THE UNITED REPUBLIC OF TANZANIA

NATIONAL ACTION PLAN FOR CONSERVATION OF MARINE TURTLES 2024 – 2029

March 2024

FOREWORD

Marine turtle stocks are declining throughout the world, most of the Tanzanian areas historically used to be habited by dense populations. According to the IUCN, persistent over-exploitation, especially of adult females on the nesting beach, and the widespread collection of eggs are largely responsible for the endangered status of five sea turtle species occurring in Tanzania. In addition to direct harvest, sea turtles are accidentally captured in active or abandoned fishing gear, resulting in death to thousands of turtles annually. Coral reef and seagrass degradation, oil spills, chemical waste, persistent plastic and other marine debris, high density coastal development, and an increase in ocean-based tourism have damaged or eliminated nesting beaches and feeding grounds. Population declines are complicated by the fact that causal factors are not always entirely indigenous.

Currently, the Marine waters is seemed as of important to the development of the country as there is a substantial but un-tapped potential for blue economy activities such as coastal tourism, agriculture, mariculture development, natural gas exploitation, offshore fisheries, shipping, urban development, manufacturing, renewable energy, drilling and mining. These economic opportunities when undertaken in a manner that does not consider the life of other organisms, especially with populations that are threatened or endangered, the survival and recovery of the Marine Turtles and other critically endangered species will be at stake. To protect and conserve Marine Turtles, the Government of URT entered an MoU with IOSEA.

The National Action Plan for Conservation of Marine Turtles has been prepared for the purposes of raising awareness and assuring effective management measures and planning are instituted to allow recovery and the well-being of the already endangered and threatened Marine Turtles in Tanzania,

The National Action Plan for Conservation of Marine Turtles is a conceptual presentation of how Marine Turtles conservation and protection may be applied to contribute to the survival and well-being of Marine Turtles in Tanzania.

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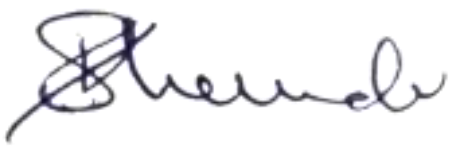
The National Action Plan for Conservation of Marine Turtles has been prepared to provide mechanisms for the protection and conservation of Marine Turtles in the United Republic of Tanzania for their recovery, planning and management and all other measures necessary to raise the survival of these endangered and threatened marine species.

In particular, we would like to extend our gratitude to the hard work done by Sea Sense, an important organizer to facilitate all the necessary work to achieve the plan and the Government of the United States through their USAID Tuhifadhi Maliasili (Preserve Natural Resources) Project, for their financial support in the preparation of the National Action Plan for Conservation of Marine Turtles.

The preparation of this National Action Plan for Conservation of Marine Turtles could not be possible without the cooperation and commitment of stakeholders who consulted which include Ministries, departments, agencies, academic and research institutions, civil society organizations, private sectors, and the coastal communities through their invaluable input and technical support. In this regard, we take this opportunity to acknowledge their valuable contributions and efforts which made possible the preparation of this National Action Plan for Conservation of Marine Turtles.



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LIST OF ACRONYMS

BMU	Beach Management Unit
CFMA	Collaborative Fisheries Management Area
CITES	Convention on International Trade in Endangered Species
CMP	Conservation and Management Plan
CMS	Convention on Migratory Species
CSO	Civil Society Organization
DMC	Department of Marine Conservation
DSFA	Deep Sea Fishing Authority
FAO	Food and Agricultural Organization
IOSEA	Indian Ocean South-East Asia
IUCN	International Union for Conservation of Nature
LGA	Local Government Authority
MLF	Ministry of Livestock and Fisheries
MoBEF	Ministry of Blue Economy and Fisheries
MPRU	Marine Parks and Reserves Unit
NAPCMT	National Action Plan for Conservation of Marine Turtles
NEMC	National Environment Management Council
NGO	Non-Government Organization
NPoA	National Plan of Action
PO RALG	Regional Administration and Local Government

SFC	Shehia Fisheries Committee
SWOT	Strengths, Weaknesses, Opportunity and Threats
TAFIRI	Tanzania Fisheries Research Institute
TFS	Tanzania Forest Services Agency
TPA	Tanzania Ports Authority
USAID	United States Agency for International Development
VLC	Village Liaison Committee
VPO	The Vice President's Office
WIO	Western Indian Ocean
WIOMSA	The Western Indian Ocean Marine Science
WWF	World Wildlife Fund
ZAFIRI	Zanzibar Fisheries and Marine Resources Research Institute
ZEMA	Zanzibar Environmental Management Authority
ZPC	Zanzibar Ports Corporation

EXECUTIVE SUMMARY

The marine and coastal waters of Tanzania are endowed with rich ecosystems including coral reefs, seagrass meadows, mangroves and beaches that provide important feeding and breeding habitats for five of the world's seven marine turtle species: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), and Olive ridley (*Lepidochelys olivacea*) turtle. Two species; green and hawksbill turtles are known to nest along most of the coastline. All are categorised by IUCN as endangered or critically endangered and are listed on Appendix I of CITES. Marine turtle populations are declining as a result of harvesting for their meat, eggs, and shells, as well as accidental capture in fishing gear, increasing coastal developments, climate change, and the degradation of nesting and foraging habitats. Inadequate law enforcement and institutional coordination hamper the conservation and management efforts.

The National Action Plan for the Conservation of Marine Turtles (NAPCMT) in Tanzania has been developed in response to the government's commitment to the Indian Ocean South-East Asia (IOSEA) Marine Turtle Memorandum of Understanding (IOSEA Marine Turtle MoU). The NAPCMT considers the conservation requirements of the marine turtle species along the Tanzanian coast and identifies the measures to be taken to address the threats and challenges to ensure their long-term viability. This is the first National Action Plan for Conservation of Marine Turtles in Tanzania for the period of five years (2024 -2029).

NAPCMT is designed as a flexible tool that guides stakeholders and provides a framework for collaboration to ensure long-term conservation and management of marine turtles. It contains a set of conservation and management measures requiring the collective involvement of various stakeholders. The development of NAPCMT ensured the engagement of diverse stakeholders including government, non-government organizations, coastal communities,

private sectors, research and academic institutions as well as government seafood industries.

NAPCMT is presented in five chapters. Chapter one provides a general introduction to marine turtles and provides the purpose, scope and presents the development processes of the action plan. Chapter two provides a general overview of the biology and ecology of marine turtles including the global threats to marine turtles. It also highlights the status of marine turtles in Tanzania including the threats faced by marine turtles as well as challenges that impair their conservation and management efforts. Chapter three provides a comprehensive review of governance, institutional and legal frameworks for the conservation of marine turtles in Tanzania. It highlights the regional and international regulatory frameworks in which Tanzania is taking part. It also provides a review of the national regulatory and institutional frameworks and their adequacy in addressing marine turtle conservation and management.

The NAPCMT proposes seven strategic objectives in chapter four that aim to: Reduce direct and indirect causes of marine turtle mortality, Reduce threats to critical marine turtle habitats, promote information sharing and education programmes on marine turtles, Strengthen enforcement of existing legal frameworks that protect marine turtles and their habitats, strengthen research and monitoring programmes to address knowledge gaps and understand the impacts of threats on marine turtle population trends, strengthen national, regional and international stakeholder collaboration for conservation of marine turtles, and strengthen existing policies and legislations to ensure responsible marine turtle conservation.

Chapter five provides the review, implementation, monitoring and evaluation of the action plan. For the successful implementation of the NAPCMT collaboration amongst government and non-governmental stakeholders is crucial. The NAPCMT proposes this

through the establishment of a National Marine Turtle Committee. To ensure the sustainability of the NAPCMT, the plan also proposes resource mobilization strategies such as the establishment of a sustainable source of funds.

CHAPTER ONE

1 INTRODUCTION

1.1 Background

Marine turtles play a critical role in the marine ecosystem including the maintenance of critical marine habitats such as coral reefs and seagrass meadows. They also contribute to the productivity of marine and coastal ecosystems through nutrient recycling. Therefore, their presence is an indicator of the health of the marine environment and is inextricably linked to the well-being of coastal people who rely on the productivity of marine ecosystems for their income and food security. Thus, marine turtles are regarded as flagship species for research, conservation, and protection.

However, marine turtles face significant threats throughout the world, with the population estimated to have declined by 80% over the last 50 years (Muir, 2005). As a result, six of the seven species of marine turtle are listed in the IUCN Red List of Threatened Species as either Vulnerable, Endangered or Critically Endangered. The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. In characterizing marine turtles as threatened, IUCN draws attention to the conservation needs of marine turtle populations around the world.

Addressing threats to widely distributed marine megafauna, such as marine turtles, requires global joint collaboration. Consequently, several initiatives, legal frameworks and development arrangements have been developed to improve the conservation and management of marine turtles at the global level. These include the United Nations Convention on the Law of the Sea, UNCLOS (1982), UN-FAO Code for responsible fisheries, UN FAO Guideline to reduce sea turtle mortality in fishing operations, CBD, CMS, CITES, Ramsar Convention, Nairobi Convention, Sustainable

Development Goals (SDGs), Western Indian Ocean Marine Turtle Task Force and Indian Ocean Tuna Commission (IOTC). Tanzania is a party to the listed initiatives, frameworks and development settings. Furthermore, the government of the United Republic of Tanzania is a signatory state to the Indian Ocean South East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU), which it ratified in 2001. As a signatory state, Tanzania is committed to implementing the activities outlined in the Conservation and Management Plan (CMP) of the IOSEA Marine Turtle MoU. The IOSEA Marine Turtle MoU calls the signatory states to prepare their national action plans for conservation of marine turtles.

The United Republic of Tanzania is a coastal state located in the Western Indian Ocean (WIO) region. It is situated in equatorial East Africa and lies just the south of the equator between 1^{o} 00' - 11^{o} 45' S and 29^{o} 21'- 40^{o} 25' E, and has a coastline of approximately 1,424 km. The territorial sea covers 64000 km^2 and EEZ of 223000 km^2, which supports a rich array of natural systems including coral reefs and seagrass meadows that provide important feeding and breeding habitats for five of the world's seven marine turtle species: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), and Olive ridley (*Lepidochelys olivacea*) turtle. Green turtles are the most common species and are known to nest along most of the coastline (Muir, 2005). Hawksbills are also widely distributed in Tanzania although nesting activity is restricted to the islands of Mafia, Pemba and Songo Songo (Muir, 2005). Olive ridley, loggerhead and leatherback turtles do not nest in Tanzania, but bycatch data confirm that they are present in Tanzanian waters (West & Hoza, 2014), either foraging or passing through en route to nesting sites elsewhere in the Western Indian Ocean (WIO) region.

Despite the named efforts and initiatives, marine turtles still face critical challenges and threats such as direct take of nesting females, coastal development, degradation of critical habitats, marine pollution, climate change, fisheries bycatch, egg harvesting, limited community awareness, weak law enforcement, knowledge gap and inadequate data sharing, low prioritization of marine wildlife in national policies and legislations and poor institutional coordination. Addressing these challenges is of paramount importance. Henceforth, the National Action Plan for Conservation of Marine Turtles has been developed to address the aforementioned challenges and threats and ensure sustainability of marine turtles and their habitats. The National Action Plan aligns with the IOSEA Marine Turtle MoU Conservation and Management Plan (CMP).

1.2 Purpose and Scope of the National Action Plan

The NAPCMT covers the five-year period between 2024– 2029. The NAPCMT will address the threats faced by marine turtles and their habitats. It also aims to address barriers and challenges that impede marine turtle conservation while simultaneously strengthening the enabling conditions necessary for the sustainable conservation of marine turtles and their habitats.

1.2.1 Scope

The NAPCMT provide a guide for the long-term conservation and management of marine turtles and critical marine habitats in Tanzania for the next 5 years (2024– 2029). The NAPCMT will be implemented in the coastal and marine waters of the United Republic of Tanzania.

1.2.2 Goal

The goal of the NAPCMT is to ensure the long-term Conservation and management of Marine Turtles and their habitats in Tanzania, which falls under MoU Objective 5.2(a): “Develop a set of key

management measures that could be used as a basis for action plans, through consultation with concerned Government authorities, research institutions, NGOs, local communities, and other stakeholders".

1.3 An Overview of the NAPCMT Development Process

The development process was participatory and consultative, and it was comprised of various phases, including the engagement of national level authorities, consultation with stakeholders and validation, and the approval/endorsement/launching and dissemination.

1.3.1 Engagement of the National Level Authorities

An inception meeting was held in October, 2022 to engage the Focal Point of the IOSEA MoU, Marine Parks and Reserves Unit (MPRU), the Ministry of Blue Economy and Fisheries (MoBEF) at the Department of Marine Conservation (DMC), and the Ministry of Livestock and Fisheries (MLF), Fisheries Division. The aim was to obtain an endorsement to develop and agree on the implementation framework of the action plan.

1.3.2 Stakeholders Consultations

The NAPCMT was formulated following extensive consultations with a range of national and local stakeholders including the Government of Tanzania, Local Government Authorities, NGOs, academic institutions, private sector representatives, and members of coastal communities through Focus Group Discussions, Key Informant Interviews and Workshops (Appendix B and C). During the consultation process, stakeholders were asked to identify and prioritise threats, barriers and challenges to marine turtles and their habitats, and identify actions to address those threats, barriers and challenges. Additionally, stakeholders were asked to allocate roles to stakeholders for the successful implementation of the NAPCMT. Afterwards, the action plan was drafted and

thoroughly reviewed, taking into account all the valuable input collected from these consultations and workshops.

1.3.3 Approval, Launch and Dissemination

A validation workshop was held on 3rd October 2023, with 24 stakeholders from 21 different institutions that play various roles in marine resources conservation. The attendees included the central government, Development partners, NGOs, development partners, Academia, Research institutions, and the fishing industry.

