



**Review of the
National Coastal Management and Beach Restoration Guidelines
for the Government of Jamaica**

Review prepared by:

Jamaica Environment Trust
123 Constant Spring Road, Unit 5
Kingston 8

**With technical assistance from the
Environmental Law Alliance Worldwide**
Eugene, Oregon
USA

December 2018

This document contains the professional opinion of the Jamaica Environment Trust (JET). In arriving at our opinion, we made every reasonable attempt to ensure that our resource persons are informed and reliable and experts in the area in which their comment and analysis is sought. JET encourages readers to apply their own critical analysis to the information provided in this document and by others, particularly where JET's opinion differs from those others.

The National Coastal Management and Beach Restoration Guidelines were reviewed for the Jamaica Environment Trust by Dr. Heidi W. Weiskel, Marine Ecologist, at the Environmental Law Alliance Worldwide (ELAW) and Diana McCaulay, Board Chair of the Jamaica Environment Trust (JET).

Overview

Overall, the document is well-researched and describes the dangers to people, property and ecosystems of a business-as-usual approach to development in Jamaica's coastal areas, due to the threat of global climate change and associated sea level rise. The Guidelines are directed at a wide range of publics¹ including ministers and permanent secretaries, technical members of state agencies, private sector developers and professionals, local planning authorities and community leaders but the information is dense, difficult to navigate and not generally accessible to a lay person. Although JET has been working on beach and coastal issues for nearly 20 years, we were unaware of this document until recently, so we do not know what kind of stakeholder involvement went into its creation. The Guidelines emphasize the importance of stakeholder engagement and we therefore recommend the production of a much simpler document be produced for communities and the general public.

Severity of Threat

The Guidelines adequately describe the severity of the threat facing Jamaica.

"If sea level rises by 0.18m the predicted loss of Jamaican land area is 101.9 km² and 416.4 km² for a 1m increase. Areas forecasted to be inundated are fast growing urban areas such as Old Harbour Bay and Portmore. Jamaica's coastline is where most of the critical infrastructure, formal and informal housing, and a high percentage of economic activities (including tourism, mixed farming, fishing, shipping, and mining) are located. The population density of Jamaica is distributed such that much of the population is focused within coastal areas (Figure B2). This places an increased strain and an increased importance on Jamaica's coastline."²

Retreat option ought to discuss socioeconomic realities

People—not just property and other assets—will need to retreat. In some countries (e.g., Vietnam), governments are relocating vulnerable coastal communities. How is the Government of Jamaica (GOJ) preparing for the needs of Jamaican people?

The Guidelines state simply:

"B3.1.4: Retreat

The intent of this management approach is to review and/or adopt new planning tools (such as "buffer zone" creation or the use of development setback techniques) to enable the coast to accommodate sea level rise and storm surge inundation events. This could include realigning or re-locating vulnerable assets and coastal defences. This approach represents non-structural solutions to help coastal communities adapt to climate change. This could also partly include taking the decision to not invest in coastal defences or operations and let the coast erode and develop naturally."³

¹ Guidelines, p. 6

² Guidelines, p. 20

³ Guidelines, p. 29.

In a separate section of the Guidelines⁴ short-term evacuation measures are discussed. Again, we stress that this issue is part, but not all of the conversation, that needs to be had about this inevitable reality facing Jamaica.

Policy Positions

The Guidelines note the many different policy documents at different stages of completion – some long delayed – concerning coastal resources and climate resilience. This is one of the problems facing Jamaica – there are no clear policy prescriptions for coastal development and even where planning instruments, like Development Orders under the Town and Country Planning Act (TCPA) exist, they have often been breached. These Guidelines discuss, but do not recommend or prescribe, desirable approaches. For example, a clear policy position might be to establish setback limits for Jamaica’s coastline for all new development to conform with existing vulnerabilities, such as the already high rates of erosion. The Guidelines never go that far, and so should not be regarded as a substitute for clearly articulated policies.

Assessment and Protection of Existing Coastal Resources

The Guidelines do not emphasize the need for **protection** of existing coastal resources, such as mangroves, coral reefs and seagrass beds. Their value and the risks of their removal is described, but the emphasis in the document is on how they might be restored or relocated and there is no discussion of the loss of ecosystem services while reefs, mangroves or seagrasses are growing in relocation programmes. Assessment of water quality must be carried out if coral restoration is to be attempted in order to assess the likelihood of success.

