



GOVERNMENT OF TAMIL NADU

IRRIGATED AGRICULTURAL MODERNISATION AND WATER
BODIES RESTORATION AND MANAGEMENT PROJECT

(IAMWARM)

KOUNDANYA NADHI SUB BASIN

PUBLIC WORKS DEPARTMENT

WATER RESOURCES ORGANISATION

TN IAMWARM PROJECT

DETAILED PROJECT REPORT FOR THE WORK OF REHABILITATION
OF THE LEFT OUT COMPONENTS CONSTRUCTION OF SURFACE
DYKE ACROSS KOUNDANYA NADHI IN KOUNDANYA NADHI SUB
BASIN.

PROJEC

T COST: Rs.384.00 Lakhs

REGION : CHENNAI

PROJECT CIRCLE : VELLORE

UPPER PALAR BASIN DIVISION : VELLORE

REPORT ACCOMPANY THE DETAILED PROJECT REPORT FOR THE WORK OF CONSTRUCTION OF SURFACE DYKE ACROSS KOUNDANYA NADHI NEAR SEEVOOR VILLAGE IN GUDIYATHAM TALUK OF VELLORE DISTRICT.

1.1 INTRODUCTION

Tamil Nadu lies at the southern tip of India between latitude $8^{\circ} 25'$ and $13^{\circ} 20'$ North and longitude $76^{\circ} 15'$ and $80^{\circ} 20'E$ with Bay of Bengal to the East, Indian Ocean in the south, Kerela on the West Karnataka and Andrapradesh on the North. The state comprises 17 rivers basins, all flowing eastwards from the Western Ghats and deccan plateau. In this, the major rivers are the Cauvery, Palar, Vellar, Vaigai and Tambaraparani.

Koundanya Nadhi is a minor tributary of River Palar. It originates in Punganur Village in Palamaner Taluk of Andrapradesh to a distance of 5 k.m and enters in Tamil Nadu at synagunta Village traverse a distance of 25 k.m. and join in Palar river on the left side near Pallikonda village in Vellore Taluk, after traverse a distance of about 43 k.m.

Now the government of Tamilnadu have a proposal for the follow on project should be taken as irrigated Agricultural Modernization and Water Resources management Project (IAMWARM). This multifaceted approach will not only increase the Agricultural Productivity. It will also except to yield wholistic benefits to the farming community.

SCOPE OF THE PROJECT

In Koundanya Nadhi sub basin, there is one Reservoir and pick up Anicut through which system tanks, Non System tanks are being feeded. These irrigation tanks are served excellent for the past century. The efficiency of the tank Irrigation is deteriorating day by day due to the sedimentation and lack of maintenance of the tank. The water resources organization will modernize the irrigation facility and expected to harness the fullest benefit from the available water potential.

2. Details of Ayacut

In this project the Irrigation facilities like system tanks, Non – Systems tanks which are all under the control of Water resources organization P.W.D., are propose to be modernized. The Registered Ayacut under W.R.O. is 5250.55 ha.

Partially cultivation is only in 2312.00 ha leaving a gap of 2818 ha which is approximately designed irrigation extent.

But, The Government have accorded the administrative sanction for Rs.185.8828 Crores Vide in G.O.(Ms)No. 205/Public works (WR1) Department dated: 13.06.2008 for implementing IAMWARM Project in 16 sub basins under Phase II. The Koundanya Nadhi sub basin is one among the above 16 sub basins for which an amount of 5.7588 crores has been provided for rehabilitation works comprising Two packages with Environmental components only. The Ground water component of the work of construction of sub surface dyke across Koundanya maha Nadhi Near Seevoor Village in Gudiyattam Taluk of Vellore District has not been administratively sanctioned.

Accordingly work of left out Ground water component of Construction of sub surface dyke across Koundanya maha Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District has been included and taken up.

LEFT OUT COMPONENTS:-

Hence this Proposal is prepared to carry out the left out components by using the overall savings amount available and based on the agreed actions in the wrap up meeting chaired by the Finance secretary on 17.09.2012, which was communicated in the Engineer in Chief WRD Letter No. Tech cell / 57252/WB Mission/ 2009/Dated: 05.10.2012 and also the World Bank Implementation support mission draft aide memoir.

PROJECT PROPOSALS:-

Construction of sub surface dyke across Koundanya Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District is taken up under Ground Water component to facilitate to increase the ground water recharging.

This area falls in the over exploited block and as per Geological profile of the land and report of the CE (Ground Water) the area is best suited for A.R.S to improve the Ground Water Potential with the Water level fluctuation about 7.35m there is enough scope for improving the Ground Water Potential with 30 Days of annual flow in the river. Detailed report of Ground Water is also enclosed. Construction of this Dyke will help greatly in supplementing the water potential for sustaining the existing irrigation wells and ayacut depending on them in the Surrounding Area.

**Junior Engineer, WRD.,
Irrigation Section,
Gudiyattam.**

**Assistant Executive Engineer, WRD., Upper
Palar Basin Sub Division,
Gudiyattam.**

**Executive Engineer, WRD., Upper
Palar Basin Division,
Vellore-6.**

**Superintending Engineer, WRD.,
Project Circle,
Vellore-6.**

**Chief Engineer, WRD.,
Chennai Region, Chepauk,
Chennai-5.**

The following packages are proposed in the proposal.

Sl. No	PACKAGE NOS.	NAME OF THE PACKAGE	PACKAGE AMOUNT IN LAKHS
1.	01/IAMWARM/ WRD/KDN / 2012 - 13	Left out components in the Construction of Sub Surface dyke across Koundanya maha Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District.	384.00
		Total Rs.	384.00

**Junior Engineer, WRD.,
Irrigation Section,
Gudiyattam.**

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Gudiyattam.**

**Executive Engineer, WRD., Upper
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Vellore-6.**

**Superintending Engineer, WRD.,
Project Circle,
Vellore-6.**

**Chief Engineer, WRD.,
Chennai Region, Chepauk,
Chennai-5.**

- a) Rainfall: Nearly 30% of total rainfall are flowing as the run off. Among this 10% of the run off water are used for the naturally grown plants and vegetables on the river and along the banks.
- b) Run off streams: There is a river by name Goddar joins the Koundanya Nadhi near the proposed site.
- c) Canal Water Surplus: In and around of the proposed location there is no canal, pond, lake etc.
- d) Drainage water from irrigated area: The return flow and seepage from the irrigated area of this location can be taken as 30% of the irrigated water.
- e) There is lakes ponds and tanks: There is no such structures around the area.
- f) Reclaimed Municipal Waste Water: the waste water derived from Sevoor and Santhinagar Village are very less when compared to the quantum of run off water.