The final draft of the NAPCMT was submitted to the Marine Parks and Reserves Unit on 30th November 2023 for endorsement through the respective Ministries. Subsequently, after an official launch the action plan was disseminated to a wider range of stakeholders to promote more effective and sustainable implementation. This dissemination aimed to promote transparency, inclusiveness, collaboration, ownership, support, and accountability among stakeholders.

CHAPTER TWO

2. BIOLOGY AND ECOLOGY OF MARINE TURTLES

2.1 Ecology of Marine Turtles

Marine turtles are considered keystone species within marine ecosystems, due to their crucial role in maintaining the health of the ocean. They play important roles such as nutrient transportation, which directly benefits other marine organisms (Cáceres-Farias et al., 2022).

Adult green turtles are herbivorous and graze primarily on seagrass across their global distribution (Johnson et al., 2017). The feeding behaviour contributes to the maintenance of seagrass habitat by stimulating regrowth and increasing the standing biomass of leaves, thereby increasing productivity and nutrient content and benefiting other species in the food web (Kuiper-Linley et al., 2007; Johnson et al., 2017; Scott et al., 2020). Healthy seagrass meadows also provide food and shelter to a wide range of smaller herbivores including fish and invertebrates. The green turtle is one of the most common species of marine turtles found across a wide range of tropical and subtropical oceans globally.

The hawksbill turtle is a medium-sized species with a global distribution. Nevertheless, nesting activities have predominantly been recorded within tropical seas, and are less common along the subtropical coasts of the Atlantic, Indian, and Pacific Oceans (Chatting et al., 2018). Hawksbill turtles forage on sponges, which has a positive indirect effect on corals by grazing on coral competitors thereby preventing sponges from out competing coral for space on the reef and playing an important role in the maintenance of coral reef ecosystems (León & Bjorndal, 2002).

Leatherback turtles are the largest marine turtle species. Leatherback turtles are known as highly migratory species, covering long distances of up to 2000 km at speeds reaching 40

km/hour in search of feeding grounds (Muir, 2005). Their diet is exclusively composed of jellyfish (Muir, 2005; Mrosovsky et al., 2009). These turtles are found across a broad range of habitats, ranging from tropical, temperate to sub-arctic seas worldwide (Mrosovsky et al., 2009). The most important nesting areas are on the western coasts of Mexico, French Guyana, Malaysia and Indonesia. Mozambique and South Africa represent the most nesting coasts in the WION region (van de Geer et al., 2022). As a major predator of jellyfish, leatherback turtles provide natural control of jellyfish populations, which when in high numbers, may reduce fish populations by feeding on fish larvae.

Loggerhead turtles (*Caretta caretta*) inhabit tropical and warm temperate waters across the globe. They are recognized as opportunistic carnivores among marine turtle species, feeding on both living and dead materials. These turtles are distinguished by their thick necks and strong jaw muscles, which enable them to prey on hard-shelled animals such as molluscs and crabs (Lazar et al., 2010; Muir, 2005). Loggerheads are most frequently sighted in the coastal waters of regions including Florida and South Carolina, Greece, Turkey, Israel, Tunisia, and Libya and across south-east Asia to Australia, these coasts are hotspot nesting sites in the world (Muir, 2005). In the Western Indian Ocean region, loggerhead turtles are poorly explored, although significant nesting populations have been recorded in South Africa, Mozambique, with limited observation in Madagascar (Dalleau et al., 2014; van de Geer et al., 2022). However, there is no reported nesting activity on the coast of the East Africa region including Tanzania (van de Geer et al., 2022). Olive ridley turtles represent the smallest and most abundant among the seven marine turtle species. They have a wide distribution across more than 80 countries, spanning the tropical and subtropical waters of the Pacific, Indian, and Atlantic Oceans (Cáceres-Farias et al., 2022). The primary nesting hotspots are found along the coasts from Mexico to Costa Rica, as well as in northeastern India and Suriname (Muir, 2005). Historically, the

nesting of olive ridley turtles was thought to be widespread along the Western Indian Ocean coasts. However, current reports of these nesting events are infrequent, and some areas, such as Somalia, have not reported any nesting occurrences (van de Geer et al., 2022). For instance, in Tanzania, there were historical reports of olive ridley nesting on Maziwe Island between 1974 and 1975 (van de Geer et al., 2022). Olive ridleys exhibit both carnivorous and omnivorous feeding behaviours, consuming a variety of plants and animals (Cáceres-Farias et al., 2022).

2.2 Life Cycle of Marine Turtles

All species of marine turtles globally share a similar life cycle, as noted by Muir (2005). Characterized by a slow growth rate, these species typically take a prolonged period to reach maturity. For instance, greens, hawksbills, and loggerheads are believed to attain sexual maturity between twenty to thirty years.

On reaching sexual maturity, males and females will leave coastal areas and migrate, often thousands of miles, to breeding areas where they will mate and begin their adult, reproductive stage. Both sexes mate with several partners. Females store sperm in their bodies to fertilize the three to seven clutches of eggs laid during the season. Mating generally takes place offshore a month or two prior to the turtle's first nesting attempt for the season. Male turtles return to their foraging areas once the females commence their fortnightly trips to the beach to lay eggs.

During nesting season, female marine turtles’ claw to the beaches and upon finding a suitable site, they make a hole ranging between 30 and 60 cm in depth. They use their front flippers to dig the body pit and their hind flippers to dig out the sand, forming a vertical chamber where they deposit their eggs. Subsequently, the eggs are covered with sand. In general, it takes most marine turtles over 60 minutes to dig their nests and lay a clutch of leathery-shelled eggs.

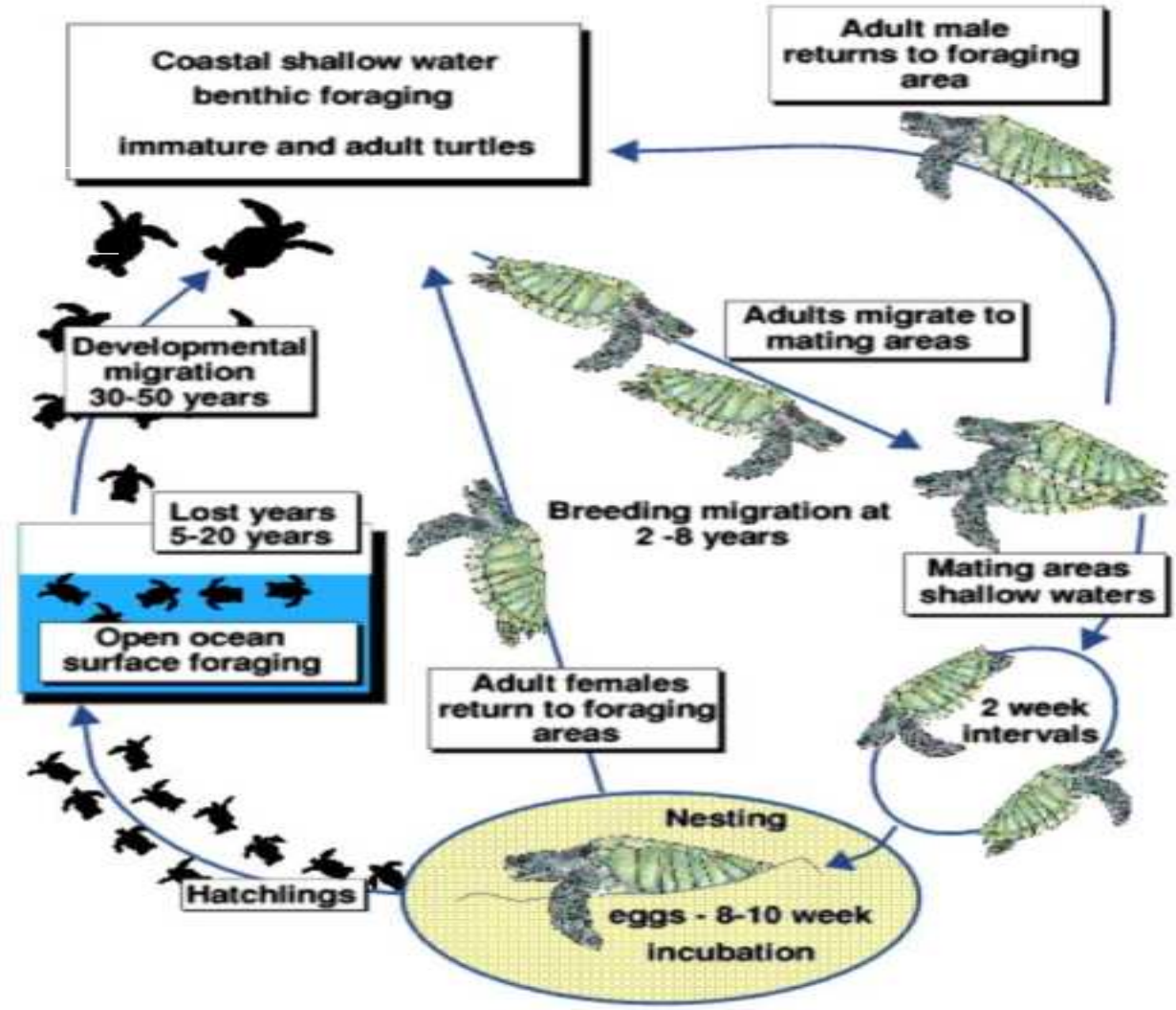
They deposit approximately 120 eggs in each nesting, with sizes varying according to different species.

The female marine turtles can spend up to 3 hours on the beaches after emerging from the water. Once they finish nesting, they crawl back into the sea. In this offshore area she begins to make the next clutch of eggs, fertilizing them from her sperm store. After the nesting season, females return to their distant foraging areas and may not nest again for 3-5 years.

The temperature of the nest during incubation determines the sex of hatchlings, which is known as temperature dependent sex determination. Warm temperatures produce mostly females whereas cooler temperatures produce mostly males. The amount of time the egg takes to hatch varies among the different species and is influenced by environmental conditions such as the temperature of the sand, but it is generally between 45 – 70 days. The hatchlings take two or more days to reach the surface of the nest where they emerge as a group, usually at night. To find the sea, hatchlings orient towards the natural light of the ocean horizon and use the natural slope of the beach to guide them. Once in the sea, hatchlings use a combination of cues (wave direction, current, and magnetic fields) to orient themselves to deeper offshore areas. Crossing the beach and swimming away is believed to imprint the hatchlings with the cues necessary to find their way back to the same area when they are ready to breed.

On reaching the ocean, hatchlings undertake what is known as a ‘swimming frenzy’, which may last for several days and varies in intensity and duration among species. This behaviour takes the hatchlings away from dangerous nearshore waters where predation is high. Once offshore, hatchlings associate with floating seaweed mats and other flotsam caught up in ocean currents and feed on tiny prey such as molluscs, crustaceans, hydrozoans, jellyfish, and fish eggs. Typically, hatchlings spend an extended period, approximately five to ten years in offshore habitats. During

this phase, their shells grow to a length ranging between 20 to 40 cm. Following this stage, they start to migrate toward nearby inshore areas to forage and spend the rest of their time to further growth and development until they reach sexual maturity and the cycle begins again.



Generalised life cycle of sea turtles

2.3 Global Threats to Marine Turtles

The IUCN Marine Turtle Specialist Group has identified five major threats to marine turtles: fisheries bycatch, coastal development, pollution and pathogens, direct take, and climate change.

Fisheries Bycatch

Incidental capture (known as bycatch) of marine turtles in the world's fisheries poses a major challenge to conservation and management efforts. It is estimated that the fishing industry contributes to the death of thousands to tens of thousands of marine turtles each year (Wallace et al., 2010). According to Wallace et al. (2010), there were at least 85,000 reports of turtles caught as bycatch worldwide between 1990 and 2008. The authors, however, argued that this figure was greatly underestimated by at least a factor of a hundred, due to the relatively limited (<1%) recorded global fishing activities and lack of bycatch data from small-scale fisheries. Surprisingly, it is estimated that over 44,000 marine turtles are killed annually as a result of bycatch in the Mediterranean region alone (Casale, 2011). Industrial longlines contain thousands of baited hooks on lines, which can be tens of miles long. These hooks entangle many species that are not intended to be caught. Marine turtles, particularly greens, loggerheads, olive ridleys, and leatherbacks, are attracted to the bait and get caught on the hooks or become entangled in the lines and drown. However, the nets and trawls are also particularly destructive and have been assessed to cause high bycatch impact and mortality rates (Wallace et al, 2013 & 2010). Turtle Excluder Devices have reduced marine turtle mortality in trawl fisheries but are not regulated worldwide. Fishing gear used in small-scale artisanal fisheries also poses a threat to marine turtles, particularly gillnets. However, data on rates of bycatch in small-scale fisheries is hard to access.

Coastal Development

Marine turtle habitats are degraded and destroyed by poorly regulated coastal development. The loss of nesting beaches to coastal development is well documented in many parts of the world and includes residential development and construction of recreational and tourism facilities, large scale infrastructure

development such as ports and jetties, as well as seafloor alterations such as seafloor dredging. Such construction and development alter the availability of nesting habitat and its topography. This may cause the turtle to relocate to alternative nesting areas or be forced to lay eggs on unsuitable beaches with a high risk of water inundation or predation and hence unsuccessful hatching (Poloczanska et al, 2009). In addition, coastal development increases artificial light intensity which may discourage adult marine turtles from nesting on the regular beaches. Coastal lighting has also been reported to have a significant impact and cause disorientation of hatchlings (Kamrowski et al, 2012).

