

Coastal & River

MANAGEMENT UNIT (MU)	ISSUE/IMPORTANCE	OBJECTIVE	ACTION/STRATEGY	RESPONSIBLE AGENCIES
MU09	<p>Reclamation</p> <ul style="list-style-type: none"> Increased erosion/accretion and altered coastal dynamics Increased flooding risk in reclaimed areas, especially during monsoons. Strain on drainage systems leading to inland flooding Risk from sea-level rise, with reclaimed land close to sea level. Dispersion of Suspended Sediments Tidal Gates effectiveness 	<ul style="list-style-type: none"> Stabilize shorelines & existing revetments and reduce erosion rates while preserving the natural sediment transport and coastal dynamics. Prevent or minimize flooding in reclaimed areas, especially during heavy rainfall and monsoon seasons. Improve the capacity and functionality of drainage systems to prevent inland flooding and manage stormwater effectively. To evaluate tidal gate performance, 	<ul style="list-style-type: none"> Frequent observation Hard Engineering Solutions, i.e., Groynes, Breakwaters & Revetment Strengthening the existing revetments. Safe Platform Levels for buildings Stormwater Management and Flood Control, i.e., Flood Barriers, Polder Systems & Flood Storage Areas Permeable Surfaces Advanced Forecasting and Warning Systems Upgrade Drainage Infrastructure, i.e., Expand Drainage Capacity & Green Infrastructure Pumping Stations Regular Maintenance Monitor and maintain tidal gates and channels regularly. 	JPS Melaka JPS Daerah

Marine Habitats and Biodiversity

The proposed development management strategies for marine habitats and biodiversity at MU09 are as follow.

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE/RESPONSIBLE AGENCIES
• MU09 (Pulau Melaka)	Mangroves <ul style="list-style-type: none"> • To protect, conserve and rehabilitate the mangrove areas. • To facilitate mangrove regeneration by implementation of appropriate tools and methods. 	<ul style="list-style-type: none"> • Sustainable development to facilitate the regeneration of mangroves at respective areas. • Rehabilitation, restoration and replanting of suitable mangrove species. • No new land reclamation projects allowed from Lereh to Parit Cina. 	<ul style="list-style-type: none"> • Regeneration and re-establishment of mangroves. • Degradation of mangrove areas due to reclamation and coastal developments. 	<ul style="list-style-type: none"> • Department of Forestry, • Department of Forestry, • Developers.
• MU09 (Pulau Upeh & Pulau Panjang)	Coral Reef, Seagrass & Seaweed <ul style="list-style-type: none"> • To protect, conserve and rehabilitate the coral reefs, seagrass and seaweed areas. 	<ul style="list-style-type: none"> • Promote sustainable coastal development at coral reefs, seagrass and seaweed areas. • No land reclamation projects allowed at or adjacent to coral reefs and seagrass areas. 	<ul style="list-style-type: none"> • Coastal development such as reclamation can cause adverse impacts on coral reefs, seagrass and seaweed areas. 	<ul style="list-style-type: none"> • Melaka State Government, • Department of Environment, • Department of Town and Planning, • Developers.
• MU09 (Pulau Upeh)	Turtle Nesting Beach <ul style="list-style-type: none"> • To conserve and preserve turtle landing sites. 	<ul style="list-style-type: none"> • Expedite plans to gazette turtle landing site as protected area. • Promote sustainable coastal development at turtle nesting beaches. • Provision of solid waste disposal infrastructure. • Increase the 'do not litter' signboards at turtle nesting beaches. • Promote turtle awareness and educational programmes in collaboration with relevant agencies. 	<ul style="list-style-type: none"> • Turtle landing/nesting site in Pulau Upeh. • Turtles are susceptible to various stressors from rapid coastal developments and tourism activities i.e., noise disturbance, light spill, and potential solid waste disposal. 	<ul style="list-style-type: none"> • Department of Fisheries, • NGOs, • Majlis Bandaraya Melaka Bersejarah (MBMB), • MOTAC Melaka, • Department of Town and Planning, • Developers.

