



CONSULTANCY ASSIGNMENTS

**Consultancy Assignment to prepare DPR
for Improvements to Water Supply Scheme to
Thoothukudi City Municipal Corporation**

**Directorate of Municipal Administration
Chennai-05**

From
Dr. P.Senthilkumar, I.A.S.,
Director of Municipal
Administration
Ezhilagam
Chepauk
Chennai 600 005.



To

Letter Roc. No. 34913/07/WS1 dated 13.02.2010

Sir

Sub:	Preparation of DPR for Improvements to Water Supply Scheme to Thoothukudi City Municipal Corporation.
-------------	---

^^^^^^
LETTER OF INVITATION

Sir,

You are hereby invited to submit technical and financial proposals for consultancy services required for the preparation of DPR for Improvements to the Water Supply Scheme to Thoothukudi City Municipal Corporation.

1. The purpose of this assignment is to:
Prepare DPR for Improvements to Water Supply Scheme to Thoothukudi City Municipal Corporation..
2. The following documents are enclosed to enable you to submit your proposal:
 - (a) Terms of reference (TOR) (Annexure 1);
 - (b) Supplementary information for consultants, including a suggested format of curriculum vitae (Annexure 2); and
 - (c) A Sample Form of Contract for Consultants' Services under which the services will be performed (Annexure 3).
 - (d) Evaluation sheet
3. In order to obtain first hand information on the assignment and the local conditions, it is considered desirable that a representative of your firm visit Thoothukudi City Municipal Corporation before the proposal is submitted. Your representative shall meet the following officials:

The Commissioner,
Thoothukudi City Municipal Corporation,
Thoothukudi.

The City Engineer,
Thoothukudi City Municipal Corporation,
Thoothukudi.

Please ensure that advance intimation regarding your visit is sent to the concerned so as to enable them to make appropriate arrangements.

4. A pre-proposal conference open to all prospective consultants will be held on **11.08.2010 @ 15.00 hrs** in the **Office of Director of Municipal Administration**. The prospective consultant will have an opportunity to obtain clarification regarding the scope of the work, terms of reference, contract conditions and any other pertinent information.

5. The Submission of Proposals:

The proposals shall be submitted in two parts, viz., Technical and financial and should follow the form given in the "Supplementary Information for Consultants."

5.1 The "Technical" and "Financial" proposals must be submitted in two separate sealed envelopes (with respective marking in bold letters) following the formats/schedules given in the supplementary information for consultants. The first envelope marked "Technical proposal" should include the description of the firm/organization, the firms general experience in the field of assignment, the qualification and competency of the personnel proposed for the assignment and the proposed work plan methodology and approach in response to suggested terms of reference. The first envelope containing the technical proposal should not contain any cost information whatsoever. It should be sealed with sealing wax. The second envelope marked 'FINANCIAL PROPOSAL' must also be sealed with sealing wax and initialed twice across the seal and should contain the detailed price offer for the consultancy services. Bids sent not adhering to these instructions will be rejected.

Both the sealed envelopes should again be placed in a sealed cover in which the name of work and the name of the section (PPF) to which it is submitted should be superscribed and It will be received in the office of the Office of Director of Municipal Administration up to **15.00 hours on 15.09.2010**.

You will provide detailed break down of costs and fees as follows:

- Staffing billing rate plus overheads;
- Travel and accommodation;
- Report reproduction.

5.2 The proposals (first envelope containing technical proposal only) will be opened by the **Director of Municipal Administration** or his authorized representative in his office at **15.30 hours on 15.09.2010**. It may please be noted that the second envelope containing the detailed price offer will not be opened until technical evaluation has been completed and the result approved and notified to all consultants.

6. Evaluation

A two-stage procedure will be adopted in evaluating the proposals with the technical evaluation being completed prior to opening the proposals. The technical proposals will be evaluated using the following criteria:

- i. The consultant's relevant experience for the assignment (5 points);
- ii. The quality of the methodology proposed (25 points); and
- iii. The qualifications & experience of the key staff proposed for the assignment (70 points).

Curriculum vitae of senior personnel in each discipline for assessing the qualifications and experience of the personnel proposed to be deployed for the studies should be included with the proposal (in the format of the sample curriculum vitae). These personnel will be rated in accordance with:

- i. General qualifications - (30 points)
- ii. Adequacy for the project (suitability to perform the duties for this assignment. These include education and training, length of experience on fields similar to those required as per terms of reference, type of positions held, time spent with the firm etc) - (60 points)
- iii. Their language and experience in Tamil Nadu - (5 points)
- iv. Involvement in skills transfer program and training ability - (5 points)

The Evaluation sheet is enclosed as annexure-iv

7. Deciding Award of: Contract

The quality and competence of the consulting service shall be considered as the paramount requirement. The decision of the award of the contract would be as under

- (a) The consultants scoring not less than 75 % of the total points in technical evaluation will be considered qualified and their financial bids alone will be opened. The client shall notify those consultants whose proposals did not meet the minimum qualifying mark or were considered non-responsive to the Letter of Invitation and Terms of Reference, indicating that their Financial Proposals will

be returned unopened after completing the selection process. The Client shall simultaneously notify the consultants who have secured the minimum qualifying mark, indicating the date and time set for opening the Financial Proposals. The notification may be sent by registered letter, cable, telex, facsimile, or electronic mail.

