



Convention on
Biological Diversity



The Clearing-House Mechanism of the Convention on Biological Diversity

6TH National Report for the Convention on Biological Diversity

JAMAICA

November 2019

TABLE OF CONTENTS

ACRONYMS

SECTION I

Information on the targets being pursued at the national level	1
--	---

SECTION II

Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets	5
1. Outreach to the public on the importance of biodiversity (Target 1)	5
2. Integration of biodiversity values in policies, plans and legislation (Target 2).....	13
3. Green economy initiatives (Target 4).....	17
4. Reduction of loss of forests (Targets 5,7).....	19
5. Improved management of fish habitats and recovery plans implemented (Targets 6,7).....	23
6. Reduction of pollution and monitoring of water quality and safety (Target 8).....	27
7. Control of invasive species (Target 9).....	30
8. Reduction of pressures on vulnerable ecosystems (Target 10)	31
9. Prevention of extinction of threatened species (Target 12).....	33
10. Biodiversity Information for National Development (Target 19).....	36

SECTION III

Assessment of progress towards each national target.....	38
--	----

SECTION IV

Description of national contribution to the achievement of each global Aichi Biodiversity Target.....	94
---	----

SECTION V

Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation	102
--	-----

SECTION VI

Description of the national contribution to the achievement of the targets of indigenous peoples and local communities	105
--	-----

SECTION VII

Updated biodiversity country profile.....	106
---	-----

TABLES

Table 1	National Targets.....	1
Table 2	Implementation Status – Target 1.....	38
Table 3	Implementation Status – Target 2.....	41
Table 4	Implementation Status – Target 3.....	44
Table 5	Implementation Status – Target 4	47
Table 6	Implementation Status – Target 5	49
Table 7	Implementation Status – Target 6	55
Table 8	Implementation Status – Target 7	58

Table 9	Implementation Status – Target 8	62
Table 10	Implementation Status – Target 9	64
Table 11	Implementation Status – Target 10	67
Table 12	Implementation Status – Target 11.....	70
Table 13	METT Scores for selected Protected Areas - 2016-2018.....	71
Table 14	Implementation Status – Target 12	73
Table 15	Endemic and Threatened Species on the IUCN Red List (2015-2018).....	74
Table 16	Implementation Status – Target 13.....	77
Table 17	Implementation Status – Target 14.....	79
Table 18	Implementation Status – Target 15.....	81
Table 19	Implementation Status – Target 16.....	84
Table 20	Implementation Status – Target 17	85
Table 21	Implementation Status – Target 18.....	87
Table 22	Implementation Status – Target 19.....	90
Table 23	Implementation Status – Target 20.....	91
Table 24	Status of Implementation of the Global Strategy for Plant Conservation	102
Table 25	List of Crop Wild Relative Species Identified.....	104

FIGURES

Figure 1	Jamaica CHM Award	7
Figure 2	Forest Reserves and Forest Management Areas, 2019	20
Figure 3	Fish Sanctuaries in Jamaica, 2019	24
Figure 4	Increase in Fish Biomass, Oracabessa Bay, St Mary, 2015-2017.....	25
Figure 5	Groundwater Quality.....	28
Figure 6	Habitat of the Jamaican Iguana (<i>Cyclura collei</i>).....	34
Figure 7	Distribution of the Yellow-billed Parrot (<i>Amazona collaria</i>).....	50
Figure 8	Distribution of the Jamaican Hutia (<i>Geocapromys brownii</i>).....	50
Figure 9	Distribution of the Homerus (Giant) Swallowtail Butterfly (<i>Pterourus homerus</i>)	51
Figure 10	Distribution of the Jamaican Boa (<i>Epicrates subflavus</i>).....	52
Figure 11	Forest Cover Map 2018.....	53
Figure 12	Soil Types.....	60
Figure 13	Coral Reef Health Index 2017.....	67
Figure 14	Coral Reef Health Index 2018.....	68
Figure 15	Areas Protected under the NRCA Act	70
Figure 16	Threatened Endemic Species, 2013.....	74
Figure 17	Relative Weight of Institutional Responsibility for NBSAP Actions.....	100
Figure 18	Map of Jamaica, Central America and the Caribbean.....	106

ACRONYMS

ABT	Aichi Biodiversity Target(s)
AZE	Alliance for Zero Extinction
BBP	Black-billed Parrot
BJCMNP	Blue and John Crow Mountains National Park
CCAM	Caribbean Coastal Area Management Foundation
CBD	Convention on Biological Diversity
CHM	Clearing House Mechanism
CMBP	Caribbean Marine Biodiversity Program
COP	Conference of the Parties
EbA	Ecosystem-based Adaptation
EFJ	Environmental Foundation of Jamaica
EMS	Environmental Management System
FAO	Food and Agriculture Organization
FY	Financial Year
GBJ	Green Business Jamaica
GEF	Global Environment Facility
GOJ	Government of Jamaica
GSPC	Global Strategy for Plant Conservation
IETC	International Environmental Technology Centre
IOJ	Institute of Jamaica
IUCN	International Union for Conservation of Nature
IWCAM	Integrating Watersheds and Coastal Area Management (project)
JA-REEACH	Jamaica Rural Economy and Ecosystems Adapting to Climate Change
JCDT	Jamaica Conservation and Development Trust
JET	Jamaica Environment Trust
JIPO	Jamaica Intellectual Property Office
JIS	Jamaica Information Service
JSLC	Jamaica Survey of Living Conditions
KAP	Knowledge, Attitudes and Practices
LBS	Land-based Sources
LFMC	Local Forest Management Committee
M&E	Monitoring and Evaluation
MEGJC	Ministry of Economic Growth and Job Creation
METT	Management Effectiveness Tracking Tool
MICAF	Ministry of Industry, Commerce, Agriculture and Fisheries
MRPA	Mason River Protected Area
MTF	Medium Term Socio-Economic Policy Framework
NBSAP	National Biodiversity Strategy and Action Plan
NEPA	National Environment and Planning Agency
NFA	National Fisheries Authority
NFMCP	National Forest Management and Conservation Plan
NHMJ	Natural History Museum of Jamaica
NPAS	National Protected Areas System
NRCA	Natural Resources Conservation Authority
NSS	National Statistics System

PIOJ	Planning Institute of Jamaica
PWMP	Plastic Waste Minimization Project
RADA	Rural Agriculture and Development Authority
RIAS	Regulatory Impact Assessment Study
SDG	Sustainable Development Goal (s)
SEA	Strategic Environmental Assessment
SEEA	System of Environmental-Economic Accounting
SFCA	Special Fishery Conservation Area
SGP	Small Grants Programme
STATIN	Statistical Institute of Jamaica
TEEB	The Economics of Ecosystems and Biodiversity
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UWI	University of the West Indies
VNC	Voluntary National Contribution (to the United Nations Forum on Forests – Global Forest Goals)
VNR	Voluntary National Review (Report on SDG Implementation)
WAMM	Watershed Area Management Mechanism
WWD	West Indian Whistling Duck
WMU	Watershed Management Unit
WRA	Water Resources Authority
YBP	Yellow-billed Parrot
YEAP	Youth Environmental Advocacy Programme

SECTION I

Information on the targets being pursued at the national level

Jamaica's National Targets

The National Strategy and Action Plan on Biological Diversity (NBSAP) in Jamaica, 2016-2021 established national biodiversity targets in line with the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets (ABT, Aichi Targets). During the process of preparing the NBSAP, the 20 Aichi Targets were considered by the Government and national stakeholders as directly relevant and applicable to the country's context and biodiversity management priorities. There is a virtual one-to-one relationship between the NBSAP and the ABT - with a few adjustments, mainly as regards the target dates. The alignment of the national and Aichi targets also facilitates reporting to the Convention on Biological Diversity (CBD).

Jamaica's second NBSAP, 2016 also takes into account the Sustainable Development Goals, whose relationship to the Strategic Plan has been described as "mutually supportive and reinforcing."¹

The National Targets are set out in Table 1 below:

Table 1 - National Targets

STRATEGIC GOAL A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
1. By 2021, Jamaicans are aware of the value of biodiversity and the steps they can take to conserve and use it sustainably.
2. By 2021, at the latest, biodiversity values have been integrated into national and local development and poverty reduction and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
3. By 2021, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant obligations, taking into account national socio-economic conditions.
4. By 2021, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.
STRATEGIC GOAL B: Reduce direct pressures on biodiversity loss and promote sustainable use
5. By 2021, at the latest, the rate of loss of natural habitats, including forests, is at least halved and where feasible, brought close to zero, and degradation and fragmentation are significantly reduced.
6. By 2021, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

¹ <https://www.cbd.int/development/doc/biodiversity-2030-agenda-technical-note-en.pdf>

7. By 2021, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
8. By 2021, pollution, including from excess nutrients and solid waste, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
9. By 2021, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
10. By 2021, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

STRATEGIC GOAL C: Improve the status of ecosystems by safeguarding ecosystems, species and genetic diversity

11. By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective based conservation measures, and integrated into the wider landscapes and seascapes.
12. By 2021, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
13. By 2021, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

STRATEGIC GOAL D: Enhance the benefits to all from biodiversity and ecosystem services

14. By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, and local communities and the poor and vulnerable.
15. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
16. By 2020, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational consistent with national legislation.

STRATEGIC GOAL E: Enhance the implementation through participatory planning, knowledge management and capacity building

17. By 2019, Jamaica has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
18. By 2021, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully

integrated and reflected in the implementation of the Convention with the full and effective participation of local communities, at all relevant levels.

19. By 2020, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
20. By 2019, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2016–2021 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

The achievement of these goals and targets involves initiatives at both the national and local levels.

Jamaica's 6th National Report to the Convention on Biological Diversity covers the period 2016-2019.

Other relevant information

There are two fundamental guiding documents which are of relevance to the conservation of biodiversity and the sustainable development of Jamaica. The first is the Constitution of Jamaica which was amended in 2011 to provide for a Charter of Fundamental Rights and Freedoms including, *inter alia*, "the right to enjoy a healthy and productive environment free from the threat of injury or damage from environmental abuse and degradation of the ecological heritage." The other is the long-term development plan for Jamaica - Vision 2030 Jamaica – National Development Plan, 2009 (Vision 2030 Jamaica) which includes the National Goal: "Jamaica has a healthy natural environment" (Goal 4). Some of the strategies of Jamaica's first NBSAP, 2003 were incorporated into National Outcome 13 of Goal 4 – Sustainable Management and Use of Environmental and Natural Resources.

According to the road map prepared by Jamaica for the implementation of the Sustainable Development Goals (SDGs):

'An assessment of Jamaica's national planning documents, using the Rapid Integrated Assessment methodology developed by UNDP, shows that Vision 2030 Jamaica – National Development Plan, 2009, the Medium Term Socio-Economic Policy Framework (MTF) and sectoral policies are strongly aligned with the SDGs. Jamaica's planning documents reflect either full or partial alignment, with 91.0 per cent of the 115 SDG targets deemed relevant for the country. This comes as no surprise, since Jamaica was an important actor shaping the inter-governmental negotiations that led to the adoption of the 2030 Agenda in September 2015. Vision 2030 Jamaica will thus be the axis around which SDG implementation will be organized and this Road Map for SDG Implementation will assist in achieving Vision 2030 Jamaica.'

Reports on the achievement of the Aichi Targets are done at the national level through the Vision 2030 Jamaica and the MTF mechanisms, annual reports and Jamaica's State of the Environment Reports, as well as in National Reports to the CBD and its Protocols, the Ramsar Convention on Wetlands of International Importance and the Convention on International Trade in Endangered Species of Wild Fauna and Flora, among others.

Jamaica, as a Party to several global and regional environmental treaties and sustainable development agreements also prepares reports as required on the status of environmental and sustainable development matters. A Voluntary National Review Report on the implementation of the SDGs, including a Statistical Annex and an International Development Partners Financing Annex, was prepared in June 2018 and submitted to the United Nations High Level Panel in July 2018. The Forestry Department in 2018 committed to four Voluntary National Contributions (VNC) to the global target of the UN Forum on Forests of increasing global forest cover by three per cent (3%) by 2030. (See Section II - Integration of biodiversity values in policies, plans and legislation.)

Relevant web sites, web links, and files

The Constitution and the National Development Plan

Jamaica Constitution Amendment Act 2011

[https://japarliament.gov.jm/attachments/341_The%20Charter%20of%20Fundamental%20Rights%20and%20Freedom%20\(Constitutional%20Amendment\)%20Act,%202011.pdf](https://japarliament.gov.jm/attachments/341_The%20Charter%20of%20Fundamental%20Rights%20and%20Freedom%20(Constitutional%20Amendment)%20Act,%202011.pdf)

Vision 2030 Jamaica – National Development Plan home page

<http://www.vision2030.gov.jm/>

Medium Term Socio-Economic Policy Framework 2018-2021

<http://www.vision2030.gov.jm/Portals/0/MTF/MTF%202018%20-%202021%20-%20%20March%202019.pdf>

Medium Term Socio-Economic Policy Framework 2015-2018

[http://www.vision2030.gov.jm/Portals/0/MTF/MTF%202015%20-%202018%20\(final\).pdf](http://www.vision2030.gov.jm/Portals/0/MTF/MTF%202015%20-%202018%20(final).pdf)

SDG Implementation

Roadmap for SDG implementation in Jamaica

https://www.jm.undp.org/content/jamaica/en/home/library/general_publications/roadmap-for-sdg-implementation-in-jamaica.html

Jamaica VNR Report 2018

https://sustainabledevelopment.un.org/content/documents/19499JamaicaMain_VNR_Report.pdf

Jamaica VNR Statistical Annex 2018

<https://statinja.gov.jm/pdf/Jamaica%20VNR%20Statistical%20Annex%202018.pdf>

Jamaica VNR Financial Annex - International Development Partners - Financing Aligned to the SDGs 2018

https://sustainabledevelopment.un.org/content/documents/19517Jamaica_VNR_IDP_Financing_Annex.pdf

STATIN Reports – SDGs

<https://statinja.gov.jm/sdq.aspx#/Reports>

STATIN Environmental Statistics

<https://statinja.gov.jm/Environmentdata.aspx>

Reports on other relevant global agreements

Statement on Jamaica's VNCs by the Conservator of Forests at the UN Forum on Forests 7 May 2018

https://www.un.int/jamaica/sites/www.un.int/files/Jamaica/statement_unff_7_may_2018.pdf

Jamaica's Report to the Ramsar Convention 2018

https://www.ramsar.org/sites/default/files/documents/importftp/COP13NR_Jamaica_e.pdf

SECTION II

Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets

NBSAP Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Major implementation measures taken:

- 1) Outreach to the public on the importance of biodiversity (NBSAP/ABT target 1)
- 2) Integration of biodiversity values in policies, plans and legislation (NBSAP/ABT target 2)
- 3) Green economy initiatives (NBSAP/ABT target 4)

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan. For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

1) Outreach to the public on the importance of biodiversity

(Target 1 - By 2021, Jamaicans are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.)

A major initiative taken by Jamaica in increasing public awareness of biodiversity values was to host its first National Biodiversity Conference in October 2018, under the theme 'The Importance of Jamaica's Biodiversity to Sustainable Livelihoods, Health and Well-being.' At the Conference, a publication was launched containing best practices in biodiversity management in Jamaica. The event marked the 25th anniversary of the entry into force of the Convention on Biological Diversity. As of 2020, the Conference will be held every two years focused on key biodiversity priorities.

The Ministry with portfolio responsibility for the environment – the Ministry of Economic Growth and Job Creation (MEGJC) – also carries out a Youth Environmental Advocacy Programme (YEAP) involving high school students aged 11 to 19 years across the island; two successful YEAP events related to biodiversity were held in February and June 2018.

Continuous engagement of the public on biodiversity values is maintained by key entities such as the National Environment and Planning Agency (NEPA), the Natural History Museum of Jamaica (NHMJ), the National Fisheries Authority (NFA) (formerly the Fisheries Division), and the Forestry Department. These agencies regularly carry out awareness activities for school children and in communities; some agencies have website resources for school children and subscription newsletters. The NHMJ, for example, maintains a permanent programme of biodiversity awareness and outreach, primarily coordinated by its Education and Outreach Department. The Museum also posts public awareness material through its social media platforms.

The carrying out of public education and awareness raising is a provision of legislation such as the Natural Resources Conservation Authority (NRCA) Act, 1992, the Forest Act, 1996 and the Fisheries Act, 2018.

In 2016 and 2018, NEPA conducted a crocodile awareness expo for stakeholders in the Portland Bight Protected Area, Black River and Kingston. NEPA undertook several activities under the International

Year of the Reef, 2018 including: Reef Blitz, a reef assessment within marine parks and marine protected areas involving volunteers and park managers; monthly features on social media; a public Coral Reef Conservation Forum; screening of the award-winning Netflix documentary 'Chasing Corals'; underwater clean-up in the White River Special Fishery Conservation Area as part of the International Coastal Clean-up Day activities; presentations in schools and two newspaper features (in the Jamaica Observer and the Gleaner).

Significant days on the global and national environmental calendar are observed through statements by the relevant Minister, features in nationally circulated newspapers, outside radio broadcasts and activities involving the public such as road shows and exhibitions, and others. For example, tours of a Ramsar site have been arranged on World Wetlands Day by NEPA.

On the annual National Tree Planting Day, free seedlings are made available to the public by the Forestry Department and people are encouraged to plant and maintain trees and, as well, there is wide media coverage of tree-planting ceremonies held at selected sites. In October 2019, the Prime Minister of Jamaica launched the National Tree Planting Initiative to plant 3 million timber, fruit and ornamental trees over the next three years, one tree for each Jamaican. The Initiative, the theme of which is *"Three Million Trees in Three Years ... Plant a Tree Today, for a Prosperous Tomorrow"*, will be led by the Forestry Department and will involve the planting of 2 million timber/forest seedlings on approximately 3000 hectares of land while the remaining 1 million timber and ornamental seedlings will be distributed to the public and planted in urban spaces including roadways, parks and along major thoroughfares in towns across the island. The Government proposes to engage the private sector in the use of geographic information system (GIS) technology to track the planting and maintenance of the seedlings.

The Jamaica Clearing House Mechanism (CHM) is a key resource for information on species, ecosystems, policy, legislation and conservation stakeholders. The Jamaica CHM also issues an electronic newsletter - *Biodiversity News* and utilizes the NHMJ's Facebook, Instagram, Twitter and YouTube social media platforms for periodic posting of public awareness material. Jamaica was among the Parties awarded a certificate of achievement for its CHM at COP 13, December 2016 (*Figure 1*).

The Government encourages private and public sector businesses to adopt environmentally friendly practices through its Green Business Jamaica (GBJ) programme. It is expected that the programme, which was launched in 2017, will create a suite of incentives for supporting the private sector companies' compliance with national and international environmental standards.

Some private sector Foundations support and promote the protection of natural resources. The Private Sector Organization of Jamaica includes a Committee on Energy, Environment and Climate Change among its committees which are the main means through which the Organization seeks to achieve its goals and targets.

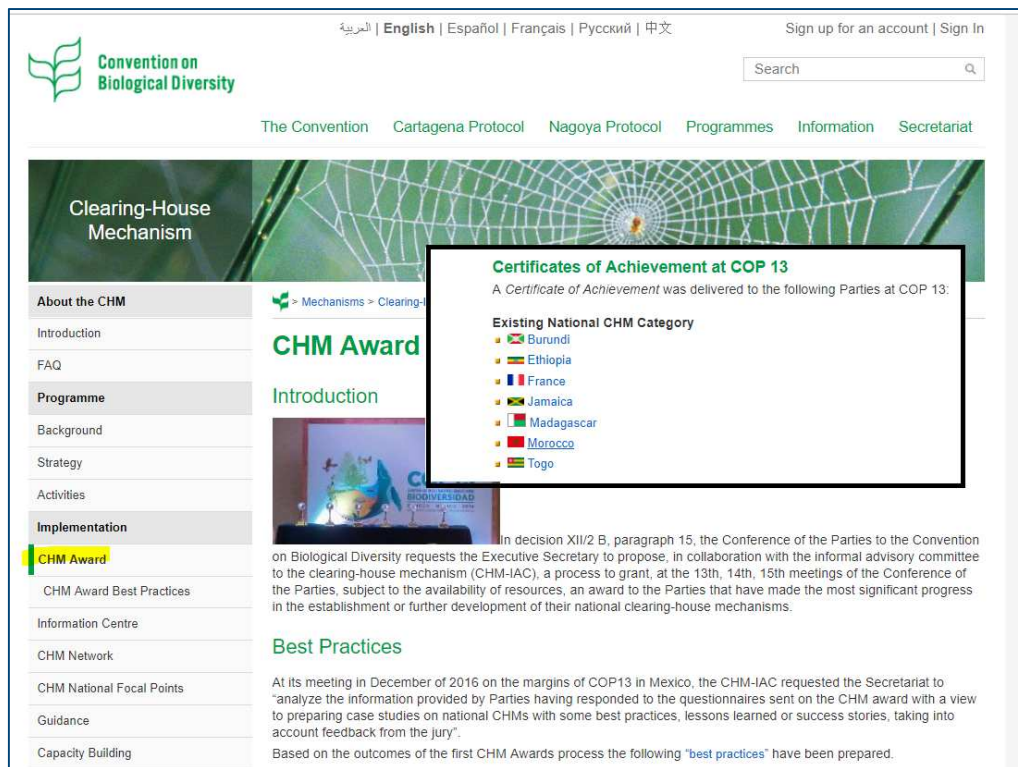


Figure 1 – CHM Award to Jamaica, 2016

Of note is the establishment in 2016 of the Jamaica Special Economic Zone Authority (JSEZA) to facilitate the development and promotion of investments in Special Economic Zones and its focus on ensuring the protection of the environment in its operations. JSEZA also decided to include the SDGs as part of its developmental framework.

There is a weekly feature on the environment - *Earth Today* - in one of the nationally circulated newspapers.

Working directly with communities to address environmental issues and sustainable livelihoods is supported by the Government as a means of meeting commitments under multilateral environmental agreements and achieving the goals of Jamaica’s national development plan. The production of informational material and the involvement of communities are standard features of projects to address environmental and climate change issues.

Non-Governmental and Community-based Organizations also contribute to the achievement of Target 1 as shown in the following examples:

- The Caribbean Coastal Area Management Foundation (CCAM) has established a wetland and wildlife Interpretive Centre in Salt River, Clarendon.
- Between 2015 and 2016 the Jamaica Conservation and Development Trust (JCDT) conducted presentations in 76 schools (reaching 2,675 students) on the newly inscribed Blue and John Crow Mountains World Heritage Site. To support its educational tours (averaging 30 schools/year) at Holywell - the main recreation area within the Blue and John Crow Mountains National Park (BJCMNP), the JCDT (with support from the Tourism Enhancement Fund (TEF))

established a Discovery Centre with exhibits featuring the biodiversity of the Blue and John Crow Mountains National Park.

- Knowledge products (e.g. videos, books, testimonials) have been produced and awareness raising activities undertaken by organizations such as the Jamaica Conservation and Development Trust (JCDDT), Oracabessa Marine Trust, Montego Bay Marine Park, Alligator Head Foundation and Clarendon Parish Development Committee Benevolent Society.
- The Jamaica Environment Trust (JET) has been involved in environmental education, including the Schools Environment Programme, for over two decades and also focuses on conservation, and law and advocacy. Under the Clean Coasts Project led by JET, the public education campaign 'Nuh Dutty Up Jamaica', funded by the TEF and a major private manufacturer, was launched in 2015 to "improve citizens' knowledge about the impact of poorly handled waste on public health and the environment, while encouraging personal responsibility for the generation and disposal of waste". JET and NEPA collaborate on the organization of beach clean-up activities island-wide on International Coastal Clean-Up Day.

Some NGOs also engage the public through social media and encourage participation in conservation activities through asking people to become volunteers, join the organization and or to make a donation.

Several activities to increase public awareness of marine biodiversity have been carried out by The Nature Conservancy (TNC), for example, through their multi-year regional project - the Caribbean Marine Biodiversity Program (CMBP) project:

- Campaigning for Conservation social marketing training (Training course attended by several NGOs and NEPA);
- Giving small grants to NGOs managing 3 Fish Sanctuaries to carry out site specific public awareness campaigns ranging from coastal pollution to parrotfish and nesting sea turtle conservation;
- Supporting fisheries conservation awareness and education on the Pedro Cays;
- Supporting biodiversity awareness in and around the Bluefields Bay Special Fishery Conservation Area (SFCA) including in schools and on fishing beaches;
- Providing training in nesting turtle monitoring and tagging, sustainable lobster r fishing, lionfish capture and handling; and
- Holding a national stakeholders' forum on sustainable fisheries with a focus on parrotfish.

A Green Expo was hosted by the Jamaica Conservation and Development Trust in June, 2019 with the support of the Ministry of Economic Growth and Job Creation, Natural Resources Conservation Authority/National Environment and Planning Agency (NRCA/NEPA), and the Environmental Foundation of Jamaica (EFJ). One of the themes of the Expo was biodiversity conservation, and in this regard, there were noteworthy exhibits by the Blue and John Crow Mountains National Park, Cockpit Country, Hope Zoo (including a petting zoo) and NEPA. The exhibits were viewed by about 2,000 people.

The Alligator Head Foundation, an environmental non-governmental organization, in partnership with the Khaled bin Sultan Living Oceans Foundation has been carrying out the Jamaica Awareness of Mangroves in Nature (J.A.M.I.N) educational programme to teach students in grades ten and eleven the importance of mangrove ecosystems.

The Universities and other tertiary institutions also play a role in increasing environmental awareness, *inter alia*, through publications, articles in the newspapers and public lectures.

In terms of formal education, there is an environmental syllabus at various grades at the primary level and environmental aspects are woven throughout the curriculum in subjects such as mathematics, English, etc. At the secondary level, the curriculum includes several subjects related to biodiversity and the environment. Among the subjects offered by the Caribbean Examinations Council (CXC), for the Caribbean Secondary Education Certificate, is Human and Social Biology which “incorporates the view that human beings have a responsibility to their environment and, as such, have an obligation to conserve, protect, maintain and improve its quality.”. The CXC’s Caribbean Advanced Proficiency Examination covers Environmental Science, the syllabus for which “provides opportunities for students to acquire knowledge and skills to identify, prevent and solve problems and prepares them for careers in diverse fields related to environmental management and to sustainable development of the Caribbean Region. The aims of the syllabus include development of an understanding of the interdisciplinary and holistic nature of the environment and the interactions between people environment.”

In 2019, NEPA updated its 2017 Memorandum of Understanding with the Ministry of Education to incorporate environmental topics within the primary school curriculum. The NEPA Junior Environment Programme integrates environmental considerations into the curriculum of primary schools – at Grades 4-6, there is general information on the environment including types of ecosystems, climate change and pollution; at Grades 7-9, the focus is on management of the environment. Environmental topics are integrated into the Social Studies Grade 4 text books. The NPAS project also developed and disseminated public education material for primary schools.

The Forestry Department and other agencies have similar programmes that combine biodiversity and education.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

X Measure taken has been partially effective.

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness

There are several examples of Government agencies dedicating resources to public awareness of the importance of natural resources and the roles that communities and individuals can play. Environmental Non-Governmental Organizations and the media also provide information on environmental matters and publish tips and guidance on conservation. As regards the timeline, however, some activities are well advanced (e.g. carrying out of public awareness campaigns on biodiversity) while others have not yet been completed.

