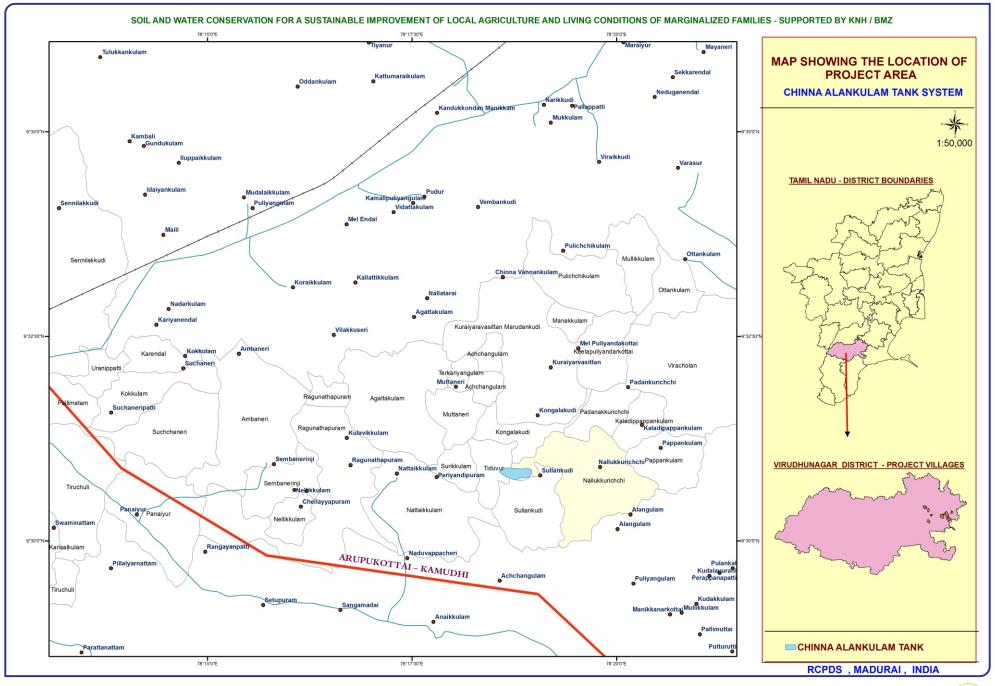


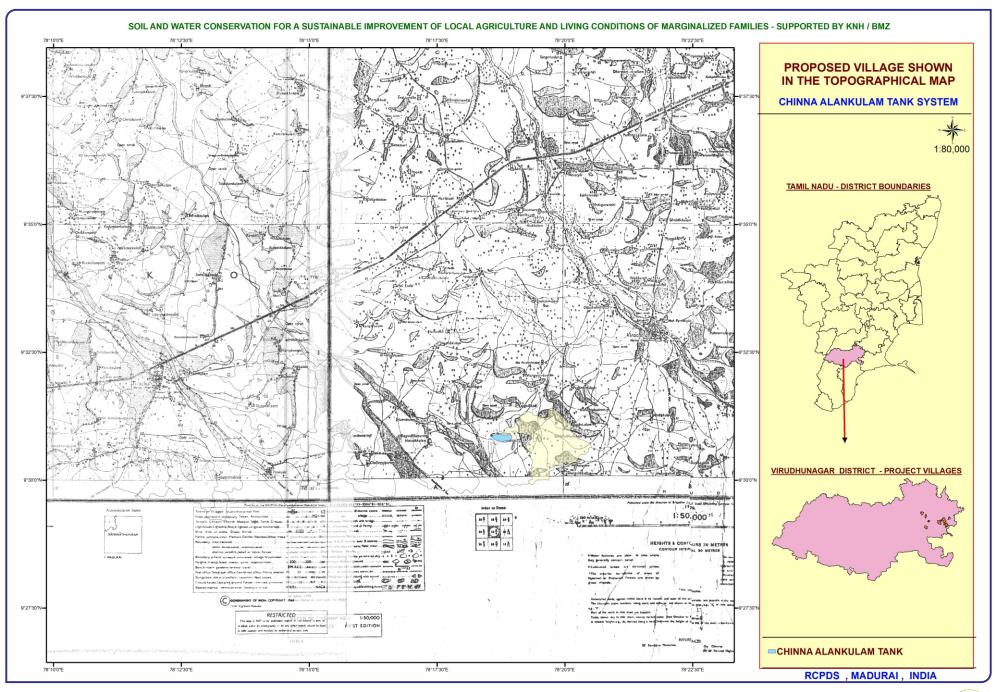


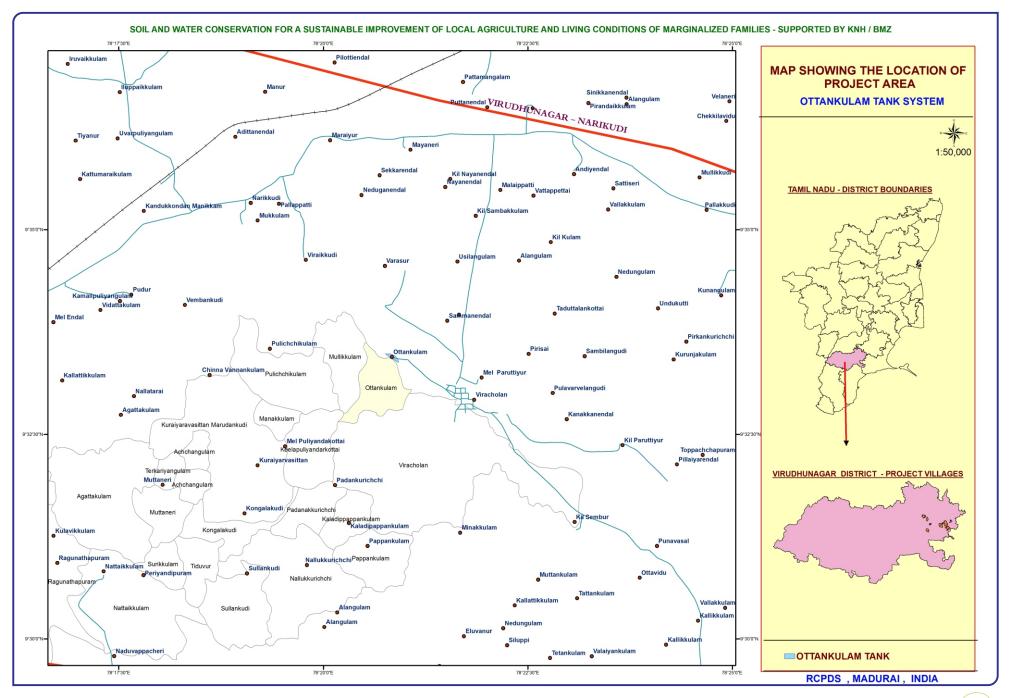


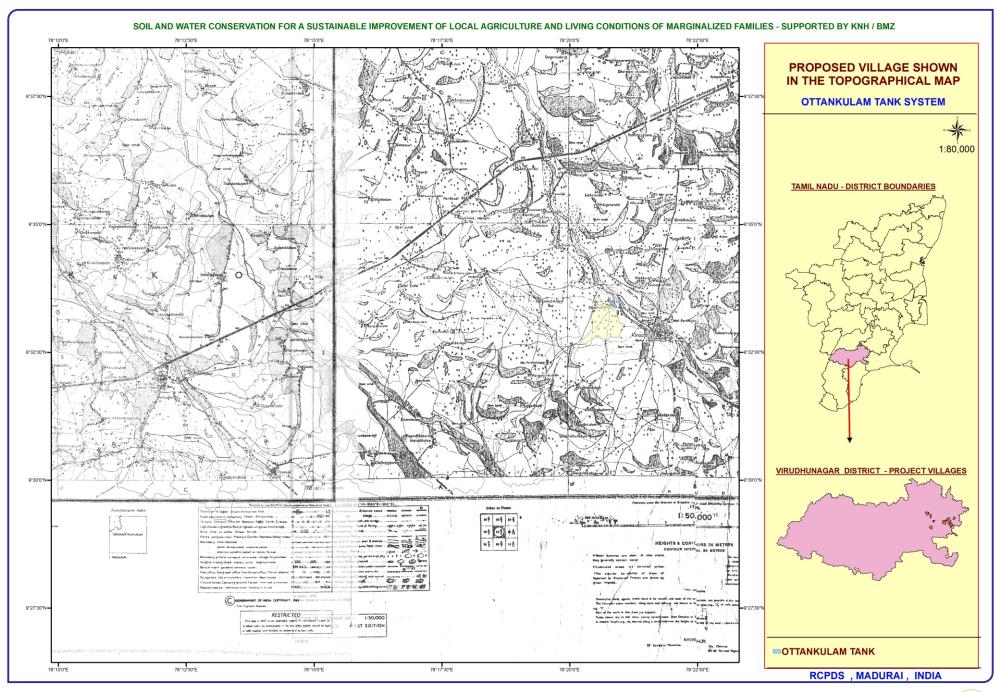






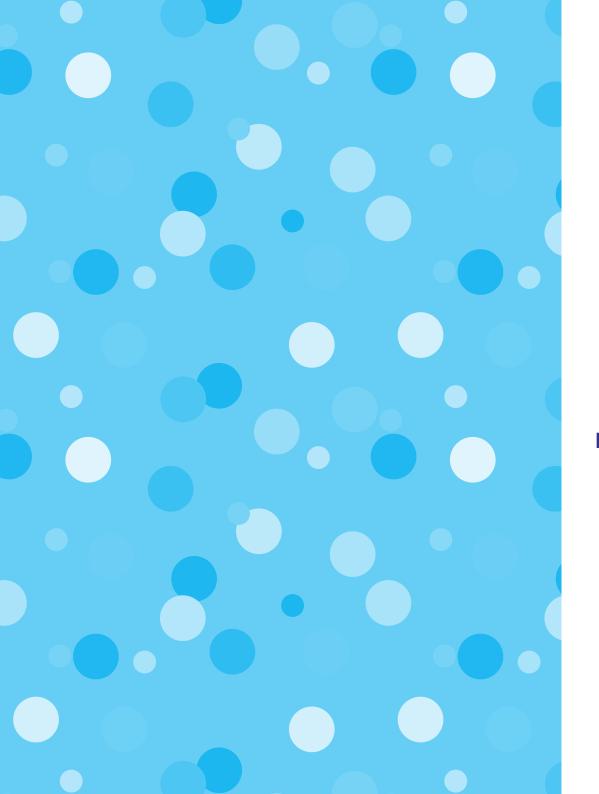






Intervention farmers for Soil and Water conservation

Sl.No	Name of the Panchayat	Name of the Tank	Wet Land Farmers	Dry Land Farmers
1	Kuchampatti	Nochikulam	74	54
2	Udayanampatti	Vallialperi	84	76
3	Sennilaikudi	Uraniparri	48	68
4	Pillayrnatham	T.Karisalkulam	54	62
5	Nathakulam	Puliangkulam	48	32
6	Agathakulam	Chittavanangkulam	68	74
7	Nallukurichi	Chittalangkulam	38	58
8	Veeracholam	Ottankulam	49	64
	Total		463	488



Annexure - II

TOR for Consultant

Framework on the selection of consultant to

conduct this study

To,

Er.R. Venkatasamy,

Superintendent Engineer (Retd) Madurai.

Dear Er.R. Venkatasamy

