GOVERNMENT OF PUDUCHERRY

PUBLIC WORKS DEPARTMENT

WELCOMES ALL

PRESENTATION

on

Urban Water Management

and

Sewerage System

By

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Chief Engineer

PWD, Puducherry

Dt.12.08.2013

Union Territory of Puducherry

Has four Regions

- Puducherry (Tamil nadu)
- Karaikal (Tamil nadu)
- Mahe (Kerala)
- Yanam (Andrapradesh)

Urban Water Supply System in Puducherry Union Territory

Puducherry Region

- Mainly depends on ground water
- Urban water supply is maintained through more than 150 bore wells
- Main water resource is MUTHIRAPALAYAM aquifer
- Maintaining 135 lpcd and more
- 10 hrs. Water Supply (4+2+4) is maintained 365 days

Water Supply System in Karaikal Region

- Karaikal is in the Cauvery Delta
- Water Supply depends on Ground water through Bore wells
- Surface water is being taped through infiltration wells
- 135 lpcd Supply level is maintained.
- 10 hrs (4+2+4) Supply is maintained for 365 days

Water Supply in Yanam Region

- Depends on surface water from Godavari river
- 3 Treatment plants (4 MLD, 3 MLD, 2 MLD) are in use to treat water
- Andrapradesh Government releases 30 cusecs of water to Yanam region at free to cost
- 65 Km length of pumping main laid to Transmit water from Arthur Cotton barrage to Summer Storage Tank in Yanam.
- 135 lpcd Supply is maintained for 10 hrs in 365 days.

Water Supply in Mahe Region

- Due to Geographical nature there is no adequate potential to tap water
- Agreement executed with Kerala water authority for the supply
- Water is being supplied from Anjarakandy system to Mahe Region

SOURCE AUGMENTATION FOR URBAN WATER SUPPLY BY UTILISING WATER FROM OUSSUDU TANK, PUDUCHERRY

NEED FOR SOURCE AUGMENTATION SCHEME

- Over extraction of ground water causes intrusion of sea water
- Due to continuous extraction of ground water the water table has fallen drastically
- Quality of ground water changed due to over extraction
- Recharging of ground water is not equal to the extraction
- More than 20 nos of tube wells near the coastal line has been abandoned in last 10 years due to increase in total solids (brackish)
- To mitigate the sea water intrusion Government of Puducherry has issued orders, not to construct tube wells within 6 kms from shore line.

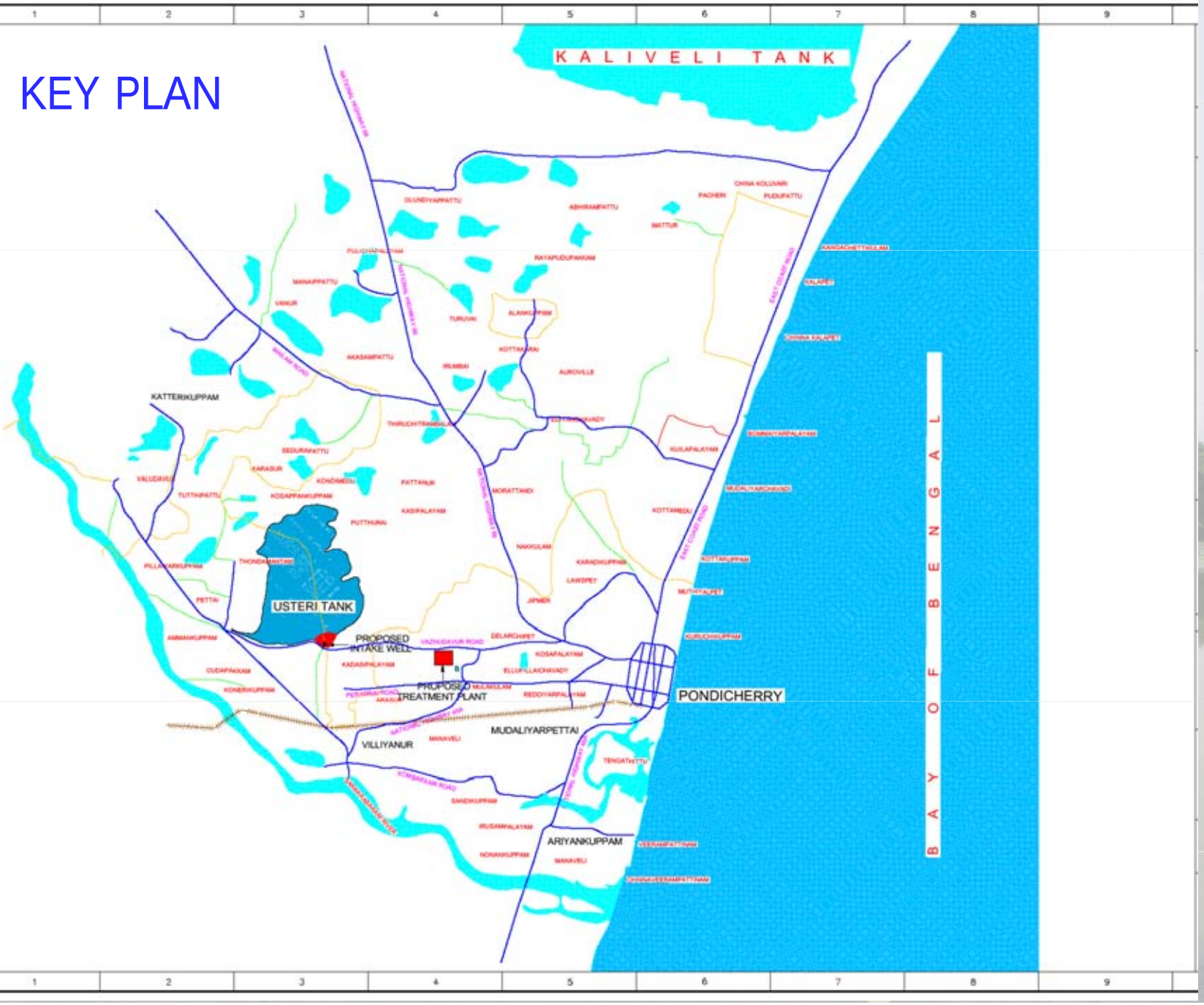
NEED FOR SOURCE AUGMENTATION SCHEME contd…