A Knowledge, Attitudes, Practices and Behaviour (KAPB) Survey was done under the National Protected Areas System (NPAS) Project and this indicated a higher level of awareness in communities near protected areas - e.g. those around the BJCMNP.

Based on the types of syllabus at the primary, secondary and tertiary levels, students are being given a good foundation for knowledge of the importance of the environment and natural resources.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

The Inaugural National Biodiversity Conference, 2018

Jamaica's National Biodiversity Conference October 2018 - video recording

<https://www.facebook.com/JISVoice/videos/the-national-environment-and-planning-agency-nepa-national-biodiversity-conferen/304247193739946/>

Newspaper article on the National Biodiversity Conference -declaration of protected areas

<http://jamaica-gleaner.com/article/news/20181018/govt-advancing-black-river-morass-pedro-cay-protected-area-declaration>

JIS Article - National Biodiversity Conference October 2018

<https://jis.gov.jm/declaration-of-black-river-morass-and-pedro-cays-protected-areas-to-be-advanced/>

Involvement of young people

Newspaper article dated March 2019 on the Youth Environmental Advocacy Programme

<http://jamaica-gleaner.com/article/news/20190314/earth-today-youth-exposed-environment-policy>

Press release August 2019 - NEPA Drives Youth Empowerment in Trelawny

https://www.nepa.gov.jm/new/media_centre/press_releases/releases/2019/PR20190821-nepa_drives_youth_empowerment_in_trelawny.php

Kids' Corner - Forestry Department

<http://www.forestry.gov.jm/kids-corner>

Students' Resource Centre - NEPA

https://www.nepa.gov.jm/new/services_products/subsites/student/index.php

Kids' Guide to the Natural Environment NEPA

https://www.nepa.gov.jm/new/services_products/subsites/student/docs/Kids_Guide_to_Jamaica's_Natural_Environment.pdf

Schools Environment Programme - Jamaica Environment Trust

<https://www.jamentrust.org/post-1/>

Newspaper article from Earth Today feature - Independence City Primary Excels in Biodiversity Awareness

<http://jamaica-gleaner.com/article/news/20190704/earth-today-independence-city-primary-excels-biodiversity-awareness>

Two more schools targeted for biodiversity awareness

<https://jis.gov.jm/two-schools-targeted-biodiversity-programme/>

Forestry activities

Budget support for the Forestry Sector

<http://www.forestry.gov.jm/node/465>

Forest trek 2018

<http://www.forestry.gov.jm/node/514>

Forestry Department encourages Jamaicans to 'plant yuh own tree' - National Tree Planting Day 2019

<http://www.forestry.gov.jm/node/579>

National Tree Planting Initiative 2019

<https://jis.gov.jm/three-million-trees-to-be-planted-over-three-years/>

Corporate entities make pledges towards 3 million trees initiative

<http://www.forestry.gov.jm/node/581>

Green Expo 2019

Faculty of Science and Technology at Green Expo 2019

<https://www.mona.uwi.edu/fpas/fst-reps-uwi-green-expo-2019>

Newsletters and booklets

NHMJ Newsletter June 2013 - Nature Vibe

http://nhmj-ioj.org.jm/ioj_wp/wp-content/uploads/Nature-Vibe-June13-final.pdf

NEPA Newsletter December 2014 – The Wildlife Issue

https://www.nepa.gov.jm/new/services_products/publications/newsletters/docs/nepsetter/nepsetter-December_2014.pdf

Jamaica's Wildlife Treasures

https://www.nepa.gov.jm/new/services_products/subsites/student/docs/species-booklet.pdf

Explanation of environmental legislation for the consumer

Information on the Natural Resources Conservation Authority Act - Consumer Affairs Commission

https://www.consumeraffairsjamaica.gov.jm/portal/index.php?option=com_content&view=article&id=108:natural-resources-conservation-nrca-act&catid=79&Itemid=310

Get the facts – Protection of Wildlife in Jamaica

<https://jis.gov.jm/information/get-the-facts/get-the-facts-protection-of-wildlife-in-jamaica/>

Community-based organizations and Non-Governmental Organizations/Projects

Clarendon Parish Development Committee Benevolent Society Projects

<http://clarendonparishdevelopmentcommitteebenevolentsociety.yolasite.com/projects-and-events.php>

Caribbean Coastal Area Management Foundation

<https://ccam.org.jm/>

Jamaica Environment Trust publications

<https://www.jamentrust.org/>

Alligator Head Foundation – Education and Outreach

<https://www.alligatorheadfoundation.org/education-outreach/>

Jamaican Student Mangrove Program celebrates 5 years (2019)

<https://www.livingoceansfoundation.org/publication/jamaican-student-mangrove-program-celebrates-5-years/>)

CMBP Year 4 Annual Report (October 2017- September 2018)

https://pdf.usaid.gov/pdf_docs/PA00TZQX.pdf

CMBP Year 3 Annual Report (October 2016 – September 2017)

http://pdf.usaid.gov/pdf_docs/pa00n5x5.pdf

Agricultural sector impacted by the JA-REEACH Project

<https://jis.gov.jm/agricultural-sector-impacted-ja-reeach-project/>

Montego Bay Marine Park

<http://www.mbmpt.org/>

Private sector action

SDGs adopted by JSEZA

<https://jis.gov.jm/united-nations-2030-sdgs-adopted-by-jseza/>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP:

With the establishment of the Global Environment Facility Small Grants Programme (GEF SGP) Grantee Exchange Network, NGOs/CBOs share their best practices in their communities which extend to schools, churches, private sector organizations and even going into the homes of persons with disabilities, ensuring that 'no one is left behind'. GEF SGP grantees are required to learn about the global Conventions such as the CBD (including the Nagoya Protocol) or the UNFCCC as related to their project area.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

GEF Small Grants Programme - Jamaica

<https://www.jm.undp.org/content/jamaica/en/home/projects/the-global-environment-facility-small-grants-programme--gef-sgp-.html>

Stories on some GEF SGP and other projects

<https://www.jm.undp.org/content/jamaica/en/home/stories.html>

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials:

There is need for a sustained public environmental awareness campaign to be developed and implemented built on existing initiatives and involving partnerships with the public and private sectors as well as with civil society organizations showing links between conservation, combatting climate change and development that is sustainable. The production of much of the public awareness material is dependent on project funding.

There also needs to be more emphasis on the development of public awareness materials which are relevant to rural communities as well as to persons with different educational and, more important, literacy levels. In the fishing industry, for example, a large percentage of fisher folk have low literacy levels and so pictures, videos and radio campaigns may be more useful than a wordy brochure or poster. Messaging to increase public awareness, where appropriate, should be backed by appropriate enforcement of laws.

A National Biodiversity Research Agenda was included in the National Environment Gap Analysis Report, 2009 derived from the priorities of the NBSAP 2003 and the Jamaica Ecoregional Assessment. The implementation of the Research Agenda was included among the actions of the Protected Areas System Master Plan, 2013-2017, but this has not yet been fully implemented. There is need for the agenda to be reviewed, updated and implemented. While memoranda of understanding (MOUs) have been prepared between Government agencies and academic institutions, there have been challenges in the execution of the Memoranda in some cases, due to the lack of funding.

More information and data are needed on the economic and social values of the environmental services derived from the conservation of natural resources and their use through sustainable practices. There is need also for the results of research to be translated into information that may be readily understood by non-technical people, the general public.

Researchers with knowledge of gender nuances in urban and rural communities are needed and where baseline surveys are to be conducted, gender considerations should be included. Public consultations could be made more robust if gender workshops could be held beforehand to ensure that data collected on gender include more than just the number of men and women attending the consultation.

2) Integration of biodiversity values in policies, plans and legislation

(Target 2 - By 2021, at the latest, biodiversity values have been integrated into national and local development and poverty reduction and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems) (Also relevant - Target 11).

There are several examples of measures taken to integrate biodiversity values into policies and legislation related to natural resource management as well as development planning.

Of particular note is the development of enabling policy and legislation for the management of protected areas, and forest and fisheries resources. Various policies have been updated and or strengthened to incorporate environmental and climate change considerations.

A major accomplishment for the protection of Jamaican habitats and species, in keeping with the Protected Areas Programme of Work, was the preparation of the Protected Area System Master Plan, 2013-2017 which was approved by the Cabinet and tabled in the Houses of Parliament. The Plan is currently being reviewed and updated: priority actions for the next five years are being identified. The Policy for the National System of Protected Areas, 1997 was reviewed and an updated overarching policy drafted. The new policy is expected to be completed and submitted to Cabinet in the 2020/2021 Financial Year (FY). Drafting instructions have been prepared for overarching protected areas legislation which it is anticipated will be promulgated in the 2022/2023 FY.

The National Forest Conservation and Management Plan 2016-2026 seeks to promote the development of the sector and the conservation and sustainable use of the forest resources of the

country to meet local and national needs. This is to be achieved through the protection, management and restoration of forest resources for the benefit of present and future generations.

The Forest Policy for Jamaica, 2017 was approved by the Cabinet in 2017 and tabled in Parliament. The Policy outlines eight principles recognized by the Government as being critical to the sustainable management of Jamaica's forests including transparency and accountability; the utilization of sustainable development and inter-generational considerations, best science, and participatory and collaborative approaches in forest management planning and implementation processes. The Forest Policy provides the basis on which necessary changes to the legislative and management framework can be instituted. The Policy provides for the expansion of the Forestry Department's jurisdiction and includes the establishment of a land trust to hold the approximately seven point seven percent (7.7%) of remaining closed broad leaf forest in trust for the people of Jamaica.

In the 2019/2020 FY, the Government plans to commence the amendment of the Forest Act, 1996 and its regulations.

Jamaica made four voluntary national commitments through the Forestry Department to support the United Nations Strategic Plan on Forests (UNSF), 2017-2030: to improve watershed management planning (adaptation to climate change) within targeted forest estates to support sustainable forest management; upscale gender sensitive alternative livelihoods to support the sustainable utilization of forest resources by local communities; increase the areas of mangroves under protection and develop a Mangrove Management and Conservation Plan to support this initiative; and strengthen the policy and legislative framework for the forest sector.

New legislation on fisheries management was introduced when the Fishing Industry Act, 1976 was repealed and the Fisheries Act, 2018 enacted. The Fisheries Act, which came into effect on June 1, 2019, *inter alia*, established the National Fisheries Authority (replacing the Fisheries Division) with the mandate to manage, develop and regulate the fisheries and aquaculture industries. The new Fisheries Act adopts an ecosystem-based approach to the management of the island's fish stock and is expected to be evidence-based. A compliance division has been established by the Fisheries Authority to handle enforcement of the Act.

The entire island is covered by fifteen confirmed Development Orders² which guide the planning process and are implemented by the National Environment and Planning Agency (NEPA) and, at the local level, by thirteen municipal corporations³ (formerly parish councils) and one municipality. With the exception of three of the confirmed Development Orders (Portland, Negril Green Island Area, and Trelawny which were confirmed in 2015), the Development Orders are being updated - eleven provisional Development Orders were prepared in 2017 and 2018 (Kingston and St. Andrew and the Pedro Cays; St. Mary Parish; St. Catherine Area; and Clarendon Parish (2017); Hanover Parish; St. Thomas Parish; St. Elizabeth Parish; Westmoreland Area; St. James Parish; and the Municipality of

² Under the Town and Country Planning Act, provisional development orders are published to allow for interested persons to make objections in writing to the Town and Country Planning Authority within the time specified. The Act makes provision for the Minister responsible for town and country planning to confirm the Provisional Development Orders, with or without modifications (based on objections, changes in policy, etc.) and for the Confirmed Development Orders to be published in the Jamaica Gazette. The designation 'area' is used to refer to a portion of a Parish or when it straggles two parishes.

³ The municipal corporations were established with the enactment of the Local Governance Act, 2016 which gave Local Authorities, *inter alia*, an expanded mandate for good governance and sustainable development within their jurisdictions.

Portmore (2018)). The Development Order for Manchester Parish, confirmed in 2015, is to be updated in the 2019/2020 Financial Year.

The policies, plans and legislation should lead to the reduction of pressures on biodiversity and the drivers of its loss.

The Guidelines for Cabinet Submissions (2011) include requirements for any proposal which would have a significant impact on the environment to be clearly stated, and provide a checklist for mainstreaming environmental considerations into policy making. The Cabinet Office's Guidelines for the Development of National Policy, 2017 include a section on Strategic Environmental Assessment for Policy.

There is growing inclusion of environmental considerations in economic and social sector policies and legislation such as the Housing Policy and the Special Economic Zones Act, for example.

Relevant websites, web links and files:

Cabinet Office- Guidelines for the Development of National Policies, 2017

<https://cabinet.gov.jm/wp-content/uploads/2018/06/GUIDELINES-FOR-THE-DEVELOPMENT-OF-NATIONAL-POLICIES-August-2017-E-book-2.pdf>

Cabinet Office – Guidelines for Cabinet Submissions, 2011

https://cabinet.gov.jm/wp-content/uploads/2018/06/Guidelines_for_Cabinet_Submissions__July_2011.pdf

Cabinet Office Policy Development Programme Update 2018

<https://cabinet.gov.jm/wp-content/uploads/2018/06/GOJ-Policy-Development-Programme-Update-at-March-2018-web-version.pdf>

Housing Policy Green Paper 2017

<https://japarliament.gov.jm/attachments/article/2167/Draft%20National%20Housing%20Policy%20-%20July%2017%202019%20-%20For%20Tabling.pdf>

Forest Policy for Jamaica

http://www.japarliament.gov.jm/attachments/article/1441/1441_Forest%20Policy%20final.pdf

Environment and Social Policy Statement 2016 - PIOJ

https://www.pioj.gov.jm/Portals/0/Policy_statement/environment%20and%20policy%20statementev2422016.pdf

The National Science, Technology and Innovation Policy – Catalysing National Development, 2019-2029 (draft)

<https://www.mset.gov.jm/wp-content/uploads/2019/07/UPDATED-The-National-STI-Policy-JULY-2019.pdf>

Jamaica Special Economic Zones Act, 2016

<https://japarliament.gov.jm/attachments/article/341/The%20Special%20Economic%20Zones%20Act,%202016%20No.%207.pdf>

Development Orders

https://www.nepa.gov.jm/new/legal_matters/laws/

National Policy on Poverty and National Poverty Reduction Programme, September 2017

<https://japarliament.gov.jm/attachments/article/1822/National%20Policy%20on%20Poverty%20and%20National%20Poverty%20Reduction%20Programme%20September%202017.pdf>

Other relevant information:

Poverty incidence data are generated annually using the Jamaica Survey of Living Conditions (JSLC) which is a collaborative effort between the Statistical Institute of Jamaica (STATIN) which conducts the survey and the Planning Institute of Jamaica (PIOJ) which carries out the analysis. Poverty maps were developed by STATIN and the PIOJ through a World Bank consultancy launched in 2019 using data from the 2011 Population and Housing Census and the 2012 JSLC. There is need, however, for linkages to biodiversity management to be established.

The National Spatial Plan (NSP) and the National Spatial Planning Information Technology Platform (NSPIT) for Jamaica are being developed by the Government to ensure orderly and planned developed as well as the optimal use of the land and marine resources. The development of the Plan and the Platform is being led by the MEGJC with support from the Pilot Project for Climate Resilience and the National Competitiveness Project of JAMPRO, respectively. The NSP is expected to allow the Government at various levels to have concrete and detailed instruments for decision-making on land use planning and management, by taking into consideration e.g. the location of ecologically sensitive areas, the presence of threatened species, habitats that are important for ecosystem services, as well as human and biodiversity resilience.

A review of coastal and marine policies in Jamaica supported by United Nations Division for Sustainable Development (UN-DESA) commenced in 2019, taking into account the Ocean and Coastal Zone Management Policy, 2000 and recent developments at the international level such as Agenda 2030 and the SDGs. Two draft policies related to coastal management are to be finalized in the 2020/2021 FY, namely the Cays Management Policy which includes the objective of protecting the ecological integrity of Jamaica's cays and their associated ecosystems, and the draft Beach Access and Management Policy. The Coastal Management and Beach Restoration Guidelines, 2017, funded by the World Bank, is being used to, inter alia, inform the processing of beach licence applications to the NRCA. Additionally, Planning Policy Guidelines for over-water structures were approved by Cabinet on 26 June 2016.

Obstacles and scientific and technical needs related to the measure taken:

There is still need for resources including personnel, funds, equipment, training.

There are currently gaps in the collation and regular sharing of data among Government agencies. The development and implementation of projects and programmes by public and private sector entities and NGOs, in some cases, could be better coordinated for more effective achievement of national targets.

Official statistics in Jamaica are produced in a decentralized system and in the absence of a coordinated framework. With support from the Partnership in Statistics for Development in the 21st Century (PARIS21), STATIN in 2018 carried out an assessment of the National Statistics System (NSS) as part of a National Strategy for the Development of Statistics for Jamaica to guide the development of a formal coordinated NSS. The system will provide the country with a vision for the development of statistics including standardisation, quality, consistency, and comparability consistent with Vision 2030 Jamaica. The NSS will a part of the Open Data Platform to be established in Jamaica.

Websites

Website of the Statistical Institute of Jamaica (including Environmental Statistics Reports, Poverty Statistics and Reports and Statistics on the SDGs)

<https://statinja.gov.jm/>

National Spatial Plan

<https://jis.gov.jm/national-spatial-plan-draft-to-be-completed-by-december/>
<https://megic.gov.jm/phase-2-of-national-spatial-plan-launched/>

Government launches National Poverty Reduction Programme, 2018

<https://jis.gov.jm/pioj-launches-national-poverty-reduction-programme/>

Coastal Management and Beach Restoration Guidelines: Jamaica, 2017

<https://www.gfdr.org/sites/default/files/publication/Coastal%20Management%20and%20Beach%20Restoration%20Guidelines%20Jamaica%20FINAL.pdf>

3) Green economy initiatives

(Target 4 - By 2021, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.)

One of the main initiatives under this target is the implementation of the Green Business Jamaica Certification Programme (GBJ): according to the National Policy on Environmental Management System (EMS), 2019 this is the most significant attempt to promote a local model for sustainable production and consumption in the country. Officially launched in 2017, the GBJ is a voluntary programme aimed at the private sector to promote pollution prevention and resources conservation. The programme is a key element to mainstream conservation principles in the private sector and support the country's compliance with national and international environmental standards. Certificates were presented at Green Expo 2019 to the eight private sector companies which have been participating in the programme.

A National Strategy and Action Plan for Sustainable Consumption and Production for Jamaica will be developed under the 2019 GOJ/UNEP IETC Plastic Waste Minimization Project (PWMP). A Green Economy Investment Strategy will be done under the PWMP. Under the Green Economy Assessment Scoping Study 2016, the agriculture, construction, energy, tourism, and water sectors were selected to be the first for examination, due to their direct impact on the environment as well as their contribution to the economic growth and development of Jamaica.

Taking into account the negative impact on the environment of the improper disposal of plastics, in particular marine plastic litter, the Government implemented a phased ban with effect from 1 January 2019 on the importation or distribution in commercial quantities of single use plastic, that is - single use plastic bags; packaging made wholly or in part of expanded polystyrene foam; drinking straws, made wholly or in part of polyethylene or polypropylene, manufactured for single use. The ban on single use plastic bags applied to bags, whether or not labelled as degradable or compostable, of dimensions not exceeding 610 mm x 610mm (24" x 24") and 0.03 mm (1.2 mils) in thickness before 1 January 2021; and on or after 1 January 2021 to bags of dimensions not exceeding 610 mm x 610 mm (24" x 24") and 0.06 mm (2.5 mils) thickness. In addition, the local manufacture and distribution of

polystyrene foam for use as finished goods in the food and beverage industry was banned as of 1 January, 2020.

The ban did not apply to single use plastics used to maintain public health and for compliance with food safety standards, including packaging used by wholesalers and retailers to distribute raw meat, eggs, flour, sugar, rice or baked goods; single use plastics imported or distributed by the Ministry responsible for health for use in the practice of medicine or dentistry, in veterinary practice, or in any other medical field; single use plastic bags used to package personal effects, and contained in the luggage of a person travelling into or out of Jamaica; drinking straws for use by persons with disabilities and imported or distributed by a recognized body representing persons with disabilities; and until the 1st day of January, 2021, to drinking straws made wholly or in part of polyethylene or polypropylene, manufactured for single use, and attached to, or forming part of, the packaging of juice boxes or drink pouches.

The public was encouraged to use re-usable bags, especially those made by local manufacturers.

Recycling Partners of Jamaica Limited (RPJL) re-launched its plastics recycling programme was officially launched on 24 July 2019 under the theme 'Taking Recycling to New Heights' with a commitment to remove the millions of plastic bottles released into the environment each year. The new RPJL will respond directly to the private sector-led deposit refund scheme (DRS) for PET bottles. The full roll-out of the DRS is expected to be completed by February 2020 and the Government has set RPJL a target of an 80-85% recovery rate within the first four years of implementation.

Websites

Environmental Management Systems Policy

<https://japarliament.gov.jm/attachments/article/1927/2018%20Green%20Paper%20%20-%20National%20Policy%20on%20Environmental%20Management%20Systems.pdf>

Launch of the Green Business Programme

<https://jis.gov.jm/businesses-urged-adopt-environmentally-friendly-practices/>

Relaunch of Recycling Partners of Jamaica Ltd

<https://megic.gov.jm/minister-vaz-welcomes-re-launch-of-recycling-partners-of-jamaica/>

Presentation by the Hon. Daryl Vaz, MP on the Government's measures to regulate specific categories of plastic packaging materials, September 2018

https://www.nepa.gov.jm/new/media_centre/speeches/state_minister/docs/remarks_17September2018.pdf

The Trade (Plastic Packaging Materials Prohibition) Order, 2018

https://www.nepa.gov.jm/new/legal_matters/laws/Environmental_Laws/Proc_1_Trade_Act.pdf

The Natural Resources Conservation Authority (Plastic Packaging Materials Prohibition) Order, 2018

https://www.nepa.gov.jm/new/legal_matters/laws/Environmental_Laws/Proc_2_Plastic_Packaging.pdf

Jamaica Government Announces Ban on Some Plastics and Polystyrene Foam September 2018

<https://today.caricom.org/2018/09/17/jamaica-government-announces-ban-on-some-plastics-and-polystyrene-foam/>

Banning Plastic - How Jamaica moved to Save its Environment = Forbes magazine February 15, 2019
<https://www.forbes.com/sites/jamesellsmoor/2019/02/15/banning-plastic-how-jamaica-moved-to-save-its-environment/#47855712163d>

hon daryl vaz at the three hills farmers plastic bottle green house may 29 2019.pdf
https://www.nepa.gov.jm/new/media_centre/speeches/state_minister/docs/greetings-

Green Economy Scoping Study

https://greengrowthknowledge.org/sites/default/files/downloads/resource/GE_ScopingStudy_Jamaica_UNEP.pdf

Obstacles and scientific and technical needs related to the measure taken:

There is need for more consumer awareness to drive demand for more environmentally friendly products and services.

NBSAP Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Major measures taken:

- 4) Reduction of loss of forests (NBSAP/ABT targets 5,7)
- 5) Improved management of fish habitats and recovery plans under implementation (NBSAP/ABT targets 6,7)
- 6) Reduction of pollution and monitoring of water quality and safety (NBSAP/ABT target 8)
- 7) Reduction of Invasive species (NBSAP/ABT target 9)
- 8) Minimization of pressures on vulnerable ecosystems (NBSAP/ABT target 10)

4. Reduction of loss of forests

(Target 5 - By 2021, at the latest, the rate of loss of natural habitats, including forests, is at least halved and where feasible, brought close to zero, and degradation and fragmentation are significantly reduced.)

(Target 7 - By 2021, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.)

The Forestry Department's mandate as set out in the Forest Policy for Jamaica, 2017 includes the conservation of all forests in Jamaica to achieve no net loss of forest cover. Strategies for the implementation of the Forest Policy are set out in the National Forest Management and Conservation Plan (NFMCP), 2016--2026, the goal of which is to: *"Sustainably manage and utilise Jamaica's forest resources to enhance social and economic development and contribute to building the country's climate resilience."*

The NFMCP seeks to achieve this goal through four Strategic Forest Management and Conservation Objectives (SOs) including:

- SO1: Reverse forest degradation, deforestation and the loss of forest biodiversity, through conservation and sustainable forest management, as well as strengthening the legislative, policy and institutional framework of the sector.

The Plan also sets out the activities required to implement, *inter alia*, the policy of no net loss of forest cover island-wide.

In 2013, 12 additional forest reserves (totalling 1,862.74 hectares) were declared, one of which was on private lands, bringing the total number of forest reserves to 126. As set out in the Forest Policy

for Jamaica, forest reserves may be utilized only for conservation of natural forests and biodiversity; or highly regulated eco-tourism and recreational activities; and scientific research including sustainable management of forest resources. Eleven new forest management areas were declared in 2013, bringing the total to 13. Forest management areas may be used for

- Economic development of forest products on plantations for extraction or timber production;
- Generation of non-timber forest products;
- The preservation of landscape diversity including forests on steep slopes;
- The promotion of agro-forestry;
- Sustainable management of mangrove forests;
- Conservation of soil and water resources;
- Management of urban forests for the use of the public;
- Development of nature tourism and recreational amenities; and
- Extraction on a case by case basis of minerals under strict permit conditions.

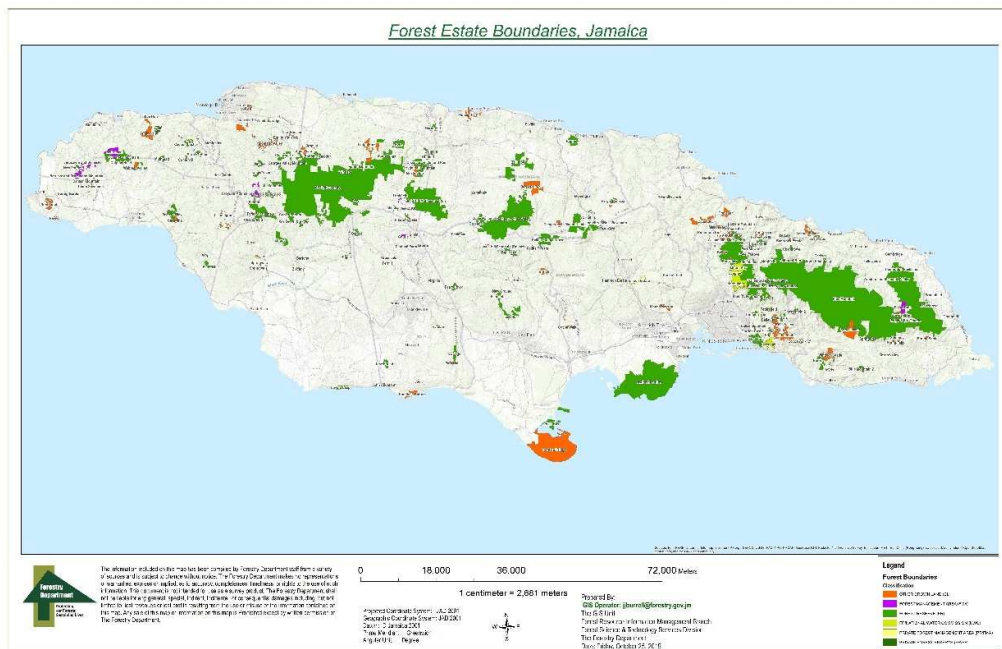


Figure 2 - Forest reserves and forest management areas, 2019

In 2016, Jamaica dedicated the Dolphin Head Forest Reserve to the Queen’s Commonwealth Canopy (QCC), an initiative designed to highlight the best examples of forest management throughout the Commonwealth.

