



SALT CAY

THE ISLAND THAT TIME AND TOURISM FORGOT

ABSTRACT

Unlike the other islands of the Turks & Caicos, Salt Cay's population has plummeted to just 54 residents. Salt Cay urgently needs a tourism investment to revitalize the island. But which tourism investment type is best suited to attract permanent residents, protect the island's fragile ecosystem and showcase its unique history: a cruise dock, a luxury resort or glamping?

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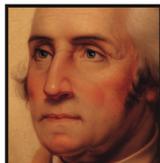
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Executive Summary

Overview

Of the many islands in the Turks & Caicos (TCI), just eight are inhabited. Populations of other islands have increased or stabilized while the population of the tiny island of Salt Cay (2.5 mi²/6.5 km²) has plummeted from 400 residents in the 1960s to just 54 residents today. Despite pristine beaches and important cultural heritage, the island suffers from a lack of economic opportunities. Economic expansion is essential for retaining the population and attracting new islanders. Considering the tourism success on the islands of Grand Turk and Providenciales, tourism appears to be the obvious choice to reverse Salt Cay's fortunes. However, tourism is a broad industry and with increasing challenges such as over-tourism and environmental damage, it is crucial to identify the optimal investment to protect the fragile ecosystem while sustainably increasing Salt Cay's permanent residents. Environmental protection and resident wellbeing require **tax generation**, which is a key output from private investment to achieve the outcome here of population reestablishment and sustainability.

Fortunately, there is interest in bringing tourism to Salt Cay, evident in several different opportunities for the island. The tourism investment opportunities include a luxury resort, a cruise ship terminal, and a glamping¹ enterprise. We performed cost-benefit analyses for each option and a sensitivity analysis that considered optimistic, normal and catastrophic scenarios ranging from low-risk and escalating tourist demand to the opposite: high-risk natural disasters (hurricanes and earthquakes) or the effects of a global pandemic. The end-result was a matrix of nine investment-scenarios with net results that facilitate public sector selection of the best long-term investments in the interests of TCI's people and Salt Cay's environment.

Net Present Value (NPV) Calculations and Multi-Criteria Analysis (MCA)

As different scenarios represent different risks, each scenario had a different social discount rate (SDR), construction timeline, and occupancy (Salt Cay tourist-usage assumptions). The construction rates and occupancy impact employment which impact **excise and lodging taxes, as well as health and social insurance payments**. These sources of TCI revenue serve as the analysis **benefits**. With these fiscal resources, the government could build **a law enforcement office, an improved elementary school, and a clinic**, essential social structures to draw permanent residents and their families. Although adding to Salt Cay employment (officers, teachers and medical staff), this vital infrastructure and salaries represent the **costs**. Fiscal benefits minus public services' costs lead to the conclusion that a **luxury resort** would furnish the highest level of government receipts with the most stable employment and thus offers the best chance of increasing permanent residents even in the event of practicing aggressive tax planning and transfer pricing between foreign reservation offices and local resort operations.

Luxury Resort (MCA Score =7.9)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To	
Catastrophic (Disasters), SDR = 9.5%	4.24	\$ 18,297,016	30	270
Normal, SDR = 5.38%	7.70	\$ 49,984,864	100	390
Optimistic, SDR = 4%	8.40	\$ 62,106,761	270	420

The NPV calculations and benefits to costs ratios were reinforced with a Multi-Criteria Analysis (MCA) that weighed the different investment options in terms of stable direct and indirect employment,

¹ Glamping is glamorous camping involving luxurious accommodations and facilities including in-suite showers, elegant dining with high-end food and drinks, and first-class service with spa services in some cases.

resident well-being and the environment. While the luxury resort scored best for direct employment and government returns, glamping is the best investment to protect Salt Cay’s environment and promote indirect employment. But, glamping is the lowest in terms of returns to the TCI government and cruise ships are not recommended due to the excessively large number of day-trippers with each arrival.

