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Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States
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Component of a 10-year Management Plan

North-East Tobago
Man and the Biosphere Area

unesco
Man and the Biosphere Programme

FOCUS: Animal Welfare

AUGUST 2023

Component of a 10-year Management Plan

FOCUS: Animal Welfare

for the

North-East Tobago Man and the Biosphere Area

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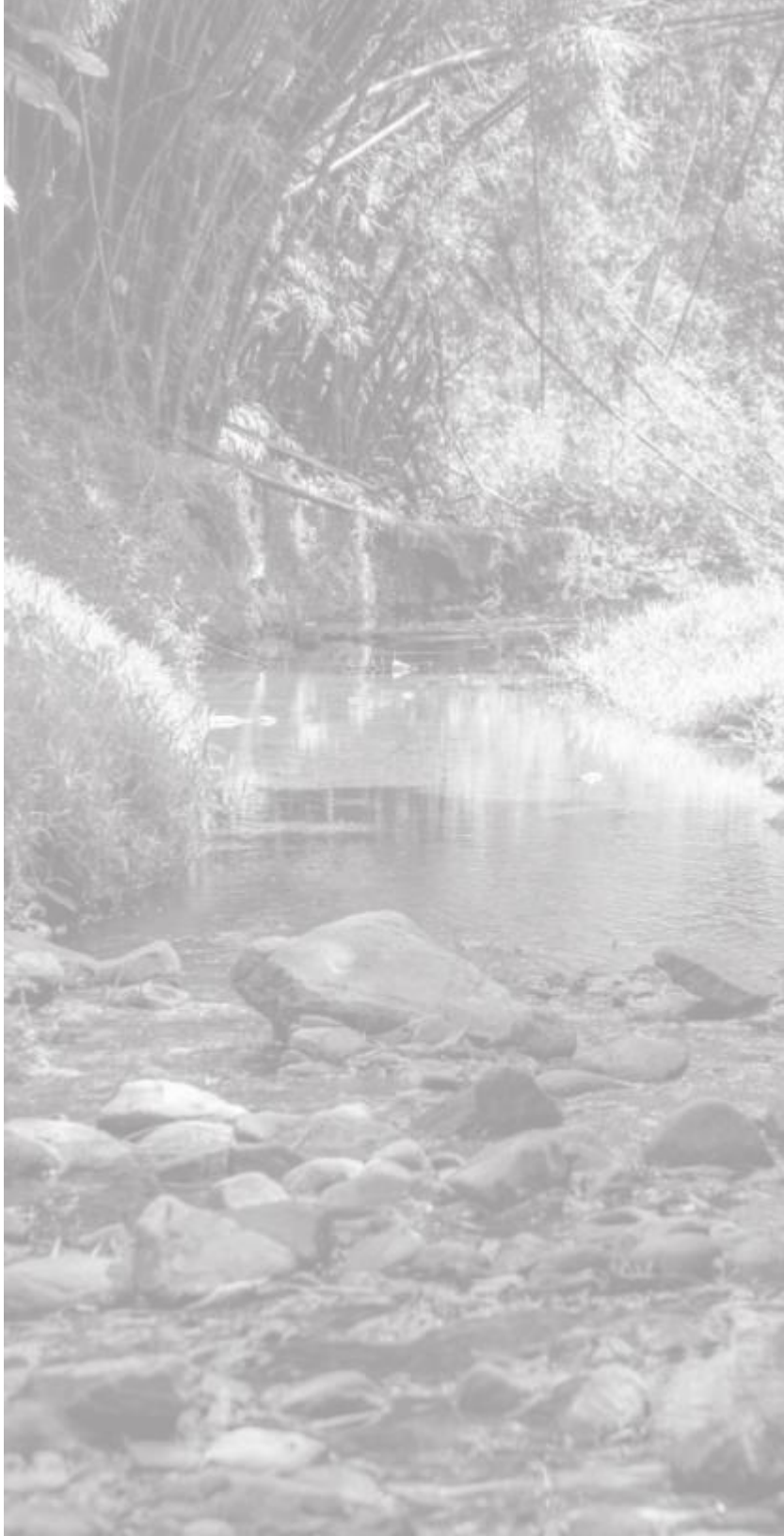




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1 EXECUTIVE SUMMARY

This document was developed as part of a project titled: *"Caribbean Small Island Developing States Trinidad Sub-Project Rehabilitation of Quarries"* (IWEco TT) with funding from the Global Environmental Facility, under approval of the United Nations Development Programme and via a contract with the Environmental Management Authority of Trinidad and Tobago. It is meant to be a guideline for the future management authority and staff of the North-East Tobago UNESCO Man and the Biosphere Reserve (NETMABR). While it will be open to all stakeholders, it is not meant to be an instrument for outreach activities; an outreach-friendly, intelligible version of the management plan will be developed in late-2022. The document represents the second component of the overall 10-year Management Plan for the NETMABR. The first, complementary component was finalised in December 2021 and a third and final one will be finalised under other interventions and consolidated in November 2022.

This draft plan was developed via review and analysis of primary and secondary literature as well as formal and informal stakeholder consultations between 2018 and 2022; major limitations were based on COVID-19 restrictions and significant primary data deficiencies. The draft plan at hand will be discussed with stakeholders between June and November 2022, revised and finalised accordingly.

This, second component of the Plan includes:

- Revision of previous Stakeholder and Communication Plans,
- Participatory Development of Vision, Mission, Objectives and Principles,
- Site Description,
- SWOT and PESTLE,
- Alignment with existing Legal and Regulatory Framework, Policies and International Conventions.

Furthermore, it includes situational analyses, high level goals, priorities, strategies and proposed actions for three management topics / components:

- Conservation Strategies, Programmes and Priority Projects
- Climate Change Resilience Strategies, Programmes and Proposed Actions
- Community-based, Green, Blue, Purple Economic Strategies, Programmes and Proposed Actions

Next steps and two key recommendations are provided in the chapter below.

The ERIC team would like to thank the EMA Office, Trinidad and Tobago, specifically Alicia Aquing, GEF IWEco National Project Coordinator, and Mr Linford Beckles, Director, Department of the Environment, Tobago House of Assembly for facilitating this intervention and put trust in our technical capabilities.

North-East Tobago Man and the Biosphere Reserve Management Plan Components

SLM

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2 THE WAY FORWARD

The ERIC has successfully applied to the UNDP Small Grants Programme, Trinidad and Tobago, to fund the final components of the Management Plan and create a knowledge sharing platform for the Plan via a project titled: "*Drafting the Final Components of the Management Plan for the North-East Tobago UNESCO Man and the Biosphere Reserve and Intelligible Knowledge Management*". The proposal was endorsed by the Department of the Environment, Tobago House of Assembly, which is the Focal Point for the UNESCO MAB Programme in Trinidad and Tobago and by Division of Ecological and Earth Sciences, UNESCO, Paris, France. This final component was approved in May 2022.

This timing aligns perfectly with a contract between the Inter-American Development Bank and Syntegra Change Architects Limited (Trinidad) with the following key objectives:

1. to structure the corporate governance framework of the NETPAMPT under a research-driven and participatory approach;
2. to structure the institutional framework of the NETPAMT, using components of an environmental and social management systems and including the foundations for a fund-raising strategy; and
3. to provide training and dissemination of i) the corporate governance framework; and ii) E&S institutional framework to key stakeholders.

Having started in February 2022, this intervention, of which the NETPAMT, and by extension the Tobago House of Assembly, is the direct beneficiary, will allow the NETPAMT, as future management organisation of the UNESCO Man and the Biosphere Reserve in North-East Tobago, to revise, refine, and apply the finalised management plan.

Based on these interventions, **the key recommendations** for advancing the sustainable development goals under the UNRESCO MAB Programme for NE Tobago are to:

1. **engage the Government of Trinidad and Tobago and the Tobago House of Assembly to provide the necessary budget allocations (2022-2024) for the operations of the NETPAMT until initial Green Fund funding and subsequent, self-financing is secured, and**
2. **facilitate stakeholder awareness and tangible benefits for communities in the NETMABR.**

3 INTRODUCTORY REMARKS

This document was developed as part of a project titled: *"Caribbean Small Island Developing States Trinidad Sub-Project Rehabilitation of Quarries*" (IWEco TT) with funding from the Global Environmental Facility. It is meant to be a guideline for the future management authority and staff of the North-East Tobago UNESCO Man and the Biosphere Reserve (NETMABR).
The document represents a component of the overall 10-year Management Plan for the NETMABR. The additional, complementary components will be finalised under another intervention, and both consolidated in June 2022.
Amongst other guidelines, the Technical Guidelines for Biosphere Reserves (TGBR, UNESCO 2021) were taken into consideration for preparing this document.

The TGBR provides an indicative list of several main items a UNESCO Biosphere Reserve Management Plan should contain:

a. a recommendation for an organisational/governance structure responsible for implementation of the plan,
b. a situational analysis,
c. a vision,
d. medium-term goals,
e. management priorities,
f. proposed priority projects, and
g. monitoring indicators,

The document at hand covers, for the components under the contract with the EMA, items **b, c, d, e, and f**. Item **a** was covered under a previous assignment, item **g** will be covered under the above-mentioned complementary SGP project.
The components (topics) of the NETMABR Management Plan covered under this assignment included:

- Revision of previous Stakeholder and Communication Plans
- Participatory Development of Vision, Mission, Objectives and Principles
- Site Description, SWAT and PESTLE
- Alignment with existing Legal and Regulatory Framework, Policies and International Conventions
- Conservation Strategies, Programmes and Priority Projects
- Climate Change Resilience Strategies, Programmes and Proposed Actions

- Community-based, Green, Blue, Purple Economic Strategies, Programmes and Proposed Actions
- Stakeholder Consultations, Local Capacity Building and Media Outreach

As discussed with the funding agency, stakeholder consultations were quite limited due to time- and COVID-19 restrictions. Furthermore, stakeholder consultations will be most efficient and effective when the full draft of the Management Plan will be available in 2022 and a more concise and intelligible version can be produced to meaningfully engage at all stakeholder levels. Once all documents will have been consolidated, the final layout will be polished using an advanced desktop publishing and page layout designing software application. Once funding permits, an intelligible and interactive website will be created to facilitate ease of access to and navigation through the Management Plan.



Figure 1. Fishermen in Castara Bay

4 METHODS

This draft document was developed via review and analysis of primary and secondary literature (see Annex 1) as well as formal and informal stakeholder consultations between 2018 and 2022. These consultations were conducted in relation to the drafting of the UNESCO Man and the Biosphere Nomination Form for NE Tobago, the drafting of the Dossiers for the Designation of NE Tobago's Main Ridge Forest Reserve, Islets and Reefs as Natural National Heritage Sites of Trinidad and Tobago and the drafting of a proposal to the Inter-American Development Bank titled: "Organisational Governance and Operational Strengthening of the North East Tobago Protected Area Management Trust (NETPAMT)".

It should be noted that this document applies the common writing style of UNESCO MAB Reserve Management Plans and, as such, does not claim to be or follow the writing style of a scientific research paper.