The Guidelines address wetlands (morass) management in Section D2.8, saying:

*“Protection of Wetlands through Assignment of a Designated Use:
The level of protection provided should conform with the designated use established for a wetland; for example, aquatic life support or recreation. These coincide with two basic levels of protection recognized by environmental planners: preservation and conservation. Aquatic life support and wetland preservation connote a greater degree of protection, and involve, at most, passive use by humans. The recreation designated use, and wetland conservation status, connote a lesser degree of protection than do aquatic life support and preservation, on the level of protecting essential functions while allowing compatible human uses.”⁵*

The language on only passive use by humans in these habitats is noteworthy: wetlands are frequently seen as desirable locations for development. The GOJ could take a strong stand to back these beach and coastal management guidelines by recognizing their ecosystem service value and prohibiting development in wetlands and morass areas, island-wide

This is where clear policy directives would help to ensure no further or severely limited loss of these valuable natural assets.

Nature-based interventions

Beach nourishment is described as a nature-based intervention, which is arguable. In addition to being costly, there are other impacts of beach nourishment that are not fully discussed in the document:

⁴ Guidelines, p. 121

⁵ Guidelines, Section D2.8, no page number

- 1) The type of sand is frequently different than the original sand in several respects (e.g., moisture content, grain size, constituent ratio), which makes it less likely to be usable by turtles returning to nest, other beach dwelling species trying to forage or seek refuge, or plants revegetating dunes;
- 2) The sand used has to come from somewhere, which means other environmental impacts are often created at the site of removal, and
- 3) Once a beach is in a nourishment cycle, that replenishment effort needs to be maintained. Where is the sand going? If the sand is continually being lost it is likely creating impacts in the receiving location that then also have to be managed.

For these reasons, beach nourishment should be considered a last resort management effort, not a standard “nature-based” response to changes along the coastline.

Accretion and Erosion of beaches

Page 13 describes both accretion and erosion at several Jamaican beaches, which suggests that what is needed is adequate setbacks – in order to give the beach room to move around with seasonal weather and storm events without threatening infrastructure. Again, this could be covered by a clear policy directive which should prohibit development in areas already experiencing net erosion. Another policy position could identify important infrastructure which needs to be moved inland in the medium term.

Effectiveness of hard structures

The Guidelines state that coastal protection measures in Jamaica have mostly been hard structures, but there is no discussion of their effectiveness. There are many examples around the world of hard structures which have failed or even exacerbated the problem they were built to alleviate. Hard infrastructure measures should be kept to a minimum.

Section D (“Designing Interventions”), which addresses responses to ensure shoreline protection, presents hard infrastructure solutions as being equal to nature-based interventions. However, the scientific evidence is clear that green/soft interventions are a wiser approach, both ecologically and economically.⁶ In a similar vein, reef balls should not be considered as a viable option for management.⁷ There are no long-term, credible studies suggesting they work for habitat restoration and as articulated in the document itself, they are unstable and can be moved around during stormy conditions. Some artificial reefs and other types of measure (the use of Shorelock in Hanover and Negril, for example) have been tried in Jamaica, but there is no real discussion of the outcomes achieved by these measures in the Guidelines.

Cumulative Impacts and Baseline Data

The Guidelines are weak on the question of cumulative impacts. There is a recommendation that Strategic Environmental Assessments (SEAs) should be conducted, and this would be useful, but there is inadequate baseline data on coastal systems in Jamaica. Development proposals are often considered in isolation of other developments nearby, although the entire stretch of a particular area of coastline may be one system. The Guidelines present a detailed description of all the preliminary work that is needed, including the collection of baseline data and study of complex systems such the movement of sand, but there is considerable unwillingness to grapple

⁶ Reguero, B. G., M. W. Beck, D. N. Bresch, J. Calil, and I. Meliane. 2018. Comparing the cost effectiveness of nature-based and coastal adaptation: A case study from the Gulf Coast of the United States. *PLoS ONE* 13(4): e0192132.

<https://doi.org/10.1371/journal.pone.0192132>

⁷ Guidelines, p. 149

with this at the development approval stage, due to delays and cost. The Guidelines do not acknowledge these hurdles.

Case Studies

There are a number of interesting case studies in the Guidelines, many in Jamaica, but not many present the outcome of the mitigation or adaptation measure being outlined. If a case study is presented to support a particular course of action, it must describe the effectiveness of the activity. For example, the Ullal Breakwaters in India are described but there is no clear description of the result.⁸ Some case studies present a too-simplified description – Palisadoes, Hellshire and Old Harbour Bay are examples.

Coastal Management Units

Section B4 (Coastal Management Units) gives a great deal of useful background information on Jamaica's coastline with diagrams and case studies, but the grid used to score the various approaches uses language that is too general. Some examples: "Developments on coastal plains may lead to more rapid run-off." "Destruction of beach vegetation can lead to increased beach erosion." "Fringing coral reefs can provide wave protection." The language is so non-specific that any action could be taken and any natural asset sacrificed.