The Forestry Department is updating its GIS catalogue by carrying out a comprehensive study on Land Use, Land Use Change and Forestry (LULUCF). Jamaica will have a nationally owned baseline pertaining to forests and everything relevant associated with it – in particular biodiversity. An up-to-date assessment of forest cover and associated land use change will be a useful tool for forest protection and sustainable management in Jamaica. Under the European Union Budget Support Programme, a new Land Use Survey using satellite imagery is to be done for Jamaica by 2021.

NEPA continued to implement the Watershed Area Management Mechanism (WAMM), developed as one of the outputs of the Global Environment Facility project - Integrating Watershed and Coastal

Areas Management (GEF-IWCAM) in 2009. The main aim of the WAMM is 'to provide watershed stakeholders - government agencies, NGOs, funding agencies and ordinary citizens - with a simple, practical and flexible method of achieving sustainable watershed management.'

In seeking to address water security in Kingston and the possible development of a water fund, The Nature Conservancy carried out an assessment of the Wagwater Watershed Management Unit which would have synergies with the work being done by NEPA under the Hope and Yallahs River Project through which a Payment for Ecosystem Services system (PES) has been designed. The analysis of data on the Wagwater WMU, collected from government and other partners including the Water Resources Authority (WRA), NEPA, Mona GeoInformatix and the Forestry Department, led to the preparation of three pre-feasibility documents (1) land use change and climate change impacts assessment; (2) socio-economic analysis of the Watershed and (3) a legal and institutional assessment for creating a water fund.

Relevant websites, web links and files:

National Forest Management and Conservation Plan 2016-2026

http://www.forestry.gov.jm/sites/default/files/Resources/nfmcp_final_sep2017.pdf

Budget Support for the Forest Sector

<http://www.forestry.gov.jm/node/465>

Dolphin Head Forest Reserve dedicated to Queen's Commonwealth Canopy (QCC)

<http://www.forestry.gov.jm/node/339>

Sectoral Budget Debate 2019- Presentation by Hon Daryl Vaz Minister without portfolio MEGJC

<https://jis.gov.jm/media/2019/07/DV-Sectoral-Debate-July-2019-with-cover.pdf>

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

X Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

The Forestry Department has in place a recent Policy and a 10-year Management Plan to reach the goals and objectives of the Policy. The Government plans to amend key pieces of environmental legislation, including the Forest Act as well as the Natural Resources Conservation Authority Act, the Endangered Species (Protection, Conservation and Regulation of Trade) Act, 2000 and the Wild Life Protection Act, 1945. Funding for the implementation of the Forest Policy and the Management Plan has been secured through budget support over a four-year period starting from 2018. The initiatives proposed are underway in accordance with the Management Plan.

This assessment is based on a review of the enabling framework for reducing forest loss: it shows that policy, legislation and budget support are in place as well as a technically strong institution and collaboration with other entities and local communities. While several elements are now in place, more time will be needed to achieve the desired outcomes.

Relevant websites, web links and files:

Presentation at the UN Forum on Forests on Jamaica's Forests 2018

http://www.forestry.gov.jm/sites/default/files/Resources/forest_cover-the_jamaican_scenario.pdf

Implementation of the National Forest Management and Conservation Plan - EU Budget Support
http://www.forestry.gov.jm/sites/default/files/Resources/implementation_nap_nfmcp_eu_budget_d.carty_.pdf

Performance Management Evaluation and Reporting Plan EU Budget Support
http://www.forestry.gov.jm/sites/default/files/Resources/jamaicas_coastal_forest-the_front_line_vs_the_bottom_line.pdf

Jamaica's coastal forest - Front line or bottom line?
http://www.forestry.gov.jm/sites/default/files/Resources/jamaicas_coastal_forest-the_front_line_vs_the_bottom_line.pdf

Other relevant information:

Some local communities have been involved in projects which are focused on sustainable land management, for example by rehabilitating mined out bauxite lands and other degraded areas. One NGO has developed a community-owned commercial aquaponics operation to produce green leafy vegetables and fish. Communities within buffer zones of protected areas have developed alternative livelihood projects which have resulted in less degradation of protected areas, for example GEF/SGP projects implemented by Sawyers Local Forest Management Committee (LFMC).

Websites

Equator Initiative - Winner case study - Jeffrey Town Farmers' Association
<https://www.equatorinitiative.org/2017/05/30/jeffrey-town-farmers-association/>

Earthstrong Agro NGO - Aquaponics
<https://earthstrongja.org/>

Fact sheet – Jamaica Rural Economy and Ecosystems Adapting to Climate Change (JAREEACH)
https://www.usaid.gov/sites/default/files/documents/1862/FACT_SHEET-_JAREEACH_11-_MARCH_2018.pdf

Obstacles and scientific and technical needs related to the measure taken:

With regard to coastal forests, in particular., local community groups need support to develop alternative livelihood opportunities to enable them to be a part of conservation, rather than destruction, of forests.

As noted in the NFMCP, there are challenges in managing Jamaica's forest resources in such a manner as to retain the benefits of ecosystem services such as prevention, or reduction of disasters due to flooding and landslides; maintenance of soil fertility and microclimates; provision of livelihoods and mitigation of climate change. Another important aspect of sustainable forest management is the protection of cultural and aesthetic values. Notwithstanding the role forests can play in climate change mitigation, they are vulnerable to fires and to natural hazards such as hurricanes and floods and the effects of climate change.

5) Improved management of fish habitats and management plans implemented

(Target 6 - By 2021, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits)

(Target 7 - By 2021, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.)

As at June 2019, eighteen fish sanctuaries have been declared (Figure 2), four of which were declared between 2016 and 2017 (East Portland, Boscobel East and Boscobel West (2016); and White River (2017). There are plans by the National Fisheries Authority to declare at least three additional sanctuaries by the end of the 2020/2021 FY. The Authority is actively examining the feasibility of establishing rotating fish sanctuaries in which there are designated open and closed periods. The Act allows for the establishment of fisheries management areas including zones.

The establishment of the fish sanctuaries or Special Fishery Conservation Areas (SFCA)⁴, has been an important step towards the conservation and protection of the fisheries sector by the Government. Fish sanctuaries are no-fishing zones reserved for the reproduction of fish populations, and to engage in any unauthorized fishing activities in these zones is illegal and punishable by law.

⁴ Under the Fishing Industry (Special Fishery Conservation Area) Regulations, 2012 of the Fishing Industry Act, 1976, the term 'special fishery conservation area (SFCA)' was introduced and the term 'alien invasive species' defined to allow, *inter alia*, for the culling of such species. The promulgation of the regulations allowed for measures to be taken against the invasive lionfish. Fish sanctuaries were designated as SFCAs as of May 2012. With the enactment of the Fisheries Act In 2018, the designation SFCA is no longer used as the term 'fish sanctuary' has been re-introduced and extensive provisions included in the Act regarding permitted activities.



Figure 3 - Fish sanctuaries in Jamaica, 2019

These areas help to improve fish stocks, maintain the genetic diversity of marine species, and contribute to coral reef health as well as provide socio-economic benefits for the local population - e.g. increased economic opportunities and the potential for eco-tourism and research initiatives. The management of these areas is made through a cooperative arrangement between the government, community organizations and the private sector. The Government is responsible for providing financial resources, as well training to build the capacity of local organizations. Some of the fish sanctuaries also receive support from the private sector and through grants from funding agencies.

Two examples of successful fish sanctuaries are the Bluefields Bay Fish Sanctuary, declared in 2009 and the Oracabessa Bay Fish Sanctuary, established in 2011. The area in Bluefields is managed by the Bluefields Bay Fishermen’s Friendly Society (BBFFS) which has responsibility for engaging the neighbouring communities, finding partnerships and fundraising to ensure the preservation of the area. The Oracabessa Bay Fish Sanctuary has had very good results in reversing of the loss of fish stock and degradation of the marine environment while also improving livelihoods. This fish sanctuary is a model and is being replicated not only in Jamaica, but also in other Caribbean countries.

NEPA continues to support the work of the Oracabessa Foundation in the annual reef survey inclusive of fish and benthic surveys within the Sanctuary. Baseline data were collected in 2011 to determine the state of the coral reef population and allow for the assessment of the effectiveness of management strategies being employed by the Oracabessa Marine Trust (formerly the Oracabessa Bay Foundation) in managing this ‘no take’ zone. Tracking information has shown that there has been a 1733.69% increase in fish biomass, over 110% increase in fish size and over 378.7% increase in fish density. Management activities undertaken by the Foundation continue to result in the annual growth in the fish stock of the area (Figure 4 below).

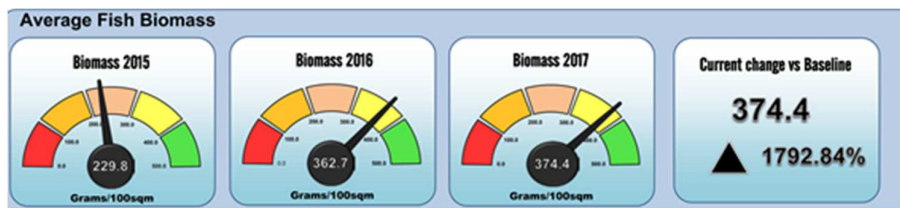


Figure 4 - Increase in fish biomass in Oracabessa Bay, St. Mary 2015-17

Under the Caribbean Marine Biodiversity Program (CMBP) several interventions were made to improve the management of fish habitats, particularly with respect to fish sanctuaries. The project supported the management of the South West Cay (SWC) Fish Sanctuary on Pedro Bank from 2015-2018 including the provision of equipment and supplies (e.g. a boat, warden, uniforms etc.). Training and capacity building were provided for CCAM staff (who managed the SWC and three other fish sanctuaries). The areas of training included patrolling, biological monitoring, fish surveys, coxswain certification, conflict resolution and public outreach. The CMBP contributed to increased effective management of the SWC Sanctuary as may be seen in the increased Management Effectiveness Tracking Tool (METT) scores annually during the project period.

The CMBP supported the installation of new sanctuary signs as well as sanctuary marker buoys. There were also other trainings and capacity building opportunities that took place with the Fish Sanctuary Network as a whole or some of the partners of the network aimed at improving the management of resources. In the Bluefields Bay Fish Sanctuary, local coral gardeners were trained and over 700 coral fragments were grown and planted onto reefs.

With the enactment of the Fisheries Act 2018, the fisheries management entity - the National Fisheries Authority (NFA) - is now expected to be more autonomous and have more resources to ensure compliance and close the major gaps in the conservation and sustainable development of the fisheries sector.

The Act mandates that each fishery management area or zone and each fishery or species of fish must have a management plan and, accordingly, the NFA proposes to establish management plans for all commercial species in the near future. A draft management plan for sea cucumber has been prepared and there are also plans to develop a management plan for sharks in keeping with the Food and Agriculture (FAO) code of conduct for responsible fishing and other obligations and commitments under international voluntary and binding agreements and arrangements. NEPA assisted with the revision of the Queen Conch Management Plan in 2017.

A Zoning Plan for the Montego Bay Marine Park was developed for the period 2017-2022 with one of the primary objectives being to ensure the sustainable use of the natural resources, while the specific objectives include the protection of spawning areas and nursery grounds, the provision of refuge for protected species, such as sea turtles and increased resilience of the reef against threats such as bleaching, climate change and water pollution. The Zoning Plan was published in the Gazette. Conservation areas have been designated in the Montego Bay Marine Park and Negril Marine Park Zoning Plans, and Management Plans have been approved for the two marine parks.

There are closed seasons for specific fish stocks, namely queen conch and spiny lobster. The Fisheries Authority is also examining the introduction of a closed season for other species including the sea cucumber.

The determination of the annual export quota for queen conch is informed by the National Total Allowable Catch and stock assessments undertaken every three to five years. The conch quota is

declared each year as required under the Endangered Species (Protection Conservation and Regulation of Trade) Act, 2001 and reports are prepared annually on the export of conch and its by-products.

Relevant websites, web links and files:

JIS feature - fishermen reaping benefits from fish sanctuary

<https://jis.gov.jm/fishermen-reaping-benefits-fish-sanctuary/>

Article - Coral-gardeners slowly restore Jamaica's 'forest under the sea'

<https://www.msn.com/en-us/news/us/coral-gardeners-slowly-restore-jamaica's-forest-under-the-sea/ar-AA15JRA>

Oracabessa Bay Fish Sanctuary Fact Sheet

<https://www.sgp.undp.org/innovation-library/item/726-sgp-jamaica--oracabessa-bay-fish-sanctuary-fact-sheet.html>

GEF SGP Jamaica - Overview of Portfolio and Projects

<https://sgp.undp.org/component/countrypages/?view=countrypage&country=58&Itemid=271>

Oracabessa Fish Sanctuary - Sea turtle protection

<http://www.oracabessafishsanctuary.org/turtles>

Goldeneye Resort, Oracabessa = Coral restoration video

<http://www.oracabessafishsanctuary.org/coral>

Montego Bay Marine Park

<http://www.mbmpt.org/>

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

X Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

The NFA has advised that fish sanctuaries account for the protection of 4% of Jamaica's coastal waters.

Involving fishermen and communities in conservation measures while improving livelihood opportunities has been a proven effective means of conserving and managing fish resources. Scientific data are available to show the impact of the measures being taken, as may be seen from the results in terms of fish biomass from the Oracabessa Bay and Bluefields Bay Fish Sanctuaries.

Following the findings of the latest conch abundance survey and scientific research revealed that the conch stocks in Jamaica were degraded, the Government imposed a ban on harvesting and export of conch from March 2019 to January 2020 to give the depleted population time to replenish itself. One of the major causes of the depletion was illegal fishing, with other causes possibly including mortality from natural predators such as sharks, turtles, octopus, or other environmental factors.

Relevant websites, web links and files:

Ban on conch fishing

http://www.jamaicaobserver.com/news/no-conch-fishing-until-january-2020-says-shaw_159394?profile=1606

<http://jamaica-gleaner.com/article/lead-stories/20190224/conch-crisis-depleted-stock-forces-ministry-order-one-year-fishing-ban>

Obstacles and scientific and technical needs related to the measure taken:

Among the obstacles is the inadequacy of resources for the patrolling of fish sanctuaries and marine parks and also to address the matter of poaching of fisheries resources by foreign vessels, compounded by the difficulties in monitoring and enforcing legislation effectively. The collection of data on reef health is not done on a consistent basis nor are there adequate data on the status of threatened species such as the parrot fish and other reef species.

More research and consistent data collection are needed to help inform strategy and policy. There is also a need for increased technical capacity of the NFA and the financial resources to support the full implementation of the Act as it was intended. Additionally, there is an urgent need for broad enforcement of laws. The newly passed Fisheries Act is also in need of regulations which are currently not in place. A public awareness campaign around the implementation of the new Fisheries Act should be done as many stakeholders are unaware that it has been enacted and what it means in a practical sense. The fish sanctuaries themselves are in need of more and consistent government support and coordination as many are struggling to cover operational costs much less carry out research and restoration or build resilience to climate change and other threats.

Illegal harvesting of fish continues to be a major obstacle requiring stronger enforcement.

6) Reduction of pollution and monitoring of water quality and safety

(Target 8 - By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.)

Approximately 10 percent of surface water quality and groundwater quality have been negatively affected by poor waste management practices, including inadequate treatment and disposal from domestic, industrial and commercial activities. Nutrient and faecal pollution are major issues that affect the island's ground and surface water resources. Groundwater pollution mainly comes from nitrate contamination from sewage; dunder from the rum distilleries; caustic soda from the bauxite industry; and saline intrusion from over-pumping of coastal aquifers, among other things and from non-point sources such as agricultural fertilizers or runoff.

The WRA monitors freshwater quality from abstracters who are required to submit to the Authority water quality data for specified parameters for April and November of each year. There is a historical database of water quality, but while currently there is no ongoing water quality monitoring programme due to costs, the Authority is making its best efforts to carry out such monitoring. no ongoing water quality monitoring programme due to costs, the Authority is making its best efforts to carry out such monitoring. An updated water quality atlas is being prepared by the Authority to be completed in the financial year 2019/2020.

The WRA is also updating the National Water Master Plan which makes projections and recommendations for the usage and allocation of the nation's natural freshwater resources. The

document is amended each decade after a series of environmental studies is conducted by the WRA, in collaboration with other scientific entities.

Specific projects are being implemented to assess the lower Rio Cobre alluvium aquifer (to be completed in the 2019/2020 FY); and the Black River limestone aquifer (to begin in the 2019/2020 FY). The WRA is collaborating with the National Water Commission (NWC) and the International Atomic Energy Agency (IAEA) on isotope hydrology studies in Jamaica (2018-2022). Sampling started at 12 selected sites in July, August and September 2019 and submitted to the WRA Laboratory for analysis.

Figure 3 shows the groundwater quality at sites across the island monitored by the Water Resources Authority in 2016.

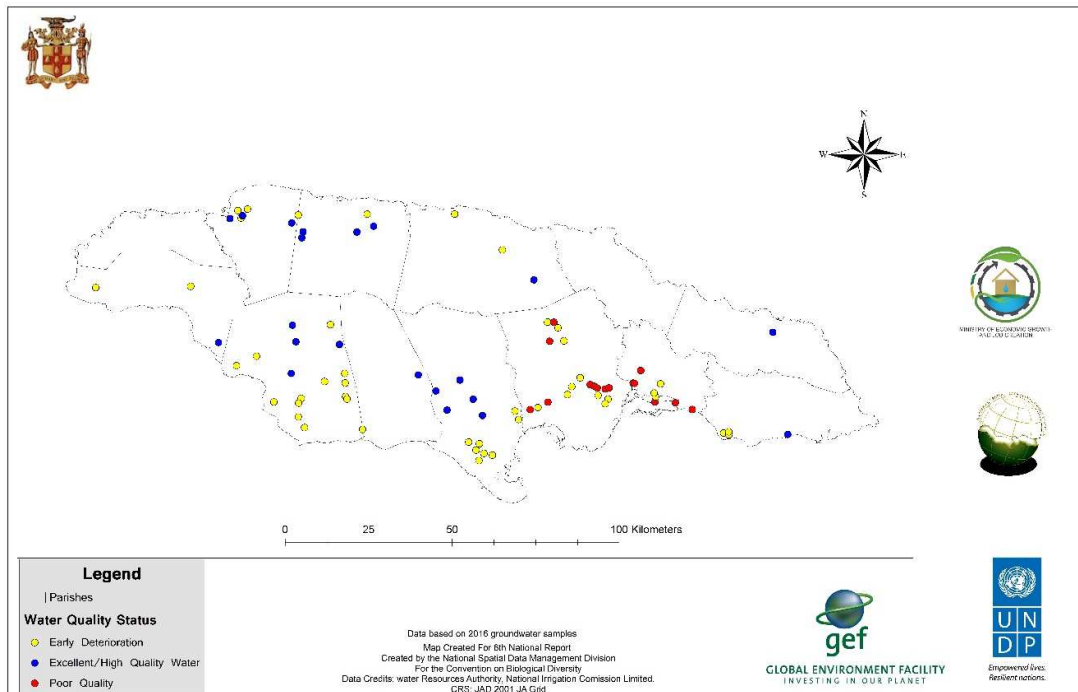


Figure 5 -Groundwater quality

The following are some of the measures taken by NEPA to address the issue of pollution of surface water:

1. **Routine Environmental Monitoring:** The natural aquatic resources (rivers and beaches) are monitored quarterly over the period of each fiscal year to assess the quality of the waterways and develop yearly water quality profiles and reports. A proactive measure was undertaken in 2018 to revise and improve water quality monitoring: this initiative focuses on combining laboratory chemical assessments of water quality with detailed assessments of land uses to characterize the potential impacts and sources of pollution.
2. **Pollution Incident Response Protocol:** The Agency is mandated to make appropriate responses to pollution incidents within 24 hours of receipt of the report. The response may take the form of a multi-agency approach depending on the nature of the incident. NEPA has a dedicated database on incidents which can be used to track occurrences.
3. **Pesticide Residue Assessment:** Since 2017, the assessment of pesticide residues in rivers has been incorporated into the Agency's work plan. The project started in Hope River as a joint

initiative with the WRA, the Soils Laboratory in the Ministry responsible for agriculture (Ministry of Industry, Commerce, Agriculture and Fisheries (MICAFA)) and the Pesticide Research Laboratory at the University of the West Indies (UWI). The results at the end of the project identified petroleum products residues as the main concern in the Hope River; no pesticide residues were found. NEPA is currently implementing similar research along the Black River, Rio Cobre and the South Negril River under a project funded by the NRCA which is scheduled to be completed by 2020.

The Ministry of Health is currently reviewing the National Water Management Programme to align with the World Health Organization's prescribed methodology for testing of wastewater, recreational water and drinking water. Additionally, the Public Health Departments in each parish are required to implement a Water Safety Plan at the parish level. All commercial users will be required to implement their own Water Safety Plan.

The Natural Resources Conservation (Wastewater and Sludge) Regulations, 2013 under the NRCA Act will be amended in the 2020/2021 FY to address, inter alia, the standards for treated trade effluent used for irrigation; the increasing of the amount per ton for the parameters under the discharge fees; expansion of the reuse of effluent; sampling frequency; and amending of the reporting form.

Under the Government of Jamaica/International Atomic Energy Agency (IAEA) Project entitled "Assessing coastal and marine pollutants and tracking the pathway in Falmouth and Montego Bay using radio tracers" which will be implemented between 2020 – 2021, water sampling and testing equipment for near shore and offshore waters will be procured to develop water quality profiles for three selected sites.

Ecological data on the status of marine and freshwater resources have been included in new provisional development orders – for example - St. James, Hanover, St. Catherine.

The Government's ban on single use plastic bags, Styrofoam and plastic straws announced in September 2018 should have a significant impact in terms of reducing waste and pollution as well as protecting the marine environment (Please refer to 3) Green Economy in Section II).

Websites

NWC breaks new ground in water monitoring technology

http://www.jamaicaobserver.com/latestnews/NWC_breaks_new_ground_in_water_monitoring_technology?profile=1228

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

X Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

The National Water Sector Policy and Implementation Plan was approved in 2019 and there are plans and projects underway to monitor and assess water quality and some measures to prevent pollution. While steps are being taken to address some issues, there is still, however, need for resources and for changes in waste disposal practices, as well as improved infrastructure which will take some time to be put in place.

7) Control of Invasive Alien Species

(Target 9 - By 2021, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.)

Jamaica has recorded over 120 invasive alien species (IAS), including plants, animals and other organisms. Some examples are the White-tailed Deer (*Odocoileus virginianus*), the Indian mongoose (*Herpestes javanicus*) and the Wild Ginger (*Alpinia allughas*), which are species that have severely affected Jamaican endemic species and communities. Marine IAS, such as the Lionfish (*Pterois volitans*), have caused reduced fish populations and damaged coral reefs and other ecosystems.

An Invasive Alien Species Working Group, as well as a Technical Working Group, has been established and is implementing the IAS Programme. The IAS Working Group is updating Jamaica's national list of wild and agricultural species reported as invasive aliens including their pathways, and will include the national list in an online Jamaica Invasive Species Database.

Based on information from the IAS Working Group, NEPA has been carrying out public awareness programmes on invasive species on social media to show the differences between native species and invasive alien species so as to help people to identify IAS properly.

The enactment of the Ballast Water Management Act, 2019 will strengthen Jamaica's efforts to prevent the introduction of invasive species into Jamaican waters.

Under the new Fisheries Act, there are provisions for the culling of invasive fish in fish sanctuaries.

Examples of actions implemented by various Jamaican institutions to deal with invasive alien species are:

- The Jamaica Iguana Recovery Programme, which addresses the eradication of invasive species in the Hellshire Hills;
- The Green Iguana Management Strategy developed by NEPA in 2018;
- A project looking at Lionfish and the Paper Bark Tree in the Black River Morass under the Mitigating the Threat of Invasive Alien Species in the Insular Caribbean Project;
- A survey instrument developed by NEPA in 2018 to determine the distribution and impact of the White-tailed deer on the environment, agriculture and health. The report on the survey is to be generated in March 2020; and
- The JCDT conducted control of just over 3 hectares of Wild Coffee (*Pittosporum undulatum*), Wild Ginger (*Hedychium* sp.) and Net Fern within the Blue and John Crow Mountains National Park (mainly in or near Holywell) between 2015 – 2018.

TNC started a pilot restoration project on 2 hectares in Seaward Mountain on NWC land for the purposes of testing best methods of removing invasive bamboo and restoring to forest cover some denuded lands. That project continued (in 2019) with replacing lost seedlings and maintenance of the area reforested. Starting in 2020, the Conservancy expects to expand restoration to 20 hectares per year for 3 years, working with RADA and their farmer field schools and also working with JCDT and other local NGOs on tree planting and maintenance.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

X Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology

Of the measures that have been put in place to deal with invasive alien species, some have started to have effect – as with the lionfish, for example, and new legislation should help to prevent the introduction of some species. The control and eradication of IAS present major challenges and the matter is being addressed at both the national and regional levels.

Obstacles

The control measures for IAS are expensive and adequate funding for implementation of such measures is not available. Tackling the eradication of invasive species requires large amounts of funding and now also innovative approaches. The White-tailed deer (*Odocoileus virginianus*), for example, is becoming a pest in eastern Jamaica. It is usually difficult to control plants totally as, without constant attention, they tend to grow back.

Field surveys are needed to obtain population data on IAS.

Relevant websites, web links and files:

National Invasive Alien Species Strategy and Action Plan, 2014-2020 (NEPA 2013)
http://www.ciasnet.org/wp-content/uploads/2014/06/NIASSAP_FINAL.pdf

JIS article - Jamaica Taking Action against Invasive Species September 2017
<https://jis.gov.jm/jamaica-taking-action-invasive-alien-species/>

8) Reduction of pressures on vulnerable ecosystems

(Target 10 - By 2021, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.)

On an annual basis, NEPA undertakes a Coral Health Assessment which is shared with the Global Coral Reef Monitoring Network. The assessments have shown that the health of the island's coral reef remains poor, based on coral cover, macroalgae cover and fish biomass. Information generated from the Oracabessa Bay and Boscobel Fish Sanctuaries is included in the annual coral reef reports.

In 2018, NEPA updated the Action Plan on Corals and Reefs in Jamaica (2018-2023). The Plan highlights measures to better understand coral reef ecosystems and address and reduce the impacts of human activities through research, monitoring, policy promulgation and implementation as well as enforcement. A coral nursery was established at Port Royal Cays to supply corals of a size that can survive and grow at sites to be rehabilitated such as the area damaged during a ship grounding incident.

The government has also made efforts to address the sources of land-based pollution by applying various measures including agroforestry and reforestation, improvement in wastewater treatment facilities, regulation of river-based attractions and watersheds management.

The Montego Bay Marine Park Zoning Plan 2017-2022 was approved under the NRCA Act and published in the Jamaica Gazette. The Plan classifies specific geographic areas within the protected area based on preservation requirements, as well as the site's ability to accommodate various types of activities. A Management Plan was drafted in 2017 for the proposed Black River Protected Landscape with a view to conserving biological diversity and ecosystem services and also

maintaining traditional uses of natural areas and developed areas which are dependent on the health of ecosystems for their survival.

