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GOVERNMENT OF INDIA
MINISTRY OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING
DEPARTMENT OF FISHERIES

Detailed Project Report (DPR) – Model Template

Setting up Smart and Integrated Fishing Harbour

October, 2024

PREFACE

Implementing smart technologies in fishing harbour can revolutionize the industry by improving operations, enhancing safety measures, and promoting sustainable practices.

A detailed Project Report is an essential component of the project. It should be prepared carefully. Sufficient details should be included to ensure proper appraisal, approval and implementation of the project in time. Considering the importance of DPR preparation, a document intended for reference is detailed along with. The suggested smart technologies as described in this report holds a great potential for shaping the future of fishing harbour.

The conclusions and recommendations given in this report are those considered appropriate at the time of its preparation. They may be modified in the light of further knowledge gained at subsequent stages.

CONTENTS

Page No

Executive Summary ii

Chapter – 1 Introduction 1

1.1 General 1
1.2 Background information covering existing status of Marine Fishery Development in the State 1
1.2 Need for Setting up a Smart Fishing Harbour 10

Chapter – 2 [Name of the Harbour].....9

2.1 Location of Fishing Harbour.....9
2.2 History of Fishing Harbour 9
2.3 Fishing Fleet 9
2.4 Harbour facilities 9
2.5 Fisheries activities in the Fishing Harbour 10

Chapter – 3 Setting up Smart fishing harbour.....14

3.1 Aim and Objective 14
3.2 Key Components 14
3.3 Cost Estimate for Setting up Smart Fishing Harbour.....22

Executive Summary

This section shall contain brief of all relevant details discussed in the following chapters including objectives of the project, benefits and justification and salient features.

Chapter - 1

Introduction

This section should contain:

1.1 General

India's coastline is blessed with rich marine biodiversity, and the fishing industry plays a significant role in the livelihoods of millions. Fishing Harbour play a crucial role in the global seafood supply chain, but often, their operations have significant environmental consequences. The development of a Smart and Integrated Fishing Harbour represents an innovative approach to modernizing fishing infrastructure while prioritizing environmental sustainability, efficiency, and safety.

1.2 Background information covering existing status of Marine Fishery Development in the State

This section should provide write up on the following existing fishery activities of the state and district:

State

Length of coastline (in km.)	
Area of continental shelf (in sq.km.)	
Zero - 10 fathoms	
10 - 40 fathoms	
40 - 100 fathoms	
Total	

Fishery resources available (in tonne)	Pelagic	Demersal	Total
Zero - 10 fathoms			
10 - 40 fathoms			
40 - 100 fathoms			
Total			

Growth of mechanised fishing vessels (MFVs)

Year	Size				Total
2018 - 19					
2019 - 20					
2020 – 21					
2021 - 22					
2022 - 23					
Total					

Latest number of MFVs currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Latest number of traditional craft currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Total number of fishing gears currently in use as on March 2024

Type of Gear	Number
Trawl net	
Gill net	
Purse-seine	
Shore-seine	
Bag net	
Stake net	
Hook and Line	
Others (pl. specify)	
Total	

Depth and distance upto which the present fishing operations are conducted.

a) Mechanised fishing vessels	
b) Traditional fishing craft	

Marine fish production for the last five years (in tonne)

Year	Landings by		Total
	Mechanised Vessels	Traditional Craft	
2018 - 19			
2019 - 20			
2020 – 21			
2021 - 22			
2022 - 23			

Species-wise marine fish production for the latest five years - a detailed list including all species may be furnished separately.

Marine products export from the State - details viz. type of products, quantity exported and value of the respective products - year-wise for the last five years.

Socio-economic measures undertaken in the State for the welfare of the fishermen community.

Details of housing colonies, number of houses constructed, under construction and proposals, if any, for the fishermen community in the State.

Details of subsidy extended to fishermen on the purchase of fishing boats, fishing net, outboard motors and other fishery requisites.

District

Length of coastline of the district (in km.)	

