THIS BIODIVERSITY INCLUSIVE ENVIRONMENTAL IMPACT ASSESSMENT (B-EIA) AND PARTICIPATORY SOCIAL IMPACT ASSESSMENT (P-SIA) WAS PREPARED BY:

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# Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ASC</td>
<td>Aquaculture Stewardship Council</td>
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<tr>
<td>BRMP</td>
<td>Biodiversity Risk Mitigation Plan</td>
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<tr>
<td>B-EIA</td>
<td>Biodiversity Inclusive Environmental Impact Assessment</td>
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<tr>
<td>BSGA</td>
<td>Belize Shrimp Growers Association</td>
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<td>ECP</td>
<td>Environmental Compliance Plan</td>
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<td>IAIA</td>
<td>International Association for Impact Assessment</td>
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<td>IDH</td>
<td>Sustainable Trade Initiative</td>
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<td>IUCN</td>
<td>International Union for the Conservation of Nature</td>
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<td>MAR</td>
<td>Mesoamerican Reef</td>
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<td>p-SIA</td>
<td>Participatory Social Impact Assessment</td>
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<td>ShAD</td>
<td>Shrimp Aquaculture Dialogue</td>
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<td>TORs</td>
<td>Terms of Reference</td>
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<td>WMP</td>
<td>Water Management Program</td>
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<td>WWF</td>
<td>World Wildlife Fund</td>
</tr>
</tbody>
</table>
Contents

Background........................................................................................................................................5

Objectives of the B-EIA and the p-SIA..............................................................................................5

Methodology of the Biological Environmental Impact Assessment (B-EIA)....................................6

ASC Criteria Addressed in the B-EIA.................................................................................................9

  Siting in Protected Areas, mangrove ecosystems and other natural wetlands.........................9

  Siting in critical habitats and maintain critical habitats of endangered species......................11

List of Protected, Threatened or Endangered Species...............................................................12

Coastal barriers, Riparian buffers and Corridors.....................................................................13

Water-specific conductance and Soil-specific conductance.......................................................14

Intentional lethal predator control and Use of lead shot and select chemicals..........................14

Prevention measures in place to prevent escapes......................................................................16

Flood Risks......................................................................................................................................16

Biodiversity Risk Mitigation Plan (BRMP)..................................................................................17

Predator Control.............................................................................................................................19

Methodology of the Participatory Social Impact Assessment (p-SIA)..............................................21

ASC Criteria Addressed in the p-SIA...............................................................................................24

  Stakeholder Analysis...................................................................................................................24

  Description of 4 Hands Shrimp Farm and its Effects...............................................................25

  Initial listing of probable social impacts..................................................................................29

  Deeper research on important impacts.......................................................................................30

  Proposed adaptations..................................................................................................................32

  Agreement on impacts and measures to address them............................................................32

  Conflict Resolution Policy.........................................................................................................32

  Summary of conclusions and agreements..................................................................................34

Bibliography & References..............................................................................................................36

Appendices

Appendix 1: Meeting Notes of Introductory Visit to 4 Hands Shrimp Farm Limited
Appendix 2: Definitions of Likelihood and Levels of Adverse Impacts
Appendix 3: Complaints Resolution Policy of Haney’s Shrimp Farm Limited
Appendix 4: Terms of Reference for the B-EIA & p-SIA
Appendix 5: Curriculum Vitae of B-EIA & p-SIA Consultants
Appendix 6: E-mail Submission of Report to Department of Environment
Appendix 7: E-mail Submission of Report to Ministry of Rural Development
Background

The Belize Shrimp Growers Association (BSGA) and WWF’s Guatemala/MAR program have been working together over the past nine years to certify the shrimp farms under the ASC-Shrimp internationally recognized certification scheme for responsible shrimp production.

In 2011 the Shrimp Aquaculture Dialogues (ShAD) released the draft standards for responsible shrimp production to be used by the Aquaculture Stewardship Council (ASC) to certify aquaculture shrimp farms, the BSGA played an important role in the development of such standards, firstly hosting the first ShAD dialogue meeting for Central America and Mexico in April 2008 and secondly securing a permanent seat in the Global Steering Committee until the handover of the standards to ASC in 2013. In November 2012 the BSGA conducted a gap analysis to identify the compliance and noncompliance of five shrimp farms against the ShAD standards, the gap analysis results were used to develop a competitiveness improvement plan in order to secure ASC certification in 2014.

Late in 2013 the Inter-American Development Bank, through the Compete Caribbean project, approved a grant to implement activities recommended in the gap analysis, at the same time IDH, the sustainable trade Initiative from the Netherlands approved another grant to complement the support to the implementation of those activities that need to be undertaken in order to secure ASC certification for the Belize shrimp sector in 2014.

In April 2015 eight farms received the ASC certification putting Belize as the only country where more than 90% of the shrimp production is ASC certified. WWF and IDH are helping three new farms to prepare for ASC certification, this will put the Belize shrimp sector with almost 100% of national production certified under ASC standard.

Objectives of the B-EIA and the p-SIA

The objective of this exercise is to conduct a Biodiversity Inclusive Environmental Impact Assessment (B-EIA) and a Participatory Social Impact Assessment (p-SIA) of 4 Hands Shrimp Farm, as part of the process to achieve certification under the ASC. The IAIA (1999) define an Environmental Impact Assessment as: “The process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made.” (International Association for Impact Assessment, http://www.iaia.org). B-EIAs aim to ensure that biodiversity; ecosystem interests and ecosystem effects are identified and addressed in an impact assessment process. The B-EIA should identify and described the
potential impacts the farm might have on biodiversity, with a focus on those critical habitats or endangered species and include specific recommendations for mitigating impacts, as well as a timeframe for implementing those mitigation steps.

A Participatory Social Impact Assessment (p-SIA) includes the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.

**Methodology of the Biological Environmental Impact Assessment (B-EIA)**

The B-EIA was conducted to meet the requirements of the ASC Shrimp Standard Version 1.0 of March 2014, which allows for a Basic B-EIA Methodology to be used and defines the specific requirements of the Shrimp Standard to be used. The summarized methodology is outlined below as per the specific sections of the ASC standard in which they appear:

2.1.1. Farm owners shall commission a participatory B-EIA and disseminate results and outcomes openly in locally appropriate language. The B-EIA process and document must follow the outline in Appendix I.

2.2.2. Allowance for siting in mangrove ecosystems and other natural wetlands, or areas of ecological importance as determined by the B-EIA or national/state/local authority plans/list.

2.3.1. Allowance for siting farms in critical habitats of endangered species as defined by the IUCN Red List, national listing processes or other official lists.

2.3.2. Maintain habitats critical for endangered species within farm boundaries and implement protection measures of such areas.

2.4.1. Coastal barriers: Minimum permanent barrier (or natural) between farm and marine environments.

2.4.2. Riparian buffers: Minimum width of permanent native and natural vegetation between farms and natural aquatic/brackish environments.
2.4.3. **Corridors:** Minimum width of permanent native and natural vegetation through farms to provide human or native wildlife movement across agricultural landscapes.

2.5.3. **Water-specific conductance or chloride concentration in freshwater wells used by the farm or located on adjacent properties.**

2.5.4. **Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields.**

5.2.1. **Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List national listing processes, or other official lists.**

5.2.2. **Allowance for use of lead shot and select chemicals for predator control.**

6.1.2. **Prevention measures in place to prevent escapes at harvest and during grow-out include:**

   A. Effective screens or barriers of appropriate mesh size for the smallest animals present; double screened when non-indigenous species.

   B. Document other protocols and operational practices conducted by the farm in support of this requirement of the ASC Standards.

Consistent with the above, the B-EIA specifically addressed the requirements below:

- Documented the existence of biodiversity on **4 Hands Shrimp Farm** and potential impacts to biodiversity, the results of which was used to inform the Biodiversity Risk Mitigation Plan (BRMP) presented below in this report, inclusive of a general timeframe for implementation. Biodiversity observations were conducted consistent with a Rapid Biodiversity Assessment approach, including on-site field surveys conducted on the 3rd August 2015 and another visit on the 16th September 2015. Anecdotal information based on visual sightings by farm staff from January 2015 to the time of preparation of this report was also used, with the information from the field and staff vetted against published and grey literature on the distribution, diversity, and abundance of biological resources in southern Belize.

- Consistent with requirement 2.4.1 of the ASC Standard, possible coastal barriers, buffer zones and corridors were mapped using satellite imagery, ensuring that coastal barriers were no less than 100 meters and containing indigenous vegetation dominated by existing vegetation. There is one primary freshwater
creek identified at 4 Hands Shrimp Farm to the west and southwest. There is a separation device which avoids salt intrusion into the freshwater creek at its intersection with the inlet canal (See Figure 1). A secondary creek is located west of the ponds.

**Figure 1: Freshwater and Saltwater Separation Structure**

- A preliminary map illustrating the perimeter of the farm to be subject to ASC auditing, inclusive of proposed corridors and Buffers was produced and is presented below in Figure 4.

- Intake and discharge water bodies were also assessed and salination/conductance testing points were identified for biannual monitoring of possible saltwater intrusions into adjacent environments. One freshwater well located south west of the production ponds and next to the living quarters/cafeteria was identified and two soil testing points were identified using satellite imagery; these have been indicated in Figure 4. Flood risks as a result of possible hurricanes were also assessed, with provisions made as part of water management considerations for the farm in the Biodiversity Risk Mitigation Plan, including environmentally-friendly water management practices, saltwater avoidance techniques, and strategies to minimize waste generation and disposal.

- Using data collected from the literature, complemented by data from field observations on site at the farm, a List of Protected, Threatened or Endangered Species Visiting the Farm was produced. This list considers species which, based on published ecosystems data, are known to inhabit the area, or the area is known
to form part of their natural distribution. The list is based on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species, with due consideration for species with special protection status in Belize.

- Detail consultations with the management and operational staff of 4 Hands Shrimp Farm, as well as a physical search for evidence on the farm were conducted to assess whether lethal predator control is being used, to make a determination on the need or not for a Predator Control Monitoring Program.

ASC Criteria Addressed in the B-EIA

Siting in Protected Areas, mangrove ecosystems and other natural wetlands

4 Hands Shrimp Farm is not sited within a Protected Area. The nearest protected area is Monkey Caye Bird Sanctuary which is located approximately 5 miles south of the farm. See illustration in Figure 2. What is now currently 4 Hands Shrimp Farm was once part of NOVA Toledo Farms, but which never really consolidated its operations and had been abandoned and overgrown until the property was recently acquired by the new local shareholders having decided to invest in renovating the farm back to production status.

The actual production area (ponds) of the farm consists of 138.99 acres of ponds plus a sedimentation pond of approximately 20.83 acres. Another 106.25 acres of ponds are being renovated and will bring the total production area to 245.24 acres. The inlet canal extends eastward from the initial reservoir then southeastward to its starting point at the Indian Hill Lagoon, with a total distance of approximately 5,064 feet or 0.959 miles. The farm is sited in a broadleaf forest area once cleared for mechanized agriculture (mainly citrus) and borders lowland savanna to the south and southwest, coastal thicket mixed with secondary broadleaf to the northwest where the secondary creek is located, lowland savannah to the northeast, and medium to dwarf mangroves to the immediate southeast, beyond which is the Indian Hill Lagoon is located to the east (See land use illustration in Figure 3). The inlet canal was built on the border between the lowland savanna to the northeast and the mangrove stand to southeast, and traverses the primary creek. The entire production area and settlement area of the farm are sited in what was lowland savanna, as per the Land Use Map of 1992 in Figure 3. Based on physical observations conducted in the field, and consistent with the illustration in Figure 3, it can be stated that 4 Hands Shrimp Farm is not sited within a mangrove area, but rather in an area of lowland savanna and borders a mangrove stand to the southeast of the property only.
Figure 2: Siting of 4 Hands Shrimp Farm relative to Protected Areas (ProtectedAreas.gov.bz, 2013)
Siting in critical habitats and maintain critical habitats of endangered species
The critical habitat normally associated with shrimp farms in Belize is mangroves, however concerns over the siting of **4 Hands Shrimp Farm** in that particular habitat is minimal with respect to mangroves, as described above. The dominant habitat type at the farm is the under-protected Lowland Savanna, with a mangrove stand to the southeast.

**Figure 3: Siting of 4 Hands Shrimp Farm relative to Mangrove Forests**

However, as reported by Bridgewater *et al.* (2012), “Savannas were also thought to be species poor, yet this project has found more than 950 plant species in the lowland savanna, or approximately 28% of the nation’s flora as recognized by Balick et al. (2000). 380 of these are savanna specialists. Of the 41 vascular plant species reported by Balick *et al.* (2000) as endemic to Belize 18 (44%) are recorded in the lowland savanna. Whilst some savanna plants are widespread, others (including some endemics) show localized distributions”.

Savannas are still under-protected in Belize, however, it is important to emphasize that six species of vascular plants found in lowland savannas of Belize have been assessed in the **IUCN Red List of Threatened Species** (IUCN 2011), these are: *Zamia prasina* W. Bull; *Vitex gaumeri* Greenm.; *Conocarpus erectus* L.; *Rhizophora*
mangle L.; *Pinus caribaea* Morelet; and *Aspidosperma megalocarpon* Müll. Arg. (Goodwin *et al.* 2012).