- (b) The Financial Proposals shall be opened publicly in the presence of the consultants' representatives who choose to attend. The name of the consultant, the quality scores, and the proposed prices shall be read aloud and recorded when the Financial Proposals are opened. The Client shall prepare minutes of the price-bid opening.
- (c) The evaluation committee will determine whether the Financial Proposals are complete [i.e., whether they have costed all items of the corresponding Technical Proposals; if not, the Client will cost them and add their cost to the initial price], correct any computational errors. The evaluation shall exclude local taxes. The lowest financial proposal (Fm) will be given a financial score (Sf) of 100 points. The financial scores of all the proposals will be computed as follows: $Sf = 100 \times Fm/F$ (F-amount of financial proposal). Proposals will finally be ranked according to their combined technical (St) and financial (Sf) scores using a weight of 75% for technical proposal and 25% for financial proposal. $S = St \times 0.75 + Sf \times 0.25$. The Consultant securing the highest score will be invited for negotiations
- (e) Prior to the expiration period of proposal validity, the Client will notify the successful Consultant who submitted the highest scoring proposal in writing by registered letter, cable telex or facsimile and invite it to negotiate the Contract. Negotiations normally take a day. The aim is to reach agreement on all points, and initial a draft contract by the conclusion of Negotiations. Negotiations will commence with a discussion of your technical proposal, the proposed methodology (work plan), staffing and any

suggestions you may have made to improve the TORs. Agreement must then be reached on the final TORs, the staffing and staff months, logistics and reporting. Special attention will be paid to optimize the required outputs from the Consultant and to define clearly the inputs required from the Client to ensure satisfactory implementation of the Assignment. The changes agreed upon will then be reflected in the draft contract, using proposed unit rates (no negotiation of the unit rates, including the man month rates). Having selected the consultants, among other things, on the basis of an evaluation of the proposed key professional staff, the Client expects to negotiate a contract on the basis these staff named in the proposal and, prior to contract negotiations, will require assurance that these staff will be actually available. The Client will not consider substitutions during contract negotiations except in cases of unexpected delays in the starting date or incapacity of key professional staff for reasons of health. In such cases the client may accept the substitutes having equal or above qualifications prescribed only after getting approval from the client. The negotiations will be concluded with a review of the draft form of Contract. The Client and the Consultants will finalize the contract to conclude negotiations. If the negotiations with this consultant are successful, the award will be made to him and all other consultants notified. If negotiations fail, and if it is concluded that a contract with reasonable terms cannot be concluded with this consultant, the consultant scoring second highest score, will be invited for negotiations. This process will be repeated till an agreed contract is concluded. Please note that the **O/o DMA** is not bound to select any of the firms submitting proposals.

10. It is estimated that about **5** months of services will be required for the assignment and generally you should base your financial proposal on this figure. However, you should feel free to submit your proposal on the basis on man-months considered necessary by you to undertake the assignment.

11. You are requested to hold your proposal valid for 90 days from the date of submission without changing the personnel proposed for the assignment and your proposed price. The **O/o DMA** will make his best efforts to select a consultancy firm within this period.

- s12. Please note that the cost of preparing a proposal and of negotiating a contract including visits to the municipality, if any is not reimbursable as a direct cost of the assignment.

13. Assuming that the contract can be satisfactorily concluded by **October 2010**, you will be expected to take-up/commence the assignment within 14 days from the date of issue of order.

14. **If there is a delay without any valid reason, within the time limit in the submission of the reports, penalty may be imposed as follows:
For every week of delay notice: 0.1% of the consultancy cost for the respective report will be deducted per day.**

15. We wish to remind you that any manufacturing or construction firm, with which you might be associated with, will not be eligible to participate in bidding for any goods or works resulting from or associated with the project of which this consulting assignment forms a part.

16. Please note that if you consider that your firm does not have all the expertise for the assignment, there is no objection to your firm associating with another firm to enable a full range of expertise to be presented. The request for a joint venture should be accompanied with full details of the proposed association.

17. Please note that the remuneration which you receive from the contract will be subject to normal tax liability in India. Kindly contact the concerned tax authorities for further information in this regard if required.

Yours faithfully,
Sd/-P.Senthilkumar
Director of Municipal Administration

Enclosures:

1. Terms of Reference.
2. Supplementary Information to Consultants.
3. Draft contract under which service will be performed.
4. Evaluation sheet

Annexure - 1

THOOTHUKUDI CITY MUNICIPAL CORPORATION

Back ground:-

Thoothukudi is one of the ten major Port cities in India, situated approximately 540 Km south of Chennai and 135 Km East of Madurai in the State of Tamil Nadu. Thoothukudi is located in the Gulf Mannar region at longitude 78°13'E and latitude 8°45'N.

Thoothukudi Special Grade Municipality was upgraded as Municipal Corporation on 05-08-2008 with accommodation of ten numbers of adjacent Panchayats. The present population (2007) of Thoothukudi City Municipal Corporation is 4,53,441 with an extend area of 137.42 sq.k.m

1) Puthoor Pandiapuram:

Puthoor Pandiapuram Panchayat extends to 9.76 sq.km which is located North side of Thoothukudi Corporation with three habitation. The population of this Panchayat is 743 as per the 2001 Census. The present water supply is through P.F and the source is form local well water.

2) Sankaraperi Panchayat

Sankaraperi Panchayat is located North West of Thoothukudi Corporation with an extend area of 13.00 sq.km. As per the 2001 census the population of this Panchayat is 11,551. It is having nearly twenty four habitations. The present water supply is mainly through the public fountains. The source is from Sreevaikundam, Sawerpuram Combined Water Supply, and Mangalakurichi scheme.

3) Mappilaiyurani Panchayat:

Mappilaiyurani Panchayat is located North East of Thoothukudi City Municipal Corporation with an extend area of 9.00 sq.km. The population of Panchayat is 27,361 as per 2001 Census. The number of habitation is nearly thirty six. The present source of water supply is from Sreevaikundam- Sawerpuram Combined Water supply and Mangakurichi Scheme.

4) Thoothukudi Rural

Thoothukudi Rural Panchayat is located East side of Thoothukudi Corporation. with an extended area of 10.41 sq.km and the population of 11523 according to 2001 census. The present source of water supply is from Sreevaikundam-Sawerpuram combined Water supply and Mangakurichi Scheme. There are twenty two habitations included in this Panchayat.

5) Meelavitan

This Panchayat is located West side of this Corporation with an extend area of 21.00 sq.km. The popuration of this Panchayat is 30758 as per 2001 census. The number of habitation is fourty nine. The present water supply source is from Sreevaikundam-Sawerpuram Combined Water supply and Mangakurichi Scheme. The distribution is mainly through public fountains.

