MINUTES OF MEETING BETWEEN JICA, CMWSSB AND PROJECT MANAGEMENT CONSULTANT (PMC) FOR DISCUSSION ON THE CONCEPT DESIGN REPORT FOR CP1 FOR THE PROPOSED 400 MLD SWRO DESALINATION PLANT AND ALLIED WORKS THROUGH VIDEO CONFERENCE MICROSOFT TEAMS CONDUCTED BY CHIEF OF DEVELOPMENT OPERATIONS (JICA, INDIA), ON 06.10.2020 FROM 11.30 AM TO 1.00 PM

Venue: Virtual Meeting in MS Teams

JICA Officials:	Officials of CMWSSB (PIU):	PMC Team
K.Honda, JICA, Tokyo, Japan	Dr.T.Prabhushankar, IAS, Executive Director	Dr. Dharma Dharmabalan, Team Leader
Mr.Mahendra Pal Singh, Chief of Development Operations, JICA, New Delhi	Mr.K.Madurainayagam, Engineering Director	Mr. Siddappaswamy, Senior Civil Engineer
Ms. Charu Sharma, Additional Lead Officer JICA, New Delhi	Mr.T.Udayakumar, Deputy Controller of Finance, CMWSSB	Mr.Srinivasa Rao, Project Co-ordinator,
Mr. Anedeep Koniki, JICA, New Delhi	Mr.R.Jeyaratchagan, C.E (Project)-I	Dr.Ghulam Mustafa, Desalination Expert,
	Mr.M.Gnanasekaran, C.E (Project)-II	Dr.Uday G.Kelkar (Additional Key Expert)
	Mr. Rajaram, C.E (Project)-III	Mr.S.M.Karthikaeswaran, Environmental Specialist
	Mr.R.Mohan, S.E (Desal)	Mr. R.Senthil, Civil Engineer
	Mr.V.Sivakumar, E.E (Desal)	
	Ms. Maharadevi A.E.E (Desal)	
	Ms. Sweta A.E (Desal)	

A meeting was conducted between JICA, CMWSSB and PMC on 06th October 2020 to discuss the Progress of the Contract Package CP-1. The following points were discussed during the meeting, and actions to be taken have been identified.

The gist of the meeting is as below:

Sl.No.	Meeting point	Action by / Remarks
1	Mr.Mahendrapal Singh, JICA welcomed the CMWSSB officials and PMC team. He expressed the importance of the Chennai Desalination project to the citizen of Chennai as it would significantly reduce the supply and demand gap of the metropolitan city.	Information

<table>
<tr><th>Sl.No.</th><th>Meeting point</th><th>Action by / Remarks</th></tr>
<tr><td></td><td>He has also informed that JICA team will be available to resolve the any issue pertaining to the Desalination Tendering Process on priority.</td><td></td></tr>
<tr><td>2</td><td>Dr. Dharma Dharmabalan, PMC Team Leader, briefed about the status of Contract Package - 1 (CP-1) and the purpose of the meeting
Purpose of the meeting was to discuss and obtain feedback from JICA/ CMWSSB on the conceptual design of CP-1.. PMC team has made presentation on the CP1-Conceptual Design.

Key points of the Presentation are as below:</td><td>Information</td></tr>
<tr><td>3</td><td><u>Status of the CP1 Progress</u>:
- Tasks such as Data collection, Topographical survey, Bathymetric survey, Seawater sampling and analysis are completed.
- the Pre-qualification Document for CP1 has been already approved by JICA and CMWSSB and NIT preparation for publishing is under progress.
- the Brine diffusion modelling study is under progress.
- RfP preparation for CP1 is also in progress.</td><td>Information</td></tr>
<tr><td>4</td><td>A. <u>Design Envelope</u>:

Based on the 5 years of Nemmeli plant data analysis, Dr.Ghulam Mustafa, Deslination Expert, presented the following comparison of the process design envelope for the major raw seawater parameters with that of JICA study report and DPR design data.

<table>
<tr><th>Criteria Description</th><th>Unit</th><th>Mini mum</th><th>Median</th><th>Maxi-mum</th><th>DPR design data</th><th>JICA FS</th></tr>
<tr><td>pH</td><td></td><td>8.00</td><td>8.10</td><td>8.20</td><td>8.2</td><td>-</td></tr>
<tr><td>Temperature</td><td>°C</td><td>26</td><td>28.75</td><td>31.50</td><td>27.9</td><td>25 - 31</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>32000</td><td>35500</td><td>39000</td><td>35200</td><td>32000-39000</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>10</td><td>75</td><td>300</td><td>75</td><td>-</td></tr>
<tr><td>TOC</td><td>mg/L</td><td>3</td><td>5</td><td>8</td><td>-</td><td>-</td></tr>
<tr><td>Boron</td><td>mg/L</td><td>3.20</td><td>3.50</td><td>3.80</td><td>3.17</td><td>3.6</td></tr>
</table>
Dr.Ghulan Mustafa, Process Expert of PMC has informed that the TOC/ DOC values of seawater sample received from two different laboratories are varying largely and hence the sample has been sent to a reputed Laboratory in Australia for reconfirmation of TOC/ DOC values in seawater.</td><td>PMC to analyse and interprete the lab results and submit the final design parameters.</td></tr>
</table>