The results of the Yallahs and Hope River Watershed Management Areas Project funded by GOJ/GEF/IADB provide an example of how pressure on vulnerable ecosystems can be lifted or eased with the help of local communities. The Rural Agricultural Development Authority (RADA) trained 576 farmers from 13 communities in a 13-week programme called Farmer Field School in which farmers learned by doing. The training was geared towards implementing climate smart land husbandry practices which could be used to reduce soil erosion, prevent and control forest fires, improve crop yields, secure their livelihood and improve water output. Under the project, a total of 402 farmers graduated and have now been trained in Climate Smart Farming Techniques. This was the single largest stakeholder intervention within the Yallahs River and Hope River Watershed Management Units (WMU), and it advanced NEPA's drive to increase the health of the area which has for years been described as severely degraded. The farmers were also instrumental in the reforestation of over 400 hectares of land in the project site.

The National Plan of Action on land-based sources of marine pollution (LBS) will be updated under the GOJ/UN Environment IETC Plastic Waste Minimization Project in the 2020/2021FY. The IETC project is also supporting the development of the Green Economy Investment Strategy.

Through funding received from the World Bank Program on Forests (PROFOR), a Monitoring and Evaluation Manual on Mangroves was prepared for 'a wide range of stakeholders such as NEPA, the Office of Disaster Preparedness and Emergency Management (ODPEM), parish disaster coordinators, the Forestry Department and any others who can benefit from information on data collection methods on aspects of mangrove monitoring and evaluation.'⁵

The Forestry Department which, in keeping with the Forestry Policy, 2017, has the mandate to manage all types of forests including coastal forests, in 2019 started an assessment of 7,000 hectares of mangrove forests across Jamaica with a view to developing a plan to manage this resource by 2021.

Work is being undertaken on the development of a National Spatial Plan to ensure the optimal use of Jamaica's land and marine resources and establish a framework for orderly development and effective planning. Seven Technical Papers to inform the Plan have been completed. There is also a Technical Working Group that will aid in guiding the process. (Please see Section II - Integration of biodiversity values in policies, plans and legislation re Target 2).

Websites

Yallahs/Hope River Watershed Management Project

http://nepa.gov.jm/new/projects/docs/yallahs_hope/adaptation_fund_jamaica_pro_doc_final.pdf

Forestry Department now assessing mangrove and swamp forests island-wide

<http://www.forestry.gov.jm/node/556>

Development of a National Spatial Plan

<https://jis.gov.jm/national-spatial-plan-to-be-developed/>

⁵ From World Bank. 2019. Mangroves Monitoring and Evaluation Manual Jamaica

X Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

While for various agencies, their knowledge and understanding of coral reefs are expanding, it is not adequate for coordinated monitoring of these ecosystems or implementation of coral reef conservation and restoration measures. The protection of coral reefs is a priority for the Government in terms of externally funded projects, including for adaptation to climate change impacts.

Relevant websites, web links and files:

World Bank. 2019. Mangroves Monitoring and Evaluation Manual- Jamaica
[https://www.nepa.gov.jm/new/media_centre/publications/docs/world_bank_2019_jamaica_mangrove_m&e_manual_\(profor\)_jul_26\).pdf](https://www.nepa.gov.jm/new/media_centre/publications/docs/world_bank_2019_jamaica_mangrove_m&e_manual_(profor)_jul_26).pdf)

Obstacles and scientific and technical needs related to the measure taken:

Annual surveys of coral reefs are carried out at selected sites, but more sites could be included for more comprehensive information. Surveys of mangroves and seagrass beds need to be more consistently conducted and widespread. Using the 'citizen scientist' approach, NGOs CBOs, fishermen and private sector interests could be trained to assist as appropriate with data collection and analysis so that policy and interventions can be sufficiently informed.

More attention is needed to threats and to the abatement of threats to vulnerable ecosystems, particularly where there may be a requirement for large government infrastructure projects such as installation of sewage treatment facilities to be carried out, or for the enforcement of regulations governing the various industries which affect or can affect the ecosystems.

Additionally, more emphasis should be placed on the prevention of loss of biodiversity rather than mitigation.

NBSAP Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Major implementation measures taken:

9. Prevention of extinction of threatened species (National/ABT target 12)

9) Prevention of extinction of threatened species

(Target 12: By 2021, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained)

The Jamaican Iguana (*Cyclura collei*) is listed as a Critically Endangered Species on the Red List of the International Union for the Conservation of Nature (IUCN). In 1948 the species was thought to be extinct. With the rediscovery of the Jamaican iguana (first a carcass found in 1970 and then a live specimen in 1990), the Government and other international and national organizations (including the University of the West Indies, Mona, IUCN and zoos in the United States) implemented a recovery programme which is one of the most successful stories in the world. An important effort has been made to monitor, protect and reestablish the iguana's population in their natural habitat, the Hellshire Hills. (Figure 6)

The Jamaican Iguana Recovery Group (JIRG) is the primary oversight body for the management of the Jamaican Iguana. Funding for the period 2018 - 2019 was provided by the Natural Resources Conservation Authority, the U.S Fish and Wildlife Service, NEPA, and the International Iguana Foundation to support fieldwork and health screening activities. The Hope Zoo Iguana Head Start Initiative, with the help of international funds, is responsible for keeping the animals safe and healthy until they can return to nature, which can take between four to seven years.

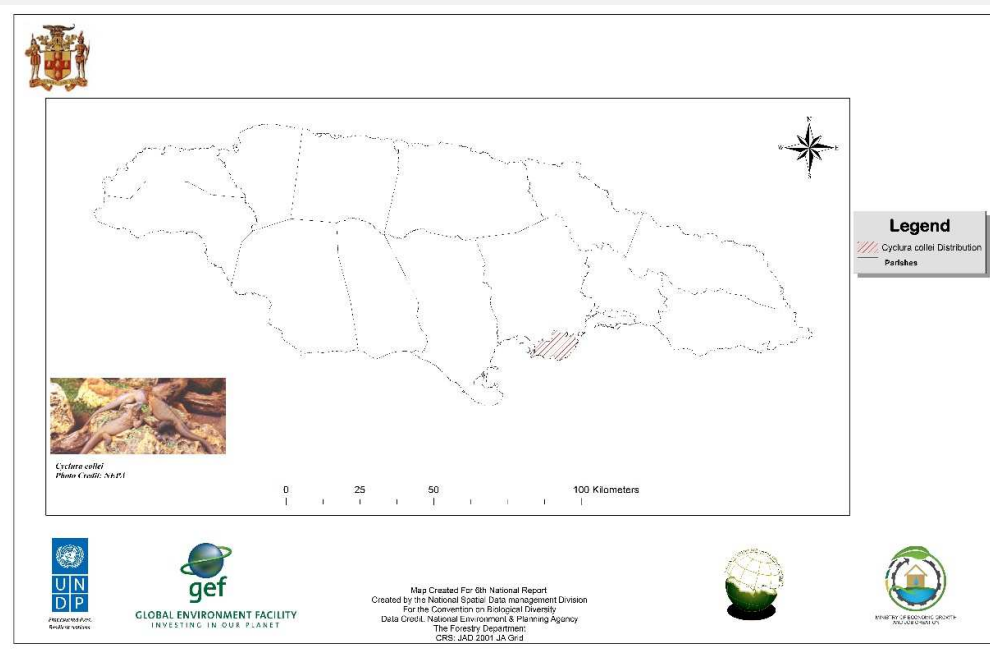


Figure 6 – Habitat of the Jamaican iguana

To date (1996 - 2019) 468 iguanas have been repatriated to the Hellshire Hills. Without the programme, the chances of the iguanas' surviving would be minimal due to their predators, e.g. the mongoose, an invasive alien species. NEPA reports annually on the Recovery Programme with the most recent document, 2019 entitled 'Population Status Report on the Jamaican Iguana released under the Headstart Programme'. The location of the Jamaican iguana's habitats is shown on the map at Figure 5 below.

For selected sites, NEPA conducts and reports on distribution assessments of selected key endangered and vulnerable species such as the American Crocodile (*Crocodylus acutus*), the Jamaican boa (*Epicrates subflavus*), the Hawksbill turtle (*Eretmochelys imbricata*), and the West Indian Whistling Duck (*Dendrocygna arborea*).

With funding from the Global Environment Fund (GEF) Small Grants Programme (SGP) the JCDT initiated a one-year study of the Jamaican Hutia (*Geocapromys brownii*) ((locally known as the coney) after receiving a research permit in late 2018. The focus of the project is to assess population particularly near the Moore Town community and the National Park. The Maroon communities had advocated for attention to what was becoming a problem for them – that is, the eating of their crops by coneys.

Measure taken has been partially effective

.

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

The measure has been effective in terms of the progress in increasing the population of the Jamaican Iguana, but there is still need for greater increases in numbers to result in an improvement of the ranking on the IUCN Red List of Endangered Species.

Relevant websites, web links and files:

Jamaican iguana - back from virtual extinction

<https://sgp.undp.org/resources-155/our-stories/566-jamaican-iguana-back-from-virtual-extinction.html>

Earth Today article Jamaican Iguanas get a Second Chance at Survival, June 2019

<http://jamaica-gleaner.com/article/news/20190613/earth-today-jamaican-iguanas-get-second-chance-survival>

NEPA Newsletter September 2010 - Aliens of Xamayca

https://www.nepa.gov.jm/new/services_products/publications/newsletters/docs/aliens_of_xamayca/AI_newsletter_September_2010.pdf

NBSAP Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Major implementation measure taken:

10) Biodiversity Information for National Development (National/ABT Target 19)

10) Biodiversity Information for National Development

(Target 19: By 2020, the knowledge, the science base and technologies relating to biodiversity, its values, functioning, status, and trends, the consequences of its loss, are improved, widely shared and transferred and applied)

In 2017, the Institute of Jamaica received a national grant from the European Union through the Global Biodiversity Information Facility's (GBIF's) Biodiversity Information for Development (BID) Programme for the project entitled "Advancing Jamaican Biodiversity Data and Information Products and Services" (2017-2018). Project implementation was coordinated by the Jamaica CHM in collaboration with partner entities namely, the National Environment and Planning Agency, the Jamaica Conservation and Development Trust, and the Natural History Museum, London.

Major outputs of the BID-Jamaica project included over 8,000 digitized plant and over 300 animal specimens (available online), occurrence data for 50 mosses and 20 mushrooms, addition of geographic coordinates to 16 invasive alien species, creation of maps using data from NEPA's wildlife research permit database, online checklist of birds at Font Hill, St. Elizabeth, an online biodiversity image database A Biodiversity Information for National Development workshop was held to explore how the data could be used to support conservation.

The datasets produced through the project are publicly available online and may support conservation and development planning efforts.

Also, various tertiary academic institutions have developed research programs on biodiversity.

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment

The Jamaica CHM continues outreach to the public on biodiversity in keeping with its mandate. After serious interference with the website, changes have had to be made to increase security of the site.

Relevant websites, web links and files:

Jamaica Clearing House Mechanism
chm.org.jm/CHM/biodiversity/species-diversity/

Reference may also be made to the websites listed at 1) Public Awareness Initiatives above.

Obstacles and scientific and technical needs related to the measure taken:

The main obstacle to this action was the time-consuming process to reload information on the Jamaica CHM website following the hacking of the website in 2018. The IOJ has used the medium of an online newsletter to provide information pending the completion of the restoration exercise.

Public outreach presentations are done on an ad hoc basis. Funding is needed to develop a public awareness campaign on the CHM and the biodiversity values it promotes.

SECTION III

Assessment of progress towards each national target

National Target #1

National Target #1 - By 2021, Jamaicans are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Date the assessment was done:

October 2019

Additional information

The assessment of progress towards each of Jamaica’s National Targets was made through a combined approach of consultation of stakeholders, collection of data and review of reports and related documents.

Table 2 below shows an assessment of the progress made in implementing activities related to Target 1.

Table 2 – Implementation status – Target 1

Reference #	Description of actions	Implementation status
T1-a	Conduct baseline KAP survey including gender to facilitate gender sensitive data	Not yet started
T1-b	Implement comprehensive national strategies in various sectors to promote awareness of the value of biodiversity (industry/sector-specific information and guidelines)	Planning stage or early implementation
T1-c	Develop the relevant educational curricula relating to aspects of biodiversity to be implemented in schools	Actively under implementation

T1-d	Conduct public awareness campaigns on biodiversity and identify steps people can take to protect it.	Campaigns ongoing
------	--	-------------------

Regarding activity 1-a, while no KAP surveys specifically on biodiversity were completed, KAP surveys were, however, done under specific projects such as the Montego River Watershed Management Unit (WMU), Integrated Management of the Yallahs and Hope River Watershed Management Areas and the National Protected Areas Systems (NPAS) projects. The Bureau of Gender Affairs has made eighteen recommendations for mainstreaming gender considerations in the implementation of the NBSAP including that gender-specific indicators be included in the studies to establish the baseline on attitudes towards biodiversity.

A study on Gender in the Biodiversity Policy Landscape in Jamaica was drafted in 2018. Among the conclusions was that Jamaica has laid a foundation for developing and implementing gender responsive strategies on which other strategies could be designed and implemented by various entities and communities for sustainable use and conservation of Jamaica’s natural resources. The study was commissioned by UN DESA in collaboration with the Planning Institute of Jamaica (PIOJ), in support of Jamaica’s efforts to pursue a sustainable development agenda in line with commitments under the Barbados Programme of Action and especially the SIDS Accelerated Modalities of Action (SAMOA) Pathway.

Further review of the adequacy of the KAP activity should be done in future NBSAPS, to take into account the views of stakeholders on this matter, including more extensive application of gender considerations.

As regards activity 1-b, while the target of developing and implementing one comprehensive national strategy promoting awareness of the values of biodiversity in various sectors may not, strictly speaking, have been met to this point, the message of the importance of biodiversity has been underscored in various sectors, such as the forestry, mining, transport and tourism sectors, for example. The proposed Environment Policy to be prepared by the MEGJC and work to be done by the National Environment and Planning Agency will address this matter as well as recommendations to take gender into account.

Activity 1-c was implemented through several initiatives from different Jamaican institutions.

As regards activity 1-d for two campaigns on biodiversity to be carried out by 2021, various institutions, including governmental and non-governmental organizations, have carried out programmes and developed strategies to raise public awareness about biodiversity. The agencies with responsibility for biodiversity management have all undertaken workshops, campaigns, town hall meetings and programmes to assist with the improvement, sharing and transfer of knowledge at various levels. NGOs and CBOs and some private sector organizations also provide information for the public, with an emphasis on young people. Interventions at the level of the educational system are made by various Government entities as well as by NGOs such as JET and the Alligator Head Foundation. While there have been substantive interventions, it is recognized that work in this area will have to be an ongoing process, and in this regard, increasing public awareness and encouraging behaviour change remain a priority.

Please see initiatives regarding Target 1 at Section II above.

Indicators used in this assessment

- Extent to which baseline KAP survey completed (Categories: Not done, to some extent, great extent, Completed): Not done.
- Extent to which comprehensive national strategies completed: To some extent
- Extent to which the educational curricula relating to biodiversity developed: To a great extent
- Number of public awareness campaigns on biodiversity: No exact number was provided, but several events and campaigns have been held and will be held in the next two years to promote biodiversity conservation.

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was made primarily through consultations with national stakeholders and the National Stakeholder Workshops held through the development of the report.

The Medium-Term Socio-Economic Policy Framework includes assessments of progress towards the goals of Vision 2030 and the SDGs and the strategies and actions for the period 2018 to 2021.

Relevant websites, web links and files

NEPA - Integrated Management of the Yallahs River and Hope River Watersheds:
[http://nepa.gov.jm/new/projects/docs/yallahs hope/adaptation fund jamaica pro doc final.pdf](http://nepa.gov.jm/new/projects/docs/yallahs%20hope/adaptation%20fund%20jamaica%20pro%20doc%20final.pdf)

NEPA – National Biodiversity Planning to Support the implementation of the CBD 2011-2020:
[http://nepa.gov.jm/new/projects/docs/Project Document.pdf](http://nepa.gov.jm/new/projects/docs/Project_Document.pdf)

NEPA – Public Awareness
<http://nepa.gov.jm/policies/neap/PUBLIC.HTM>

Jamaica Clearing-House Mechanism Website
www.jamaicachm.org.jm

Natural History Museum of Jamaica, Biodiversity Awareness Programme:
http://nhmj-ioj.org.jm/ioj_wp/education/biodiversity-awareness-programme/

Jamaica National Heritage Trust:
www.jnht.com

NPAS Project Published Material:
<https://www.nepa.gov.jm/new/projects/current-projects.php>

Level of confidence of the above assessment

- Based on comprehensive evidence
- Based on partial evidence
- Based on limited evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment was based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate
- Monitoring related to this target is partial (e.g. only covering part of the area or issue)
- No monitoring system in place
- Monitoring is not needed

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Monitoring is carried out by the responsible agency using various tools including operational and corporate plans, business strategic plans, management plans and the Medium Term Socio-Economic Policy Framework.

National Target #2

National Target #2 - By 2021, at the latest, biodiversity values have been integrated into national and local development and poverty reduction and planning processes are being incorporated into national accounting as appropriate, and reporting systems

Category of progress towards the implementation of the selected target:

- Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Additional information

Table 3 below summarizes the progress of each activity under Target 2, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool.

Table 3 – Implementation status – Target 2

Reference #	Description of actions	Implementation Status
T2-a	Implementation of national projects using TEEB and SEEA approaches.	Not yet started

T2-b	Environmental Management Policies using Environmental Accounting by 2020	Not yet started
T2-c	Update current legislation and policies relating to conservation and protection of biodiversity	Actively under implementation
T2-d	Revise and/or develop fines for extractive industries; (renewable) marine fisheries (conch, lobster etc.), forest and (non-renewable) mining (bauxite, limestone, sand, aggregate)	Planning stage or early implementation
T2-e	Include natural capital into national budgets and priorities	Not yet started.

Activities related to results 2-a and 2-b have not yet started; however, relevant work is being undertaken such as training in the System of Environmental-Economic Accounting (SEEA) and ecosystem accounting done by STATIN. After the System of Natural Accounts, of which the SEEA is a part, has been adopted by Jamaica, possibly in 2020, then further activities may take place regarding the SEEA. The employment by NEPA of an environmental economist trained in environmental accounting is a step towards natural resource valuation.

Activity 2-c is exemplified by the progress in implementing new policies and legislation to protect Jamaica's biodiversity, e. g. the Fisheries Act, 2018 which came into force in 2019, providing for the modernization of the fisheries industry and the establishment of the National Fisheries Authority as a statutory body. The Protected Areas System Master Plan (PASMP) is now being updated. The Protected Areas Committee comprising representatives of the main agencies responsible for protected areas management, representatives of the private sector, academia, non-governmental organizations and various Government entities has been appointed in accordance with the PASMP.

An example of activity 2-d may be seen in the new Fisheries Act which includes increased fines and new penalties which seek to protect fisheries habitat to prevent biodiversity loss.

A comprehensive review of penalties in several laws is currently being undertaken by the Legal Reform Unit of the Ministry of Justice, with the assistance of the relevant public sector stakeholders. Recommendations have been made for the updating of fines and penalties under the NRCA Act, the Forest Act, the Wild Life Protection Act and the Endangered Species Act.

An important point for the design and implementation of new legislation is the inclusion of gender considerations. As each Ministry, Department and Agency (MDA) in Jamaica is expected to have a trained gender focal point, this person can be made responsible for overseeing this process and helping to mainstream gender into the institution's activities.

<p>Indicators used in this assessment</p> <ul style="list-style-type: none"> - Extent to which TEEB and SEEA approaches developed. (Categories: Not done, to some extent, great extent, Completed): Not done. - Number of policies that used TEEB and SEEA approaches: The implementation of these approaches has not yet started. - Number of pieces of legislation and policies relating to conservation and protection of biodiversity updated: At least three policies have been updated and approved (the Forest Policy for Jamaica, 2017, the Orchid Conservation Policy, 2014, and the Policy towards Dolphin Conservation). New legislation enacted includes the Fisheries Act, 2018 and various Parish Development Orders. - Number of fines revised and developed to incorporate biodiversity conservation strategies: provisions for new penalties and increased fines were included in the Fisheries Act, 2018. - % of natural capital reflected in the national budget: Not yet started.
<p>Please describe any other tools or means used for assessing progress</p> <p>The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.</p>
<p>Relevant websites, web links, and files</p> <p>Section II on Target 2 includes links to legislation referenced here.</p> <p>Progress reports on Vision 2030 - http://www.vision2030.gov.jm/Reports/Progress-Reports - Reports to 2016/2017</p> <p><i>EMS standard guidelines launched by the Bureau of Standards Jamaica (March 2019)</i> - https://jis.gov.jm/bsj-launches-environmental-management-systems-standard/</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment was based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is partial (e.g. only covering part of the area or issue)</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p>

National Target #3

National Target #3 - By 2021, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant obligations, taking into account national socio-economic conditions

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019

Additional information

Table 4 below summarizes the progress of each activity under Target 3, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool.

Table 4 – Implementation status – Target 3

Reference #	Description of actions	Implementation status
T3-a	Introduce incentive programmes to private and public sector companies such as the Green Business Certification	Actively under implementation
T3-b	Use baseline information to conduct additional ecological limits/footprint and carrying capacity assessments for key economic sectors (such as tourism, bauxite, fisheries, sand mining and forest) in terms of sustainable production and consumption	Actively under implementation
T3-c	Incentives implemented to harmonize with the CBD and other relevant international obligations	Not yet started

One of the main initiatives under this target is the pilot Green Business Jamaica Certification Programme (GBJ), launched in 2017, as a voluntary programme aimed at the private sector, to promote pollution prevention and natural resources conservation. (Please see Section II).

There are other examples of positive incentives introduced in Jamaica to support biodiversity conservation, such as tax incentives under the JNHT Act and the remission of property tax for private land owners whose lands are declared as a forest reserve or a forest management area under the Forest Act, 1966.

The Green Economy Scoping Study for Jamaica, 2016 which was carried out by UN Environment, includes recommendations on incentives and policies in five sectors (energy, agriculture, construction, water and sewerage, and tourism) and other approaches for the transition to a green economy.

Indicators used in this assessment

- Number of pilot incentive programmes introduced: The Green Business Certification programme is being implemented
- Number of Ecological Carrying Capacity studies completed: Studies carried out in selected areas to determine optimal carrying capacity for recreational and associated activities and limits of acceptable change (e.g. Carrying Capacity Report for Black River and its Tributaries and for the Pedro Cays).
- Number of conservation easement programmes offered to landowners: position paper on the implementation of conservation easement in Jamaica has been prepared.

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links, and files

Private forestry programme - <http://www.forestry.gov.jm/node/569>
Green Business Jamaica Pilot Project, 2017 JIS News – Business urged to adopt environmentally friendly practices
<https://jis.gov.jm/businesses-urged-adopt-environmentally-friendly-practices/>
Environmental Levy
[-http://www.jamaicatradeandinvest.org/faqs/what-environmental-levy-and-how-it-applied](http://www.jamaicatradeandinvest.org/faqs/what-environmental-levy-and-how-it-applied)

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders’ inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Jamaica is currently on track to realizing the target of completing three ecological carrying capacity studies as two studies have already been conducted, namely for Black River and Pedro Cays, with a view to having the Black River and Pedro Cays Protected Areas declared by the end of 2020.

As regards the target of implementing two incentive programmes, one such programme has already been introduced. Work toward the development of a conservation easement mechanism is, however, lagging and more support is required.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Jamaica has several monitoring frameworks embedded in the strategic plans and actions of the relevant environmental monitoring and regulatory MDAs. Specific indicators are assessed based on agreed timelines. Reports are provided to the PIOJ on a yearly basis using these predetermined indicators and targets, and included in the annual Economic and Social Survey of Jamaica.

Relevant websites, web links and files

Overview 2018 - PIOJ

<https://webstore.pioj.gov.jm/images/PreviewDocument/30290.pdf>

National Target #4

National Target #4 - By 2021, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019.

Additional information

Table 5 below summarizes the progress of each activity under Target 4, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool.

Table 5 – Implementation status – Target 4

Reference #	Description of actions	Implementation status
T4-a	Develop new tools (manuals and/or smartphone apps), models and applications for various ecological assessments (Modelled after carbon footprint calculator)	Planning stage or early implementation
T4-b	Update the SOE Report by 2019 to include annual trends for production and consumption of key natural resources related to mining, construction (transport, housing, works) forestry, fishing, energy, and water quality and availability. Some data reflected in the SOE but many gaps exist.	Actively under implementation

The development of air quality models and the Pollutant Release and Transfer Register (PRTR) are examples of new tools for ecological assessments in the planning or early implementation stages. The Forestry Dept is implementing a REDD + readiness grant which will include the preparation of assessment of forest cover.

The preparation of the 2017 State of the Environment Report began in 2018 and was completed in 2019.

This target is closely related to both the Sustainable Development Goals, especially SDG #12 “Responsible consumption and production” and Vision 2030 Jamaica, which has an outcome specifically dedicated to sustainable management and use of environmental and natural resources. The pursuit of SDG #12 and related action under Jamaica’s Vision 2030 will contribute to and accelerate the achievement of NBSAP/ABT Target 4 and vice-versa.

Indicators used in this assessment

- Number of tools developed to conduct rapid ecological footprint assessments: at least two tools have been developed, the PRTR and air quality models.

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

NEPA - Air quality measurements in Jamaica:

<https://www.nist.gov/sites/default/files/documents/iaao/JodyAnnMarston.pdf>

Ministry of Industry, Commerce, Agriculture & Fisheries – Priority Programmes -

<http://www.micaf.gov.jm/content/priority-programmes>

NEPA – State of Environment Reports 1995-1996, 1997, 2010 and 2013 -
https://www.nepa.gov.jm/new/media_centre/publications/soe-report.php

Mangroves Monitoring and Valuation Manual, 2019

[https://www.nepa.gov.jm/new/media_centre/publications/docs/world_bank_2019._jamaica_mangrove_m&e_manual_\(profor\)_jul_26\).pdf](https://www.nepa.gov.jm/new/media_centre/publications/docs/world_bank_2019._jamaica_mangrove_m&e_manual_(profor)_jul_26).pdf)

Braco farmers

<https://www.jsif.org/sites/default/files/JSIF%20%26%20NIC%20Braco%20PMO%20Drip%20Irrigation%20MOU%20Signing%20Ceremony.pdf>

<https://www.nicjamaica.com/braco-farmers-get-drip-irrigation-system/>

Reference may be made to Section II re 8) Reduction of pressures on vulnerable ecosystems

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The target is monitored by the relevant MDAs responsible for biodiversity and environmental monitoring under their in-house M&E framework. Development of new monitoring tools and parameters are reported annually to the PIOJ to be included in the Economic and Social Survey of Jamaica.

The main institution engaged in the implementation of these actions is NEPA. However, institutions such as the Forestry Department and MICAFA, specifically RADA and the Fisheries Authority, are also implementing initiatives related to sustainable production in Jamaica.

