

I/159978/2024

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन नदी विकास एवं गंगा संरक्षण
विभाग
केंद्रीय जल आयोग
सिंचाई निष्पादन पुनरीक्षा निदेशालय
पत्रांक: T-44/1/2020-IPO/



Government of India
Ministry of Jal Shakti
Dept. of Water Resources, RD&GR
Central Water Commission
Irrigation Performance Overview
Directorate
दिनांक /01/2024

विषय:- Minutes of online meeting convened by Chief Engineer, POMIO, CWC on 04.01.2024 with Officials of WRD, Maharashtra and ADB to discuss IMP of Purna and Palkhed Project.

दिनांक 04.01.2024 को पूर्णा एवं पालखेड परियोजना के आधुनिकरण हेतु जल संसाधन विभाग, महाराष्ट्र, केंद्रीय जल आयोग एवं एशियाई विकास बैंक (ADB) के अधिकारियों के साथ की गई ऑनलाइन बैठक के कार्यवृत्त उचित कार्यवाही हेतु प्रस्तुत है।

यह मुख्य अभियंता, निष्पादन पुनरीक्षण और प्रबंधन सुधार संगठन, केंद्रीय जल आयोग, नई दिल्ली के अनुमोदन से जारी किया जाता है।

संलग्न: उपरोक्तानुसार

(ज्योतिका पेगु)
निदेशक

प्रति:

1. Secretary, Water Resource Department, Government of Maharashtra
2. Chief Engineer, POMIO, CWC, New Delhi
3. Chief Engineer, Aurangabad, Water Resource Department, Government of Maharashtra
4. Chief Engineer, Nashik, Water Resource Department, Government of Maharashtra
5. Superintending Engineer, Nanded, Water Resource Department, Government of Maharashtra
6. EE,Purna project, Basamath, Water Resource Department, Government of Maharashtra
7. EE,Palkhed project, Nashik Water Resource Department, Government of Maharashtra
8. Mr Vikas Goyal, Water Resources Specialist, INRM, ADB
9. Team Leader, SIMP-2, ADB
10. Dy. Team Leader, SIMP-2, ADB

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चौथा तल (दक्षिण), सेवा भवन
राम कृष्ण पुरम, नई दिल्ली -110066
दूरभाष: 011-29583430,
ई मेल: ipodte@nic.in
जल संरक्षण-सुरक्षित भविष्य



4th Floor(South), Sewa Bhawan,
R.K. Puram, New Delhi-110066
Tel: 011-29583430,
E-mail: ipodte@nic.in

Conserve Water- Save Life

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Minutes of online meeting convened by Chief Engineer, POMIO, CWC on 04.01.2024 with Maharashtra WRD and ADB Officers on Draft IMP of Palkhed and Purna projects

1. Sh. Padma Dorje Gyamba, Chief Engineer, POMIO, CWC welcomed all the officers to the virtual meeting.
2. Draft Irrigation Modernization Plans, IMPs, of Palkhed and Purna projects of Maharashtra State under SIMP were prepared by an ADB team of consultants led by Dr Daniel Renault and submitted to the State Govt for their comments. To brief the officials of Maharashtra WRD and others concerned, a presentation was made. The Meeting was attended by the Secretary, WRD, Maharashtra, CE, Aurangabad, CE, Nashik and CE, Aurangabad. From ADB, Mr Vikas Goyal and the ABD consultants attended the meeting. The List of participants is enclosed as **Annexure-1**.
3. Dr Daniel, Team Leader and Mr M G Shivakumar DTL, SIMP2, ADB made brief presentations of the Palkhed and Purna project IMPs as a follow up of the RAP-Masscote workshop conducted in both the projects during January '23 and March '23 respectively and the experts' field visits. Copies of the presentations are included as **Annexure-2**. The presentations are summarized below.
 - RAP outputs: External and internal indicators
 - The proposed thrusts for scheme modernization:
 - (i) Canal re-sectioning and lining, and modernisation of canal structures.
 - (ii) Gravity pipe irrigation network systems including gated turnouts and sediment traps, primary and distribution hubs, farmer hydrants, and buried pipe networks. Also, pumping facilities either stand along or as part of turnout facilities.
 - (iii) SCADA for remote monitoring and automation of Main canal and PDNs.
 - (iv) Up gradation of Service roads.
 - (v) Buildings, facilities, management modernization
 - (vi) Agriculture modernization
 - (vii) Institutional modernization & capacity development
 - (viii) Integrated water management of surface and groundwater
 - (ix) Preparing feasibility studies, due diligence studies, detailed project report and designs, bid documents and initiating for new investment works, support consulting services
 - The estimated cost for Modernization of Palkhed Project is Rs 1,282.80 crores (156.40 million \$), EIRR 19.78%, BCR 1.12, cost/ha 3762 (Rs 3.08 lakhs)
 - The estimated cost for modernization of Purna Project is Rs 1,356 crores (165 million \$), EIRR 14.3 % and BCR 1.87, cost/ha 2,849 (Rs 2.33 lakhs)