6) Ayyanadaippu:

Ayyanadaippu Panchayat is located West side of this Corporation with an extended area of 9.00 sq.km. The Population of this Panchayat is 2839 (as per 2001 census). The number of habitation is nine. The

present source of water supply is from Sreevaikundam Sawerpuram combined Water supply and Mangakurichi Scheme.

7) Korampallam Panchayat

This Panchayat is located West side of this Corporation with an extended area of 6.00 sq.km. The Population of this Panchayat is 2790 (as per 2001 census). The present source of water supply is from Sreevaikundam- Sawerpuram combined Water Supply and Mangakurichi Schme. The number of habitation is seven.

8) Athimarapatti

This Panchayat is located South side of this Corporation with an extended area of 5.78 sq.km. It is having nearly eleven habitations. The Population of this Panchayat is 18767 as per 2001 census. The present water supply is through house service and Public fountain. The source is from Bharathi Nagar Combined Water Supply Scheme, 3MGD, and from local bores.

9) Mullakadu Panchayat

Mullakadu Panchayat is located South side of this Corporation with an extended area of 8.00 sq.km. The Population of this Panchayat is 2346. The number of habitation is two. The present source of water supply is from Bharathi Nagar combined Water Supply Scheme, 3MGD scheme and from local wells.

10) Muthiapuram Panchayat

Muthiapuram Panchayat is located South East of Thoothukudi Corporation with an extend area of 19.5 sq.km. The number of habitation is sixteen. The Population of this Panchayat is 3181. The

present water supply source is from Bharathi Nagar Combined Water Supply and 3MGD Scheme.

Salient Features of the Existing water supply system.

S. No	Description	Puthoor	Sankarapery	Mappilayurani	Thoothukudi Rural	Thoothukudi Municipality	Meelavittan	Ayyanadaippu	Korampallam	Athimarapatti	Mullakadu	Muthaiapuram	Total
		Pandiapuram											
1	Total quantity of water supply in (MLD)	0.03	1.14	85	0.86	20.00	2.00	0.21	0.22	0.72	0.18	2.00	112.36
2	Per capita supply (LPCD)	40	40	41	40	86	40	43	47	32	50	40	499
3	No.of OHT's	1	18	23	10	8	21	5	6	9	4	8	113
4	Total capacity of OHT's (MLD)	0.30	0.34	0.27	0.12	123.3	0.31	2.65	3.15	6.22	6.32	6.50	149.48
5	Water supply service connection					D-34248 C-1357 I-5			872	1089	168	746	2875
6	Frequency of water supply					Alternate days							-
7	No. of Public fountains	35	254	58	280	720	340	104	72	150	91	480	2584
8	Water supply Scheme	Local well water supply	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Thamirabarani River bed Vallanadu	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Srivaikundam sawerpuram combined W/S Scheme and Mangala Kurich	Bharathi nagar Combined W/S Scheme 3MGD and local bores	Bharathi nagar Combined W/S Scheme 3MGD and local bores	Bharathi nagar Combined W/S Scheme 3MGD and local bores	

Need for the project:-

By considering the entire Thoothukudi City Municipal Corporation area, (including ten Panchayats coming under this Corporation) expecting population during 2037 will be 6,30,063. For this population the quantity of water required will be 93.675 MLD at the rate of 135LPCD. But, at present the available water supply is only 28.3MLD. For equal distribution of water supply we need more over 65.375MLD. Hence the Project is proposed.

Proposal:-

In existing water supply system, the main source of water supply for Thoothukudi town from the river Thamirabarani at Vallanad, which is located at a distance of about 42 km by road along Thoothukudi-Nellai Highway NH7A.

In most included Panchayats, distribution of water supply is through combined water supply scheme and by local bore wells.

The present supply is insufficient for the entire Corporation area. Hence the improvement of water supply scheme is essential and hence the tentative project is proposed. Since the UGSS scheme is being implemented in the Thoothukudi City Municipal Corporation and as per CPHEEO norms, 135 lpcd is to be supplied to the proposed Corporation.

The components of the project may be as follows

Sl. No	Description of Item
1	Providing eight number of collector well at Thamirabarani River bed
2	Construction of 10LL common sump at Head works
3	Installation of centrifugal pump sets at Head works
4	Laying of pipe line from Thamirabarani river bed to Thoothukudi Bypass road common sump
5	Construction of 15LL capacity sump at Ridge point Reservoir
6	Construction of 15LL capacity sump at Thoothukudi Bypass road and installation of necessary pump sets
7	Construction of 5LL capacity common sump at each Panchayat areas
8.	Construction of pump room and installation of motor pumpsets for pumping each OHTS
9.	Laying of pumping main from common sump to individual sumps
10.	Construction of over head tanks
11	Laying of sub pumping main from sump to OHTs
12	Extension of IInd Scheme pumping main upto ridge Reservoir
13.	Laying of distribution main

The objective of the consultancy is to

- Prepare a long term plan to bring water from Thamirabarani river bed by providing separate pipeline to proposed Thoothukudi City Municipal Corporation
- Prepare a long term investment plan to improve the existing water supply system and expansion of water supply system to distribute equitable water supply in ach part of the City including preparation of rezoning distribution maps, detailed project reports and bid documents.

4. Scope

The scope of the work included suggesting, providing dedicated water supply main from Thamirabarani river bed and improvements to construction, operation and maintenance of existing water supply system and related institutional issues covering the following.

- Study the feasibility to provide dedicated water supply main from Thamirabarani river bed to Thoothukudi City Municipal Corporation Water supply Scheme.
- Study the existing water supply system and assess the potential for savings in water and energy and prepare an investment proposal.
- Analyse the quantum of Unaccounted For Water (physical and commercial losses) and suggest measures to curtail or minimize it.
- Assess the weaknesses in the existing system by measuring the flows and pressure at salient points in all the zones and comparing with the output of the network analysis.
- Identify improvement measures for equitable distribution of water in the town with additional infrastructure and optimal utilization of the existing facilities with proper zoning and block regulation of the entire system.
- Study the potential of the existing sources and suggest suitable measures for source augmentation.
- For the identified measures, analyse the technical and operational feasibility, environmental and social aspects, prepare detailed design, drawings, cost estimates and bid documents.
- Analyse the impact of the investments proposed on the finances of the Corporation and suggest feasible measures to sustain the investments.
- To study the implementation of SCADA system in the project.