(ii) Quality of
Surplus Water

The run off water that is both derived from Goddar and Koundanya Nadhi are very pure and free from condemnation as this river area is a virgin and inhabited area, which has a atop shallow aquifer system.

e. Topographical and Physiographic considerations for suitability of Recharge structures.

Topographic	Areas	Feasible Methods
Plateau Area	-	-
Highly Dissected Plateau slopes (Gradients of 1 in 10 and more)	-	-
Moderately dissected plateaus, foot hills and piedmont regions (Gradients between 1 in 10 to in 100)	-	-
Low lying valley areas (Gradients of 1 in 10 to 1 in 500)	Valley floors of east flowing river	Run off water has to be arrested by means of sub surface dyke.
<p>1. Hydro geological Consideration</p>	<p>1. The vertical cross section of the river bed and river with specific litho units and cross sections are enclosed.</p> <p>2. Hydrological Parameters:</p> <p>a. Hydraulic conductivity of the aquifer in Koundanya Nadhi is considerably good and flow from North to South. The main objective of the scheme is to percolate and recharge the run off water in to the available sub surface aquifer.</p> <p>b. Specific yield of the top sandy formations are taken as 3.0 and bottom weathered rock mantle as 1 as per the GEC Norms.</p> <p>c. the storage capacity of the aquifer is very well upto 7 mts. The water table are also ranging between 7 to 8 mts. Below the bed level of the river. Even in acute summer. There is no water logging problem will arise as there is no vegetation in</p>	

the river area.

	3. Ground Water flow pattern is uniform and study for a period of 30 days.
Hydro geologic Region	Weathered Granitic Gneiss are the basement below the sandy beds.
Topography of Water Shed Area	Piedmont Zone has good slopes with a Valley floor.
Water Level Fluctuation	The water level fluctuation is computed as 10 mts. Since the summer water level ranges between 10 to 11.35 mts. And the winter water level ranges between 3.0 to 4.0 mts.
Hydraulic Conductivity	Weathered Granitic Gneiss with more joints will have good hydraulic conductivity. The thick pile of aquifer constitute sandy formations will work has reservoir.
Thickness of soil cover and infiltration rate	Granular Sandy soil is available for storing the in filtered water. There is no block cotton soil or clay soil for arresting the infiltration.
Aquifer Type	Phreatic Aquifer having joints and pores there is no confined system of aquifer.
Hydraulic conductivity of unsaturated rock in the zone of Aeration	Fair
Profile of vertical recharge upto unsaturated zone.	There is no clay bed in the vertical section.
Rate of Recharge	The rate of recharge will attain 10%
Quantitative assessment of Ground Water	Assessment of Ground Water Potential as on GWREC 1997 norms as on 2003 of 83.24 Mcm. Pre - Recharge Ground Water Balance = 83.24 Mcm. Post - Recharge Ground Water Balance = 91.564 Mcm.

g. Expected Benefits	<ol style="list-style-type: none">1. Additional drinking water supply to in and around Gudiyattam town 4.392 MGD.2. Increased irrigation potential of 8.324 Mcm.3. Villages / hamlets benefited in and around Gudiyattam Town Population benefited 7,36,365.
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Gudiyattam.**

**Assistant Executive Engineer, WRD.,
Upper Palar Basin Sub Division,
Gudiyattam.**

**Executive Engineer, WRD.,
Upper Palar Basin Division,
Vellore-6.**

**Government of TamilNadu
Public Works Department
Water Resources Organization**

From
Er.S.Anbzhagan,B.E.,
Chief Engineer, PWD,
Design Research and Construction
Support, WRO,
Chennai – 600 005.

To
The Chief Engineer, PWD,
Chennai region, WRO,
Chennai -600 005.

SELO/
Lr No: 03CE/ AEEVIII/F 759/2012 dated 05.01.2013

Sir,

Sub: Construction of Sub Surface Dyke across Koundanya nadhi in Seevoor village of Gudiyatham taluk in Vellore district –copy of Approved Design and Drawing – communicated – reg.

Ref: EE, PWD, Upper Palar Basin Division, Vellore Lr.No: AE(D)/F-665/IAMWARM/2012 dt 11.12.2012.

In the reference cited, the Executive Engineer, PWD, Chennai, Upper Palar Basin Division, Vellore has sent the proposal for the work "Construction of Sub surface Dyke across Koundanya nadhi in Seevoor village of Gudiyatham taluk of Vellore District with a request to evolve detailed design.

In the scheme report it has been stated that the block where the structure is proposed has been categorized as "over exploited" as per GWREC norms 1997 and providing an artificial recharge structure will enhance the ground water potential in this area.

Accordingly it has been proposed to construct a subsurface dyke for increasing the ground water potential in this region.

Based on the particulars furnished in the letter cited, the design of Sub Surface dyke is formulated as detailed below.

The particulars of the river at the proposed site are

- | | |
|----------------------------|--------------------------------|
| 1. Maximum Flood Discharge | :110000Cusecs or 3114.8 Cumecs |
| 2. Average bed level | : +275.000m |
| 3. Width of River | : 270m |

4. Length of dyke proposed : 220m

Maximum Flood Discharge

The Executive Engineer, PWD, Upper Palar Basin Division, Vellore, has stated that, the observed maximum flood discharge at this location is 110000 cusecs and requested to adopt this flood as the design flood of the dyke.

Accordingly a discharge of 110000 Cusecs is adopted as the design flood of the dyke as requested in the proposal.

Computation of bed slope of the River

The bed slope of the river is furnished as 1 in 445

Computation of Maximum water level

The maximum water level corresponding to the design flood at the proposed site location is computed adopting the bed slope of 1 in 445 which works out to +279.200m. The corresponding scour level is computed as +271.620m.

Depth of dyke

The depth of embedment of dyke is computed as 11.7m i.e., at +263.300m. As per the bore hole details furnished in the letter cited, hard rock starts at +261.715m. The bottom of the dyke thus lies in the Murambu layer so as to allow sub surface flow to the downstream side.