Palkhed and Purna Schemes Modernisation

During the discussions, Sri Sanjay Belsare, Secretary, Sri Prakash Misale CE, Nashik, Sri Vijay Ghoghre and Sri Dorje CE, POMIO, CWC made comments and suggestions on the draft IMPs. The comments and clarifications given by the ADB consultants are summarised below.

Comments/suggestions	Clarifications
Canal lining Canal lining is proposed for the main canals, branch canals (Purna), and for the lengths of distributaries which are retained. The suitability of pressure relief pipes requires to be justified. The soils in the project area are of alluvial and basaltic nature.	Pressure relief arrangements are likely to be needed to avoid cracking of the canal lining due to back (uplift) pressure, for example with rapid drawdown of canal water levels, or in areas of high water table. Detailed proposals may be made considering similar cases in India and recommendations by IIT Roorkee. However, canal cross sections, and geotechnical and local geological formation data are needed prior to making final recommendations. These may be collected as part of DPR preparation and suitable pressure relief arrangements may then be finalised.
Overshot gates as cross regulators, CRs Which type of overshot gates are proposed in the main canal as cross regulators for controlling water depths which is critical	The operation of CRs is necessary for water level control in the main canals for the offtaking canals and PDN systems, particularly as operation for a quite wide range of design flows is to be accommodated.

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Comments/suggestions	Clarifications
for PDN?	<p>The overshot gates are likely to be like those adopted in NLBC modernization and which are working well, i.e., bottom hinged, tilting gates.</p> <p>However, as an alternative retaining the existing vertical lift type gated CRs with remote and local automation together with transit time acoustic flow meters may be considered. This can be decided during the DPR stage.</p>
<p>Pipe Distribution Networks, PDNs</p> <p>(i) PDN systems are proposed converting the surface irrigation to piped distribution for over about 88% of the command area to improve equity and reliability of canal water supplies. Presently, the farmers are either taking the surface water supplies and storing water in farm ponds or dug wells for pumped (drip) irrigation, or using it directly by surface (furrow or basin) irrigation. The proposed PDN systems comprise (mostly) 3-tier layouts with primary and secondary pipelines supplying water to distribution hubs, and the tertiary pipelines enabling rotation of flow from the distribution hubs to individual farmers field hydrants. Currently the IMPs include the cost of the tertiary pipelines and field hydrants, but this could alternatively be left to the farmers.</p>	<p>Water will be supplied from the primary and secondary pipelines to the hub hydrants which cater to an area of 7-8 ha each from where farmers receive rotational water to their farms through 2" pipelines. The choice of whether to use then water directly (probably furrow irrigation due to sediment in the water) or to store the water in their farm ponds or open wells so the sediment settles out enabling pumped drip irrigation would be up to the farmers. Water stored in open wells would also recharge the water table.</p> <p>A sand trap is proposed in the main canal, and settling chambers at the turnouts, to enable farmers to receive water free from coarser sediments, and possibly also directly for drip irrigation depending on the type of emitter adopted.</p> <p>With the proposed PDN systems it will be possible to increase overall efficiency from 40% to 70-80%. The exact extent of PDN area can be decided after detailed surveys and investigations during DPR preparation.</p> <p>Use of drip is not made compulsory, and farmers have the option of drip or furrow irrigation.</p> <p>Wherever slopes are favourable gravity PDN is proposed. For land close to the main, branch, and retained distributary canals, farmers will be allowed and encouraged to practice pumped lift irrigation. To control abstractions, pumping facilities are proposed along the canals. These may either be stand alone (as proposed for Purna), or be part of the turnout-sediment chambers for the PDN systems (as proposed for Palkhed) or a combination. The details can be finalised during DPR stage.</p>
<p>(ii) The larger distributary canals will be retained in the upper reaches due to high flows, and/ or due to being relatively flat. Converting these to gravity pipes would be expensive and may not technically be possible.</p>	<p>For Purna about 265.8 km of distributary canal are proposed to be retained, re-sectioned, with about half of this length to be lined.</p> <p>For Palkhed about 20.2 km of distributary canals are proposed to be retained, re-sectioned, and lined. This comprised the upper parts of eleven (11) major/ flat distributaries.</p> <p>Detailed surveys and investigation during DPR stage is required to finalise lengths of canals to be retained and lined, and the command areas of the PDN system.</p> <p>PDN is the best option to keep the water in the canal system, save water and increase project efficiency</p>