Based on physical observations in the field, the secondary broadleaf forest is dominated by White Oak (*Quercus oleoides* Killip), Yemeri (*Vochysia hondurensis*), Nargusta (*Terminalia amazonia*), and the Trumpet Tree (*Cecropia peltata*). The short grass savannah and coastal thicket are dominated by Buttonwood (*Conocarpus erectus* L.), Fiddlewood or ‘Yaxnik’ (*Vitex gaumeri Greenm.*), Savanna Palmetto (*Acoelorraphe wrightii*), Madre de Cacao (*Glinicidia sepium*), the rough-leaved “sandpaper tree” (*Curatella americana*), Dysentery Bark (*Simarouba glauca*), Santa Maria (*Calophyllum brasiliense*), and Kaway (*Pterocarpus officinalis*). There is a sparse occurrence of Red Mangrove (*Rhizophora mangle*), Black Mangrove (*Avicennia germinans*) and White Mangrove (*Laguncularia racemosa*) to the southeast of the farm from the inlet canal south towards the shoreline. The Coco Plum or Hicaco (*Chrysobalanus icaco*) and the Sea Grape (*Coccoloba uvifera*) are also common species in the coastal thicket at 4 Hands Shrimp Farm.

Numerous bird species were observed on the farm and included the Magnificent Frigate Bird (*Fregata magnificens*), Royal Tern (*Hydroprogne caspia*), Roseate Spoonbill (*Platalea ajaja*), Great Egret (*Ardea alba*), Snowy Egret (*Egretta thula*), Neotropic Cormorant (*Phalacrocorax brasiliarius*), Wood Stork (*Mycteria americana*), Double-Crested Cormorant (*Phalacorax brasilianus*), among others as listed in Table 1. Mammals, reptiles, and fish species observed are those common in the south of Belize and typical of the habitats described above. These are also listed in Table 1.

**List of Protected, Threatened or Endangered Species**

Below in Table 1 are species observed on site at 4 Hands Shrimp Farm and their respective protected, threatened or endangered status, including reports of sightings by farm staff.

**Table 1. Species Observed at 4 Hands Shrimp Farm**

<table>
<thead>
<tr>
<th>Species Observed on Site</th>
<th>Local Name</th>
<th>Protected, Threatened or Endangered</th>
</tr>
</thead>
</table>
| *Zamia prasina* W. Bull         | *Vitex gaumeri* Greenm.      | ** Threatened – IUCN Red List *)*
| *Conocarpus erectus* L.         | Buttonwood                  | Threatened – IUCN Red List                             |
| *Rhizophora mangle* L.          | Red Mangrove                | Threatened – IUCN Red List                             |
| *Avicennia germinans*           | Black Mangrove              | Regulated Extraction in Belize                         |
Coastal barriers, Riparian buffers and Corridors
The most eastward point of the sedimentation area is 4,344.4 feet or 1.32 km from the Indian Hill Lagoon in a west to east direction and is 3m above sea level. Based on preliminary discussions and analysis with 4 Hands Shrimp Farm, the proposed perimeter of the farm does not include any significant area to be considered a buffer,
however suitable buffer areas fall outside the farm boundaries and the distance between the production ponds and the Indian Hill Lagoon exceeds the required 100m as required by the ASC standard, as well as by the Environmental Compliance Plan of the farm and the National Lands Act, which require a minimum buffer of 200m and 20m from the beach inwards, respectively. The two creeks are protected by law independent of the ASC certification. Figure 4.0 illustrates the farm perimeter to be subjected to ASC auditing and the preliminary buffer and corridor. Of note is the fact that the actual boundaries of the farm are under negotiations for purchase or lease.

**Water-specific conductance and Soil-specific conductance**

Salinity/soil conductance measuring sites were identified north, west and south of the production area on the property, including 1 freshwater well. These have been indicated in Figure 4.0, with an ‘S’ in a blue circle, with elevations of 10m, 11m, and 11m for S1, S2, and S3, respectively, as measured by GoogleEarth (2015). These were confirmed with farm management in the second consultations held, as well as frequency of measurement and preferred methods of sampling and analysis to be used. Sampling and analysis must provide reliable data on tendencies of salt intrusion into neighboring environments adjacent to the farm so that proper mitigation or corrective actions may be taken to address the issue.

**Intentional lethal predator control and Use of lead shot and select chemicals**

Detail consultations with the management and operational staff of 4 Hands Shrimp Farm, as well as a physical search for evidence on the farm were conducted to assess whether lethal predator control is being used, in order to make a determination on the need or not for a Predator Control Monitoring Program. Management expressed emphatically the policy of the farm **not** to engage in any kind of lethal predator control on the farm.

A **Wildlife Protection Policy** has been developed and agreed with the farm’s management, and is presented below, along with a corresponding representative sign to be installed on the boundaries and other publicly visible areas of the property.
Figure 4: Illustration of Planned Buffer at 4 Hands Shrimp Farm

(Map Source: Google Earth, 2015)
Prevention measures in place to prevent escapes
Field observations at 4 Hands Shrimp Farm revealed that pond outlets were properly screened to prevent escapes by the exotic species being cultivated *L. vannamei*. Measures to sustain this are included in the Biodiversity Risk Mitigation Plan below, focusing at the sustained installation of screens with appropriate gauge in microns to avoid escapes into the natural environment. Periodic monitoring of escapes is essential and is also addressed in the Biodiversity Risk Mitigation Plan below.

**Figure 5: Escape Prevention Screens at 4 Hands Shrimp Farm**

Flood Risks
The predominant location of shrimp farms in the low-lying coastal plains of Belize renders all shrimp farms exposed and vulnerable to flooding due to excessive rains or storm surge generated by hurricanes. Neal et al. (2008) reported that from 1991 to 2007 Belize had a mean rainfall level of 2,107 mm, with a projected level of 2,177 mm for 2025, a projection that would subject most coastal plains to flooding. Tropical Storm 16 of 2008 resulted in widespread flooding in southern Belize, especially the Mullins River and Dangriga areas.

The OAS-USAID (1999) as part of the Caribbean Disaster Mitigation Project, conducted a Hazard Assessment of Belize, and determined storm surge levels for coastal plains using the TAOS Wind Model applied to the five categories of hurricanes as defined by the Saffir/Simpson Scale. Results of this assessment were later confirmed by NEMO (1999) and used in the Belize Emergency Evacuation Plan of 2003 (NEMO, 2003). In 2001 a Category 4 hurricane produced a storm surge of 3 to 5
Storm surges from hurricanes can result in devastating effects to both natural and man-made assets.

Historically, Southern Belize has been hit by hurricanes ranging between Categories 1 – 4. Based on the above studies, storm surges produced by hurricanes range from 1.7m for a Category 1 to excess of 7m for a Category 5. The fact that dykes around shrimp ponds average 1.8m suggests that shrimp farms may only be able to avoid flooding and overflow of its ponds in the event of a Category 1 hurricane. It is to be assumed therefore, that shrimp ponds have a high probability of flooding due to risks from hurricanes of Category 2 or greater, and it is not a matter of if, but rather when. Under these circumstances there is not much that can be done, other than to effect direct management of water levels to accommodate for anticipated water level rise from rains, and ensure that dykes are high enough to be able to support surge from at least a Category 1 hurricane. This is further emphasized in the Biodiversity Risk Mitigation Plan below.

**Biodiversity Risk Mitigation Plan (BRMP)**
The BRMP includes simple and easy to implement procedures for the farm to avoid negative impacts to endangered species and the environment, including frequency and/or timeline of implementation of each action. Corrective actions are proposed based on the principles of sustainable shrimp farming and is intended to have both environmental and economic benefits to the farm, while meeting compliance with ASC standards and the Environmental Compliance Plan approved for the farm by the Department of the Environment of Belize.

<table>
<thead>
<tr>
<th>Biodiversity Factor</th>
<th>Potential Risk</th>
<th>Mitigation Action</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Protection</td>
<td>Habitat destruction</td>
<td>Land clearing limited to current production area. No further land clearing. Leave all remaining forests intact, especially the area constituting the buffer between the production ponds, settlement area and the shoreline. Expansion in previously cleared or current non-forested areas, and away from freshwater bodies.</td>
<td>At start-up and to be maintained permanently. In the event of mangrove clearance for construction of inlet canal, replant a proportionate amount of mangrove along dykes of inlet canal, with targeted area to be replanted completed over a period not exceeding 3 years.</td>
</tr>
<tr>
<td>Biodiversity Factor</td>
<td>Potential Risk</td>
<td>Mitigation Action</td>
<td>Frequency</td>
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<tr>
<td>Native Species Protection</td>
<td>Introduction of exotic species to the wild; Entry of wild fish into production ponds.</td>
<td>Install 500 micron screens at pond inlets and ¼” screens on outlets.</td>
<td>Permanently with monitoring of adjacent aquatic environment for escaped shrimp at least 3 times per year using cast netting at no less than 2 sampling sites to determine presence, abundance, spatial distribution, and ratio of occurrence of <em>L. vannamei</em> to native shrimp species. Sedimentation Pond must also be sampled for evidence of escaped shrimp.</td>
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<thead>
<tr>
<th>Biodiversity Factor</th>
<th>Potential Risk</th>
<th>Mitigation Action</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>Soil and Freshwater Protection</td>
<td>Salinization of soils and freshwater sources</td>
<td>Monitor for salt intrusion at predetermined sites adjacent to production and waste disposal areas.</td>
<td>Soil every 6 months Freshwater every 6 months</td>
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<thead>
<tr>
<th>Biodiversity Factor</th>
<th>Potential Risk</th>
<th>Mitigation Action</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Ecosystem Protection from Improved Water Management</td>
<td>Ecosystem degradation at the landscape level from effluent discharge.</td>
<td>Improve quality of effluent by avoiding over-fertilization, excessive feeding, use feeding trays placed in the pond to monitor feed consumption rate, and the administering of feed of the appropriate size, protein content and digestibility; Improve water quality conditions in pond through calculated water exchanges, paddle wheel aerators, or both; Do not practice mass storage of chemicals on the farm; Sedimentation or settlement ponds must be at least 10% of total acreage of production ponds;</td>
<td>Provisions to be maintained permanently with biochemical and physical monitoring of effluents from settlement ponds overflow at least 2 times per year (dry season and rainy season) to measure presence/concentrations of Nitrates, Phosphates, Salinity, Temperature, Turbidity, Dissolved Oxygen, Fecal Coliforms, and algal blooms linked eutrophication.</td>
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### Biodiversity Factor

<table>
<thead>
<tr>
<th>Ecosystem/Natural Food Chain Protection</th>
<th>Potential Risk</th>
<th>Mitigation Action</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Indiscriminate lethal control of bird species and crocodiles.</td>
<td>Zero use of lethal predator control.</td>
<td>Provision to be maintained permanently with Annual Bird Counts in January (Peak of Migratory Season) and July (Peak of Non-Migratory Season). Crocodile counts at least once per year during the nesting season. No Hunting or Fishing Policy to be instituted permanently on farm property.</td>
<td></td>
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<tr>
<td>Convenient and indiscriminate exploitation of fish and other marine life which enter the inlet canal.</td>
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### Predator Control

Management is required to formally express and emphasize the policy of the farm that no form of intentional hunting, killing, destruction, or extraction of wildlife is permitted on the farm. The **Wildlife Protection Policy Statement** will be formally posted on the walls of offices and social areas of the farm, and will be part of the formal introduction and orientation of all staff and visitors. The main entrances and boundaries of the farm
will have a representation of this Wildlife Protection Policy on clearly visible signs not less than 4 ft. x 4 ft. in size. These signs will display the farm’s policy to the public and visitors, and will also serve to warn members of nearby communities who may accidentally enter or intentionally trespass on the farm’s property with intention to hunt or fish of the policy in place. The Wildlife Protection Policy Statement for 4 Hands Shrimp Farm Limited is presented in Box 1 and a sample sign to be place at main entrances and boundaries is presented in Box 2.

Box 1: Draft Wildlife Protection Policy Statement

4 HANDS SHRIMP FARM

- WILDLIFE PROTECTION POLICY STATEMENT –

GUIDING PRINCIPLE: 4 Hands Shrimp Farm believes that shrimp farming can and should be conducted in a sustainable and responsible manner, with minimum impact to wildlife and the natural environment on which they depend, and is thus committed to do everything possible to protect and maintain the integrity of wildlife in and around the shrimp farm.

POLICY OBJECTIVE: To institute a company-wide policy which ensures that shrimp farming activities at 4 Hands Shrimp Farm do not negatively affect wildlife and that all actions on the farm are consistent with global sustainable shrimp farming best practices.