Area of continental shelf (in sq.km.)	
Zero - 10 fathoms	
10 - 40 fathoms	
40 - 100 fathoms	
Total	

Fishery resources available (in tonne)	Pelagic	Demersal	Total
Zero - 10 fathoms			
10 - 40 fathoms			
40 - 100 fathoms			

Total			

Villages and employment - latest details: as on March 2024

a) Number of fishing villages	
b) Total population of the villages	
c) Fishermen population	
d) Active fishermen	

Fishing season

Type of fishing	Months		Peak months
	From	To	
Mechanised Vessels			
Trawling			
Gill netting			
Purse-seining			
Bag netting			
Others - (specify)			
Traditional boats			
Gill netting			
Shore-seines			
Boat-seines			
Others - (specify)			

Actual number of MFVs currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Growth of mechanised fishing vessels (MFVs)

Year	Size				Total
2018 - 19					
2019 - 20					
2020 – 21					
2021 - 22					
2022 - 23					
Total					

Actual number of traditional craft currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Total number of fishing gears currently in operation as on March 2024

Type of Gear	Number
Trawl net	
Gill net	
Purse-seine	
Shore-seine	
Bag net	
Stake net	
Hook and Line	
Others (pl. specify)	
Total	

Marine fish production for the last five years (in tonne)

Year	Landings by		Total
	Mechanised Vessels	Traditional Craft	
2018 - 19			
2019 - 20			
2020 – 21			
2021 - 22			
2022 - 23			

Species-wise marine fish production for the latest five years - a detailed list including all species may be furnished separately.

Co-operative institution:

a) Number of primary societies	
b) Membership of primary societies	

Apex bodies like marketing federation or corporation associated with fishing activity (specify with details of membership, activities, etc.)

Fishermen training centres:

a) No. of training centres and location

b) Type of courses offered

c) Duration of courses

b) No. of trainees per year

e) No. of persons trained so far

Infrastructure facilities:

Item	Location & Distance	Number	Capacity
i) Ice plant ii) Chilled storage iii) Freezing plant iv) Frozen storage v) Fish meal plant vi) Fish curing/ drying yards vii) Canning plant			

Boat building yards:

Managed by	Location & Distance	Number	Annual Capacity
Government Private Total			

Government fisheries administration - a detailed chart relating to district may be furnished.

Details of loan and subsidy extended to fishermen on the purchase boat, net, fishery requisites, etc.

Details of inshore / off shore fishery resources surveys conducted in the district and the results may be furnished with a map.

Important fish markets / shanties in the district.

Place (Market / Shanties)	Distance from the project site	Place (Market / Shanties)	Distance from the project site

1.3 Need for Setting up a Smart Fishing Harbour

Setting up a smart fishery harbour can offer numerous benefits, both to the local community and the fishing industry. Here are some reasons why it might be necessary:

Efficiency: Smart technologies can streamline various processes within the fishery harbour, such as docking, loading and unloading of goods, and storage. This efficiency can lead to cost savings and increased productivity.

Resource Management: Advanced sensors and monitoring systems can help track fish populations and ocean conditions in real-time, aiding in sustainable resource management. This data can inform decisions on fishing quotas and conservation efforts.

Safety: Smart technologies can enhance safety measures for both fishermen and harbour workers. This can include automated warning systems for dangerous weather conditions, as well as tracking systems to locate vessels in distress.

Environmental Sustainability: By integrating green technologies such as solar power and waste management systems, smart fishery harbours can reduce their environmental footprint. This aligns with growing concerns about the impact of fishing activities on marine ecosystems.

Market Access: Improved infrastructure and logistics facilitated by smart technologies can enhance the quality and freshness of seafood products, thereby increasing market access and competitiveness for local fishermen.

Data-driven Decision Making: Smart fishery harbours generate vast amounts of data that can be analyzed to identify trends, optimize

operations, and make informed decisions. This data-driven approach can lead to better resource allocation and business strategies.

Community Development: Investing in smart fishery harbours can stimulate economic growth and create employment opportunities within the local community. Moreover, it can attract investment and tourism, further bolstering the region's economy.

