पनवेल महानगरपालिका
जाहीर निविदा दरपत्रक

आयुक्त, पनवेल महानगपालिका हद्दीतील नदी/तलाव यांची पाणी गुणवत्ता सुधारण्यासाठी नैसर्गिक-परिसंस्था आधारित उपाययोजना तसेच जैविक-अभियांत्रिकी आधारित तंत्रज्ञानांचे दरपत्रक मागविणेबाबत. या कामाचे खाली नमूद केलेल्या बाबींकरीता खालील नमूण्यात दर मागविण्यात येत आहे.

अ.क्र.	कामाचे नाव	मुदत
१	पनवेल महानगपालिका हद्दीतील नदी/तलाव यांची पाणी गुणवत्ता सुधारण्यासाठी नैसर्गिक-परिसंस्था आधारित उपाययोजना तसेच जैविक-अभियांत्रिकी आधारित तंत्रज्ञानांचे दरपत्रक मागविणेबाबत.	03 /10/२०२५ ते 10 /10/२०२५ (७ दिवस)

Specification

Sr. No	DESCRIPTION	Quantity	Unit
1.	**Surface Floating Solar Power Aerator:** **1. General Description:** Product Name: Surface Floating Solar Power Aerator (2HP 4 Paddle Wheel Solar Aerator) Model Type: Solar Powered Paddle Wheel Aerator **2. Performance Specifications:** Oxygenation Capacity: 5 kg O_2/hour Air Flow Rate: 5 m^3/hour Paddle Wheel Design: 4-Paddle, High-efficiency blades **3. Power & Control:** Power Rating: 2 HP Equivalent (via Solar Power) Power Supply: Solar PV Panels with integrated control unit Voltage Requirement: 220V (for backup/grid option) Automation: Automatic operation with solar energy Control Features: Daylight ON/OFF, Overload & dry run protection, Hybrid (solar + grid) **4. Solar Power System:** Solar Panel Capacity: ~1.5 – 2.0 kWp (suitable for 2HP motor) Panel Type: Polycrystalline / Monocrystalline PV Mounting: Floating platform integrated with aerator Battery Backup (Optional): Li-ion/Lead Acid Controller: MPPT/Hybrid Solar Charge Controller **5. Mechanical Specifications:** Structure Type: Floating Platform with paddle wheel assembly Material: HDPE/FRP Floats, ABS/Plastic Blades, SS Shaft Color: Blue (Paddles), Silver/Black (Panels) - Preferred Installation Type: Surface Floating, Plug & Play **6. Environmental & Durability:** Operating Temperature: 0°C to 50°C Weather Resistance: UV-stabilized, corrosion resistant Ingress Protection: IP55 or higher Warranty: 1 Year required. **7. Installation & Maintenance:** Installation Service: Required (Supplier provided) Routine Maintenance required for Panel cleaning, lubrication, inspection of floats/paddles for an initial period of 1 year	Nos.	6

	(extendable further) Expected Life: 15 years for panels, 15 years for aerator		
2.	**Ecological Floating Beds:** **1. General Description:** Ecological floating beds (floating wetlands/floating beds) recreating artificial islands designed for the treatment and rejuvenation of polluted river water using hydroponic plants for bioremediation, oxygen transfer, nutrient uptake, and surface beautification are required. They should be modular in design, eco-friendly, and low-maintenance. **2. Design & Coverage** Total Required Surface Area: 14 m^2 (per unit) Each Floating Bed Size: 14 m^2 No. of floating beds required: 6 Nos (The units should be modular, scalable as per requirement.) Designed for tropical Indian climate, operating temperature 0°C to 50°C **3. Planter Specifications** Planter Surface Area: 14 m^2 per island No. of Plants: 10–12 plants per m^2 Plant Type: Hydroponic species suitable for nutrient uptake & oxygen transfer. Specific plant species needs to be suggested to treat heavy metals like Lead, Iron, Nickel, Zinc, Mercury and Chromium. Pot Hole Size: 10–12 cm Material of Construction (Pontoons): LDPE/HDPE, UV resistant, durable, non-toxic **4. Mooring Arrangement System** Mooring Rope: High-strength Nylon rope Mooring Blocks: RCC blocks designed as per site-specific river depth and flow **5. Materials of Construction** - LDPE/HDPE pontoons, UV stabilized and environmentally safe - Hydroponic planter pots (eco-friendly material) - RCC blocks for anchoring - Nylon mooring ropes for stability - Non-toxic, corrosion-resistant fasteners and connectors **6. Operation & Maintenace** The floating wetlands shall be routinely inspected and vegetation management for optimum performance shall be ensured. Maintenance shall be for an initial period of 1 year (extendable further) Maintenance includes: - Vegetation management (pruning, replanting). Replacement of dead plants with fresh saplings - Pest and disease control for plant health (organic based only. No pesticides shall be allowed) - Cleaning and inspection of pontoons and planter units - Typical refurbishment of pontoons and mooring system (as per wear and tear) **7. Environmental & Performance Characteristics** Enhances dissolved oxygen (DO) through root oxygen transfer - Reduces nutrient load (Nitrogen, Phosphorus) and pollutants - Provides habitat for aquatic life and biodiversity	Nos.	6