THE POLICY:

- This Wildlife Protection Policy shall apply to all employees, visitors, and activities of 4 Hands Shrimp Farm and no person shall be exempted from this policy.
- No form of hunting, fishing, destruction or extraction of wildlife shall be permitted or entertained at 4 Hands Shrimp Farm.
- Where it has been established that species may be creating substantial economic losses to the shrimp farming activity, 4 Hands Shrimp Farm shall explore and implement non-lethal measures to mitigate the impact of wildlife, and all such measures shall be properly documented and dated.
- Species which may use the habitats at 4 Hands Shrimp Farm for any part of their reproductive cycle shall remain undisturbed to allow for natural completion of the said cycle.
- All violations of this policy shall be dealt with expeditiously and decisively by 4 Hands Shrimp Farm to minimize any possible repeat, including legal recourse where necessary and applicable.
Methodology of the Participatory Social Impact Assessment (p-SIA)

A Participatory Social Impact Assessment (p-SIA) includes the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.

The basic p-SIA follows the methodology defined in Appendix II of the ASC Shrimp Standard Version 1.0 of March 2014, consisting of seven steps. These were used to guide the p-SIA as outlined below:

**Step 1: The Stakeholder Analysis - Identifying possibly affected people, groups, and communities and establishing a two-way communication.**

The criteria for primary key stakeholder communities considered those communities in close proximity to the farm, likely to experience direct environmental impacts from the farm and potentially a pool for employment.
Step 2: Description of farm and effects. Make a description of the farm and focus on siting, size (including ancillary structures and buffer-zones), habitat (conversion), inflows of natural resources (e.g., water and groundwater), interruption of natural processes (e.g., fisheries, tidal moves, surface streams, canals and dykes), interruption of social or socio-economic processes (e.g., walkways, paths, access to land and water, ancestral/cultural significance), and effluents coming from the farm (e.g., water, pollution, noise, light).

Desktop research including review of the Environmental Compliance Plan served to inform this study. In addition, a preliminary introductory farm visit was held with representatives in charge of the operations and management of 4 Hands Shrimp Farm on August 3rd 2015 (Appendix 1). The initial introductory meeting served to introduce the requirements and methodology of the B-EIA/p-SIA; discuss farm boundaries and operational aspects; and establish current relationship of the farm and surrounding communities including primary labor generating areas. A follow-up visit was also conducted on September 15th 2015 to carry out additional field observations and confirm certain information from the previous visit and to obtain from management, agreement with the Biodiversity Risk Mitigation Plan, Wildlife Protection Policy, and Complaints Resolution Policy.

Step 3: Listing of probable social impacts. Describe or make an estimate of changes and how they will affect each identified stakeholder (group) based on steps 1 and 2 above.

This is addressed in section below.

Step 4: Deeper research on probable impacts.

This was undertaken through participatory interviews with representatives of key sectors of the Independence Village Community, as the Primary Stakeholder Community. The local governance system of Village Councils was respected and utilized as an initial contact prior to individual requests for interviews being made to other individuals in the community. A Focus Group session was initially planned by the farm’s management through the office of the Independence Village Council, but proved to be ineffective as a consultation mechanism. Key individuals interviewed included a representative of the Independence Village Council, as the primary local authority responsible for the overall well-being of the community; an Environmental Activist from the NGO community; and the Vice-Principal of the Independence...
Primary School from the main education sector of the community, which also has a good relationship with the farm through its Corporate Social Responsibility practices.

This methodology was led by the Farm’s representative and was felt to be the most effective in terms of generating a sense of involvement and ownership and as a first step to develop a relationship between the Farm and the community. Impacts were evaluated based on their likelihood of occurring as well as their assessed impact level and the risks; these were prioritized and discussed with interviewees. Likelihood and levels of adverse impacts are defined in Appendix 2.

**Step 5: Propose adaptations.** Propose an adaptation of farm operations with clarification on how impacts and risks are (positively or negatively) changed. Make recommendations to maximize the positive impacts and minimize the negative impacts. Consider avoidance, mitigation and compensation as possible measures.

Proposed adaptation of farm operations were made with the overall principle of mitigating adverse impacts and optimizing positive impacts (See Biodiversity Risk Mitigation Plan). Avoidance and mitigation were considered as well as measures of mutual benefit to the farm and the community, even though the community agreed that there were no direct negative impact of the farm on the community.

**Step 6: Agree on impacts and measures to address them.** Develop and approve with all stakeholders (groups, representatives) a description of remaining impacts, the mitigation or compensation of those impacts and a monitoring plan.

This is addressed in section below.

**Step 7: Summarize conclusions and agreements.** A minimum of a one-page summary with main outcomes is translated in the local language(s) that apply. This is addressed in section below.

This is addressed in section below.
ASC Criteria Addressed in the p-SIA

Stakeholder Analysis
Shrimp farms have the potential to contribute positively to the surrounding local communities. It is the goal of the ASC standards that any existing and potential negative impacts on the surrounding communities are assessed, and with the participation of the communities, that measures are identified to address and mitigate them.

Primary and key stakeholders for 4 Hands Shrimp Farm have been identified as follows:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Rationale</th>
<th>Classification according to ASC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence</td>
<td>Closest main economic center. Current and potential major human resource pool for employment.</td>
<td>Primary non-key stakeholder</td>
</tr>
<tr>
<td>Neighboring Citrus Farm</td>
<td>Adjacent landowner</td>
<td>Primary non-key stakeholder</td>
</tr>
<tr>
<td>Government of Belize: Dept of Agriculture, Dept of Rural Development Dept of Environment</td>
<td>Development, licensing and regulation of the industry</td>
<td>Key stakeholders</td>
</tr>
<tr>
<td>BEL</td>
<td>Power supply - economic beneficiary of operations</td>
<td>Key stakeholder</td>
</tr>
<tr>
<td>Belize Shrimp Growers Association</td>
<td>4 Hands Shrimp is a BSGA member</td>
<td>Key stakeholder</td>
</tr>
</tbody>
</table>

Considerations:

- Land-use has remained the same for numerous years as the new operation has rehabilitated an existing farm, and is built on an area originally cleared for agriculture.
- The farm is located in an area which is predominantly agriculture mixed undeveloped land. There are no communities immediately adjacent to the farms property which lies 4 miles off the unpaved Monkey River Road and 7 miles from the Southern Highway;
Given the current size of operations permanent staff are housed on site and up to 15 additional staff are hired for harvesting. Current employees originate from within the southern communities of Stann Creek and Toledo District.

The farm is looking to expand and double the production area over the next two years.

4 Hands Shrimp Farm is thus a relatively isolated development with limited natural resource use by other stakeholder groups within the immediate vicinity of the farm. Other communities within the surrounding district may benefit from employment opportunities, however given the scale of the current operations this impact is likely to be minimal especially compared to the significant employment generated within the citrus, banana and tourism industry throughout the district.

**Description of 4 Hands Shrimp Farm and its Effects**

In June 2015 the WWF commissioned an exercise to document the production area and the effects/assets of 4 Hands Shrimp Farm. The description presented here is an extract of that report and is the most recent and accurate published description available. Details of the description are presented in Figure 6 Below.

‘At June 8, 2015, twenty production ponds were in operation in the southern portion of the farm with a further ten undergoing repair and rehabilitation immediately to the north. Production ponds are quite variable in size: the smallest is approximately 2 acres in size with the largest being approximately 20 acres. The water supply system is relatively complex and is based on a network of above-ground canals and reservoirs. Drainage is arranged logically in open-air canals, with all effluent treated at the southern end of the farm in a single sedimentation pond.

Water enters the farm through an inlet canal and originating at 88° 28.57’ W / 16° 24.08’ N from the Caribbean Sea. At a point at coordinates 88° 29.25’ W / 16° 24.21’ N the canal widens into an initial reservoir which extends a further 500m west. From this reservoir subsidiary reservoirs extend north, south and west to supply water to different parts of the farm.

The main area currently in operation lies south of the main reservoir: water for this portion of the farm is delivered via two subsidiary reservoirs, both running approximately southwards. The first subsidiary reservoir, serving ponds 1 to 14, is fed by a pump at 88° 29.43’ W / 16° 24.24’ N, and delivers water directly to ponds 1-10. At 88° 29.50’ W / 16° 23.94’ N the reservoir splits into two smaller arms one running east (to serve ponds 13 and 14) and one running west (to serve ponds 11 and 12).
Figure 6: Mapped Details of Production Area at 4 Hands Shrimp Farm (WWF, 2015).
The small east-west aligned reservoirs are interrupted by two canal gates, one located at 88° 29.41' W / 16° 23.93' N (north of pond 13), and the other at 88° 29.54' W / 16° 23.95' N (north of pond 12). The remaining part of the main production area – ponds 15 to 20 – is fed by a reservoir running north-south from 88° 29.59' W / 16° 24.27' N to 88° 29.65' W / 16° 23.97' N (just north of pond 20). This reservoir receives water from the main inlet reservoir via a small branch reservoir that loops around the northerly edge of the administrative compound (at 88° 29.57' W / 16° 24.26' N) and connects to the main inlet reservoir at 88° 29.53' W / 16° 24.27' N. This branch reservoir formerly also fed water to a series of ponds located some distance to the west of the main farm area. There are no reported plans to reopen those westerly ponds.

Water supply to the ponds undergoing renovation to the north is discussed below.

Each of the main production ponds in the southern section (ponds 1 – 20) is supplied with water from the inlet canals by two inlet gates, generally located in the corners of the pond facing the reservoirs. The exception is pond 20, which is supplied by a single inlet gate. Each pond is drained by a single outlet, typically located approximately centrally on the pond embankment opposite the inlet gates. Exceptions are the triangular pond 14 and pond 20, where the outlet is in the south-west corner.

All ponds drain into one of three drainage canals. One is located west of ponds 15 – 20 and collects effluent from those ponds, transporting it south and then east to a point at 88° 29.65' W / 16° 23.86' N where it meets a second drain canal that runs from north to south through the centre of the farm and drains ponds 6-11. (This central drain also receives effluent from the western half of the section of the farm undergoing renovation to the north.) A third drain canal joins the first two a short distance (c. 60m) further south (at 88° 29.66' W / 16° 23.83' N), bringing effluent from the easternmost ponds (1 – 5 and 11 – 14). (The easternmost drain, similarly to the central drain, also receives effluent from as yet uncompleted ponds in the new section to the north.)

From this common meeting point (88° 29.66' W / 16° 23.83' N) the combined effluent from the entire production area enters a sedimentation pond. The pond is equipped with earthworks (berms) positioned to act as baffles, directing and slowing water flow to increase precipitation of solids. Water is eventually discharged southward from the sedimentation pond back into the natural environment.
Immediately north of the main current production area (north of 1, 6 and 15) lies an area of approximately 210 acres and consisting of formerly abandoned ponds currently undergoing renovation (June 8, 2015). Of the abandoned ponds within this area a total of 10 are being restored to use. The old ponds are being cleared of vegetation and regraded, with the surrounding earthworks repaired where necessary and new inlet and outlet gates installed where appropriate. These ponds are currently unnumbered by the farm manager.

The main water supply to this section of the farm is provided by a central reservoir running from south to north from 88° 30.05' W / 16° 24.45' N. A pumping station is under construction at this location, and will lift water from the existing main supply reservoir (located immediately south of this point) to the northerly subsidiary reservoir. Production ponds are arranged west and east of the central reservoir; each is served with water by two inlet gates located in the approximate corners of the ponds, with the exception of the southernmost pond on the western side (X1 – a small pond of a little under 2 acres in size) which has a single central inlet.

The four large ponds in the eastern half of this section (X7 – X10) drain through single outlets into a drainage canal which connects with the existing eastern drain canal at 88° 29.25' W / 16° 24.21' N. From here effluent flows to the sedimentation pond described above via the existing drainage network.

The northernmost two ponds in the western half of the new section (X5, X6) drain through single outlets into a canal which runs southwards, before diverting around the west edge of a presently unused and unrestored pond. It is unclear precisely where this canal terminates and whether it rejoins the existing drainage network, but presumably it will connect to the existing western drainage canal at the north-west corner of pond 15 (88° 29.72' W / 16° 24.29' N), leading eventually to the sedimentation pond.

The southern four ponds in the western half of the new section (X1 – X4) drain through single outlets into a short drainage canal which flows south for 400m before turning eastwards and joining the existing central drain canal at 88° 29.58' W / 16° 24.28' N, through which effluent flows southwards to the sedimentation lagoon (as described above).

The main entrance to the farm is via a security gate (and hut) located at 88° 29.76' W / 16° 24.79' N, where basic biosecurity measures are implemented. From here a principal road runs 250m west (serving a garage and storage complex). A second branch of the principal road runs
east for 500m from the gate before turning south through the centre of the production area along the new northern section's reservoir embankment. The main road terminates at the administrative compound, which is centrally located in the farm at 88° 29.56' W / 16° 24.27' N.

A network of smaller roads (marked by thin black lines on the map) give access to every inlet and outlet gate on each pond. Small roads also give access to the different parts of the northern building cluster.

Buildings are located in two principal clusters: one close to the entrance gate and one centrally located in the farm. The northern cluster (centred around 88° 29.83' W / 16° 24.78' N) includes a recently constructed residential and kitchen complex at 88° 29.90' W / 16° 24.79' N. 100m east of here is a garage (coloured brown) and generator house (pink). 30m further east is a fuel tank, holding diesel for the generator. 30m east again is a feed store, to the east of which is a packaging plant.

