



SIX SENSE GRENADA

Review of Landscape Plans & Environmental Impact Statement

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Background

Under the Six Senses brand, Range Development was contracted to build a five-star Resort in La Sagesse, St. David's, Grenada. A main feature of the Resort is one of Grenada's most popular birding sites – the La Sagesse Salt Pond. This pond is home to the largest proportion of wetland birds in Grenada, and bird observations at this pond are recorded under the Caribbean Waterbird Census since 2003. Additionally, the La Sagesse Salt Pond supported Buttonwood, White and Black mangrove species, which among other species comprises less than 2% of Grenada's vegetative habitat islandwide.

With permission from Range Development, Gaea Conservation Network has reviewed the Landscape Design, Architectural Plans and Environmental Impact Assessment (EIA). Reviewing these documents are persons with expertise in hydrology, wildlife medicine, ecology (terrestrial and marine) and coastal policy and management (herein referred to as "we"). The objectives of this review were to: 1) identify the scope and developmental plans by Range Development; 2) evaluate the anticipated impacts forecasted by the EIA and identify gaps; and 3) recommend strategies to mitigate environmental impacts.

Development Plans

Following a meeting with Range Development on 29th March 2020, we were presented with the Landscape Design and Architectural Plans, in confidence, for review. These documents were shared to provide the full scope of Range Developments plans, which ensured that we could provide objective feedback. Below, we document a summary of these development plans, which are based on the Landscape Design, Architectural Plans and conversations with our contact at Range Development.

Based on the Architectural Plan, the Resort infrastructure uses 27% of landscape and the remaining area (~ 70%) is left as 'green space'. The Resort is inclusive of most of the surrounding vegetated area (above the river) on La Sagesse beach. The beach to the west of the pond will be bordered by nine buildings, and there appears to be no public access to said beach. Because typical public access to the larger beach is on the other end of the beach, the Resort will not be blocking the more popular public access (near the Nature

Center). Most of the vegetation bordering both beaches have been removed – it is not clear how much of this will remain.

To accommodate the features in this Resort, Range Development will increase the pond depth and volume. Dredging will likely be used to increase pond-water-holding capacity. To stabilize adequate water chemistry and volume, both freshwater (from the desalination plant) and seawater will be pumped into the pond. Additionally, the plan shows 2 vegetated islands, which are currently not features of the pond.

Revegetation of the pond and the surrounding landscape will be done using a selection of local and imported plants including fruit trees, seasonal forest species and Buttonwood. Also, some of the local mangal propagules remained with intentions of transplanting and used in the developmental process.

Environmental Impact Assessment Summary

JECO Caribbean Inc. conducted the Environmental Impact Statement (EIA), on behalf of Range Development, between April to May 2019; this is when both environmental and sociological impact assessments were done. For the environmental assessment, they: 1) surveyed birds and plants by walking along trails throughout the forest; 2) took seven sediment core samples to ascertain the depth at which there was a change in redox potential; and 3) used historical data to determine past land use patterns. For the sociological impact, 145 households were surveyed in the surrounding community. The questionnaire used in the survey ascertained whether the respondents had heard about the project and whether they believed the impacts would be positive or negative. As part of the assessment, they included a literature review on legislation related to the project. These included the: 1) 2002 Physical Planning Act; 2) 1949 Forest Soil and Water Conservation (CAP 116); 3) 1986 Fisheries Act (CAP 108); 4) 2001 Waste Management Planning Act (No. 16 of 2001) ; 5) Beach Protection Act (CAP 29).

Gaps/Limitations

After reviewing the EIA, Landscape Design and Architectural Plans, we discussed areas of concern, maintaining the confidentiality of the shared document. Although we recognize the time constraints in collecting baseline data for the EIA, we agreed that 1) data are lacking to support some of the conclusions on the suggested impacts of the project (i.e., medium to low impact) and 2) some common law practices were not adequately addressed in neither the EIA nor Landscape Design/Architectural Plans.