National Target #5

National Target #5 - By 2021, at the latest, the rate of loss of natural habitats, including forests, is at least halved and where feasible, brought close to zero, and degradation and fragmentation are significantly reduced

Category of progress towards the implementation of the selected target:

<input checked="" type="checkbox"/> On track to achieve target		
Date the assessment was done: October 2019		
Additional information The table below summarizes the progress of each activity under Target 5, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool. Table 6– Implementation status – Target 5		
Reference #	Description of actions	Implementation status
T5-a	Monitor and report population trends of five key endangered terrestrial species living within major habitats [Key species: Jamaican Iguana (<i>Cyclura collei</i>), the Homerus (Giant) Swallowtail Butterfly (<i>Pterourus homerus</i>), the Yellow-billed Parrot (<i>Amazona collaria</i>), the Jamaican Boa (<i>Epicrates subflavus</i>) and the Jamaican Hutia (<i>Geocapromys brownii</i>)	Actively under implementation
T5-b	Measure and report extent of all types of forests and wetlands (wet, mesic, dry limestone forest, riverine forest, shale forest, alluvial forest, montane cloud forest and swamp forest) by 2021	Planning stage or early implementation
T5-c	Assess and report habitat extent and fragmentation of each key habitat type (as listed in T5-b above)	Planning stage or early implementation
<p><i>Black (Amazona agilis)- and Yellow-billed Parrots (Amazona collaria)</i></p> <p>Over the 2015 – 2016 period, parrot surveys were conducted in the Cockpit Country and the John Crow Mountains. The findings suggest that these areas remain important strongholds for both species – the Yellow-billed Parrot (YBP) (<i>Amazona collaria</i>) and the Black-billed Parrot (BBP) (<i>Amazona agilis</i>). This was confirmed by available spatial data.</p> <p>(Source NEPA 2016 - Survey of Parrot Populations in selected locations in Westmoreland, the Cockpit Country and the Blue and John Crow Mountains National Park).</p>		

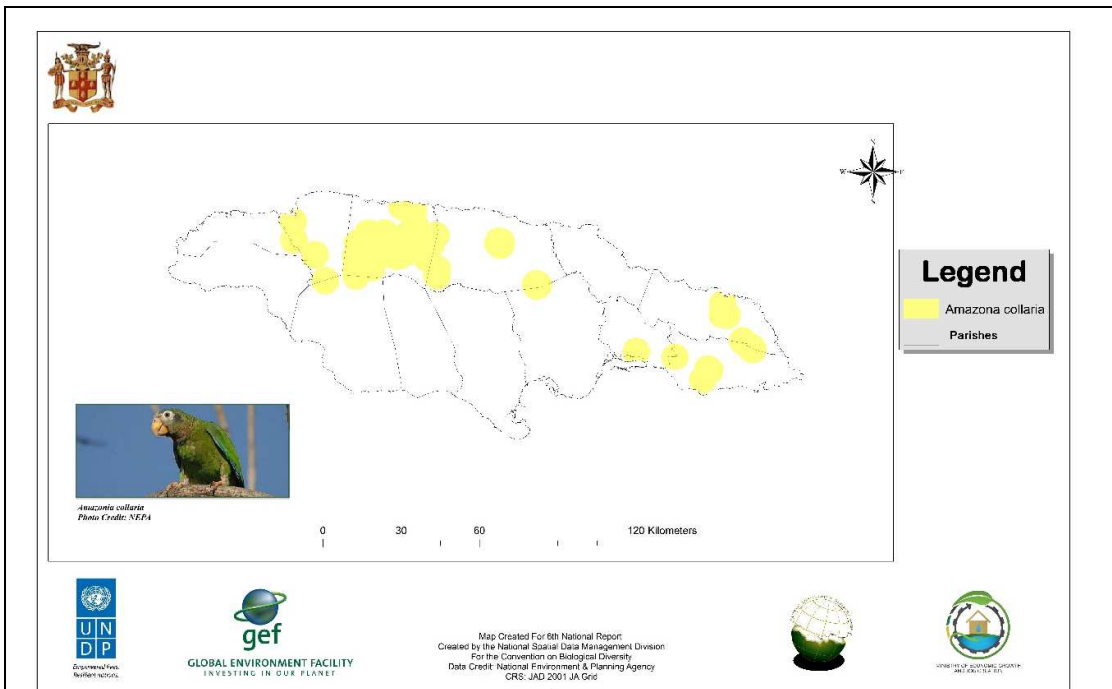


Figure 7 – Distribution of the Yellow-billed Parrot

The Jamaican Hutia (*Geocapromys brownii*)

The Jamaican Hutia is restricted to remote mountain regions in the Blue and John Crow Mountains (Portland and St. Thomas) and the Hellshire Hills (St. Catherine). It is being monitored by the JCDT in the Blue and John Crow Mountains National Park.

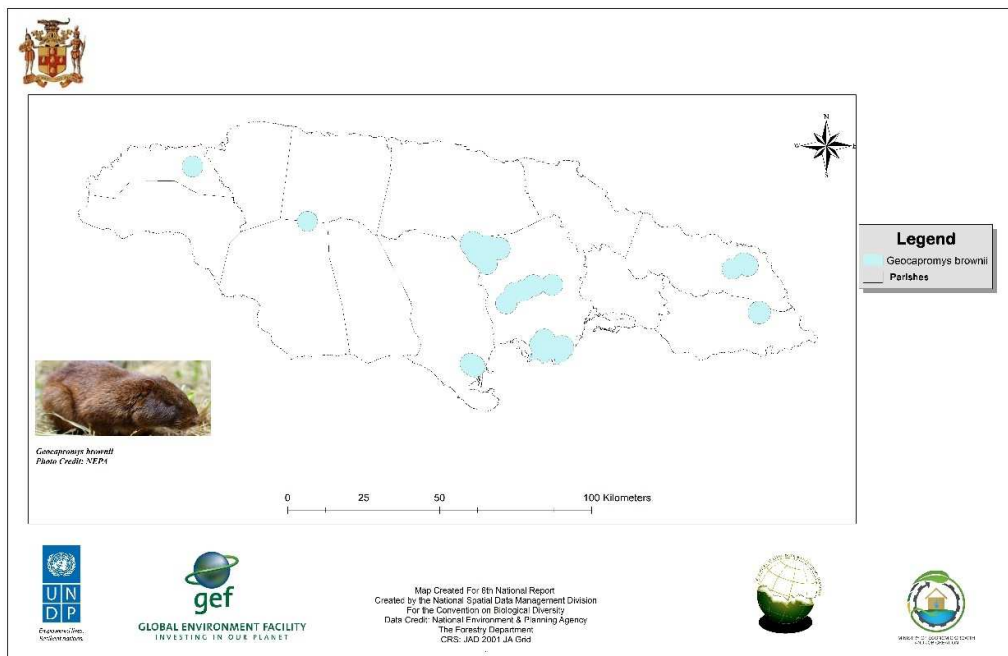


Figure 8 – Distribution of the Jamaican Hutia

Homerus (Giant) Swallowtail Butterfly (Pterourus homerus)

Monitoring of the Giant Swallowtail Butterfly is conducted by the University of the West Indies and the Jamaica Conservation and Development Trust (JCDD) in the Blue and John Crow Mountains National Park.

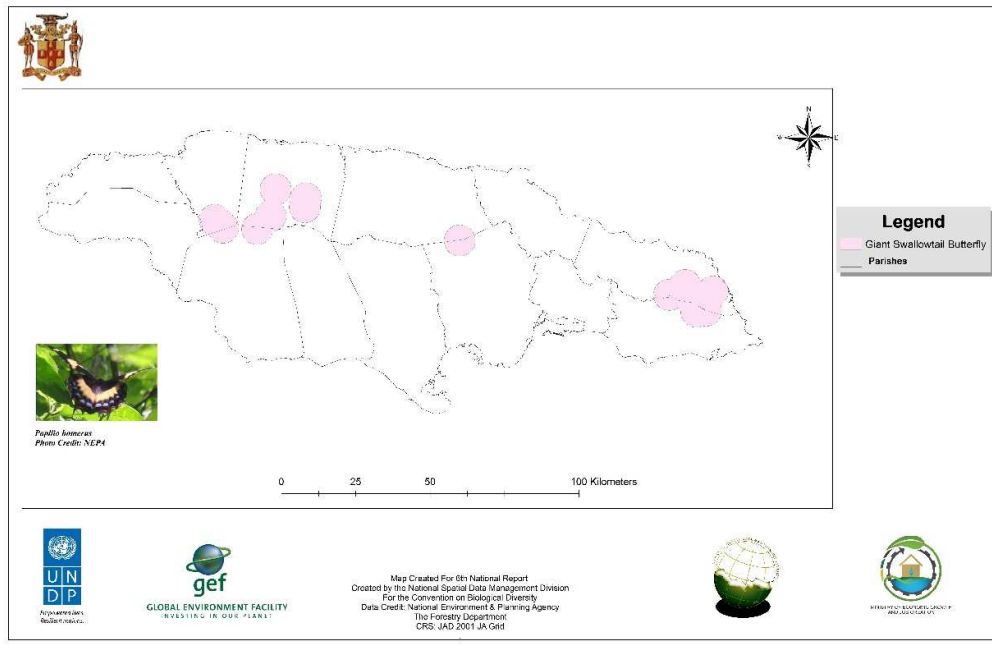


Figure 9 – Distribution of the Homerus (Giant) Swallowtail Butterfly

The Jamaican Boa (Epicrates subflavus)

NEPA is responsible for monitoring the status of the Jamaican Boa to determine population distribution.

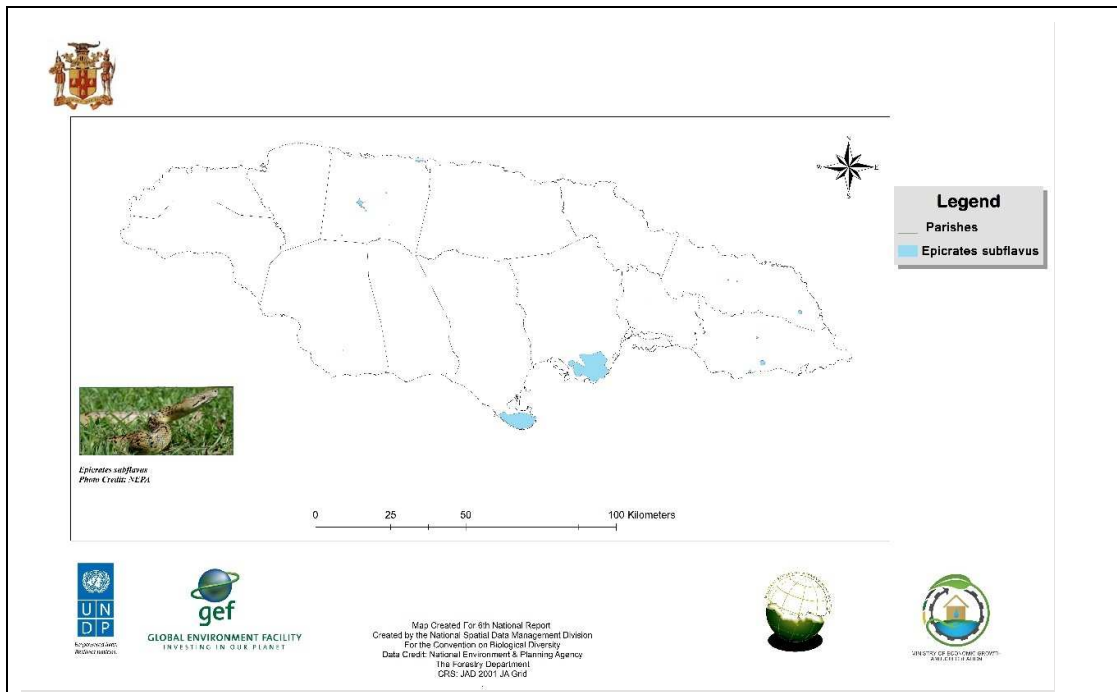


Figure 10 – Distribution of the Jamaican Boa

Land use/cover

The scrub savanna ecosystem which is a major component of an upland wetland (also a Ramsar Site) in the Mason River Protected Area (MRPA) is threatened by a native invasive fern (*Dicranopteris pectinata*). The MRPA is managed by the Natural History Museum of Jamaica and the Museum’s Botany Department is managing a project to remove the fern in its entirety and release forest succession by restoring the land with native vegetation. Seedlings of native plants are being collected from the property and stored on site.

Figure 10 shows forest cover in 2018.

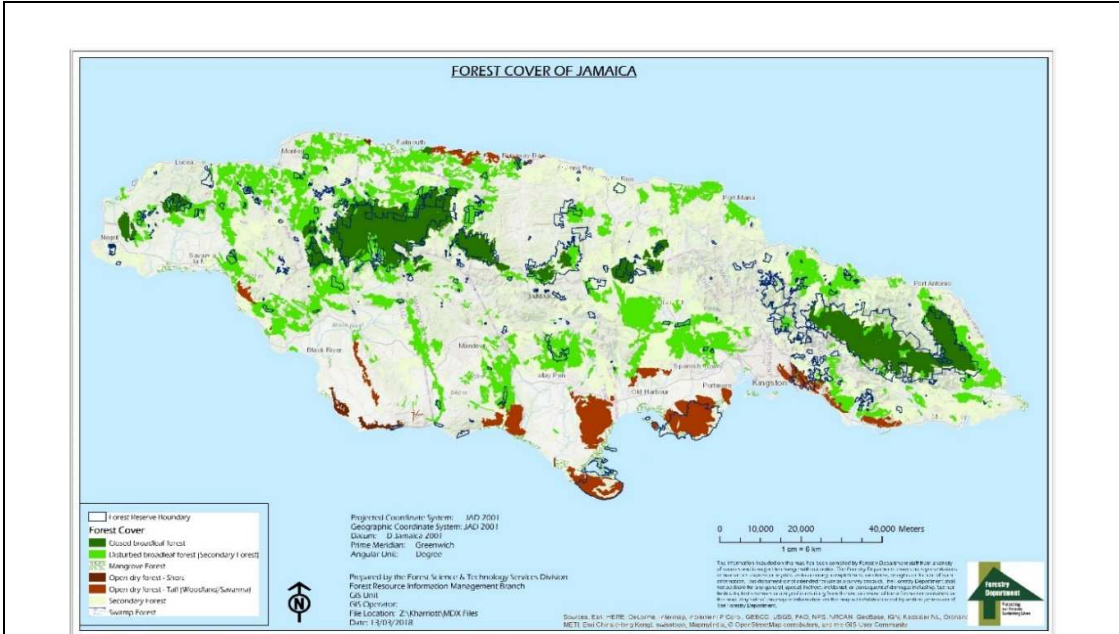


Figure 11 – Forest Cover Map (2018) with data from the Forestry Department

Indicators used in this assessment

- Trends in the population of endangered terrestrial organisms by species reported: 1 report on Yellow- and Black- billed parrots was prepared in 2016; 1 report on the Jamaican Boa for two locations was prepared in March 2019; the Butterflies of Jamaica publication, 2017 showed the distribution of the Homerus (Giant) Swallowtail and the Hutia; annual reports on the Jamaican iguana under the Headstart Programme show changes in the population..
- Area coverage (hectares) of at least 5 types of forests and wetlands: The Forestry Department is carrying out mangrove assessments which will update the spatial information
- Trend in area coverage (hectares) and number of fragments per habitat type

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links, and files

Forestry Department and Spatial Data –
<http://www.forestry.gov.jm/gis-services>

Forestry Department, Analysis towards Land Use Cover & Forests -
http://www.forestry.gov.jm/sites/default/files/Resources/forest_cover-can_scenario.pdf

Blue and John Crow Mountains National Park, Jamaica - Management Plan 2017/18 – 2026/27
https://www.icdt.org.jm/images/pdf-forms/media_centre/BJCMNP_Management_Plan_2017-18_to_2026-27.pdf

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #6

National Target #6 - By 2021, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Category of progress towards the implementation of the selected target:

On track to exceed target

Date the assessment was done:

October 2019

Additional information

The table below summarizes the progress of each activity under Target 6, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 7 – Implementation status – Target 6

Reference #	Description of actions	Implementation status
T6-a	Monitor and report fishing production (tonnage produced/target species) (5 most important fish species disaggregated by fish species.)	Actively under implementation
T6-b	Monitor and report fishing production (tonnage produced/target species) (3 most important invertebrate species disaggregated by fish species).	Actively under implementation
T6-c	Declare new fish sanctuaries for critical areas	Completed
T6-d	Establish plan for reducing destructive fishing practices over a 10-year timeframe / Increase the number of fishing areas monitored	Actively under implementation
T6-e	Prepare and implement a Management Plan for Commercial Fishery species by 2018 (List of target species to be developed and should include Irish moss, seagrass and Spirulina) (Sustainable extraction levels to be defined and recovery strategies for depleted species).	Planning stage or early implementation
T6-f	Monitor and report on extraction rates of commercial fisheries species	Actively under implementation
T6-f	Implement sustainable extraction practices as outlined in management plan.	Actively under implementation

The National Fisheries Authority monitors conch, lobster, sea cucumbers, glass eels, shrimps and reef fish. It is planned to establish pelagic fishery. The tonnage is reported to STATIN and to the FAO. There are challenges in disaggregating fish species in the absence of appropriate tools and given the current fishing practices which are not based on catching specific species.

The NFA plans to reduce destructive fishing practices, and in this regard plans to regulate the type of gear that can be used. The Authority proposes to become a member of The International Commission for the Conservation of Atlantic Tunas (ICCAT) which is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. In working

towards maintaining good fishing practices and to ensure that ecosystems remain intact, the NFA is in the process of being evaluated by the Marine Stewardship Council with a view to being able to issue eco-labels. Based on the scorecard issued on the evaluation, the areas to be improved have been identified.

A management plan has been prepared for the conch and a plan for sea cucumber drafted. Under the Fisheries Act, management plans have to be prepared for all fisheries. As noted at Section II '(5) Improved management of fish habitats and management plans implemented.' a one-year ban had to be imposed on conch fishery in 2019.

The NFA is exploring the growing of Irish moss for mariculture production and plans to consult with NEPA on cultivating sea urchins for placement on degraded reefs and communal farming. Research licences are issued for experimental fishing of glass eels, sea cucumbers, etc.

There are challenges in relation to establishment of additional fish sanctuaries which, up to 2019, accounted for protection of 4% of the coastal waters.

The fisheries sector provides direct and indirect employment for more than 40,000 people; it is a main part of the livelihood of over 200,000 Jamaicans and contributes significantly to the country's economic growth⁶. The sector consists mainly of marine capture fisheries, including the Exclusive Economic Zone, archipelagic and coastal waters, and aquaculture.

One of the NBSAP actions with the highest success rate was the declaration of four new fish sanctuaries by 2018, bringing the total number to 18, one more than set as the target. See also Section II on the effective management of the Bluefields Bay and Oracabessa Bay Fish Sanctuaries.

Indicators used in this assessment

- Trends in population of the 3 most important invertebrate species disaggregated by fish species
- Number of new fish sanctuaries or Special Fishery Conservation Areas declared: The target of 17 fish sanctuaries was achieved and exceeded
- Number of destructive fishing cases prosecuted and recorded by Marine Police-. The information from the Marine Police is not collated in one place.
- Extent to which the Commercial Fisheries Species Management Plan has been developed. (Categories: Not done, to some extent, great extent, Completed): To some extent. In addition to the existing Conch Management Plan, plans for other species will be prepared in accordance with the Fisheries Act.
- Number of target fishery species caught, disaggregated by species outlined in management plan
- Number of species for which sustainability level defined

Please describe any other tools or means used for assessing progress

⁶ Jones, E. *Environmental and Social Management Framework for the PCCR Project*. Kingston, 2017. Available at: <http://www.micaf.gov.jm/sites/default/files/pdfs/Promoting%20Community%20based%20Climate%20Resilience%20in%20the%20Fisheries%20Sector%20Project.pdf>

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

<https://www.sgp.undp.org/fact-sheets-190/493-sgp-jamaica-oracabessa-bay-fish-sanctuary-fact-sheet.html>

Jones, E. *Environmental and Social Management Framework for the PCCR Project*. Kingston, 2017. Available at:

<http://www.micaf.gov.jm/sites/default/files/pdfs/Promoting%20Community%20based%20Climate%20Resilience%20in%20the%20Fisheries%20Sector%20Project.pdf>

<http://www.oracabessafishsanctuary.org/>

Bluefields Bay Fishers - <https://bluefieldsbayfishers.wordpress.com/home-2/bluefields-bay-fish-sanctuary/>

Fisheries Act 2018 -

<https://japarliament.gov.jm/attachments/article/339/The%20Fisheries%20Act,%202018-hp.pdf>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

Relevant websites, web links and files

-

National Target #7

National Target #7 - By 2021, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019

Relevant websites, web links and files

Statistical Institute of Jamaica

<https://statinja.gov.im/>

Table 8 below summarizes the progress of each activity under target 7, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 8 – Implementation status – Target 7

Reference #	Description of actions	Implementation Status
T7-a	Assess and report the list of existing agriculture-dependent species ⁷ in production systems and highlight the 10 most relevant species.	Planning stage or early implementation
T7-a	Assess and report on the location and population status of at least 10 agriculture-dependent species	Actively under implementation
T7-b	Define and adopt a Maintenance and Sustainability Strategy for identifying and assessing agriculture-dependent species in production systems	Actively under implementation
T7-c	Assess, map and report the areas where the agricultural practices are sustainable.	Actively under implementation
T7-d	Assess, map and report areas where forestry practices are sustainable	Actively under implementation
T7-e	Promote and implement regulations to incentivize sustainable agricultural and	Actively under implementation

⁷ Agriculture-dependent species refers to those plant and animal species relied on for food.

	forestry practices through the development of regulations and a supporting strategy	
--	---	--

The illegal removal of plants and animals in Jamaica is a significant threat to the island's biodiversity. Overexploitation, e.g. the extraction of wood for charcoal, timber and yam stick and orchids for horticultural purposes, as well as animal hunting, are some of the activities that promote loss of biodiversity in specific habitats and put Jamaican endemic species in danger.

Therefore, efforts to promote the sustainable management of landscapes and seascapes for production are particularly important and have a bearing on the sustainable use of Jamaican biodiversity more broadly. Several national institutions are involved in the management of agriculture, aquaculture and forestry, which are activities that affect surrounding habitats and species. These entities include both government agencies, such as the Ministry of Industry, Commerce, Agriculture and Fisheries, as well as NGOs such as the Jamaica Conservation and Development Trust and the Oracabessa Marine Trust. The collaboration between these agencies was mentioned as one of the pressing needs to be addressed during the process of preparing Jamaica's NBSAP.

The Forestry sector provides examples of best practices for local participation in both designing and implementing management plans. There are currently 18 Local Forest management committees (LFMC) under the auspices of the Forestry Department and receiving support to adopt sustainable practices.

Regarding agriculture, some threats can be pointed out such as: slash and burn, unintentional/intentional release of domesticated species and infrastructure development. However, there are also positive points that can be mentioned, for example, shade coffee farming which promotes the presence of species that are natural pest control agents, climate smart agriculture, aquaponics, inter-cropping and agro-ecology.

During the implementation of the actions under target 7, it will be important to ensure the gender-sensitiveness of the process. According to the Agricultural Business Information System, for example, 31% of Jamaican farmers (60,403 out of the 194,318) are women, however they have tenure over only 17% of the area used for farming (89,983.51 ha out of the total 516,827.72 ha) 13F⁸. Gender analysis should be done during the assessments in order to identify gaps and promote gender equality in the sector.

Target 7 is related to SDGs #1 "No poverty", #2 "Zero hunger", #7 "Affordable and clean energy", #8 "Decent work and economic growth", #12 "Responsible consumption and production", #14 "Life below water" and #15 "Life on land".

For the 2018 - 2019 financial year, NEPA through the Ecosystems Management Branch (EMB) and the GEF/IDB/GOJ project on the Integrated Management of the Yallahs River and Hope River Watersheds (in partnership with RADA and the Forestry Department) engaged 446 community members/farmers within the Rio Cobre, the Yallahs and Hope River WMUs through Farmer Field Schools and Training (Source: NEPA 2019. Report on Implementation of Targeted Components of

⁸ Agriculture Business Information System. Available at: http://www.abisjamaica.com.jm/Admin/reports/farmer_demographic.asp. Accessed on 17 June 2019.

the Watershed Area Management Mechanism (WAMM) in Selected Watershed Management Units (WMUs)).

The areas of sustainable agriculture were tentatively identified and are presented on the map at Figure 12 below showing arable lands.

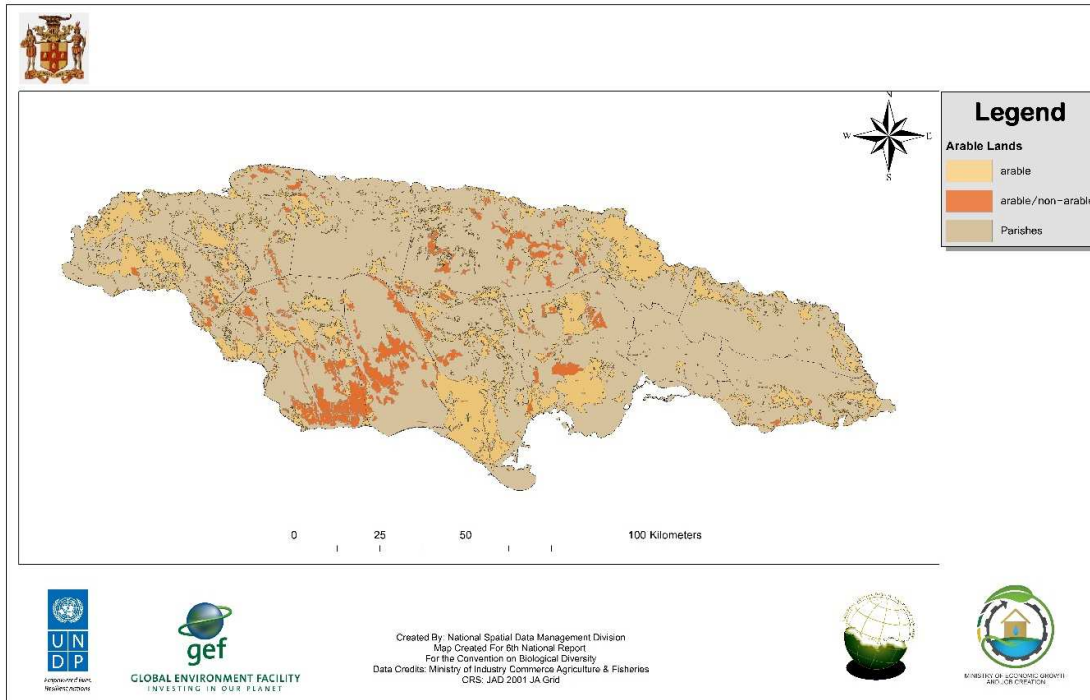


Figure 12 – Soil types

Indicators used in this assessment

- Extent to which the list of agriculture-dependent species completed. (Categories: Not done, to some extent, great extent, Completed)
- Number of locations reported for most relevant agriculture- dependent species
- Extent to which Maintenance and Sustainability strategy developed (Categories: Not done, to some extent, great extent, Completed)
- Area coverage (hectares) of sustainable agricultural areas
- Number of farmers utilising sustainable practices
- Area coverage (hectares) under sustainable forestry practices
- Extent to which regulations drafted with incentives to promote sustainable agriculture and forestry practices (Categories: Not done, to some extent, great extent, Completed): To some extent.
- Extent to which enforcement Strategy developed. (Categories: Not done, to some extent, great extent, Completed): To some extent.