- Therefore it is proposed to augment surface water from Oussudu tank.
- This will reduce some thrust on underground water
- Under ground water can be preserved for future generation
- Surplus water during monsoon season was let into sea which can be used for drinking purpose
- The scheme will only supplement the existing system

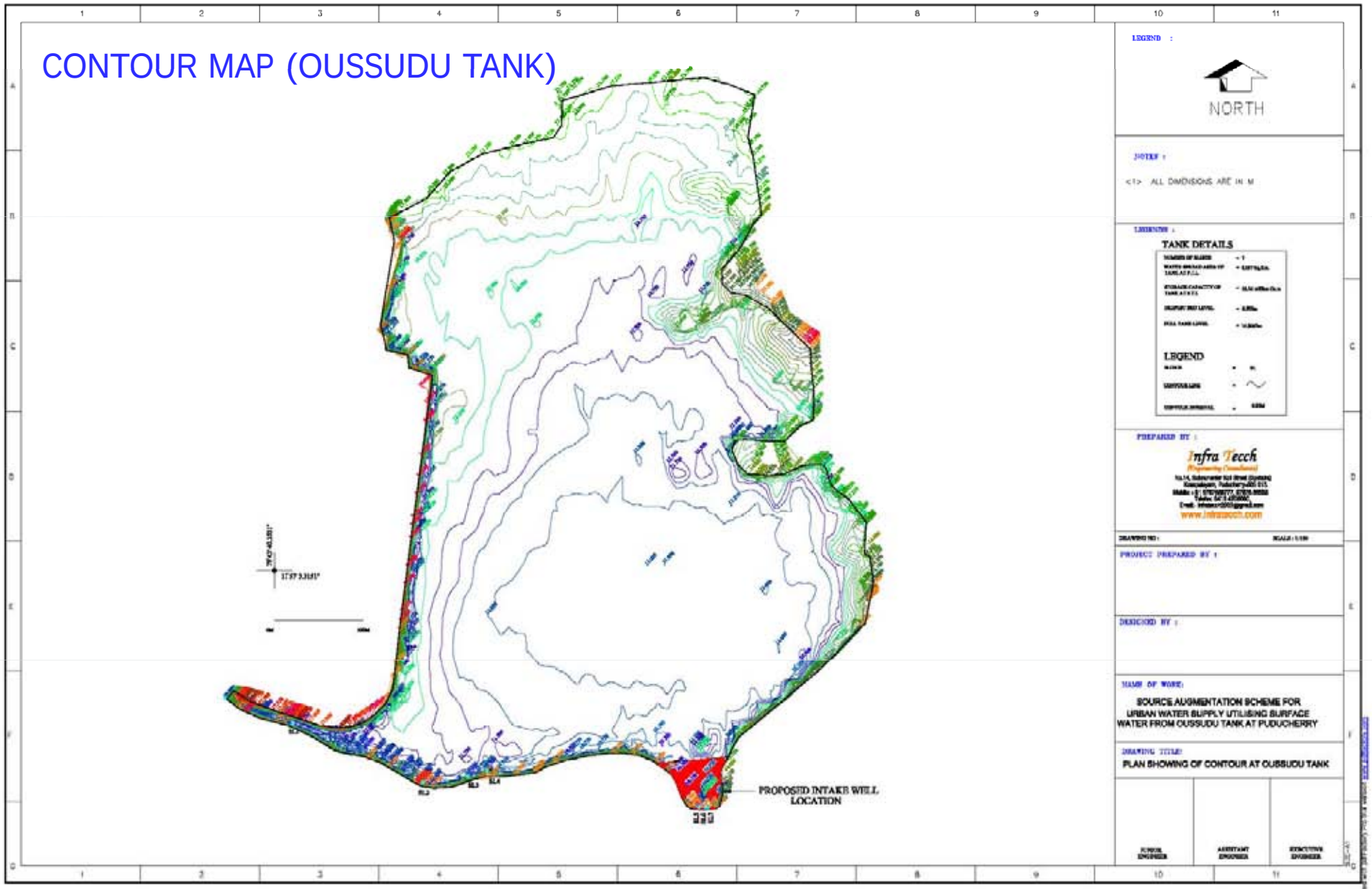
SCOPE OF THE SCHEME

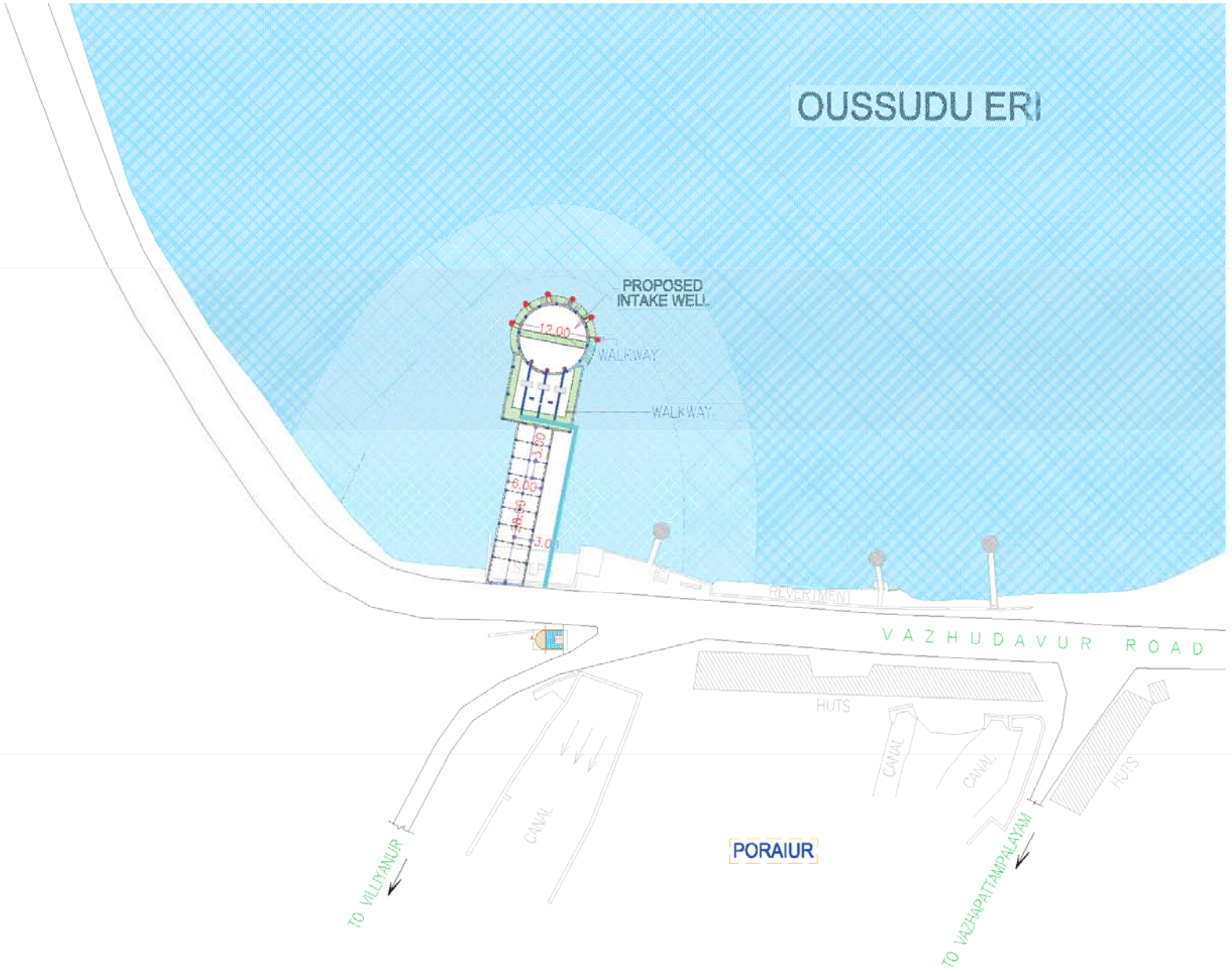
- Drawal of 20 MLD of raw water from Oussudu tank
- Conveying the raw water to the proposed treatment plant site at Muthirapalyam head works. (4 km)
- Treating the raw water at Muthirapalayam head works site and pumping the same to GLR after Chlorination
- Space required for structures at Oussudu tank bund–60x60 m

KEY PLAN


KALIVELI TANK
KATTERIKUPPAM
USTERI TANK
PROPOSED INTAKE WELL
PROPOSED TREATMENT PLANT
VILLIYANUR