Compliance and Regulation: Smart technologies can assist in ensuring compliance with fishing regulations and environmental laws. This can help prevent illegal, unreported, and unregulated (IUU) fishing activities, contributing to sustainable fisheries management.

Overall, setting up a smart fishery harbour can modernize the fishing industry, promote sustainability, and improve the livelihoods of those involved in the sector.

Chapter - 2

[Name of the Fishing Harbour]

This section should contain:

2.1 Location of Fishing Harbour

Brief location of the project with corresponding latitude and longitude.

2.2 History of Fishing Harbour

Provide history of fishing harbour including year of sanction, project cost, date of commissioning, management of fishing harbour, revenue etc.

2.3 Fishing Fleet

Provide number of fishing vessel using the harbour along with characteristics such as overall length of the fishing vessel (OAL), depth, beam and draft of the vessel in laden and unladen condition, displacement tonnage, gross registered tonnage (GRT), unladen weight of the vessel, brake horse power (BHP), insulated fish hold capacity, fuel and lubricant capacity, fresh water requirement, duration of fishing trip, cruising range, vessel crew etc.

2.4 Harbour facilities

Enclose a layout drawing of fishing harbour drawn to a scale of 1:2000 showing all the facilities available in the harbour.

Brief on various water side and shore side facilities available in the fishing harbour viz.,

- Breakwater/training walls
- Harbour basin and channel depth
- Length of landing, berthing, outfitting quay/jetty length
- Auction hall its size and capacity
- Length of internal roads,
- Sloping hard its size and operating capacity
- Boat repair yards its size and capacity

- Overhead water tank its capacity
- Availability sewerage system
- Effluent treatment plant
- Compound wall
- Fuel station
- Availability of electricity and capacity
- Repair workshop
- Administrative building
- Radio communication centre
- Dormitory
- Rest Shed
- net mending sheds
- gear shed
- Toilets
- Canteen etc.,

2.5 Fishery activities in the Fishing Harbour

This section should provide write up on the following existing fishery activities of the fishing harbour.

Number of houses	
Number of households	
Total population	
Fishermen population	
Active fishermen	

Actual number of MFVs currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Growth of mechanised fishing vessels (MFVs)

Year	Type & size				Total
2018 - 19					
2019 - 20					
2020 – 21					
2021 - 22					
2022 - 23					
Total					

Actual number of traditional craft currently in operation (size-wise) as on March 2024

Year	Type & size				Total

Total number of fishing gears currently in operation as on March 2024

Type of gear	Number
Trawl net	
Gill net	
Purse-seine	
Shore-seine	
Bag net	
Stake net	
Hook and Line	
Others (pl. specify)	
Total	

Fishing season:

Type of fishing	Months		Peak months
	From	To	
Mechanised Vessels			
Trawling			
Gill netting			
Purse-seining			
Bag netting			
Others - (specify)			
Traditional boats			
Gill netting			
Shore-seines			

Boat-seines			
Others - (specify)			

Marine fish production for the last five years (in tonne)

Year	Landings by		Total
	Mechanised Vessels	Traditional Craft	
2005 - 06			
2006 - 07			
2007 – 08			
2008 - 09			
2009 - 10			

Species-wise marine fish production for the latest five years - a detailed list including all species may be furnished separately.

Boat side prices (current) for fish and crustaceans - species-wise.

Infrastructure facilities:

Item	apter 1 Location & Distance	Number	Capacity tonne/day
i) Ice plant ii) Chilled storage iii) Freezing plant iv) Frozen storage v) Fish meal plant vi) Fish curing/ drying yards vii) Canning Plant			

Boat building yards:

Managed by	Location & Distance	Number	Annual Capacity
Government Private			
Total			

Distance of fishing grounds - in detail.