Pollution and Pathogens

Marine pollution including plastics, discarded fishing gear, petroleum by-products, and other types of debris directly impacts marine turtles at all stages of their lifecycle through ingestion and entanglement. The entanglement of marine life in ghost fishing gear and the ingestion of plastic debris has been identified as more significant threats compared to oil pollution, climate change, and intentional exploitation (Duncan et al., 2017). The entanglements often result in severe wounds in marine turtles, greatly increasing the likelihood of mortality. Light pollution has also been recognized to pose a threat due to its disruption of nesting behaviour and hatchling orientation, leading to hatchling mortality. Chemical pollutants can weaken their immune systems, making them susceptible to disease causing pathogens. Excessive pollution in coastal areas resulting from human activities, including industrial discharges and agricultural runoff, is linked to an increase in the occurrence of pathogens that cause diseases such as Fibro papillomatosis (caused by a herpesvirus) in marine turtles. Among turtle species, green turtles are particularly susceptible to this disease (Aguirre and Lutz, 2004).

Direct Take

The cultural significance of marine turtles as a source of protein, income and cultural identity continues to be deeply rooted in many contemporary societies. A survey of legal marine turtle fisheries in 2014, found that 42 countries and territories permit direct take of turtles (Humber et al. 2014). Over the past three decades, it has been reported that the annual exploitation of marine turtles has reached approximately 38,000 individuals globally, with green turtles being the predominantly exploited species during this period (Senko et al., 2022). Furthermore, this study highlights that roughly 75% of the illicit exploitation originates from five countries: Haiti, Tanzania, Honduras, Indonesia, and Mexico. Notably, Tanzania ranked second among these, contributing to 20% of the total exploited marine turtles between 1990 and 2020 (Senko et al., 2022). However, the illegal trade of eggs, meat, and shells of turtles continues to be a major threat to their survival, despite the presence of national laws protecting marine turtles in most countries. Direct take also supplies the illegal trade in marine turtle products at an international scale. Lack of enforcement and limited public awareness enable international trade to persist.

Climate Change

Marine turtles are considered highly vulnerable to the impacts of climate change due to their reproductive behaviour which is associated with temperature. The sex of marine turtle hatchlings is temperature dependent and hence, rising global temperatures will result in warmer sand, causing more female than male hatchlings. Since marine turtles tend to gather at breeding sites a few weeks prior to nesting, the increase in water temperature can directly affect female physiology such as increasing the metabolic rates (Poloczanska et al., 2009). This implies that unfavourable fluctuations in temperature range could significantly shift sex ratios. Therefore, rapid climate change has the potential to

compromise reproduction, posing a serious threat to their populations. Climate change is also increasing the frequency of extreme weather events, which erode nesting beaches and cause coral reef and seagrass mortality. Moreover, due to the fact that climate change is threatening crucial foraging and breeding habitats, marine turtles are also indirectly affected, resulting in reduced food availability and favourable habitats for their survival. On the other hand, the rising sea levels caused by climate change pose a significant threat to marine turtles, directly eroding nesting beaches and causing water inundation on the shores. These changes interfere with their reproductive potential and lead to a decrease in hatching success (Poloczanska et al., 2009).

2.4 Status of Marine Turtles in Tanzania

The status of marine turtles in Tanzania was first assessed in the 1970s when populations of all species were reported to be declining (Frazier and Rodgers, 1974). Although afforded complete protection under national legislation, marine turtle populations in mainland Tanzania continue to face threats from subsistence harvesting for meat and eggs, and incidental capture in fisheries (West, 2010). Tourism development leading to the destruction of nesting beaches is a major concern for marine turtle populations in Zanzibar (Bourjea et al. 2008). Since the early 1990s, several conservation and management initiatives have been implemented at all known green turtle nesting sites. However, information concerning the distribution and abundance of other marine turtle species, the location of breeding, developmental and foraging habitats and population dynamics is incomplete.

2.4.1 Species Distribution, Abundance and Behaviour

Green turtles

The green turtle is the most common nesting species in Tanzania. Between 450 - 500 green turtle nests are recorded annually in Tanzania (West, 2017), which is relatively low compared to other countries in the WIO region (van de Geer et al., 2022). Green turtle nesting activity occurs all year round, but most nesting occurs between March and September with a noticeable peak in April and May. Sporadic nesting activity takes place between October and February. The most concentrated nesting occurs in Mafia Island, and approximately 60% of those nests are laid at Juani Island, a tiny island on the south-east coast of Mafia (West et al., 2013). An annual mark-recapture tagging programme is conducted during the peak nesting months of April and May and has produced an annual nesting population estimate of 41 - 72 individuals.

Kigamboni District has the second highest green turtle nesting density in Tanzania (West, 2017). There are 19 nesting beaches spanning 45km of coastline. An annual mark-recapture programme is conducted at the most utilised nesting beaches and has produced a nesting population estimate of 33 – 59 individuals.

Maziwe Island in Pangani District supports a green turtle rookery of similar size to Kigamboni. In the mid-1970s, Maziwe Island was widely considered to be one of the most important nesting sites for green turtles in Tanzania and East Africa as a whole (van de Geer et al., 2022). In the 1980s, the island was submerged due to erosion and now exists as a shifting tidal sand bank on top of Maziwe reef (van de Geer et al., 2022). Green turtles continue to nest on the sand bar even though the nests are inundated during both spring and neap tides (Muir, 2005). Eggs are relocated to beaches in Ushongo village as part of a community-based marine turtle conservation programme.

Small numbers of nests are laid on beaches in Mnazi Bay - Ruvuma Estuary Marine Park (MBREMP), located in Mtwara Region at the southern tip of Tanzania's coastline bordering Mozambique. There are four main green turtle nesting beaches that are managed by MBREMP in collaboration with local communities.

Nesting also occurs sporadically in Mkinga, Mkuranga and Kilwa Districts although nesting density is very low in these areas (less than 10 nests per year). Green turtles are also known to nest in small numbers in the Zanzibar archipelago. The most important sites are Mnemba Island in Zanzibar and Misali Island in Pemba.

Tanzania supports extensive seagrass meadows which can support considerable numbers of green turtles. Seagrass meadows are found in abundance in sheltered areas of the coast around Moa in Tanga and tidal zones fronting the deltas of the Ruvu, Wami and Rufiji rivers, although the actual area covered by seagrass and the relative species densities have not been established in Tanzania. The extensive seagrass meadows off the southern Rufiji Delta including Mohoro Bay are reported by local fishers to be important foraging grounds for green turtles. In Mafia Island, immature and adult green turtles are seen regularly by recreational divers in Chole Bay and along the east coast of Juani Island where seagrasses occur.

Stranding records for juvenile green turtles exist from many coastal districts with curved carapace length (CCL) measurements as small as 18cm, indicating that Tanzanian waters support juvenile populations. However, the exact location and extent of green turtle developmental grounds are unknown.

Hawksbill turtles

Hawksbill turtle nest in Tanzania in low numbers, whereby the overall estimation is that fewer than 10 hawksbill clutches are laid in Tanzania per year (van de Geer et al., 2022). The nests are located on small islands including Juani Island in Mafia, the Songo

Songo Islands and Misali Island in Pemba. It is possible that some hawksbill nests go unrecorded if they are laid on islands without a nest monitoring programme.

Immature and adult hawksbill turtles are seen regularly by recreational divers in Chole Bay in Mafia Island and along the east coast of Juani Island where corals occur. In Mtwara, records of hawksbill sightings from dive surveys and questionnaire surveys indicate that important foraging habitats exist in Mnazi Bay and Msimbati (Guard et al. 1998; Muir, 2003). In Zanzibar, hawksbill turtles are regularly sighted by divers at Nungwi and the coral reefs around Mnemba Island.

Olive ridley turtles

The status of olive ridley turtles in the region remains largely unknown. Olive ridley turtles were observed nesting in Maziwe Island, Pangani District in the 1970s (van de Geer et al., 2022) but since the island submerged there have been no further nesting records for this species anywhere on the Tanzanian mainland or on offshore islands.

Loggerhead turtles

Loggerhead turtles do not nest in Tanzania but there are multiple records of loggerhead strandings, indicating that they forage in Tanzanian waters or pass through on migrations to nesting and foraging grounds elsewhere in the region. Between 2004 and 2019, 27 loggerhead strandings were recorded by community monitors (Sea Sense, unpublished data). Most records (n=25) were recorded in Kigamboni District and the Rufiji Delta.

Leatherback turtles

Leatherback turtles do not nest in Tanzania but strandings have been documented in Mafia Island and in Mtwara District. Four leatherbacks were captured in gillnets and drowned on the west coast of Mafia Island between 2001 and 2004 (Hamann et al.

2006). Community monitors recorded 12 leatherback strandings between 2008 and 2019, seven of which were in the Rufiji Delta (Sea Sense, unpublished data).

In September 2014, the central Tanzanian coast (Rufiji Delta – Mafia Island Seascape) became the first site in the Indian Ocean and South-East Asia region to be declared a 'Site of Regional Importance to Marine Turtles'. The declaration was made in Germany at a meeting of the Signatory States of the Indian Ocean South East Asian (IOSEA) Marine Turtle Memorandum of Understanding which comes under the umbrella of the Convention on Migratory Species.

The Rufiji Delta – Mafia Island Seascape provides strong ecological connectivity at a regional scale, linking marine turtle nesting sites, foraging grounds and migratory corridors. A green turtle satellite telemetry project, implemented by the South West Indian Ocean Fisheries Project (SWIOFP) to better understand the distribution, movements and habitat preferences of green turtles in the South West Indian Ocean (SWIO) region, identified the Rufiji – Mafia Seascape as one of only five regionals 'hot spots' for green turtle foraging activity and as an important migratory corridor for green turtles nesting elsewhere in the SWIO region (Bourjea et al. 2013).

Marine turtle stranding data indicates species richness of marine turtles in the Rufiji – Mafia Seascape and the site may be of regional foraging and migratory importance for species which are considered rare in the WIO region. Stranding data confirms the presence of three other marine turtle species in the Rufiji – Mafia Seascape: loggerhead, leatherback, and olive ridley (West, 2010). The Rufiji– Mafia Seascape is therefore of national significance because there are no other sites in Tanzania where all five species of marine turtle present in the Western Indian Ocean region have been recorded.

2.4.2 Threats to Marine Turtles in Tanzania

The major threats to marine turtles and their habitats in Tanzania are direct take of adults and their eggs; fisheries bycatch; disturbance of nesting beaches; degradation of foraging and breeding habitat; marine pollution; and climate change.

Direct Take of nesting females

Historically, direct take of nesting females was widespread in many coastal districts. However, the implementation of nest monitoring and protection programmes at all major nesting sites has reduced the harvesting of nesting females.

Despite these successes at nesting beaches, consumption of marine turtle meat is still common in many coastal communities. Marine turtles are captured at sea, usually as bycatch, although there are reports of targeted green turtle fisheries in Lindi District (West et al. 2016). Captured turtles are typically cut up at sea then brought to fish landing sites for sale, normally early in the morning or late in the evening to avoid detection. The meat is usually sold per kilo. Marine turtle meat has traditionally provided a valuable source of local income although some coastal people claim that they do not eat turtle meat because it is prohibited in the Koran. Meat of the green turtle is most favoured, while that of hawksbill is often avoided as it is known to be poisonous and can cause human fatalities when consumed (Bustard, 2016). Marine turtle products i.e., meat, oil, eggs, shell, skin and internal organs are believed to have medicinal properties and coastal people use them to treat a wide range of diseases.

The rapid growth of tourism in Zanzibar in the early 1990s created a new souvenir market for marine products such as jewellery made of hawksbill shells (known as tortoiseshell) and may have encouraged direct take of this species. Such souvenirs were sold in Zanzibar Stone Town and on the east coast of the island. The trade ceased following the collection and burning of 657 turtle products

from curio shops in 1995 (Khatib et al. 1996). However, anecdotal reports suggest that the trade in hawksbill products may have re-emerged and requires further investigation.

Harvesting of Eggs

Harvesting of marine turtle eggs has occurred in Tanzania for generations although the presence of community patrol teams on nesting beaches has been extremely successful at reducing this threat. During the first year of community based marine turtle monitoring in Mafia Island in 2001, 47% of recorded nests were harvested by local fishers. In 2002, the incidence of harvesting fell to 5% of nests. This can most likely be attributed to the implementation of a community nest protection incentive scheme and a public awareness campaign. Community members who find and report a nest are given a small financial incentive. Further payment is given for every egg that hatches successfully (total of approx $10 per nest). However, in some locations e.g., Lindi District, persistent harvesting of eggs, together with direct take of nesting females, has eliminated the nesting population (West et al. 2016).

Fisheries Bycatch

In Tanzania, the bycatch of marine turtles occurs mostly in set gillnets with extended soak times and the catches are used for food, income generation and fishing bait. Gillnets with a mesh size of 5 - 6 inches are used to target catfish, emperor fish, grouper, parrot fish and trevally. Gillnets with a mesh size of 10+ inches target sharks and rays (Berachi, 2003). Both types of gillnets pose a threat to all species and age classes of marine turtles in Tanzania (Thiagarajan, 1991) although nets with a larger mesh size pose a more serious threat. Little is known about the volume or composition of these catches at a national level due to the challenges of data collection in small scale fisheries. Marine turtles are either released at sea and go unreported or the turtle is landed

in secret, in which case accurate data are almost impossible for researchers to access.

It is generally accepted that the most accurate method to quantify bycatch rates involves using independent observers on board fishing vessels to record information on per-vessel fishing effort, target catch and bycatch (Moore et al. 2010). However, in developing countries this methodology is often cost prohibitive. More inexpensive survey techniques such as interviews with fishers, which can be implemented rapidly and at low cost, are considered ideal in areas where there is little or no information (Aragones et al. 1997). In 2007, a marine turtle bycatch survey was conducted at eight fish landing sites in five coastal districts (Muir and Ngatunga, 2007). The study estimated that the annual incidental catch of marine turtles in the artisanal gillnet fishery could be over 6,000 individuals. However, a study of marine turtle bycatch conducted in Kigamboni District in 2015 using onboard observers demonstrated that bycatch rates were several orders of magnitude higher than those reported by fishers during interviews (West & Mchomvu, 2016). Therefore, the threat from fisheries bycatch is likely to be the single biggest cause of marine turtle mortality in Tanzania.