1. The absence of marine baseline data in the EIA suggests that it did not fully meet the Terms of Reference (TOR - EIA Appendix A). The TOR states that there should be information on the “impacts on: “coral reefs and the marine substrate; fish and shellfish population and other marine life”. However, little information regarding the baseline condition of the nearshore marine areas, and potential impacts to these areas, is included. Existing, publicly-available GIS maps show coral reef fringing the entirety of the headland and also in close vicinity to the southward facing beach. Likewise, seagrass beds are also extensive in La Sagesse Bay. Consequently, the EIA does not appear to satisfy the terms of reference provided from the Land Development Control Authority.
2. No data were provided on the riparian ecosystem (water quality, biota, vegetation), which can be impacted by the planned project. Runoff will be influenced by effluent in proximity to the river that leads into the beach.
3. No data were provided on the water chemistry of the pond. Though there are likely various inputs (i.e., precipitation, run-off, groundwater, seawater), it is not clear what the relative contribution of each source is to the ponded water amounts.
 - a. We anticipate that this pond discharges (receives) groundwater. NAWASA has a groundwater well nearby (which is largely used in the dry season); as such, if this pond shifts from discharging to recharging for groundwater, the planned modifications to pond water chemistry could impact the water supply for the surrounding communities.

4. Both Leatherback and Hawksbills are known to nest on the beaches on the west and south of the pond. These data were not included in the EIA, nor the likely impacts (e.g., effluent runoff) of the development on these.
 - a. Hawkskill largely nest on the beach on the west of the pond, preferring vegetated beaches.
 - b. Leatherbacks nest on the north beach (south of the pond), preferring areas with larger sandbanks.
 - c. Green sea turtles are known to forage in the seagrass beds along the beach.
 - d. All three species are listed as endangered or critically endangered globally
 - e. The Bay may serve as a shark nursery to a taxonomic group, which may have international protection.

5. While an “idealized list of birds using the southern seascape” was included (EIA Appendix C), this list does not fully characterize the functional traits and diversity of birds recorded in and around the pond. According to Ebird data, dating as far back as 2003, up to 76 species have been recorded in the La Saggese Salt Pond. A major group of these birds are wetland-dependent, which are not supported in such a large proportion in any other wetland area of Grenada. These data were not included in the EIA.
 - a. Destruction of bird habitat surrounding the pond may violate the “Birds and Other Wildlife (Protection) Act”. Restoration of the pond should encompass providing adequate nesting habitat.
 - b. The EIA suggests that displaced birds could use wetlands in Marquis and Petite Toute. To the best of our knowledge, no such habitat exists on the island (apart from Levera) that could support such a high abundance/proportion of wetland birds.

- c. An increase in pond depth would compromise wading birds, if no shoreline is maintained.
 - d. The extensive loss of surrounding vegetation around the pond could compromise some wetland-dependent birds that require dense vegetation cover, in addition to standing water, to fulfil their foraging and nesting needs.
 6. Similarly, the plant surveys did not fully characterize the relative abundance of species in and around the pond. For instance, past surveys of the pond would suggest that White Mangroves were most abundant, followed by Buttonwood and Black.
 - a. The changes in water levels might require changes in the identity of species replanted, particularly around the pond (e.g., Red or White vs Buttonwood).
 - b. Regulations under the Forest Soil and Water Conservation Act (1949 -CAP 116) provides a list of trees which are protected and can be felled only with permission from the Department. Based on the list of existing plants identified at the site by the EIA some of these listed species would have been removed by the development actions to date, including White Cedar and Mahoe species.
 - i. Recommendations to preserve mature trees in the EIA were not done based on observations of the site.
 7. Legislation Gaps: Older legislation is incorrectly referenced in the document. This includes the 2002 Physical Planning Act. This Act was updated in 2016. There are also some other inaccuracies; for example, the Integrated Coastal Zone Management Policy is not in a draft stage and was passed by Cabinet in 2015. It is also of note that supporting legislation, in the form of the Integrated Coastal Zone Management (ICZM) Act, has since been passed by Grenada in 2019. This Act also makes the removal of sand and vegetation from Grenada's beaches an offence under the legislation without the proper authorization. Other gaps include:

- a. The requirements of the Fisheries Act are not identified in the EIA, with respect to prohibited activities in areas that house coral reefs. This Act lists a number of activities, including removal of vegetation which are prohibited in areas where coral reefs are prevalent.
 - b. The Grenada Ports Authority Act may also be relevant, with regards to the proximity of development to the St. David's Marina navigation channel.
8. According to the site plan, development under this project appears to be occurring very close to beach and crown lands. Removing existing beach vegetation (which would be counter to the aforementioned ICZM Act) and constructing too close to the coastline could have negative effects on the beach in terms of beach erosion. Common law legislation anchors the fact that beaches and nearshore areas in Grenada and other commonwealth countries are public property.
- a. No data were provided on the community impacts of changing access to the beach. The St David's Track Blazers frequently use this beach for training – it is unclear whether this could continue.
 - b. Fishermen frequent the western beach of the pond; these data were not included in the EIA. As such, it is unclear whether their access to the beach will be maintained (western beach of the pond). Because marine surveys were not conducted (or the number of fishermen that fish in the area), it is unclear as to how their livelihoods would be impacted by this project.

Action Items Arising from Development Plans/EIA

As articulated above, we believe that the impacts of the project are not simply minimal. Protecting the diverse taxonomic groups in and around the Resort could be of benefit to Six Senses, particularly because it is described as environmentally-friendly Resort. Additionally, anecdotally, public knowledge on the project is minimal, and ensuring community support is critical for success. The following are our recommendations:

1. In order to remedy the data gaps in the marine environment, we recommend that a separate baseline assessment of the nearshore marine environment, encompassing both bays and the headland, be conducted. From this, guidelines and recommendations for reducing the impact of the development on these resources should be developed. There are a number of entities with marine biology expertise in Grenada who have experience in this area and are able to conduct such a study. Eco-Dive is one such example. These surveys should also include data on nesting sea turtles.
2. The site plan should be amended to ensure that public access is maintained to both beaches. This would be very important for the La Sagesse community, fishermen and the wider Grenadian population who use the beaches for recreation. There is no development on Grenada, be it Sandals or Silver Sands, which cuts off all access to beaches in Grenada.
3. A line of existing vegetation should be maintained along all land abutting the coast. This is in keeping with the recent ICZM Act. The EIA also mentions that only certain trees will be removed from the site and that a layer of vegetation will be left on the border of the development to provide a buffering effect. This was not done, as can be evidenced by the current condition of the site. Conserving existing vegetation can help to prevent beach erosion.
 - a. This could also benefit Hawksbill turtles, which require this vegetation for nesting.
4. As suggested in the EIA, Range Development should hold more in-depth public consultations – JECO Caribbean Inc. did recommend a town hall. Alternatively, the EIA, or a concise version of the EIA, should be circulated to the public and a period provided in which public comments can be submitted and responded to in a transparent manner.
5. The development appears to be too close to the river. An appropriate riparian buffer zone of vegetation should be left to preserve the riverbanks and prevent erosion (see Radix et al. 2018, for discussions on setting up such buffers).

- a. A baseline assessment of the riparian ecosystem should be done to ensure that impacts of this project are minimal on the biota.
6. Water chemistry data should be gathered in wetlands positioned similarly in the landscape as La Sagesse Salt Pond. This is important to ensure that the range of water quality parameters used as targets for the pond (during and after construction) match naturally-occurring conditions on the island. If possible, stable isotopes analysis should also be conducted to ascertain the relationship between ponded water amounts and all water inputs.
 - a. These data could ensure that the pond maintains “healthy” parameters for aquatic macroinvertebrates and fish in the pond; both of which provide food for birds. This can ensure that guests interested in birding are more likely to observe a wider range of species.
 - b. Similarly, these data should be gathered in seawater along the beach to ensure that “healthy” conditions are maintained.
 - i. Desalination effluent and other potential point sources of pollution should not run into the nearshore environment.
7. The changes to the pond bathymetry should ensure that: 1) some form of a shoreline is present (to accommodate wading birds); 2) as much vegetation (preferably mangrove) is replanted around the pond to provide concealment for species that require it; 3) the proposed islands vary in size, vegetation cover and shoreline depths.
8. The restoration of mangrove species should match the known conditions they are known to thrive in. Thus far, we are aware that White seedlings were harvested at the site, which are quite adapted to a wide range of conditions. However, to ensure that the pond features as many microhabitats as possible (much to the benefit of wetland biota), consideration should be given to Red (assuming the pond depth will be increased), Black and Buttonwood.