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		<ul style="list-style-type: none"> No coastal reclamation projects allowed at or adjacent to turtle nesting beaches. 		
• MU09 (Sg. Seri Melaka)	Wildlife in Mangrove Forest <ul style="list-style-type: none"> To ensure the safety of public beaches/ river from wildlife attacks (e.g. crocodile). 	<ul style="list-style-type: none"> Promote awareness, education and safety programme about crocodile behaviour and habitats. Installation of warning signboard (e.g. crocodile habitats) at respective beaches/ river. 	<ul style="list-style-type: none"> The presence of crocodiles in coastal areas/ river, especially recreational beaches pose a significant risk to tourism and public safety. 	<ul style="list-style-type: none"> PERHILITAN, Majlis Bandaraya Melaka Bersejarah (MBMB), NGOs.
	<ul style="list-style-type: none"> To reduce impact on human-wildlife conflicts. 	<ul style="list-style-type: none"> Promote sustainable coastal development at mangroves area. Development of human-wildlife conflict management plan. 	<ul style="list-style-type: none"> Presence of wildlife (small mammals & avifauna) in mangroves. Presence of crocodiles in coastal areas especially at recreational beaches pose a significant risk to tourism and public safety. Development activities could affect mangrove habitats and thus can cause potential human-wildlife conflicts. Human-wildlife conflict can result in the decline and potential loss of species due to habitat degradation, while communities can suffer from financial losses (ecotourism) and threats to public safety, livelihoods and property. 	<ul style="list-style-type: none"> PERHILITAN, Majlis Bandaraya Melaka Bersejarah (MBMB), Department of Town and Planning, Developers. NGOs.

Fisheries and Aquaculture

The proposed development management strategies for marine capture fisheries and recreational fisheries at MU09 are as follow.

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE/ RESPONSIBLE AGENCIES
• MU09 (Klebang, Kg. Portugis and Parit Cina)	Marine Capture Fisheries <ul style="list-style-type: none"> • To ensure high standards of fish quality, enhanced food safety and nutritional value through provision of better fisheries infrastructures and facilities. 	<ul style="list-style-type: none"> • Upgrade the fisheries infrastructures at Klebang, Kg. Portugis and Parit Cina fish landing points. 	<ul style="list-style-type: none"> • Lack of fisheries infrastructures at Klebang, Kg. Portugis and Parit Cina fish landing points. 	<ul style="list-style-type: none"> • Department of Fisheries. • LKIM. • Melaka State Government.
	<ul style="list-style-type: none"> • To improve the navigation of fishing vessels at Klebang, Kg. Portugis and Parit Cina. 	<ul style="list-style-type: none"> • Undertake maintenance dredging at Sg. Seri Melaka (Klebang), Kg. Portugis and Sg. Melaka (Parit Cina) river mouths. 	<ul style="list-style-type: none"> • Siltation issues prevented safe passage for fishing vessel during low tides. 	<ul style="list-style-type: none"> • Department of Drainage and Irrigation.
	<ul style="list-style-type: none"> • To ensure food security and safety. 	<ul style="list-style-type: none"> • Deployment of artificial reefs and Fish Aggregating Devices (FADs). • Promote sustainable coastal development through enhancement of fisheries habitat (eco-engineering structures). • No new coastal reclamation projects allowed from Lereh to Parit Cina. 	<ul style="list-style-type: none"> • Coastal development such as reclamation can cause adverse impacts on fisheries resources and fishermen income. 	<ul style="list-style-type: none"> • Department of Forestry, • Department of Fisheries, • Developers.
• MU09 (Klebang and Limbungan)	Recreational Fisheries <ul style="list-style-type: none"> • To improve recreational fisheries infrastructures and facilities. 	<ul style="list-style-type: none"> • Upgrade the recreational fisheries infrastructures. • Upgrade/Provision of septic tanks/toilets. 	<ul style="list-style-type: none"> • Limited recreational fisheries infrastructures and facilities. 	<ul style="list-style-type: none"> • Melaka State Government • MOTAC Melaka • Majlis Bandaraya Melaka Bersejarah (MBMB).
• MU09 (Klebang, Kota Laksamana and Pulau Melaka)	<ul style="list-style-type: none"> • To promote good fishing practices in recreational fishing activities. 	<ul style="list-style-type: none"> • Provision of sufficient garbage bins and portable toilets at the recreational beaches. • Promote public awareness by organizing environmental talks on coastal cleanliness and protection of coastal habitats. 	<ul style="list-style-type: none"> • Lack of solid waste disposal infrastructures and portable toilets. 	<ul style="list-style-type: none"> • Department of Fisheries, • Melaka State Government • NGOs