Disturbance to Nesting Beaches

Loss of nesting beaches caused by tourism development is a major concern for marine turtle populations in Zanzibar (Bourjea et al. 2008). Many hotels have been built on former nesting beaches as a result, there has been a marked decline in turtle nesting in those areas. Kiwengwa beach on the northeast coast of Zanzibar, an important green turtle nesting beach, has been rendered totally unsuitable for nesting turtles as a direct result of hotel development. Natural beach vegetation has been cleared in many areas and beachfront shops and restaurants have been built. Tanzanian law requiring a 60m set back limit from the high spring tide mark is seldom enforced and plans for sensitive beach lighting

are rarely incorporated into mitigation measures. Disturbance from tourism is less of an issue along the mainland coast where the industry is less developed, although there are concerning signs that light pollution is increasing in Kigamboni District, which is affecting the distribution of nesting activity.

Degradation of Foraging and Breeding Habitats

Weak governance of the fisheries sector in Tanzania has contributed to the widespread use of illegal and destructive fishing gears, which threaten marine turtles by degrading critical foraging and breeding habitats. Until very recently (2017), the use of explosives for fishing was commonplace along much of the Tanzania coast and has reduced many coral reefs to rubble, causing the loss of food and shelter for marine turtles. The use of monofilament nets, beach seines and poisons is widespread, particularly at migrant fisher camps which, due to their remote location, are beyond the reach of most law enforcement authorities.

Marine Pollution

Less than half of the solid waste generated in Tanzania's urban areas is collected and as a result, a significant proportion of the waste is dumped in rivers and waterways, eventually ending up in the ocean. Plastic debris can injure and kill marine turtles and has the capacity to transport potentially harmful chemicals and pathogens.

In rural communities, human waste is a serious environmental and public health risk. Open defecation on beaches is very common and exposes people to harmful pathogens. Over 70% of all cases attended in health facilities in Tanzania are water and sanitation related and require families to spend significant sums on medicine, transportation and health facility fees and can mean lost work, income and productivity among working household members, thus

potentially driving fishers to use ever more intensive fishing practices that harm or degrade marine turtle habitats.

Climate Change

Marine turtles are particularly susceptible to the impacts of climate change due to rising sea temperatures that cause loss of foraging and breeding habitat and erosion of nesting beaches. Among the tropical oceans, the WIO has the largest warming trend in sea surface temperatures in the tropics during the past century (Roxy et al. 2016). Warming temperatures cause coral bleaching events, which have been well documented in Tanzania.

There have been no studies of incubation temperatures on nesting beaches in Tanzania and therefore, the impact of climate change on sex ratios of marine turtle hatchlings is unknown.

Natural Predation

Natural predators such as monitor lizards (*Varanus* spp), mongoose (*Herpestes javanicus*), honey badgers (*Mellivora capensis*), termites (Isoptera) and feral dogs (*Canis* spp) pose a significant threat to incubating turtle eggs. To reduce egg predation, high risk nests are moved to enclosed hatcheries, which has proven to be reasonably effective in deterring some predators. However, predation by ants (*Solenopsis* spp) remains an ongoing problem due to the ants' ability to establish underground trails to turtle nests (Buhlmann & Coffman, 2001).

Ghost crabs (*Ocypode* spp), Indian house crows (*Corvus splendens*) and other birds' prey on hatchlings as they emerge from the nest.

2.4.3 Challenges Facing Marine Turtle Conservation in Tanzania

Limited awareness amongst coastal communities

Exploitation of marine turtles and degradation of coastal habitats continues in some parts, due to poor understanding amongst coastal communities of the important role of marine turtles in the

wider marine ecosystem, which poses significant challenges to the development of effective conservation and management measures in Tanzania. Engaging key stakeholders in awareness and sensitisation activities can facilitate an understanding of the factors that influence decisions, particularly those related to participation in illegal activities which threaten marine turtles and degrade their habitats. Understanding incentives and choices may also help to target awareness strategies more effectively.

Weak law enforcement

Marine turtles and their habitats are protected by national fisheries legislation in Tanzania. However, authorities that have the mandate to enforce such laws are often unaware of the relevant legislation and associated penalties for harming marine turtles and/or their habitats. Effective law enforcement is also hampered by the remoteness of many coastal communities and the fact that illegal take of marine turtles usually occurs at sea and is difficult to detect.

Knowledge Gaps

Marine turtle research, monitoring and conservation programmes in Tanzania have focused on nesting females. Annual tagging programmes are starting to generate information on important reproductive parameters including clutch frequency and remigration intervals, which enable estimates of nesting population size, but there are still important gaps in knowledge on recruitment and survivorship in the nesting population. There also remains a paucity of data on life history stages spent at sea including juvenile and sub-adult stages as well as the movements and behaviour of male turtles.

Collection of mortality data from stranded specimens on beaches is widespread due to ease of accessibility. If stranded specimens show signs of injury, it is possible to determine likely cause of death. Marine turtles often strand in the vicinity of migratory

corridors and foraging grounds, so it is also possible to identify areas of high risk to marine turtles. However, the extent of risk from threats such as fisheries bycatch and direct take cannot be properly understood without more detailed information on population sizes, which must be based on estimations of all segments of the population, not just nesting populations.

In addition, the location and quality of marine turtle foraging grounds is not well understood. The distribution and structure of seagrass meadows has not been systematically mapped in Tanzania, so information on important foraging grounds of green turtles, Tanzania's most common species, remains patchy.

Inadequate data sharing

Inadequate data sharing has been a critical challenge, hindering informed decision-making for the responsible conservation and management of these vulnerable species. Furthermore, the absence of standardized protocols and reliable shared platforms hinders coordinated data sharing among organizations and government agencies.

Low prioritization of marine wildlife in national policies and legislations

The limited emphasis on marine wildlife in national policies and legislations poses a significant challenge to effective conservation, protection and management of endangered marine animals including marine turtles. The low prioritization is manifested through inadequate allocation of resources, attention and regulatory measures as compared to terrestrial wildlife.

Institutional capacity and coordination

There is weak institutional capacity in Tanzania to conserve and manage marine turtles, which has resulted in reliance on non-state actors to conduct research, implement conservation actions, lead capacity building programmes and raise funds for these activities.

Furthermore, there are multiple ministries with a mandate for marine turtle conservation and management including the Ministry of Livestock and Fisheries and the Ministry of Natural Resources and Tourism. However, inter-ministerial collaboration on issues pertaining to marine turtles is not well coordinated. For example, the position of Focal Point for the IOSEA Marine Turtle MoU is housed within the Ministry of Livestock and Fisheries, whereas the Focal Points for the CMS and CITES are based within the Ministry of Natural Resources and Tourism, which creates challenges for information sharing.

Due to the fact conservation areas fall within territorial sea jurisdictions, which are not governed at the union level, separate governance and legal frameworks exist between Mainland Tanzania and Zanzibar. Consequently, this can result in weak coordination and impede marine turtle conservation activities.

CHAPTER THREE

3. GOVERNANCE, INSTITUTIONAL AND LEGAL FRAMEWORKS FOR CONSERVATION OF MARINE TURTLE

3.1 Governance Overview and Arrangements

The successful implementation of the National Action Plan for Marine Turtles (NAPCMT) requires robust multisectoral coordination and active engagement of stakeholders both within the marine sector and across other relevant sectors. Additionally, effective governance and comprehensive coordination will ensure better progress towards the implementation of the NAPCMT and achieve the desired outcomes and targets set in the plan.

Considering that the conservation of marine turtles is not a union matter, it is implemented under two distinct institutional arrangements in Tanzania. In Mainland Tanzania, the Ministry of Livestock and Fisheries (Fisheries Division) holds responsibility for marine turtle conservation. They work towards enforcing regulations and managing the conservation efforts within the Marine Protected Areas (MPAs), which are crucial habitats for marine turtles. The management of these MPAs is overseen by the Marine Parks and Reserves Unit (MPRU). On the other hand, in the context of Zanzibar, the Ministry of Blue Economy and Fisheries, specifically the Department of Marine Conservation (DMC), is responsible for the conservation of marine turtles. The DMC is mandated to protect all designated marine conservation areas, including those of significant importance for marine turtle conservation.

Both ministries play a vital role in enforcing laws and regulations to safeguard and conserve marine turtles and their habitats, ensuring their long-term survival. The coordinated efforts of these institutions are key to achieving the objectives set forth in the

NAPCMT and ensuring effective conservation of marine turtles in Tanzania.

3.2 Policy and Legal Frameworks

Marine turtles are protected by a multitude of national, regional, and international laws, conventions, and agreements. Such frameworks have been deemed necessary due to the global distribution and migratory behaviour of marine turtles. During their lifecycle, marine turtles inhabit multiple geo-political jurisdictions, each with different levels of commitment to and capacity for marine turtle conservation (Havice et al. 2018).

3.1 Global and Regional Frameworks

Tanzania has signalled its intent and commitments by participating in several regional and international agreements and conventions especially those related to natural resource management including marine turtle conservation. These frameworks serve as important guidelines and agreements that recognize the significance of protecting these vulnerable species and their habitats. By promoting awareness, implementing conservation measures, and fostering collaboration among nations, these frameworks contribute to the sustainable conservation and management of marine turtle populations, ensuring their survival for future generations.

Convention on Biological Diversity (1992)

The CBD promotes the conservation and sustainable use of biodiversity, including marine turtles. It provides a framework for countries to develop strategies and measures to protect and conserve marine turtle habitats and populations. Strategic statement: Develop and implement biodiversity conservation strategies and action plans that specifically address the conservation needs of marine turtles in line with CBD objectives. The United Republic of Tanzania ratified the United Nations

Convention on Biological Diversity in March 1996. Signatory states are required to develop strategies or programmes that integrate conservation and sustainable use of biodiversity into sectoral or cross-sectoral plans or policies.

Convention on Migratory Species of Wild Animals (CMS)

The CMS also known as the Bonn Convention was signed in 1979 in Bonn and entered into force in 1983, Tanzania is a contracting party to this convention. The convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the guidance of the United Nations Environment Programme (UNEP), concerned with the conservation of wildlife and habitats on a global scale.

The migratory species that have been categorized as being in danger of extinction throughout all or a significant proportion of their range are listed on Appendix I of the convention and migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organized by tailored agreements are listed in Appendix II to the convention.

The Convention on Migratory Species (CMS) is an environmental treaty of the United Nations, which provides a global platform for the conservation and sustainable use of migratory animals and their habitats. Tanzania ratified the CMS in July 1999. The convention brings together the States through which migratory animals pass, providing a legal foundation for internationally coordinated conservation measures throughout a migratory range.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES regulates international trade in endangered species, including marine turtles and their products. It supports the

conservation and sustainable use of marine turtle populations by controlling and monitoring international trade. Strategic statement: Ensure compliance with CITES regulations to prevent illegal trade in marine turtles and their products and promote sustainable use of marine turtle resources.

IOSEA Memorandum of Understanding

The Indian Ocean South-East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU) is a regional agreement which was established under the auspices of the Convention on Migratory Species (CMS). It aims to protect, conserve, replenish and recover marine turtles and their habitats, based on the best scientific evidence, considering the environmental, socio-economic and cultural characteristics of the signatory States. To achieve this objective, a Conservation and Management Plan (CMP) has been instituted, fostering collaboration among signatory states within the Indian Ocean and South-East Asian region, as well as other range states. In recognition of the global importance of marine turtles, the Government of the United Republic of Tanzania became a signatory state to the Indian Ocean South East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU) in 2001. As a signatory state, Tanzania is committed to implementing the activities outlined in the Conservation and Management Plan (CMP) of the IOSEA Marine Turtle MoU.

Western Indian Ocean Marine Turtle Task Force

The Western Indian Ocean Marine Turtle Task Force (WIO-MTTF) was formally established in 2007 under the Nairobi Convention, in partnership with the IOSEA Marine Turtle MoU. It functions as a technical committee, bringing together stakeholders with a wide range of expertise in both scientific and management aspects. The WIO-MTTF was set as a joint initiative of the IOSEA Marine Turtle MoU and the Nairobi Convention. It promotes implementation of

the IOSEA Marine Turtle MOU and its integral Conservation and Management Plan (CMP) in the WIO region.

Nairobi Convention

The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region signed in Nairobi on 21 June 1985, as amended and renamed "the Amended Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean" on the 31 March 2010.Tanzania is a contracting party to this convention. The Nairobi Convention provides a mechanism for regional cooperation, coordination and collaborative actions, and enables the Contracting Parties to harness resources and expertise from a wide range of stakeholders and interest groups towards solving interlinked problems of the coastal and marine environment.

United Nations Convention on the Law of the Sea, UNCLOS (1982)

United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. It come in force since 16 November 1994, UNCLOS (1982) article 194 wording "the measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life".

Ramsar Convention

Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971, also known as Ramsar. The Ramsar convention was established on 2 February 1971 came into force 21 December 1975.Tanzania is a contracting party to this convention. "The Ramsar convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources". Ramsar is not affiliated with the UN system of

Multilateral Environmental Agreements (MEAs), however, it works hand in hand with MEAs and Ramsar is an associated with *"biodiversity-related cluster"* of treaties and agreements. The Ramsar Convention is the only global environmental treaty which works particularly in ecosystem, and it works with Member State all over the world. Ramsar site account for critical eg Criteria to supports vulnerable, endangered, or critically endangered species or threatened ecological communities and supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region."

3.2 National Policies and Legal Frameworks

Marine turtles are of major conservation concern in Tanzania and are therefore afforded complete protection under National Fisheries Policy and associated legislation.