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Comments/suggestions	Clarifications
	<p>when there is competing demand from other uses (domestic).</p> <p>Stakeholder's consultations were carried out during field visits and farmers are very much in favour of PDN so that they get assured supply and they can link up their drip systems, farm ponds and dug wells. They were concerned that the canal water should be silt free to the extent possible to allow its use directly for drip irrigation.</p> <p>Sand trap in the main canal and sedimentation chambers at the head of the PDN systems are proposed to remove sediment and support uptake of drip systems.</p>
<p>SCADA and automation</p> <p>SCADA and automation for remote (as well as local) main, branch, and retained distributaries canals and PDN system, water levels, flows, and gates (valves) operations is proposed to improve operations and efficiency.</p> <p>One suggestion is to adopt SCADA only for the main canal and the offtake gates to PDN and not the entire retained canals and PDN systems.</p>	<p>The extent of telemetry and SCADA systems will have to be discussed and decided at DPR stage.</p> <p>Adopting a telemetry system for water level and flow monitoring of the whole canal and PDN system, but with SCADA and remote actuation (operations) for only part of the system could be one option. This would reduce costs as SCADA with remote actuation of gates and valves would also require provision of reliable electric power supply. Monitoring of systems may be battery-solar powered.</p> <p>SCADA and automation are proposed in a phased manner initially starting with telemetry and to move towards full SCADA and automation along with building staff capacity.</p> <p>SCADA and automation will also address staff shortage in addition to improving efficiency and water savings.</p> <p>It might be good to consider SCADA for PDN to allow efficient integrated water management in particular for distributing flows in the command area to recharge groundwater during Kharif/surplus season.</p>
<p>Upgrading service roads along the entire lengths of the retained canals is proposed and included in the cost estimates.</p> <p>It is suggested to consider upgrading of service roads (i) where the canals are not accessible during rainy season, and (ii) where required for farm produce marketing/ transport.</p>	<p>The conditional assessments of the service roads are to be carried out during DPR stage and the length will be considered as per necessity.</p>
<p>Upgrading/ construction of all the office buildings is proposed. Suggestion is to consider buildings which need reconstruction and to retain some which are in good condition.</p>	<p>As the buildings are 40-50 years old and in general new modern office buildings are proposed to match with the high and increasing economic activity in the project area post modernization. However, during DPR stage the provision can be reviewed and suitably considered.</p>
<p>There are some similar activities in agriculture, institutional and management modernization thrust components which can</p>	<p>The modernization thrusts identified are distinct in nature. However, this can be looked into during DPR</p>