	- Improves aesthetic value of river surface **8. Expected Life & Warranty** - The pontoons and structural components shall be designed for a service life of minimum 10 years. Plant replacement cycle shall be approximately 6 to 12 months, depending on growth and seasonal variations. All components shall have 1 year manufacturing warranty.		
3.	**Microbial Technology:** **1. General Description:** Microbial technology leverages naturally occurring and beneficial microbial consortia to enhance the biodegradation of organic and inorganic pollutants, reduce odour, and improve overall water quality. This eco-friendly approach avoids chemical additives and restores river health using biological processes. **2. Dosing Strategy & Phasing:** • Phase 1 (Months 1–2): Daily microbial to establish microbial population and activate degradation of organic waste. • Phase 2 (Months 3–4): Dosing on alternate days at same location to allow microbial stabilization while sustaining degradation. • Phase 3 (Months 5–12): Weekly dosing to maintain microbial activity and ensure continued treatment efficiency. **3. Dosing Locations:** • Primary Dosing (Months 1–4) • Extended Dosing (From Month 5 onward): Direct microbial dosing **4. Infrastructure & Equipment:** Each dosing site will include: • Storage tanks for microbial solution • Proper Mixing of microbes and calibrated release system • Drip dosing setup • Spray pumps for microbial application • Kayak / suitable arrangement for river access • Dedicated manpower for operations for an initial period of 1 year (extendable further) **5. Monitoring & Control:** Adjustment of dosing shall be based on: • Seasonal variation in river flow • Pollution load fluctuations • Real-time water quality results which will be provided from time to time by PMC	Nos.	4
4.	**Phytoremediation** **1. General Description** Phytoremediation is proposed to treat polluted water through natural ecological processes. A total length of 50 metres is proposed to be implemented at each site, with 25 m stretches on both banks (at single location) of phytoremediation to facilitate aquatic and riparian plant growth. Total Requirement – 50 m length each at 3 locations **2. Design & Coverage** • Total Phytoremediation Length: 50 m (per site)	Nos.	3

	• Phytoremediation Stretch: 25 m length per river bank • Supporting Structures: Suitable arrangement for aquatic vegetation shall be proposed. • Plantation Coverage: Plants to cover 50 m proposed total length (may increase or decrease as per suggested plant species. **3. Materials of Construction** • Fresh garden soil, sieved and free from impurities shall be used • Well decomposed Farmyard Manure (FYM) shall be added to obtain Soil-Manure Mix: 3 parts soil : 1-part FYM. Any other suitable mix may be used with proper justification for each site and prior approval of competent authority. • Tree saplings of height 1–2 m, species such as Bahava (Cassia fistula) and other approved native species. Specific plant species needs to be suggested to treat heavy metals like Lead, Iron, Nickel, Zinc, Mercury and Chromium. **4. Dimensions & Specifications** • Suitable plantation pit size is to be proposed • Plant Spacing: 30 cm centre-to-centre • Soil-Manure Mix: 3 parts soil : 1 part FYM **5. Plantation Specifications** • Total number of plants: May differ based on plant species proposed. • Plant height at supply: 1–2 m • Fresh garden soil (red soil preferred), sieved through 10 mm IS sieve • Farm yard manure thoroughly mixed with soil before plantation • Daily watering with river water and initial maintenance for 1-year post-plantation **6. Operation & Maintenance** • Routine inspection and regular watering of plants with river water using suitable arrangement • Application of manure as required • Pest and disease control for plant health (organic based only – no pesticides shall be allowed) • Replacement of dead plants with fresh saplings • Deployment of dedicated Mali (gardener) for plantation care for initial period of 1 year (extendable further)		

वर नमूद सुचित दर्शविलेल्या बाबींचे पुरवठा करणारे पुरवठादार/दुकानदार/उत्पादक/विक्रेते यांनी नमूद केलेल्या बाबींकरीता असलेले दर स्वत:च्या लेटरहेडवर महापालिकेच्या कार्यालयात अथवा ई-मेल द्वारे pmcbandhkamdept01@gmail.com यावर दिनांक १० /१० /२०२५ पर्यंत पाठवावे ही विनंती, सदर दर हे अंदाजपत्रक तयार करणेसाठी गृहित धरणेत येणार आहेत.

कार्यकारी अभियंता
पनवेल महानगरपलिका

जा.क्र पमपा/बांधकाम/६५२५/प्र.क्र. १६७/ ३८७० /२०२५ , दि . ०३ / १० /२०२५

प्रत माहितीस्तव — १. माहिती फलक करीता