National Fisheries Policies

There are several national policies that direct support the conservation of marine turtles. The policies call for the government to strategically participate in the management, protection and control of fisheries resources; and the conservation of aquatic biodiversity, fisheries and aquaculture productivity, and ecosystem processes. The policies include;

- National Fisheries Policy 2015 (mainland Tanzania)
- Zanzibar Fisheries Sector Policy, 2022

National Legislations

National acts play important role in the conservation of marine turtles. These Acts provide the legal framework for the protection and conservation of all aquatic flora and fauna including marine turtles. Notably, among these acts are those related to fisheries, marine protected areas (MPAs), and environmental regulations. The Fisheries Acts address critical issues such as fisheries

management and bycatch, helping minimize the accidental capture of marine turtles in fishing activities. The Marine Parks and Reserves Act establishes protected areas where marine turtles find sanctuary and safeguard their habitats from unsustainable activities.

The Environmental Management Acts, play a significant role in the protection of coastal and marine environments. They provide comprehensive environmental protection strategies such as reinforcing measures against pollution, habitat degradation, and unsustainable practices that can adversely impact marine turtle habitats and populations.

- The Fisheries Act No. 22 of 2003 (mainland Tanzania)
- Zanzibar Fisheries Act No. 7 of 2010
- Deep Sea Fisheries Management and Development Act No. 5 of 2020
- The Marine Parks and Reserves Act No. 29 of 1994 (mainland Tanzania)
- Environmental Management Act No 20 of 2004 (mainland Tanzania)
- Zanzibar Environmental Management Act No. 3 of 2015
- Tanzania Fisheries Research Institute Act No 11 of 2016
- Wildlife Conservation Act No 5 of 2009

Other frameworks

These instruments that support marine turtle conservation include:

- Fisheries Master Plan 2021/22 – 2036/37 (mainland Tanzania)
- National Environmental Master Plan for Strategic Interventions 2022 – 2032

- National Biodiversity Strategy and Action Plan 2015 - 2020
- Zanzibar Fisheries Master Plan 2023 - 2038
- NPoA for implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of food security and poverty eradication (SSF guidelines)
- The Post-2020 Global Biodiversity Framework
- United Nations Framework Convention on Climate Change

3.3 Current Implementation and Coordination Framework in Relation to Marine Turtle Conservation in Tanzania

As of 2023, the conservation framework for marine turtles in Tanzania is a collaborative approach that involves multi-sectoral, multi-stakeholder, policies and initiatives. There are several national and international legal frameworks, agreements and arrangements which support conservation of marine turtles. At the forefront of these frameworks are government agencies such as the Marine parks and reserves unit which is the Focal Point for the Indian Ocean South-East Asia Marine Turtle Memorandum of Understanding, and the Ministry of Natural Resources and Tourism which is the Focal Point for CITES and CMS. Other government authorities which play critical roles include the Ministry of Blue Economy and Fisheries – Department of Marine Conservation (Zanzibar), the Ministry of Livestock and Fisheries – Fisheries Resource Protection Section (mainland Tanzania), Research and academic institutions, Local Government Authorities and the Deep-Sea Fishing Authority. These entities are responsible for policies and legislation development, enforcement and education.

Also, Non-Government Organizations and private sectors such as hotels and diving centres contribute through direct and indirect engagement in conservation efforts of marine turtles such as community awareness, data collection, nesting beach protection and restoration of critical habitats.

At the grassroots level, there is the active engagement of local coastal communities. Local coastal communities are involved through community awareness and education campaigns and other activities which support conservation of marine turtles.

CHAPTER FOUR

4. THE NATIONAL ACTION PLAN

4.1 Strategic Objectives and Outcomes

The desired change for the NAPCMT is that all threats, barriers and challenges for marine turtles in Tanzania are addressed and leading to the long-term conservation of marine turtles and the health of their habitats. In order to achieve marine turtle conservation and management goals, a total of seven strategic objectives and seven strategic outcomes have been defined as follows.

4.1.1 Strategic Objectives

- Reducing direct and indirect causes of marine turtle mortality
- Reducing threats to critical marine turtle habitats
- Promote information and education programmes
- Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats
- Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats
- Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles
- Strengthen existing policies and legislations to provide for responsible marine turtle conservation

4.1.2 Strategic Outcomes

- Decreased mortality rates among marine turtles due to targeted interventions aimed at reducing human-induced threats such as bycatch, illegal trade, pollution, and habitat destruction.
- Improved protection and restoration of critical marine turtle habitats through the implementation of conservation measures,

habitat management plans, and sustainable coastal development practices, resulting in enhanced nesting and foraging habitats for marine turtles.

- Increased awareness, understanding, and engagement of local communities, stakeholders, and the general public regarding marine turtle conservation through comprehensive information and education programs.
- Enhanced enforcement and compliance with existing legal frameworks related to marine turtle conservation, leading to a reduction in illegal activities such as direct take of turtle and their eggs, trade and consumption, and destructive fishing practices.
- Improved understanding of marine turtle population dynamics, behaviour, migration patterns, and the impacts of threats through comprehensive research and monitoring programs. This knowledge enables evidence-based conservation strategies, adaptive management, and targeted interventions to mitigate threats and support the long-term survival of marine turtle populations.
- Improved collaboration and communication among institutions, including enhanced data sharing
- Enhanced policies and legislations that effectively support responsible marine turtle conservation and management

4.2 Conservation and Management Measures

This section outlines a comprehensive framework for stakeholders, policymakers, and conservation practitioners to guide their efforts towards the effective conservation and management of marine turtles and their critical habitats. The plan recognizes the critical need to address the various threats and challenges faced by marine turtles and provides a strategic approach to mitigate their impacts. In Table 1, the specific management actions are presented,

providing a clear roadmap for implementation. Each action is accompanied by defined objectives, strategic interventions, activities, responsible stakeholders, priorities and timelines.

Table 1: Conservation and Management Actions

Objective 1: Reduce direct and indirect causes of marine turtle mortality		**Timeframe**					
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
1.1 Eliminate direct take of nesting females	1. Enforce laws prohibiting direct take	MPRU, DMC, LGAs, Marine Police, village councils					
	2. Conduct beach patrols and other MCS activities	MLF, MPRU, DMC, Marine Police, LGAs, VLCs/BMUs/SFCs					
	3. Establish marine turtle ecotourism initiatives	MLF, MPRU, DMC, LGAs, VLCs/BMUs/SFCs					
1.2 Eliminate egg harvesting by humans	1. Relocate high risk nests to a safer area	NGOs, community rangers, VLCs/BMUs/SFCs					
	2. Enforce laws prohibiting egg harvesting	MPRU, DMC, LGAs, Marine Police, village councils, VLCs/BMUs/SFCs					
	3. Conduct beach patrols and other MCS activities	MLF, MPRU, DMC, LGAs, Marine Police,					

		VLCs/BMUs/SFCs					
1.3 Implement measures to reduce egg predation by animals	1. Relocate high risk nests to safer area	NGOs, community rangers, VLCs/BMUs/SFCs					
1.4 Mitigate impacts of tidal inundation on nests	1. Relocate high risk nests to safer area with less inundation effect on turtle nest	NGOs, community rangers, VLCs/BMUs/ SFCs					
1.5 Reduce by-catch in fisheries	1. Regulate fishing activities at turtle hotspots e.g., gear restrictions, number of vessels and temporal closure during peak seasons	MLF, MPRU, DMC, LGAs, BMUs/VLCs, SFCs					
	2. Adopt and enforce the use of Turtle Excluder Devices in Tanzania	MLF, MoBEF, DSFA					
	3. Strengthen observer programme in semi-industrial and industrial fisheries	MLF, MoBEF, DSFA					
	4. Identify high-risk areas for marine turtles	MLF, MoBEF, DSFA					
	5. Enforce collection and	MLF, MOBEF,					

	submission of data on marine turtle bycatch in semi-industrial and industrial fisheries	LGAs, DSFA, NGOs, BMUs/VLCs/SFCs					
1.6 Eliminate targeted turtle fisheries	1. Behavioural change programme on risks associated with marine turtle consumption and awareness to coastal communities on the importance of marine turtle conservation	MLF, MoBEF, MPRU, DMC, DSFA, LGAs, NGOs, BMUs/VLCs, SFCs, Community					
	2. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, DMC, LGAs, DSFA, Marine Police, KMKM, BMUs/VLCs, SFCs					
	3. Conduct inspections at fish landing sites and migrant fisher camps	MLF, MoBEF, MPRU, DMC, LGAs, BMUs/VLCs/SFCs					
	4. Enforce fisheries laws and penalties	MLF, MoBEF, MPRU, DMC, LGAs, DSFA, BMUs/VLCs/SFCs					
	5. Collaborate with coastal communities for alternative livelihoods	NGO, MLF, MoBEF, BMUs/VLCs/SFCs					

1.7 Eliminate trade and consumption of turtle products	1. Raise awareness to the public of the importance of marine turtle conservation	MPRU, DMC, DSFA, LGAs, NGOs, BMUs/VLCs/SFCs, community					
	2. Enforce laws and penalties on trade and consumption	MPRU, DMC, LGAs, Marine Police, village councils					
	3. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, DMC, LGAs, Marine Police, BMUs/VLCs/SFCs					
	4. Conduct inspections at fish landing sites and migrant fisher camps	MLF, MPRU, LGAs, BMUs/VLCs/SFCs					
1.8 Reduce threats from marine debris	1. Collaborate with relevant agencies to practice and raise awareness to the public on the importance of good waste management practices	MPRU, DMC, LGAs, NEMC, ZEMA, NGOs, fishing companies, Community					
	2. Regulate disposal of unused fishing gears	MLF, MoBEF, MPRU, DMC, LGAs, VLCs/BMUs/SFCs					

	3. Conduct regular beach clean-up activities	NGOs, LGAs, BMUs, BMUs/VLCs/SFCs, Community, private sector					
	4. Strengthen district waste management plans	LGAs, districts, private sectro, ward and village councils					
	5. Collaborate with private sector to implement and support waste management plans	Private sector, NEMC, ZEMA, LGAs, districts, ward and village councils					
Objective 2: Reduce threats to critical marine turtle habitats							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
2.1 Identify and conserve nesting sites	1. Conduct surveys to identify important nesting beaches	Academic/Research Institutes, LGAs, NGOs, BMUs/VLCs/SFCs					
	2. Establish protected areas and conservation zones	MPRU, TFS, Forest Department, DMC, MLF, MoBEF, NEMC, LGAs, BMUs/VLCs/SFCs					
	3. Implement measures to	MPRU, TFS, Forest					

	prevent beach erosion including restoration of critical seagrass, mangrove and coral reef habitats, native plant species	Department, DMC, LGAs, Community, private sector					
2.2 Manage and regulate coastal development	1. Ensure Environmental Impact Assessments/ Environmental Protection Plan (EPP) consider marine biodiversity	NEMC, ZEMA, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, TFS					
	2. Enforce setback regulations for coastal construction	NEMC, ZEMA, LGAs, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, Tourism bodies, Ministry of Lands, Housing and Human Settlements					
	3. Monitor the implementation of mitigation strategies in response to EIAs	NEMC, ZEMA, LGAs, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, Tourism bodies, Ministry of Lands, Housing and Human Settlements					

	4. Promote implementation of Marine Spatial Planning	VPO, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, NEMC, ZEMA, LGAs, NGOs, private sector, National Land Use Planning Commission (NLUPC)					
3 Minimize human disturbance on nesting beaches	1. Formulate local bylaws to regulate the use of motorbikes and bright lights on nesting beaches	LGAs, village councils, BMUs/VLCs/SFCs					
	2. Prohibit the establishment of migrant fisher camps on turtle nesting beaches	LGAs, BMUs/VLCs/SFCs, village councils					
	3. Formulate village land use plans to avoid human encroachment onto turtle nesting beaches	LGAs, BMUs/VLCs/SFCs, village councils, NGOs					
	4. To prohibit sand mining in areas of sea turtle nesting sites	LGAs, NEMC, ZEMA, village councils, BMUs/VLCs/SFCs					
2.4 Address solid waste	1. Provide and manage waste management	LGAs, private sector, NGOs					

pollution on nesting beaches	facilities in urban and rural communities						
	2. Formulate local bylaws to prohibit open defecation on beaches	LGAs, BMUs/VLCs/SFCs, village councils					
	3. Organize regular beach clean-up campaigns	NGOs, LGA, BMUs/VLCs/SFCs, Private sector, Academic institutions, Community					
2.5 Reduce light pollution on nesting beaches	1. Conduct awareness campaigns on the impacts of light pollution and to reduce light intensity	NGOs, private sector investors, LGAs, MPRUs, DMC, Community					
	2. Ensure adequate consideration of light pollution in Environmental Impact Assessments	NEMC, ZEMA, LGAs					
	3. Monitor the implementation of mitigation strategies in response to EIAs	NEMC, ZEMA, LGAs					
2.6 Reduce pollution at sea	1. Enforce laws on pollution, industrial and agricultural discharges etc.	NEMC, ZEMA, TPA, ZPC, ZMA, TASAC, MPRU, DMC, LGAs					
	2. Monitor intentional	NEMC, ZEMA,					

	discharge of wastes such as ballast water, oil spills, chemicals, solid wastes at sea etc.	TPA, ZPC, ZEMA, TASAC, MPRU, DMC, LGAs					
2.7 Implement measures to protect and restore critical habitats; seagrass meadows, coral reefs and Mangroves	1. Raise awareness in coastal communities of the importance of sustainable resource use	MPRU, DMC, LGAs, NGOs, Community					
	2. Enforce laws prohibiting the use of destructive fishing gear e.g., beach seines	MLF, MoBEF, MPRU, TFS, Forest Department, DMC, Marine Police, LGAs, BMUs/VLCs/SFCs, village councils					
	3. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, TFS, Forest Department, DMC, Marine Police, LGAs, BMUs/VLCs/SFCs					
	4. Enforce laws on pollution, industrial, domestic and agricultural discharges etc.	NEMC, TPA, ZPC, ZMA, TASAC, LGAs					
	5. Implement seagrass, mangrove and coral reef restoration and monitoring programmes	Academic/research institutions, TFS, Forest Department,					