5 LIMITATIONS

The bulk of the document was prepared between November 2021 and June 2022 when restrictions regarding the COVID-19 pandemic prohibited workshops, group consultations and broader community involvement. Additionally, the extremely tight timeline for delivery of the draft and final document did not allow for the desired stakeholder participation. However, these limitations can be addressed in mid-2022, when the complementary components of the management plan will be finalised and a more intelligible version of the management plan can be developed, which will be more directed towards stakeholder engagement than programme management guidance (as it is the case for this document).

An additional, major limitation is the ubiquitous data deficiency for NE Tobago regarding all components of the management plan. Therefore, many statements in the situational analyses are based on recent, oral stakeholder reports and personal observations of the resident expert team. Hence the reason that baseline surveys, monitoring and evaluation interventions are essential to inform the future implementation organisation.

6 VISION

MAB Vision: A world where people are conscious of their common future and their interactions with the planet, and act collectively and responsibly to build thriving societies in harmony within the biosphere.
To be based on stakeholder consultations.

7 MISSION

The MAB Mission 2015–2025 is to

- develop and strengthen models of sustainable development through the WNBR;
- communicate experiences and lessons learned, and facilitate the global diffusion and application of these models;
- support evaluation and high-quality management of biosphere reserves, strategies and policies for sustainable development and planning, and accountable and resilient institutions;
- help Member States and stakeholders to achieve the Sustainable Development Goals by sharing experiences and lessons learned related to exploring and testing policies, technologies, and innovations for the sustainable management of biodiversity and natural resources and mitigation and adaptation to climate change.

To be adapted on stakeholder consultations.

Figure 2. Children planting trees in Parlatuvier Bay (Janina Ewals)





8 KEY OBJECTIVES

In order to address NE Tobago conservation and sustainable development challenges through strengthening the functions of a BR, the technical team proposes the following **Main Objective** for the management of the NETMABR:

To successfully consolidate and co-manage interventions related to sustainable and regenerative development, research, capacity building, education and networking on landscape, human- and eco-system levels for the benefit of NE Tobago's cultural and natural heritage, communities, and people.

Note: To be adapted based on stakeholder consultations

This key objective is designed to address the 12 key barriers that were identified by previous management plans for NE Tobago and IFPAM documents further as follows:

1. outdated legal and regulatory framework for establishing and managing natural and cultural resources,
2. unclear, fragmented roles responsibilities of stakeholders, especially managing authorities,
3. disempowered and under-resourced management authorities,
4. inadequate funding,
5. willingness to participate if interventions seem to be too restrictive,
6. stakeholder conflicts,
7. lack of broad, bipartisan political will,
8. lack of technical capacity to identify and address issues,
9. minimal capacity on the ground with respect to practical approaches to effective natural and cultural heritage management,
10. inadequate law enforcement,
11. minimal experience with income-generating opportunities, and last but by no means least,
12. a lack of transparency, accountability and compliance with regulation and legislation by the Tobago House of Assembly.



While IFPAM and other programmes and projects were able to partially address these barriers, and while it can be stated that conservation status and efforts in NE Tobago have never been better, it remains a fact that all of the above barriers are still valid and need attention.
The Management Plan at hand is based on the methodical approach that most of the above-mentioned barriers can be addressed by implementing strategies aligned with the three MAB functions.

These, below-described key strategies, are mainly based on the results of the recent Improved Forest and Protected Area Management Project (IFPAM, 2015-2020) which applied a participatory approach in identifying objectives and potential solutions to overcome conservation barriers; additionally, the ongoing interaction between the technical team and key stakeholders was used to refine recommendations included into the Management Plan.
These strategies are reoccurring and supported by proposed activities in the various components of the Management Plan at hand.
It should be noted that, while IFPAM continuously considered socio-cultural aspects of NE Tobago as essential to successful management of natural resources, there was, unfortunately, not a matching project to similarly address the management of NE Tobago's cultural heritage.

Figure 3. Iguana Bay (Janina Ewals)





9 WHAT IS THE UNESCO MAB PROGRAMME?

In 1971, United Nations Educational, Scientific and Cultural Organisation (UNESCO) launched the intergovernmental Man and the Biosphere programme (MAB) that aims to establish a basis for the improvement of relationships between people and their environments. It predicts the consequences of today's actions on tomorrow's world and thereby increases people's ability to efficiently manage natural resources for the well-being of both human populations and the environment (30).

The working unit of MAB is the Biosphere Reserve (BR), an international description of recognition from UNESCO for an area in the world, which is deemed to demonstrate a "balanced relationship between humans and the biosphere".

Biosphere Reserves are internationally recognised areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions reconciling the conservation of biodiversity with its sustainable use by local communities. BRs are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

BRs are intended to be model regions for demonstrating successful approaches to protection and sustainable development at a regional level. MAB sites are established with the goal to:

- harmonise conservation of biological and cultural diversity with economic and social development, and
- make a tangible contribution to the transition to green societies and support national governments' efforts to attain the Sustainable Development Goals (SDGs).

Biosphere Reserves have **three inter–connected functions**:

- **Conservation**: protecting cultural diversity and biodiversity, including genetic variation, species, ecosystems, landscapes, and securing services provided by such diversity.
- **Development**: fostering economic and human development that is environmentally and socially sustainable and culturally appropriate; and
- **Logistic Support**: facilitating demonstration projects, environmental education and sustainable development education and training, research and monitoring.



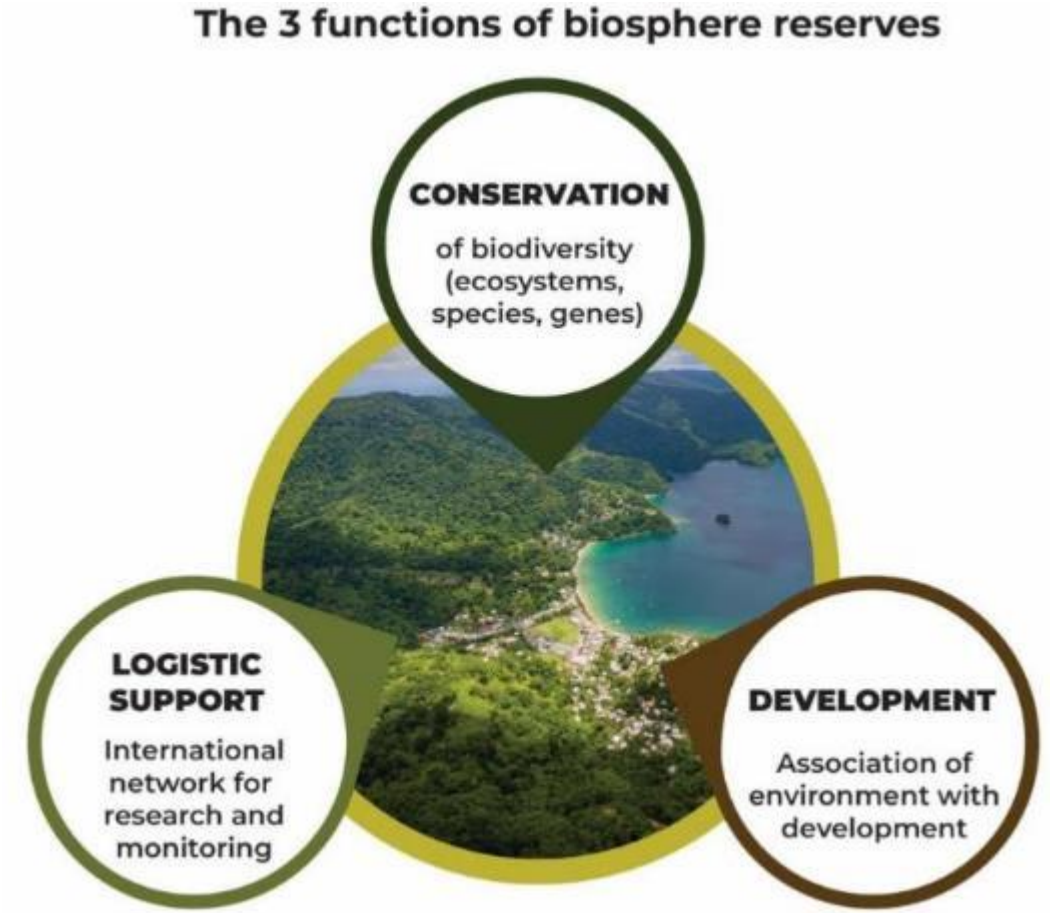


Figure 4. Schematic overview of 3 functions of biosphere reserves.

A BR consists of **three areas or zones – The core, buffer, and transition zones**.

The core zone is usually a legally protected area in which human activity is strictly limited and where monitoring of conservation priorities take place.

The buffer zone allows for appropriate activities such as research and scientific study, ecotourism, education and training.

The transition zone contains human settlements, agricultural and other commercial activities synonymous with human settlement.

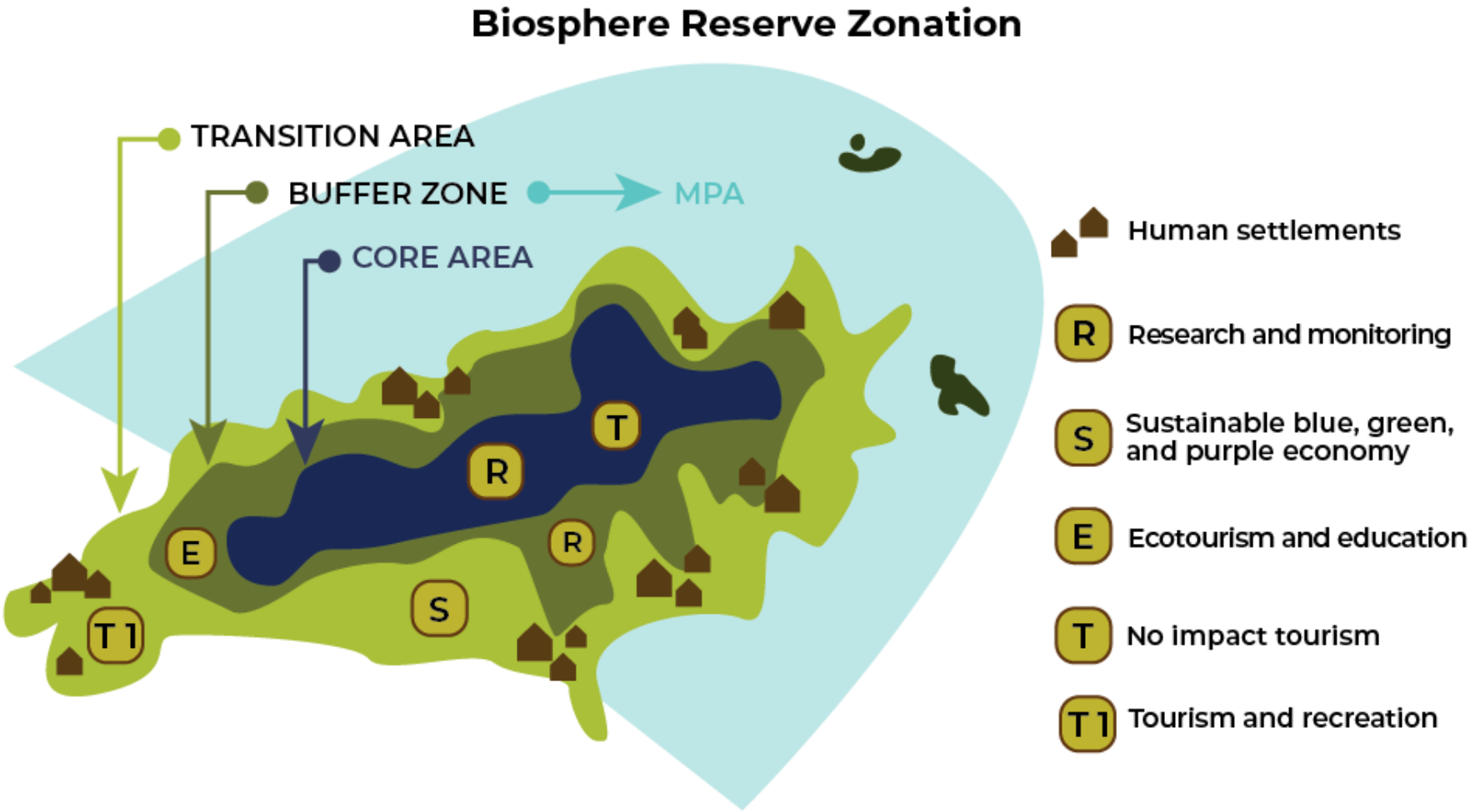


Figure 5. Schematic overview of NE Tobago Biosphere Reserve zonation (ERIC 2021).