Design of Dyke

The dyke is designed as a cantilever sheet pile. The bending moments developed at various points on the walls due to the active and passive earth pressure are computed and the wall is designed for the maximum bending moments

developed. Necessary reinforcements in Fe415 are proposed for the design bending moments. The dykes are proposed in M25 concrete.

Depth of Dyke	: 11.7m
Thickness of Dyke	: 0.9m
Top of Dyke	: +275.000m
Bottom of Dyke	: +263.300m
Main Reinforcement	: 25mm dia @ 10 cm c/c at the upstream face 25 mm dia @ 20 cm c/c at the downstream face
Distributors	: 16mm dia at 30cm c/c at both faces.

Downstream Protection works

A launching apron for a length of 13.00m having inner and outer thickness of 1.15m and 1.75m respectively is proposed at the downstream side.

The following points should be considered before taking up the work

1. Cast in situ structural RCC diaphragm wall shall be constructed by restoring to either successive panel method or alternate panel method. The panel lengths vary depending on the soil strata and depth of trenching and surcharging, However lengths of 1.5m to 6m are usually adopted.
2. The water cement ratio used shall not be greater than 0.6. The slump of the concrete used shall be 150mm to 200mm for ensuring easy flow.
3. Sodium based bentonite shall be used in preparing bentonite slurry.
4. Minimum clear cover for main reinforcement shall be 50mm.
5. Precast mortar blocks of the same strength as the wall, shall be used to ensure the required cover.
6. Joints or lapping of bars shall be suitably staggered as per specification.
7. The parameters of river bed material such as saturated unit weight and angle of internal friction are assumed as $2t/m^3$ and 30 degrees respectively.

8. For construction of sub surface dyke, the procedures and guidelines referred in the IS 9556 - 1980 (Reaffirmed 1998) "Code of practice for design and construction of Diaphragm walls" should be followed.
9. The proposed downstream protection work should be maintained periodically for proper functioning of the dyke.

Copy of approved drawings are enclosed herewith for adoption.

Encl : plan - 2 nos.

....sd....

Chief Engineer, PWD,
Design Research and Construction Support
Chennai-05

Copy to the Superintending Engineer, PWD, Designs circle, WRO Chennai -5.

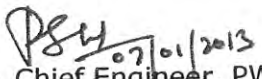
Encl:Drawing 2 Nos.

Copy to the Superintending Engineer, PWD, Palar Basin Circle, WRO,Chennai 5

Copy to the Executive Engineer, PWD, Upper Palar Basin Division, WRO, Vellore

Encl:Drawing 3 Nos.

Spare copy to Chief Engineer, PWD, DR&CS, WRO office file with enclosure.


For Chief Engineer, PWD,
Design Research and Construction Support
Chennai-05



Statement - I

Rehabilitation of left out works in Koundanya Nadhi sub basin.

Abstract showing the details of Rehabilitation Works proposed

Sl.No.	Description	Tanks	Bed dam / Sub Surface	Supply channel Nos.
		Nos.	Nos.	
1	Available Infrastructure in the sub basin	42	1	79 (117.05 Km)
2	Rehabilitation works taken up under IAMWARM Project	33	Nil	31 (41.50 Km)
	a) Infrastructure in which all the components are in good condition and does not require rehabilitation now	33	Nil	31 (41.50 Km)
	b) Infrastructures taken up under IAMWARM but certain components not taken up then, but require rehabilitation now.	Nil	Nil	-
3	Tanks not taken up for rehabilitation since 2005 under any other schemes.	9	1	48 (75.55 Km)
	a) Infrastructure in which all the components are in good condition and does not require rehabilitation now	6	Nil	48 (75.55 Km)
	b) Infrastructures in which certain components not taken up since 2005 but require rehabilitation now.	-	1 (Sub surface Dyke)	-

Sl.No.	Description	Tanks	Bed dam / Sub Surface	Supply channel Nos.
		Nos.	Nos.	
	Left out Proposal			
	c) Ground Water Components proposal for work of Construction of Sub Surface dyke across Koundanya maha Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District.	-	1	-
5	Total No. of infrastructures requiring rehabilitation now.	-	1	-

- 1 Certified that the works are proposed in the selected IAMWARM Sub basin area
- 2 Certified that the Panchayat Union tanks are not considered in this Project.
- 3 Certified that for item 2b, the components of the infrastructure now proposed were not taken up under IAMWARM Project
- 4 For Items No.3 - Certified that the works are not executed under various scheme(Viz., NABARD, Part II Schemes, etc.,) and IAMWARM **since 2005.**

Junior Engineer, WRD.,
Irrigation Section,
Gudiyattam.

Assistant Executive Engineer, WRD., Upper
Palar Basin Sub Division,
Gudiyattam.

Executive Engineer, WRD., Upper
Palar Basin Division,
Vellore-6.

STATEMENT : II - A

REHABILITATION OF LEFT OUT INFRASTRUCTURE IN IAMWARM PROJECT SUB BASIN

Name of Sub Basin :- Koundanya Nadhi

REHABILITATION OF TANK WORKS

Sl. No	Name of tank	Component of works proposed										Total Amount
		Standardization of Bund, Turfing and Boundary Stone		Weir Recons / Repair		Sluice Reconstruction		Culvert		Flow Measuring Devices		
		Length in 'M'	Amt	No.	Amt	No.	Amt	No.	Amt	No.	Amt	
		-----Nil-----										

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Gudiyattam.

Executive Engineer, WRD., Upper
Palar Basin Division,
Vellore-6.

Statement II – B

REHABILITATION OF IRRIGATION CHANNELS

Name of sub basin:- Koundanya Nadhi Sub Basin

Amount in Lakhs

Sl. No	Name of Tanks	Desilting of Irrigation Channel		Lining of Irrigation channel		Repairs to Drops, Siphon cistern		Repairs to culvert aqueduct etc.,		Shutter Renewal		Total
		Length	Amt	No	Amt	No	Amt	No	Amt	(No)	Amt	
		-----Nil-----										

Junior Engineer, WRD.,
Irrigation Section,
Gudiyattam.

Assistant Executive Engineer, WRD., Upper
Palar Basin Sub Division,
Gudiyattam.