		NGOs, Community, schools, private sector					
Objective 3: Promote information and education programmes							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
3.1 Develop educational materials and resources	1. Conduct an inventory of existing marine turtle education and awareness materials available in Tanzania and the wider WIO region	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
	2. Develop and adapt marine turtle education and awareness resources from other regions.	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
3.2 Develop and conduct focused education and awareness campaigns	1. Design and implement targeted stakeholder education and awareness programmes using innovative and creative tools	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
	2. Organize workshops, seminars, and awareness sessions to target stakeholders e.g., policy-makers, law enforcers,	MPRU, DMC, MLF, MoBEF, NGOs, LGAs					

	coastal communities						
	3. Engage with schools and educational institutions to conduct education and awareness campaigns	MPRU, DMC, MLF, MoBEF, LGA, NGOs, Academic institutions					
	4. Advocate for the inclusion of marine turtle biology and marine conservation issues into school curricula	MPRU, DMC, MLF, MoBEF, Ministry of Education and Vocational Training,					
	5. Evaluate the effectiveness of education and awareness programmes	MPRU, DMC, MLF, MoBEF, NGOs, LGAs					
	6. Organise annual celebrations on World Sea Turtle Day (June 16th)	MPRU, DMC, MLF, MoBEF, NGOs, Private sector					
Objective 4: Strengthen enforcement of existing legal frameworks							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
4.1 Enhance enforcement capacity and training programs for law enforcement agencies	1. Conduct workshops and seminars for law enforcers and judicial on marine turtle conservation laws and regulations	MLF, MoBEF, MPRU, DMC, LGAs, NGOs					
	2. Conduct capacity building programs for VLCs, BMUs, SFCs on marine	MLF, MoBEF, MPRU, DMC,					

	turtle conservation laws and regulations	LGAs, NGOs					
	3. Establish a community-based monitoring network within coastal communities	MLF, MoBEF, MPRU, DMC, LGAs, NGOs					
Objective 5: Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
5.1 Assess and monitor nesting activity	1. Implement a nest monitoring and protection programme	1. Academic/research Institutions, NGOs					
	2. Conduct population assessments to determine reproductive behaviour	2. NGOs, MPRU, DMC, LGAs, BMUs/VLCs, SFCs					
5.2 Improve understanding of in water life cycle phases	1. Deploy satellite tracking devices to monitor turtle migratory behaviour	1. Academic/research institutes, MPRU, DMC, NGOs					
	2. Identify the location of key foraging	2. Academic/research institutes, MPRU, DMC, NGOs					

	3. Conduct studies on habitat utilization	3. Academic/research institutes, MPRU, DMC, NGOs						
5.3 Promote Research programme with specific thematic areas on marine turtles	1. Recruit masters and PhD students to conduct research on marine turtles	1. Academic/research institutes, MPRU, DMC, NGOs						
	2. Secure funding for marine turtle research	2. Academic/research institutes, MPRU, DMC, NGOs						
	3. Conduct research on high-risk areas for marine turtles	3. Academic/research institutes, MPRU, DMC, NGOs						
5.4 Investigate socio-cultural values associated with marine turtles	1. Conduct socio-economic surveys to capture knowledge, attitude and practice within coastal communities	1. Academic/research institutes, MPRU, DMC, NGOs						
5.5 Improve knowledge	1. Develop accessible database system for real	1. MLF, MoBEF, MPRU, DMC,						

management on marine turtles	time data for marine turtles	NGOs					
	2. Support stakeholder participation in regional and international marine turtle meetings, conferences, workshops etc. Support information sharing at international forum	2. Academic/research institutes, MLF, MBEF, MPRU, DMC, NGOs					
	3. Publish data in peer reviewed journals	3. Academic/research institutes, NGOs					
	4. Promote marine turtle conservation efforts in Tanzania in TV, radio and print media, and on websites and social media platforms	4. MLF, MBEF, MPRU, DMC, NGOs					
Objective 6: Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
6.1 Enhance communication and coordination amongst	1. Establish a National Marine Turtle Conservation Committee	Director of Fisheries - MLF and MoBEF					
	2. Training and capacity building to Committee	Development Partners and					

national stakeholders	members	NGOs					
	3. Develop Annual implementation plans	Established Committee					
	4. Strengthen coordination and information sharing through participation of national focal points of related conventions in the proposed National Marine Turtle Conservation Committee						
	5. Convene national forums/Expos on the conservation of marine turtles						
6.2 Strengthen regional and international collaboration	1. Ensure participation in the Western Indian Ocean (WIO) Marine Turtle Task Force (MTTF) meeting	MLF, MoBEF, MPRU, Ministry of Natural Resources and Tourism					
	2. Ensure representation of Tanzania in regional and international conferences/symposiums/ expos on marine conservation	MPRU, DMC, MLF, MoBEF					
	3. Timely submission of IOSEA report to	MPRU, DMC, MLF, MoBEF					

	secretariate						
	4. Maintain strong communication with IOSEA secretariat	MLF, MoBEF, MPRU, Ministry of Natural Resources and Tourism					
Objective 7: Strengthen existing policies and legislations to provide for responsible marine turtle conservation							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
7.1 Strengthen legislative frameworks	1. Conduct a comprehensive review of current frameworks to address gaps and propose necessary amendments	Central government, MPRU, DMC, LGAs, Academic/research institutions, NGOs					
	2. Conduct public awareness campaigns on the legal compliances and consequences	MPRU, DMC, MLF, MoBEF, LGAs, NGOs					
	3. Advocate for resource allocation to enforcement of marine wildlife legislation	MPRU, DMC, MLF, MoBEF, LGAs, NGOs					
	4. Formulate bylaws that protect marine turtles and their habitats	LGAs, BMUs/VLCs/SFCs, village councils, NGOs					

7.2 Mainstream marine turtle conservation issues into the national fisheries and biodiversity agenda	1. Develop policy briefs for informed decision making	NGOs, MPRU, DMC, MLF, MoBEF					
	2. Incorporate marine turtle conservation measures in district development management plans/legal frameworks	NGOs, MPRU, DMC, MLF, MoBEF					

4.3 Roles and Responsibilities of Key Stakeholders in the Implementation of NAPCMT

The successful development and implementation of the national action plan hinges upon the active involvement of diverse stakeholders. Through a thorough consultation process, key stakeholders were identified, recognized, and entrusted with vital roles and responsibilities during the execution of the action plan. The collaborative efforts of these stakeholders will play a critical role in turning the national action plan into tangible results.

Table 2: Summary of Roles and Responsibilities of Key Actors

Stakeholder	Roles and responsibilities
Relevant Ministries (MPRU under MLF, DMC under MoBEF, Vice President's Office Division of Environment)	* Development of action plans and strategies for marine turtle conservation; * Establishing and gazetting of new Marine Protected Areas; * Mobilizing funds to support conservation activities; * Enact and enforcement of laws and regulations; Operationalization of international conventions; Development of MoU for conservation of marine turtles; * Support and provide stakeholder coordination.
Local government Authorities (Regional, Municipal and District Government	* Support community education and awareness; * Support formulation and approval and implementation of by-laws; * Capacity building to BMUs and CFMAs staff, * Enforcement of the laws and regulations;

Offices	* Strengthen stakeholder engagement; * Collaborating with community members and NGOs in turtle monitoring and conservation; * Create committees at the Ward level for conservation of marine turtles; * To provide reports and information about actions threatening marine turtles.
Ward/Village councils	* Provide education and awareness raising; * To formulate, approve and implement by-laws to protect sea turtles; * Support law enforcement; * To monitor and protect nests; Conduct beach clean-up campaigns * Report cases that threaten marine turtles.
Coastal communities	* Hold the key responsibilities to ensure sustainable use of marine resources; Ensure the use of proper fishing techniques; Share information with the responsible authorities about threats to marine turtles such as poaching; * Comply with Acts and Regulations; Support enforcement of laws; * To support the government in conservation of marine turtles.
Sponsors e.g., USAID, WIOMSA, Development	* To provide funds to support marine conservation programs; * To support education and awareness;

Partners	* To support research and monitoring.
NGOs/ CSOs	* To provide capacity building to the communities; * To design projects that support alternative livelihoods for coastal communities to reduce dependence on hunting and killing of marine turtles; * To conduct research and coordinate conservation activities; * To provide funding and technical support; To support and collaborate with the government.
Private sector	* To provide funds to support conservation activities such as education and awareness programs; * To share data with the government; * To monitor and protect nesting beaches.
Research/academic institutions	* To conduct research and analyze data to support conservation and decision-making and disseminate findings; * To collaborate with stakeholders to provide education and awareness for the conservation of turtles;
National authorities e.g., DSFA, NEMC, ZEMA	* To provide guidelines, and enforce Laws and regulations related to marine and coastal management; * Review of regulations to align with the current global and national perspectives; * To provide education and awareness to the

	communities.
Religious leaders	* To provide education and awareness to the coastal communities
Law enforcement agencies	* Responsible for providing education and awareness raising to the communities about laws and regulations concerning marine resources; * Responsible for Law enforcement and conducting regular and joint patrols
National Marine Turtle Conservation Committee	* Responsible to oversee and coordinate the implementation of National Action Plan; * Solicit funds for conservation activities; * To review and evaluate the national action plan and existing conservation strategies.
International/ Regional bodies e.g., IUCN, WIOMSA, UN agencies	* Review of Conventions based on country perspectives; * To provide financial support for conservation of marine turtles; * Provide guidelines about the international vision on marine turtle conservation; Education and awareness raising; * keep supporting the government's efforts.

4.4 Swot Analysis for the NAPCMT

The SWOT analysis is a valuable strategic tool that provides an in-depth assessment of the internal strengths, weaknesses, as well as

external opportunities and threats associated with NAPCMT implementation. A SWOT analysis will allow us to gain a comprehensive understanding of the factors that can influence the success and impact of conservation efforts. By systematically examining the strengths, weaknesses, opportunities, and threats, we can identify areas of advantage, areas for improvement, potential avenues for growth, and potential risks or challenges that need to be addressed. The SWOT analysis serves as a foundation for informed decision-making, strategic planning, and the development of effective strategies to maximize the positive outcomes of the NAPCMT in conservation efforts while mitigating potential risks. It provides valuable insights for shaping the action plan and ensuring that it is aligned with the conservation goals, responsive to the internal and external context, and capable of overcoming challenges and leveraging opportunities.

4.4.1 SWOT Analysis

Table 3: Summary of Strengths, Weaknesses, Opportunities, and Threats for NAPCMT Implementation

STRENGTHS	WEAKNESSES
• Action plan developed on the basis of broad stakeholder participation and consensus • Diverse marine ecosystems in Tanzania, which provide habitats for a variety of marine turtle species • Commitment of the government of Tanzania to IOSEA MoU and to develop CMP for marine turtles	• Coordination and collaboration challenges in multisectoral approaches • Insufficient financial resources and limited equipment • Low prioritization of marine wildlife in national policy • Inadequate enforcement of existing regulations

• Existing legal frameworks that support marine turtle conservation and management. • Increased local community interest in actively contributing to marine turtle conservation initiatives.	• Limited data on marine turtle populations, migration patterns, critical nesting sites, and threats hinders the development of evidence-based conservation strategies. • Limited awareness and education among local communities and the general public about the importance of marine turtle conservation and the need to mitigate threats can impede conservation efforts. • Limited integration of climate change issues into sectoral policies
OPPORTUNITIES	**THREATS**
• Political good will and government commitment (IOSEA MoU) • Collaboration and partnerships: Engaging with national and international conservation organizations, government agencies, research institutions, and local communities can foster collaboration, knowledge	• Climate change impacts • Inadequate financial resources for implementation • Changing political climate • Migrant fishers

sharing, and resource mobilization. • Community-based conservation initiatives: Involving local communities in marine turtle conservation efforts through capacity building, alternative livelihood programs, and eco-tourism initiatives can enhance conservation outcomes. • Policy and legal reforms: Advocacy for stronger enforcement of existing regulations, as well as the review and amendment of policies and legislation, can provide a favourable legal framework for marine turtle protection. • Research and monitoring: Investing in scientific research and monitoring programs to fill data gaps and better understand marine turtle populations, migration patterns, behaviour, and threats to inform targeted conservation actions. • Public awareness campaigns:	

Implementing public awareness campaigns, educational programs, and outreach activities can raise awareness and foster a culture of marine turtle conservation among local communities, schools, and other stakeholders.	

CHAPTER FIVE

5 REVIEW, IMPLEMENTATION, MONITORING AND EVALUATION

5.1 Review of the National Action Plan

The NAPCMT will undergo an annual review conducted by the implementation committee to assess the progress, accomplishments, and challenges encountered throughout its implementation and update/amend the conservation and management actions, timelines and SWOT analysis respectively. This comprehensive review process will provide an opportunity to evaluate the alignment of actions with set goals and targets, identify areas in need of improvement, and capture valuable lessons learned. Key stakeholders, experts, and relevant authorities will be actively engaged in providing feedback, insights, and recommendations to refine the NAPCMT. Through this iterative process, the NAPCMT can be flexibly modified and adjusted to effectively address emerging issues, evolving priorities, and changing circumstances. By integrating a robust review mechanism, the NAPCMT ensures it remains responsive, accountable, and capable of delivering meaningful outcomes in the conservation of marine turtles and their habitats over the designated five-year period.