5) Permissions required:

All permissions from the concerned departments such as PWD, EB, TNPCB etc., if required would be obtained by the consultant with necessary assistance from the corporations.

6. Tasks to be performed by the consultant:

- 6.1 Develop an Analytical Frame work & methodology and collect data
- (i) Determine the data requirements and procedure for collecting the data on system installation data (reservoirs, O & M practices, breakdown history, efficiency, system leakage and losses, quantity of water handled etc.), electrical data (contract demand, hours of operation, peak loads, supply availability, tariff levels, annual consumption, power costs etc.), and for undertaking energy audit, efficiency improvement study and leak detection study.
 - (ii) The consultant shall study the water supply system of the town from the source including all the transmission and supply mains. For UFW study of the transmission mains leading from the source, the consultant shall determine the over all leakage in each main, by introducing suitable flow meters at vantage points of the mains. The consultant shall conduct hydrological survey, study the hydraulics of main water pipes, and conduct detailed investigations of the existing storage and treatment capacities to assess their condition and leakage of water in these components.
- 6.2 **Energy Audit:**
- (i) Review the pumping schedule and quantify energy consumption at each stage of water supply and review the merits of over head storage facility vis-à-vis direct pumping in the network. Establish the current and projected electrical power load and energy consumption as well as demand.
 - (ii) Determine the operating efficiency of each pumping station. This shall be based on the on-site tests conducted, and by

establishing pump characteristic curve. Establish energy consumed per 1000 lit of water pumped. Suggest options for improving the efficiency and reducing the energy consumption of the pumps.

- (iii) Estimate the potential impact of shifting pumping loads to off-peak periods. Determine the location, capacity and characteristics of additional storage to reduce the pumping requirements.
- (iv) Study the water supply network in the city and assess through simulation of the optimum energy requirement for the pumping, storage and distribution of water for the existing topography. Based on this simulation and the actual energy consumption determine the extent of improvement that can be effected.
- (v) Suggest suitable strategies / technologies to close the gap between the optimum and the actual energy consumption – e.g. energy efficient motors, selection of suitable pump with optimum discharge and head, Variable frequency drives, changes in routing of water, improvements in O & M practices, power factor improvements etc. The equipment suggested should be simple to operate and supported by an analysis on spare parts availability. Justify the proposals with suitable cost-benefit analysis.
- (vi) Identify the training requirement to the O & M personnel and develop a training plan. The consultants shall indicate possible linkages to further training required under the program for municipal officials, being undertaken under the Institutional Development component of this project, by the Project Management Unit (PMU).
- (vii) Based on the above analysis, quantify the scope and potential of energy savings and load reduction. Provide recommendations for implementing the measures suggested.

6.3 UFW Study

- (i) Study the leakage of water in the network through the information obtained from the O & M staff of the Corporation with a view to identify the lead spots in the system. Identify those locations where improvements effected can give the maximum returns in terms of savings.
- (ii) Carry out a systematic survey of the condition of the transmission main in the Corporation with a view to determine the actual loss in the transmission of water. Conduct the leakage (physical) study on transmission mains as explained in para 4.1 (ii).
- (iii) Determine the commercial losses (accounting for all users, billing and collection) in the system.
- (iv) For locations identified as having the maximum potential to reduce the loss of water suggest the improvements to be effected. Quantify the water saved by implementing these measures.
- (v) Make other recommendations for reduction of UFW such as pricing of water, pressure management in the system, collection of reliable information on water production and consumption, continued program of UFW reduction by the Municipality to institutionalize the UFW reduction etc. The consultants shall indicate possible linkages to further training required under the program for Municipal officials, being undertaken under the Institutional Development component of this project.
- (vi) Justify the proposals with suitable cost-benefit analysis and arrive at a cost effective strategy.

6.4 System Improvement for equitable distribution

The existing water supply systems shall be re-designed considering a further design period of 30 years since most of the major schemes have

exhausted the design period of 30 years. The consultant shall determine the present and future design population and per capita supply rates based on appropriate projection technique. The designs shall be in compliance with the relevant Indian Standards (as amended up to date, with all correction slips) and CPHEEO Manual. Wherever such standards are not available, appropriate standards shall be followed after discussions with the client.

- (i) Study the existing water supply system and any plans available with the Municipality including head works, household bore wells and open wells. Prepare feasibility analysis, preliminary designs, drawings and preliminary cost estimates, after conducting necessary investigation study, for the work of improvement / extension of water supply system.
- (ii) Carryout site survey including taking levels with a view to fix alignment of pipelines and decide on introduction of additional facilities/engineering parameter like line boosters/UG/OHT, sluice valves, air valves, scour valves etc. **for ensuring daily and equitable water supply to all** areas including the existing unserved areas/ areas with low pressure. The consultant shall also look at aspects like optimal/ effective utilization of the existing infrastructure with a view to minimize the project cost.
- (iii) Carryout site evaluation analysis based on borehole data and soil tests.
- (iv) Measure the flow and pressure at appropriate points as directed by the Municipal Engineers in all existing zones and make an assessment of weaknesses of the existing water supply system by comparing the actual with theoretical output of the network analysis and make an assessment of the condition of existing pipes by consulting the Municipal staff. Pressure points may be restricted at the rate of one point per every two kilometers. Out of the total so decided more numbers may be put in the defective water supply pockets.
- (v) **Prepare ID network system with proper zoning using the updated information available from the tasks above and the**

proposed strengthening measures. Suggest necessary operation procedures for the system for efficient supply and management of water. The residual head at tail end shall be 7 mts of water pressure.