Executive Engineer, WRD., Upper
Palar Basin Division,
Vellore-6.

Statement II - C
REHABILITATION OF ANICUTS AND SUPPLY CHANNEL

Name of sub basin:- Koundanya Nadhi

Amount in Lakhs

Sl. No	Name of Anicut/Supply Channel	Construction of Sub surface dyke		Repairs to Anicut		Repairs to Head Sluice		Shutter Renewal		Supply Channel		Total
		No	Amount Rs.(In Lakhs)	No	Amount	No	Amount	No	Amount	Length in 'm'	Amount Rs.(In Lakhs)	
1.	Construction of Sub Surface dyke across Koundanya maha Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District	1	384.00	-	-	-	-	-	-	-	-	384.00
Total											384.00	

Junior Engineer, WRD.,
Irrigation Section,
Gudiyattam.

Assistant Executive Engineer, WRD.,
Upper Palar Basin Sub Division,
Gudiyattam.

Executive Engineer, WRD.,
Upper Palar Basin Division,
Vellore-6.

**Koundanya Nadhi Sub basin
WRO COST TABLE**

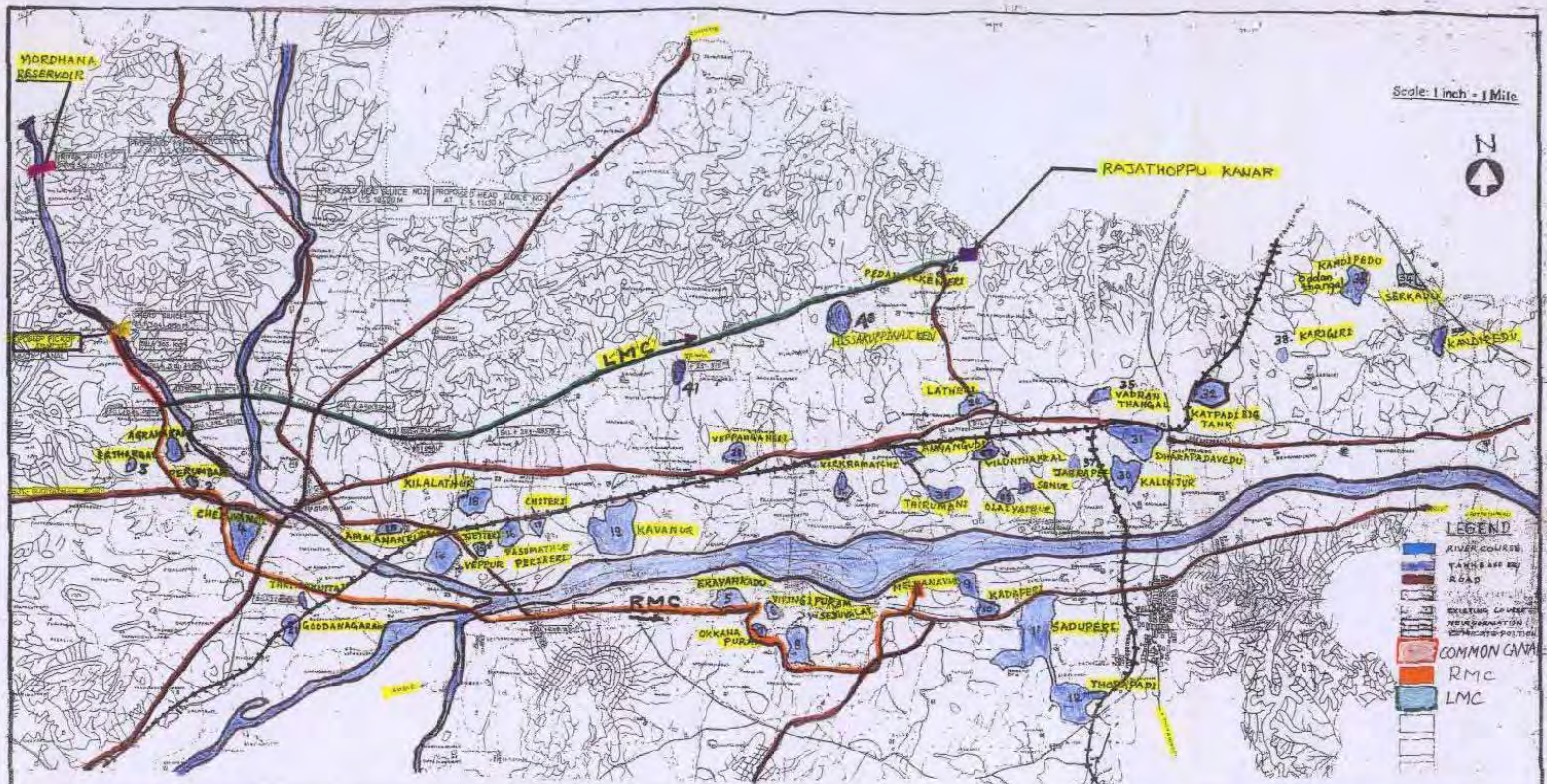
Sl.No	Description of Works	Qty	Amount Rs.in Lakhs	Remarks
1	Construction of Sub Surface dyke across Koundanya maha Nadhi near Seevoor Village in Gudiyattam Taluk of Vellore District	1	373.17	
	SubTotal			
	<u>LS Provisions</u>			
1	Labour welfare fund at 0.30%		1.13	
2	Provision for Photographic charges, Advertisement charges, Name board, Petty supervision charges, unforeseen items at 2.50%		9.70	
	Total		384.00	

Junior Engineer, WRD.,
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Gudiyattam.

Assistant Executive Engineer, WRD., Upper
Palar Basin Sub Division,
Gudiyattam.

Executive Engineer, WRD., Upper
Palar Basin Division,
Vellore-6.