The MAB Programme has a significant World Network of Biosphere Reserves (WNBR) which serves as a management tool for various municipal regions to improve strategies for sustainable development. As the pressures upon ecosystems increase with growing populations and climate change, the need for upgraded relationships between people and their natural surroundings only increases.

The **MAB Programme Mission** for the period 2015-2025 (31) is to:

- develop and strengthen models for sustainable development in the WNBR;
- communicate the experiences and lessons learned, facilitating the global diffusion and application of these models;
- support evaluation and high-quality management, strategies and policies for sustainable development and planning, as well as accountable and resilient institutions; and
- help member states and stakeholders to urgently meet the Sustainable Development Goals through experiences from the WNBR, particularly through exploring and testing policies, technologies and innovations for the sustainable management of biodiversity and natural resources and mitigation and adaptation to climate change. (MAB Strategy 2015-2025 & Lima Action Plan)

9.1 Administration

The international MAB Programme

The MAB programme is organised under an international agreement through UNESCO; state parties undertake actions within the MAB programme voluntarily and sites remain under national jurisdiction. At the global level, the MAB Programme is governed by its International Coordinating Council (ICC), under the overall authority of the UNESCO General Conference and its Executive Board.

The next level of governance is represented by regional and thematic networks. Governance at the national level is ideally through MAB National Committees.

The MAB institutional structure is outlined in Figure 6.

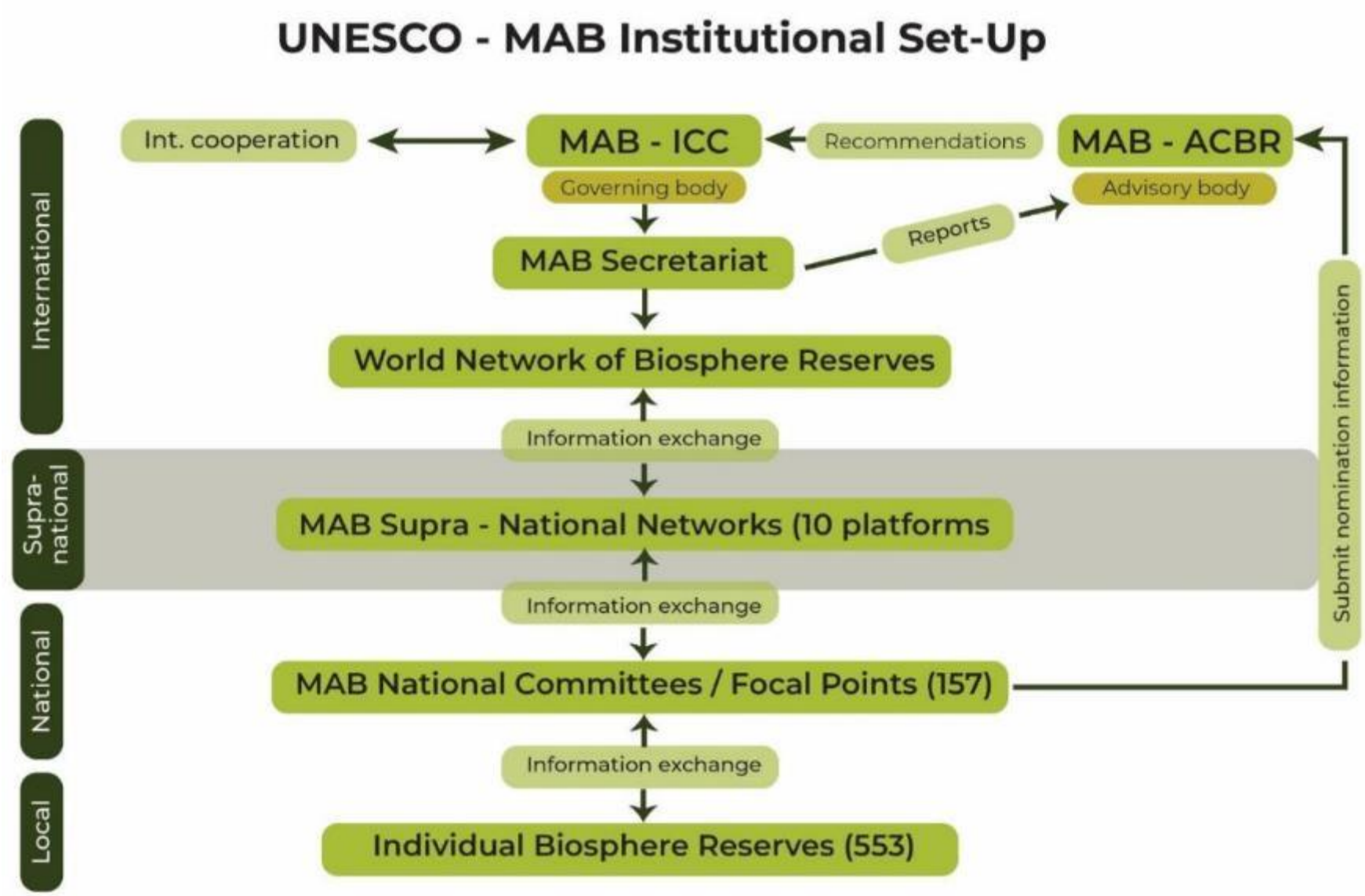


Figure 6. Diagram of the MAB institutional structure adapted from Schliep (24).

The MAB International Coordinating Council (ICC) is the governing body that meets biannually and consists of 34 Member States elected by UNESCO's General Conference. The ICC elects a chair and five vice-chairpersons from each of UNESCO's geopolitical regions that constitute the MAB Bureau which undertakes the responsibilities of the ICC between its biannual meetings. The MAB International Advisory Committee for Biosphere Reserves is the primary scientific and technical Committee body advising the ICC. The MAB Secretariat is the administrative centre for MAB based at UNESCO's Division of Ecological and Earth Sciences in Paris, the Secretariat work closely with the different field offices and Supranational Networks (e.g., IberoMAB – Iberian Peninsula and Latin America/ Caribbean region) around the world to coordinate the work of the MAB programme at the regional, national and individual Biosphere Reserve levels.

MAB is funded through the regular budget of UNESCO and mobilises funds-in-trust granted by Member States, bilateral and multilateral sources and extra-budgetary funds provided by countries, the private sector and private institutions.

UNESCO's intergovernmental structure provides MAB with a framework to help national governments support the planning and implementation of research and training programmes with technical assistance and scientific advice.

MAB-related activities are nationally financed however the programme can grant seed funding to assist countries in developing projects and/or to secure appropriate partnership contributions.

MAB offers fellowship opportunities co-sponsored by a number member states to assist the technical development of individuals seeking to build a profession within the field of the UNESCO programme priorities. These opportunities would be available to local staff to apply for.

Importantly, designation as a MAB Reserve does not necessarily require the formation of new laws.

9.2 Designation of NE Tobago

In September 2019, the Government of Trinidad and Tobago successfully submitted a Nomination Form to UNESCO with the request to consider NE Tobago as a Man and the Biosphere Reserve.

The eligibility criteria taken from the Biosphere Reserve Nomination Form are shown in Table 1.

Table 1. The eligibility criteria taken from the Biosphere Reserve Nomination Form (2018).

	MAB Eligibility Criteria	NE Tobago
1	**Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions**	✓
2	**Be of significance for biological diversity conservation**	✓
3	**Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale**	✓
4	**Have an appropriate size to serve the three functions of biosphere reserves**	✓
5	**A legally constituted core area/s devoted to long term protection of sufficient size to meet long term conservation objectives**.	✓
6	**Buffer zone/s clearly identified & surrounding or contiguous to the core area/s, where only activities compatible with the conservation objectives can take place**".	✓
7	**Outer transition area where sustainable resource management practices are promoted and developed**	✓
8	**Organisational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve**".	Ongoing
9	**Able to describe arrangements in place or foreseen**	✓
10	**Mechanisms to manage human use and activities in the buffer zone or zones**	✓
11	**Management policy or plan for the area as a biosphere reserve**	Currently developed
12	**Designated authority or mechanism to implement this policy or plan**	Department of the Environment, NETMAPT
13	**Programmes for research, monitoring, education and training**	✓

In the Nomination Form, NE Tobago' values were described as follows:

"Covering over 835km^2, the proposed area encompasses three protected areas, one of which is the oldest protected tropical forest reserve in the world, a large planned Marine Protected Area (MPA) and 15 communities which are home to approximately 10,000 residents with a rich historical and cultural heritage. The area's rare and largely intact Caribbean Island Ridge-to-Ocean eco- and human-systems are well equipped to fulfil the three functions of a UNESCO Biosphere Reserve (BR): its biodiversity, range of ecosystems, and special-interest species are important on a regional and global scale (Conservation); the cultural heritage is a living example for the region's deeply rooted, historical, socio-economic and spiritual relationship between communities and natural resources (Development); and decades of regionally outstanding educational, research and networking activities (Logistic Support).

The close linkage between ecosystem services and natural resource use, active community groups, successful sustainable development projects, governmental initiatives and its closeness to Trinidad's resources provide the area with the prerequisites to successfully implement a BR and share lessons learnt with its Caribbean neighbours while serving as a regional role model. Being a hotspot for conservation related research for decades and having a track record of environmental education, capacity building and monitoring are well established cornerstones for providing and further increasing logistical support.

The legal, policy and institutional framework to manage a MAB area exist; current projects and programmes as well as those in the national and local development pipeline, and improved collaboration between government, civil society and private sector are demonstrably supportive of this BR nomination initiative. On varying levels, NE Tobago is already close to meeting the key conservation objectives of a successful BR as mentioned in the Seville MAB Strategy.