This is to intimate you that we are implementing a project entitled "Food security through sustainable agriculture and health options' in two blocks of Virudhunagar district. As agreed with you, you will work as a consultant for conducting the topography study for all the eight irrigation water tanks in 9 panchayats of Narikudi and Tiruchuli Blocks. The ToR for the consultant, duration of your work and payment terms and conditions are, hereby, attached for your information. (Please find the attached annex for the details).

Signature of the Consultant

Date: 20-5-2013

Sign. Of the Project Director

2015/2013

Study Of The Location, Soil Types, Slope And Topography Of The Proposed Watersheds In Narikudi & Tiruchuli Blocks - July 2013

ToR for Consultant

a) ROLE OF THE CONSULTANT: Conducting Topography Study

b) ACTIVITIES and OUTPUTS

The expected roles and responsibilities of the consultant are

- 1. Take part in preparatory and planning meeting with the project team
- 2. Design and development of survey methods
- Orientation training for the field team (on site training)
- 4. Generation of secondary data required for the study through linking with the government departments
- 5. Ensure quality of data collection and topography mapping
- 6. Ensure timely conduction and completion of the topography study
- 7. Ensure any other assignment related support if required by the study in-charge.
- 8. During the study, the consultant will report about the progress of the work to the Incharge and will apprise the Project Director/In-charge of any issues which hinder the study. Please find the contact details of the Project Director/In-charge.