6.5 Source Improvement:

- (i) Study the properties of the existing sources with regard to catchments, hydrological details etc.
- (ii) Identify new potential sources for water in co-ordination with various departments to cater for ultimate demand
- (iii) Test the quality of water contained therein and find out the degree of treatment required.
- (iv) Evaluate the method of treatment suitable for conversion into drinking water and analyse for technical and financial feasibility.

6.6 Feasibility Analysis and Detailed Designs

- (i) For the identified components, analyse the technical, operational, financial, and economic feasibility. Study the finances of the Corporation and quantify the impact of the investments proposed. Identify the financing sources, including revenue generation by tariff increases, and potential financing packages.
- (ii) Prepare transmission and distribution system maps and maps of other infrastructure such as reservoirs etc. including contour map of the town.
- (iii) For the feasible options, prepare detailed working drawings and designs with specifications.
- (iv) Study the existing organizational set-up and wherever necessary suggest institutional strengthening measures. Identify training requirement for the staff along with costs.

6.7 Cost estimate, Procurement package and Environment & Social Issues

After carrying out the studies, drawings and designs in para 4.1 to para 4.6 above the consultant after discussions shall prepare the following for each of the town.

- (i) For such of those items requiring investments prepare detailed cost estimates item wise, using the latest schedule of rates of TWAD/PWD. Estimate should be included necessary road restoration charges wherever needed. The consultant shall assist the Corporation in getting administrative / technical sanction for the estimates from the competent authorities. There should not be any lump sum items in the bill of quantities. For items not covered under schedule of rates, market rates to be assessed.
- (ii) Prepare environmental and social assessment reports as per the ESR guidelines developed by TNUIFSL. Wherever necessary, prepare Environmental Management Plans (EMP) and Resettlement Action Plans (RAPs).
- (iii) Prepare bid documents with necessary bill of quantities, based on the model documents.
- (iv) To prepare the project implementation schedule for execution and contract packaging plan.
- (v) Draw up project budget with monthly target; furnish network analysis such as CPM/PERT/MSProject for purposes of effective project monitoring and regular reports.
- (vi) Involve the Engineer / Commissioner of Corporation at all stages.

6.8 The Consultant responsibility would include:

(i) Data

The details given in the technical conditions and specification taken in conjunction with the study, is only a reasonable

preliminary basis. The nature of the overall contract is such that after the proposal, the consultant shall be wholly responsible for all the details of the proposal, the physical and site conditions, the execution methodology etc. All data utilized in preparation of the proposal shall be presented indicating the sources of the data and also the basis of assumptions, if any. The consultant shall be responsible for all the data or designs and drawing given by him/her.

(ii) **Project Site Survey and Analysis**

The consultant shall conduct his own studies and prepare estimates based on the schedule of rates specified by Government but updated to reflect actual market conditions wherever necessary. The local body concerned shall not be responsible (except as to the risks specifically accepted under the conditions of contract) for the validity of the project details and designs and estimates.

(iii) **Survey**

The local body shall indicate the Project sites and their measurements. The consultant shall be responsible for verification and corrections. The consultants shall be responsible for carrying out the survey to determine the losses of water in the system and the condition of the pipes.

(iv) **Soil Investigation and Tests**

Soil tests as per relevant I.S. / IRC Standards have to be done by consultant to arrive at design parameters for the formation and safe bearing capacity. At locations proposed for important installations like pump house, OHT/sumps etc., at least one bore hole for every such installation, should be made to determine the SPT N values at depth specified in the relevant IS codes. Soil samples taken from bore holes should be visually classified, index properties determined and presented along with the final report. These bore holes should be normally taken to

a depth where 'N' value is greater than 100 plus a further 3m depth (to account for any drastic fall in 'N' value below this strata.) The subsurface water at each bore hole be sampled and a chemical analysis carried out, to recommend appropriate cement / admixture for use in concrete mixed for the foundations. Recommendations of a geo-technical expert should be furnished in the soil report and should cover aspects like appropriate soil stabilization measures if required, bearing capacity of the founding strata etc.

(v) **Instrumentation**

All necessary instrumentation such as flow meters, energy meters etc, to carry out the study shall be arranged and operated by the consultant at his/her own cost.

(vi) **Project Designs**

For the given purpose and functional use of the respective projects, proper design has to be developed. The consultant have freedom to choose the type of sub structure and superstructure provided code specification / CPHEEO stipulations are met. The drawings and designs shall include a general arrangement drawing and detailed drawings of all components in size A1 or A0. The level of detailing shall be such as to enable check of conformity with code provisions, including detailed construction drawings and bar bending schedules.

(vii) **Estimation of Quantities.**

Based on the surveys and designs evolved by the consultant, within the framework and the requirements of the project, the consultant has to prepare detailed items and quantity schedules and subsequently work out the cost estimates

(viii) **Bids.**

Preparation of bid document in the prescribed formats and to facilitate getting funds under TNUDPIII/JNNURM/JICA/KfW and others.

(IX) Technical Sanction:

The consultant shall assist the Local body in obtaining technical sanction from competent authorities. They will submit Details/Drawings to the extent required by the TS authority.

7. Schedule of completion of tasks:

- a) Inception Report : 30th day
- b) Interim Report : 60th day
- c) Draft Design and estimate & to assist for obtaining A.S : 90th day
- d) Final detailed design and estimate & assist for obtaining T.S : 120th day
- e) Draft and final bid document & assist for approval for bid document : 150th day

The above schedule is to be reckoned from the starting date, which will be 15 days from the date of receipt of LOI.

8. Terms of Payment

The mode of payment to be made in consideration of the work to be performed by the consultant shall be as follows:

- (i) 10 % of contract value shall be paid after submission of Inception Report and approval by Technical Review Committee.
- (ii) 30% of contract value shall be paid after submission of Interim report and approval by Technical Review Committee
- (iii) 25% of contract value shall be paid after submission of draft final report and approval by Technical Review Committee
- (iv) 25% of contract value shall be paid after submission of final report and approval by Technical Review Committee and after getting Technical Sanction from the concerned authority.