Coordinating future sustainable development efforts under a MAB umbrella and the inclusion of all relevant sectors of the society will significantly improve conservation and livelihoods through responsible use of our natural and cultural heritage which is the central goal of Tobago's guideline policy document, the Comprehensive Economic Development Plan."

On 28 October 2020, NE Tobago was officially declared a UNESCO MAB Reserve.

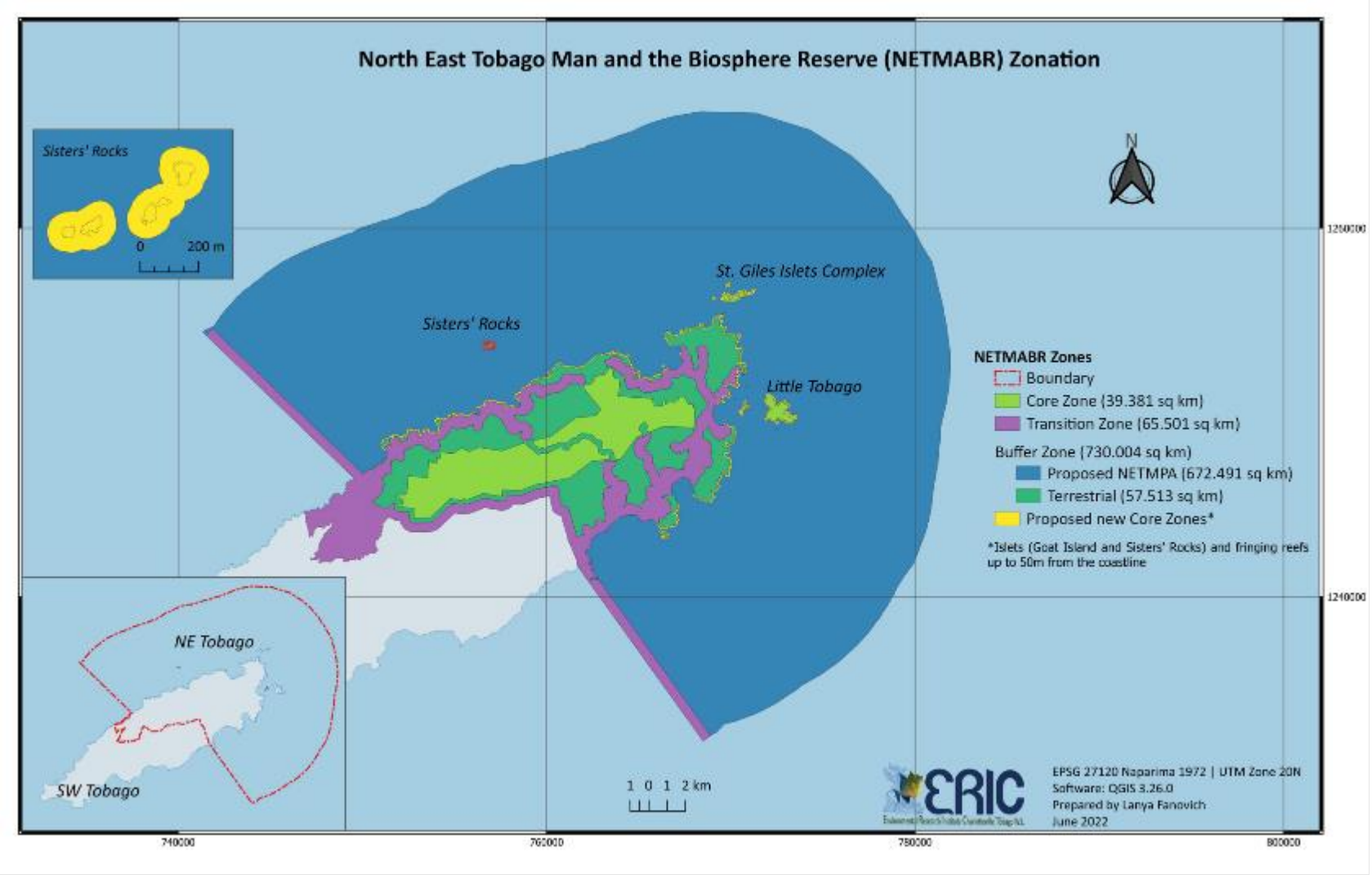


Figure 7. Zonation of the NE Tobago MAB Reserve (ERIC 2022)

The **Core Zone** of the NETMABR consists of three legally protected areas: the MRFR, Little Tobago and the St Giles Islet Complex, all of which are terrestrial.

It should be noted that, at the moment, the Core Zone does not include any marine areas, due to lack of protective legislation and regulations; however, work has started to designate high conservation value, coastal fringe reefs as Natural National Heritage Sites (which is the fastest way of to achieve legal protection) in 2021, and the National Protected Area Systems Plan was approved by Cabinet, which hopefully will result in the designation of the overall NE Tobago Marine Protected Area with some special, IUCN 1a category areas. Once these marine areas receive legal protection, they can, later on, switch from Buffer to Core Zone status within the BR.

The **Buffer Zone** for NETMABR was defined as:

- all lands between the Transition Zone and the MRFR Core Zone,
- a 125m belt on both sides of roads within the Core Zone (combining to a width of 250m)
- a 250m belt along the boundary between the Core Zone and the south-western area outside of the NETMABR,
- coastal areas between the boundaries of the NETMPA and the Transition Zone, and
- the entire marine realm of the proposed NETMPA.

As mentioned in the section above, some marine Buffer Zones might change to Core Zone as soon as legal protection can be provided. Therefore, the terrestrial, coastal Buffer Zones are crucial to protect sensitive marine ecosystems.

The **Transition Zone** was defined as all lands that are located within a 250m belt on both sides of all roads within the overall boundaries of the NETMABR; this includes all communities, and economic activities in the NETMABR (except for some micro-scale subsistence farming and hunting in the Buffer Zone). The result of this definition is a Transition Zone band, sandwiched between the terrestrial and marine Buffer Zones on which it has significant influence.

10 MANAGEMENT PLAN COMPONENTS

The following chapters are subdivided into situational analysis, goals, strategies, and proposed activities. It is important to understand that the chapters are at different results framework levels therefore the subheadings are not necessarily on similar logic levels as well. This is the result of the High-Level Goal of each Component starting on a different logic level.

Table 2. Management plan component levels

Component level	Definition
Summary Situational Analysis	The current state of the BR respectively to the chapter subject, descriptively identifying strengths, weaknesses, opportunities and threats
High-Level Goal	The desired status achieved by the management plan
Priorities	Interventions that either significantly contribute to achieving the goal, or significantly reduce existing threats to the goal
Strategies	Long-term plans of action designed to achieve the goal
Proposed Activities	Programmes, projects, and other interventions that are aligned to the strategies and should be revised once the situational analysis significantly changes.

10.1 Addressing Barriers to Sustainable Management

The NETMABR is subject to a series of interconnected, indirect threats to successful implementation of the MAB programme. Local residents and stakeholders are not commonly inspired to undertake conservation-relevant practices. This is partly because intelligible, adequate and continuous environmental education still requires improvement. While knowledge often exists, it is not successfully translated into a positive attitude and actual practise. This in turn is partially due to perceived and actual lack of ownership and empowerment on the part of residents in NE Tobago. On the other hand, and in certain cases, the sense of ownership is very well developed and strongly articulated; however, ownership rarely translates into stewardship.

Similarly, residents facing environmental challenges are often not informed enough to take appropriate actions against those perpetrating the violations (e.g., seek assistance from the Environmental Police and/or the Environmental Commission of Trinidad and Tobago).

Additionally, the lack of coherent and consistent conservation co-management and co-operation often undermines good efforts in some areas by neglect in others. For example, efforts of CSOs to protect nesting sea turtles are undermined by a lack of law-enforcement regarding the use of turtle nets and turtle meat consumption.

The principal barrier to addressing direct threats to the ecosystems of NE Tobago is fragmented management and use. The National Protected Areas Policy, the National Protected Area Systems Plan (7), the IFPAM Project (6) and ERIC's stakeholder assessments have all identified and prioritised this barrier for NE Tobago. Regulations and roles are unclear and consequently there is limited "enforcement / implementation of regulations concerning natural resource use" as stated in the NE Tobago Management Plan (2003). Fragmented, formal and informal, public and private, land management and use create an environment where it is nearly impossible for a single stakeholder to meaningfully influence the direct threats that are degrading NE Tobago's ecosystems.

This barrier has two components.

Government Sector

The ***government component*** involves the formal management of public lands and waters. This barrier includes outdated legislation and policy, a labyrinthine institutional structure and limited government capacity and resources. Repeated government initiatives since the 1970's have failed to address this issue; a case in point is the National Protected Areas Policy (2011) that called for a wide range of actions to be undertaken by 2016. These include the "*revision, development and declaration of supporting legal instruments [to] enact an enabling legislative framework*", the establishment of a centralised authority "*to administer the coordination and*

implementation of the National Protected Areas Policy for Trinidad and Tobago", and the establishment of protected areas under the new policy. Unfortunately, all efforts to declare the North East Tobago Marine Protected Area have failed since over half a decade.

Non-Government Sector

Fragmented management and use of land and waters also occurs in ***non-government sectors***. The absence of a national land use planning framework combined with outdated regulations and limited enforcement means that private land management and use is largely unrestricted. There is a concomitant lack of mechanisms and incentives for private land owners to engage in or benefit from conservation. The current, forested state of most private land in NE Tobago is therefore not a result of public policies or priorities, but an artefact of the priorities and preferences of individual owners. Although this speaks to the conservation commitment of some land owners, it is a highly vulnerable state for long-term conservation. Land owners may choose to develop their land with infrastructure or unsustainable agriculture that compromises the NETMABR.

Informal management and use of the land- and sea-scape, including public and private areas, is likewise unrestricted. As explained in the THA Comprehensive Economic Development Plan 2.0 (20), Tobago hosts "*longstanding insecure land tenure arrangements with as much as 83 percent of the lands of Tobago allegedly in informal tenure (the majority being family lands)*". Informal but long-standing family lands, squatting, small agricultural plots, unregulated dumping, hunting, harvesting of timber and other forest products, and harvesting of fish from the marine environment all represent often legitimate uses of public and private lands that can none the less contribute to fragmentation and degradation of ecosystems.

The implementation of the UNESCO MAB programme, including the operationalisation of the NE Tobago Protected Area Management Trust, offers a significant opportunity to de-fragment and consolidate the management of natural and cultural resources under one, overarching programme.

Although fragmented management is the principal barrier to conservation in NE Tobago, another critical barrier is a lack of monitoring and communication. This issue captures two hindrances to biodiversity conservation regionally as identified by the Caribbean Islands Biodiversity Hotspot assessment: limited technical and scientific knowledge and poor availability of information needed for effective decision-making, and lack of awareness of importance of biodiversity and ecosystem services. This similarly applies to the socio-cultural and economic development aspects of the NETMABR. Limited information and communication mean that it is difficult to:

quantify threats, foster informed discussions, prioritise management actions, measure the success of interventions, and inspire stakeholders to take action. This barrier will be specifically targeted by strengthening the logistic function of the NETMABR.