Water Quality

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE RESPONSIBLE AGENCIES
MU09	<p>Waste Control</p> <ul style="list-style-type: none"> • Solid waste and Scheduled Waste Control <p>Erosion and Sediment Control</p> <ul style="list-style-type: none"> • Control the sedimentation <p>Sewage Discharge</p> <ul style="list-style-type: none"> • Control of sewage discharge 	<ul style="list-style-type: none"> • New activities that fall under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 must submit the EIA report to the Department of Environment for approval. • New activities that do not fall under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 shall submit their development proposal to the Local Authority and conditions on discharge should be imposed on the operators. • Provision of Erosion and Sediment Control (ESCP) for land clearing activities • Submission of the ESCP plan to the Department of Irrigation and Drainage (DID) for approval prior to start of land clearing and earthwork activities • Provision of septic tanks in remote areas • Upgrading of existing sanitary facilities • Compliance to Malaysian Marine Water Quality Standard • Compliance to Standard Kebangsaan Kualiti Air Rekreasi Semulajadi dan Garispanduan bagi Pemantauan Air Rekreasi Semulajadi • Compliance with Environmental Quality (Sewage) Regulations 2009 • Environmental Quality (Scheduled Waste) Regulations 2005 	<ul style="list-style-type: none"> • MU09 has significant land use due to on-going land reclamation activities. • The largest land use in MU9 is the beach, covering an area of 673.1 hectares, primarily located within Pantai Klebang • The WQI within this MU are moderate at the estuaries • Water quality index at Pulau Upah has improved from Moderate and Good to Excellent. 	<ul style="list-style-type: none"> • Department of Environment • Department of Fisheries • Local Authorities • Indah Water Konsortium (IWK) • National Water Services Commission (Suruhanjaya Perkhidmatan Air Negara, SPAN)

Land Use

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE/ RESPONSIBLE AGENCIES
Human Settlement				
MU09	<ul style="list-style-type: none"> To manage and control any land use changes along the coast 	<ul style="list-style-type: none"> Define coastal zoning categories (including residential, commercial, conservation, and mixed-use areas). Establish zoning regulations Control the allowable density type for any development along the coast. Limit land conversion and approval for TOL permit 	<ul style="list-style-type: none"> Increase of population along the coastline may impact the existing infrastructure (including road, utilities, and traffic) 	<ul style="list-style-type: none"> MBMB PTD Melaka Tengah PTG Melaka JKR JPS IWK SAMB TNB
	<ul style="list-style-type: none"> To prevent and control erosion. To ensure compliance with environmental regulations regarding hydraulic impact assessments and erosion control. 	<ul style="list-style-type: none"> Construct proper erosion control structures such as retaining walls and sediment control barriers. Conduct regular hydrological studies to identify high-risk erosion zones. Enforce guidelines for land development near water bodies to minimize erosion risks. 	<ul style="list-style-type: none"> Impact from the hydraulic can cause erosion to the settlement 	<ul style="list-style-type: none"> JPS
	<ul style="list-style-type: none"> To reduce environmental impact caused by the construction activities on the site 	<ul style="list-style-type: none"> Prepare an Environmental Impact Assessment (EIA) for any major projects along the coast (based on the DOE requirements). Manage thorough evaluations of EIA before approving construction projects. Adhere to the Environmental Managing Plan (EMP) recommendations as part of the mitigation major. 	<ul style="list-style-type: none"> Any changes to land use due to construction may affect the environment. 	<ul style="list-style-type: none"> MBMB DOE

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		<ul style="list-style-type: none"> Conduct periodical inspection during and after construction. 		
	<ul style="list-style-type: none"> To manage the land use due to UNESCO's heritage status and the high number of heritage sites 	<ul style="list-style-type: none"> Adhere to UNESCO and all JWN conservation standards. as stipulated by UNESCO in order to ensure the integrity and authenticity of this historical city 	<ul style="list-style-type: none"> Conflict of interest between the need of adhering to the conservation principles against the need of having land reclamation along the coast especially within the designated UNESCO World Heritage Site Core and Buffer Zone. 	<ul style="list-style-type: none"> UNESCO JWN PERZIM MBMB PTD Melaka Tengah PTD Alor Gajah PTG Melaka SM-WEZ (Straits Melaka Waterfront Economic Zone) DOE
	<ul style="list-style-type: none"> To monitor coastal development 	<ul style="list-style-type: none"> Conduct periodical inspection. Regulate the law related to any developments along the coast. Implement sustainable zoning regulations to prevent excessive land reclamation. 	<ul style="list-style-type: none"> Coastal development within Melaka coastline possesses adverse impacts towards adjacent mudflat areas. 	<ul style="list-style-type: none"> MBMB PTD Melaka Tengah PTG Melaka
Forest and Mangroves				
MU09	<ul style="list-style-type: none"> To regulate human activities in order to minimize environmental impact 	<ul style="list-style-type: none"> Establish guidelines for tourism, aquaculture, and infrastructure development. Enforce regulations to control pollution, illegal logging, and encroachment. 	<ul style="list-style-type: none"> Existence of the human activities within the mangrove forest, and requires proper management 	<ul style="list-style-type: none"> FDPM Local Authorities