To illustrate this point, Jamaica is currently facing coastal decisions in the Negril area and the scoring grid as presented is not particularly helpful. The Sandals Group has applied to build breakwaters and groynes at its property in Negril. The grid assesses nature-based interventions, hybrids and various hard structures – but almost all the options "may" or "can" be used, most with resiliency scores of 3 or 2⁹.

Selection of Approaches and Interventions

Part C (Selecting Approaches and Interventions) provides a good framework for decision-making, including conducting proper technical, social, and economic analyses, and consulting all stakeholders, but does not grapple at all with the reluctance to conduct preliminary work or who is to pay for it. Clear policy prescriptions are needed. For example, the GOJ could forbid coastal development within a certain distance from the water's edge, or in certain habitats (e.g., dunes).

Monitoring

Part F (Monitoring and Maintenance) is dedicated to monitoring and maintenance, and this is welcome, as it is the mechanism by which managers and stakeholders can assess the health of the coasts and beaches in Jamaica and make improvements to management. It is imperative that proper resources—time, personnel, equipment, and money—are dedicated to these critical efforts.

In addition, there should be threshold actions included in the monitoring plans. For example, what if a seagrass bed is monitored for three years, and for all three years the percent cover never differs by more than 10%. Then in the fourth year, the percent cover drops by 50%. Is that a sufficient threshold to take action? If not, what is a significant change threshold? And what is the appropriate action to take in response? These considerations are as important as the details of monitoring themselves.

Page 231 describes self-monitoring required by the National Environment and Planning Agency (NEPA) of the holders of coastal property. There is no mention of any assessment of the

⁸ Guidelines, p. 28

⁹ Guidelines, CMU, C1, no page number

effectiveness of this approach. Where restoration projects or mitigation measures are carried out, monitoring reports and evaluations should also be shared with the public as a matter of policy.

Non-structural solutions may be the most important part of these Guidelines

Section D4, “Non-structural solutions,” includes five critical aspects to coastal management:

- 1) D4.1: Managed Realignment
- 2) D4.2: Watershed Planning (Ridge to Reef, R2R)
- 3) D4.3: Setback Zones
- 4) D4.4: Building Codes
- 5) D4.5: Stakeholder Awareness

Setback zones are wise public policy and compliance should be absolute. The Guidelines state:

“Current Jamaica Policy

As a result of a 1954 special commission of inquiry on beaches and foreshore lands, the Beach Control Act of 1956 was passed which is currently being administered by the Natural Resources Conservation Authority (NRCA). In 1997, the NRCA began work on a beach policy to address issues surrounding public access and a Green Paper was drafted which proposed open access. This was amended in 2000 and 2002.

*With reference to **setback**, the Beach Policy (2000) states that the Beach Control Act will need to be amended to define ‘beach’ and an area 15m landward of high-water mark that should be subject to regulatory control in order to provide for management of coastal zone resources. This minimum **setback** is intended to incorporate safety considerations for both cliff-type shorelines and also for erosion considerations for beach-type shorelines. However, private developments have repeatedly sprung up within the **setback** zone as shown.”¹⁰*

It is discouraging although not surprising that setbacks have not been respected by private developers, even when they are as minimal as 15m. One change these new Guidelines could engender is a willingness and capacity to enforce that setback limit.

The Guidelines warn that setbacks should not be “onerous to development” and that the precise nature of the hazards should be assessed.¹¹ Hazards are one risk – but the ecological health and integrity of the coastal area should also be assessed, as if these assets are healthy, resilience is increased.

Strong, forward-looking building codes provide one of the best solutions to the problems of coastal management. It is not clear from the wording of the Guidelines whether these provisions are already part of the 2016 Draft Building Act or if the Guidelines are pressing for stronger codes. The Guidelines state:¹²

“In addition to revised building codes for the quality and siting of new coastal structures, regulations should be introduced to plan a strategic retreat of existing development located in low-lying coastal floodplains and high hazard areas along the coast. These regulations should consider:

- *Prohibiting the construction of protective structures in sensitive high hazard areas;*
- *Prohibiting the reconstruction of storm-damaged property in high hazard areas; and*
- *Conditioning land ownership in high hazard areas to expire when a property owner dies or when sea levels reach a particular point along a map.*

The new Building Code would also prohibit persons from building in areas that are prone to disaster. The new Building Code also seeks to provide for greater level of safety in light of increased threats

¹⁰ Guidelines, D4, 3, no page number

¹¹ Guidelines, D4, 3, no page number

¹² Guidelines, D4, 4, no page number

from man-made and natural phenomena. All material inputs will be required to comply with their appropriate standards. Materials include roofing materials, cement, blocks, concrete etc.”

The GOJ will not regret putting proactive building codes in place that take into account expected future conditions under climate change and err on the side of public safety.

***Jamaica Environment Trust
Kingston, Jamaica
December 2018***