The second cluster of buildings, located north of pond 6, consists: of a multi-storey building containing offices, a laboratory and storage space; temporary feed storage structures (open-sided roofs); shelters for employees (again open-sided roofs) and a generator house.'

**Initial listing of probable social impacts**

<table>
<thead>
<tr>
<th>Direct Impact</th>
<th>Indirect Impact</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct and employment opportunities</td>
<td>Potential for increased quality of life.</td>
<td>Positive impact.</td>
</tr>
<tr>
<td></td>
<td>Diversification from dependence on traditional citrus/banana industry jobs</td>
<td>Mainly male orientated;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primarily seasonal labor at lower wage bracket.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small scale compared to agricultural sector.</td>
</tr>
<tr>
<td>Direct business with local suppliers of construction materials</td>
<td>Indirect employment opportunity Multiplier effect</td>
<td>Positive economic impact</td>
</tr>
</tbody>
</table>
### Human Assets

| Opportunity for skills training for younger population 18-25yrs | Potential to contribute to less out-migration from communities | Positive impact- particularly relevant as education levels in the district are low. (Primary school is highest level of education attained by 43% of the Stann Creek District) |

### Natural Resource Access and Use

| Access restrictions | Reduction in traditional subsistence hunting | Negative impact – however this area is private property and biosecurity measures are critical to ensuring health of the industry. |

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**Deeper research on important impacts**

Independence Village is the second largest urban center in Stann Creek after the district Capital of Dangriga. According to National Census data (SIB) population as of 2000 was 1,432, more than doubling to 3739 in 2010, with a ratio of almost 1: 1 in terms of men to women (SIB 2010). Population figures are informally reported to be as high as 5,000. The village serves as an economic center and transportation hub with a mix of retail and service industries including construction, the financial sector and Government services utilized by the aquaculture industry. A new offshore cruise port development at Harvest Caye and transfer station one mile from Independence at Malacate, will bring additional employment to the area in 2016 (reportedly 1200 jobs).

A focus group participatory session with Independence was scheduled to be held on August 21st, with invited members of the Independence community, including the Village Chairperson and the General Manager of 4 Hand Shrimp Farm. However, participation was poor and consultation was suspended. One on one interviews were held with: a representative of the Independence Village Council, as the primary local authority responsible for the overall well-being of the community; an Environmental Activist from the NGO community; and the Vice-
Principal of the Independence Primary School from the main education sector of the community, which also has a good relationship with the farm through its Corporate Social Responsibility practices.

The interviews were used to:

1) Gain insight into the level of awareness of the community in terms of the policies, operations and activities of the farm and provide information to this effect:
2) Provide basic information to the community on the ASC standards and its benefits;
3) Understand the perceived, actual and potential impacts of each farm to the community with respect to their current operations and future plans, and evaluate risk. Areas for consideration included environmental aspects and socio-economic issues.
4) Determine best communication mechanisms to allow for effective and transparent information between the farm and the community.

Key Findings:

- Employment is the number one priority for the community in terms of social impacts from the farm, with 10 persons from Independence working at the farm.
- The farm offers continuous sponsorship and support to a variety of community projects in Independence Village.
- Even though the farm may be limited in job opportunities as there is no processing onsite, the management is open to sharing contacts with other farms who offer more diverse employment opportunity.
- The Community, and particularly Independence Primary School, is greatly appreciated the corporate support given by the farm to date.
- Communication by local television is the preferred choice for the farm to communicate with the community.
- Local businesses in Independence benefit tremendously from the business-business relationships with the farm.
- Even the community have concerns about shrimp waste possibly going into the Placencia Lagoon, there was no specific concern about 4 Hands, since this farm is not directly linked to the Placencia Lagoon and is far away.
- Residents of Independence Village have had no traditional use of the area where the farm is located.
Proposed adaptations
- All adaptations proposed are related to biodiversity risk mitigation and have been addressed in the Biodiversity Risk Mitigation Plan.
- The Wildlife Protection Policy will require that potential trespassers refrain from entering the farm property for fishing, hunting or physical extraction of all forms of wildlife.
- The Complaints Resolution Policy provides an avenue for members of the community to express and receive attention and solution to any potential concerns which may arise.

Agreement on impacts and measures to address them
- 4 Hands Shrimp Farm Limited has agreed to use quarterly meetings with the Village Council Chairman as an avenue to provide updates to the community on farm operations and employment opportunities.
- 4 Hands Shrimp Farm Limited has agreed to present farm updates in quarterly public meetings with the Independence Village community if deemed necessary by the Village Council Chairman.
- 4 Hands Shrimp Farm Limited has agreed to continue to provide employment for persons from Independence and provide training necessary for them to be able to work on the shrimp farm when opportunities for employment are available.
- 4 Hands Shrimp Farm Limited has agreed to share the findings of monitoring as defined in the Biodiversity Risk Mitigation Plan with members of the community if and when requested to do so by the community.
- As part of its Corporate Social Responsibility, 4 Hands Shrimp Farm Limited is committed to support community projects within its possibilities, with priority for educational projects.

4 Hands Shrimp Farm Limited will publish its contact details, and display at the entrance to the farm, in the event that there may be sensitive complaints to be made by villagers.

Conflict Resolution Policy
No complaint, conflict or dispute has currently arisen between the key stakeholder community and the farm to date, however consultation determined various levels of potential complaints, dispute and conflict have occurred in the past with the neighboring farm.
Complaints and conflicts can have varying levels of complexity, sensitivity and legal implications. It is important that Haney’s Shrimp Farm has a clear complaints and grievance policy and mechanisms in place to manage potential conflict and that all workers are aware of what this policy is in the event that they are approached, and the point person to respond.

Relationship building and maintaining an open communication channel will be an important consideration for the farm in terms of early management of any potential conflict. In the case of the communities surrounding the farm, based on the participatory sessions, the following basic mechanism is recommended:

- Communities are informed of the right to register complaints
- Communities are offered at least one method of logging complaints
- A centralized record is kept of all complaints including the outcome and resolution.

A Complaint Resolution Policy was drafted, reviewed with the farm’s management, and currently being reviewed by the Maya Center Community. The said policy, as agreed with the farm’s management is presented in Appendix 6. The Management of Haney’s Shrimp Farm Limited has agreed that a copy of the Complaints Resolution Policy shall be deposited with:

The Village Council Chairman
Independence Village
Stann Creek District, BELIZE

The Librarian
Independence Village Library
Independence Village
Stann Creek District, BELIZE

The Manager
Independence Village Bus Terminal
Stann Creek District, BELIZE

And:
Summary of conclusions and agreements

Conclusions:

4 Hands Shrimp Farm Limited is a medium-sized farm in terms of production area. The farm is well on its way to certification and management is fully committed to putting all systems and processes in place to meet certification requirements. Of note is the fact that the farm’s current sedimentation pond meets the required 10% of total acreage of production ponds, as defined on the approved ECP for the shrimp farm, but may have to be expanded if the farm continues with its proposed expansion. The current sedimentation pond is at the point of lowest elevation on the farm at 3m above sea level, and is on the southern boundary of the farm perimeter. It is also important to note that the dimensions of the farm do not include areas which can be used as natural buffers, even though the surrounding property between the farm and the lagoon does possess suitable buffer areas. The semi-intensive production method used, medium stocking density, and the reduced water exchange rate suggest that sediments in waste water will be minimal and the current sedimentation pond should be enough. The adjacent property can be considered a ‘proxy buffer’ and is more than suitable for nutrient assimilation purposes, which can be confirmed through periodic environmental monitoring of adjacent lagoon waters. The fact that villagers from Independence Villager are not known to have any traditional or historical relationship with the farm or the resources adjacent to the farm is another plus, as far as the need to address possible social impacts. The desire of the farm to continue to engage the community in a positive manner, especially from the perspective of Corporate Social Responsibility, is a step in the right direction.
Agreements:

- 4 Hands Shrimp Farm Limited has agreed to use quarterly meetings with the Village Council Chairman as an avenue to provide updates to the community on farm operations and employment opportunities.
- 4 Hands Shrimp Farm Limited has agreed to present farm updates in quarterly **public meetings with the Independence community** if deemed necessary by the Village Council Chairman, as well as the use of local TV for communicating with the community.
- 4 Hands Shrimp Farm Limited has agreed to continue to provide employment for persons from Independence and provide training necessary for them to be able to work on the shrimp farm when opportunities for employment are available.
- 4 Hands Shrimp Farm Limited has agreed to share the findings of monitoring as defined in the Biodiversity Risk Mitigation Plan with members of the community if and when requested to do so by the community.
- As part of its Corporate Social Responsibility, 4 Hands Shrimp Farm Limited is committed to support community projects within its possibilities, with priority for educational projects.
- 4 Hands Shrimp Farm Limited has agreed to fully implement the Biodiversity Risk Mitigation Plan and the Wildlife Protection Policy developed as part of this ASC certification process.
- 4 Hands Shrimp Farm Limited has agreed to adopt, implement and respect the Complaint Resolution Policy developed as part of this ASC certification process.
- 4 Hands Shrimp Farm Limited will publish its contact details, and display at the entrance to the farm and within the village, in the event that there may be sensitive complaints where an individual would not want to involve the community.
Bibliography & References


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OAS/USAID. 1999. Storm Hazard Assessment for Belize. Storm Surge and Wind Hazard Maps. Caribbean Disaster Mitigation Project. 27p

OCEANA. 2013. Mangroves of Belize. Courtesy of Miss Idalia Machuca. Belize, 14p


Meeting Notes

4 Hands Shrimp Farm- introductory site visit - August 3, 2015

Representatives met with:
Diego Lorenzo, Farm Manager
Yadiera Gutierrez, Administration
Kevin, Farm Technician

Site Description:
Property area: 750 acres of ponds but not all in production.
Production area of ponds approx. 137.5 acres
Looking to expand 150 acres to the north in the next two years.
Neighbouring land use- A citrus farm of foreign ownership managed by Mr. Canton.

Water Bodies:
One freshwater well just outside property entrance gate. The 80ft well is metered and pumps 17 gallons a minute through 6 inch casing.
One freshwater creek runs east of the farm area but not on the property. The creek does intercept the intake canal and an aqua-duct has been constructed to avoid mixing of water. Swamp lies to the back of the property.
Discharge is into the Pine Ridge Creek and then direct into the sea south of Indian Hill lagoon.

Sedimentation Pond:
Pond is 20 acres. A new sedimentation pond has been defined for the whole area. There are screens on outlet before sedimentation pond. Final screen is ½ inch on exit from sedimentation pond.
Operations:

Water exchange operating level for the first month is 5% exchange per day while shrimp are 5gms. At 8 grams it is increased to 10% exchange per day. Exchange levels do depend on turbidity: hold back on exchange if turbidity increases. Exchange cannot go higher than 10%. A water management plan is in place.

Barely any water is used in packaging for the Mexican market. A little more for BAL sale, however still very small amounts, therefore there is not a heavy demand load placed on the well.

No predator control is practiced. In fact management like the white egrets which they feel assist in harvesting procedure by chasing shrimp.

Can hire up to 15 additional casual laborers during harvesting. Housing is provided for permanent workers who operate in shifts.

Interaction with neighboring communities:

Local communities use the citrus farm for hunting activities. Therefore need a sign “No hunting or Fishing” at entrance to shrimp farm property.

Have intentions to support community initiatives. At present they do offer sponsorship to schools in the area. Trio School has benefitted. The farm sponsored Forestry Training in Savannah and supported sports events in Mango Creek.

Have experienced challenges with workers who still practice traditional Milpa farming as farming takes priority over obligation to employer.

50% of the workforce is from Independence, however they have already had community meetings with the other farms. Some are from Bella Vista.

Outlet canal has screens

Of note:

There is an EIA of the farm which includes property map. Diego to send digitized version.

Markets are Jamaica, Mexico and BAL.

To recommend 10 stakeholders from diverse groups in Mango Creek for a focus group meeting.
Appendix 2: Definitions of Likelihood and Levels of Adverse Impacts

**LIKELIHOOD**

What is the likelihood that there will be an adverse impact on the environment?

- **Likely**: Will certainly occur if preventative measures are not applied.
- **Unlikely**: May only occur if preventative measures are not applied.
- **Rare**: Unlikely to occur even if controls are missing.

**CONSEQUENCE**: How severe will the potential impact be?

- **Catastrophic**: *Significant damage or impact on environment or community.*
  - severe and/or persistent water quality pollution
  - death of fauna/ flora
  - widespread and/or significant changes to ecosystems
  - widespread community impact resulting in illness, displacement, injury or inconvenience
  - loss or destruction of archaeological/heritage places, sites or objects

- **Major**: *Major adverse environmental or social impacts*
  - medium-term, noticeable/measurable change in waterway/ storm-water quality
  - isolated deaths of fauna/ flora species
  - noticeable, localized changes to ecosystems
  - annoyance or nuisance to community
  - frequent, partial damage or off site movement of archaeological/heritage places, sites or objects

- **Moderate**: *Moderate undesirable environmental or social impacts*
  - localised, short term noticeable/measurable change in water quality
  - short term, minor changes to ecosystems
  - some annoyance or nuisance to community
  - isolated, partial disturbance or movement of archaeological/heritage places, sites or objects

- **Minor**: *No or minimal adverse environmental or social impacts*
  - no measurable/ unlikely effect on waterway/ storm-water quality and ecosystems
  - no or isolated community complaints
  - no or unlikely impact on archaeological/heritage places, sites or objects
Appendix 3: Complaints Resolution Policy

Complaints Resolution Policy

Haney’s Shrimp Farm Limited views complaints as an opportunity to learn and improve for the future, as well as a chance to put things right for the person, organization or community that has made the complaint.