MUDALIYARPETTAI
ARIYANKUPPAM
PONDICHERRY
BAY OF BENGAL

CONTOUR MAP (OUSSUDU TANK)




OUSSUDU ERI
PROPOSED
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STEPS
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CANAL
PORAIUR
TO VILLIYANUR
TO VAZHAPATTAMPALAYAM

Panel suggests draining of Ousteri lake

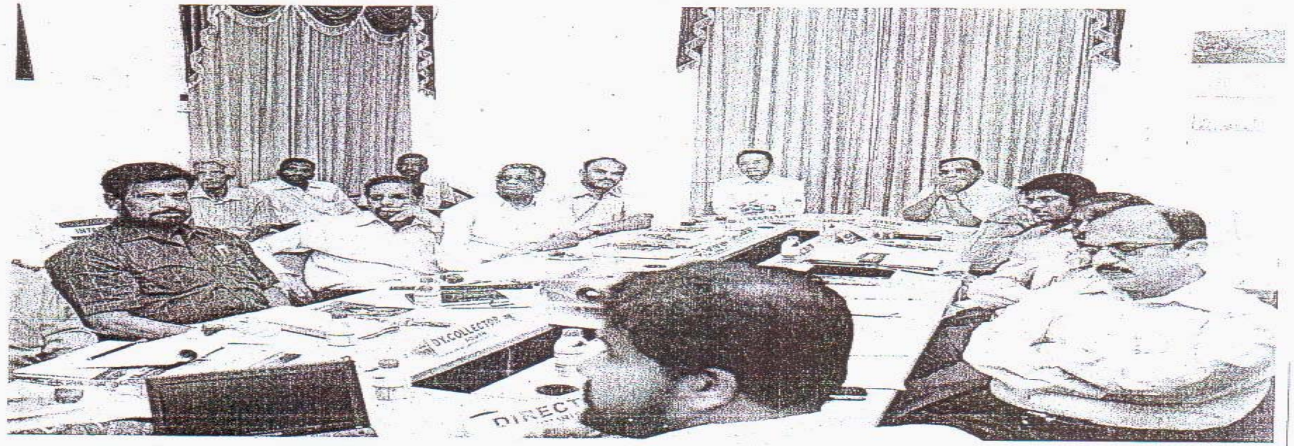
Revival of old pattern may help to accommodate more freshwater

Rajesh B. Nair

PUDUCHERRY: The Puducherry Steering Committee on Wetlands suggested revival of the old pattern of draining the Ousteri Lake annually close to the onset of monsoon for accommodating more freshwater. The suggestion came up during the deliberations on the Comprehensive Management Action Plan for Conservation of Ousteri Lake prepared by the Salim Ali Centre for Ornithology and Natural History (SACON) at Anaikatty near Coimbatore.