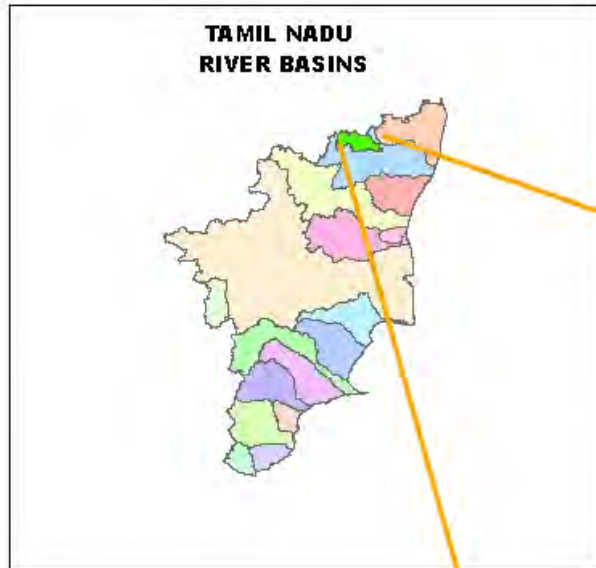
MAPS



Sl. No.	Name of Tank	Sl. No.	Name of Tank	Sl. No.	Name of Tank	Sl. No.	Name of Tank
1	Agraharam	11	Sadupperi	21	Goodanagaram	31	Dharapadavedu
2	Perumbadi	12	Thorapadi	22	Latheri	32	Katpadi Big Tank
3	Erthangal	13	Ammanankuppam	23	Veppanganeri	33	Kandipedu Tank
4	Cheruvangi	14	Veppur	24	Vikramachi	34	Serkadu Tank
5	Erayankadu	15	Netteri	25	Annankudi	35	Vandrathangal
6	Virinjipuram	16	Pasumathur Peria Eri	26	Bethanaicken	36	Kandipedu Oddanhangal
7	Okkanapuram	17	Pasumathur Chitteri	27	Vilunthakkal	37	Jabrapet
8	Seduvalai	18	Kilalathur	28	Olaiyathur	38	Karigiri Big
9	Melmonavur	19	Kavanur	29	Senur Pudu Eri	39	Thirumani Ponniyammur
10	Kadaperi	20	Thattankuttai	30	Kalinjur	40	Hissakuppinaicken
						41	Melmoil

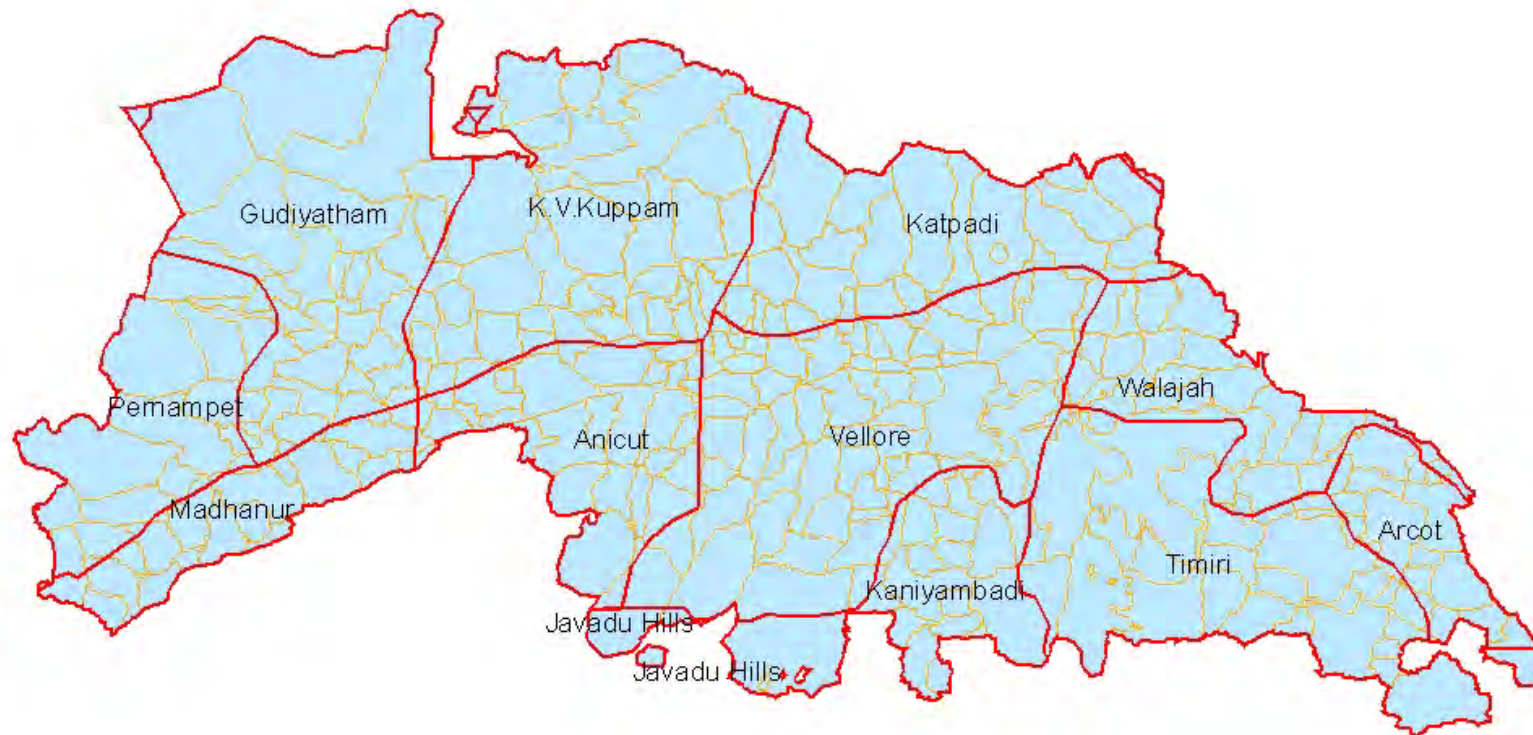
GOVERNMENT OF TAMIL NADU
P.W.D - W.R.O
PLAN SHOWING THE
KOUNDANYA NADHI SUB BASIN

KOUNDINYANADHI - INDEX MAP





GOVERNMENT OF TAMIL NADU
WATER RESOURCES ORGANISATION, PWD
INSTITUTE FOR WATER STUDIES
TAMIL NADU STATE CENTRE FOR REMOTE SENSING APPLICATION
THARAMANI, CHENNAI - 113