MULTI CRITERIA ANALYSIS (MCA)		Option 1 CRUISE SHIPS & DAY PAX		Option 2 GLAMPING DEVELOPMENT		Option 3 LUXURY RESORT	
Criteria	Criteria Weight	Score	Weighted	Score	Weighted	Score	Weighted
		(out of 10)	Score	(out of 10)	Score	(out of 10)	Score
Sustainable Employment	25%	4	1.00	6	1.50	9	2.25
Social Services	25%	10	2.50	8	2.00	10	2.50
Indirect employment	15%	3	0.45	9	1.35	7	1.05
Carrying Capacity, i.e. ecosystem	35%	0	0.00	10	3.50	6	2.10
SCORES		100.0%		3.95		8.35	
						7.90	

Conclusion and Caveat

TCI’s unique indirect tax system make the results here proper to that country. Unlike the majority of countries, TCI has no direct taxes such as corporate and personal income tax. TCI taxes are charged directly on imports (customs and excise) and tourist usage (lodging tax from room revenues and dock passenger fees) thus making the luxury resort the best option even though transfer pricing and aggressive tax planning by land-based investment occurs. Countries with corporate income tax often collect far less of such receipts because international hospitality corporations make ample use of gaps among global tax treaties (Ambrosie, 2015). In such cases, glamping could provide more social and fiscal benefits. Cruise ships, already exempt from lodging taxes, could be beneficial in an isolated area or an island with no infrastructure whatsoever. In this case, the country benefits by leasing the land, charging a use and/or environmental fee but should not provide expensive infrastructure such as water and electricity. Due to TCI’s tax regime, the large-scale investment of a luxury resort is the best option, far outweighing cruises for job creation and outweighing glamping for net fiscal receipts.

Summary Table of Salt Cay Cost-Benefit and Multi-Criteria Analyses

Benefit to Cost (B/C) Ratio	BENEFITS TO COSTS based on a Social Discount Rate (SDR) - a function of the economy and perceived risk			NET PRESENT VALUES (NPV) in USD after 30 yrs.		
	Cruise	Glamping	Luxury Resort	Cruise	Glamping	Luxury Resort
Catastrophic (Disasters), SDR = 9.5%	2.77	0.62	4.24	\$ 9,998,754	\$ (2,156,332)	\$ 18,297,016
Normal, SDR = 5.38%	4.68	1.10	7.70	\$ 27,475,364	\$ 712,233	\$ 49,984,864
Optimistic, SDR = 4%	8.05	2.21	8.40	\$ 59,104,546	\$ 10,111,036	\$ 62,106,761

Direct Employment Creation Range*	Cruise		Glamping		Luxury Resort	
	From	To**	From	To	From	To
Catastrophic (Pandemic/Hurricanes)	100	20	10	90	30	270
Normal	200	25	20	150	100	390
Optimistic	200	40	45	165	270	420

* Permanent residents are estimated at 2.5 persons per stable job (i.e. excluding initial construction)

**After the initial burst of dock construction, employment falls sharply.

Luxury Resort (MCA Score =7.9)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To	
Catastrophic (Disasters), SDR = 9.5%	4.24	\$ 18,297,016	30	270
Normal, SDR = 5.38%	7.70	\$ 49,984,864	100	390
Optimistic, SDR = 4%	8.40	\$ 62,106,761	270	420

Glamping (MCA Score = 8.2)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To	
Catastrophic (Disasters), DR = 9.5%	0.62	\$ (2,156,332)	10	90
Normal, DR = 5.38%	1.10	\$ 712,233	20	150
Optimistic, DR = 4%	2.21	\$ 10,111,036	45	165

Cruise Ships and Day Visitors (MCA Score = 3.1)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To**	
Catastrophic (Disasters), SDR = 9.5%	2.77	\$ 9,998,754	100	20
Normal, SDR = 5.38%	4.68	\$ 27,475,364	200	25
Optimistic, SDR = 4%	8.05	\$ 59,104,546	200	40