The 18-member committee, chaired by Chief Secretary R. Chandramohan, was given a detailed briefing on the recommendations by representatives from SACON. Though most of the recommendations were acceptable to the Puducherry Steering Committee on Wetlands, as mandated by the National Wetlands Conservation Board, the members suggested adoption of the earlier practice of keeping the lake dry for some time every year.

Those who mooted the suggestion are of the view that by allowing fresh water after draining the lake would create a healthy environment for migratory birds, said a senior official, who attended the meeting.



The Steering Committee meeting under way in Puducherry on Wednesday. – PHOTO : T.SINGARAVELOU

The draining work had to be coordinated with other agencies, including the Public Works Department which could also use the water for reviving some of the nearby waterbodies.

The maximum depth of the lake is about 3.5 metre and it would maintain a capacity of 2.15 metre normally, thereby reducing space for storing stormwater during monsoon. If the lake was drained to its maximum, a large quantity of rainwater could be stored. Such a model was adopted by authorities in Bharatpur Bird Sanctuary, the official said.

The meeting also decided to seek Rs. 10 crore for a period of five years from the National Wetland Conservation Board for implementing the Comprehensive Management Action Plan for Conservation of Ousteri Lake, the official said.

Present Status of Water Supply Sysytem at Puducherry Urban area :

- Source : Only Tube wells
- Source Collection system : Individual pump house, pump sets, pumping main & sump
- Distribution components : OHT & Distribution grid.
- 50% of area covered by OHT supply and 50% of area by direct pumping from tube wells.
- No Treatment Plants anywhere, except iron removal plants in some places where iron content is predominant.

Present Status of Water Supply Sysytem contd...

- Chlorination done at all pump houses & OHT
- Presently 100 lpcd to 135 lpcd of water being supplied
- Total number of tubewells used in urban areas: 180 Nos

Population, demand & supply details

- Present Urban Population (2011) -- 6.51 lakhs
- Growth rate -- 28.73%
- Projected Population (2026) -- 9.12 lakhs
- Projected Population (2041) -- 12.70 lakhs
- Present Demand -- 104 MLD
- Projected Demand (2026) -- 145 MLD
- Projected Demand (2041) -- 201 MLD

Population, demand & supply details contd...

- Present supply -- 95 MLD
- Deficit -- 9 MLD
- Population covered by piped water in urban area -- 100%

OUSSUDU TANK DETAILS

- Capacity of tank : 15.29mcm or 540mcft
- Proposed drawal : 20MLD or 7.3 mcm/year
- Dead storage available after drawal : 3.40 mcm
- Water spread area : 820 ha
- Full tank depth : 3.50 m
- Free catchment area : 16 sqkm
- As per PWD records, there was no supply of water in the channels for last three years for irrigation purpose

Treatment process proposed at Muthirapalayam head works

- Micro strainer for algae
- Chemical treatment with provision for high lime & carbonisation when needed
- Dual media filtration
- Activated carbon filtrartion
- Chlorination

Sl.NO	UNIT	QTY	SIZE
1	STRAINER	1	[illegible]
2	CASCADE AERATOR	1	[illegible]
3	[illegible] CHANNEL	1	[illegible]
4	DISTRIBUTION CHAMBER - 1	1	[illegible]
5	FLASH MIXER	[illegible]	[illegible]
6	DISTRIBUTION CHAMBER - 2	1	[illegible]
7	FLOCCULATOR	[illegible]	[illegible]
8	CLARIFIER	[illegible]	[illegible]
9	GRAVITY FILTER	[illegible]	[illegible]
10	BACK WASH WATER TANK	1	[illegible]
11	BACK WASH WATER PUMP HOUSE	1	[illegible]
12	BACK WASHED WATER HOLDING TANK	1	[illegible]
13	SLUDGE BALANCING TANK	1	[illegible]
14	BALANCING TANK PUMP HOUSE	1	[illegible]
15	SLUDGE THICKENER	1	[illegible]
16	THICKENED SLUDGE SUMP	1	[illegible]
17	THICKENED SLUDGE PUMP HOUSE	1	[illegible]
18	OVER FLOW COLLECTION SUMP	1	[illegible]
19	OVER FLOW PUMP HOUSE	1	[illegible]
20	CENTRIFUGE BUILDING	1	[illegible]
21	CHLORINE HOUSE	1	[illegible]
22	CHEMICAL HOUSE	1	[illegible]
23	ADMIN & OFFICE BUILDING	1	[illegible]
24	SUBSTATION & TRANSFORMER	1	[illegible]
25	DG SET ROOMS	1	[illegible]
26	ACF FEED TANK	1	[illegible]
27	CARBONIZATION TANK	1	[illegible]
28	ACTIVATED CARBON FILTER	[illegible]	[illegible]
29	ACF PUMP HOUSE	1	[illegible]

Abstract of project cost

SL.NO	DESCRIPTION	AMOUNT
1	**INTAKE ARRANGEMENTS**	
	a) Construction of intake well and pump house	1,93,60,000.00
	b) Construction of walkway bridge to pump house	64,40,000.00
	c) Construction of retaining wall and land development	2,73,40,000.00
	d) Centrifugal pumpsets at intake well pumphouse	79,50,000.00
	e) EOT crane in intake well pump house	11,70,000.00
	f) Genset for intake well site	29,85,000.00
	g) Transformer and High tension electrification at intake well site	33,60,000.00
	h)Construction of genset room and watchman room	38,50,000.00
	i)Dewatering system	34,10,000.00
	Sub total	**7,58,65,000.00**
2	**RAW WATER PUMPING MAIN**	
	a)Pumping main from Oussudu lake to Muthirayarpalayam treatment plant	9,32,00,000.00
	b)Road restoration	20,50,000.00
	Sub total	**9,52,50,000.00**