KOUNDINYANADHI SUB BASIN ADMINISTRATIVE MAP



LEGEND

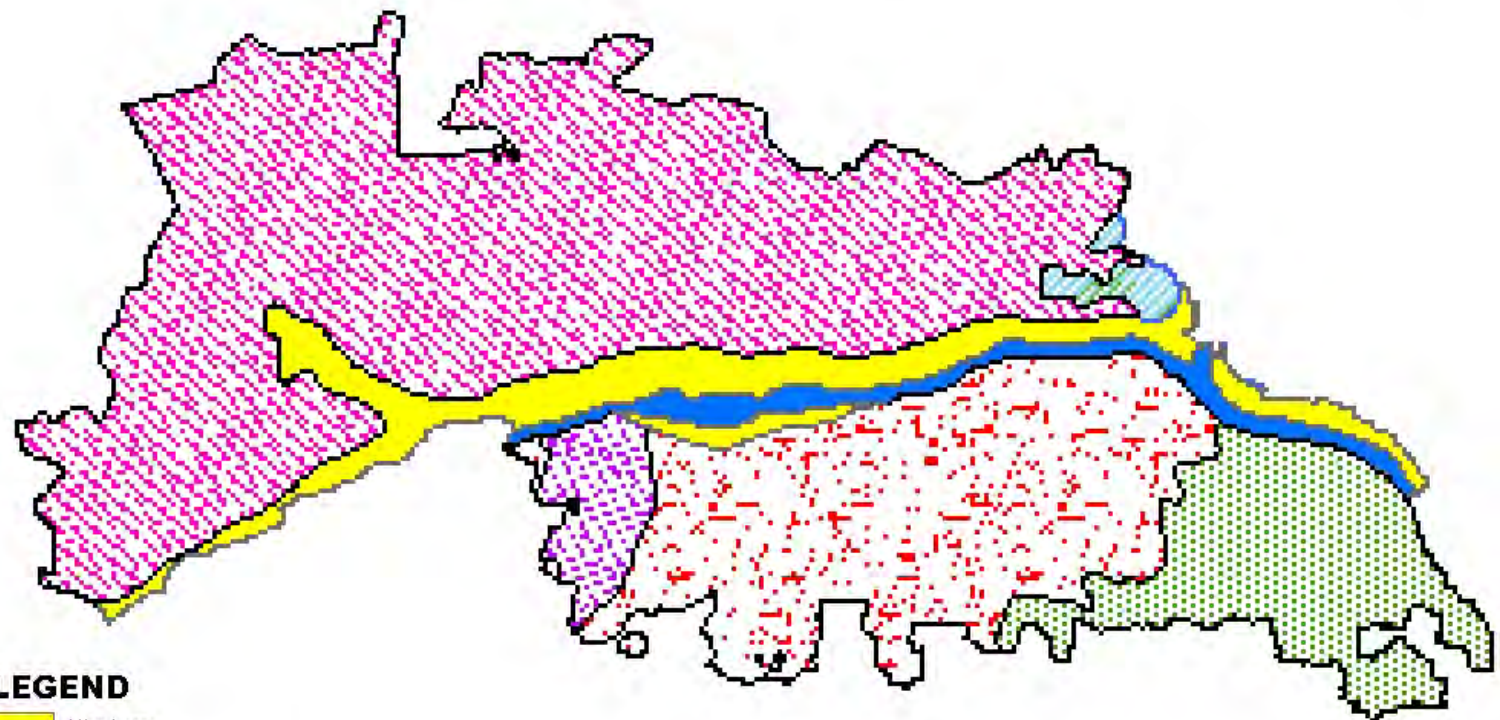
-  Block boundary
-  Village boundary









GOVERNMENT OF TAMIL NADU
WATER RESOURCES ORGANISATION, PWD
INSTITUTE FOR WATER STUDIES
TAMIL NADU STATE CENTRE FOR REMOTE SENSING APPLICATION
THARAMANI, CHENNAI - 113



KOUNDINYANADHI GEOLOGY MAP



LEGEND

-  Alluvium
-  Ultra mafic rocks
-  Epidote-hornblende gneiss
-  Fissile hornblende-biotite gneiss
-  Hornblende-biotite gneiss
-  Charnockite