<p>Please describe any other tools or means used for assessing progress</p> <p>The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.</p>
<p>Relevant websites, web links and files</p> <p>https://jis.gov.jm/project-to-protect-hope-and-yallahs-river-watersheds-gets-119-million/ Headley, M. <i>Participatory Forest Management: The Jamaica Forest Department Experience</i>. 2003. Available at: http://www.fao.org/3/XII/0190-C1.htm</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is adequate</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p>

National Target #8

<p>National Target #8 - By 2021, pollution, including from excess nutrients and solid waste, has been brought to levels that are not detrimental to ecosystem function and biodiversity.</p>
<p>Category of progress towards the implementation of the selected target:</p> <p><input checked="" type="checkbox"/> On track to exceed target</p>
<p>Date the assessment was done:</p> <p>October 2019</p>
<p>Additional information</p>

Table 9 below summarizes the progress of each activity under target 8, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 9 – Implementation status – Target 8

Reference #	Description of actions	Implementation status
T8-a	Monitor and report water quality in coastal waters and key freshwater resources based on National Water Quality Standards monitored. Updated assessment yearly and make connections to land based sources of pollution.	Actively under implementation
T8-b	Monitor and report the quality of industrial effluents from industries.	Actively under implementation
T8-c	Yearly monitoring and report on the quality of domestic effluents from existing wastewater treatment plants	Actively under implementation

The main sources of pollution in Jamaica are improper disposal of waste, saline intrusion, untreated sewage and industrial effluents. Regarding water pollution, the major contributors include sewage effluent, oil spills, dredging, industrial effluents, solid waste and chemicals, such as pesticides from agricultural sources.

Annual reports are prepared by NEPA on freshwater and coastal water quality and sewage and trade effluent.

The National Environment and Planning Agency (NEPA) routinely monitors both freshwater and coastal water quality. Up to 2015, the Agency monitored 300 stations around the country. However, in 2016, the Agency decided to focus on eight focal areas within specific watersheds, namely Montego River, South Negril-Orange River, Rio Minho, Wag Water River, Black River, Hope River, White River-Rio Bueno, and Martha Brae, to enable it to monitor more frequently (quarterly) and conduct trend analyses to determine the status of the water and to inform decision-making. These focal areas were selected based on population size and the level of industrialization.

A Water Quality Index was developed using the Water Quality Index framework of the Canadian Council of Ministers of the Environment. The Index is used to designate the water quality as excellent, good, fair, marginal or poor based on the national standards. Based on the Index and using 2016/2017 FY as the baseline, the overall water quality for the eight (8) focal areas has fluctuated with most of the marine sites trending as poor or marginal. For freshwater, most sites are trending as marginal or fair and some good. However, as this is the second year after the establishment of the baseline, monitoring will continue to ascertain the water quality profile as well as the impact of watershed initiatives implemented.

NEPA intends to monitor two additional focal areas for pesticide residues by the year 2020, namely the Rio Cobre and one other from either Portland or St. Thomas.

An assessment of 20 high risk areas for pollution from trade effluent (sugar, rum, bauxite industries) and sewage effluent was started in 2018-2019 and is ongoing. Monitoring is conducted on a monthly basis and trend analyses developed to determine the impact of these industries on

the environment and to aid in decision-making. Information on the state of the country's water quality is used to undertake watershed interventions to correct deterioration in water quality.

Persons licensed under the Natural Resources Conservation (Wastewater and Sludge) Regulations, 2013, are required to submit to the NRCA reports on effluent assessments on a quarterly and annual basis. The annual reports are used as the basis to calculate the annual licence fees using the polluter-pays principle.

Regarding action 8-c, licensees are required to submit quarterly and annual trade effluent data to NEPA. This is supported by the verification of industrial effluent by the collection of trade effluent samples for analysis.

Please see Section II for spatial representation of water quality and pollution sources.

Indicators used in this assessment

- Number of sampling stations showing "in spec" (within specifications) water quality disaggregated by location
- Number of industries where effluents are discharged in the environment
- Number of ambient sampling stations monitored for water quality
- Number of "in spec" ambient sampling stations
- Number of "in spec" industry effluent being discharged in the environment
- Number and location of wastewater treatment plants sampled for effluent quality
- Number and location of "in spec" wastewater treatment plants sampled for effluent quality

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

NEPA – Pollution is our concern -

https://nepa.gov.jm/new/services_products/publications/brochures/docs/pollution.pdf

National Solid Waste Management Authority

<http://www.nswma.gov.jm/>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #9

National Target #9 - By 2021, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019

Additional information

Table 10 below summarizes the progress of each activity under target 9, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 10 – Implementation status – Target 9

Reference #	Description of actions	Implementation status
T9-a	Draft legislation for the discharge, treatment and management of ballast water	Completed
T9-b	Monitor and report on annual control mechanisms implemented at existing invasive alien species potential hotspots (ports, marinas and harbours) using internationally recognized protocols.	Planning stage or early implementation
T9-c	Update the strategy and action plan for control and management of known invasive alien species.	Planning stage or early implementation
T9-d	Draft regulations to improve management of invasive alien species	Planning stage or early implementation

The establishment of a national Invasive Alien Species (IAS) Working Group and a Technical Working Group, involvement of local communities (citizen scientists) in the process of identifying and fighting invasive alien species, as well as international cooperation are examples of strategies used to address this issue. Moreover, public awareness campaigns are important tools being used in Jamaica to sensitize stakeholders on the impacts and pathways of IAS.

Jamaica's national list of wild and agricultural species reported as invasive aliens and their pathways is currently being updated by the IAS Working Group and will be included in an online Jamaica Invasive Species Database.

The Ballast Water Management Act, 2019 was enacted on 13 March 2019, giving effect to the provisions of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004. The Act provides for the implementation of measures to prevent ships from introducing foreign aquatic species when entering domestic waters, and therefore protects the country's marine environment. Jamaica is a party to the Ballast Water Management Convention. (Please see Section II).

The National Invasive Alien Species Strategy and Action Plan, 2014-2020 (NIASSAP) and the Pet Trade Pathway Toolkit were developed by NEPA in 2013 to guide the country's policies, regulations and legislation regarding invasive alien species. Partnerships with academic and research institutions, e.g. the University of West Indies and the Natural History Museum, made it possible to carry out research and develop strategies to deal with invasive species.

Examples of actions implemented by various Jamaican institutions to deal with invasive alien species are the Green Iguana Management Strategy, and research being done on the status of the vampire fern.

It is proposed to determine the population status of three invasive alien species, the Yellow-naped parrot, Ring-neck parakeet and White-tailed deer. Further research on the lionfish is being carried out by a PhD student.

Other initiatives related to IAS are outlined in Section II.

Indicators used in this assessment

- Extent to which legislation drafted for the discharge, treatment and management of ballast water in Jamaica (Categories: Not done, to some extent, great extent, Completed): Completed
- Number of invasive alien species control programmes developed and implemented: There are least 3 programmes implemented (Research on the mock orange plant in the BJCMNP; and on the white-tailed deer and vampire fern).
- Population numbers for at least 3 known invasive alien species
- Extent to which the known IAS strategy and action plan developed. (Categories: Not done, to some extent, great extent, Completed): To some extent
- Extent to which legislation has been drafted. (Categories: Not done, to some extent, great extent, Completed): To some extent

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

Jamaica passes Ballast Water Management Bill - <https://safety4sea.com/jamaica-passes-ballast-water-management-bill/>

<https://japarliament.gov.jm/attachments/article/341/The%20Ballast%20Water%20management%20Act,%202019%20No.%202.pdf>

The National Invasive Alien Species Strategy & Action Plan (NIASSAP)

http://www.ciasnet.org/wp-content/uploads/2014/06/NIASSAP_FINAL.pdf

https://www.nepa.gov.jm/new/media_centre/press_releases/releases/2014/PR20140416-nepa_builds_strong_framework_to_protect_jamaicas_biodiversity.php

Examples of Invasive Alien Species in Jamaica -

<http://www.oas.org/dsd/iabin/component2/Jamaica/I3N-InstituteOfJamaica/Poster.pdf>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

National Target #10

National Target #10 - By 2021, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019

Additional information

Table 11 outlines the status of progress on target 10, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 11 – Implementation status – Target 10

Reference #	Description of actions	Implementation status
T10-a	Monitor and report on coral coverage and the condition on key coral reefs. Link reef condition to specific management activities such as number of marine protected areas or implemented nutrient abatement projects.	Actively under implementation

Jamaica has 1,240 km² of coral reef area. Together with mangrove and forests located in high altitude areas, coral reefs are the ecosystems most vulnerable to climate change. As coral reefs provide habitat and nursery for marine species, as well as a barrier to protect the coastline, and are an important attraction to tourism activities, they are a significant asset for Jamaica’s biodiversity and economy. Since 2011, NEPA has been preparing a Coral Reef Health Index (CRHI) Report to measure coral reef resilience based on coral cover, macro-algal cover, herbivorous fish abundance and commercially important fish abundance.

The 2018 CRHI Report, based on assessments conducted on 28 reef sites across 13 locations from June to December 2018, showed that a majority of reef sites assessed are ranked as ‘Poor’ (18 sites or approximately 64% of sites assessed) while five are ranked as ‘Fair’ (approximately 18% of sites) and five ranked as ‘Critical’. The overall average index of 2.2 calculated for all sites continues to point to Jamaica’s reef being in poor condition. A comparison with the 2017 CRHI of 2.3 indicates that there has been no major improvement or decline in reef health.



Figure 13 – Coral Reef Health Index, 2017 (NEPA)20F⁹

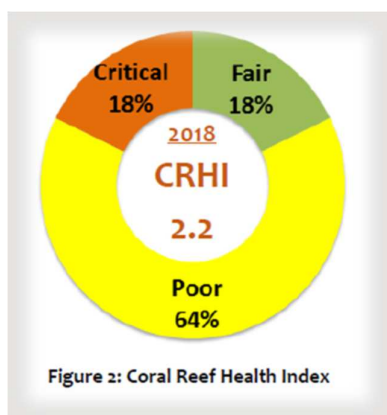


Figure 14 - Coral Reef Health Index 2018

Indicators used in this assessment

- Coverage area (hectares) of key coral reefs surveyed.
- Percentage of coral recruitment in monitored areas
- Percentage in macro-algal cover
- Number of herbivorous fish in monitored areas
- Number of commercial fish in monitored areas
- Number of *Diadema* sp. in monitored areas

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

The calculation of the CRGI is based on the Reef Check methodology and photographic surveys used to assess the substrate composition and a modified version of the Atlantic and Gulf Rapid Reef Assessment (AGRRA) methodology to collect data on fish biomass.

Relevant websites, web links and files

Coral Reef Health Index Map - http://nepa.gov.jm/new/services_products/maps/coral_reef.php

Green, Chauntelle. The Blue Economy: Prospects, Challenges and Opportunities for Jamaica. Presentation at the SRC Conference 2018.

<http://conference.src.gov.jm/wp-content/uploads/2018/12/The-Blue-Economy.pdf>

⁹ STATIN. (2018). Jamaica- Voluntary National Review Report on the Implementation of the 2030 Agenda for Sustainable Development: Statistical Annex. Kingston, Jamaica: Statistical Institute of Jamaica. Refer to this site for the interactive map: https://www.nepa.gov.jm/new/services_products/maps/coral_reef.php

<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is adequate</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p> <p>Relevant websites, web links and files</p> <p>Please refer to Section II for a list of relevant websites.</p>

National Target #11

<p>National Target #11 - By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective based conservation measures, and integrated into the wider landscapes and seascapes.</p>
<p>Category of progress towards the implementation of the selected target:</p> <p><input checked="" type="checkbox"/> On track to achieve target</p>
<p>Date the assessment was done:</p> <p>October 2019</p>
<p>Additional information</p> <p>Table 12 summarizes the progress of each activity under target 11, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:</p>

Table 12 – Implementation status – Target 11

Reference #	Description of actions	Implementation status
T11-a	Assess and report on management effectiveness of existing network of protected areas.	Completed
T11-b	Policy and legislation on Protected Area System (PAS) finalized.	Planning stage or early implementation
T11-c	Measure coverage of both terrestrial and marine protected areas in relation to Jamaica's territory.	Actively under implementation
T11-d	Propose additional protected areas particularly for the marine environment since Jamaica has already exceeded the 17 % target for terrestrial ecosystems	Actively under implementation

the 2020/2021 FY, new calculations will be done to determine the percentage of Jamaica's terrestrial and marine areas under active protection.

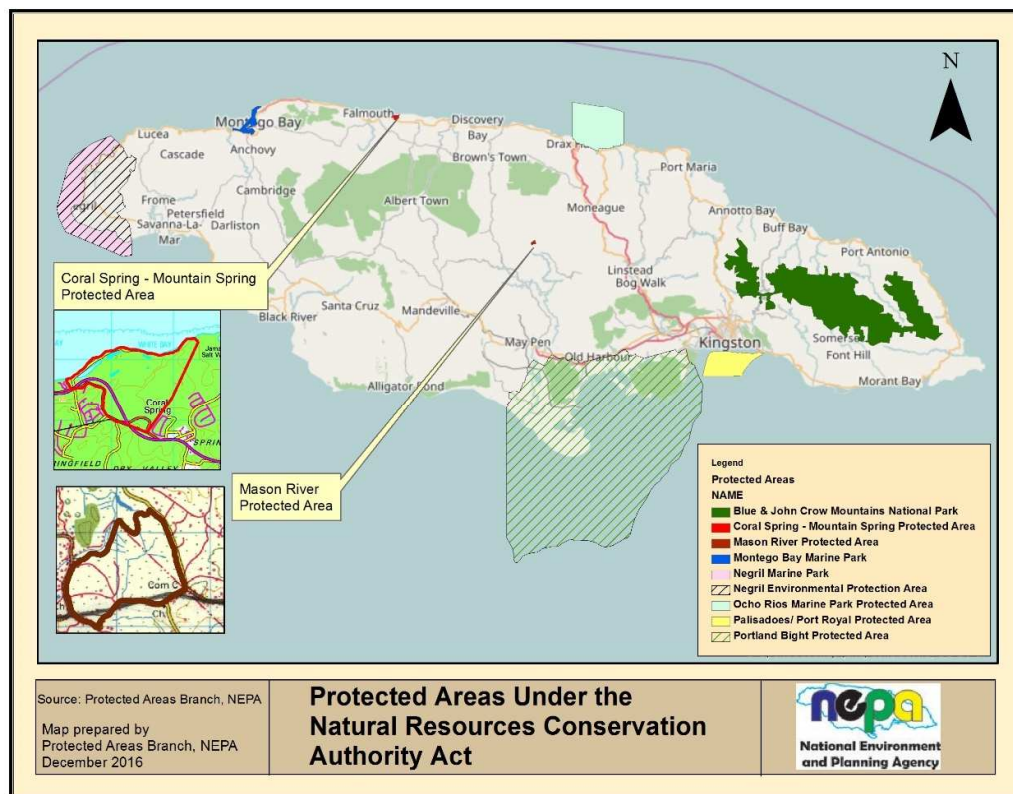


Figure 15 - Areas protected under the NRCA Act

Target 11 is related to SDGs #6 “Clean water and sanitation”, #11 “Sustainable cities and communities”, #14 “Life below water” and #15 “Life on land”.

The Management Effectiveness Tracking Tool (METT) is used in selected protected areas to assess the management strategies employed. METT baseline scores were collected for 28 protected areas and four forest regions for the year 2009. [METT scores were collected for all sites over a number of years under the 2010 Government of Jamaica/UNDP/GEF Project entitled ‘Strengthening the Operational and Financial Sustainability of the National Protected Area System’ (NPAS). By 2016, 2 protected areas had a high METT score (75 – 100%), 19 were medium (55-75%) and 11 were low (55% and below). The overall assessment was that there was significant improvement in the METT scores for the majority of the sites for which baseline data had been collected.

NEPA prepared a report in 2019 on the Management Effectiveness Tracking Tool (METT) Scores for five NRCA Protected Areas as set out in Table 13:

Table 13 – METT scores for selected protected areas – 2016-2018

METT SCORES – AREAS PROTECTED UNDER THE NRCA ACT			
PROTECTED AREA	2016	2018	% CHANGE (NEPA Target -10%)
Ocho Rios Marine Park Protected Area	33	55	66.7
Montego Bay Marine Park	65	72	10.8
Negril Marine Park	47	58	23.4
Portland Bight Protected Area	60	67	11.7
Palisadoes-Port Royal Protected Area	41	58	42

It is proposed to finalize before the end of 2020 a new Overarching Policy on Protected Areas developed to address, *inter alia*, fundamental changes in the institutional arrangements for protected areas management since the 1997 Policy for the National System of Protected Areas was prepared (e.g. the establishment of a National Fisheries Authority in 2019, the convening of a multi-sectoral stakeholder Protected Areas Committee, new policies and new commitments at the national, regional and global levels). There are also plans to enact new overarching legislation to govern the country’s protected areas system.

Indicators used in this assessment

- Percentage increase in Management Effectiveness Tracking Tool (METT) Scores for all protected areas (Categories: Not done, to some extent, great extent, Completed)
- Extent to which Policy and legislation on Protected Area System (PAS) have been developed. (Categories: Not done, to some extent, great extent, Completed)
- % Coverage of (hectares) of protected areas across Jamaica.
- Number of new protected areas declared for the marine environment: 4 new fish sanctuaries were declared.

Please describe any other tools or means used for assessing progress

<p>The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.</p>
<p>Relevant websites, web links and files</p> <p><i>NEPA 2006 Protected Areas Information Sheet –</i> https://www.nepa.gov.jm/poster-competition/protected-areas/Protected%20Areas%20Information%20Sheet_final.pdf</p> <p><i>Protected Areas System Master Plan: Jamaica 2013 – 2017</i> https://info.undp.org/docs/pdc/Documents/JAM/Jamaica's%20Protected%20Areas%20System%20Master%20Plan%202013-17(Final%20Submission%20to%20the%20PAC).pdf</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is adequate</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p>

National Target #12

<p>National Target #12 - By 2021, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.</p>
<p>Category of progress towards the implementation of the selected target:</p> <p><input checked="" type="checkbox"/> On track to achieve target</p>
<p>Date the assessment was done:</p>

October 2019

Additional information

Table 14 summarizes the progress of each activity under target 12, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 14 – Implementation status – Target 12

Reference #	Description of actions	Implementation Status
T12-a	Conduct population assessments of selected key endangered and vulnerable species. Update yearly.	Actively under implementation
T12-a	Red listing process in place and evaluation of at least three groups of species conducted	Not yet started
T12-b	Conduct and report on distribution assessments of selected key endangered and vulnerable species annually.	Actively under implementation
T12-b	Continuation and expansion of head start projects (Iguana and crocodile) as well as the rare and endemic plant propagation project	Actively under implementation
T12-c	Assess and correlate the distribution of selected key endangered and vulnerable species with the existing and proposed network of protected areas. Update report every three years	Planning stage or early implementation

Over the past 160 years, at least six Jamaican species of terrestrial vertebrates have become extinct and many are still considered endangered. Different management and recovery plans for endangered species have been completed over the last few years, this includes, for example, among others - a Management Plan for American Crocodile in Jamaica, the Queen Conch Management Plan and the Jamaican Iguana Species Recovery Plan, which is seen as an example of a successful plan. Table 16 below shows estimates of the endemic and threatened Jamaican species under the IUCN Red List between 2015 and 2018.

Table 15 – Endemic and Threatened Species on the IUCN Red List (2015-2018)

Species	2015		2016		2017		2018	
	Endemic	Threatened	Endemic	Threatened	Endemic	Threatened	Endemic	Threatened
Mammals	7	4	7	4	7	4	7	4
Birds	30	5	31	5	31	5	11	5
Amphibians	21	15	21	15	21	15	21	15
Conifers	2	2	2	2	2	2	2	2
Cycads	–	–	–	–	–	–	1	–
Cacti	5	2	5	2	5	2	5	2

Source: IUCN Red List version 2015.4, 2016.3, 2017.3 and 2018.2

Endemic species = those known to occur naturally within one country only.

Threatened species = those assessed in any of the three categories on the IUCN Red List
(Critically Endangered, Endangered, Vulnerable)

In 2013, the International Union for Conservation Network estimated that four of Jamaica's endemic species, out of the 31 that were assessed were critically endangered and ten were vulnerable. This is depicted in Figure 16.

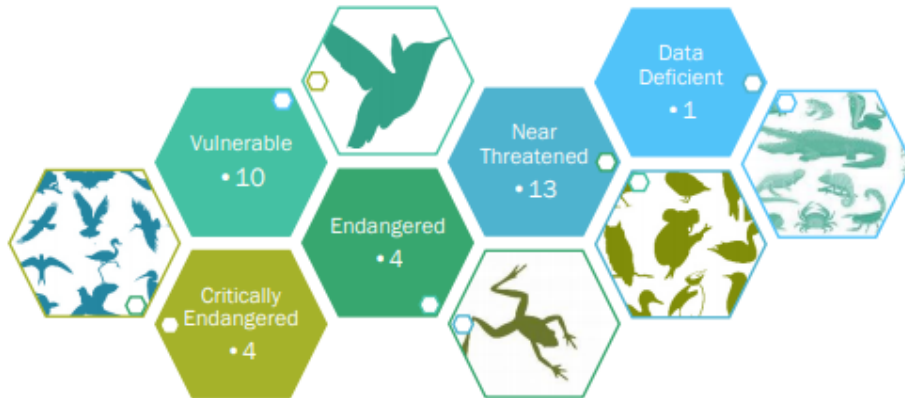


Figure 16 – Threatened Endemic Species, 2013

The Jamaican Iguana Recovery Programme is the main example of achievement under this target. Further information on the project was provided under the assessment of target #5. For selected sites, NEPA conducts and reports on annual distribution assessments of selected key endangered and vulnerable species such as:

- Jamaican Boa Action Plan: Two sites were surveyed in 2018 (Oracabessa and Galina in St. Mary and West End in Negril, Westmoreland) and two more sites to be added for 2019-2020. Due to the difficulty of detecting the Jamaican Boa in the wild, questionnaires were administered in Pongside, St. Thomas in September 2019. The questionnaire will be administered by NEPA in the second location in 2020.
- Annual population assessments for the American Crocodile (*Crocodylus acutus*) are done in the Portland Bight Protected Area and the proposed Black River Protected Area. In the PBPA for 2018-2019, 153 crocodiles were detected, an increase from the 113 seen in 2015-2016. However, it should be noted that the increase is not noted in the natural area but in the sewage treatment ponds, possibly due to the level of security in this location and the permanent availability of water.

In Black River and Parrottee the number of crocodiles seen in 2018-2019 was 11 (including one animal released in the River) compared to 16 in 2015-2016. It is hoped that with the declaration of the Black River as a protected area, protection of the species should improve. These sites have been assessed since 2015). The National Environment and Planning is presently preparing a proposal to conduct an island wide population survey. This will be undertaken by a UWI MSc. student employed at NEPA with assistance from Crooks based in the University of Florida.

A Headstart programme for the American Crocodile population was started by NEPA in association with the Holland Bay Crocodile Conservation Facility at which there are 17 adults and sub-adults, as well as 30 second-year and 60 present-year hatchlings. These animals were repatriated from a damaged nest discovered in the wild in Falmouth. The location for re-

introduction of the hatchlings is to be identified when they are sub-adults over the next two years.

- Annual population assessments are done for the Hawksbill turtle (*Eretmochelys imbricata*) in the Palisadoes Port Royal Protected Area. Additionally, annual reconfirmation activities are done at selected sea turtle nesting beaches across the island.
- A population assessment of the West Indian Whistling Duck (WWD) (*Dendrocygna arborea*) was done in 2017 and a conservation programme developed in October 2017. There are challenges in surveying this species as they can be in the interior of a wetland but due to inaccessibility, counts are not possible. In the Negril Royal Palm Reserve, Westmoreland, a total of 250 animals have been recorded; however, since the management of the areas has been scaled back, the feeding of the birds is not as frequent and so the number of birds has been reduced. It is believed that the animals could be in the Negril Great Morass or other wetlands in the area. Through the IWEco National Project for Jamaica, the population of the West Indian Whistling Duck in Negril will be determined and a management plan prepared. Island-wide, between 2005 and 2019, varying numbers of the WWD have been observed, ranging from one individual to as high as 155, with the largest numbers in the Negril Royal Palm Reserve. Through the use of drone technology, it is hoped to increase the ability to detect and record their population.
- In 2018, a population assessment was done for Queen Conch (*Strombus gigas*), a species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- In late 2018 with funds from the Global Environment Facility Small Grants Programme (GEF-SGP) the JCDT started work on an assessment of the Jamaican Hutia in the upper Rio Grande Valley area. A report including a Conservation Management Plan is to be produced in early 2020.

Indicators used in this assessment

- Number of population assessments conducted on AZE species.
- Trend in population of AZE species assessed
- Number of head-start and propagation Projects developed.
- Number of head-start and propagation Projects developed.
- Number of opportunities for optimizing protected area boundaries for endangered species

Indicators used in this assessment

- Number of population assessments conducted on AZE species.
- Trend in population of AZE species assessed
- Number of head-start and propagation Projects developed.
- Number of head-start and propagation Projects developed.
- Number of opportunities for optimizing protected area boundaries for endangered species

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

Endangered Species (Protection, Conservation and Regulation of Trade) Act, 2000 -
<https://moj.gov.jm/sites/default/files/laws/Endangered%20Species%20%28Protection%2C%20etc.%20Act.pdf>

STATIN. Jamaica Voluntary National Review Report on the Implementation of the 2030 Agenda for Sustainable Development: Statistical Annex -
<http://statinja.gov.jm/pdf/Jamaica%20VNR%20Statistical%20Annex%202018.pdf>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

Relevant websites, web links and files

National Target #13

National Target #13 - By 2021, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Additional Information

Table 16 summarizes the progress of each activity under target 13, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 16 – Implementation Status– Target 13

Reference #	Description of actions	Implementation status
T13-a	Assess and report genetic diversity of cultivated plants and farmed animals and their wild relatives. Update assessment at three-year intervals	Planning stage or early implementation
T13-b	Compare genetic diversity of cultivated plants and farmed animals to their wild relatives over time Update at three-year intervals	Planning stage or early implementation
T13-c	Develop plan to prevent genetic erosion of key agricultural species and farmed animals and their wild relatives	Planning stage or early implementation

In the case of crop production, the Protection of Plant Genetic Resources for Food and Agriculture Act was promulgated in 2013 to facilitate Jamaica's compliance with its obligations under the International Treaty on Plant Genetic Resources for Food and Agriculture, which entered into force in June 2004 and was ratified by Jamaica in 2006. The Act was amended in May 2019, (the 'Protection of Plant Genetic Resources for Food and Agriculture' (Amendment) Act) to provide for the policy advice function of the previous Management Authority to be carried out by the new Plant Genetic Resources Advisory Task Force.

Indicators used in this assessment

- Extent to which genetic diversity of cultivated plants and farmed animals and their wild relatives have been identified. (Categories: Not done, to some extent, great extent, Completed)
- Extent to which the comparison of genetic diversity of cultivated plants and farmed animals to their wild relatives is documented. (Categories: Not done, to some extent, great extent, Completed)
- Extent to which the plan for genetic erosion of key agricultural species and farmed animals to their wild relatives have been developed. (Categories: Not done, to some extent, great extent, Completed)

Please also refer to Section V.