Disposal of landings:

Item	Export (%)	Local (%)	Inland (%)
Frozen Fresh Dried / Cured Fish meal			

Number of migratory vessels visiting the centre during season (size-wise)

Year	Type & size				Total

Chapter - 3

Setting up Blue and Smart fishing harbour

This section should contain brief on objective of setting up Green and Smart Fishing Harbour, details on components proposed to be setup and its functioning:

3.1 Aim and Objective

The development of a Smart and Integrated Fishing Harbour represents an innovative approach to modernizing fishing infrastructure while prioritizing environmental sustainability, efficiency, and safety. The objectives of modernisation are:

Environmental Sustainability: Implement eco-friendly practices and technologies to minimize the ecological footprint of fishing activities, preserve marine ecosystems and mitigate climate change impacts.
Efficiency and Productivity: Enhance operational efficiency, resource utilization and productivity through the adoption of smart technologies, automation, and data-driven decision-making processes.

Safety and Welfare: Ensure the safety and welfare of fishers, vessels and coastal communities by implementing advanced safety measures, emergency response systems, and worker protection initiatives.

Community Engagement: Foster collaboration and partnerships with local communities, government agencies, research institutions and industry stakeholders to co-design and implement sustainable and inclusive development strategies.

3.2 Key Components

Eco-Friendly Facilities: Creating an eco-friendly fishing harbour involves implementing sustainable practices and infrastructure to minimize environmental impact while supporting the fishing industry. Here are some ideas for eco-friendly facilities in a fishing harbour:

- Rainwater Harvesting System: Implement a rainwater harvesting system to collect and store rainwater for various uses such as cleaning boats, watering green spaces and flushing toilets, reducing reliance on freshwater sources.

- Efficient Lighting: Use energy-efficient LED lighting throughout the harbour to reduce electricity consumption and light pollution, which can disrupt marine ecosystems and wildlife.

- Natural Shoreline Protection: Incorporate natural shoreline protection measures such as mangroves, marshes, or oyster reefs to stabilize shorelines, prevent erosion, and provide habitat for marine species.

- Green Buildings: Construct buildings and facilities using sustainable materials and design principles, such as using recycled materials, optimizing natural lighting and ventilation, and incorporating green roofs or living walls to enhance biodiversity and energy efficiency.

- Electric-Powered Equipment: Encourage the use of electric-powered boats and equipment to reduce emissions and noise pollution in the harbour. Provide charging stations for electric boats and vehicles.

- Water Quality Monitoring: Implement a water quality monitoring program to regularly assess and maintain the health of the harbour ecosystem, including monitoring for pollutants and invasive species.

Smart Infrastructure: Upgrade harbour infrastructure with smart technologies, including IoT sensors, monitoring systems, and automation solutions, to optimize resource management, enhance operational efficiency, and reduce environmental impact.

- Internet of Things (IoT) Devices: Install IoT devices on fishing gear and processing equipment to track catch volumes, monitor fish quality, and optimize post-harvest handling processes.

- Sensor Networks: Deploy sensor networks throughout the harbour to monitor water quality, weather conditions, and marine biodiversity, providing valuable data for environmental monitoring and decision support.

- Remote Sensing Technologies: Utilize remote sensing technologies, such as drones and satellites, to collect high-resolution imagery and data on marine habitats, fishing activity, and environmental changes.

- Upgrade harbour infrastructure with smart technologies, such as automated mooring systems, energy-efficient lighting, and waste management systems, to enhance operational efficiency and reduce environmental impact.

Renewable Energy Integration: Incorporate renewable energy sources such as solar, wind, and tidal power to provide clean and sustainable energy for harbour operations, reducing reliance on fossil fuels and minimizing carbon emissions. Strategies for Renewable Energy Integration:

- Solar Power: Install solar panels on rooftops, parking lots, and unused land within the harbour area to generate electricity for lighting, equipment operation, and office facilities.

- Wind Power: Utilize wind turbines strategically positioned along the coastline or within the harbour to harness wind energy and supplement electricity generation.

- Tidal and Wave Energy: Explore the feasibility of deploying tidal turbines or wave energy converters in nearby coastal waters to capture the energy of ocean currents and waves.

- Hybrid Systems: Implement hybrid renewable energy systems that combine multiple sources such as solar, wind, and battery storage to optimize energy production and ensure reliable power supply.