In order to address the described challenges through strengthening the functions of a BR, the technical team proposes the following **Main Objective** for the management of the NETMABR:

To successfully consolidate and co-manage interventions related to sustainable and regenerative development, research, capacity building, education and networking on landscape, human- and eco-system levels for the benefit of NE Tobago's cultural and natural heritage and people.

In order to go into more depth, previous management plans for NE Tobago and IFPAM documents further detailed 12 key barriers to successful natural resource management in NE Tobago as follows:

1. outdated legal and regulatory framework for establishing and managing natural and cultural resources,
2. unclear, fragmented roles responsibilities of stakeholders, especially managing authorities,
3. disempowered and under-resourced management authorities,
4. inadequate funding,
5. willingness to participate if interventions seem to be too restrictive,
6. stakeholder conflicts,
7. lack of broad, bipartisan political will,
8. lack of technical capacity to identify and address issues,
9. minimal capacity on the ground with respect to practical approaches to effective natural and cultural heritage management,
10. inadequate law enforcement,
11. minimal experience with income-generating opportunities, and last but by no means least,
12. a lack of transparency, accountability and compliance with regulation and legislation by the Tobago House of Assembly.

While IFPAM and other programmes and projects were able to partially address these barriers, and while it can be stated that conservation status and efforts in NE Tobago have never been better, it remains a fact that all of the above barriers are still valid and need attention.
The Management Plan at hand is based on the methodical approach that most of those barriers can be addressed by implementing strategies aligned with the three MAB functions.

These, below-described key strategies, are mainly based on the results of the recent Improved Forest and Protected Area Management Project (IFPAM, 2015-2020) which applied a participatory approach in identifying objectives and potential solutions to overcome conservation barriers; additionally, the ongoing interaction between the technical team and key stakeholders was used to refine recommendations included into the Management Plan.
These strategies are reoccurring and supported by proposed activities in the various components of the Management Plan at hand.

It should be noted that, while IFPAM continuously considered socio-cultural aspects of NE Tobago as essential to successful management of natural resources, there was, unfortunately, not a matching project to similarly address the management of NE Tobago's cultural heritage.

Figure 8. View from Speyside onto Little Tobago and Goat Island (Janina Ewals)



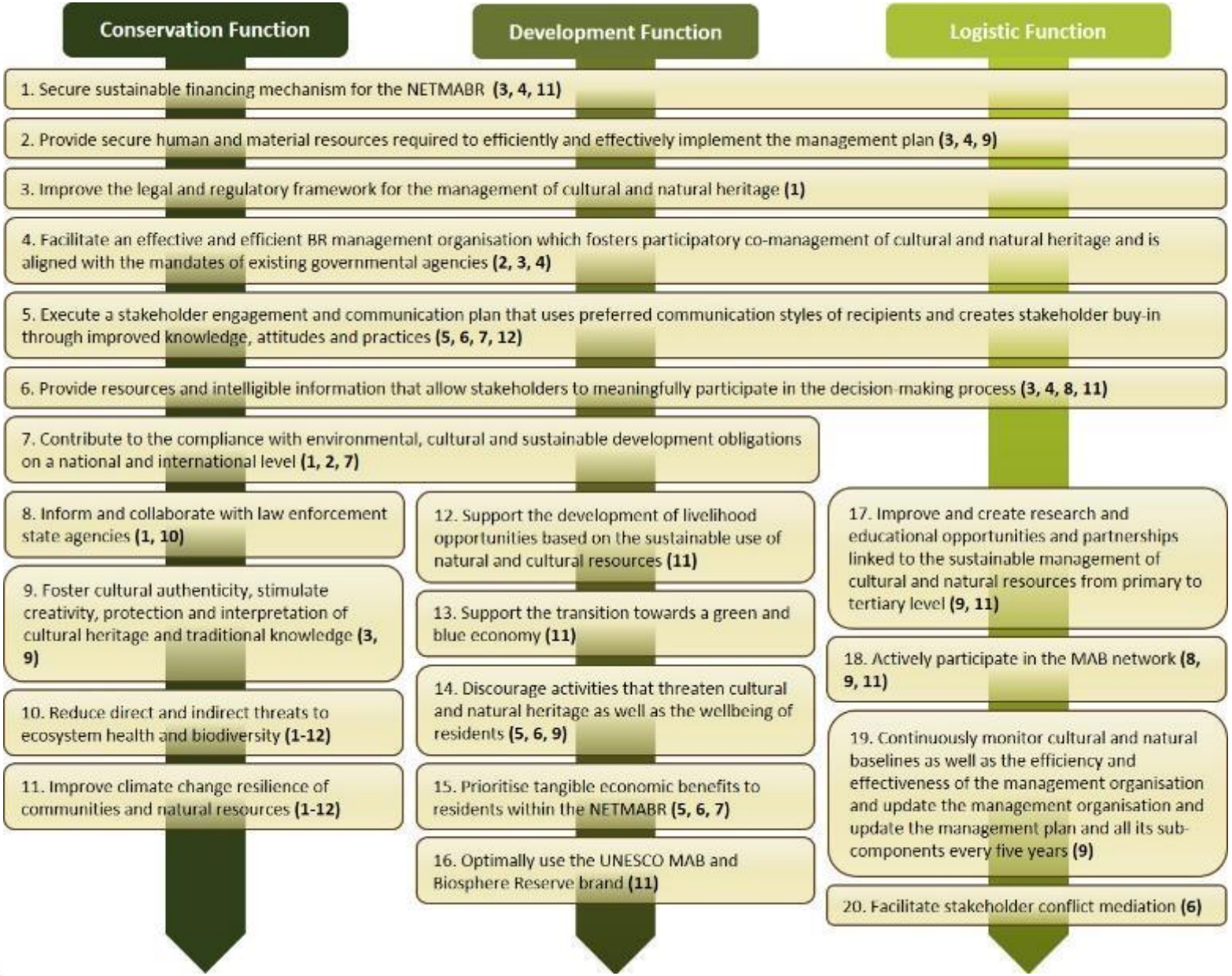


Figure 9. Proposed Main Strategies for the BR Management Plan, Addressed Key-Barriers in (brackets)

11 ANIMAL WELFARE

NE Tobago (as much of the Caribbean) is still stuck with outdated, in-humane, and often appalling animal welfare conditions.

NE Tobago has never seized the opportunities and realised the benefits that that can demonstrably be derived from best animal welfare practises,

including:

- **improved social health**
- **increased income from tourism**
- **high quality and value agricultural and fisheries products**
- **lower livestock production cost**
- **reduced pollution**
- **improved self-, and destination image.**

LEGAL CONTEXT and CONVENTIONS

Unfortunately, the regulations, laws, and international conventions addressing animal welfare issues are not well known amongst stakeholders; therefore, the key acts are shortly mentioned here for reference.

Since animal welfare is mainly linked to the Animals (Diseases and Importation) Act (21 of 2020), and, to a lesser extent, to the Summary Offences Act (85 of 2000), some relevant definitions described in these acts need to be cited:

- "animal identification" means the combination of the identification and registration of an animal individually, with a unique identifier, or collectively by its epidemiological unit or group, with a unique group identifier;
- „animal welfare" means taking due diligence to ensure that an animal or group of animals is free from hunger, thirst, malnutrition, thermal and physical discomfort, pain, injury and disease, fear and distress and is free to express normal patterns of behaviour;
- „aquatic animal" means all life stages, including eggs and gametes, of fish, molluscs, crustaceans and amphibians originating from aquaculture facilities or removed from the wild, for farming purposes, for release into the aquatic environment or for human consumption;
- "feral animal" means an animal living in the wild but descended from domesticated animal species;

- "invasive alien animal species" means an animal that has been introduced and subsequently becomes established and spread outside its native distribution area and causes harm to the environment, human or animal health, or the economy;
- "stray animal" means any domestic animal not under the direct control or ownership by a person, or not prevented from roaming (stray owned roaming animals);
- "zoonosis" means any disease or infection which is naturally transmissible between animals and humans and vice versa.".
- „farm animal" includes: *(a)* any bison, buffalo, horse, donkey, mule, ox, bull, cow, steer, heifer, calf, ram, ewe, sheep, lamb, goat, kid, hog, sow, pig or swine; *(b)* any tool, machinery, equipment or material used in the rearing of animals or in the production of animal products; and *(c)* any other animal, tool, machinery, equipment or material which the Ministry may, by Order, direct to be included within this definition;
- "fireworks" include bombs, torpedoes, squibs, rockets and serpents;
- "livestock" includes any farm animal or poultry or the carcass, head, skin or any other part or product thereof.

Unfortunately, the **Summary Offences Act (85 of 2000)** only refers in one paragraph (16) to animal welfare for animals kept in a state of confinement or for a domestic purpose and seems not to apply to cattle, strays, and wild animals as follows:

> **16.** Any person who unlawfully and maliciously kills, maims, or wounds any dog, bird, beast or other animal, not being cattle but being either the subject of larceny at Common Law or ordinarily kept in a state of confinement or for any domestic purpose, is liable on first conviction to a fine of one thousand dollars over and above the amount of the injury done or to imprisonment for three months and on any subsequent conviction to imprisonment for six months.

Side note:
Interestingly the Summary Offences Act also deals with the destruction or damage to certain plants as follows.

> **19.** Any person who steals, or unlawfully and maliciously roots up, destroys or damages the whole or part of any tree, sapling, shrub or underwood, wheresoever growing, the value thereof or the damage done being to the amount of one dollar at the least, is liable on first conviction to a fine of two hundred dollars in addition to the value of the property stolen or the amount of the injury done and on any subsequent conviction to imprisonment for four months.

With the enactment of the **Animals (Diseases and Importation) Act (21 of 2020)**, the legal protection for animals was improved significantly via the following paragraphs relevant to the management of the NETMABR:

"PART IIIA

ANIMAL WELFARE AND STRAY ANIMALS

18A.

(1) Any person who cruelly beats, ill-treats, starves, over-drives, overrides, overloads, abuses, tortures, neglects or otherwise maltreats any animal commits an offence.

18C.

(1) If any person shall, by committing any offence under section 18A, cause any injury or damage to be done to any animal or to any person or property, he shall, on conviction for such offence, pay to the owner of the animal the fair market value of the animal (if the offender is not the owner) or to the person who has sustained the injury or damage, such sum of money by way of compensation, as the Court shall adjudge.

(2) The payment of such compensation or imprisonment for the non-payment thereof shall not prevent or in any manner affect the punishment to which the offender may be liable for or in respect of the offence.

18D.

(1) Any person who

(a) in any manner encourages, aids, or assists at the fighting or baiting of any animal, whether domestic or wild commits an offence

18I.

(1) An owner or person in charge of an animal shall provide such animal with

(a) a sufficient and suitable diet;

(b) access to sufficient and clean water;

(c) proper shelter and housing which are

(i) appropriate for the animal's behavioural patterns; and

(ii) reasonably sufficient to protect the animal from unsuitable weather condition, including the risk of death or injury from flooding and or other natural disasters;

(d) veterinary care when needed to treat and prevent suffering and disease;

(e) suitable accommodation during transportation; and

(f) humane care and treatment.

(2) No owner or person in charge of an animal shall cause or permit another person to cause the unnecessary suffering or death of an animal.