Please describe any other tools or means used for assessing progress

<p>The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.</p>
<p>Relevant websites, web links and files</p> <p>The Protection of Plant Genetic Resources for Food and Agriculture Act, 2013 - https://japarliament.gov.jm/attachments/341_The%20Protection%20of%20Plant%20Genetic%20Resources%20for%20Food%20and%20Agriculture%20Act,%202013.pdf</p> <p>FAO – Country Report on the State of Plant Genetic Resources for Food and Agriculture 2008 - http://www.fao.org/3/i1500e/Jamaica.pdf</p> <p>Protection of Plant Genetic Resources for Food and Agriculture’ (Amendment) Act passed https://jis.gov.jm/senate-passes-protection-of-plant-genetic-resources-for-food-and-agriculture-amendment-act/</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders’ inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is adequate</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p>

National Target #14

National Target #14 - By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, and local communities and the poor and vulnerable.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Additional information

Table 17 indicates the progress in implementing the actions under target 14, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 17 – Implementation Status – Target 14

Reference #	Description of actions	Implementation status
T14-a	Implement conservation measures in vulnerable/ sensitive ecosystem areas to restore 5% of those vulnerable. Develop national environmental management strategies	Actively under implementation
T14-b	Develop national strategies or policies for enhanced and equitable provision of and access to essential ecosystem services	Planning stage or early implementation
T14-b	Develop a standard assessment tool utilized by different groups to report on the conservation status of the ecosystems they utilize and/or are charged with protecting	Not yet started

Target 14 is related to SDGs #1 “No poverty”, #3 “Good health and well-being”, #5 “Gender equality”, #6 “Clean water and sanitation”, #7 “Affordable and clean energy”, #8 “Decent work and economic growth”, #9 “Industry, innovation and infrastructure”, #11 “Sustainable cities and communities”, #13 “Climate action”, #14 “Life below water”, and #15 “Life on land”.

The recommendations of the Bureau of Gender Affairs on the mainstreaming of gender considerations in the implementation of the NBSAP will be taken into account.

Indicators used in this assessment

- Coverage (hectares) of vulnerable ecosystems restored and safeguarded/protected based on previous baseline data
- Extent to which the national strategies or policies have been developed. (Categories: Not done, to some extent, great extent, Completed)
- Number of community groups sensitized on reporting the services utilized in the ecosystem (including selected farmers, fisher folk or other local community groups)

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

Integrated Water, Land and Ecosystem Management in Caribbean Small Island Developing States (IWECO), Project Information Sheet -
https://www.nepa.gov.jm/new/projects/docs/Iweco_Project_Information_Sheet.pdf

Forestry Department: National Forest Management Plan (2017) -
http://www.forestry.gov.jm/sites/default/files/Resources/nfmcp_final_sep2017.pdf

Jamaica's National Ecological Gap Assessment Report (2009) -
<https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/Caribbean/science/planning/Documents/Jamaica%27s%20National%20Ecological%20Gap%20Assessment%20Report%20Final.pdf>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #15

National Target #15 - By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, hereby contributing to climate change mitigation and adaptation and to combating desertification.

Category of progress towards the implementation of the selected target:		
<input checked="" type="checkbox"/> On track to achieve target		
Date the assessment was done:		
October 2019		
Additional information		
Table 18 indicates the progress in implementation for each activity under target 15, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool.		
Table 18 - Implementation Status – Target 15		
Reference #	Description of actions	Implementation status
T15-a	Develop and implement a National Plan for Ecosystem Restoration	Planning stage or early implementation
T15-b	Host workshops on the importance of biodiversity to national development	Completed
T15-b	Compile, generate and review information on the potential contribution of biodiversity and the maintenance of ecosystem services to resilience and adaptive capacity in the face of impacts from climate change. (This information is also used to address climate change policies that impact people and biodiversity).	Actively under implementation
T15-c	Develop appropriate EbA tools for ecosystem restoration	Planning stage or early implementation
T15-c	Host training workshop on proper use and utilization of tools, and resources relevant to sectors arranged and disseminated	Not yet started
T15-c	Integrate ecosystem restoration into national adaptation strategies (including REDD+)	Planning stage or early implementation
The conservation and restoration of degraded ecosystems are not only crucial to the protection of Jamaica’s biodiversity, but also to enhance carbon stocks, which in turn contributes to reducing CO ₂ emissions. To restore an ecosystem means to recover an area by eliminating the causes of ecological degradation and re-establishing the natural processes responsible for maintaining a		

healthy ecosystem. As it will not be possible to protect the country's biodiversity by only conserving natural ecosystems, it is important to consider a plan of ecosystem restoration as a complementing activity in order to build climate change resilience and maintain environmental health.

According to the latest State of the Environment Report, from 2013, the most degraded watershed management units are located in eastern Jamaica and include Hope River, Yallahs River, Wag Water River and Rio Minho.

Jamaica's national Target 15 is related to SDGs #6 "Clean water and sanitation", #9 "Industry, innovation and infrastructure", #10 "Reduced inequalities", #11 "Sustainable cities and communities", #13 "Climate action", #14 "Life below water", and #15 "Life on land".

Indicators used in this assessment

- Extent to which the national plan for ecosystem restoration has been developed (Categories: Not done, to some extent, great extent, Completed)
- Number of workshops/seminars on the National Plan for Ecosystem Restoration held
- Number of workshops held on the importance of biodiversity to national development
- Number of projects that address climate change adaption and mitigation measures relating to biodiversity
- Extent to which tools and methods for supporting ecosystem-based adaptation have been developed (Categories: Not done, to some extent, great extent, Completed)
- Number of training workshop held on proper use and utilization of EBA tools and resources
- Number of national adaptation strategy integrating ecosystem restoration

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held throughout the development of the report.

Relevant websites, web links and files

https://www.nepa.gov.jm/new/services_products/publications/newsletters/docs/nepsetter/nepa_newsletter_june_2015.pdf

Carrying Capacity Report for Black River and its Tributaries, 2016

https://www.nepa.gov.jm/new/media_centre/info/Final_Carrying_Capacity_Report.pdf

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #16)

National Target #16 - By 2020, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational consistent with national legislation.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Table 20 below summarizes the progress of each activity under target 16, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 19 - Implementation Status – Target 16

Reference #	Description of actions	Implementation status
T16-a	Ongoing review of ABS agreements to examine ecological, social and economic impacts of different products (ganja, marine products etc.) and the national access and benefit sharing plan	Planning stage or early implementation
T16-a	Collaborate with academic institutions and produce a study of the ecological, social and economic impacts of	Planning stage or early implementation

	ABS agreements for different products (ganja, marine products etc.)		
T16-b	Host annual workshops Establish a legal framework for governing access to, and sharing the benefits of Jamaica’s genetic resources	Planning stage or early implementation	Planning stage or implementation
<p>As a signatory to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, and working towards its ratification, Jamaica is committed to implementing the measures needed to guarantee access to genetic resources, benefit sharing and compliance at the national level. The goal is to ensure that local people, including indigenous communities, are able to benefit from any knowledge they disclose on genetic resources that leads to the commercialisation of products, which may include new crop varieties, medicines, industrial products, etc.</p> <p>Jamaica’s national target 16 is related to SDGs #3 “Good health and well-being”, #8 “Decent work and economic growth” and #15 “Life on land”.</p>			
<p>Indicators used in this assessment</p> <ul style="list-style-type: none"> - Number of products for which the ecological, social and economic impacts have been identified - The extent to which the national access and benefit sharing plan has been developed (Categories: Not done, to some extent, great extent, Completed) - Number of workshops held on the status of the legal frameworks for governing access to, and sharing the benefits of Jamaica’s genetic resources 			
<p>Please describe any other tools or means used for assessing progress</p> <p>The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.</p>			
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>			
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders’ inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>			

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate.

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #17)

National Target #17 - By 2019, Jamaica has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done:

October 2019

Table 20 below summarizes the progress of each activity under target 16, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool

Table 20 - Implementation Status – Target 17

Reference #	Description of actions	Implementation status
T17-a	Update Jamaica’s CHM, including information on the Revised NBSAP (2016-2021)	Actively under implementation
T17-b	Relaunch JA-CHM website with updated functionality and links to social media platforms.	Actively under implementation
T17-b	Track the number of hits on JA-CHM website	Planning stage or early implementation
T17-b	Integrate NBSAP into agencies’ work plans, namely, Forestry Dept., Fisheries Div. NEPA, Ministry of Tourism, MSET, MICAF (Agriculture), MEGJC and Ministry of Finance & the Public Service	Actively under implementation

Indicators used in this assessment

- Proportion of stakeholders sensitized on national activities under the updated NBSAP
- Relaunch of the JA-CHM website

- Number of hits on JA- CHM website
- Number of agencies that have incorporated NBSAP into their workplan

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

Jamaica's NBSAP had been approved by Cabinet and submitted to the CBD in 2016 - <https://www.cbd.int/doc/world/jm/jm-nbsap-v2-en.pdf>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the level of assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #18)

National Target #18 - By 2021, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of local communities, at all relevant levels.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Additional information

Table 21 summarizes the progress of each activity under target 18, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 21 - Implementation Status – Target 18

Reference #	Description of actions	Implementation status
T18-a	Develop an inventory or status report that documents traditional knowledge and cultural practices linked to biodiversity	Planning stage or early implementation
T18-b	Develop legislation and regulations that protect/govern traditional knowledge and cultural practices linked to biodiversity	Draft regulations/guidelines prepared by Jamaica Intellectual Property Office (JIPO)
T18-c	Generate report on the status of and trends of the practice of traditional occupations that depend on or impact biodiversity resources (e.g., wild honey harvesting, bussu/janga harvesting)	Early implementation
T18-d	Include the status and practices of traditional occupations that depend on or impact biodiversity resources in the State of the Environment Report (SOE)	For inclusion in SOE for 2021
T18-e	Drafting and preparation of documents for signed agreements between local communities and government for access, benefit sharing and traditional knowledge on biodiversity	Planning stage or early implementation

Target #18 recognizes the rights of vulnerable communities over the benefits from products and services as one of the main pillars of sustainable conservation of biodiversity. The target is related to the NBSAP's Guiding Principle III, to respect local and traditional knowledge when developing and implementing policies, programmes and plans related to biodiversity.

The target is also related to the SDG #2 “Zero hunger”, more specifically target 2.5, as well as SDG #3 “Good health and well-being”, #5 “Gender equality” and #10 “Reduced inequalities”.

There is a recognition of the importance of traditional knowledge to conserving and using biodiversity resources, and there is continuing documentation of these practices. An example of a local community that holds relevant traditional knowledge about the use and conservation of biodiversity resources is the Maroons.

Regarding action 18 a, the African Caribbean Institute of Jamaica/Jamaica Memory Bank (ACIJ/JMB) under the IOJ maintains and expands the inventory of traditional knowledge and cultural practices.

The Clarendon Parish Development Committee Benevolent Society, in consultation with the IOJ and other local stakeholders, has developed a report on medicinal properties of plants in Clarendon.

For action 18-b, the Jamaica Intellectual Property Office (JIPO) has been working on a protection regime regarding cultural knowledge, cultural expression and genetic resources.

For action 18-c, research and documentation of traditional practices, such as straw work, are being carried out and capacity building exercises with local communities to ensure continuity of practices that respect the environment and also in transmitting this knowledge to younger generations.

Regarding action 18-e, JIPO is working towards text for an international legal instrument to ensure the protection of Traditional Knowledge, Traditional Cultural Expressions and Genetic Resources in collaboration with the World Intellectual Property Organization.

Legislation to protect traditional knowledge and practices linked to biodiversity are expected to be one of the outcomes of a UNDP/GEF project to be implemented in Jamaica under GEF Operational Phase 6.

A study (2018-2020) funded by the National Council on Science and Technology through the South Africa-Jamaica Technology Agreement, is being carried out by the JCDT to support research at the University of the West Indies into agro-biodiversity in the Maroon communities of the Rio Grande Valley as well as the interaction of local, indigenous communities with the Blue and John Crow Mountains National Park and its management.

Indicators used in this assessment

- Extent to which guidelines that protect/govern traditional knowledge and cultural practices linked to biodiversity have been developed (Categories: Not done, to some extent, great extent, Completed)
- Extent to which legislation and regulations that protect/govern traditional knowledge and cultural practices linked to biodiversity have been developed (Categories: Not done, to some extent, great extent, Completed) – not done – awaits implementation of GEF Funded project
- Percentage of practices that traditional occupations that depend on or impact biodiversity resources reported – not done
- Extent to which the status and practices of traditional occupations that depend on or impact biodiversity resources are included in the SOE report (Categories: Not done, to some extent, great extent, Completed) – to some extent
- Percentage of stakeholders that have signed an agreement with the government for access, benefit sharing and traditional knowledge on biodiversity – none required for the reporting period

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

<p>Relevant websites, web links and files</p> <p>Institute of Jamaica - https://instituteofjamaica.org.jm/</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on comprehensive evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is adequate</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place</p> <p>The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.</p>

National Target #19)

<p>National Target #19 - By 2020, the knowledge, the science base and technologies relating to biodiversity, its values, functioning, status, and trends, the consequences of its loss, are improved, widely shared and transferred and applied.</p>								
<p>Category of progress towards the implementation of the selected target:</p> <p><input checked="" type="checkbox"/> On track to achieve target</p>								
<p>Date the assessment was done:</p> <p>October 2019</p>								
<p>Additional information</p> <p>Table 22 below summarizes the progress of each activity under target 19 based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:</p> <p style="text-align: center;">Table 22 -Implementation Status – Target 19</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Reference #</th> <th style="width: 55%;">Description of actions</th> <th style="width: 30%;">Implementation status</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Reference #	Description of actions	Implementation status			
Reference #	Description of actions	Implementation status						

T19-a	Increase the use of the JA-CHM to disseminate information about the value of biodiversity including providing summarized abstracts to relevant studies by soliciting membership and conducting public awareness activities	Actively under implementation
T19-b	Plan and host workshops and campaigns developed to build stakeholder awareness and buy-in to biodiversity conservation/protection	Actively under implementation

Indicators used in this assessment

- Number of members on JA-CHM
- Number of entities listed on the Data and Conservation webpage of the JA-CHM website
- Number of user sessions on the webpage
- Number of Public Awareness and Education Programmes Science based on and technologies relating to biodiversity executed.
- Number of awareness campaigns held

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

National Commission on Science and Technology Office of the Prime Minister - Science and Technology for Socio-economic Development – A Policy for Jamaica – 2005 - https://www.cepal.org/iyd/noticias/pais/7/31467/Jamaica_Doc_2.pdf

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, the assessment was considered to have been based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

National Target #20)

National Target #20 - By 2019, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2016–2021 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done:

October 2019

Additional information

Table 23 summarizes the progress of each activity under target 20, based on the information provided by national stakeholders both through interviews and the 6NR tracking tool:

Table 23 - Implementation Status – Target 20

Reference #	Description of actions	Implementation status
T20-a	Develop a National Strategy for Resource Mobilization	Planning stage or early implementation
T20-a	Draft should include combined international domestic mobilization (funding, human resources and capacity building)	Planning stage or early implementation
T20-b	Develop a national external funding strategy for biodiversity conservation drawing from related funding sources and international agreements (UNFCCC, CBD, etc.) with the aim to increase the number of funding sources.	Planning stage or early implementation

The need for financial resources to protect biodiversity and natural ecosystems is the main challenge faced by the Government in implementing the CBD and achieving the Aichi Biodiversity

Targets. Jamaica's NBSAP highlights the importance of securing new and sustainable financial resources to support biodiversity conservation activities. In order to achieve this, it will be crucial to improve the public's understanding of the value and benefits of biodiversity and healthy ecosystems.

The Tourism Enhancement Fund (TEF) may be seen as a model: the government collects a small portion of Jamaica's tourist products and invests it to promote growth and development in the sector. The National Conservation Trust Fund of Jamaica, the Environmental Foundation of Jamaica and the conch cess are other examples of funding initiatives for biodiversity initiatives.

With a view to establishing a water fund for Kingston and following assessments started in 2016, TNC conducted a full situation analysis of Kingston's water security and created a decision-support document. It was agreed at stakeholder meetings that a water fund for Kingston could be a viable part of dealing with water security issues and it is planned over the next 3 years to design and operationalize a water fund (within an existing local conservation fund).

NRCA's contribution - resource mobilization - is included in the operational plans of NEPA to identify and prepare project concepts and proposals to enable the Agency to implement its mandate of biodiversity conservation and protection and sustainable land use management which would include orderly development of the country.

Target 20 is also related to SDGs #10 "Reduced inequalities" and #17 "Partnerships for the goals".

Indicators used in this assessment

- Extent to which the National Strategy for Resource Mobilization is implemented. (Categories: Not done, to some extent, great extent, Completed)
- Total National Budget available for Biodiversity Conservation
- Number of international agreements with potential funding being utilised

Please describe any other tools or means used for assessing progress

The main tool used to assess progress was the Sixth National Report Tracking Tool completed by national stakeholders and the National Stakeholder Workshops held through the development of the report.

Relevant websites, web links and files

Tourism Enhancement Fund

<https://www.mot.gov.jm/agency/tourism-enhancement-fund>

Strengthening the Operational and Financial Sustainability of the National Protected Area System:

- Project Description (Information Sheet)
http://www.nepa.gov.jm/projects/description/strengthening_operational_financial_national_PAS_2015.pdf
- Project Document
<http://www.nepa.gov.jm/projects/documents/national-protected-area-system/project-document.pdf>

Environmental Foundation of Jamaica -

<http://www.efj.org.jm/>

National Conservation Trust Fund Jamaica

<http://conservejamaica.org/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

As the assessment is based on the stakeholders' inputs collected using the Tracking Tool and during the National Workshop, as well as desk research, there was confidence that the assessment was based on comprehensive evidence.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The 6NR Tracking Tool is now providing the blueprint for a consolidated monitoring system.

SECTION IV

Description of the National Contribution to the Achievement of each Global Aichi Biodiversity Target

Aichi Biodiversity Target 1 – Awareness of biodiversity increased

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description:

Several initiatives, activities and strategies have been implemented by various Jamaican institutions, including governmental and non-governmental organizations, to contribute to raising public awareness about biodiversity. Examples are the environmental signature days promoted by NEPA, the activities promoted by the IOJ's Natural History Museum Education Department, the work done by the GEF Small Grants Programme with their grantees and the different events related to biodiversity promoted by MEGJC, such as the Youth Environmental Advocacy Programme and the first National Biodiversity Conference, held in 2018. The advancement of actions to declare two new protected areas (Black River Morass and Pedro Cays) was highlighted and endorsed by the political directorate.

Moreover, entities with a mandate for protected areas facilitate the promotion of awareness of biodiversity. For example, the Jamaica National Heritage Trust holds outreach in schools on Earthquake Awareness Day and the Forestry Department hosts a forest trek which allows the public to appreciate Jamaica's natural resources. The Fisheries Authority also have an ongoing engagement with fishing communities regarding the importance of biodiversity.

While not directly related to biodiversity, some KAP studies were conducted under projects that included biodiversity related components: for example, KAP surveys under the Montego River Watershed Management project; the Integrated Management of the Yallahs and Hope Rivers Watershed Management Units Project and the National Protected Areas System project.

There is anecdotal evidence that the public is becoming more vocal on issues relating to the environment – as in letters to newspaper editors, comments on talk shows, panel discussions.

The media, private sector foundations and tertiary institutions also provide information on environmental issues – for example lectures, competitions for children.

Please see also sections II and III – National Target #1.

Aichi Biodiversity Target 2 – Biodiversity values integrated

Outcome 13 of Vision 2030 Jamaica states that Jamaica “will ensure that environmental considerations become integral factors in socio-economic decision-making, thereby moving us into the realm of a green economy.” To achieve this outcome, Vision 2030 Jamaica will give priority attention to: increasing environmental awareness of the general population and their participation in the management of natural resources; providing an effective regulatory framework for the conservation of our natural resources; incorporating environmental considerations into decision-making processes; determining the economic value of our biodiversity and ecosystem services, as well as the long-term economic consequences of the continuing loss of biodiversity; and preserving and renewing ecological capital.

As outlined above (target 1), the awareness building agenda is robust and remains a continuous effort for all entities involved.

Biodiversity considerations have been integrated into national and local development as well as poverty reduction strategies through incorporation of natural resources and biodiversity into national policies, regulations and plans as well as in local plans. Examples of these policies and plans include: Strategic Environmental Assessment Policy (draft), the Food and Nutrition Security Policy 2013, the National Policy on Poverty and the National Poverty Reduction Programme, September 2017, the Protected Area System Master Plan 2013-2017, the National Seed Policy and Action Plan, 2018 and Development Orders. Recently prepared/updated Local Sustainable Development Plans (LSDP) include biodiversity hot spots or protected areas as indicated by the responsible entity; they are often spatially represented. LSDPs are used in local government planning and decision making and form a critical part of local governance.

The legislative and policy framework related to the environment also has been strengthened. Examples are the recent enactment of the Fishing Act and the updating of the Protected Areas System Policy (not yet completed), among others.

All projects and programmes being proposed are also screened for environmental considerations to include potential impacts on biodiversity; they are checked for alignment with GOJ policies and medium and long-term national and strategic priorities. Cabinet submission guidelines, prepared by the Cabinet office, mandate that environmental considerations should be incorporated in the preparation of submissions.

Several indicators have been formulated to monitor the country’s progress towards assessing the economic value of the biodiversity and ecosystem services; however, progress is still at its infancy stage.

The Jamaica Special Economic Zone Authority has adopted the SDGs as part of their developmental framework. Under the Special Economic Zone (SEZ) Act, 2016, the Authority is mandated to ‘enhance the Jamaican economy by increasing the level of investment and creating job opportunities and to promote measures to improve the logistics chain. The operating principles include the requirement that the Authority ‘ensure that the environment is protected in the course of the development and operation of the Zones.’ The Authority has indicated that it ‘must weigh the economic, environmental, and social sustainability of proposed projects by considering their potential to contribute to Jamaica achieving targets in the SEZ Policy, the Vision 2030 Jamaica National Development Plan, the Logistics Hub Initiative Master Plan, and Industry Analysis, and SDGs.’

Please see also Sections II and III – National Target #2

Aichi Biodiversity Target 3 – Incentives reformed

The Green Business Jamaica Certification Programme (GBJ) is one of the main initiatives to provide incentives to the private sector to practices such as pollution prevention and resource conservation. The National Policy on Environmental Management System (EMS) also supports this approach.

Please see also Sections II and III – target 3

Aichi Biodiversity Target 4 – Sustainable production and consumption

Jamaica's development of a green economy scoping study and initiatives related to the Blue Economy such as the ban on single use plastic bags, plastic straws and Styrofoam products are focused on sustainable production and consumption. The private sector is being engaged in the Green Business Jamaica pilot programme with a view to developing environmentally sound practices which is in keeping with the approved EMS Policy. Green Expo 2019 had this as a focus – providing information to the public on more sustainable alternatives to a variety of products.

Please see also Sections II and III.

Aichi Biodiversity Target 5 – Habitat loss halved or reduced

Several initiatives have been made by the Forestry Department including putting in place a policy and detailed plan and expanding its mandate to deal with coastal forests and mangroves. The Department is preparing to be 'REDD+ ready' to address sustainable forest management and climate change mitigation and adaptation.

The Department has placed great emphasis on its technical capacity to monitor and evaluate forest cover and to obtain accurate data for Management and Accountability purposes; International obligations; Monitoring (establishment of reference/bench mark); Public Awareness and Education; national accounting, among other things.

The Forestry Department's strategies include the establishment of Local Forest Management Committees, working with private land owners and encouragement of tree planting. The commitment to hold the remaining closed broadleaf forest in trust for the people of Jamaica is Government policy.

Whereas Jamaica has recorded a 0.4% net annual gain in forest cover since 1998, there has been degradation and significant losses in closed broadleaf forest.

Please see Sections II and III – National Target #5

The target is also related to SDG #15 “Life on land”, and more specifically SDG target 15.5: “Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species”.

Jamaica has reported in the Voluntary National Review on the contribution of the Forestry Department to SDG 15 and specifically target 15.1.1. (Target 15.1.1: By 2020, Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

Aichi Biodiversity Target 6 – Sustainable management of aquatic living resources

The establishment of fish sanctuaries has led to measurable results in the recovery of fish stocks while at the same time developing sustainable alternative livelihoods. In this regard, the Fisheries Division proposes to establish additional fish sanctuaries and to replicate successful management approaches in existing and new sanctuaries.

Please see Sections II and III.

Aichi Biodiversity Target 7 – Sustainable agriculture, aquaculture and forestry

Sustainable and climate smart agriculture is a feature of several projects involving local communities and NGOs. In this regard, organic agriculture, hydroponics, rainwater harvesting, solar drying, bee farming, greenhouse farming and reforestation are among the areas in which communities have been trained and, in some cases, developed as an alternative livelihood. Government agencies usually support and provide technical guidance to communities engaged in such activities.

The Forestry Department established Local Forest Management Committees for local support of forested areas.

Aichi Biodiversity Target 8 – Pollution reduced

The Government has in place water quality monitoring systems for coastal and freshwater resources. Jamaica became a party to the LBS Protocol to the Cartagena Convention on 5 November 2015 having put in place legislation (the Natural Resources Conservation (Wastewater and Sludge) Regulations, 2013) and guidelines to support the implementation of the provisions of the Protocol. Under the Protocol, regional effluent limitations for domestic wastewater (sewage) are set out and Parties are required to develop plans to address agricultural non-point sources of pollution according to the implementation schedules set out. Specific schedules for implementation are also included in the Protocol.

Aichi Biodiversity Target 9 – Invasive alien species prevented and controlled

There is an inter-agency institutional framework (IAS Working Group) and some legislation (Fishing Act, 2018, Ballast Water Act, 2019) to address invasive alien species in keeping with the National IAS Programme. Data on the status of the IAS are also maintained. Regional collaboration is also a feature of efforts to control some species. Jamaica's innovative approach to eliminating the lionfish (Eat them to Beat them) has been able to engage fishing communities, hotels and restaurants and the general public in efforts to reduce the threat as well as to learn about the importance of protecting our biodiversity.

Aichi Biodiversity Target 10 – Ecosystems vulnerable to climate change

Annual monitoring reports on reef health are prepared by the National Environment and Planning Agency. Some of the work done in the management of fish sanctuaries has contributed to increases in coral cover, the reduction of macro-algae cover and increases in fish density and biomass.

Aichi Biodiversity Target 11 – Protected areas

According to the Protected Areas System Master Plan, 2013-2017, Jamaica's terrestrial protected areas represent approximately 18% of the total land area (200,000 ha) and the marine, approximately 15% (180,000 ha). Since that time, additional forest reserves have been declared as well as new fish sanctuaries. There is need for updated information on the status of protected areas.

Aichi Biodiversity Target 12 – Reducing risk of extinction

The main work in this area is the programme to increase the population of the Jamaican iguana, once thought to be extinct. The NEPA proposes to develop programmes to conserve endangered species and propagate rare plants.