5.2 Monitoring and Evaluation

Monitoring and evaluation (M&E) are very important tool for assessing the progress of the NAPCMT in achieving the set targets and ensuring accountability and facilitating effective communication and fostering support from stakeholders. The M&E matrix established and will be used to measure the implementation effectiveness by tracking the general performance, outputs attained and the lesson learned during the implementation of the NAPCMT.

Monitoring will be undertaken on a continuous basis, while Evaluation of the implementation of the NAPCMT will be done annually and at the end of the action plan's duration. Annual evaluations are intended to assess performance and provide opportunity to reflect on the gaps and propose actions.

5.3 Recommendations on Effective Implementation of the NAPCMT

5.3.1 Proposed Implementation and Coordination Framework

The NAPCMT has been designed to ensure effective leadership, management, and coordination that adequately supports its implementation. The National Committee, consisting of representatives from both Mainland Tanzania and Zanzibar, should be established to provide oversight and coordination of activities outlined in the NAPCMT. The committee will be established by the recognized mandates as per government and ministerial framework and organograms arrangements from both Mainland Tanzania and Zanzibar.

5.3.2 Marine Wildlife Trust Fund

The effective implementation of the NAPCMT to ensure long-term conservation requires a sustainable source of funding. Therefore, establishing a dedicated Marine Wildlife Trust Fund to support conservation activities for endangered species, including marine turtles, would be a significant step towards ensuring their long-term survival and the protection of their habitats. Such a trust fund would provide a sustainable and reliable source of funding to support critical conservation initiatives and address the numerous threats and challenges faced by these vulnerable species. Moreover, it will ensure the implementation of long-term conservation strategies.

The fund could be supported through various mechanisms, including government allocations, private donations, grants, partnerships with conservation organizations, and revenue generated from eco-tourism.

The allocated funds from the Marine Wildlife Trust Fund shall be to facilitate and support marine wildlife conservation, inside and outside MPAs particularly in-

(a)Anti-poaching efforts and law enforcement;

(b) Habitat protection and restoration;

(c)Conservation education, outreach, and awareness raising programs;

(d) Scientific research and monitoring;

(e) Capacity-building and training for conservation practitioners, and

(f) any other activity related to conservation of Marine Wildlife.

5.3.3 Diversity, Equity and Inclusion

The National Action Plan for Conservation of Marine Turtles prioritizes gender equity and inclusivity as an important part of its implementation strategy. Recognizing the importance of diverse voices in ensuring sustainable conservation of marine turtles, this action plan is committed to fostering an inclusive environment where all stakeholders, irrespective of gender or social status, can actively participate and contribute. The approaches will include but not limited to:

- Capacity Building and awareness: Targeted training, workshops, and educational programs will be specifically tailored for women and youth, enhancing their knowledge and skills related to marine

turtle conservation. This approach will further encourage and increase their interest in marine turtle conservation efforts.

- Creating safe and equitable environments for participation, ensuring that all activities consider the specific needs and constraints faced by women and youth, including designing user-friendly schedules and transportation logistics, as well as considering social and cultural norms.

5.3.4. Reporting Plan

This sub-section details the Plan for internal and external reporting systems or approach which will be required through the implementation of the plan.

5.3.5. Internal Reporting Plan

This internal reporting plan will involve the preparation of various reports, including from committee to others stakeholders either weekly, monthly, Quarterly and Annual basis or as they are required from time to time. The Internal Reporting Plan is described below:

Table *4*: Internal Reporting Plans

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
1.	Reducing direct and indirect causes of marine	Government Agency, NGOs and other	Quarterly Annually	CEO-MPRU & DMC

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
	turtle mortality	stakeholders		
2.	Reducing threats to critical marine turtle habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
3.	Promote information and education programmes	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
4.	Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
5.	Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
6.	Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
7.	Strengthen existing policies and legislations to provide for responsible marine turtle conservation	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC

5.3.6. External Reporting Plan

This Plan contains reports that are used by various stakeholders, including PMO, CAG, OTR, Parliament, DPs, the General Public and the international community. The reports will be prepared on a quarterly and annual or demand basis from time to time. The reporting plan will be in accordance with the statutory requirements as directed from time to time, as well as the Government Performance reporting requirements. The external reporting plan is described as below**.**

Table *5*: External Reporting Plans

S/No.	TYPE OF REPORT	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
1.	Quarterly Progress Report	OTR /MLF /MoFP/ MoBEF	Quarterly	CEO-MPRU & DMC
2.	Mid-Year Review Report	OTR /MLF /MoFP/ MoBEF	Semi-Annually	CEO-MPRU & DMC
3.	Annual Progress Report	OTR /MLF /MoFP/MoBEF	Annually	CEO-MPRU & DMC
4.	Ruling Party Election Manifesto Implementation Report	OTR /MLF /MoFP	Annually	CEO-MPRU & DMC
5.	Annual Financial Statement	CAG, MoBEF,MLF	Annually	CEO-MPRU & DMC
6.	Performance Contract	OTR	Quarterly/Annually	CEO-MPRU & DMC
7.	Parliamentary Committees Reports	Parliament	Annually	CEO-MPRU & DMC

8	International reports	UN, regional secretariat and other international organizations	Quarterly/Annually	CEO-MPRU, DMC & Focal Point for CMS and CITES

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ANNEXES

Annex A: Monitoring and Evaluation Plan

Strategic Intervention	Key Performance Indicator	Definition of Key Performance Indicator	Baseline		Target					Means of Verification	Responsible stakeholder
			2024	Value	Y1	Y2	Y3	Y4	Y5		
1.1 Eliminate direct take of nesting females	% decrease in annual number of females harvested	Marine turtles that are coming to nest on beaches	5	%		2	1	1	1	Reports from monitoring programs. Reports from BMUs/CFMAs/SFCs Marine Frame Survey - MLF	MLF, MoBEF, MPRU, DMC, LGAs, NGOs, CBOs, VLCs, BMUs, SFCs, Marine Police, private sector, Village councils, Community

1.2 Eliminate egg harvesting by humans	% decrease in the annual number of nests harvested	Eggs from the sighted nests		%						Reports from monitoring programs. Reports from BMUs/CFMAs/SFCs	MLF, MoBEF, MPRU, DMC, LGAs, NGOs, CBOs, VLCs, BMUs, SFCs, Marine Police, village councils, private sector, Community
1.3 Implement measures to reduce egg predation by animals	% decrease in the annual number of nests predated	Sighted nests that are predated by animals such		%						Reports from monitoring programs. Reports from BMUs/CFM	NGOs, community rangers, VLCs, BMUs, SFCs, community rangers, MPRU, DMC,

										As/SFCs	MLF, MoBEF, LGAs, TAFIRI, ZAFIRI, Community
1.4 Mitigate impacts of tidal inundation on nests	% decrease in the annual number of nests inundated	Sighted nests that are covered by water during the spring tides		%						Reports from monitoring programs. Reports from BMUs/CFM As/SFCs	NGOs, BMUs, VLCs, SFCs
1.5 Reduce by-catch in fisheries	Decrease in the annual number of bycatch incidents in small scale fisheries Decrease in the	A bycatch is the unintentional capture of marine turtles during fishing activities A bycatch is the unintentional	6000 54	# #						Reports from the respective ministries	MLF, MOBEF, LGAs, DSFA, NGOs, BMUs, VLCs, SFCs

	annual number of bycatch incidents in industrial fisheries	capture of marine turtles during fishing activities									
1.6 Eliminate targeted turtle fisheries	Number of vessels targeting turtles Number of gear specific for turtles confiscated annually	Fishing vessels which specifically target marine turtles Fishing gears which specifically target marine turtles		# #						Reports BMUs/VLCs /SFCs	NGOs, BMUs, VLCs, SFCs, Community
1.7 Eliminate trade and consumption of turtle products	Number of cases reported annually Number of cases per year	Reports of incidents of consumption and trade of marine turtles Penalties issued for		# #						Reports from village councils, BMUs/VLCs /SFCs	LGAs, NGOs, BMUs, VLCs, SFCs, community

	where penalty issued	illegal fishing and trade of marine turtles									
1.8 Reduce threats from marine debris	Number of districts with waste management plans Number of BMU conducting cleaning Number of BMU with waste management plan	Districts implementing active waste management plans These are Beach Management Units actively conducting regular beach clean-up programs. Beach Management Units that have active waste management plans in place and are	15	# # # #						Reports from village councils, BMUs/VLCs /SFCs	LGAs, NGOs, BMUs, VLCs, SFCs, community

		implementing them.									
Objective 2: Reduce threats to critical marine turtle habitats											
2.1 Identify and conserve nesting sites	Number of hectares of suitable beach habitat available for nesting turtles Number of beaches incorporated in CFMAs	The total mapped area on the beach that has the potential for nesting These are beaches identified for nesting and incorporated into CFMAs plans	40	# #		3	3	3	3	Activity reports submitted at MPRU	Academic/Research Institutes, MPRU, DMC, LGAs, NGOs, BMUs, VLCs, SFCs
2.2 Manage and regulate coastal development	Number of EIA that consider marine turtle nesting habitat	Each Environmental Impact Assessments (EIA) that will take into consideration nesting habitats for marine turtles.	50	#	55	60	65	70	75	Survey reports submitted at MPRU	NEMC, ZEMA, MPRU, DMC, MLF, MoBEF, NGOs, BMUs, VLCs, SFCs, TFS,

											Forest department
2.3 Minimize human disturbance on nesting beaches	Number of bylaws Number of districts plans that incorporate measures to minimize human disturbance Percentage reduction in sand mining incidents	The bylaws formulated at the local level to control and manage the use of nesting beaches Each district that will have formulated guideline measures to control and manage the use of nesting beaches Extent to which the number of reported sand mining incidents has decreased over a		# # %	5 5	60	65	70	75	Survey reports submitted at MPRU	NEMC, ZEMA, MPRU, DMC, MLF, MoBEF, NGOs, BMUs, VLCs, SFCs

		specified period									
2.4 Address solid waste pollution on nesting beaches	Number of nesting beaches impacted by solid waste	The extent to which solid waste, such as litter, debris, or pollution, affects nesting beaches for marine turtles	15	#		9	5	1	0	Reports from MPRU, DMC, NGOs, BMUs/CFMAs/SFCs	NGOs, BMUs, VLCs, SFCs
2.5 Reduce light pollution on nesting beaches	Number of beaches with reduced light intensity	The total number of beaches where efforts have been made to lower light intensity		#						Survey reports submitted at MPRU	NEMC, ZEMA, LGAs, NGOs, private sector, Community
2.6 Reduce pollution at sea (reduces sources of pollution at sea) (reduce	Number of penalties issued in relation to pollution	These are penalties and fines imposed by relevant regulatory authorities or		#						Reports from MLF, MoBEF, DSFA, Ports authorities	MLF, MoBEF, DSFA, Ports authorities

marine pollution)	Decrease in number of sources of pollution	agencies in response to pollution incidents or activities This refers to the reduction in the total count of identified pollution sources within a specified area or ecosystem over a given period								Reports from Academic/ Research institutions , MPRU, DMC, NGOs	Academic/R esearch institutions, MPRU, DMC, NGOs
2.7 Implement measures to protect and restore critical habitats; seagrass meadows, coral reefs and	Number of hectares of critical habitats restored Number of hectares of critical habitats	The total area in hectares of restored critical habitats such as mangrove, sea grass and coral reef The total area in hectares of critical	0 0	ha ha						Reports submitted at MPRU	MPRU, DMC, LGAs, TFS, NGOs, BMUs, VLCs, SFCs, Community

Mangroves	under improved management	habitats with improved management									
Objective 3: Promote information and education programmes											
3.1 Develop educational materials and resources	Number and types of educational materials developed	These educational materials such as brochures, videos, posters, books etc produced to be used in awareness raising about marine turtles	TBD	#	100	100	100	100	100	Reports and materials developed in place and submitted at MPRU	MPRU, DMC, MLF, MoBEF, LGAs, Research/Academic Institutions, NGOs
3.2 Develop and conduct focused education and awareness programmes	Number of education and awareness activities implemented	This refers to the activities or programs conducted to promote education and raise awareness about marine	TBD	#	27	27	27	27	27	Reports from LGAs/BMUs/SFCs/VLCs submitted at MPRU	MPRU, DMC, MLF, MoBEF, LGAs, Research/Academic Institutions, NGOs

	Number of people reached (number of direct participants)	turtles These are individuals who directly engage or participate in education and awareness campaigns									
Objective 4: Strengthen enforcement of existing legal frameworks											
4.1 Enhance collaboration and coordination amongst law enforcement agencies	Number of workshops and meeting conducted Number of community members	These workshops are designed to enhance the awareness of law enforcement officers of the laws and regulations governing marine turtle conservation Individuals who	0 0	# #	4 1	4	4	4	4	Quarterly reports submitted at MPRU Agreement	MLF, MoBEF, MPRU, DMC, LGAs, NGOs

	reporting incidents Increased number of joint interventions	report incidents of violation of laws and regulations A joint intervention refers to a collaborative activity or effort undertaken to support the conservation of marine turtles.								submitted at MPRU	
Objective 5: Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats											
5.1 Assess and monitor nesting activity	Number of districts with active monitoring programmes	The districts that have active marine turtle monitoring programs and are implementing them The studies	2 0	# #		1 1				Reports submitted at MPRU	Academic/research Institutions, NGOs, MPRU, DMC, LGAs, BMUs,