(3) An owner or person in charge of an animal shall take reasonable steps to mitigate any suffering which may be caused to the animal by its exposure to fireworks.

18L.
The Inspector shall, in collaboration with the Ministry responsible for health and other authorities, approve measures to:

(a) control the populations of stray and feral animals, including programmes and strategies to control animals which may pose a risk for public health, safety or security; and

(b) contain and control notifiable diseases, including zoonoses in stray and feral animal populations.".

21.
(1) Any person who:

(a) fails to comply with any order, direction or permit lawfully made or granted under this Act;

(b) takes or allows to be taken, unless otherwise required by this Act or any Regulations made thereunder, or allows to stray, any diseased or infested animal in or upon any common, public road, or public place; or

(c) gives false information to a veterinary officer, commits an offence and is liable on summary conviction to a fine of fifty thousand dollars and to imprisonment for a term of two years.

(3) Any person who

(e) tortures, beats, injures, mutilates, neglects or treats with cruelty any animal or overloads any animal in contravention of section 18A;

(f) contravenes sections 18B, 18D or 18I;

(g) permits an act or an omission to act by another person that causes unnecessary suffering to an animal including suffering caused by exposure to fireworks;

commits an offence and is liable on summary conviction to **a fine of two hundred thousand dollars and imprisonment for a term of five years.".**

Interestingly, under the same Act, an Advisory Committee on Animal Health and Welfare shall be established, which remarkably does not include representation from the Animal Welfare NGO community in Trinidad and Tobago.

Trinidad and Tobago is furthermore a member state of **World Organization for Animal Health (WOAH)** (formerly the International Agreement for the creation of an Office International des Epizooties (OIE, https://www.woah.org)) which works on animal health

(terrestrial, aquatic and wildlife), veterinary education, veterinary public health, food safety, and animal welfare, international trade in animals and animal products, laboratory diagnostic methods, and vaccine quality.
The WOHA's Terrestrial Animal Health Code (https://www.woah.org/en/produit/oie-terrestrial-animal-health-code-2021), is an overall very helpful document and specifically addresses animal welfare in Section 7.

Key statements of the Terrestrial Animal Health Code (in the context of the document at hand), to which Trinidad and Tobago has committed, are its:

- *General Considerations* which state:
    - "An animal experiences good welfare if the animal is healthy, comfortable, well nourished, safe, is not suffering from unpleasant states such as pain, fear and distress, and is able to express behaviours that are important for its physical and mental state.
    - Good animal welfare requires disease prevention and appropriate veterinary care, shelter, management and nutrition, a stimulating and safe environment, humane handling and humane slaughter or killing".

- *Guiding Principles* which state that, inter alia:
    - there is a critical relationship between animal health and animal welfare;
    - the internationally recognised "five freedoms" (freedom from hunger, thirst and malnutrition; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from pain, injury and disease; and freedom to express normal patterns of behaviour) provide valuable guidance in animal welfare;
    - the use of animals in agriculture, education and research, and for companionship, recreation and entertainment, makes a major contribution to the wellbeing of people;
    - the use of animals carries with it an ethical responsibility to ensure the welfare of such animals to the greatest extent practicable; and
    - improvements in farm animal welfare can often improve productivity and food safety, and hence lead to economic benefits.

- *General principles for the welfare of animals in livestock production systems* which state that, inter alia*:*

- the physical environment, including the substrate (walking surface, resting surface, etc.), should be suited to the species so as to minimise risk of injury and transmission of diseases or parasites to animals;
- the physical environment should allow comfortable resting, safe and comfortable movement including normal postural changes, and the opportunity to perform types of natural behaviour that animals are motivated to perform;
- social grouping of animals should be managed to allow positive social behaviour and minimise injury, distress and chronic fear;
- for housed animals, air quality, temperature and humidity should support good animal health and not be aversive;
- where extreme conditions occur, animals should not be prevented from using their natural methods of thermo-regulation;
- animals should have access to sufficient feed and water, suited to the animals' age and needs, to maintain normal health and productivity and to prevent prolonged hunger, thirst, malnutrition or dehydration;
- diseases and parasites should be prevented and controlled as much as possible through good management practices;
- the handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear or avoidable stress; and
- owners and handlers should have sufficient skill and knowledge to ensure that animals are treated in accordance with these principles.

- *General Principles for Slaughter outside of Abattoirs,* which state, inter alia:
  - all animals slaughtered outside slaughterhouses/abattoirs should be managed to ensure that their transport, lairage, restraint, and slaughter is carried out without causing undue stress to the animals; and
  - there should be a sufficient number of personnel, who should be patient, considerate, competent, and familiar with the recommendations outlined in this chapter and their application within the national context. Competence may be gained through formal training and/or practical experience. This competence should be demonstrated through a current certificate from the Competent Authority or from an independent body accredited by the Competent Authority.

- Guidelines for *Stray Dog Population Control,* which state, inter alia:
  - Stray and feral dogs, pose serious human health, animal health, and animal welfare problems and have a socio-economic, environmental, political, and religious impact in many countries. Furthermore, the OIE recognises the

importance of controlling dog populations without causing unnecessary animal suffering. Veterinary Services should play a lead role in preventing zoonotic diseases and ensuring animal welfare and should be involved in dog population control, coordinating their activities with other competent public institutions and/or agencies.

- When a person takes on the ownership of a dog, there should be an immediate acceptance of responsibility for that dog, and for any offspring it may produce, for the duration of its life or until a subsequent owner is found. The owner should ensure that the welfare of the dog, including behavioural needs, are respected and the dog is protected, as far as possible, from infectious diseases (e.g., through vaccination and parasite control) and from unwanted reproduction (e.g., through contraception or sterilisation). Owners should ensure that the dog's ownership is clearly identified (preferably with permanent identification such as a tattoo or microchip) and, where required by legislation, registered on a centralised database. All reasonable steps should be taken to ensure that the dog does not roam out of control in a manner that would pose a problem to the community and/or the environment. Additionally, all owned dogs be provided with shelter and housing secured in an area appropriate for the animal's natural behaviour patterns and not permitted to stray.
- The promotion of responsible dog ownership can significantly reduce the numbers of stray dogs and the incidence of zoonotic diseases.
- Because dog ecology is linked with human activities, control of dog populations has to be accompanied by changes in human behaviour to be effective.
- In the development of a dog population control programme, it is recommended that the authorities establish an advisory group, which should include veterinarians, experts in dog ecology, dog behaviour and zoonotic diseases, and representatives of relevant stakeholders (local authorities, human health services/authorities, environmental control services/authorities, NGOs, and the public). The main purpose of this advisory group would be to analyse and quantify the problem, identify the causes, obtain public opinion on dogs and propose the most effective approaches to use in the short and long term.
- The following control measures could be implemented in accordance with the national context and local circumstances. Measures may be used in combination:
    - education and legislation for responsible ownership,
    - registration and identification of dogs (licensing),

- reproductive control,
- removal and handling,
- capture and return, rehoming or release,
- environmental controls,
- control of dog movements,
- regulation of commercial dog dealers,
- responsible dog ownership, and
- euthanasia.

Euthanasia of dogs, used alone, is not an effective control measure.

CONSEQUENCES of POOR ANIMAL WELFARE

The strong linkages between cruelty against animals and domestic violence, crime, and other social illnesses is very well documented e.g.,

- https://www.mdpi.com/2076-2615/12/8/977
- https://aldf.org/article/the-link-between-cruelty-to-animals-and-violence-toward-humans-2/
- https://www.sheriffs.org/animal-cruelty-and-domestic-violence

Despite overwhelming scientific evidence of the strong correlation between cruelty to animals and other criminal behaviour including domestic violence, child abuse, elder abuse, homicide, and other community violence, the negative effects of cruelty against animals on NE Tobago's social health and its ill effects on the most vulnerable persons in the society is widely unrecognised and ignored by most sectors of the society including churches and the Division of Health, Wellness, and Social Protection.

Similarly, the negative economic effects of poor animal welfare, especially the issue of strays in tourism destinations is widely publicised and internationally recognised e.g.:

- https://www.cabi.org/products-and-services/about-cabi-books/open-resources/tourism-and-animal-welfare/
- Diana Webster and CANDi International (2013): The Economic Impact of Stray Cats and Dogs at Tourism Destinations on the Tourism Industry https://turismoresponsable.com/userfiles/The%20Economic%20Impact%20of%20Stray%20Cats%20and%20Dogs%20at%20Tourist%20Destinations%20on%20the%20Tourism%20Industry%20May%202013-2(2).pdf

- https://www.saipantribune.com/index.php/c29c3f42-1dfb-11e4-aedf-250bc8c9958e/

Surveys conducted by the Trinidad and Tobago Hospitality and Tourism Institute in 2008 as well as by concerned tourism stakeholders in Tobago in 2018 clearly indicated that even on the local level the experience of stray animals is a significant concern amongst the vast majority of local and international tourists which appeal to the relevant agencies to address the issue in a humane way.
Unfortunately, the negative impacts of poor animal welfare on our overall economy and, specifically, the tourism industry are ignored by the tourism private sector, the Division of Tourism, and the Tobago Tourism Agency Limited.

Poor animal welfare practises on farms lead to direct and indirect economic losses e.g., caused by increased usage of feed, increased veterinary costs, water and soil pollution, and unhealthy/unhygienic/low quality products.

- https://www.worldanimalprotection.org/our-work/animals-farming
- Fernandes, J.N; Hemsworth, P.H; Coleman, G.J; Tilbrook, A.J Costs and Benefits of Improving Farm Animal Welfare. Agriculture 2021, 11, 104. https:// doi.org/10.3390/agriculture11020104
- Vetter, S, Economic Aspects of Animal Welfare, Acta Polytechnica Hungarica 11(7):2014-119, https://www.researchgate.net/publication/266601952_Economic_Aspects_of_Animal_Welfare

Currently, good animal welfare farming practises are not an integral part in the training of framers or agricultural extension officers of the THA.

ONE HEALTH and ONE WELFARE APPROACH

One Health developed in response to evidence of the spreading of zoonotic diseases between species and increasing awareness of the interdependence of human and animal health and ecological change. It pays tribute to the fact that the health (including mental health where applicable) of animals, humans, and ecosystems that share a common space is intrinsically linked and can't be successfully and sustainably treated in isolation of each other.
"*One Health is a collaborative, multisectoral, and transdisciplinary approach, working at the local, regional, national, and global levels with the goal of achieving optimal health outcomes recognising the interconnection between people, animals, plants, and their shared environment. One Health seeks to incorporate knowledge, approaches and resources from across sectors. Collaborating across sectors creates sustainable outcomes for global challenges including climate change, antimicrobial resistance, non-communicable diseases and food security*" (https://www.cdc.gov/onehealth); see further details in the chapter on Sustainable Agriculture).

One Welfare promotes the direct and indirect links of animal welfare to human welfare and environmentally friendly animal-keeping systems. The approach, which is an extension of the One Health concept, applies to animal cruelty reporting, farmer and animal professional mental welfare programmes, biodiversity conservation, and wildlife management programmes, emergency evacuation protocols, and climate change.