OTHERS

-  River

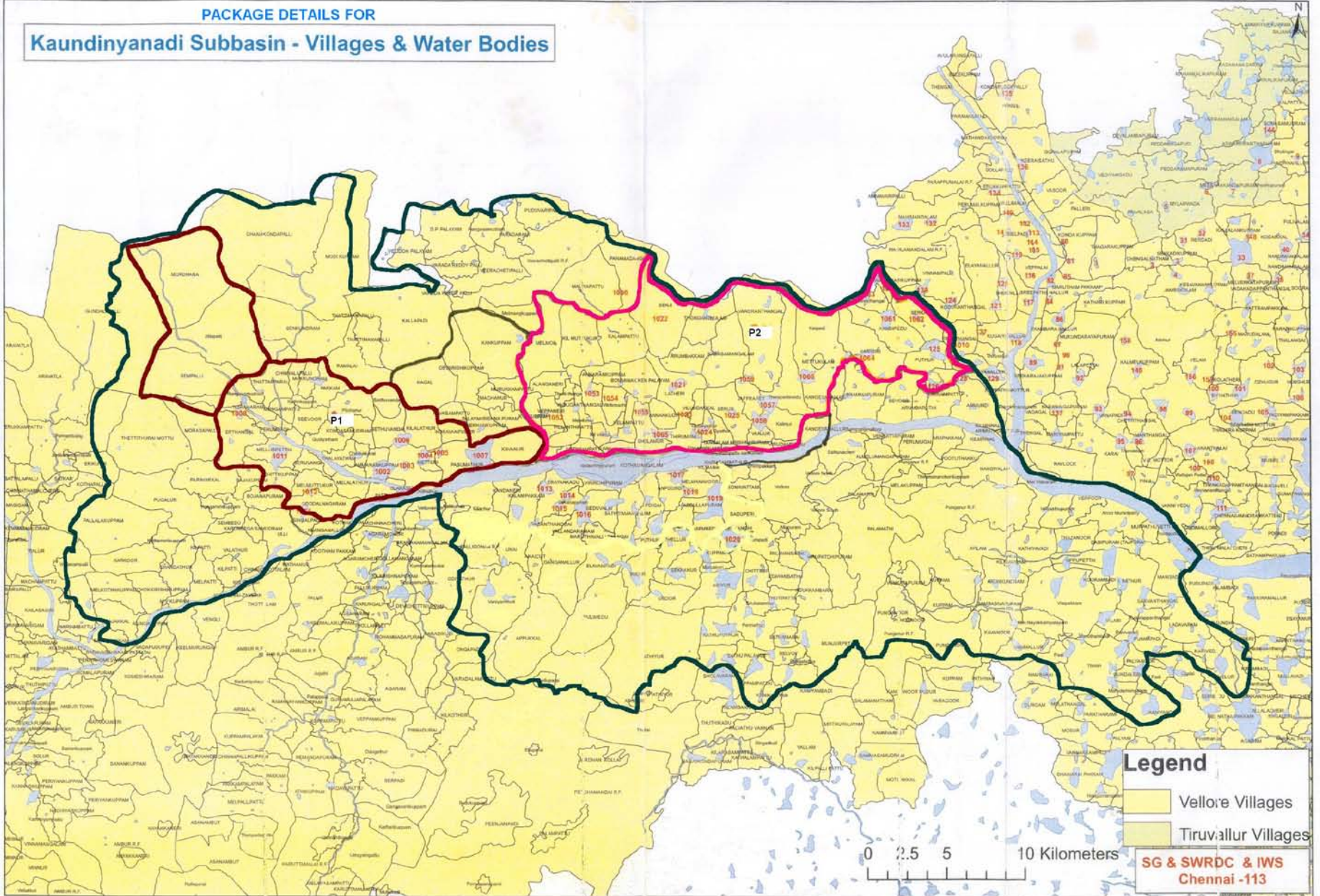


GOVERNMENT OF TAMIL NADU
WATER RESOURCES ORGANISATION, PWD
INSTITUTE FOR WATER STUDIES
TAMIL NADU STATE CENTRE FOR REMOTE SENSING APPLICATION
THIRAMANI, CHENNAI - 600 013