Our policy is:

- To provide a fair complaints procedure which is clear and easy to use for anyone wishing to make a complaint
- To make public the existence of our complaints procedure so that people know how to contact us to make a complaint
- To make sure management and workers knows what to do if a complaint is received
- To make sure all complaints are investigated fairly and in a timely way
- To make sure that complaints are, wherever possible, resolved and that relationships are repaired
- To gather information which helps us to improve what we do

Definition of a Complaint
A complaint is any expression of dissatisfaction, whether justified or not, about any aspect of Haney’s Shrimp Farm Limited.

Where Complaints Come From
Complaints may come from community groups, residents of neighboring area, clients and suppliers, or other members of BSGA. This policy does not cover complaints from staff or workers who will be required to follow the procedure for employers/employees as stipulated within the Laws of Belize.

How are Complaints Made
A complaint can be received verbally, by phone, by email or in writing, but preferably in writing using the Complain Log in Schedule II of this policy.

Confidentiality
All complaint information will be handled sensitively, telling only those who need to know and following any relevant data protection requirements.

**Responsibility**
Overall responsibility for this policy and its implementation lies with the General Manager and Board of Haney’s Shrimp Farm Limited.

**Review**
This policy is reviewed regularly and updated as required.

** Depository**
A copy of this Complaints Resolution Policy shall be deposited by Haney’s Shrimp Farm Limited with the Chairman or Alcalde of the nearby community most relevant to the farm and with at least one non-governmental organization relevant to the nearby community.

Adopted by: ______________________________

Farm Management or Shareholder

Adopted on:.................................[date]

Last reviewed:.........................[date]
SCHEDULE I OF THE COMPLAINTS RESOLUTION POLICY

Complaints Procedure

- Written complaints may be sent to Haney’s Shrimp Farm Limited at All Pines Road, Southern Highway, Stann Creek District, Belize.
- Verbal complaints may be made by phone to General Manager at Cell: 666-7112.
- Independent procedures specific to a Community may be agreed upon between the Village Chairperson and the farm management.

Contact information of the farm for complaint purposes will be the same as per the address indicated above.

Receiving Complaints

- Complaints may arrive through quarterly community meeting or any other opportunities the complainant may have.
- The General Manager will be the point person for all complaints.
- In his absence the Production Manager may be notified and the name and contact of the complainant will be recorded for immediate follow-up.
- The General Manager will maintain a Complaint Log as described in Schedule II of this policy.
- All workers will also be made aware of the complaint procedures.

Resolving Complaints

Stage 1

- On receiving the complaint, the General Manager will record it in the Complaints Log.
- If the complaint relates to a specific person, they should be informed and given a fair opportunity to respond.
- Complainants should receive a definitive reply within two weeks. If this is not possible the complainant will be notified.
- Whether the complaint is justified or not, the reply to the complainant should describe the action taken to investigate the complaint, the conclusions from the investigation, and any action taken as a result of the complaint.

Stage 2

- If the complainant is not happy with the resolution, the complainant shall be free to proceed to notify and engage the appropriate authorities.
Contact numbers of the relevant authorities are hereby included in this policy for the benefit of neighbouring communities.

For environmental matters – Department of Environment, Ministry of Natural Resources and Agriculture

Mailing Address: Chief Environmental Officer, Department of the Environment, Ministry of Forestry, Fisheries and Sustainable Development, Government Administration Building, Belmopan, Belize
Telephone: 802-2542
Email: info@doe.gov.bz

For mangrove Clearance – Forest Department, Ministry of Forestry, Fisheries and Sustainable Development

Mailing Address: Chief Forest Officer, Forest Department, Ministry of Forestry, Fisheries and Sustainable Development, Forest Drive, Belmopan, Belize
Telephone: 822-1524
Email: cfo@mnrei.gov.bz

Health and safety concerns - Public Health Department, Ministry of Health

Mailing Address: Public Health Inspector, Southern Regional Hospital, VCT Building, Dangriga, Town, Stann Creek, Belize
Telephone: 522-3832
Email: None

Other complaints - Aquaculture Unit, Ministry of Natural Resources and Agriculture

Mailing Address: Head of Aquaculture, Aquaculture Unit, Government Administration Building, H.M. Queen Elizabeth II Boulevard, Belmopan, Belize
Telephone: 802-2711, 802-2226
Email: info@mnra.gov.bz

Monitoring and Learning from Complaints
Complaints will be reviewed annually to identify any trends which may indicate a need to take further action.
### SCHEDULE II OF THE COMPLAINTS RESOLUTION POLICY

**Complaint Log to be maintained by General Manager**

This form may be used by the General Manager and other staff as applicable as a way to record verbal complaints received from community stakeholders.

<table>
<thead>
<tr>
<th>PART 1: TO BE COMPLETED WITH COMPLAINANT OR IMMEDIATELY PROCEEDING COMPLAINT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong></td>
</tr>
<tr>
<td>Date complaint is received</td>
</tr>
<tr>
<td><strong>Personal Details:</strong></td>
</tr>
<tr>
<td>• Name and contact details of the complainant</td>
</tr>
<tr>
<td>• Age - adult or child</td>
</tr>
<tr>
<td>• Sex – male or female</td>
</tr>
<tr>
<td><strong>Nature of Complaint:</strong></td>
</tr>
<tr>
<td>Classification of the complaint</td>
</tr>
<tr>
<td>(environmental, social, individual, community, sensitive, other)</td>
</tr>
<tr>
<td><strong>Detail of the Complaint:</strong></td>
</tr>
<tr>
<td>A detailed description of the complaint the person has made</td>
</tr>
<tr>
<td><strong>Who received the Complaint:</strong></td>
</tr>
<tr>
<td>Name of person who received the complaint</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART 2: FOR OFFICE USE AND FEEDBACK TO COMPLAINANT, AS APPROPRIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome of Complaint:</strong></td>
</tr>
<tr>
<td>Outline of what action was taken and what has happened as a result of the complaint</td>
</tr>
<tr>
<td><strong>Comments:</strong></td>
</tr>
<tr>
<td>Any further comments e.g. follow-up action recommended as a result of the complaint such as a change to current policies and procedure</td>
</tr>
</tbody>
</table>
Appendix 4: Terms of Reference for the B-EIA & p-SIA

BIODIVERSITY ENVIRONMENTAL IMPACT ASSESSMENT (B-EIA) AND PARTICIPATORY SOCIAL IMPACT ASSESSMENT (P-SIA) FOR THREE SHRIMP FARMS IN PREPARATION FOR ASC-SHRIMP CERTIFICATION

I. BACKGROUND

The Belize Shrimp Growers Association (BSGA) and WWF’s Guatemala/MAR program have been working together over the past nine years to certify the shrimp farms under the ASC-Shrimp internationally recognized certification scheme for responsible shrimp production.

In 2011 the Shrimp Aquaculture Dialogues (ShAD) released the draft standards for responsible shrimp production to be used by the Aquaculture Stewardship Council (ASC) to certify aquaculture shrimp farms, the BSGA played an important role in the development of such standards, firstly hosting the first ShAD dialogue meeting for Central America and Mexico in April 2008 and secondly securing a permanent seat in the Global Steering Committee until the handover of the standards to ASC in 2013.

In November 2012 the BSGA conducted a gap analysis to identify the compliance and noncompliance of five shrimp farms against the ShAD standards, the gap analysis results were used to develop a competitiveness improvement plan in order to secure ASC certification in 2014.

Late in 2013 the Inter-American Development Bank, through the Compete Caribbean project, approved a grant to implement activities recommended in the gap analysis, at the same time IDH the sustainable trade Initiative from the Netherlands approved another grant to complement the support to the implementation of those activities that need to be undertaken in order to secure ASC certification for the Belize shrimp sector in 2014.

In April 2015 eight farms received the ASC certificated putting Belize as the only country where more than 90% of the shrimp production is ASC certified. WWF and IDH are helping three new farms to prepare for ASC certification, this will put the Belize shrimp sector with almost 100% of national certification certified under ASC standard.

II. CONSULTANCY OBJECTIVE

The Biodiversity and Environmental Impact Assessment (B-EIA) and the participatory Social Impact Assessment (p-SIA) are requirements of the Aquaculture Stewardship Council Shrimp (ASC) Standards and will be audited as part of the ASC-shrimp Certification.

The consultant team will prepare a comprehensive B-EIA and p-SIA report with the main objective to guide shrimp farmers to minimize both the environmental and social impacts of the farm which include impacts on the surrounding communities. Both assessments will be conducted in the following shrimp farms in Belize: 4-Hands shrimp farm, Haney shrimp farm and Golden Crown shrimp farm.
III. MAIN ACTIVITIES

B-EIAs aim to ensure that biodiversity; ecosystem interests and ecosystem effects are identified and addressed in an impact assessment process. Potential impacts of the farm on such points of biodiversity risk should be part of the report together with a mitigation plan.

The B-EIA should identify and described of the potential impacts the farm might have on biodiversity, with a focus on those critical habitats or endangered species and include specific recommendations for mitigating impacts, as well as a timeframe for implementing those mitigation steps.

All coastal barriers, buffer zones and corridors should be mapped. For coastal barriers the minimum width must be 100 meters and contain indigenous vegetation dominated by trees. For barriers on internal waters they should be at least 25 meters. Riparian buffers between the farm ponds and inland waters must be 5 meters and contain indigenous vegetation.

A water management plan should be produced and verified showing no connection to fresh receiving water sources. The same plan must also be clear that no fresh ground water is used as a source at any point; all well providing fresh water to the farm must be accurately marked on the map.

The B-EIA process seeks to obtain the best possible biodiversity outcomes from land use changes. It is important that all interested parties understand the process by which the assessment has been made and how and by whom any actions needed to deliver biodiversity objectives will be implemented and monitored.

The assessment has to be carried out in conformity with the requirements stipulated in the ASC –Shrimp standards (see appendix I) but will include the following scope:

- Review of earlier Environmental Impact Assessments for each participating shrimp farm, if available.
- Review of current and planned farm operations.
- Aspects of habitat mapping, documenting conversion, quantifying buffers and corridors, ETP surveys and monitoring plans, plans with modern information technologies and satellite imagery.
- Improved information on the tidal reach of aquatic environments interacting with farm discharge.
- Community meetings and procedures for communications between farms and both workers and communities.
- Propose adaptations.
- Agree on impacts and measures to address them.
- Procedures to avoid negative impacts to endangered species and to monitor going forward.
- Predator control and monitoring plan.
- B-EIA report must indicate whether the farm is located in an area considered a critical habitat for endangered species.
- Do a search of published and grey (e.g. local newspapers, magazines) literature to identify endangered species that occur in the area.

- Determine whether any species occurring in the area are listed as endangered by relevant national authorities.

- Prepare a list of all endangered species occurring in the area.

- Prepare written procedures describing how the farm avoids negative impacts to endangered species that may occur on the farm. Procedures shall include a description of habitat being restored, if applicable as follows:
  - Provide a map or sketch of the farm indicating coastal buffers and measurements of buffer width.
  - Provide a map or sketch of the farm indicating Riparian buffers and measurements of corridor width. It is appropriate that issues of "corridors" within farm boundaries be discussed in periodic town meetings.
  - Provide a map or sketch of the farm indicating corridors buffers and measurements of buffer width.
  - Provide description of water management in the farm, specifying intake and discharge water bodies, and the location of (seasonal) freshwater. Provide a written explanation of how the farm avoids intrusion of brackish or saltwater into freshwater areas.
  - If water in freshwater wells exceeds conductance/salinity limits given by the ASC-Shrimp standard and such increase was due to a phenomenon outside the control of the farmer, provide evidence from the B-EIA report.
  - The B-EIA should identify the sampling stations for specific conductance measured in in adjacent land ecosystems and agricultural fields and the frequency of monitoring.
  - Maintain a list of all protected, threatened or endangered species potentially visiting the farm and display list with relevant species at relevant places on-farm.
  - If lethal predator control is used, develop a monitoring program.
  - Provide official records or statement showing local maximum water level (river levels, tide levels, flooding levels, etc.) in the previous 25 years.
  - Provide a statement from local authorities or reputable organization reporting the altitude (meters above sea level) of the bund in its lowest point. Show location of bund low-point on a map of the farm.