- Energy Management Systems: Deploy advanced energy management systems to monitor energy consumption, optimize energy usage, and prioritize renewable energy sources based on availability and demand.

Vessel Monitoring and Navigation: Deploy vessel monitoring systems (VMS) and satellite navigation technologies to track vessel movements, prevent illegal fishing activities, and ensure safe navigation within the harbour and surrounding waters. Initiatives for Vessel Monitoring and Navigation:

- Deployment of Vessel Monitoring Systems (VMS): Install VMS on fishing vessels to track their movements, transmit position reports, and ensure compliance with fishing regulations, allowing

harbour authorities to monitor fishing activity and enforce fisheries management measures effectively.

- Integration of Satellite Navigation Technologies: Utilize satellite-based navigation systems such as GPS and AIS to provide accurate position data, navigational aids, and collision avoidance information to fishing vessels and other maritime traffic operating within the harbour area.

- Real-Time Monitoring and Surveillance: Implement surveillance cameras, radar systems, and other monitoring technologies to provide real-time situational awareness of vessel traffic, weather conditions, and security threats, enabling prompt response to emergencies and security incidents.

- Collaborative Data Sharing: Foster collaboration and data sharing agreements with government agencies, coast guard, and other maritime stakeholders to exchange vessel tracking data, coordinate search and rescue operations, and enhance maritime domain awareness in the harbour region.

Data Analytics and Decision Support: Develop data analytics platforms and decision support tools to analyse real-time data on fishing activities, environmental conditions, and market trends, enabling informed decision-making and adaptive management strategies. Initiatives for Data Analytics and Decision Support:

- Data Collection and Integration: Establish comprehensive data collection mechanisms to gather relevant data from various sources, including vessel tracking systems, environmental sensors, market databases, and government agencies, ensuring data integrity and accuracy.

- Data Analytics Platforms: Implement robust data analytics platforms equipped with advanced analytics tools, machine learning algorithms, and visualization techniques to process and analyze large volumes of data, extracting actionable insights and identifying trends and patterns.

- Predictive Modeling: Develop predictive models and forecasting algorithms to anticipate changes in fishing conditions, market demand, and environmental variables, enabling proactive

decision-making and adaptive management strategies to address emerging challenges and opportunities.

- Decision Support Systems: Deploy decision support systems that integrate data analytics outputs with domain knowledge, expert opinions, and regulatory guidelines to assist harbour operators, fishers, and policymakers in making informed decisions related to resource allocation, risk management, and policy formulation.

Waste Management and Recycling: Implement comprehensive waste management and recycling programs to minimize waste generation, promote recycling and composting, and prevent marine pollution from entering coastal waters. Initiatives for Waste Management and Recycling:

- Segregation at Source: Implement a waste segregation system at the harbour to separate recyclable materials (such as plastics, glass, and metal) from organic waste and non-recyclables.

- Waste Management: Set up a comprehensive waste management system to properly handle and recycle fishing gear, packaging materials, and other waste generated by fishing activities including fish handling and auction halls. This could include designated bins for different types of waste, such as plastic, metal and organic waste.

- Composting and Organic Waste Management: Set up composting facilities to process organic waste, such as fish waste and food scraps, into nutrient-rich compost for use in landscaping or agricultural applications.

- Marine Debris Clean up: Organize regular clean-up activities and awareness campaigns to remove marine debris, including plastics, fishing nets, and other litter, from harbour waters and surrounding shorelines.

- Education and Outreach: Conduct educational programs, workshops, and outreach initiatives to raise awareness about waste management, recycling practices, and the importance of environmental stewardship among harbour users and local communities.

- Innovative Solutions: Explore innovative technologies and initiatives, such as waste-to-energy conversion, biochar production, and upcycling projects, to extract value from waste streams and minimize environmental impact.