Recreational & Tourism

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE/ RESPONSIBLE AGENCIES
Activities				
MU09	<ul style="list-style-type: none"> To manage and control all the business activities to be legal in operations and follow the Standard Operating Procedures 	<ul style="list-style-type: none"> Local authorities need to carry out enforcement operations on illegal business operations. 	Licensing issues related to tourism involving buildings, sites and land use.	<ul style="list-style-type: none"> • MBMB
MU09	<ul style="list-style-type: none"> To implement zoning to separate different activities and prevent accidents. 	<ul style="list-style-type: none"> Provide a gazette area for the water-sport activities such as windsurfing, kayaking, banana-boat rides, and scuba diving lessons. Establish clear safety guidelines and enforce regulations for all water sports. 	<ul style="list-style-type: none"> There is no specific area that have been dedicated for water-sport activities. 	<ul style="list-style-type: none"> • MBMB
Attractions				
MU09	<ul style="list-style-type: none"> To promote tourism and cultural heritage by highlighting its unique attractions. 	<ul style="list-style-type: none"> Upgrade and maintain facilities and improve accessibility Improve lighting and signage by installing proper streetlights and directional signage to improve safety and navigation. Restore heritage and cultural sites by refurbish and highlight the historical and cultural significance 	<ul style="list-style-type: none"> Unattractive and low maintenance of Kota Supai has not attracted tourists to visit. 	<ul style="list-style-type: none"> • MOTAC • Tourism Malaysia • MBMB
	<ul style="list-style-type: none"> To manage the uses of the heritage site to the public to promote the potential of the site as an economic catalyst 	<ul style="list-style-type: none"> Information centre or an information board which tells about the history of the area. Provide adequate and suitable infrastructures to support the historical site. 	<ul style="list-style-type: none"> Inadequate information and suitable infrastructures at the historical sites. 	<ul style="list-style-type: none"> • UNESCO • JWN • PERZIM • MBMB • PTD Melaka Tengah • PTG Melaka • SM-WEZ (Straits

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				Melaka Waterfront Economic Zone) • DOE
	<ul style="list-style-type: none"> To preserve the scenic beauty and environmental quality of tourist areas. 	<ul style="list-style-type: none"> Implement sustainable practices and stricter environmental regulations to reduce pollution and maintain cleanliness in key tourist zones Encourage the development of hotels and F&B establishments beyond the Core Zone to promote balanced tourism distribution and alleviate congestion Implement sustainable practices and stricter environmental regulations to reduce pollution and maintain cleanliness in key tourist zones Develop and expand accessible beachfront public spaces and parks to enhance recreational opportunities and attract visitors 	<ul style="list-style-type: none"> Inappropriate condition of stalls at several beaches may have result to poor cleanliness and disrupt the scenic view. In some cases, there are huge waste collector provided at the beach which destroy the relaxing view of beach. Public toilets beaches that are unsupervised have a poor hygiene and not well ventilated. 	<ul style="list-style-type: none"> MOTAC Tourism Malaysia MBMB
Accessibilities				
MU09	<ul style="list-style-type: none"> To formalize and designate trails for vehicular transport. 	<ul style="list-style-type: none"> Create a transit- friendly beaches of public transportation. Formalize and designate trails for vehicular transport. Improve transportation links, signage, and infrastructure to enhance accessibility to popular <i>ikan bakar</i> spots, promoting local cuisine and culture 	<ul style="list-style-type: none"> Most of the beaches in Melaka have narrow road or do not have proper road for vehicle access to the beach at all. Limited access to <i>ikan bakar</i> dining spots 	<ul style="list-style-type: none"> MOTAC Tourism Malaysia MBMB
Amenities				
MU09	<ul style="list-style-type: none"> To provide an adequate number of facilities and amenities to tourist usage 	<ul style="list-style-type: none"> Upgrade utilities and regular maintenance amenities at tourist beaches to improve convenience and comfort for visitors 	<ul style="list-style-type: none"> Only few well-planned and upgraded beach provided facilities for the disabled. 	<ul style="list-style-type: none"> MOTAC Tourism Malaysia MBMB