**After the initial burst of dock construction, employment falls sharply.

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Introduction

The emergence of tourism in coastal zones and small islands has been recognized as a transformational way to reshape economies. It has been responsible for boosting tax revenues, diversifying exports, generating foreign exchange, and expanding the job market with new employment opportunities (Twining-Ward & Butler, 2002; McElroy, 2003). In addition to economic impact, tourism may uplift communities and promote the local culture and heritage of a destination (Cameron & Gatewood, 2008). However, if tourism growth is unplanned, it can have many negative side effects (Twining-Ward & Butler, 2002). For fragile ecosystems, a rapid influx of tourism arrivals to small islands can be intrusive and damaging, jeopardizing local environments altogether (Briguglio *et al.*, 1996). This puts pressure on natural resources, such as water and land, but can also negatively impact socio-cultural environments (Berno, 1996) through commodification, standardization, loss of authenticity, and deprivation of land access to local people (Waring, 2001). From the economic perspective, tourism ‘leakage’ is high due to employment of foreign labor, the heavy dependency on imported goods (Britton, 1987), or corporate structures that leave profits offshore (Ambrosie, 2015) especially detrimental to undiversified small islands. Nonetheless, island destinations worldwide seize the opportunity to utilize tourism as a development tool disregarding the potential consequences (Ruhanen, 2004).

Salt Cay residents, one of the Turks and Caicos Islands (TCI), are concerned about repopulating their island sustainably. Among the 40 small islands that make up the TCI archipelago, the island of Salt Cay is the smallest of the eight inhabited islands with 54 full-time inhabitants and an area of about 2.6 square miles (~6.7 sq. km). Like most Caribbean islands, Salt Cay’s main tourism product is based on “Sun, Sand, and Sea” thanks to their pristine beaches, flourishing reefs, humpback whale watching activities, hiking, and a laid-back atmosphere (Cameron & Gatewood, 2008; Visit TCI, 2020). In addition to the three S’s, the TCI tourism board refers to Salt Cay as an ‘island time forgot’. As many locals have now left the island, there is minimal infrastructure with little tourism: one dive shop, Salt Cay Divers, two restaurants, one bar & grill, and one private residence serving dinner. Moreover, the TCI tourism industry is particularly risk-sensitive. Like many island destinations, TCI will suffer the consequences of climate change and sea level rise, hurricanes and flooding with saline intrusion (see Appendix II), coral bleaching events due to warming waters, and coastal degradation from potential overuse (Wabnitz *et al.*, 2018; Kelman & West, 2009). Additionally, with their geographical position, TCI islands are susceptible to earthquakes which could further impact tourism.

To bring tourism to Salt Cay, there are three different potential investments, two of which the TCI government is currently reviewing and one proposed by the authors of this paper: a cruise dock and entertainment area, a 130 key luxury resort, and a 50-tent glamping site. Because the federal government is in the selection process, it is important to critically analyze the different options. In the midst of the climate crisis, sustainability management plans become increasingly important to make tourism decisions (Hall, 2019). Therefore, we need to assess the competing investments based on government receipts and the potential to achieve the repopulation outcome sustainably before the decision is made. Considering all potential economic, environmental, and

socio-cultural impacts on the diverse stakeholders is a way to test the different outcomes of the three tourism options. The following report assesses the investment opportunities through tourism forecasting, employment multipliers, island carrying capacity, and cost benefit analysis of three risk scenarios: optimistic, normal and catastrophic. Although we struggled to find consistent and complete data about the effects of certain employment, multipliers, and usage of different types of tourism investments such as cruise ships, we are nonetheless confident about the calculations, results and conclusion of our analysis.

Scope

There has been a significant increase in travel to the Turks and Caicos, as evidenced by the increase of both cruise and land-based passengers. Cruise passengers to the TCI increased exponentially from 400,000 in 2008 to over one million today and land-based passengers increased linearly from 100,000 in 1995 to over 400,000 today (Figure 4).