Fisheries Management: As we continue to develop and maintain our blue fishing harbour, effective fisheries management remains paramount to ensure the long-term sustainability of our marine resources and the prosperity of our fishing community. Here are some key considerations and strategies for enhancing fisheries management:

- Sustainable Harvesting Practices: Emphasize the adoption of sustainable fishing practices that prioritize the conservation of fish stocks and minimize ecosystem impacts. Encourage the use of selective fishing gear, implementation of catch limits, and adherence to seasonal closures to prevent overfishing and promote stock recovery.

- Ecosystem-Based Management: Adopt an ecosystem-based approach to fisheries management that considers the interconnectedness of marine ecosystems and the diverse range of species and habitats within our fishing grounds. Incorporate habitat protection measures, such as marine protected areas (MPAs) and habitat restoration projects, to maintain ecosystem health and resilience.

- Data Collection and Monitoring: Strengthen data collection efforts to improve our understanding of fish populations, fishing effort, and ecosystem dynamics. Implement comprehensive monitoring programs, including onboard observer programs, electronic monitoring systems, and cooperative research initiatives, to collect accurate and timely data for informed decision-making.

- Science-Based Decision Making: Base fisheries management decisions on sound scientific evidence and expert advice. Collaborate with fisheries scientists, research institutions, and governmental agencies to conduct stock assessments, evaluate management strategies, and address emerging challenges such as climate change and habitat degradation.

- Stakeholder Engagement: Foster collaboration and communication among stakeholders, including fishers, scientists, government agencies, and non-governmental organizations (NGOs), to ensure that fisheries management measures are inclusive, transparent, and responsive to the needs and concerns of all stakeholders. Encourage active participation in fisheries advisory councils, working groups, and public consultations.

- Enforcement and Compliance: Strengthen enforcement efforts to deter illegal, unreported, and unregulated (IUU) fishing activities and ensure compliance with fisheries regulations. Invest in surveillance technologies, training programs for enforcement personnel, and cooperative enforcement agreements with neighbouring jurisdictions to enhance monitoring and control measures.

Ecosystem Restoration: It's essential to prioritize ecosystem restoration efforts alongside sustainable fishing practices. Ecosystem restoration not only enhances the resilience of marine ecosystems but also supports the well-being of our local communities and the longevity of our fishing industry. Here are some key points to consider:

- Preservation of Biodiversity: Ecosystem restoration aims to conserve and restore diverse habitats, including mangroves, seagrasses, and coral reefs. These habitats serve as nurseries, feeding grounds, and shelter for marine species, contributing to the overall health of the ecosystem and sustaining fish populations.

- Habitat Enhancement: Implementing measures such as artificial reef deployment, shoreline stabilization with native vegetation, and the creation of fish aggregating devices (FADs) can enhance habitat quality and promote the recovery of degraded ecosystems. These efforts provide additional refuge and foraging opportunities for marine life.

- Sustainable Fisheries Management: Restoring and protecting critical habitats within the harbour can contribute to the resilience of fish stocks and fisheries productivity. By maintaining healthy ecosystems, we can support sustainable fishing practices and ensure the availability of fishery resources for future generations.

- Community Engagement: Engage with local stakeholders, including fishers, residents, and environmental organizations, to foster collaboration and participation in ecosystem restoration initiatives. Community involvement not only enhances the success of restoration projects but also promotes awareness and stewardship of marine resources.

- Monitoring and Adaptive Management: Establish monitoring programs to assess the effectiveness of restoration efforts and track changes in ecosystem health over time. Regular monitoring allows us to adapt management strategies as needed and address emerging challenges to ecosystem resilience.

Social Responsibility: As we strive to uphold sustainability principles in our fishing harbour, it's imperative to recognize the critical role of social responsibility in ensuring the well-being of our communities, fishers, and stakeholders. Here's a brief overview of key considerations and strategies for promoting social responsibility:

- Ensuring Fair Labour Practices: Uphold fair labour standards and promote safe working conditions for all individuals employed within the fishing industry. This includes providing proper training, access to necessary safety equipment, and fair wages to safeguard the livelihoods and rights of fishers and workers.