<table>
<tr><th>Sl.No.</th><th>Meeting point</th><th>Action by / Remarks</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>5</td><td>B. <u>Product water quality parameters considered based on IS:10500-2012</u>
<table>
<tr><th>Parameter</th><th>Values as per IS : 10500-2012</th></tr>
<tr><td>Turbidity (NTU)</td><td>< 1</td></tr>
<tr><td>Chlorides (mg/L)</td><td>< 250</td></tr>
<tr><td>TDS (mg/L)</td><td>< 450 (Final product water out of Product water Tank)</td></tr>
<tr><td>Boron (mg/L)</td><td>< 0.50 mg/l but tolerance upto 1.0 mg/l</td></tr>
<tr><td>LSI</td><td>> positive</td></tr>
<tr><td>Hardness</td><td>≥ 80 -200 mg/L as $CaCO_3$</td></tr>
</table></td><td>Information</td></tr>
<tr><td>6</td><td>PMC presented the Process Flow diagram and suggested to adopt two distinct streams of 200 MLD to minimise the production interruption, which is also recommended in JICA study report/ MOD.</td><td>Information</td></tr>
<tr><td>7</td><td>PMC also presented the differences between Conventional RO unit configuration and Pressure -Center configuration. It was informed that as the Capital and Operational cost of pressure centre configuration is lower than Conventional RO design configuration. Hence PMC recommended for pressure center design configuration.</td><td>Information</td></tr>
<tr><td>8</td><td>PMC also presented the different options for Isobaric Pressure Exchangers and stated that though DWEER offers an advantage interms of CAPEX, the equipment is more fragile and requires significant preventive and curative maintenance. Considering the requirement for the highest plant availablilty in Perur, the PMC recommends the implementation of ERI equipment which is also being used in Nemmeli and Minjur plants.</td><td>Information</td></tr>
<tr><td>9</td><td>PMC presented the Capital cost comparison between JICA, DPR and PMC's Estimates. The estimated cost by PMC is around INR3075 Crores. The costing is based on two halves of the plant and 16 +2 trains of RO Skid configuration. The Operation and Maintenance cost for 20 years is estimated at INR.13059.88 Crores (USD 1741.32 Million) with an average INR 45 per cu.m. of product water.</td><td>Information</td></tr>
<tr><td>10</td><td>The following features regarding the Bid document approach were presented to JICA/ CMWSSB for their review and concurrence:
• It is imperative for the Bidders to submit the technical bids with the approved base process design as proposed in the bid document along with the price bid..</td><td>PMC</td></tr>
</table>

Sl.No.	Meeting point	Action by / Remarks
	• Bidders will also allowed to submit an alternate technical bid along with their opted processes, for pretreatment and RO system. Accordingly, the bidders are required to provide sufficient technical and financial justifications for their alternate processes. • Employer will review the alternate technical bid and its justification (comparative benefits). Once the alternate technical bid is approved by the Employer, the alternate price bid will be opened on the day of price bid opening. JICA suggested that all the bidders must submit responsive technical and fiancnial bid as per base process design and if the base technical bid is found non-responsive from any bidder, his alternate process technology bid shall not be opened. Dr.Uday G.Kelkar informed that in the Instruction to Bidders, this requirement of Base technical and price bids and Alternate technical and price bids shall be included explicitly. He also informed that the Instruction to bidders will be legally vetted before inviting bids.	
11	PMC informed that the following general documents will be utilised for Preparation of Bid document ▪ General Conditions of Contract - JICA Design Build 2015 ▪ Standard Bidding Documents Under Japanese ODA Loans – July 2015 ▪ FIDIC Gold Book 2008 for DBO provisions	Information
12	PMC presented the Project duration that is proposed to be included in the Bid document as follows: Total Project Duration – 42 months ▪ Design + Build (36 months) + ▪ Commissioning + Trial Test (3 months) + ▪ Process Proving Test (3 months) ▪ Taking Over of the plant – Issue of Certificate ▪ Defect Liability after Taking Over for 1 year during O&M ▪ Start of Operation & Maintenance for 20 years after the issue of Taking Over Certificate During joint deliberations, it was concluded that the Cost of Labour + Chemical + Power + all consumables during all tests (Trial Test + Process Proving Test) shall be borne by the Contractor. Contractor will be advised to include the cost of the tests in Works (Design-Build) Price Bid.	Information
13	**JICA Observations:** i. JICA explained that PMC advice is taken into full consideration while making any decision on the project by JICA.	CMWSSB

Sl.No.	Meeting point	Action by / Remarks
	ii. It was also informed that the major part of Project Capital cost will be funded by JICA; however, the operation and maintenance cost will be borne by CMWSSB. Hence it was suggested that the admistrative approval from the Government of Tamil Nadu for 20 years of operation and maintenance cost should also be obtained. iii. JICA enquired about the status of Land acquisition in the name of CMWSSB. Executive Director, CMWSSB informed that the land lease agreement process is ongoing. He also clarified since the land belongs to M/s Alavandar trust (HR&CE Board) which is a government body, there is not much hurdle. He also informed that the land for 100 MLD desalination plant and 150 MLD desalination plant at Nemmeli were also leased from M/s.Alavandar trust. iv. JIAC has suggested CMWSSB to include Early Warning system for Tsunami as a risk protection measure. Executive Director, CMWSSB clarified that similar early warning system is already in place in existing Desalination plants of CMWSSB and the same will be adopted in this plant as well. v. JICA has suggested CMWSSB to expedite the process of publishing the Pre-qualification Notification in Newspapers. JICA also suggested CMWSSB to consider USD payment for procuring pre-qualification document as it is international competitive bidding. vi. JICA informed CMWSSB to release the advance payment for PMC including the pending monthly payments at the earliest. CMWSSB agreed and informed that it would be done shortly. vii. JICA reiterated that that the Standard bid documents of JICA need to be followed while preparing bid document with minimum variations.	

Team Leader (PMC) thanked the PIU- CMWSSB and JICA team for attending this meeting.