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		<ul style="list-style-type: none"> Provide an effective signage that is clearly marked, simple and easy to find. Cater proper walkway accessibility along the shoreline and proper paved parking space for visitors. 	<ul style="list-style-type: none"> Only some parts of the beach areas are equipped with information resources for the swimmers and beachgoers. Providing it is crucial to avoid any emergencies cases and contact references. The provision of basic amenities has no uniformity in terms of design structure that can clearly outstands Melaka beaches. There are some beaches do not have a proper paved area for parking spaces; thus, it is vital in order to preserve the white sandy beach and nearby living creatures. 	
	<ul style="list-style-type: none"> To enhance safety measures to ensure a secure and enjoyable visitor experience 	<ul style="list-style-type: none"> Utilize surveillance cameras, panic buttons, and mobile alerts to enhance security. 	<ul style="list-style-type: none"> The existence of wild crocodile in certain beaches fears the public 	<ul style="list-style-type: none"> MOTAC Tourism Malaysia MBMB
Accommodations				
MU09	<ul style="list-style-type: none"> To provide sufficient and accommodation with add-on value for the best visitor experiences. 	<ul style="list-style-type: none"> Introduction of high-end accommodation such as hotels and resorts along the Melaka coastline as to upgrade the facilities and ambience for the tourists' experience with Add-on Value 	<ul style="list-style-type: none"> There have been complaints about the inadequate accommodation by the beach which is not as good to be the main attraction for visit purpose there. 	<ul style="list-style-type: none"> MOTAC Tourism Malaysia MBMB

Archaeological & Historical

MANAGEMENT UNIT (MU) (LOCATION)	MANAGEMENT OBJECTIVES	MANAGEMENT STRATEGIES	ISSUE/IMPORTANCE/REASON	RESPECTIVE/ RESPONSIBLE AGENCIES
MU09	<ul style="list-style-type: none"> To manage the land use due to UNESCO's heritage status and the high number of heritage sites 	<ul style="list-style-type: none"> Adhere to UNESCO and all JWN conservation standards. as stipulated by UNESCO in order to ensure the integrity and authenticity of this historical city 	<ul style="list-style-type: none"> Conflict of interest between the need of adhering to the conservation principles against the need of having land reclamation along the coast especially within the designated UNESCO World Heritage Site Core and Buffer Zone. 	<ul style="list-style-type: none"> UNESCO JWN PERZIM MBMB MPAG PTD Melaka Tengah PTD Alor Gajah PTG Melaka SM-WEZ (Straits Melaka Waterfront Economic Zone) DOE
	<ul style="list-style-type: none"> To protect, conserve the historical sites To manage the uses of the site to the public to promote the potential of the site as an economic catalyst 	<ul style="list-style-type: none"> Gazettlement of the potential site as one the archaeological site under JWN list. 	<ul style="list-style-type: none"> Gazettlement of the archaeological site 	<ul style="list-style-type: none"> UNESCO JWN PERZIM MBMB PTD Melaka Tengah PTG Melaka SM-WEZ (Straits Melaka Waterfront Economic Zone) DOE
		<ul style="list-style-type: none"> Prohibit land use conversion within this archaeological area to protect the site. 	<ul style="list-style-type: none"> Potential intervention of human activities within the archaeological site 	<ul style="list-style-type: none"> UNESCO JWN PERZIM MBMB

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		<ul style="list-style-type: none"> Registered these areas of historical importance as historic areas under JWN. Implement Standard Operating Procedures (SOPs) regarding underwater archaeology within the ZYD and outside ZYD Implement Standard Operating Procedures (SOPs) regarding development involve underground activities Encourage public and local people to learn the history and its importance to raise awareness of the importance of the area. Promote the historical sites as one of the places for the purpose of learning about history. 	<ul style="list-style-type: none"> Gazettlement of the historical site by JWN Protection of Sg Melaka River mouth vista (the "cone") Protection of cultural heritage on land and underwater High interest amongst the public on historical sites 	<ul style="list-style-type: none"> PTD Melaka Tengah PTG Melaka SM-WEZ (Straits Melaka Waterfront Economic Zone) DOE <ul style="list-style-type: none"> UNESCO JWN PERZIM MBMB PTD Melaka Tengah PTG Melaka SM-WEZ (Straits Melaka Waterfront Economic Zone) DOE