	Number of annual population assessments conducted	conducted to assess the population dynamics of marine turtles									VLCs, SFCs
5.2 Improve understanding of inwater life cycle phases	Number of studies conducted	Research/studies undertaken to elucidate the life cycle of marine turtles	0	#		1				Reports submitted at MPRU	Academic/research institutes, MPRU, DMC, NGOs
5.3 Promote Research programme with specific thematic areas on marine turtles	Number students undertaking research on marine turtles Funding secured	These are students who are engaged in research studies focused on marine turtles The funds that have been secured to support marine	0 0	# #			1 1			Number of reports and scientific articles Reports submitted at MPRU	Academic and Research Institutions

		turtle conservation efforts									
5.4 Investigate socio-cultural values associated with marine turtles	Number of surveys conducted	These are surveys conducted to understand the socio-economic values associated with marine turtles in coastal communities	0	#		1				Reports submitted at MPRU	Academic/research institutes, MPRU, DMC, NGOs
5.5 Improve knowledge management on marine turtles	Number of communication products Number of communication media	Communication products include a range of materials designed/produced to disseminate knowledge and raise awareness about marine turtle conservation and	0 0	# #	1	2	3	2 1		Publications Communication	Academic/research institutes, MLF, MBEF, MPRU, DMC, NGOs

	developed and upgraded	management Communication media refer to the various digital platforms and channels used for sharing and exchanging information regarding marine turtle conservation								platforms	
Objective 6: Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles											
6.1 Enhance communication and coordination amongst national stakeholders	National Marine Turtle Committee established	The National Marine Turtle Committee is an administrative body that will be established to	0	#	1					Report submitted at MPRU	MPRU, DMC, MLF, MoBEF Established

	Number of Committee meeting conducted Number of agreements developed Number of annual meetings conducted	oversee the implementation of the National Action Plan These are the operational meetings that the committee will convene during the implementation of the National Action Plan These are the official agreements or Memorandums of Understanding entered into between entities with the goal of collaborating on	0 0 0	# # # 	2 1 1	2 1	2 1	2 1	2 1	Meeting minutes and Reports Agreement submitted at MPRU Reports and minutes	committee Established committee Respective Focal points

		marine turtle conservation efforts These are the stakeholder meetings or forums that will be conducted during the implementation of the National Action Plan									
6.2 Strengthen regional and international collaboration	Number of regional and international forums attended	This refers to the forums held at both regional and international levels	0	#	1	1	1	1	1	Reports	MPRU, DMC, MLF, MoBEF
Objective 7: Strengthen existing policies and legislations to provide for responsible marine turtle conservation											
7.1 Strengthen legislative	Number of legal frameworks	This involves reviewing the existing legal	0	#		7				Revised legislation	MPRU, DMC, MLF, MoBEF

frameworks	reviewed Number of bylaws formulated	frameworks related to marine turtle conservation These are legal frameworks established and implemented by local communities to govern the conservation of marine turtles and their habitats	0	#	4	8	8	7		27 by-laws approved by LGAs (mainland Tanzania and Zanzibar)	LGAs, BMU/SFCs/VLCs
7.2 Mainstream marine turtle conservation issues into the national fisheries and biodiversity agenda	Number of sensitization meetings with national decision makers	These are meetings conducted to enhance the awareness of decision-makers, aiming to influence decision-making processes and	0 0	# #	1 1	1 2	1 2	1 2	1 2	Meeting reports Policy	MPRU, DMC, MLF, MoBEF

	Number of plans/legal frameworks that incorporated marine turtle conservation measures	strengthen law enforcement These refer to the plans and legal frameworks that have been developed to incorporate the conservation of marine turtles and their habitats into official policy and practice								briefs developed	

Annex B: List of individual contributors

No	Name	Position	Institution
1	Anthonia M. Mpemba	District Fisheries Officer	Bagamoyo District Council
2	Anthony Livinas Mbega	District Fisheries Officer	Mafia District Council
3	Ernest L. Kamata	District Fisheries Officer	Kigamboni Municipal Council
4	Ezra Ongoro katete	District Fisheries Officer	Mkinga District Council
5	Isike Zuberi	District Fisheries Officer	Mtwara Mikindani Municipal Council
6	Essao Timothy Ngongolowo	Municipal Fisheries Officer	Lindi Municipal Council
7	Rose Salema Mtui	Manager-Environmental Research Coordination	National Environmental Management Council
8	Magreth Mchome	Senior Marine Conservation Warden (DMRS)	Marine Parks and Reserves Unit

9	Humphrey Mahudi	Acting Warden in Charge	Tanga Coelacanth Marine Park
10	Malcom Ryen	Former Director at Fanjove Island Kilwa	Essential Destinations (Tourism Sector)
11	Bagaya A. Mbwana	District Fisheries Officer	Tanga City Council
12	Humphrey Tillya	District Fisheries Officer	Pangani District Council
13	Grace A. Kakama	Municipal Fisheries Officer	Kinondoni Municipal Council
14	Milali E. Machumu	Principal Tutor/Focal Point of Turtle MoU	Fisheries Education and Training Agency (FETA) - Mbegani campus
15	Daudi Msangameno	Lecturer & environmental Consultants	Institute of Marine Sciences, University of Dar es Salaam
16	Ahmad Habibu Mkali	District Fisheries Officer	Kilwa District Council
17	Ali Thani	Chief Executive Officer	MWAMBAO Coastal Community Network

18	Mathias Igulu	Program Manager	WIOMSA
19	Tumaini Alex Tihwayo	District Fisheries Officer	Lindi (Mtama) District Council
20	Adelaide Sallema	Senior Curator of Biology	National Museum of Tanzania
21	Hassan Libwala	District Fisheries Officer	Fisheries Education and Training Agency (FETA) - Mbegani campus
22	Anita Julius	Warden in Charge, DSM Marine Reserve System (DMRS)	Marine Parks & Reserve Unit
23	Amin M. Abdallah	Acting Warden in Charge	Mafia Island Marine Park (MPRU)
24	Ulli Kloiber	Conservation & Education Manager	Chumbe Island Coral Park (CHICOP)
25	Lucy Magembe	Country Director	The Nature Conservancy, Tanzania
26	Zephania Arnold	Fisheries Officer	WWF, Tanzania
27	Jerry Mang'ena	Executive Director	Aqua-Farms Organization

28	Frank Mirobo	General Secretary	Western Indian Ocean Early Career Scientists Network
29	John Chikomo	Executive Director	Journalists' Environmental Association of Tanzania (JET)
30	Jenifer Gilla	Environmental Journalist	Nipashe/ Environmental News
31	Danielle	Director	Mafia Island Diving
32	Abouzeid Ahmed	Dive Manager	Butiama Lodge/ Bigblu Dive Center
33	Peter Byrne	Managing Director	Kinasi Limited
34	Kenneth Malcomess	General Manager	Andbeyond Mnemba Island
35	Mgalula Masoud Lyobah	Principal Fisheries Officer	Tanzania Fishing Corporation
36	Omar Suleiman	Officer In Charge	MoBEF - Pemba
37	Juma Hamad Machano	Fisheries Officer	Department of Fisheries Development, MoBEF
38	Iddi Mohamed Ali	Fisheries Officer	Department of Fisheries and Conservation, MoBEF
39	Aly Mwalim Mahfoudh	District Fisheries Officer	MoBEF
40	Mohd M. Omar	District	MoBEF

		Fisheries Officer	
41	Shibli M Haji	Fisheries Officer	Department of Fisheries Development, MoBEF
42	Omar Mpango simai	District Fisheries Officer	MoBEF
43	Ali Juma Ali	District Fisheries Officer	Department of Fisheries Development, MoBEF
44	Said Shaib Said	Manager - Tumbatu Marine Conservation Area (TUMCA)	Department of Marine Conservation, MoBEF
45	Frank Vincent Sima	Principal Conservation Officer Mangroves Section	Tanzania Forest Services Agency
46	Julius Edward Salema	Marine Environmental Officer	Tanzania Ports Authority
47	Martha Kaombwe	Environmental Officer	Tanzania Ports Authority

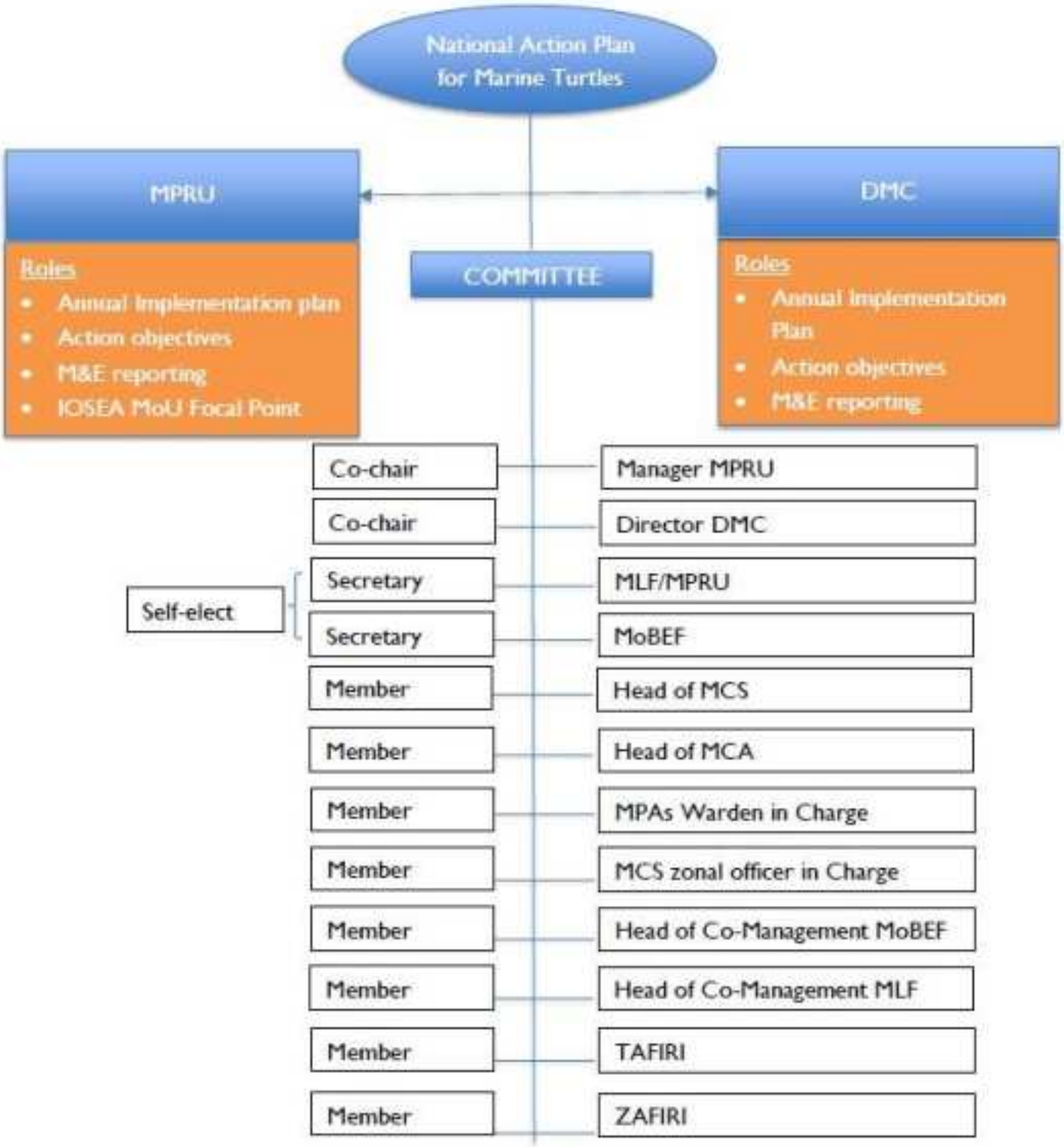
ANNEX C: LIST OF VILLAGES VISITED DURING COMMUNITY CONSULTATION

Mainland Tanzania		
No	**Name of the Village**	**Number of Participants**
1	Rushungi	6
2	Malalani	7
3	Kimbiji	12
4	Buyuni	12
5	Changwahela	12
6	Mlingotini	10
7	Namela	10
8	Msimbati	10
9	Mchinga1	10
10	Kijiweni	9
Zanzibar		
11	Makombeni	10
12	Makoongwe	11
13	Wambaa	10
14	Wesha	10
15	Makangale	10
16	Michamvi	9
17	Uroa	9
18	Kiwengwa	9
19	Tumbatu/Mtakuja	9
20	Mbuyu Tende	12

Annex D: Conservation Committee

Chair/Co-Chair-2	**Manager MPRU/DMC**
Secretary	**Nominated from MLF/MPRU and MoBEF**
Institution	**Members**
PO-RALG-	**Director of Fisheries-TAMISEMI**
MLF	**Assistance Director –FRP & Head of Co -Mgt**
MoBEF	**Head of Co-Mgt (Oversee all Managers of MCA) and 5 Managers of MCAs**
MPRU	**Head of Conservation & 4 WICs**
DFSA	**Deputy Director General**
Research Institutions	**ZAFIRI & TAFIRI**
Environmental Authority	**NEMC & ZEMA**
MNRT	**Focal Point for CMS and CITES**
Other Invited Government – Institution	**VPO-DoE**
Invited stakeholder	**Development partner/NGO**

Annex E: Committee Structure



Annex F: Tentative Budget for The Implementation of The Plan

S/n	Strategic objectives/interventions cost	Cost ($) '000'	Yr1	Yr2	Yr3	Yr4	Yr5
1	Reducing direct and indirect causes of marine turtle mortality	130,000	30,000	30,000	25,000	25,000	20,000
2	Reducing threats to critical marine turtle habitats	80,000	25,000	20,000	20,000	10,000	10,000
3	Promote information and education programmes	53,000	15,000	10,000	10,000	10,000	8000
4	Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats	187,000	50,000	48,000	35,000	30,000	24,000
5	Strengthen research and	145,000	35,000	35,000	30,000	25,000	20,000

	monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats						
6	Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles	141,000	38,000	38,000	25,000	25,000	15,000
7	Strengthen existing policies and legislations to provide for responsible marine turtle conservation	150,000	40,000	40,000	40,000	40,000	30,000
	Grand total	**886000**	**23300**	**221000**	**185000**	**165000**	**127000**