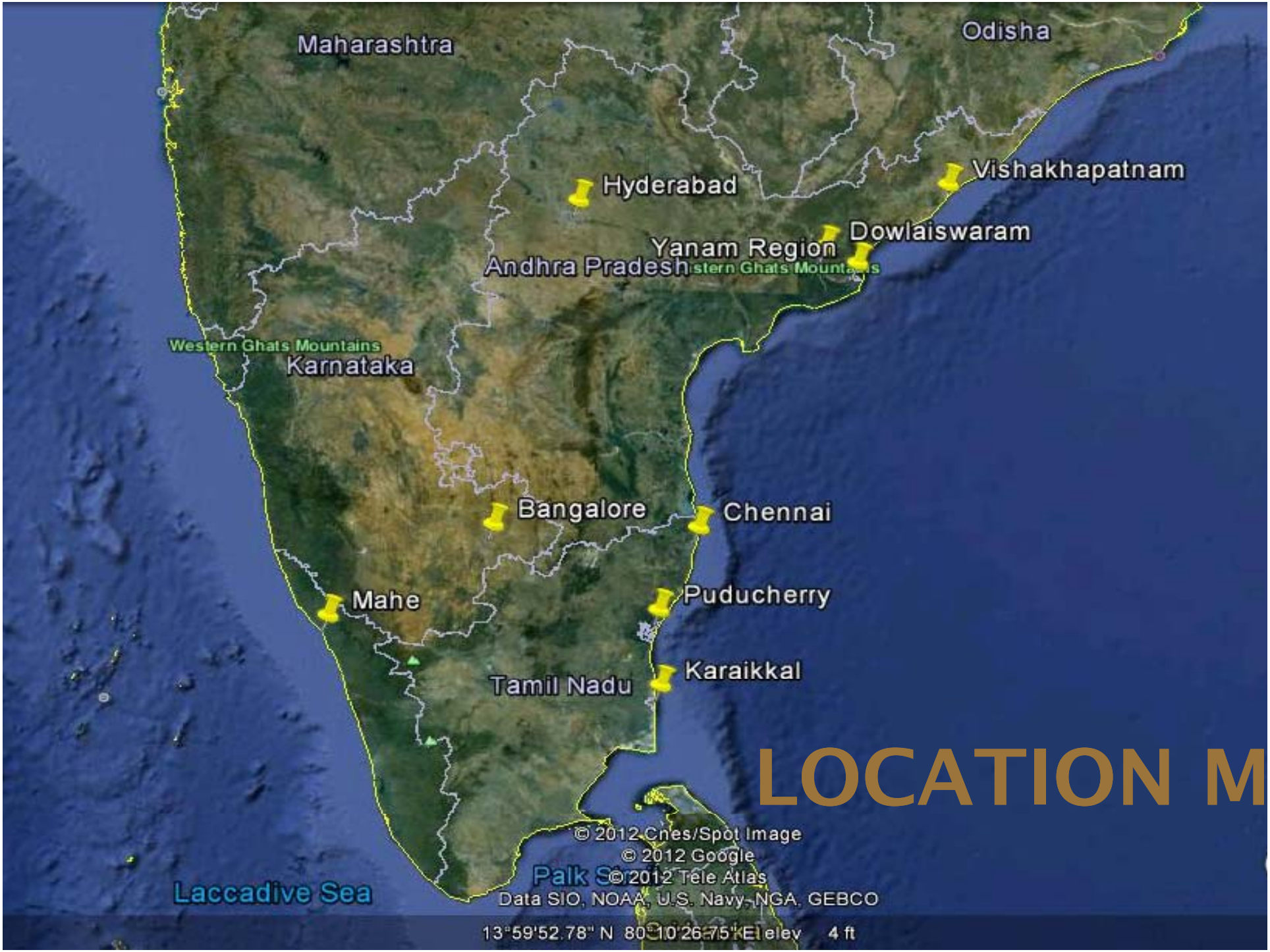
Abstract of project cost contd...

3	**TREATMENT PLANT AND ITS ALLIED ITEMS**	
	a) Construction of dual media rapid sand filter water treatment plant (20 MLD)	17,51,48,000.00
	b) Construction of clear water reservoir (40 Lakh litres)	4,64,30,000.00
	c) Construction of clear water pumphouse	86,16,000.00
	d) Construction of office building and laboratory	67,70,000.00
	e) Construction of genset room	16,40,000.00
	f) Centrifugal pumpset and interlinking with existing supply main	1,63,30,000.00
	g) EOT crane in clear water pumphouse	11,70,000.00
	h) Genset at treatment plant site	34,80,000.00
	i) Transformer and High tension electrification at treatment plant site	33,60,000.00
	Sub total	**26,29,44,000.00**
4	**DEVELOPMENT OF TREATMENT PLANT SITE**	
	a)Site development, filling of land and laying pavement around treatment plant area	61,40,000.00
	Sub total	**61,40,000.00**

Abstract of project cost contd...

6	Provision for furnishing of laboratory and equipments (L.S)	15,00,000.00
7	Provision for inspection vehicle, infrastructure development, computers and office accessories (L.S)	15,00,000.00
8	Provision for survey & investigation (L.S)	15,17,000.00
9	Operation & maintanance cost for one year	2,99,84,000.00
	Grand total	47,47,00,000.00