A Participatory Social Impact Assessment (pSIA) includes the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. A convenient way of conceptualizing social impacts is as changes in one or more of the following impact areas: economic aspects (influence on employment, or influence on other livelihoods in the village); natural resource access and use (land and water tenure, influence on quality and availability of
natural resources); human assets (food security, health and safety, education, indigenous knowledge); physical infrastructure (access to roads, electricity, telephone, housing, waste disposal systems); social and cultural aspects (indigenous/local rights and beliefs, social exclusion/inclusion, gender equity, changes in age composition of the community, local informal institutions and organizations); governance aspects (influence of aquaculture on norms, taboos, regulations, laws, conflict management and whether these changes add up to more or less transparency, accountability and participation in decision making).

The assessment is to be carried out in conformity with the requirements stipulated in the ASC-Shrimp standards (see appendix II) but will include the following scope:

- Stakeholder Analysis and community meetings.
- Description of farm and effects.
- Initial listing of probable social impacts.
- Deeper research on important impacts.
- Propose adaptations.
- Agree on impacts and measures to address those including procedures for resolution of conflicts.
- Summarize conclusions and agreements.
- Prepare and ensure the application of a conflict resolution policy for local communities. Verify that the conflict resolution policy tracks and addresses all the complaints identified by the P-SIA
- Maintain records of all the people having received copy of the policy and also local NGO or Union and local government. Methods to document interactions with stakeholders should demonstrate that communication channels are effective, rather than stipulating distribution of a conflict resolution procedure.
- Maintain records of meetings held with local communities to identify and resolve conflicts. Records must include list of participants, agendas and agreed action plan and summaries.

IV. REPORTS/OUTPUTS

Guided by the scope of this consultancy the consultant will produce the following deliverables:

Biodiversity-Environmental Impact Assessment:

1. A B-EIA report using guidance framework and methodology. In Appendix I and scope mentioned in section III of this TOR.
2. Provide maps of the farm indicating coastal buffers, Riparian buffers and corridors buffers and measurements of buffer width.
3. A water management plan in the farm, specifying intake and discharge water bodies, and the location of (seasonal) freshwater.
4. A list of all protected, threatened or endangered species potentially visiting the farm and display list with relevant species at relevant places on-farm.
5. A predator control protocol with a monitoring program.

**Participatory Social impact Assessment:**

1. Provide a p-SIA inclusive of all items reported in Appendix II.
2. Conflict resolution policy for local communities.
3. Records of meetings held with local communities. Records must include list of participants, agendas and agreed action plan and summaries.

**V. SCHEDULE OF PAYMENT**

The consultant will be paid in accordance with the following schedule;

a) 20% upon submission and acceptance of the work plan.
b) Two payments of 30% upon the presentation and acceptance of progress reports.
c) 20% upon submission and acceptance of the final project report.

**VI. COORDINATION**

The technical responsibilities for this consultancy will be coordinated by Mauricio Mejia, Agriculture/Aquaculture program Officer, WWF Belize.

**VII. CHARACTERISTICS OF THE CONSULTANCY**

**Contract Duration:** Between July 20, 2015 and October 30, 2015

**Place of Work:** Southern Belize, Stan Creek.

**Qualification:**

- The B-EIA shall be carried out by a team consists of competent and qualified environmental scientists, biologists and ecologists with a team leader with minimum of a Master of Science degree from a university or five year experience in biodiversity or biology fields.
- Need professional expertise and business analysis (BA) methodology to undertake a p-SIA.
- At least 5 years of experience in Biodiversity studies and Environmental Impact Assessments.
- Experience in addressing social impacts.
- Demonstrated ability to communicate effectively.
- Demonstrated facilitation skills.
- Trustworthiness and integrity and a demonstrated ability to work independently in challenging environments.

**Language:** Fluency in written and spoken English is required. Fluency in Spanish would be an asset.
# ANNOTATED CURRICULUM VITAE

**JUNE 2015**

1. **Proposed role in the project:** Coastal & Marine Biodiversity Specialist

2. **Category:** Lead Consultant

3. **Staff of (name of firm):** Institutional Development Consultants (IDC)

<table>
<thead>
<tr>
<th>4. <strong>Family name:</strong></th>
<th>JACOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. <strong>First names:</strong></td>
<td>Noel Devany</td>
</tr>
</tbody>
</table>

6. **Date of birth:** December 23, 1967

7. **Nationality:** Belizean

8. **Place of Residence:** 2450 Palm Grove Estate, Belize City, Belize, Central America

9. **Civil status:** Divorced

10. **Contacts:**
    - Tel. 501-610-4656
    - Email: jacobs_nd@yahoo.com

11. **Education:**

    | Institution | Studies / Title |
    |-------------|-----------------|
    | Technical Institute of the Sea in Guaymas, Sonora, Mexico in **1992**. | Bachelor of Science Degree (B.Sc.) in Aquaculture Engineering. This four-year scholarship program focused on the industrial design and operation of production systems for shrimp, fish and oysters, with a special emphasis on project formulation & evaluation based on process thinking, economic feasibility, and measurable indicators of success. |
    | Center for Research and Advanced Studies in Merida, Yucatan, Mexico **1996** | Master of Science Degree (M.Sc.) in Marine Biology. This two-year scholarship program was a part of the internationally competitive ‘Post-Graduate of Excellence’ Program of the National Polytechnic Institute in Mexico. The program focused heavily on experimental design, data collection, fisheries research, bio-statistical analyses, results interpretation, and policy formulation for marine resources management. |

**SUMMARY OF EXECUTIVE EDUCATION:**

*May 2012 – Advanced Level, Organizational Development Certified Consultant Program (ODCC).* This certification prepares the consultant for Professional growth in the field of Organizational Development Consulting; Best practices in the field of Organizational Development; Tools that help organizations implement change and sustain change; How to effectively lead Organizational Development projects using the Action Research Model; Coaching skills to help the client to identify the challenge, and create an action plan; and Facilitation skills to effectively lead senior leadership groups to identify and implement change.
strategies. This certification was offered by the Institute of Organization Development (IOD) in Fort Lauderdale, Florida.

**March 2009 - 'A Practitioner’s Program in the Critical Components of Effective Governance'** from BoardSource in Arlington, Virginia (Formerly the National Center for Non-Profit Boards), focusing on training for trainers in all aspects of Board Development & Governance, including organizational development and institutional leadership for Statutory Boards, NGO Boards and Corporate Boards;

**June 2007 – A ‘Certificate in Fund Raising Management (CFRM)’** from the Center on Philanthropy at Indiana University. This certification was obtained after successfully pursuing four different on-site training courses or modules over a twelve-month period in all aspects of fundraising management, including the redefinition of institutional vision, mission, guiding principles, constituency analysis, analysis of the stages of institutional development, institutional rebirth and renewal, prospect research, fundraising market analysis, marketing plan development, assessing donors’ linkage, ability and interest to donate, institutional readiness for fundraising, identification of fundraising vehicles, fundraising campaigns, interpersonal- communication skills, personality traits, solicitation skills, and donor stewardship.

**November, 2003 – Certificate in ‘Negotiation and Decision Making Strategies’** from Columbia University Graduate School of Business in New York. This program focused on the use of negotiation and decision-making skills in organizational leadership, with a clear emphasis on the use of the 'Best Alternative to a Negotiated Agreement' (BATNA) as an always available option in making critical institutional decisions.

**June, 2002 - Leaders in Development: Managing Political & Economic Reform** at the John F. Kennedy School of Government at Harvard University in Cambridge, Massachusetts. This course focused on the development of skills for institutional leadership in difficult times and leadership as a necessity for successful institutional reform, with a clear distinction between leadership and authority. Leadership as a critical trait in successful negotiators was also a key part of this course.

**June, 1998 - Training Course in Fisheries & Biodiversity Management.** This course was offered by the International Centre for Living Aquatic Resources Management (ICLARM), the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) with funding from the European Union. All strategies for ecosystem scale and species-specific management were addressed in this course. The training was offered in Port of Spain, Trinidad and Tobago.

**April, 1998 - Fisheries Management Planning Training Workshop.** This course was offered by CARICOM Fisheries Resource Assessment and Management Program (CFRAMP). Strategic approaches to harmonized fisheries management in the Caribbean was the primary focus of this training. The training was offered in Christ Church, Barbados.

**October, 1993 - International Workshop on Tropical Groupers and Snappers.** This course was offered by the International Centre for Living Aquatic Resources Management (ICLARM) and EPOMEX. This training focused on management considerations needed for Groupers and Snappers as migratory trans-national carnivorous species. The training was offered in Campeche, Mexico.

12. **Language skills:** Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

<table>
<thead>
<tr>
<th>Language</th>
<th>Reading</th>
<th>Speaking</th>
<th>Writing</th>
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</thead>
<tbody>
<tr>
<td>English</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Spanish</td>
<td>1</td>
<td>1</td>
<td>1</td>
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12. **Membership of professional bodies:**

13. **Other skills:** (e.g. Computer literacy, etc.): Word, Excel, Power Point, Publisher
14. **Present position:** Institutional Development Consultant
15. **Years within the firm:** Consulting since 1997; Full time since 2007
16. **Key qualifications:** Strategic & Institutional Development Planning, Organizational Development, and Capacity Building in Multiple Economic Sectors, Project Design and Project Management
17. **Specific experience in the region:** Central America, Caribbean and South America.

18. **Brief Summary of Professional Experience**
   - **A) Full-Time Employment:**

<table>
<thead>
<tr>
<th>Date from - Date to</th>
<th>Location</th>
<th>Company</th>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
</table>
| July 2007 to Present | Central America, Caribbean, South America (Professional Consulting in 22 countries: 12 in the Caribbean, 7 in Central America, 2 in South America, and Mexico) | Institutional Development Consultants (IDC) | Institutional Development Consultant (Full Time Lead Consultant) | Provision of Consulting Services in the following areas:  
- Strategic Planning  
- Board Governance & Institutional Development  
- Institutional Assessment  
- Capacity Building & Training  
- Development of Organizational Policies, Guidelines and Manuals  
- Fund Raising Strategy  
- Project Design  
- Project Management  
- Project Evaluation  
- Feasibility & Cost-Benefit Analysis  

| July 2001 to June 2007 | Belize-Guatemala-Honduras-Mexico (MBRS) | CCAD | Regional Director | Conservation and Sustainable Use of Mesoamerican Barrier Reef Systems Project of the Central American Commission for Environment and Development (CCAD) funded by the Global Environment Facility – Responsibility for the overall execution of a multi-national, multi-sector, and multidisciplinary project over a 6-year period, while leading a team of regional experts. Guided the formulation and adoption of a Transboundary Framework for the Harmonized Management of Fisheries, Tourism and Protected Areas in Belize, Guatemala, Honduras and Mexico; the development of Master Plans for 5 Transboundary Protected Areas, including financial sustainability plans. Ensured compliance with and delivery of all performance indicators and process indicators as defined in the project’s Logical Framework Matrix, leading to a satisfactory Independent Terminal Evaluation Report of the project in 2007. |
August 1998 to April 1999  | Six countries of the Caribbean (Belize, Jamaica, St. Kitts & Nevis, St. Lucia, Grenada, St. Vincent & the Grenadines) | CIDA / Lobster & Conch Resource Management Program (CARICOM) | Director | Lobster & Conch Resource Assessment Management Unit of the CARICOM Fisheries Resource Assessment & Management Program (CFRAMP) funded by Canadian International Development Agency (CIDA)/CARICOM Secretariat. This assignment included program development, monitoring and supervision of technical program implementation in six countries of the Caribbean (Belize, Jamaica, St. Kitts & Nevis, St. Lucia, Grenada, St. Vincent & the Grenadines), to ensure compliance with planned activities, outputs and performance indicators both on a national and on a regional scale.

January 1998 to August 1998 | Belize | Ministry of Agriculture and Fisheries | Administrator | Belize Fisheries Administrator in the Ministry of Agriculture and Fisheries. Responsibility for ensuring compliance with the Fisheries Act, Marine Reserves, Aquaculture Development, Fisheries Research, Policy Formulation and Implementation, and overall support to the development of the Fisheries Sector, including compliance with all public service regulations while engaging the private sector and bi-lateral and multi-lateral partners.

9.1992 -1994 & 1996-1998 | Ministry of Agriculture and Fisheries | Aquaculture and Research Officer | Responsible for all review, processing and approval of aquaculture and marine research licenses and reports, including the definition of strategic fisheries and marine research priorities.

9.1987 – June 1988 | Belize | Excelsior High School | High School Teacher | Science and Spanish Teacher to 1st to 4th Form

**B) CONSULTING ASSIGNMENTS**

1. **April – June 2015 – Feasibility & Cost-Benefit Analysis of Using Farmed Shrimp Waste in Belize - Inter-American Development Bank (IDB)/Compete Caribbean/World Wildlife Fund (WWF)** – This consultancy looked at the volumes, frequency and characteristics of shrimp waste, the technical knowledge which exists with respect to its value and potential uses, and the feasibility and cost-benefit analysis of using it, with production of all relevant arguments and numbers, including estimations of capital costs, development costs, operational costs, cash flow statements, Internal Rates of Return, Net Present Value, etc. Two separate reports were produced: (1) *Use Options for Shrimp Waste in Belize – Technical Report* and (2) *Feasibility & Cost-Benefit Analysis of Using Shrimp Waste for the Production of Compost and Dried Feed.*

2. **April – May 2015 – Organizational Development Support to the Belize Coastal Zone Management Authority & Institute** – This consultancy developed a 3-year Strategic Plan for the CZMAI with prioritization of activities for the 2015-2016 Fiscal Year, inclusive one-on-one staff consultations, staff retreat, group exercise to review and validate SWOT Analysis, strategic objectives, activities, performance indicators, means of verification, and critical assumptions.