(v) 10% of contract value shall be paid after submission of draft and final bid documents and approval from the competent authority.

9. Data, Services and facilities to be provided by the client

- (i) The maps and other data related to this work, to the extent available in the Corporation office will be provided.
- (ii) Assistance for obtaining FMB sketches and adangal for preparing land plans from the land survey department will be given by the client.

10. Interaction with officials

Whenever the consultant visits the Corporation for data collection, they should interact with higher officials, middle level officials and low level officials. If any critical situations occur during the visit, they should interact with the Mayor also.

11. Final Outputs (i.e. drawings, reports etc) that shall be furnished by the consultant:

- a. Inception report: General discussion about source of water, present distribution system and macro level details along with framework for collection and interpretation of data, statistics and further work plan.
- b. Interim report: Feasibility analysis and preliminary design and training plans and Institutional strengthening with alternate proposals.
- c. Draft Final report: Draft design and cost estimate.
- d. Final report: Detailed design and estimate containing final detailed design along with flow chart, drawings, cost estimates, operating system, and RAP/EMP.
- e. Draft bid document: Draft Bid documents as per the standard bidding documents
- f. Final bid document with Implementation Schedule and project budget. This shall include final Bid documents for Project

monitoring consisting of phasing of expenditure, PERT/CPM charts.

g.ESR and EMP reports

The consultant should submit 5 copies of all reports, documents and drawings mentioned above other than final bid documents of which he shall supply 10 copies. Soft copy of all reports and documents (MS word format) and drawings (Auto Cad) shall also be submitted.

12. Composition of Review Committee to monitor Consultant's work:

The Review Committee comprising of the following members will conduct review meeting to make binding decisions on behalf of the Thoothukudi City Municipal Corporation.

1.	Chief Engineer O/o DMA	Chairman
2.	Engineering Director, CMWSSB / Engineering Director, TWAD or their representatives	Member
3.	Representative of TNUIFSL	Member
4.	Thoothukudi Corporation Commissioner	Member
5.	Thoothukudi Corporation City Engineer	Member

13. Procedure for the review of reports.

The Review Committee will review the reports and the progress of the work. The follow up action taken by the consultant on the decision / suggestion of the Review Committee will be reviewed in the next meeting. The comments or views on the various reports shall be given to the consultant within 7days of submission of the respective reports/documents/designs.

Presentation on each report shall be made to a committee headed by the Corporation Commissioner. Incase of unexpected delays beyond the control of the consultant or due to un-fulfillment of obligation under this TOR, EOT based on request will be considered by the client without any additional financial commitment. Any further EOT will not be considered.

14. List of key professional positions whose CV and experience would be evaluated:

S. No	Key Professional	No. of Persons	Experience
1.	Project Manager	1	A graduate in Civil Engineering with about 15 years experience in designing water supply projects, construction of overhead and underground tanks, with exposure to water distribution system operations & treatment system.
2)	Project Engineer	4	A graduate in Civil Engineering with about 10 years experience in designing water supply projects, construction of overhead and underground tanks, with exposure to water distribution system operations & treatment system
2.	Electrical/ Mechanical Engineer	1	A graduate in Electrical / Mechanical Engineering with about 10 years experience in selection and installation of pump-sets, electrical panel boards etc and erection works.
3.	Municipal Finance/ Institutional Expert	1	A MBA/ICWA holder finance specialist with about 5 years experience with adequate exposure to financial and economic analysis of municipal infrastructure and institutional development

Other persons should support the above team especially by environmental and social specialists to ensure that these safeguards are complied with.

Annexure - 2

SUPPLEMENTARY INFORMATION FOR CONSULTANTS

Proposals

1. Proposals should include the following information:
 - a. Technical Proposal
 - i. A brief description of the firm/organization and an outline of recent experience on assignments/ projects of similar nature executed during the last 3 years in the format given in Form F-2.
 - ii. Any comments or suggestions of the consultant on the Terms of Reference (TOR).
 - iii. A description of the manner in which consultants would plan to execute the work. Work plan time schedule in Form F-3 and approach or methodology proposed for carrying out the required work.
 - iv. The composition of the team of personnel which the consultant would propose to provide and the tasks which would be assigned to each team member in Form F-4.
 - v. Curricula Vitae of the individual key staff members to be assigned to the work and of the team leader who would be responsible for supervision of the team. The curricula vitae should follow the attached Format (F-5) duly signed by the concerned personnel.
 - vi. The consultant's comments, if any, on the data, services and facilities to be provided by [.....] indicated in the Terms of Reference (TOR).
 - vii. The consultant's Work program and time schedule for key personnel in Form No.F-7.
 - b. Financial Proposals

The financial proposals should include the Schedule of Price Bid in Form No.F-6 with cost break-up for the work program indicated in Form F-7.
2. Two copies of the proposals should be submitted to Office of Director of Municipal Administration
3. Contract Negotiations: The aim of the negotiation is to reach an agreement on all points with the consultant and initial a draft contract by the conclusion of negotiations. Negotiations commence with a

discussion of Consultant's proposal, the proposed work plan, staffing and any suggestions you may have made to improve the Terms of Reference. Agreement will then be reached on the final Terms of Reference, the staffing and the bar chart, which will indicate personnel, periods in the field and office, man-months, and reporting schedule.

4. Review of Man-Months Rates. **Office of Director of Municipal Administration** is charged with the custody of government funds and is expected to exercise prudence in the expenditure of these funds. **Office of Director of Municipal Administration** is, therefore, concerned with the reasonableness of a firm's financial proposal and, during negotiations, expects to be able to review data backing up a consultant's man-months rates. Consultants submitting proposals for contracts should be prepared to support such data.
5. Contracts with Team Members. Bearing in mind that rates are negotiable, firms are advised against making firm financial arrangements with prospective team members prior to negotiations.
6. Nomination of Experts: Having selected a firm partly on the basis of an evaluation of personnel presented in the firm's proposal, **Office of Director of Municipal Administration** expects to negotiate a contract on the basis of the experts named in the proposal and, prior to contract negotiations, will require guarantees that these experts shall, in fact, be made available. As the expected date of mobilization is given in the letter inviting proposals, **Office of Director of Municipal Administration** will not consider substitution after contract negotiations, except in cases of unexpected delays on the starting date or incapacity of an expert for reasons of health, or leaving the firm. The desire of a firm to use an expert on another project shall not be accepted for substitution of personnel.