REPORT OF WATER SUPPLY PROJECT AT YANAM


Maharashtra
Odisha
Hyderabad
Vishakhapatnam
Dowlaiswaram
Yanam Region
Andhra Pradesh
Western Ghats Mountains
Karnataka
Bangalore
Chennai
Mahe
Puducherry
Karaikkal
Tamil Nadu
LOCATION M
© 2012 Cnes/Spot Image
© 2012 Google
© 2012 Tele Atlas
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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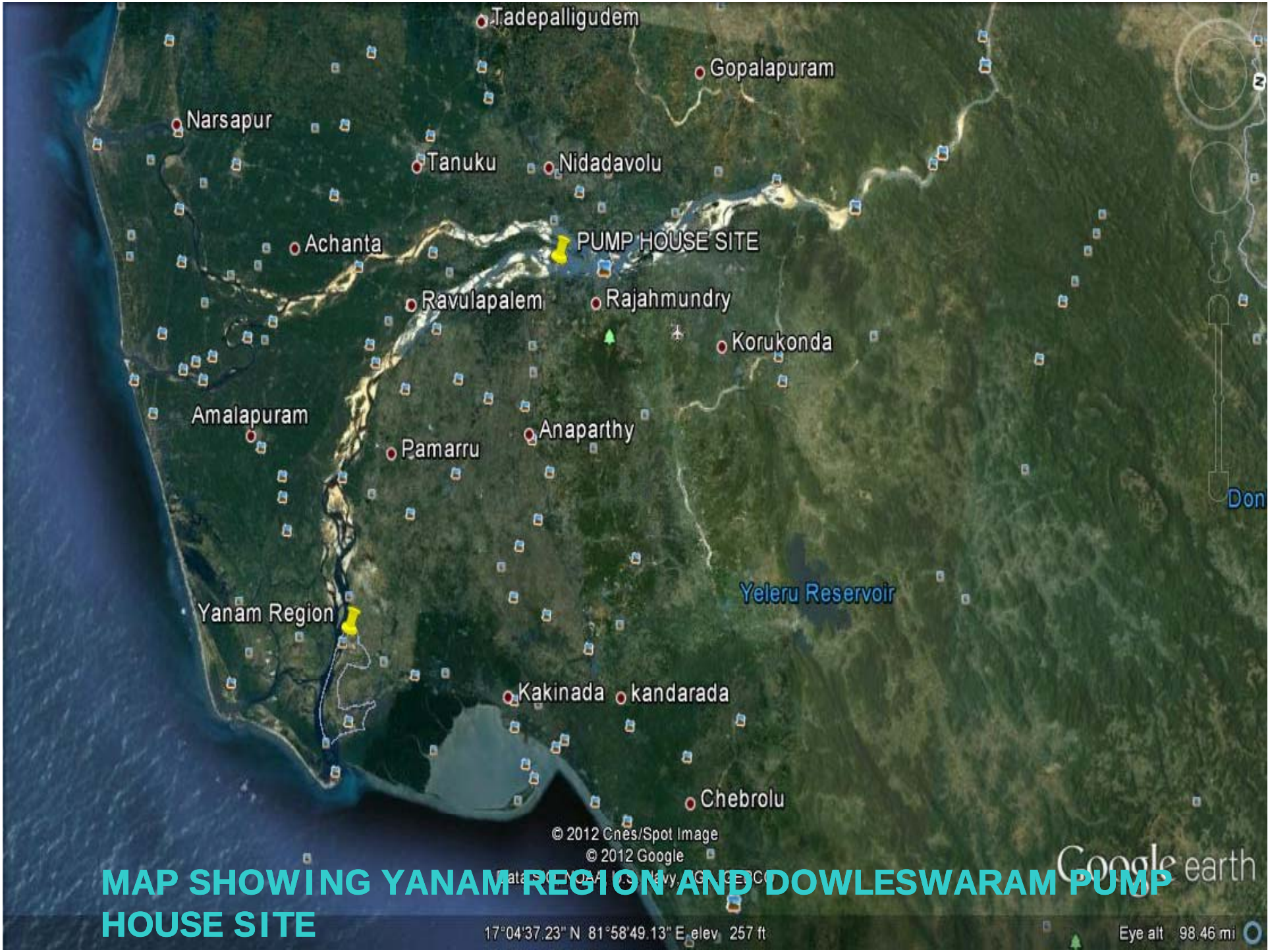
13°59'52.78" N 80°10'26.75" E elev 4 ft



MAP SHOWING YANAM REGION AND DOWLESWARAM PUMP HOUSE SITE

MAP SHOWING LOCATION OF PUMP HOUSE AT DOWLESWARAM

MAP SHOWING YANAM REG

MAP SHOWING YANAM TOWN AREA

MAP SHOWING LOCATION OF BARRIAGE & PUMP HOUSE SITE AT DOWLESWARAM

MAP SHOWING THE PUMP HOUSE SITE AND RIVER GODAVARI

MAP SHOWING THE PUMP HOUSE SITE AT DOWLESWARAM ON THE UPSTREM SIDE OF BARRIAGE

MAP SHOWING THE YANAM TOWN WATER WORKS WITH TREATMENT PLANTS

NAME OF THE PROJECT

AUGMENTATION OF WATER SUPPLY SCHEME TO YANAM REGION FROM THE RESERVOIR OF SIR ARTHUR COTTON BARRAGE AT DOWLAISWARAM ANDHRA PRADESH


ESTIMATE AMOUNT
Rs. 49.844 CRORES

AGENCY

M/s ENGINEERING PROJECTS (INDIA) Ltd.

A Govt. of India Enterprises,
Hyderabad

Agreement No: 113/PW/YD/2010-11

AGREEMENT AMOUNT

Rs. 46,28,63,246/-

Objectives of the Project:

Supply of un-interrupted drinking water to Yanam free of cost and free from impurities at the rate of 3 cusecs per day upto 2040

POPULATION CENSUS AND INCREASE

- AS PER 1991 CENSUS – 20,297
- AS PER 2001 CENSUS - 31, 362
- AS PER 2011 CENSUS - 54, 596
- INCREASE IN POPULATION - 54.50%(by2001)
- INCREASE IN POPULATION – 74.08% (by2011)

PROJECT DEMAND ASSESSMENT

	Prospective Year 2025	Ultimate Year 2040
Project Population	2,25,000	3,00,000
Rate of supply(135+ 15% Wastages)	159 LPCD	159 LPCD
Requirement of Clear Water	35.78 MLD	47.70 MLD
Existing supply from all sources	9.8 MLD	9.8 MLD
Balance requirement of Clear Water	25.98 MLD	37.90 MLD
Requirement of Raw Water (including 10% extra)	28.578 MLD	41.69 MLD
Hours of pumping	23.00 Hours	23.00 Hours