4. **August 2014 – March 2015: Project Design Consultant for the Project ‘ Advancing the Nagoya Protocol in Countries of the Caribbean Region’ – International Union for the Conservation of Nature (IUCN)/United Nations Environment Programme (UNEP)/Global Environmental Facility (GEF)** – The objective of this consultancy was to describe the Project Baseline based on consultations,
published data, and current initiatives in 10 countries of the Caribbean region with recommendations for new baseline studies to be undertaken at project start-up; development of the Project Logical Framework reflective of both national and regional outputs and outcomes which are easily measurable and verifiable, and are consistent in design with the requirements of the GEF. The consultancy was developed in collaboration with the National Focal Points of the Convention on Biological Diversity and the Focal Points of the GEF in all 10 project countries (Antigua & Barbuda, Barbados, Dominica, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago), the CARICOM Secretariat, the Organization of Eastern Caribbean States, and the Access & Benefit Sharing Capacity Development Initiative of the GIZ.

5. **July – August 2014: Organizational Development Support to the Belize Shrimp Growers Association (BSGA) – Farmers in Transition Fund (FIT Fund), the Sustainable Trade Initiative (IDH) and the World Wildlife Fund (WWF)** - This consultancy assisted the BSGA in the definition of its Vision, Mission, and Guiding Principles and developed a Strategic Plan for 2014-2019, according to a logical structure, inclusive of strategic objectives, actions, responsibilities, timelines, performance indicators, and critical assumptions. An Organizational Assessment of the BSGA was conducted, through the critical review and analysis of key organizational documents and through the one-on-one engagement of BSGA’s internal and external constituents, including the production of a SWOT analysis which facilitated the identification and prioritization of strategic objectives and actions. An Operations Manual was also produced, which describes the administrative (procurement, financial management, and human resources) policies that govern the day-to-day business of the BSGA. A Board of Directors Manual was also produced which provides an easy to use Operational Guideline & Policy on how the day-to-day business of the Board is to be conducted in an efficient and transparent manner.

6. **April – June 2014: Training Needs Assessment and Training Program Design for Members of the Belize Shrimp Cluster – Inter-American Development Bank (IDB)/Compete Caribbean/World Wildlife Fund (WWF)** – The objective of this consultancy were to undertake an assessment to determine, based on the Aquaculture Stewardship Council (ASC) certification requirements, the training needs of Supervisors, Technicians, and Farm Workers at the seven (7) shrimp farms of the Belize Shrimp Cluster, and develop a training program for each of the three employee categories, based on the findings of the assessment.

7. **January 2014 – Regional Board Development Training & Facilitation for Sustainable Harvest International (SHI)** – The objective of this consultancy was to plan and execute a Board Governance Training Workshop along with SHI staff, for SHI Country Directors from Belize, Nicaragua, Honduras and Panama as well for Board Members of SHI-U.S.A. and SHI-Belize. Board governance best practices were presented, explained, interpreted and vetted against the governance realities on the ground in the four countries, with the production of a Board Governance Model for SHI.

8. **July to August 2013 – Policy on Safety & Guest to Guide Ratio for Key Adventure Tourism Activities in Belize** – Developed a National Policy on Safety & Guide to Guest Ratio for Key Adventure Tourism Activities based on global standards and best practices, and on comparative analyses with regional best practices in the Caribbean and Central America.

9. **August – September 2012 – Systematization of Experiences and Lessons Learned in the Project ‘Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras’** - The process of Systematization of Experiences concentrated on the experiences, achievements, successes, challenges, and opportunities of the Project in Belize, Guatemala and Honduras, from the perspective of the main phases of the project cycle, being: Conceptualization, Design and Preparation, Execution (Implementation and Monitoring & Evaluation ) and Institutional Arrangements (for purposes of the Systematization 'Institutional Arrangements' was considered as a phase). This increases the potential to focus experiences and lessons on specific stages of the Project cycle, and facilitates the interpretation of the results of the systematization and the application thereof to any situation in the future. The systematization goes beyond the regular assessment of compliance with performance indicators, and looks at ‘context factors’ that may have been influential in the determining whether a project experience was positive or negative. (Gulf of Honduras Project Coordinating Unit/Inter-American Development Bank - IDB).

10. **June – July 2012 - Comparative Analysis of Select Frameworks for Determining Carrying Capacity in Protected Areas** - This assignment was conducted for the National Protected Areas System of Belize, and looked at five (5) methods for estimating carrying capacity for protected areas, analyzing and explaining the
advantages and disadvantages of each method, and making recommendations on this topic for the National Protected Areas System of Belize/United Nations Development Program (UNDP).

11. **March – May 2012 – Sustainable Development Indicators in Belize – National Stocktaking Report.** - This report focused on Belize’s delivery of all the Millennium Development Goals (MDGs), reporting on national sustainable development initiatives and indicators, institutional framework, human capacity, progress to date, challenges in key economic and social sectors, and recommendations on a way forward. (UNDESA/UNDP).

12. **May 2009 - May 2011 – Project Management Services to the Sustainable Tourism Program (STP) of the BTB/IDB.** - This assignment was a consultant contract to provide specific project management guidance to the Belize Tourism Board, Ministry of Tourism, and the STP Staff in delivering key Performance Indicators as defined in the Results Framework Matrix of the Program, including all procurement, financial, fiduciary and reporting requirements of the Inter-American Development Bank (IDB).

13. **April 2011 – Project Management Training to Managers of the Belize Tourism Board (BTB).** - Prepared all teaching modules and materials and conducted 3-day training to 17 middle and senior managers of the BTB. Course focused at developing a project idea, a project concept, project global objectives, SMART objectives, project scope and rationale, project activities and tasks, project budget, project procurement plan, project implementation plan, and project Logical Framework Matrix.

14. **May 2010: Development of a White Paper and Proposed Framework for the Establishment of a ‘Global IUCN Ridge to Reef Program’** – This assignment included the development of a White Paper which examines all existing paradigms related to the integrated management of river basins and coastal areas, with a view to identifying gaps and loop holes, success stories, and lessons learned. This information was used to develop and propose a Ridge to Reef approach for the integrated management of river basins and coastal areas, as a paradigm that captures the physical and ecological linkages between land and sea, and as a fundable concept to be developed and implemented by the International Union for the Conservation of Nature (IUCN) on a global scale.

15. **April 2010: 2010-2015 Strategic Plan for the Protected Areas Conservation Trust (PACT – Belize)** – This assignment was commissioned by the Prime Minister of Belize and the Board of Directors of PACT. This strategy and plan included the redefinition of the institutional vision, mission, and guiding principles of PACT; analysis of the PACT present stage of institutional development, a ranked and weighted SWOT Analysis; the identification of strategic objectives and actions, and a Logical Framework Matrix with performance indicators as a monitoring and evaluation tool of the Strategic Plan. Noel Jacobs was Lead Consultant in a 4-person team that developed this assignment.

16. **March 2010: Institutional Assessment of the Protected Areas Conservation Trust (PACT – Belize)** – This assignment was commissioned by the Prime Minister of Belize and the Board of Directors of PACT, to conduct a comprehensive assessment of PACT, focusing on all aspects of the institutional environment (history, purpose, culture, motivation, political, economic, institutional capacity, process management, program management, inter-institutional linkages, etc.). Key components of the assessment included the evaluation of delivery of purpose, and the formulation of an Institutional Performance Monitoring Tool & Report Card. Noel Jacobs was Lead Consultant in a 4-person team that conducted this assignment.

17. **November 2009: Preparation of an Environmental Impact Assessment (EIA) Manual for Belize** – This assignment was commissioned by the Department of the Environment and the International Union for the Conservation of Nature (IUCN). This process included a revision of the EIA Regulations of the Environmental Protection Act, to ensure that the contents of the EIA Manual was both consistent with the Act and with a standardized EIA Manual Template developed for the countries of Central America by the Central American Commission for Environment and Development (CCAD).

18. **July 2009: Preparation of a ‘Fundraising Strategy and Plan’ for Friends for Conservation and Development (FCD - Belize)** – This strategy and plan included the redefinition of the institutional vision, mission, guiding principles, constituency analysis, analysis of FCD present stage of institutional development, prospect research, fundraising market analysis, (Fundraising SWOT) institutional readiness for fundraising, identification of fundraising vehicles, fundraising campaigns, interpersonal-communication skills, personality traits, solicitation skills, and donor stewardship requirements for FCD; strategic objectives and actions, a marketing plan, a Logical Framework Matrix and performance indicators as a monitoring and evaluation tool of the Fundraising Strategy, timelines and budgets were also developed.
19. April 2009: Preparation of **Shark Management Strategy and Guidelines** for the Tropical Eastern Pacific Corridor (Costa Rica-Panama-Colombia-Ecuador) for IUCN Regional Office for Mesoamerica. – This regional strategic planning process involved the design of a regional consultation methodology and its application to all stakeholders in four countries, including the preparation and implementation of regional workshops, culminating with a regional Shark Management Strategy Framework harmonized and adopted in all participating countries. The framework developed had to be compatible and consistent with the fisheries laws and environment laws of Costa Rica, Panama, Ecuador and Colombia.

20. April 2009: Preparation of a **Communications Guidelines** for the Protected Areas Conservation Trust (Belize) – The objectives of these guidelines were to: formalize and organize communications as a key operational function within PACT; build team spirit within PACT as a key ingredient for organizational success; maintain trust and confidence in organizational authority, hierarchy and leadership; enhance communication effectiveness by PACT both internally and externally; improve grantees understanding and appreciation of PACT policies and procedures; and permanently engage donors and partners through clear and meaningful communications.

21. January 2009: Preparation of a **Communications Strategy** for the Protected Areas Conservation Trust (PACT – Belize) – Included a comprehensive assessment of the PACT constituency both internal and external, with an intentional bias towards perceptions of communication relationships between PACT and its different constituents, and the impact and consequences of those relationships; strategic objectives and actions, a Logical Framework Matrix with performance indicators as a monitoring and evaluation tool of the Communications Strategy, a timeline and budgets were also developed.

22. December 2008: Development and Delivery of Training Course to the Association of Protected Areas Management Organizations (APAMO): *Principles & Techniques of Fund Raising – A practical introduction* (Belize) - This intensive course focused on steps needed to ‘institutionalize’ fundraising within APAMO as a specific and permanent program to be delivered by the institution; the skills and approaches involved in structured fundraising: building a Case for support, prospect research, market analysis, validation of needs statement, volunteer involvement, identification of fundraising vehicles, marketing plan, solicitation, stewardship, and renewal.

23. November 2008: Preparation of an **Institutional Development Plan** for the Belize Association of Private Protected Areas (BAPPA) – This assignment conducted a comprehensive assessment of BAPPA from its inception to its present status, identifying the strengths and weaknesses of the vision, mission, guiding principles, the delivery (and non-delivery) of past strategic plans and work plans, organizational and institutional weaknesses, present stage of institutional development, niche analysis, SWOT analysis, and the formulation of an institutional development roadmap, inclusive of its logical framework matrix to monitor and evaluate the implementation of the said roadmap.

24. November 2008: Preparation of a **Fundraising Strategy and Plan** for the Association of Protected Management Organizations (APAMO - Belize) – This strategy and plan included an assessment and suggestions to the institutional vision, mission, guiding principles, constituency analysis, fundraising SWOT analysis of APAMO, the present stage of institutional development, prospect research, fundraising market analysis, institutional readiness for fundraising, identification of fundraising vehicles, fundraising campaigns, and donor stewardship requirements for APAMO; strategic objectives and actions, a marketing plan, a Logical Framework Matrix with performance indicators as a monitoring and evaluation tool of the Fundraising Strategy, timelines and budgets were also developed.

25. August 2008: **Project Design Consultant for IUCN Mesoamerica** - This assignment included the preparation of a full ‘Ridges to Reef Project Proposal’ for four countries in Mesoamerica (Belize-Guatemala-Honduras-Mexico) and three (3) Regional Project Concepts for Innovative Marine Conservation Projects in Mesoamerica.

26. June 2008: Preparation of a **Regional Marine Conservation Strategy for IUCN Mesoamerica (Seven countries of Central America, Southern Mexico, Cuba and the Dominican Republic)** – This regional strategic planning process involved the design of a regional consultation methodology and its application to all stakeholders in ten IUCN member countries, including the preparation and implementation of national workshops in all 10 countries, culminating with a Regional Marine Conservation Strategy harmonized and adopted for all IUCN Mesoamerica countries, inclusive of its Logical Framework Matrix and performance indicator.
27. April 1999 – Oct 2001: **Regional Coordinator for the Preparation of the Conservation and Sustainable Use of Mesoamerican Barrier Reef Systems Project in Belize-Guatemala-Honduras-Mexico (MBRS)** - This project preparation process for the Central American Commission for Environment and Development (CCAD), the GEF and the World Bank consisted of carefully defining strategies for transboundary protected areas management across four countries, harmonized approaches for natural resources management and policy formulation. The strategic identification of regional ‘executable’ performance indicators, process indicators and impact indicators, and the overall development of the project’s Logical Framework Matrix were a major part of this task.