Terms of Payment

The mode of payment to be made in consideration of the work to be performed by the consultant shall be as follows:

- (i) 10 % of Contract value shall be paid after submission of Inception Report and approval by Technical Review Committee.
- (ii) 30% of contract value shall be paid after submission of Interim report and approval by Technical Review Committee
- (iii) 25% of contract value shall be paid after submission of draft final report and approval by Technical Review Committee
- (iv) 25% of contract value shall be paid after submission of final report and approval by Technical Review Committee and after getting Technical Sanction from the concerned authority.
- (v) 10% of contract value shall be paid after submission of draft and final bid documents and approval from the competent authority.

Note: All payments shall be made on submission of pre-receipted bills by the consultants in quadruplicate for respective stages.

7. Review of reports

A review committee consisting of following officers will review all reports of consultants and suggest any modifications/changes considered necessary within 15 days of receipt.

1.	Chief Engineer O/o DMA	Chairman
2.	Engineering Director, CMWSSB / Engineering Director, TWAD or their representatives	Member
3.	Representative of TNUIFSL	Member
4.	Thoothukudi Corporation Commissioner	Member
5.	Thoothukudi Corporation City Engineer	Member

FORM F-1

From

To

Sir:

Hiring of Consultancy services for _____ of — — — — Regarding

I/We _____ consultant/consultancy firm/organization herewith enclose Technical and Financial Proposal for selection of my/our firm as consultant for — — — — —.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Yours faithfully,

Signature: _____
Full name _____
and address: _____

(Authorized Representative)

FORM F-2

**ASSIGNMENTS OF SIMILAR NATURE SUCCESSFULLY COMPLETED
DURING LAST 3 YEARS**

1. Brief Description of the Firm/Organization:
2. Outline of recent experience on assignments of similar nature:

<u>Sl. No.</u>	<u>Name of assignment</u>	<u>Name of project</u>	<u>Owner or sponsoring authority</u>	<u>Cost of assignment</u>	<u>Date of commencement</u>	<u>Date of completion</u>	<u>Was assignment satisfactorily completed & Experience Certificate Enclosed</u>
1	2	3	4	5	6	7	8

Note: Please attach certificates from the employer by way of documentary proof. (Issued by the Officer of rank not below the rank of Superintending Engineer or equivalent.)

FORM F-3

WORK PLAN TIME SCHEDULE

A. Field Investigation

Sl. No.	Item	Monthwise Program									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
	11th 12th										

B. Compilation and submission of reports

1. Inception Report
2. Interim Status Report (As indicated under TOR)
3. Draft Final Report
4. Final Report

C. A short note on the line of approach and methodology outlining various steps for performing the study.

D. Comments or suggestions on "Terms of Reference."

FORM NO.F-4

Composition of the Team Personnel and the task which would be assigned to each Team Member

1. Technical/Managerial Staff

Sl.No.	Name Position	Task assignment
--------	---------------	-----------------

2. Support Staff

Sl.No.	Name Position	Task assignment
--------	---------------	-----------------

FORM F-5

**FORMAT OF CURRICULUM VITAE (CV) FOR
PROPOSED KEY PROFESSIONAL STAFF**

Proposed Position: _____

Name of Firm: _____

Name of Staff: _____

Profession: _____

Date of Birth: _____

Years with Firm/Entity: _____ Nationality: _____

Membership in Professional Societies: _____

Detailed Tasks Assigned: _____

Key Qualifications:

[Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use about half a page.]

Education:

[Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degrees obtained. Use about one quarter of a page.]

Employment Record:

[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, titles of positions held, and locations of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate. Use about two pages.]

Languages:

[For each language indicate proficiency: excellent, good, fair, or poor; in speaking, reading, and writing]

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

Date:

[Signature of staff member and authorized representative of the Firm]
Day/Month/Year

Full name of staff member:_____

Full name of the authorized representative:_____

FORM NO.F-6

SCHEDULE OF PRICE BID

Items	Amount	
	In figures	In words

1.	Consultancy services for	

2.	Consultancy Service	
	Tax @%	

Signature of Consultant

(Authorized representative)

Cost Estimate of Services *

Remuneration of Staff

Staff Name	Daily (Monthly) Rate (in currency)	Working Days (Months)	Total Cost (in currency)
------------	---------------------------------------	--------------------------	-----------------------------

- a) Team Leader _____
- b) " _____
- c) " _____

Sub-Total (Staff) _____

Out-of-Pocket Expenses:

a) Per Diem ¹	Room Subsistence Cost	Total	Days
	_____	_____	_____

b) Air fare: _____

c) Lump Sum Miscellaneous Expenses:² _____

Sub-Total (Out-of-Pocket) _____

Contingency Charges: _____

TOTAL COST ESTIMATE _____

CONSULTANCY SERVICES _____
TAX @%

¹ Per Diem is fixed per calendar day and need not be supported by receipts.

² To include reporting costs, visa, inoculations, routine medical examination, minor surface transportation and communications expenses, portorage fees, in-and-out expenses, airport taxes, and such other travel related expenses as may be necessary.

* The information in this form is used to finalize Annexe C to the Contract

FORM F-7

WORK PROGRAM AND TIME SCHEDULE FOR KEY PERSONNEL

MONTHS

Name Position 1 2 3 4 5 6 7 8 9 10 11 12 Number of months

Total

Reports Due/Activities and Duration

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Field Full Time
Activities Duration

Part Time

Reports Due

Consulting Services

Draft Letter of Contract for Small Assignments Carried out by
Consultants

Subject: (Name of Assignment)

(Name of Consultant)

1. Set out below are the terms and conditions under which (Name of Consultant) has agreed to carry out for (Name of Client) the above-mentioned assignment specified in the attached Terms of Reference.