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Comments/suggestions	Clarifications
be combined to bring down the administrative costs and avoid overlapping without sacrificing the intention to achieve the objectives.	stage and suitably combined to bring down the cost.
Scheme operations. The Secretary desired to know whether it is feasible to supply water on continuous basis with PDN instead of rotation basis currently practiced with surface irrigation.	It was clarified by Mr Alan that by lining of the main canals, branch canals, and retained distributary canals, and with adoption of overshot gates at CRs, and with telemetry - SCADA, losses will be reduced considerably, and a wider range of flows will be accommodated in the canals (say from 60-105% of design flows). This will facilitate continuous supply to the PDN systems in most years. In dry-drought years some rotation to PDN systems may be necessary. More continuous flow will benefit the farmers.
General <ul style="list-style-type: none"> The nearby Waghad project (9,000 ha) is managed very well by the WUCS federation which is managing both main canal and distributaries. It is a good example to replicate in PLBC command area. The World Bank assisted NHP can be dovetailed in PLBC command for telemetry and sensors for monitoring groundwater levels etc. The data capturing and sharing of data with stakeholders is an important activity which should be strengthened. The output indicators mentioned in the PPR need to be looked into carefully and corrected, if required. 	All the suggestions are noted. The output indicators will be reviewed and revised version will be communicated to the project CEs by the consultants.

After detailed discussions on the IMPs and PPRs, it was agreed that the comments made during the meeting are to be taken note of during the preparation of DPR. Dr Daniel mentioned that the comments will be incorporated in the introductory part of IMP Vol 1 and submitted to CE and CWC. During DPR preparation the comments made during the meeting will be attended and incorporated.

The Secretary WRD, Maharashtra confirmed the willingness of the State to request a loan from ADB for financing the two projects, to carry out PPR Phase 3 and Phase 4 as soon as possible. However to avoid delay, Secretary WRD, Maharashtra expressed the need to develop the DPR with funds from the state and the possibility of incorporating this fund as part of loan may be explored.

On the PPRs for Phase 3 and Phase 4 which are submitted by the consultants to the project CEs, it was agreed that combined PPRs of the two projects will be processed at the Government level and submitted to DEA. The costs mentioned in the PPRs are provisional and may vary once DPR is finalised. Sh Dorje mentioned about DPR preparation taken up by Karnataka for Vanivilasa Sagara project and PPR is under process with the Government. It was agreed that DPR preparation of both Palkhed and Purna will be initiated and retroactive financing of DPR preparation cost from ADB would be explored.

The meeting concluded thanking the Secretary WRD, Maharashtra, the project Chief Engineers and the Chair.

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Annexure-1

SIMP virtual meeting on 04.01.2024 Participants' list

#	Name of Officials	Designation
	CWC Officers	
1	Sh P Dorje Gyamba	Chief Engineer, POMIO, CWC- In the Chair
3	Mr Dheeraj Kumar	Dy Director, POMIO, CWC
4	Mr K K Patel	Assistant Director, POMIO, CWC
	Maharashtra WRD	
5	Dr Sanjay Belsare	Secretary, WRD
6	Mr Vijay Ghoghre	Chief Engineer, Aurngabad
7	Mr Prakash Misale	Chief Engineer, Nashik
8	Mr Ajay Dhabhade	Superintending Engineer, Nanded
9	Mr Birajdar	EE,Purna project, Basamath
10	Mr Bhagwat Saheb	EE,Palkhed project, Nashik
	ADB	
11	Mr Vikas Goyal	Water Resources Specialist, INRM, ADB
12	Dr Daniel Renault	Team Leader, SIMP 2, ADB
13	Mr M G Shivakumar	Dy Team Leader, SIMP 2, ADB
14	Mr Alan Clark	Irrigation Planning & Design
15	Mr C Srinivas	Water Resources Specialist
16	Mr Ravi Prakash	Hydro geologist
17	Ms Ramya	RS -GIS Specialist
18	Dr Umashankar	Agriculture Economist