One Welfare also helps to promote key global objectives such as supporting food security, sustainability, reducing human suffering and improving productivity within the farming sector through a better understanding of the value of high welfare standards (https://www.onewelfareworld.org).

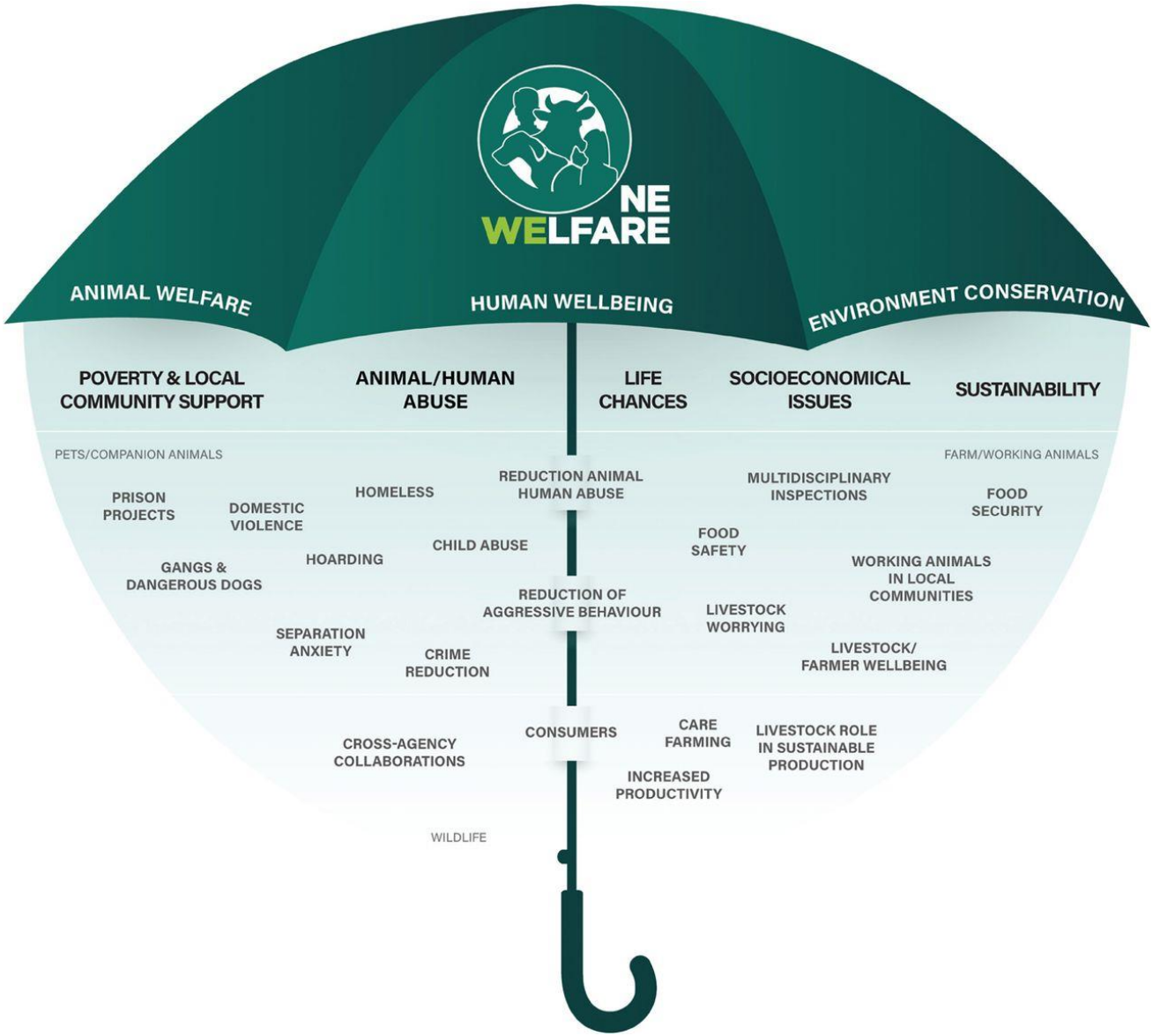


Figure 10 Topics that fall under the umbrella of One Welfare, Pinillos RG et al (2016) Veterinary Record.

PETS and STRAYS

The most glaring, pet-related animal welfare issues within the Biosphere Reserve (as well as on the entire island) are associated with street-roaming stray dogs. Homeless dogs are less frequent and often lost hunting dogs or animals that have an owner in another village but strayed too far.

On every road trip through the NE Tobago UNESCO Man and the Biosphere Reserve, during each village stroll, the deplorable situation of these creatures will be experienced and a rotting carcass smelled. It is simply not possible to traverse NE Tobago without encountering animals damaged or killed by road traffic, dispersing waste from pubic bins, sick, extremely malnourished, or showing signs of transmittable diseases and parasites.

One effect of this situation is a continued brutalisation of society exemplified by drivers not slowing for animals or even purposefully hitting dogs, children stoning animals, police officers unaware of the above cited legislation, and dogs kept under deplorable conditions in kennels that are too small and overcrowded, or on short chains without access to water and shelter.

The few animal welfare activists do not receive public support, their reports to the police or Crimestoppers are not followed up upon, and face threats by animal owners when interfering with neglected and stray animals.

The vast majority of dog owners are unwilling to castrate their dogs mostly due to the associated costs and anticipated behavioural changes. Especially male dog owners and hunters are reluctant and misinformed about the benefits of castration.

Professional websites for hunters are providing useful recommendations for the castration of hunting dogs and can be used for information campaigns, such as:

- Valhalla Kennels & Gun Dogs: "*We believe in spaying or neutering our dogs. We have not found that spaying or neutering dogs affects their hunting ability or potential. A good pedigree and proper training are the true factors when it comes to performance. However, we also feel that it is important to wait until the dog is fully developed physically*". https://www.valhallahuntclub.com/bird-dog-training-spay-neuter-dog/#:~:text=We%20have%20not%20found%20that,when%20it%20comes%20to%20performance.
- https://huntingpup.com/does-fixing-ruin-a-hunting-dog/: "***Due to the fact that in most cases the benefits outweigh the risks, owners should almost always make the decision to neuter or spay their hunting dogs. In addition, spaying or neutering a dog does not seem to have any effect on its ability to perform its hunting tasks well".***
- https://www.themeateater.com/hunt/upland-birds/ask-a-vet-should-i-spay-or-neuter-my-bird-dog, recommends letting "*female dogs have one heat cycle before spaying to reduce the risk of urinary incontinence down the road, assuming the owners*



are comfortable with the risk of pregnancy during that first heat. For males, it recommends owners push back their neuter to 18- to 24-months. Such a delayed surgery allows for the development of traditional male physique driven by testosterone's role in proper muscle, bone, and joint development".

Free or reduced-cost castration programmes carried out by the TTSPCA-Tobago Shelter and, in the case of Charlotteville, individuals associated with the Environmental Research Institute Charlotteville, are not yet of the frequency and scope to sustainably decrease the number of stray dogs; residents seem mostly indifferent about the uncontrolled procreation of dogs and its effects.

Stray cats are less obvious, more able to survive on their own (with detrimental effect on wildlife esp. birds and reptiles), and less prone to disease.

LIVESTOCK

There is no medium or large-scale livestock farming in NE Tobago; most farmers tend to less than 15 animals.

Goats and Sheep**:** are reared for sale to Trinidad and household use. While some farmers are mindful and graze their goats and sheep further away from roads, some owners tie the animals close to the road side, without shade, and often on very short ropes; lambs and kids often run free besides their mothers.
Goats and sheep that are severely entangled to the point of strangulation or immobility are often encountered, as well as ruminants crossing the road and causing traffic hazards and accidents with serious injuries or death (esp. of kids and lambs).

Chickens / Ducks / Rabbits**:** Most chickens, ducks, and rabbits are held cages that are too small, cause behavioural stress, and increase the risk of parasites and transmittable diseases such as Salmonella and Campylobacter.

Pigs: There are only few pigsties, which are mostly away from the road and settlements to limit the stench, which already indicates the unhygienic and low welfare standards under which the animals are kept.

Cows: are often tied next to roads, sometimes free roaming and then causing serious traffic hazard.

Other Comments

- Livestock containments are obligated to adhere to the Water Pollution Rules (2019), which is normally not the case.



- Animal transport for slaughter is practiced in makeshift vehicles causing breakage of limbs or extreme (heat) stress in overcrowded cages; especially enroute to Trinidad via ferry.
- There is no abattoir in the Biosphere Reserve; the only one in Tobago is located in Scarborough and mainly used for cows and pigs.
- Goats and sheep are normally killed by, mostly formally untrained, farmers, cutting the throat and exsanguination; chickens by beheading, and rabbits by neck-breaking.
- Veterinary care is not well developed, diagnostic machinery (especially x-ray) is missing on island, laboratory services are limited.

HUNTING / FISHING

Unfortunately, there is no mandatory, regular, or easily available training for hunters and fisherfolk on best practises regarding the sustainable catching, humane treatment, and slaughtering of game.

Chivvy hunting (chasing wild animals with dogs to exhaustion) is common and a relic from the island's British colonial times. Interestingly, this type of hunting is now considered a cruel sport and illegal in England and Wales since 2004 (https://www.huntingact.org). Chivvy hunting also exposes the dogs to high risks of accidents, fighting wounds, and getting lost. There are frequent reports of hunters not adhering to best slaughter practices (especially exsanguination) and unhygienic handling of carcasses (especially, until chilling). A sustainable hunting campaign was executed in Tobago under the IFPAM project in 2019 , through a two-day workshop for Game Wardens, Honorary Game Wardens, and Forest Officers on the island (https://www.protectedareastt.org.tt/index.php/news/282-hunting-with-tomorrow-in-mind).
See also: https://www.semanticscholar.org/paper/The-effect-of-stress-on-livestock-and-meat-quality-Grandin/dad03aede32ad20f252f019f38ffdfcdc4eea001

Fisherfolk mostly do not kill, exsanguinate, and ice-slurry their catch immediately after securing it on board, causing fish to go through a slow and painful suffocation process. Released stress hormones (esp. adrenaline) are linked to significant reduction of fish meat quality(https://www.researchgate.net/publication/333737838_Farmed_fish_welfare_stress_postmortem_muscle_metabolism_and_stress-related_meat_quality_changes), improper exsanguination leads to further meat deterioration and loss of value, and improperly chilled fish is more likely to get contaminated by bacteria.

FIREWORKS

The currently indiscriminate use of fireworks around specific public holidays as well as the traditional “busting bamboo”, causes significant distress and injuries to animals whether wild or in captivity. The existing laws regarding noise pollution and the usage of fireworks are not enforced and the recommendations of various state agencies, civil society, and other stakeholders not translated into law, despite an overwhelming support to limit the use and type of fireworks.

In 2022-23, the Fireworks Action Coalition of Trinidad and Tobago, which includes members in Tobago, has significantly and continuously increased pressure and lobbied for a change in the existing law and practises and achieved remarkable successes. However, there remains still much to be changed, specifically within a Biosphere Reserve, which should be renown for peaceful coexistence.

Ideally, fireworks should be banned within the NETMABR for a variety of highly valid reasons, not limited to animal welfare, but including health including injuries, elderly, traffic safety, etc.