- Supporting Local Communities: Foster partnerships with local communities to ensure that economic benefits generated by the fishing port are shared equitably. This may involve investing in community development projects, supporting local businesses, and providing opportunities for local residents to participate in decision-making processes.

- Empowering Fishers: Empower fishers by providing access to education, training, and resources to enhance their skills, promote entrepreneurship, and diversify income sources. Support initiatives that enable fishers to adopt sustainable fishing practices, reduce bycatch, and mitigate environmental impacts.

- Enhancing Safety at Sea: Prioritize safety measures and emergency response protocols to protect the well-being of fishers and crew members working in hazardous conditions at sea. Provide access to safety training, communication equipment, and

emergency support services to mitigate risks and prevent accidents.

- Promoting Ethical Sourcing: Embrace ethical sourcing practices by promoting transparency, traceability, and accountability throughout the seafood supply chain. Partner with suppliers and seafood certification programs to ensure that products sourced from our fishing port meet rigorous social and environmental standards.

3.3 Cost Estimate for Setting up Green and Smart Fishing Harbour

This section should provide detailed cost estimate including abstract cost estimate for setting up Smart Fishing Harbour. An indicative abstract cost estimate is presented below:

Abstract cost estimate

Sl. No.	Description	Unit	Quantity	Rate	Amount in Rs.
1	Smart Technology Investments				
1.1	Procurement and installation of smart infrastructure components, such as IoT devices, sensors, communication networks, and data management systems including cost of hardware, software, and installation services.	LS			5,00,00,000.00
1.2	Development or customization of software for data management, analysis and visualization	LS			2,00,00,000.00
2	Communication and Connectivity				

Sl. No.	Description	Unit	Quantity	Rate	Amount in Rs.
2.1	Deployment of communication infrastructure, including internet connectivity, satellite communication systems, and wireless networks	LS			2,50,00,000.00
2.2	Implementation of networking equipment and cybersecurity measures	LS			50,00,000.00
3	Safety and Security Measures				
3.1	Investment in safety equipment (distress beacons and rescue drones)	LS			50,00,000.00
3.2	Installation of security systems (surveillance cameras, drones, access control and other smart technologies)	LS			3,00,00,000.00
4	Installation & commissioning of renewable energy system such as solar power plant etc.,	kW	600.00	50,000.00	3,00,00,000.00
5	Procurement of waste processing equipment and recycling facilities	LS			2,00,00,000.00
6	Rain water harvesting system including construction of common RCC circular	Sq.m	10,000.00	1,500.00	1,50,00,000.00

Sl. No.	Description	Unit	Quantity	Rate	Amount in Rs.
	underground water tank				
7	Fish Handling System				
7.1	Tripod with winch of capacity 22KN and 2.5m lift	Nos.	100.00	90,000.00	90,00,000.00
7.2	Conveyor system of 2.5MT/hour capacity	RM	1,000.00	20,000.00	2,00,00,000.00
7.3	Crane	LS			50,00,000.00
8	Conversion of conventional electric lighting system to LED lighting system in existing facilities including energy management system	L.S			50,00,000.00
	Retro-fitting/ conversion of diesel-powered equipment's/ cranes/ forklift/ pay loader/ vehicles etc., to electrically powered.	L.S			10,00,000.00
9	Provide charging stations for electric vehicles	L.S			50,00,000.00
10	Movable conveyor system for carrying ice	L.S			1,00,00,000.00
11	Drainage and sewerage, effluent treatment plant, sewage treatment plant, bilge oil water separation unit, spent engine oil	L.S			4,00,00,000.00

Sl. No.	Description	Unit	Quantity	Rate	Amount in Rs.
	reception shed, toxic waste collection shed etc.,				
				Sub Total	**29,50,00,000.00**
	Add 3 % for Contingencies				88,50,000.00
	Add 2% for work charged estt. Charges				59,00,000.00
				Sub total	**30,97,50,000.00**
	Consultancy charges				30,97,500.00
				Sub total	**31,28,47,500.00**
	GST 18 %				5,63,12,550.00
				Total	**36,91,60,050.00**
				Say	**37 Crores**