Project Director: Dr. John Devavaram - 09842337311

Study In-charge: Mr. Murugan – 09842902234

c) Duration:

The consultant is expected to work for 15 days spread over a period of two months, starting from 20th May.

d) TOTAL BUDGET (Time & costs):

You shall be paid at the rate of Rs. 3000/- per day towards professional charges. You shall be reimbursed the actual travel expenses by car or second class/ train journey from your place to the place where you do the field work. Food and accommodation facilities required for the study will be arranged by RCPDS.

e) PAYMENT SCHEDULE

You shall be paid after the completion of the work. Quality of the report and timely completion of the work will have a bearing on the final payment.

Signature of the Consultant

Sign. Of the Project Director

Date: 20.5.2013

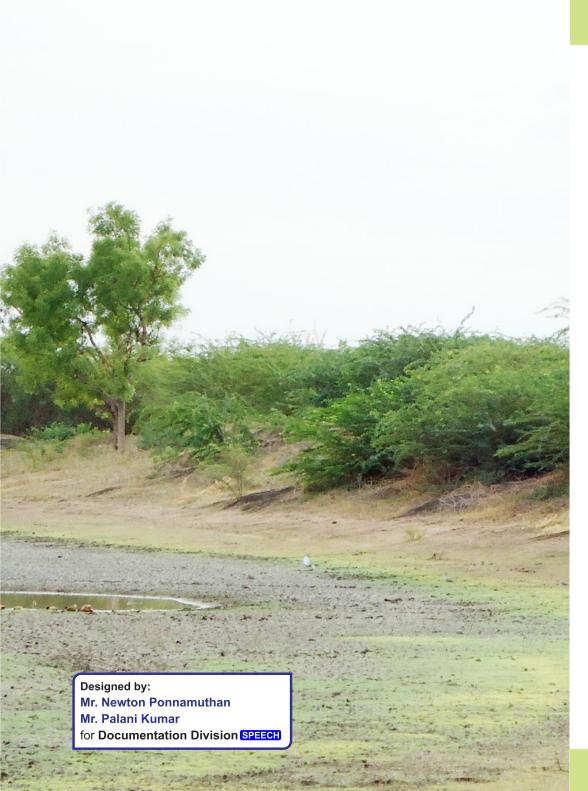
82

Framework on the selection of consultant to conduct this study

Qualification of the consultants	Yes	No
At least 75% of the core subjet areas of the project to be evaluated/the study to be conducted are covered by the consultants' training and/or work experience (CVs, documentary evidence of previous work experience).	*	
The team leader holds at least an MA degree	*	
The team leader has carried out at least three similar consultancy contracts around the same core subject areas	*	
The team leader has completed at least eight previous assignments as a consultant	*	
The team includes members with experience in the area of gender, and has women team members (where several consultants are involved)	*	
The team has members who speak the main local languages and are experienced in intercultural communication	*	
The team leader has experience in the rights-based approach and the child rights approach		
Independence of the consultants		
In the past two years, team members have completed no more than two consultancy assignments for the partner or KNH (incl. office and coordinator)		*
In the past two years, team members have not been employed by the partner or KNH (incl. office and coordinator)		*

Qualification of the consultants	Yes	No
Team members have no family relationships or connections with staff members at the partner or KNH (incl. office and coordinator)	*	
Staff of the partner or KNH (incl. office and coordinator) have not worked as part of a consultancy team with any of the team members.	*	
Quality of the offer		
Includes curricula vitae for all consultants involved		
Makes it clearly apparent which person will carry out which activities	*	
Describes the methods and instruments		
Describes and quantifies the use of the instruments (e.g. how many individual interviews and with which groups of people)	*	
Includes a time schedule	*	
Includes a calculation of the number of working days		*
States, in the financial offer, the day-rates per consultant		*
Makes clear, in the financial offer, whether, how, and how much tax is payable		*
For studies: includes an example or extract of a similar study by the consultant	*	

The Consultant will be the team leader and will use additional technical staff to complete the study whose consultancy fees will be paid separately on top of this ToR.



STUDY OF THE LOCATION, SOIL TYPES, SLOPE AND TOPOGRAPHY OF THE PROPOSED WATERSHEDS IN NARIKUDI & TIRUCHULI BLOCKS JULY 2013

Authors

Dr. John Devavaram

Director, RCPDS, Madurai.

in association with

Er Venkadasamy

Technical Consultant Rted. AED, Tamilnadu

Mr. R. Pitchai & Associates

Consultants for PRA Study

Project Implemented by



Project Supported by