PACKAGE DETAILS FOR

Kaundinyanadi Subbasin - Villages & Water Bodies



WUA BOUNDRIES FOR
Kaundinyanadi Subbasin - Villages & Water Bodies



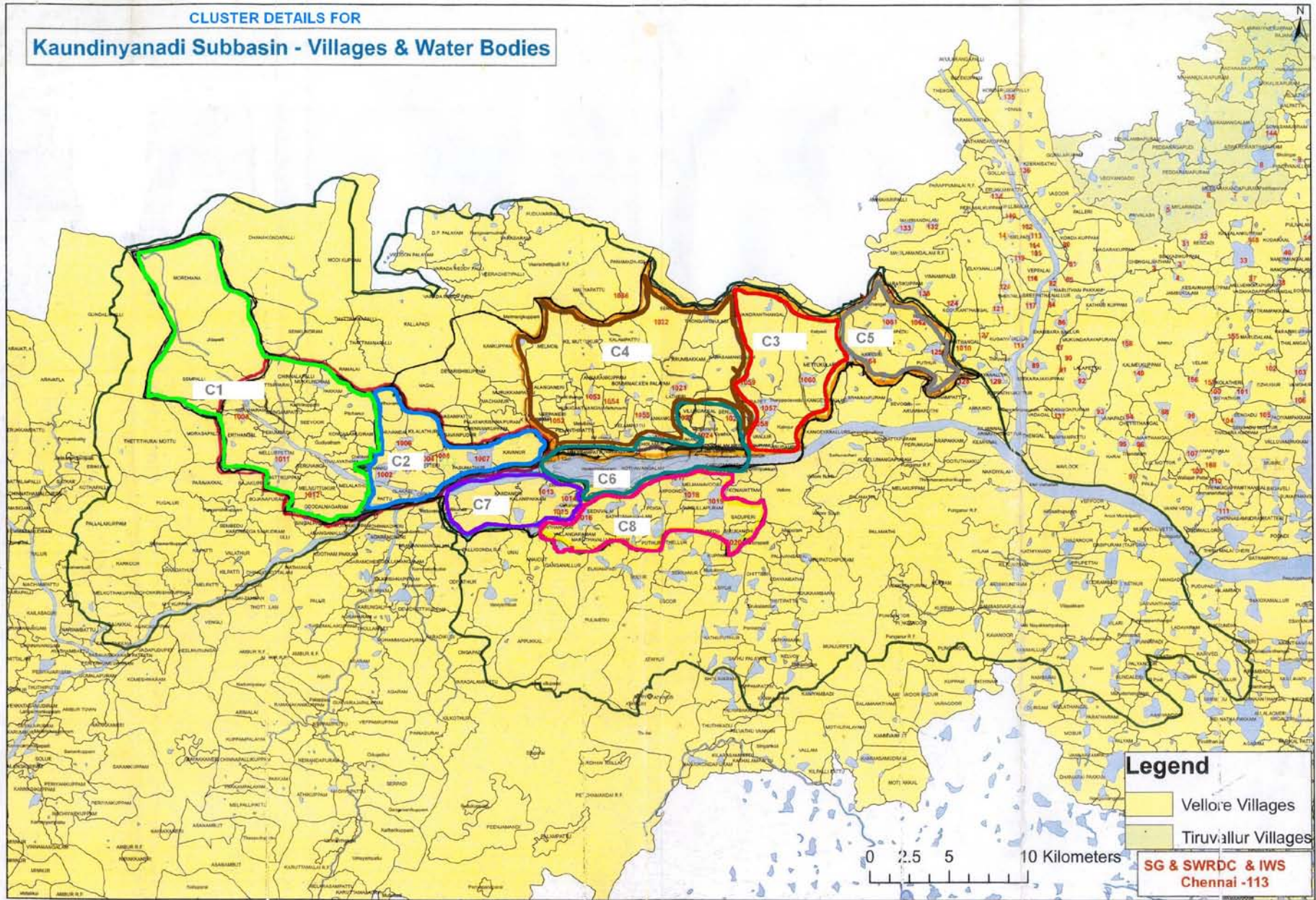
Legend

- Vellore Villages
- Tiruvallur Villages

SG & SWRDC & IWS
Chennai -113

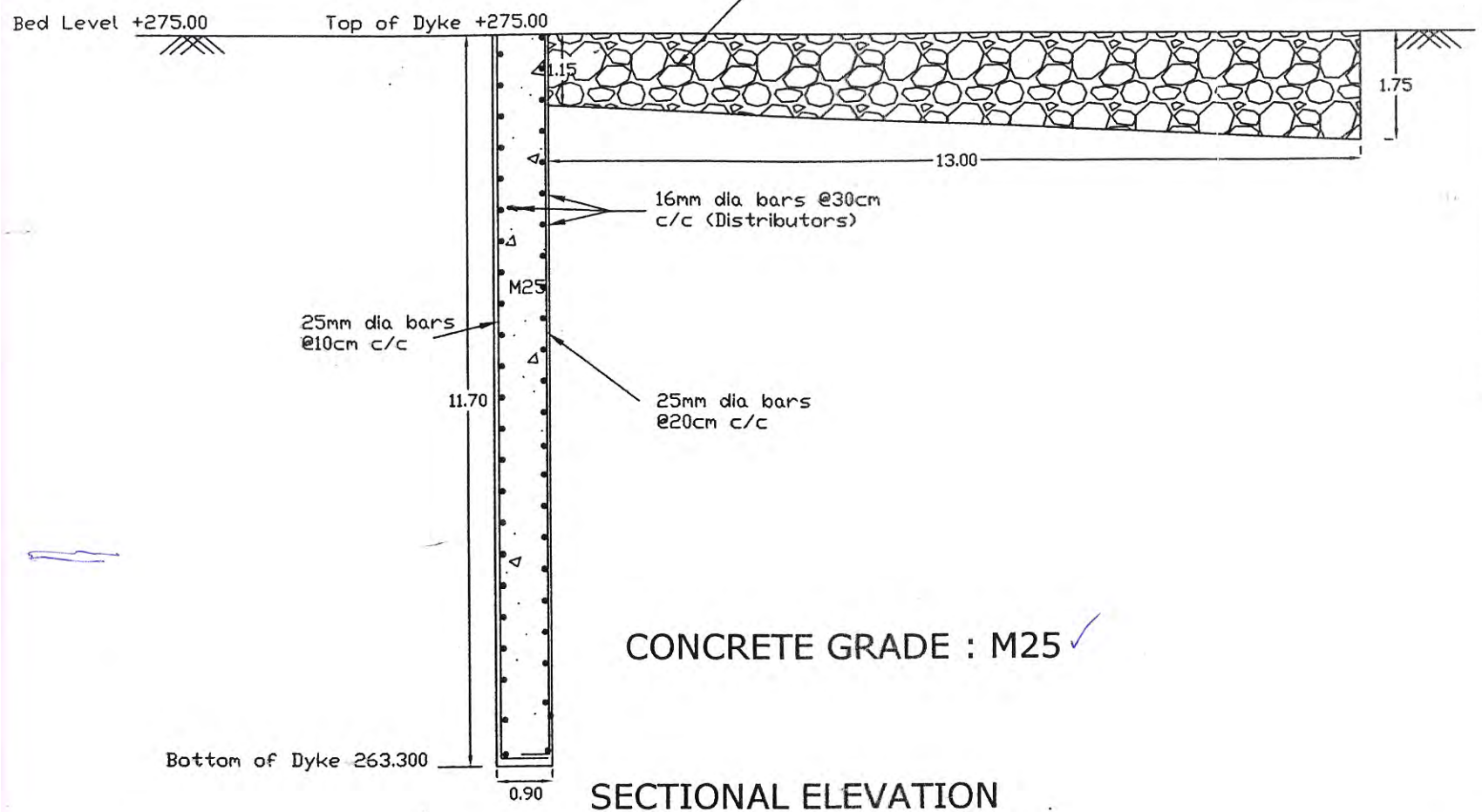
0 2.5 5 10 Kilometers

CLUSTER DETAILS FOR
Kaundinyanadi Subbasin - Villages & Water Bodies



MWL +279.200

D/s launching apron of loose boulders each of size > 300mm and weigh more than 40kg.



SECTIONAL ELEVATION

GENERAL NOTES:

1. The design has been done in accordance with the following codes and text books
 - i. IS 14344 -1996,
 - ii. IS 9556 -1980
 - iii. Soil Mechanics and Foundations by Dr. B.C.PUNMIA
 - iv. Soil mechanics and Foundation Engineering by V.N.S.Murthy.
2. The design of the sub surface dyke has been formulated based on the particulars furnished by the Executive Engineer, Upper Palar Basin Division, Vellore in Lr.No: AEE(D)/F665/IAMWARM/2012 Dt 11.12.2012.
3. Concrete: The water cement ratio used shall not be greater than 0.6. The slump of the concrete used shall be 150mm to 200mm for ensuring easy flow.
4. Bentonite:
 - (a) Sodium based bentonite shall be used in preparing bentonite slurry.
 - (b) The concentration of bentonite slurry used shall conform to the requirements given in clause 6 and 8 of IS 9556 :1980.
 - (c) For saline or chemically contaminated ground water condition, special additives as listed in clause in 7.2.1 to 7.2.6 of IS 9556:1980 may be used to render bentonite slurry fit for use. These additives should be used in very small amounts of 0.1% to 0.5% by mass of the slurry.
 - (d) The density of the slurry should be adequate to ensure the stability of the trench while at the same time not exceeding the allowable limit (1.25 gm/ml) to ensure satisfactory placing of concrete.
 - (e) The Bentonite slurry shall have the properties as stipulated in table 1 of IS 14344 1996.
 - (f) Tests to determine density, viscosity, shear strength and pH value shall be carried out until a consistent working pattern is established,

Depending upon the type of soil encountered at the site the depth, length and thickness of dyke to be constructed, suitable trenching equipment shall be chosen.

Guide Walls

- a. Guide walls shall be constructed prior to main slurry trenching operation.
- b. Guide walls shall be 100 to 250 mm thick, 1 to 2m deep and made of lightly reinforced concrete, and shall represent the reference lines.
- c. The clearance between finished diaphragm wall and guide wall may be 50mm minimum for straight panels. The clearance shall be suitably increased when the panels are curved.
- d. The finished faces of the guide walls towards the trench shall be vertical.

Method of construction

✓ Cast-in-situ structural RCC diaphragm wall shall be constructed by restoring to either successive panel method or alternate panel method. The panel lengths vary depending on the soil strata and depth of

THANK YOU