28. August 1998: **Master Editor, Belize National Biodiversity Strategy and Action Plan** - This assignment included the revision and editing of Belize’s National Biodiversity Strategy and Action Plan as a national framework to guide Belize’s biodiversity agenda. The Master Editor had to ensure coherence and proper sequencing between strategies and actions identified for all primary sectors of Belize, while ensuring appropriate timelines, performance indicators and means of verification were identified for all strategies (Ministry of Natural Resources/UNDP).

29. May 1998: **A Review of the Governance Process of Shrimp Aquaculture in Belize** – This task reviewed all institutional arrangements in place that had a bearing on shrimp aquaculture in Belize, in particular overlaps in governance roles by multiple government institutions and conflict of interests by the private sector. (Marine Resources Centre, University of Rhode Island)

30. April 1998: **Preparation of a Case Study on the Fisheries Advisory Board of Belize** – This assignment focused at the strengths and weaknesses of the structure and composition of the Fisheries Advisory Board, with recommendations for adjustments to improve governance, reduce conflict of interest, and maximize strategic leadership (CARICOM Fisheries Resource Assessment and Management Program – CFRAMP).

31. November 1997: **Marine and Coastal Areas Strategy for Belize** – All strategic objectives, actions, timelines and budgets were developed for the coastal and marine areas component of the Belize National Biodiversity Strategy and Action Plan, following an exhaustive stakeholder consultation process as defined by the Convention on Biological Diversity and the Global Environment Facility and the UNDP. The Monitoring & Evaluation Plan included the development of a five-year log-frame matrix for all strategic objectives and actions (Ministry of Natural Resources/UNDP).

**Professional & International Exposure:**
Noel Jacobs has participated either as an invited guest, Government representative, Focal Point, Key Note Speaker, Motivational Speaker, or Expert in more than 70 events in more than 65 countries throughout the world.
ANNOTATED CURRICULUM VITAE
JUNE 2015

13. Proposed role in the project: Social-Environmental Specialist

14. Category: Associate Consultant

15. Staff of (name of firm): Impact Consulting

16. Family name: Wright
17. First names: Teresa

18. Date of birth: 09-June-1970
19. Nationality: British. Belize PR #017383
20. Place of Residence: Belize
21. Civil status: Attached
22. Contacts: Tel. 622-9672 Email: terrybelize@hotmail.com

23. Education:

<table>
<thead>
<tr>
<th>Institution</th>
<th>[Date from - Date to]</th>
<th>Studies / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bournemouth University, UK (1990-1994)</td>
<td></td>
<td>BA (HONS) TOURISM STUDIES</td>
</tr>
<tr>
<td></td>
<td>Specialization:</td>
<td>Tourism &amp; the Environment; Attractions Planning &amp; Management; Marketing.</td>
</tr>
<tr>
<td></td>
<td>Dissertation:</td>
<td>Alternative Tourism as a Tool towards Cultural Survival: Preservation, Degradation or Creation? A case study in Belize. (1st class honours)</td>
</tr>
</tbody>
</table>

Specialized Training:
Wildlife Inventory Methodology Short course. Uni. Of Belize/Uni. of Montana

24. Language skills: Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

<table>
<thead>
<tr>
<th>Language</th>
<th>Reading</th>
<th>Speaking</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Spanish</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. Membership of professional bodies:

26. Other skills: Computer proficiency: Microsoft Office (Word, Excel, Power Point); Microsoft Project (basic skills).

27. Present position: Social Environmental Specialist
28. **Years within the firm:** 3 years

29. **Key qualifications:** Community Participation; Social Impact Assessment, Best Practice, Tourism Planning, Cultural Tourism Development

30. **Specific experience in the region:** Belize

31. **Brief Summary of Professional Experience**

<table>
<thead>
<tr>
<th>A) Full-Time Employment: Date from - Date to</th>
<th>Location</th>
<th>Company</th>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
</table>
| 08/09-04/14 | Belize City Based | Belize Tourism Board and Ministry of Tourism Culture and Civil Aviation | Tourism Environment Project Coordinator, Sustainable Tourism Program (STP) | Technical member of the Project Coordinating Unit team (four persons) responsible for ensuring efficient and effective planning, execution, coordination and oversight of STP project components including:
  - US$11m investment in tourism infrastructure within 4 major municipalities; 3 archaeological sites and 1 UNESCO world heritage site.
  - Institutional strengthening and capacity building activities including planning tools, cultural tourism training and business development; information management and development of national accommodation standards framework.
  - Key tasks – coordinate public consultations and focus groups nationwide for development of a National Sustainable Tourism Master Plan; dialogue with stakeholders and ensure appropriate participatory mechanisms in infrastructure planning and construction phases; stakeholder liaison and site visits for environmental and social impact monitoring and inspection to ensure compliance with planning requirements, environmental regulations, health and safety and industry standards; coordination of consultants including technical support, facilitation of workshops and industry meetings and review of all deliverables; develop media and press packages and public awareness material; technical assistance and coordination of handover, management and business arrangements; baseline data collection (environmental, social, economic) for monitoring and reporting; ensure compliance with all IDB operational policies. |
### CONSULTING ASSIGNMENTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Company/Position</th>
<th>Key Activities</th>
</tr>
</thead>
</table>
| **01/97-01/99** | Belize City      | Belize Global Travel Services, Marketing Manager | Development and implementation of Annual Marketing Plans & budget for GRUPO TACA Airlines Belize, Belize Global Travel Services & Warrie Head Lodge.  
**Key tasks**- Create and implement national advertisement and promotional campaign; local and international tradeshow representation; coordination of sponsorship and events planning; revamp of Tour Dept. creating inbound packages and customized outbound itineraries; development and co-ordination of Grand Cayman Charter vacations with partner agent. |
| **09/92-01/97** | Belize City      | Belize Center for Environmental Studies, Environmental Education Project Coordinator; Tourism Planner | Tourism planner for proposed Port Honduras Marine Reserve adopting an integrated community approach to the planning process including community consultations to address socio-economic concerns. Draft management plan was submitted to Government and area declared a reserve in 2000. Project identification, project development, solicitation of funds and M &E. Four notable EE and development projects executed in southern and northern Belize. |

**B)**

#### CONSULTING ASSIGNMENTS

**02/15-07/15**

**Consultant**  
**Social Environmental Specialist**

**Agency:** Ministry of Tourism Culture and Civil Aviation  

**Key Activities:** Engage local stakeholders and spearhead the formation of Local Tourism Committees in 3 emerging destinations of Corozal, Caye Caulker and Toledo and facilitate a Working group for the complex of 4 protected areas in Cayo (Caracol, Chiquibul National Park, Chiquibul. Coordinate a unified planning effort with tourism planning consultants to develop Tourism Destination Plans in the respective destinations. Technical support to tourism value chain analysis, market demand studies, ecosystem mapping and environmental and social assessment within the emerging destinations. Provide input on climate change and biodiversity conservation priorities within the planning process.

**09/14-10/14**

**Associate Consultant**  
**Update of the National Tour Guide Training Program Core Component**

**Agency:** Belize Tourism Board  

**Key Activities:** Consultation with relevant tourism stakeholders (tour guides, operators, and guide trainers) to identify priorities towards the development and production of a Study Guide, question/answer bank and training tools for the Core Component (General Knowledge) of the revised National Tour Guide Training Program. Emphasis was on adult orientated self-learning at a high school graduate level.
<table>
<thead>
<tr>
<th>Date</th>
<th>Role</th>
<th>Company</th>
<th>Key Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/14-10/14</td>
<td>Consultant</td>
<td>Institutional Development Consultants</td>
<td>Assistance developing governance tools and succession planning for The Belize Zoo and Tropical Education Center</td>
</tr>
<tr>
<td>08/14-06/14</td>
<td>Consultant team member</td>
<td>International Environments Ltd.</td>
<td>Social assessment and management options analysis</td>
</tr>
<tr>
<td>04/14-06/14</td>
<td>Concept development member</td>
<td>McNab Design</td>
<td>Research and development of exhibit themes and interpretative plan for most visited Maya site in Belize. Develop interpretation material and display design specifications for a new onsite visitor center serving over 80,000 visitors annually.</td>
</tr>
<tr>
<td>06/14-07/14</td>
<td>Associate Consultant</td>
<td>WWF</td>
<td>Needs Assessment and Training Program Design of the Belize Shrimp Cluster</td>
</tr>
<tr>
<td>04/14-05/14</td>
<td>Consultant</td>
<td>Enviroplan Consulting Ltd</td>
<td>Social Assessment, LLES for construction of collection system for Placencia</td>
</tr>
<tr>
<td>11/08-03/09</td>
<td>Market Consultant</td>
<td>CCAD Social Investment Fund, GoB</td>
<td>Market Study for Maya Mopan Bamboo Handicraft Training Project</td>
</tr>
<tr>
<td>04/08-05/09</td>
<td>Associate Consultant</td>
<td>Ya’axché Conservation Trust/Flora International</td>
<td>Business Planning Strategy for the Golden Stream Watershed Area</td>
</tr>
</tbody>
</table>

**Key Activities:**
- Research and consultation to determine training needs of eight shrimp farms to meet ASC certification.
- Research and consultation to determine potential social impacts from the construction of the system and recommendations for impact mitigation.
- Working under a core consultancy team, through consultation, literature review and spatial data review, a written assessment was made of current tourism land use, trends, bottlenecks and policies. Input provided from a tourism perspective to develop the Land Suitability Mapping System and Integrated Policy Planning framework.
- Market and competitor analysis, full marketing strategy and recommendations for business planning for Maya community of 200+ inhabitants. Research to identify market opportunities for bamboo handicraft products in Belize, past and present trends and potential target markets. Rapid resource assessment was carried out incorporating community planning and training sessions to determine recommendations for scale of business operations, marketing capacity and planning and product delivery system.
- Member of consultancy team focussing on tourism, handicrafts and environmental services sectors for a watershed encompassing 86,750 acres in the Toledo district. Assessment was made for 10 potential business sectors through consultation, research and analysis and a strategy formulated to guide overall direction of business investments.
<table>
<thead>
<tr>
<th>05/08</th>
<th>Consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proposal for the Restoration of Half Moon Caye Lighthouse</td>
</tr>
<tr>
<td>Agency:</td>
<td>Belize Audubon Society</td>
</tr>
<tr>
<td>Key Activities:</td>
<td>Proposal and conservation management plan developed for World Monument Fund consideration to restore historic 1820 lighthouse on Belize’s westernmost Atoll.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>05/1999</th>
<th>Consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessment of Tourism Potential of Cockscomb Basin Wildlife Sanctuary</td>
</tr>
<tr>
<td>Agency:</td>
<td>Belize Audubon Society</td>
</tr>
<tr>
<td>Key Activities:</td>
<td>Tourism and socio-economic assessment and evaluation of the tourism operations of the Cockscomb Basin Wildlife Sanctuary including identification of future development needs &amp; recommendations</td>
</tr>
</tbody>
</table>
Appendix 6: E-mail Submission of Report to Department of Environment

Copy of BEIA & p-SIA Reports for 3 Shrimp Farms

Friday, October 23, 2015 7:49 PM

From:
"Noel Jacobs" <jacobs Nd@yahoo.com>

To:
"doe.ceo@ffsd.gov.bz" <doe.ceo@ffsd.gov.bz>

Mr. Martin Alegria
Chief Environmental Officer
Ministry of Forestry, Fisheries, and Sustainable Development
Government Office Complex, Belmopan

Dear Mr. Alegria,

Three Shrimp Farms in southern Belize are currently undergoing preparations for certification under the Aquaculture Stewardship Council (ASC). These farms are: 4 Hands Shrimp Farm; Golden Crown Shrimp Farm; and Haney's Shrimp Farm. As part of the certification process, the farms are required to develop a Biodiversity Inclusive Environmental Impact Assessment & a Participatory Social Impact Assessment. These assessments have been completed, copies of which are hereby attached for your information, as required by the process.

Thank you in advance for your attention.

Sincerely.

Noel D. Jacobs
Institutional Development Consultant
Mr. Ernest Banner  
Rural Development Coordinator  
Ministry of Labour, Local Government, Rural Development, NEMO, and Immigration & Nationality  
Trinity Boulevard, Belmopan

Dear Mr. Banner,

Three Shrimp Farms in southern Belize are currently undergoing preparations for certification under the Aquaculture Stewardship Council (ASC). These farms are: 4 Hands Shrimp Farm; Golden Crown Shrimp Farm; and Haney's Shrimp Farm. As part of the certification process, the farms are required to develop a Biodiversity Inclusive Environmental Impact Assessment & a Participatory Social Impact Assessment. These assessments have been completed, copies of which are hereby attached for your information, as required by the process.

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Sincerely,

Noel D. Jacobs  
Institutional Development Consultant