ANIMALS IN ENTERTAINMENT

As of 2023, there are no cases of animals being used for display, shows, sports, or other entertainment in the NETMABR. This situation should be maintained.

The only possible exception could be wildlife or stray animal rehabilitation centres that are operated according to best international practises (Corbin Wildlife, in SW Tobago is a good example) and could use sensitive entertainment/engagement/tours for fund raising or adoption events.

VETERINARY INFRASTRUCTURE

As of 2023 there is no veterinary clinic within the NETMABR and only two resident (mobile) veterinarians. The veterinary services are focusing on livestock, most pet owners do not seek medical assistance for their pets; as such, the economic feasibility to maintain a relatively well-equipped veterinary clinic is low.

There is no veterinarian in NE Tobago specialised in medical treatment of sick or injured wildlife.

HIGH LEVEL GOAL

Treatment of animals is characterised by adhering to best international animal welfare practices, applying One Welfare principles, and creating tangible community benefits that are an inspiration for other Caribbean islands

Sub-Goal 1: Pets
Responsible pet ownership results in absence of strays and compliance with the five freedoms of animal welfare and One Welfare principles.

Sub-Goal 2: Livestock
Farmers reap tangible benefits from understanding themselves as stewards for their animals, implementing best farming animal welfare practices and One Health and One Welfare principles, complying with the five freedoms of animal welfare, and ensuring stress reduced transport and slaughter.

Sub-vision 3: Hunting Dogs and Wild Animals
Hunters are treating their dogs as valuable, sentient companions in compliance with the five freedoms of animal welfare and One Welfare principles, and ensure controlled breeding conditions. Hunters and fishermen minimise stress on wild caught animals and as such produce higher quality, healthier, and hygienic fish and meat products.

* best intl. animal welfare practices and One Health resources:

1. **World Organization for Animal Health,** Terrestrial Animal Health Code (https://www.woah.org/en/produit/oie-terrestrial-animal-health-code-2021)
2. **WellBeing International**, Good Practices for Animal Welfare in Agriculture Development (2019) (https://www.wellbeingintlstudiesrepository.org/cgi/viewcontent.cgi?article=1001&context=es_unsdg)
3. **The Travel Association** (ABTA), Global Welfare Guidance for Animals in Tourism (2013), https://www.tuigroup.com/damfiles/default/tuigroup-15/de/nachhaltigkeit/AnimalWelfare/GlobalWelfareGuidanceforAnimalsinTourism_IA.pdf-c627bf5c92c64a35b3f2fc935a91f373.pdf
4. **American Humane Society,** A New Deal for Animals, People and the World We Share: A 10-point Plan to Build a Humane and Ethical World (2020), https://www.americanhumane.org/app/uploads/2020/09/AH-New-Deal-Whitepaper.pdf
5. https://www.cdc.gov/onehealth/pdfs/OneHealth-FactSheet-FINAL.pdf
6. https://www.who.int/news-room/questions-and-answers/item/one-health
7. https://www.onewelfareworld.org/

PRIORITIES

1. Animals are recognised as sentient beings and treated as such.
2. The internationally recognised five freedoms of animal welfare:
    I. freedom from hunger, thirst and malnutrition,
    II. freedom from uneasiness,
    III. freedom from pain, injury and disease,
    IV. freedom from fear and suffering, and
    V. freedom to express normal patterns of behaviour,

    are respected and implemented wherever human and animals interact.
3. Stakeholders experience tangible benefits from improved animal welfare

STRATEGIES

1. Establish and facilitate a One Welfare stakeholder advisory group;
2. Facilitate, analyse, and intelligibly communicate the results of a knowledge, attitude, and practice (KAP) survey regarding animal welfare to clearly identify gaps and provide guidance for further and continued outreach and capacity building;
3. Facilitate the formulation of locally applicable animal welfare guidelines / voluntary standards with key stakeholder groups based on the One Welfare approach across all animal / human interactions;
4. Identify key animal welfare stakeholder groups and implement annual awareness and capacity building workshops;
5. Support local animal welfare groups and create international linkages to facilitate financial and PR support;
6. Facilitate and coordinate the actualisation of tangible benefits to stakeholders that apply the best possible animal welfare practises; and
7. Knowledge sharing with other Caribbean islands and BR networks.

PROPOSED PROGRAMMES AND PROJECTS

All programmes and projects regarding animal welfare should ideally be understood by and integrated into a wider One Health and One Welfare Approach, which aims to optimise the health of people, animals and the environment and is particularly relevant for food and water safety, nutrition, the control of zoonoses, pollution management, and combatting antimicrobial resistance. This approach mobilises multiple sectors, disciplines, and communities at varying levels of society to work together. This way, new and better ideas are

developed that address root causes and create long-term, sustainable solutions. From this integrative One Health – One Welfare-, conservation biology- and/or ecosystem perspective, animals should be highly valued and treated as part of an overall effort to maintain and sustain ecosystem integrity and comprehensive well-being. Livestock holders should be regularly trained on best animal welfare practices in their rearing system. Hunting, capturing, and slaughtering practices should aim to reduce stress during animal handling.
Also see:

- https://www.futurelearn.com/info/courses/one-health/0/steps/25458
- https://www.frontiersin.org/articles/10.3389/fvets.2017.00238/full
- https://www.avma.org/resources-tools/one-health
- https://www.woah.org/en/what-we-do/global-initiatives/one-health
- https://caribbeanonehealth.org

Re. Strategy 1: Establish and facilitate a One Welfare stakeholder advisory group.

- Engage key stakeholders that are involved in human / animal interaction to establish a voluntary advisory and liaison group. The PMU of TOBIMA should formulate a concise and achievable ToR the advisory group. At a minimum this advisory group should include:
    - local veterinarian(s),
    - One-Health Approach expert,
    - representative from the Department of Tourism,
    - representative from the Division of Health, Welfare, and Social Protection,
    - representative from the Division of Food Security, Natural Resources, the Environment, and Sustainable Development,
    - animal welfare activists,
    - farmers,
    - hunters,
    - fisherfolk
    - tourism operators, and
    - civil society.

- THE PMU of the TOBIMA should facilitate meetings and act as secretariat for the animal welfare advisory group, which should act as a Technical Advisory Subcommittee to the TOBIMA Board. The PMU should coordinate the implementation of projects and programmes via stakeholders as recommended by the animal welfare advisory group.

Re. Strategy 2: Facilitate, analyse, and design communication tools regarding the results of a knowledge, attitude, and practice (KAP) survey regarding animal welfare to clearly identify gaps and provide guidance for further and continued outreach and capacity building.

- Design, conduct, and analyse stakeholder group specific animal welfare KAP surveys possibly with (international) academic support.
- Use the results of the KAP surveys to assist stakeholders in the design of animal welfare outreach and training, addressing, but not limited to:
    - general public perception of animals as sentient beings,
    - importance and stakeholder specific (esp. economic) benefits of animal welfare and how to derive them,
    - primary and secondary school outreach,
    - involvement of churches, and
    - training of framers, hunters, animal transporters, butchers, and fisherfolk.
- Adjust and repeat KAP study, outreach, and training every three years.

Re. Strategy 3: Facilitate the formulation of locally applicable animal welfare guidelines / voluntary standards for key stakeholder groups to support the actualisation of the Five Freedoms across all animal - human interactions.

- Facilitate the formulation of locally applicable animal welfare guidelines and voluntary industry standards informed by best international practice (especially in relationship to One Health principles), national laws, international commitments (specifically, the WOHA's Terrestrial Animal Health Code), and stakeholder input. These documents should include, but not be limited to:
    - responsible pet ownership,
    - an evaluation and recommendations regarding the ban of fireworks within the NETMABR,
    - stray population control, including a recommendation that all dogs be provided with shelter and housing secured in an area appropriate for the animal's natural behaviour patterns and not permitted to stray.



    - wildlife rehabilitation,
    - animal welfare, product quality, and economic benefits in farming,
    - animal welfare, product quality, and economic benefits in hunting,
    - animal welfare, product quality, and economic benefits in fishing, and
    - animal welfare, product quality, and economic benefits in tourism,
- Establish a database of stakeholders that commit to adhering to such guidelines and standards, for inclusion in projects and programmes that create tangible benefits (see below);
- Facilitate the establishment of a (free?) on-site slaughter service for ruminants by trained personnel using captive bolt stunners;
- Facilitate the individual registration of pet dogs and cats, outside grazing sheep, cows and goats roaming or on public property.

Re. Strategy 4: Identify animal welfare key stakeholder groups and implement annual awareness, capacity building, and vocational training workshops.

- Establish and animal welfare stakeholder register that includes, but is not limited to:
    - THA Departments,
    - schools,
    - farmers,
    - hunters,
    - veterinarians,
    - village councils,
    - cultural groups,
    - private sector,
    - hunters,
    - police and game wardens,
    - animal handlers and butchers,
    - churches,
    - pet owners, and
    - fisherfolk.



- Implement a communication plan, based on the KAP study and international experience.
- Implement stakeholder specific capacity building and vocational training programmes, ideally integrated into other related programmes and presented by trained peers.

Re. Strategy 5. Support local animal welfare groups and create international linkages to facilitate financial and PR support;

- Lobby for the actualisation of the above established animal welfare guidelines and voluntary industry standards, or in absence of these, the WOHA's Terrestrial Animal Health Code.
- Create public-, private-, civil society partnerships and assist with the implementation of general animal welfare programmes and dog and cat population control programmes.

  Note 1: euthanasia of strays is not a sufficient method for population control and should be avoided (except when medically and humanely indicated) due to the significant damage of the NETMABR as a tourism destination, residents' disapproval, and simply due to humanitarian reasons.

  Note 2: Environmental controls to reduce stray populations, such as the containment of waste (bins), are strongly recommended and linked to other aspects of the NETMABR management plan such as "Aesthetics" and "Pollution".
- Facilitate local and international fund raising and adoption programmes,
- Lobby for the establishment of an animal sanctuary for strays, unwanted animals, and wildlife rehabilitation within the NETMABR according to best international standards.
- Assist with raising local and international funds for animal welfare projects and programmes.

Re. Strategy 6: Facilitate and coordinate the actualisation of tangible benefits to stakeholders that apply the best possible animal welfare practises.

- Encourage and assist tourism stakeholders use good animal welfare practises on their properties and within the NETMABR to add value to and market their products and destination (including using the UNESCO MaB brand). Specifically use good animal welfare practises as a unique selling proposition in the North-American and European tourism source markets.
- Encourage and assist farmers, fisherfolk, and hunters use good animal welfare and product handling practises to add value to and market their products and destination (including using the UNESCO MaB brand).
- Encourage and assist THA Divisions to communicate health, economic, and wellbeing benefits derived from their animal welfare efforts as services to Tobago residents.

Re. Strategy 7: Knowledge Sharing

- Join animal welfare related networks.
- Establish collaborations with academic institutions that link animal welfare to economic and health benefits to conduct research on related topics within the NETMABR (e.g., Wageningen, Netherlands).
- Share lessons learnt and best practises with other members of BR networks and interested stakeholders in the Caribbean region.
- Publish experiences on online platforms, local, regional, and international newspapers and magazines.