Components of the Project

- Construction of intake well with suitable screw gearing shutters
- Laying intake pipe line with 400mm dia DI pipe with suitable length in 3 rows
- Construction of Jackwell-cum-pump house with suitable circular RCC vent type intake for drawing water from River Godavari into intake well
- Laying of pressure main with 300mm dia DI pipe for a length of 65km
- Construction of delivery cistern
- Site leveling and barbed wire fencing around the site at pump house, Dowlaiswaram and Drinking water tank at Yanam
- 2 Rooms staff quarters of size 6.69 x 4.46 mts. in RCC framed structure
- Horticulture development at Dowlaiswaram and Yanam
- Supply and fixing of 3 Nos. vertical turbine pump sets of 75 HP each
- 33 KV and LT 6 pole structure with 2 Nos. of Transformers of suitable capacity

UIDSSMT QUARTERLY PROGRESS REPORT FOR QUARTER ENDING MARCH 2012

GENERAL DETAILS

1.NAME OF THE ULB : YANAM MUNICIPALITY

2.NAME OF THE PROJECT: Augmentation of Water Supply scheme for Yanam

3.PROJECT COST APPROVED BY SLSC: Rs. 4431.00 Lakhs

4.DATE OF SLSC: 23.2.2009

5.NAME OF IMPLEMENTING AGENCY: Public Works Department, Yanam

6.DATE OF SIGNING OF MOA: 26.2.2009

7. DATE OF RELEASE OF ACA 1ST & 2ND INSTALLMENT : 28.5.2009 & 3.3.2010 & 7.12.2011

8.AMOUNT OF ACA RELEASED INCLUDING INCENTIVES, IF ANY :Rs. 2378.00 Lakhs

(Rs. 1263 + Rs. 304 Lakhs+ Rs. 811Lakhs)

9. STATE SHARE: Rs. 2222.27 Lakhs (Rs.386.42 Lakhs +*Rs. 1835.85 Lakhs)

*Loan availed by PWD from NABARD to meet the balance state share and cost escalation for the project.

10.DATE OF RELEASE OF STATE SHARE: 18.9.2009 ,30.12. 2010, 5.1.2012, 15.2.2012

11.ULB SHARE (ALONG WITH DETAILS OF SOURCE IF NOT FROM OWN): Nil (ULB Share of 10% will be met in the State Budget along with the State Share)

12 DATE OF ADMINISTRATIVE AND FINANCIAL SANCTION FROM COMPETENT AUTHORITY: 18.9.2009

MONITORING OF PHYSICAL PROGRESS

- DATE OF TENDERING MAIN PACKAGE: 18.3.2010
- DATE OF WORK ORDER ISSUED: 03.07.2010*
- DURATION OF PROJECT AS PER DPR: 18 Months
- DATE OF START OF PROJECT : 13.07.2010
- DATE OF COMPLETION AS PER DPR: 12.04.2011
- NO. OF MONTHS BEHIND SCHEDULE: 15months
- REVISED DATE OF COMPLETION: 31.07.2012
- IMPLEMENTING AGENCY: Public Works Department, Yanam
- EXPECTED POPULATION BENEFITTED : 55000 (70000 by 2021)
- APPROXIMATE AREA BENEFITTED: 30.00 Sq.Kms

PHYSICAL PROGRESS as on 6.6.2012

- **PIPE SUPPLY : 65Km(asper Agreement)**

  350MM DIA K9 DI PIPE SUPPLY COMPLETED

- **PIPE LAYING: 65Km(asper Agreement)**

  54.5Km Completed

CIVIL WORKS

- **Jack well: Casting & Sinking completed**

  Plugging concrete in progress

- **Staff Quarters, Switch Yard:**

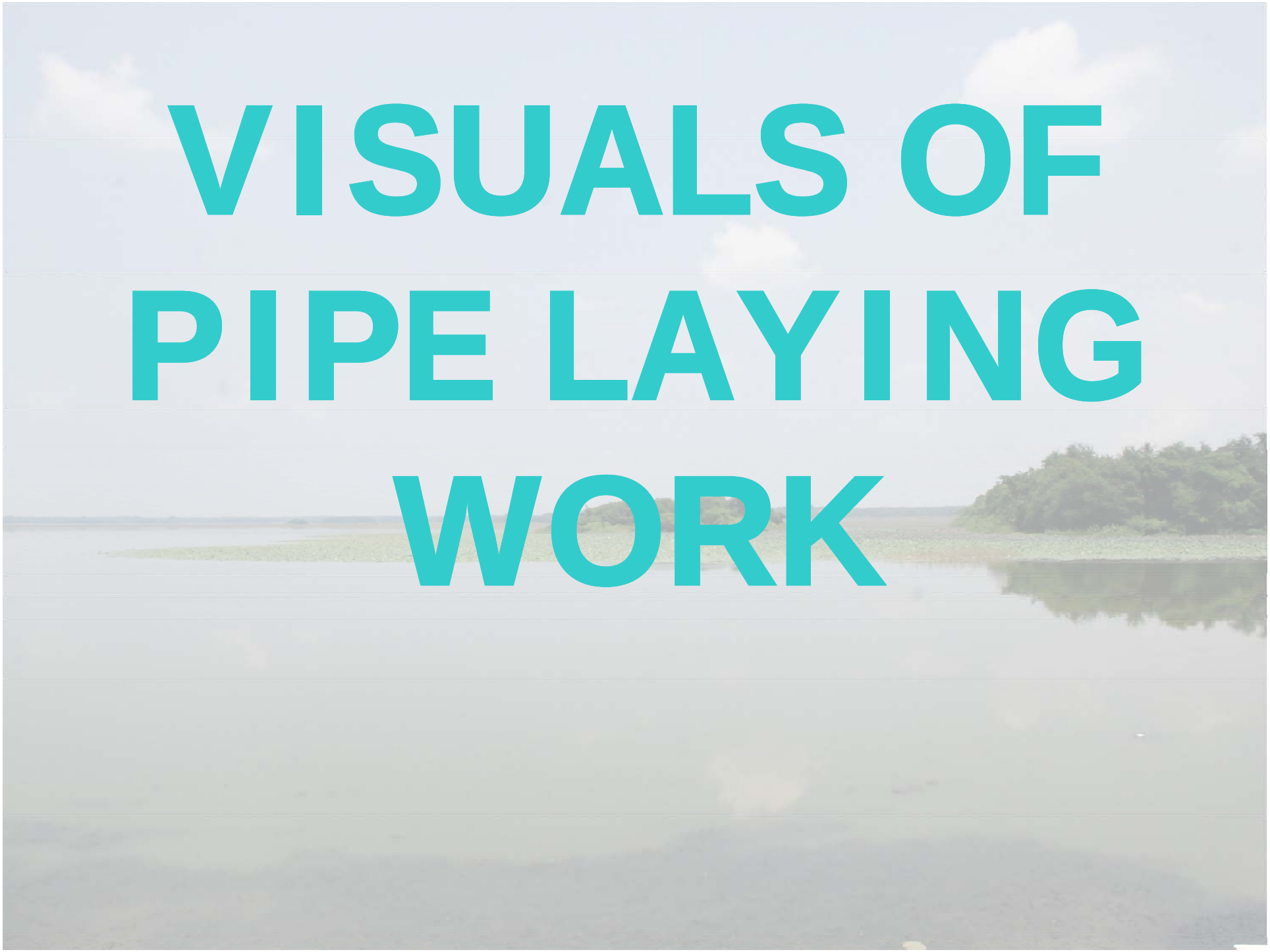
  Structure reached up to first slab & first slab to be laid