2. For administrative purposes (Name of responsible staff of Client) has been assigned to administer the assignment and to provide [Name of Consultant] with all relevant information needed to carry out the assignment. The services will be required in (Name of Project) for about _____ days/months, during the period from _____ to _____ .

3. The (Name of Client) may find it necessary to postpone or cancel the assignment and/or shorten or extend its duration. In such case, every effort will be made to give you, as early as possible, notice of any changes. In the event of termination, the (Name of Consultants) shall be paid for the services rendered for carrying out the assignment to the date of termination, and the [Name of Consultant] will provide the (Name of Client) with any reports or parts thereof, or any other information and documentation gathered under this Contract prior to the date of termination.

4. The services to be performed, the estimated time to be spent, and the reports to be submitted will be in accordance with the attached Description of Services.

5. This Contract, its meaning and interpretation and the relation between the parties shall be governed by the laws of Union of India

6. This Contract will become effective upon confirmation of this letter on behalf of (Name of Consultant) and will terminate on _____, or such other date as mutually agreed between the (Name of Client) and the (Name of Consultants).

7. Payments for the services will not exceed an total amount of Rs. _____.

The (Name of Client) will pay (Name of Consultant), on receipt of invoice as follows:

Amount	Currency	
.....	upon submission and acceptance of the inception report.
.....	upon submission and acceptance of the interim report.
.....	upon submission and acceptance of the draft Final report.
.....	upon submission and acceptance of the final report
.....	upon submission and acceptance of the Draft bid document
.....	upon submission and acceptance of the final bid document

The above remuneration includes all the costs related to carrying out the services, including overhead and any taxes imposed on [Name of Consultants.]

8.The [Name of Consultants] will be responsible for appropriate insurance coverage. In this regard, the [Name of Consultants] shall maintain workers compensation, employment liability insurance for their staff on the assignment. The Consultants shall also maintain comprehensive general liability insurance, including contractual liability coverage adequate to cover the indemnity of obligation against all damages, costs, and charges and expenses for injury to any person or damage to any property arising out of, or in connection with, the services which result from the fault of the [Name of Consultants] or its staff. The [Name of Consultants] shall provide the (Name of Client) with certification thereof upon request.

9.The [Name of Consultants] shall indemnify and hold harmless the (Name of Client) against any and all claims, demands, and/or judgments of any nature brought against the (Name of Borrower) arising out of the services by the [Name of Consultants] under this Contract. The obligation under this paragraph shall survive the termination of this Contract.

10. The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

11. All final plans, drawings, specifications, designs, reports and other documents or software submitted by the [Name of Consultants] in the performance of the Services shall become and remain the [property of the Client]. The Consultants may retain a copy of such documents but shall not use them for purposes unrelated to this Contract without the prior written approval of the Client.

12. The Consultant undertake to carry out the assignment in accordance with the highest standard of professional and ethical competence and integrity, having due regard to the nature and purpose of the assignment, and to ensure that the staff assigned to perform the services under this Contract, will conduct themselves in a manner consistent herewith.

13. The Consultant will not assign this Contract or sub-contract or any portion of it without the Client's prior written consent.

14. The [Name of Consultants] shall pay the taxes, duties fee, levies and other impositions levied under the Applicable law and the Client shall perform such duties in this regard to the deduction of such tax as may be lawfully imposed.

However, Consultancy Services tax payable for providing this Consultancy Services shall be paid/ reimbursed by the Client separately.

15. The [Name of Consultants] also agree that all knowledge and information not within the public domain which may be acquired during the carrying out of this Contract, shall be, for all time and for all purpose, regarded as strictly confidential and held in confidence, and shall not be directly or indirectly disclosed to any person whatsoever, except with the (Name of Client) written permission.

16. Any dispute arising out of the Contract, which cannot be amicably settled between the parties, shall be referred to adjudication/arbitration in accordance with Arbitration & Conciliation Act 1996.

Place:

Date:

.....
(Signature of
Authorized Representative
on behalf of Consultant)

.....
(Signature & Name of the Client's
Representative)

Annexure-D
EVALUATION SHEET

Appointment of Consultants for preparation of Detailed Project Report for Dedicated Water Supply Scheme to Thoothukudi City Municipal Corporation

Name of the evaluator:

Designation & Organization:

DETAILS	Max. Points	
(a) Consultant's relevant experience		
(a) Specific experience of the firm in designing Water Supply Project	5	
(b) Proposed methodology		
(a) Understanding of local conditions	8	
(b) Explanation of methodology	10	
(c) Innovative suggestions	5	
(d) Overall presentation	2	
Sub-total(a+b)	30	
(c) Qualification of key staff		
(a) PROJECT MANAGER	15	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(b) PROJECT ENGINEER (Civil)	10	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(c) PROJECT ENGINEER (Civil)	10	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(d) PROJECT ENGINEER (Civil)	10	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(e) PROJECT ENGINEER (Civil)	10	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(f) PROJECT ENGINEER (Electrical/Mechanical)	10	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		

(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
(g) FINANCIAL SPECIALIST	5	
(i) General Qualification		
If graduate max points = 20, if post graduate and above max points = 30		
(ii) Adequacy in relevant field, Max points= 60		
(iii) Experience in region(language, culture, Govt.system etc), max points = 5		
(iv) Involvement in skills transfer and training programs, max. points = 5		
Sub-total	70	
TOTAL(a+b+c)	100	

Brief Note on Strengths and Weaknesses of the bidder:

Signature of Evaluator

LIST OF ANNEXURES

Annex A: Terms of Reference and Scope of Services

Annex B: Consultant's Personnel

Annex C: Consultant's Reporting Obligations

Annex D: Evaluation Sheet