Aichi Biodiversity Target 13 – Safeguarding genetic diversity

The Plant Genetic Resources Advisory Task Force is to be established under the amended Protection of Plant Genetic Resources for Food and Agriculture Act.

One of the objectives of the National Seed Policy and Action Plan, 2018-2028 is to protect national plant genetic resources. The Policy was developed within the wider context of the Agriculture

Sector Plan, National Food and Nutrition Security Policy and Action Plan and other relevant policies and plans. The strategies and actions include the conducting of a baseline assessment of the state of conservation and use of cultivated and wildcrafted plant genetic resources and wild relatives and of the knowledge and traditional practices associated with them.

Please also see responses at section V.

Aichi Biodiversity Target 14 – Ecosystem services

Jamaica has put in place several policies and pieces of legislation with the aim of safeguarding essential ecosystems such as forests, wetlands, coral reefs and is actively engaged in the protection of those ecosystems. Several local community groups have been engaged in the conservation of these resources while finding alternative sources of livelihood in harmony and enhanced by habitat protection.

Aichi Biodiversity Target 15 – Ecosystem restoration and resilience

Jamaica is undertaking a project on ecosystem-based adaptation to build resilience to climate change in urban areas. In addition to its reforestation and campaigns to involve the public and specific groups such as corporate entities in planting and maintaining trees, the Forestry Department is preparing to implement REDD + activities. There is also a special focus on mangrove forest preservation and restoration initiatives.

Aichi Biodiversity Target 16 - Nagoya Protocol on Access and Benefit-Sharing

The Government is taking steps to put the legal and regulatory requirements in place in order to accede to the Nagoya Protocol, having become a signatory to the Protocol. One of the main considerations is the involvement of community groups in terms of their sensitization to the Protocol and their role in protecting and sharing in the benefits of traditional knowledge and genetic resources. One example is the project 'Promoting Biodiversity Conservation through medicinal plant production for knowledge, management and livelihoods' in Clarendon which involved collaboration between community groups and scientific institutions such as the UWI and the Scientific Research Council as well as the Institute of Jamaica. A book on the Medicinal Plants of Clarendon was produced and copyrighted by the Clarendon Parish Development Committee Benevolent Society and launched at the National Biodiversity Conference.

Aichi Biodiversity Target 17 – Biodiversity strategies and action plans

Several of the strategies of Jamaica’s first NBSAP were incorporated into Vision 2030 Jamaica - National Development Plan, 2009 and subsequently, provisions of the second NBSAP have been included in the 2015=2018 and 2018-2021 MTFs which are the three-year plans for implementing the national development plan.

Jamaica’s NBSAP is Implemented by a wide range of entities including environment, agriculture, natural resource management, economic, culture and education sectors as set out at figure 17.

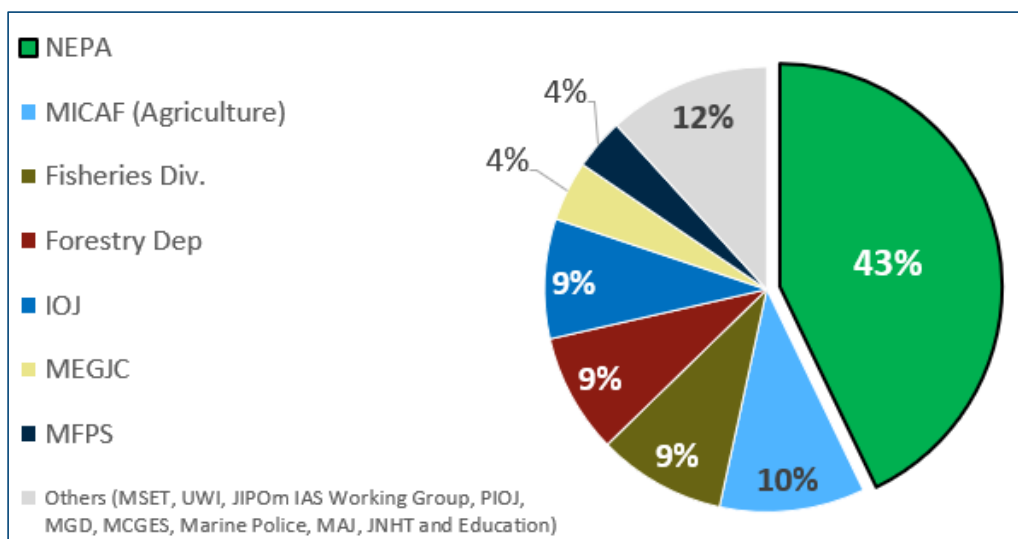


Figure 17 Relative weight of institutional responsibility for NBSAP actions

Key – IAS - Invasive Alien Species; IOJ – Institute of Jamaica; JIPO – Jamaica Intellectual Property Office; JNHT – Jamaica National Heritage Trust; MAJ – Maritime Authority of Jamaica; MCGES - Ministry of Culture, Gender, Entertainment and Sport; MEGJC – Ministry of Economic Growth and Job Creation; MFPS -Ministry of Finance and the Public Service; MICAF – Ministry of Industry, Commerce, Agriculture and Fisheries; MGD – Mines and Geology Division; MSET – Ministry of Science, Energy and Technology; NEPA – National Environment and Planning Agency ; PIOJ – Planning Institute of Jamaica; UWI – University of the West Indies.

Aichi Biodiversity Target 18 – Traditional knowledge

There are various institutions in Jamaica concerned with the preservation and the dissemination of information on Jamaica’s culture and natural heritage, such as the Ministry responsible for culture and its agencies such as the JNHT and the IOJ.

Steps are being taken to put in place legislation regarding access and benefit sharing of traditional knowledge and genetic resources.

Aichi Biodiversity Target 19 – Sharing information and knowledge

The work of institutions such as the Institute of Jamaica, the Centre for Marine Sciences, for example, on biodiversity is contributing to the achievement of this target. At the community level, knowledge fairs are one means of sharing knowledge on natural resources and the Convention with local groups.

Aichi Biodiversity Target 20 – Mobilizing resources from all sources

The National Conservation Trust Fund of Jamaica has been established to support conservation and other initiatives. A Financial Sustainability Plan for Protected Areas 2010-2020 was prepared in 2009.

SECTION V

Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation

Using the template below, please describe your country's contribution towards the achievement of the targets of the Global Strategy for Plant Conservation.

Does your country have national targets related to the GSPC Targets?

No, there are no related national targets

Please provide information on any active networks for plant conservation present in your country.

The Information Sharing Mechanism on Plant Genetic Resources of Jamaica^{40F10} is a network of institutions which conserve and/or use plant genetic resources in Jamaica.

Please describe the major measures taken by your country for the implementation of the Global Strategy for Plant Conservation.

The Global Strategy for Plant Conservation has been addressed by the development and implementation of different policies, plans and legislation. The main ones are:

- Plant Conservation Strategy for Jamaica (2014-2019)
- National Biodiversity and Action Plan (2016-2021)
- Specific existing policies and legislation, e.g.: Orchid Policy for Jamaica (2014)^{41F11} and Forest Policy for Jamaica (2017).

Table 24 below shows the achievement of targets under the Global Strategy for Plant Conservation.

Table 24 - Status of implementation of the Global Strategy for Plant Conservation

	Objective 1 - Knowledge			Objective 2 - Conservation				
	Target 1	Target 2	Target 3	Target 4	Target 5	Target 6	Target 7	Target 8
Progress								
	Objective 2 - Conservation		Objective 3 – Sustainable use			Objective 4 Education	Objective 5 Capacity	
	Target 9	Target 10	Target 11	Target 12	Target 13	Target 14	Target 15	Target 16
Progress								

	On target
	Approaching target
	Off target

¹⁰ Information Sharing Mechanism on Plant Genetic Resources of Jamaica: <http://www.moa.gov.jm/jam/jamwelcome.html>

¹¹ NEPA, 2014. Orchid Conservation Policy. Available at: http://www.nepa.gov.jm/new/legal_matters/policies_standards/docs/policy/orchid/orchid_conservation_policy.pdf

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level:

GSPC Targets 1 to 16

Progress towards target at national level but at an insufficient rate

Please explain the selection above:

The assessment above was presented by the Ministry of Economic Growth and Job Creation¹² during the Global Partnership for Plant Conservation Conference, held in 2018 in Cape Town, South Africa¹³.

Please describe how and to what extent your country has contributed to the achievement of the GSPC Targets and summarize the evidence used to support this description:

Jamaica's contribution to the achievement of GSPC can be summarized as follows:

- **National Flora and Plant Red Lists (Targets 1 and 2)**

Jamaica has no centralized location or database with an overall flora list. However, a working database with known threatened floral species, guided by the IUCN Red List for Threatened Species is housed at NEPA.

The country has also implemented floral assessments to confirm the presence/absence of threatened plant species.

The main information gaps related to targets 1 and 2 are the taxonomic reference material that need updating and the limited data on plants.

- **Threatened Plants in Conservation Programmes (Targets 5,7 and 8)**

The Orchid Policy is one example of initiative that contributes to achieving the GSPC targets mentioned. With the collaboration of different stakeholders, e.g. the Scientific Research Council and the University of Technology, research activities resulting in local orchid species being artificially propagated. Three species are being propagated using tissue culture for re-introduction into the wild.

Moreover, conservation programmes are planned for *Tunera campaniflora*, *Picrasma excels* (Bitterwood) and *Cinnamodendron corticosum* (Mountain Cinnamon).

The Scientific Research Council is responsible for maintaining an in vitro gene bank to host plants of economical, medicinal and cultural importance of Jamaica. Conservation greenhouses were established at the Mason River Reserve and at the Hope Botanical Gardens.

- **National Inventory of Protected Areas (Target 4)**

A national inventory of protected areas exists in the Protected Areas System Master Plan, but it needs to be updated.

¹² Presentation from Ms. Joni Jackson. Available at:

https://www.bgci.org/files/Plants2020/South%20Africa%202018/5.%20Joni%20Jackson%20GPPC%20presentation_JAMAICA.pdf

¹³ Global Partnership for Plant Conservation 2018. <https://www.sanbi.org/wp-content/uploads/2018/08/GPPC-2018-programme.pdf>

- **Crop Wild Relative Species (Target 9)**

Table 25 below lists the crop wild relative species that have been identified.

Table 25 - List of crop wild relative species identified

Bromeliad-Pinguin	<i>Bromelia pinguin</i> L.
Orchid -Vanilla orchid (green wiss)	<i>Vanilla</i> spp. <i>Vanilla planifolia</i>
Wild yam	<i>Dioscorea</i> spp. <i>Dioscorea villosa</i>
Wild guava	<i>Psidium montanum</i> Sw.
Sea grapes	<i>Coccoloba uvifera</i> (L.) L.
Wild cherries	<i>Malpighia</i> spp.
Pursley, pussley	<i>Portulaca oleracea</i> L. subsp. <i>oleracea</i>

- **Monitoring and Control of Invasive Alien Species (Target 10)**

Regarding target 10, Jamaica has established an intergovernmental Invasive Alien Species Working Group, as well as a National Invasive Alien Species Strategy and Action Plan.

Training of personnel, including Customs Agency, Plant Quarantine, and other institutions, as well as public awareness activities were also implemented in Jamaica.

- **Sustainable Use of Plant Resources (Targets 11 and 12)**

An annual export quota for orchids was established and requirements for research permits listed.

- **Implementation of the FAO Global Plan of Action (Targets 6 and 16)**

The FAO Global Plan of Action on Plant Genetic Resources for Food and Agriculture is being implemented; however, it faces the challenge of funding. Moreover, the Protection of Plant Genetic Resources for Food and Agriculture Act was established in 2013.

- **Indigenous knowledge on plants (Target 13)**

Indigenous knowledge is being documented through the work of the African Caribbean Institute of Jamaica/Jamaica Memory Bank, Biotechnology Centre, the Natural Products Institute, the Scientific Research Council and other entities involved in the nutraceutical industry.

- **Education and Public Awareness Programmes (Target 14)**

Several national institutions, e.g. NEPA, the Forestry Department, Institute of Jamaica, and others, have initiatives regarding education and public awareness programmes. NEPA, for example, has a branch responsible for this matter. Social and traditional media are also tools used to reach more people and raise public awareness.

- **National Capacity (Target 16)**

Jamaica has faced different challenges regarding the achievement of target 16 and the strengthening of national institutions. These challenges include inadequate financial and human resources, lack of a harmonized approach and the need for more education and updated legislation.

SECTION VI

Additional information on the contribution of indigenous peoples and local communities

Local communities in Jamaica play an important role through engagement in biodiversity conservation. Maroon community members, for example, are involved in protection and management activities in the Blue and John Crow Mountains National Park¹⁴, working together with state agencies and NGOs, to carry out the mandate of safeguarding and protecting the natural values of the area.

The implementation of co-management strategies for protected areas has helped to engage and empower local communities to exercise greater ownership of natural resources and develop more sustainable practices¹⁵. Besides helping to achieve the Aichi Biodiversity Targets, this initiative also contributed to the implementation of Vision 2030 Jamaica in that local communities are mobilised and encouraged to play an active role in biodiversity conservation and the sustainable use of natural resources. CBOs and NGOs are also involved in consultations on policy development and also the setting of national priorities.

The Planning Institute of Jamaica in 2018 started to include in their reports data and information from projects implemented by local communities under the GEF Small Grants Programme.

The Jamaican Memory Bank, part of the Institute of Jamaica, functions as a repository for different types of recording (audio, video and photographs) of the traditional knowledge of local communities (for example, documenting Revival). The Memory Bank includes information from Maroons and others on the traditional and sustainable use of natural resources in the environment in secular and spiritual contexts. This is part of an effort to preserve and respect traditional knowledge, including following the guidelines of the CBD.

¹⁴ UNESCO. Blue and John Crow Mountains. Available at: <https://whc.unesco.org/en/list/1356>

¹⁵ NEPA. *State of the Environment Report 2013*.

SECTION VII

Updated biodiversity country profile

Status and trends of biodiversity, including benefits from biodiversity and ecosystem services

Jamaica is an archipelagic state consisting of the main island and several smaller islands, cays and rocks. It lies in the hurricane belt of the Atlantic Ocean. The main island, which is the third largest in the Caribbean, has a land mass of 10,981 km² and a population of 2,726,667 inhabitants. Jamaica's Exclusive Economic Zone is 235,000 km², making its marine space approximately 25 times its land space. The main island is approximately 230 km long and is approximately 80 km wide at its widest point. The coastline is approximately 1,022 kilometres. The climate of Jamaica is mainly tropical.



Figure 18 – Map of Jamaica, Central America and the Caribbean

Jamaica is primarily a mountainous country with over sixty percent of the island having an altitude of over 230 metres above sea level. The highest point is the Blue Mountain Peak at 2,256 metres above sea level for at least 16 kilometres. The mountains are characterized by a central ridge that transverses the length of the island. The Blue Mountain Range, which is to be found at the eastern end of the ridge, is composed of igneous and metamorphic rocks and is dissected by a network of steep sided ravines. This type of land formation gives rise to

surface drainage by a large network of streams and rivers. The remainder of the island is composed of limestone with a few scattered occurrences of igneous and metamorphic rocks. Surface drainage in the form of rivers is far less dominant in these limestone areas.

The island is divided into twenty-six (26) Watershed Management Units (WMUs) comprising all the land from the mountains to the sea and containing over 100 streams and rivers. These WMUs are essentially composites of watersheds which fall within ten (10) hydrological basins (regions). The land in the upper part of the WMUs is characterized by steep slopes usually in excess of 20 degrees. Limestone derived soils cover about 65% of the watersheds and the remaining areas are composed of soils derived from weathered igneous and metamorphic rocks.

Jamaica ranks fifth among the world's islands regarding the number of endemic plant species. Jamaica's terrestrial biodiversity is characterized by over 3,304 vascular plant species, 600 species of ferns, 136 species of butterflies and 106 known bird species. Approximately 221 endemic species are classified as 'critically imperilled' and 'especially vulnerable to extinction' (Conservation Data Centre's database). The country's rich marine species diversity includes fish, sea anemones, black and stony corals, molluscs, turtles, whales, dolphin and manatees.

In terms of agricultural biodiversity, genetic resources from both wild animals and plants are used to improve domestic breeds and varieties, respectively. There is also a high economic importance for Jamaica's agricultural economy placed on animal species that act as pollinators, seed dispersers and reducers of dead organic material.

Natural resources play an important part in Jamaica's development with the island's major economic sectors (agriculture, tourism, manufacturing, and mining and quarrying) all based on natural resources. Tourism is the largest foreign exchange earner for Jamaica and is directly dependent on habitat quality with white sand beaches, rivers, mountains and forests being some of the major attractions.

Main pressures on and drivers of change to biodiversity (direct and indirect)

Threats to Jamaica's biodiversity include habitat loss, over-exploitation, the impact of invasive alien species, weak law enforcement, inadequate awareness of the value of natural resources, poor spatial planning and land use, pollution and climate change. In addition, population growth, coupled with agricultural, industrial and commercial expansion, has resulted in intense competition for land, leading to encroachment and fragmentation of natural habitats.

Habitat degradation in Jamaica is driven by different factors, including poor agricultural practices, increasing demand for housing, coastal development to support tourism and other activities such as mining, quarrying, and wood extraction for timber. Agricultural practices still pose a threat to habitats, such as using fire to clear land for farming. Competition between key economic sectors and conservation of habitats is still an issue, particularly with the extractive sector.

Loss of natural habitats is an on-going land-use change process in Jamaica. In a 2018 assessment, the Forestry Department presented an analysis of land-use change and forestry

in Jamaica and concluded, among other things, that degradation, rather than deforestation is a more prominent issue.¹⁶ A summary analysis follows:

- Closed Broadleaf Forest (4.01% or ~ 3600 ha reduction) – Significant losses to: (i) Disturbed Broadleaf forest; (ii) Secondary Forest; and (iii) Field and secondary forest.
- Swamp forest (94.5% or ~ 2100 ha reduction) – Significant losses to: (i) Fields of herbaceous crops, fallow, cultivated vegetables etc.; (ii) Herbaceous wetland; (iii) Buildings and other infrastructures.
- Short Open Dry Forest (78% or ~ 9500 ha reduction): Significant losses to: (i) Tall open dry Forest; (ii) Bare land.

Jamaica's marine ecosystems have been declining in quantity and quality due to threats such as poor fisheries management (overfishing, destructive practices) and negative impacts from coastal development. Biodiversity is also impacted by natural processes and events such as erosion and hurricanes, the effects of which are often exacerbated by human activities and practices. Furthermore, climate change is likely to further increase the negative impacts of these natural events.

Measures to Enhance Implementation of the Convention

Implementation of the NBSAP

To help implement the NBSAP (2016-2021), 76 actions were identified designed to address 5 strategic goals:

- A) Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;
- B) Reduce the direct pressures on biodiversity and promote sustainable use;
- C) Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
- D) Enhance the benefits to all from biodiversity and ecosystem services; and
- E) Enhance implementation through participatory planning, knowledge management and capacity building.

Vision 2030 Jamaica – National Development Plan, 2009, the country's long-term development plan, incorporates some of the strategies from Jamaica's first NBSAP. Vision 2030 Jamaica is implemented through a series of Medium-Term Socio-Economic Policy Frameworks (MTFs), which identify the priority outcomes, strategies and actions for each three-year period from 2009 to 2030. Reports on the implementation of the NBSAP and priorities are included in the MTF. The 2018 – 2021 MTF outlines a package of priorities designed to improve the state of the natural environment, thereby contributing to reduced vulnerabilities and advancing socio-economic development.

¹⁶ Forestry Department (2018). Land Use Change, Forest Cover: The Jamaican Scenario. Presentation made at the Forest Forum, Trees & Sustainable Cities, March 2018. By Donna Lowe, Senior Director – FS & TS Division. See: http://www.forestry.gov.jm/sites/default/files/Resources/forest_cover_the_jamaican_scenario.pdf

Actions taken to achieve the 2020 Aichi Biodiversity Targets

During the process of developing Jamaica's NBSAP 2016-2021, national stakeholders decided to adopt the 20 Aichi Biodiversity Targets as Jamaica's National Targets, only changing the deadline for achieving them. Therefore, all 78 actions mentioned in the document were designed to help achieve both the National and Aichi Biodiversity Targets.

Increasing awareness of biodiversity (Aichi Biodiversity Target 1) is addressed through initiatives such as implementing comprehensive national strategies in various sectors to promote awareness of the values of biodiversity; conduct public awareness campaigns on biodiversity and identify steps people can take to protect it.

Jamaica held its first National Biodiversity Convention in 2018 with a view to increasing awareness of the importance of Jamaica's biological diversity and how it contributes and can contribute to Jamaica's economy. The Conference also provided an opportunity for dialogue on biodiversity. Community-based organizations, which are critical to the conservation of biodiversity, were represented in chairing and participating in the panel discussions.

Case studies on the achievements of community and other groups were featured in the e-publication on the Conference. Among the case studies of note is the recovery from virtual extinction of the Jamaican iguana thanks to the development and support of a Head Start programme involving the public and private sectors and local community groups. (Please see case study at Section II). An example of the how communities, the private sector and Government agencies can collaborate to achieve measurable results in species recovery is case of the Oracabessa Bay Fish Sanctuary (OBFS): not only did fishermen support the declaration of a no-fishing zone, but they also worked to enforce the requirements, received training in coral gardening and developed alternative livelihoods options. Monitoring of the fish biomass and density and the state of the coral reef is carried out and the results are documented and are available to the public. This approach to fish sanctuary management is now considered a model and will be replicated in other sanctuaries across the island as feasible. As a result of the success of the OBFS, training in fish sanctuary management has also taken place in other islands.

The legislative and policy framework and action plans to support biodiversity protection have been strengthened with the approval of new policies and laws in various sectors. Jamaica has become a party to the main environmental agreements and is putting in place the required legislation and other elements needed to allow for accession to other treaties. An intensive effort was made to guarantee that fisheries are sustainably managed (Aichi Biodiversity Target 6), including the declaration of four new fish sanctuaries and the establishment of a plan for reducing destructive fishing practices over a 10-year timeframe. The enactment of the Fisheries Act, 2018 to replace the Fishing Industry Act, 1976 will strengthen fisheries management in Jamaica.

Several measures have been taken with regard to the Programme of Work on Protected Areas and the enabling environment is being put in place as regards legislation, policy, capacity building and coordination in managing the protected areas under different jurisdictions. The recently established National Conservation Trust Fund of Jamaica is intended to improve financial sustainability for the management of the island's protected areas. Jamaica is not only participating in the Caribbean Challenge Initiative – the Caribbean's '20 by 20' Marine

Conservation Challenge, but also made a voluntary commitment at the Ocean Conference, 2017 to increase the marine protected area. The Ministry of Economic Growth and Job Creation and the National Environment and Planning Agency will prepare an update on this matter including action related to the Blue Economy.

In terms of identifying invasive alien species pathways and effects (Aichi Biodiversity Target 9), the strategy and action plan for control and management of known invasive alien species will be revised and updated. With a view to protecting the country's marine environment, the Ballast Water Management Act, 2019 was enacted to provide for the implementation of measures to prevent ships from introducing foreign aquatic species when entering domestic waters. The gives effect to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.

Several rehabilitation programs have also been launched contributing to ecosystem resilience (Aichi Biodiversity Target 15), including the identification of degraded areas, surveys and assessment of these degraded areas and systematic rehabilitation programs. These actions are being carried out for both forest reserves and coral reef ecosystems. There has also been increased monitoring of vulnerable ecosystems, such as coral reefs, including the installation of mooring buoys and the monitoring of water-sports activities in hotels.

The Forestry Department in its National Forest Management and Conservation Plan 2016-2026 includes a strategy for the evaluation of the programme of incentives for private forest land owners and the promotion of appropriate incentives for investment in forests will be promoted. Appropriate programmes for Payment of Ecosystem Services (PES) and alternative livelihood will also be established.

The Water Resources Authority (WRA) has implemented Volume-Based Fees (VBF), which is a cess on abstraction license allocations. Allocated abstractions are classified into four categories: domestic, industrial, irrigation, and non-consumptive usages with varying rates for each category. The VBF for a given abstraction license is the allocated volume of water multiplied by the relevant VBF rate for the license's classification. The VBF is intended to encourage abstractors to apply only for the volume of water that they require for their purposes, and thus leave more water available for environmental purposes and sustainable development.

There has also been particular focus on pollution reduction with a chemical analysis of selected rivers, streams and near-shore sites; licensing of all effluent disposers; regulation of disposal methods, sites and quantities; bio-monitoring; preparation of a monitoring programme for chemical levels in conjunction with analysis of biological effects; and increased penalties and fines for offenders.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.)

To support the implementation of the NBSAP, there are new pieces of legislation related to the management of natural resources and reviews of existing legislation are underway to identify gaps.

There are plans to finalize policies on matters such as watershed management, land use, the protected areas system, and fisheries and aquaculture. Legislation will also be enacted in relation to forestry management (amendment of the Forest Act, 1996); protected areas (regulations declaring the Black River Morass a protected area); environmental management (amendment of the NRCA Act); wildlife protection and access and benefit sharing, among other matters.

NGOs and CBOs have carried out various projects and manage some protected areas. The results of projects carried out to conserve biodiversity are taken into account through reporting to the Planning Institute of Jamaica. The Global Environment Facility's funding from the STAR and the Small Grants Programme is addressing environmental issues in keeping with the CBD's strategic priorities while identifying opportunities for sustainable livelihoods.

Coordination of activities related to protected areas management has been strengthened with the establishment of the Protected Areas Committee which includes representatives of the Government entities which have responsibility for protected areas management under various pieces of legislation, civil society, academia and the private sector.

Funding for environmental protection is provided by the Government, funding partners, such as the IDB, USAID, EU and the GEF, bilateral and regional projects (e.g. Community-based Adaptation funded by AusAid, Japan-Caribbean Climate Change Project); and sources such as the Environmental Foundation of Jamaica (which includes the Forest Conservation Fund); the National Conservation Trust Fund of Jamaica (NCTFJ) Limited and the Tourism Enhancement Fund. Based on the Financing Plan for Jamaica's System of Protected Areas (2009) these sources are inadequate to meet the basic requirements for protected areas system management. The Forestry Department has received funding through a budget support programme to the Government from the EU for the implementation of the Forest Policy for Jamaica and the National Forest Management and Conservation Plan.

Mechanisms for monitoring and reviewing implementation

A Monitoring and Evaluation plan was designed to monitor the implementation of the NBSAP and the achievement of the National and Aichi Biodiversity Targets, taking into account the challenges and limitations facing the various sectors and agencies working on biodiversity conservation in the country. Individual entities (public and private), and other key stakeholder groups were able to provide inputs to the monitoring plan.

The reporting of achievements of the Strategic Goals and Aichi Biodiversity Targets is facilitated through Vision 2030 Jamaica and the Medium Term Socio-Economic Policy Framework. NEPA, as one of the main institutions involved in the process, can also carry out monitoring and evaluation through its internal Planning, Projects Monitoring, Evaluation and Research Division.

Some agencies such as the Forestry Department and NEPA also report on the status of implementation with regard to commitments, voluntary or obligatory, to other Conventions and agreements.

For the purpose of preparing the 6th National Report, an innovative element was the production by the National Spatial Data Management Division of MEGJC of maps based on national data.

Up-to-date information and data on Jamaica's biodiversity, the Convention and matters of interest in the region are provided by the Institute of Jamaica through the Clearing House Mechanism and newsletters.