- **Foot path Bridge:**

  Centering work for deck slab in progress

FINANCIAL PROGRESS

MONITORING OF FINANCIAL PROGRESS:(Rs. In Lakhs)as on 6.6.2012						
S. No.	SHARE	TOTAL AMOUNT RELEASED (IN LAKHS)	LAST DATE OF RELEASE	UTILIZATION TILL DATE (Rs. IN LAKHS)	% UTILIZATION	FUNDS TO BE RELEASED
1.	GOI SHARE TO ULB /IMPLENETING AGENCY	2378.00	7.12.2011	4011.11	96.92	756.40
2.	STATE SHARE TO ULB / iMPLENETING AGENCY	1760.49	----			----
3.	ULB SHARE TO IMPLENETING AGENCY	Nil	-	-	-	Nil
4.	ANY OTHER SOURCE TO IMPLENETING AGENCY	Nil	-	-	-	Nil
5.	INCENTIVE RELEASED BY GOI AS PER PARA-9 OF UIDSSMT GUIDELINES	Nil	-	-	-	Nil
	TOTAL	4138.49	-	4011.11	96.92	756.40


VISUALS OF
PIPE LAYING
WORK

LAYING OF PIPE

LAYING OF PIPE


PIPE JOINT


PIPE JOINT

CHECKING OF TRENCH LEVEL

LAYING OF PIPE

REFILLING THE TRENCH

JOINTING OF PIPE MECHANICALLY

CHECKING OF SAND CUSHION LEVEL

LAYING OF PIPES AT JOINT

PIPE JOINTING ARRANGEMENTS

JOINTING OF PIPE

CHECKING OF LEVELS

INSPECTION OF PIPE TRENCH

EXCAVATION OF PIPE TRENCH MECHANICALLY

INPECTION OF PIPE LAYING SITE BY THE EXECUTIVE ENGINEER

DAIL GUAGE READING OF PRESURE TEST

TRENCH CUTTING, SAND FILLINGAND LAYING OF PIPE

LAYING OF PIPE AT ANOTHER LOCATION

FILLING OF SAND UNDER PIPE LINE

LIFTING OF PIPE FOR LAYING IN POSITION IN TRENCH

LIFTING OF PIPE FOR LAYING IN POSITION IN TRENCH

REFILLING THE TRENCH AFTER LAYING PIPE

PRESSURE TEST IN PROGRESS

PRESSURE RELEASE AFTER TEST

VISUALS OF PUMP HOUSE, STAFF QUARTERS AND JACKWELL

PLACING OF IRON KERB FOR JACK WELL

CENTERING WORK FOR JACK WELL BASE

CENTERING WORK FOR JACK WELL BASE FOR FOUNDATION

REINFORCEMENT FOR JACK WELL WALL AT BASE

SCAFOLDING WORK FOR JACK WELL FOUNDATION

REINFORCEMENT OF JACK WELL BEAM AT BASE

JACK WELL WALL CENTERING

ARRANGEMENTS FOR CONCRETING THE JACK WELL

JACK WELL AFTER SINKING

MEN AT WORK FOR SINKING JACK WELL

CASTING OF JACKWELL

CURING ARRANGEMENTS FOR JACK WELL WALL

CURING ARRANGEMENTS FOR JACK WELL WALL

PUMP HOUSE COLUMNS AND BRACER BEAM CENTERING

CASTING OF COLUMNS ABOVE BRACING BEAM OF PUMP HOUSE

COLUMNS OF APPROACH BRIDGE AND PUMP HOUSE UP TO BRACERBEAM

COLUMNS OF APPROACH BRIDGE

EARTH WORK EXCAVATION INSIDE THE JACK WELL FOR SINKING WELL

PUMP HOUSE BRACER BEAM REINFORCEMENT WORK AND JACK WELL


INSPECTION OF
CTP

INSEPCTION OF CTP


VISUALS OF
INSPECTION
BY AUDIT
PARTY


YANAM
GOVERNMENT OF PUDUCHERRY
PUBLIC WORKS DEPARTMENT
YANAM
Dr. Y.S.R. WATER SUPPLY PIPE LINE PROJECT AT DOWLAISWARAM
Hon'ble Shri V. NARAYANASAMY
Dr. IQBAL SINGH
Hon'ble Shri MALLADI KRISHNA RAO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