Although other islands of the TCI have experienced an increase in tourism, correlating with an increase in economic wellbeing, the tiny island of Salt Cay (1600 acres, 2.5 sq mi / 6.5 sq km) has seen a decline in its population (Figure 3) due to the lack of economic opportunities. Located in the Turks group of Islands (Figure 1), today Salt Cay (Figure 2) has just a handful of small restaurants, some salt artisanal cottage industries, one dive shop and one grocery store providing employment.

Figure 1: Salt Cay, 575 mi (925 km) SE of Miami

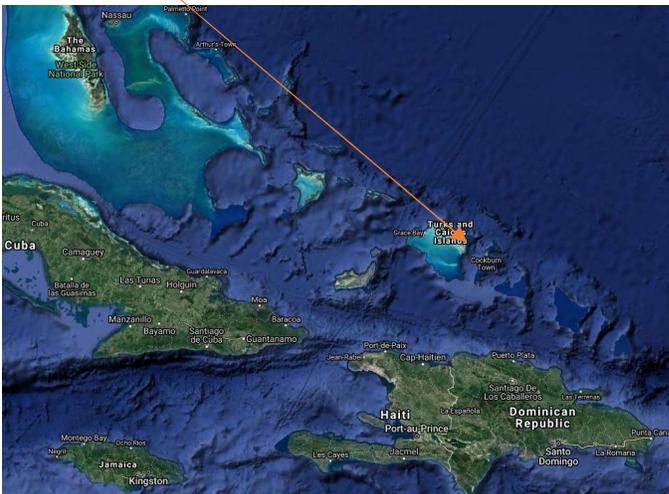
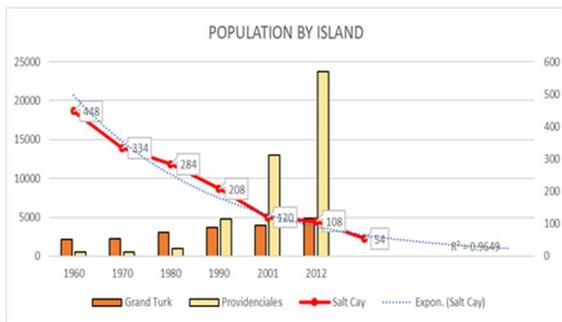


Figure 2: Salt Cay Island and surrounding water



(Source: Google Maps)

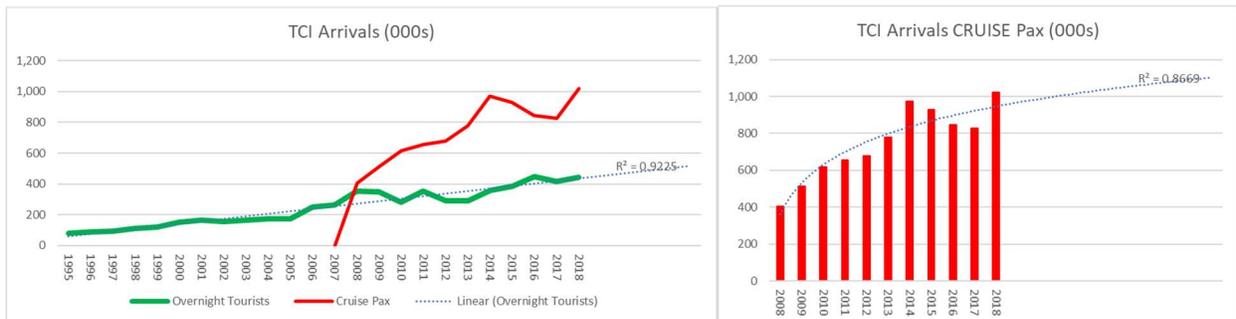
Figure 3: Population of the two main islands and Salt Cay



(Sources: Kairi Consultants Ltd, 2006a; TCI Tourist Board, 2019)

To compare, the main island of Providenciales has seen major population growth to almost 25,000 full time residents thanks to tourism (Figure 3). Conversely, Salt Cay has only 54 residents as of 2020, down from 448 residents in 1960 and more than 800 inhabitants in the 18th and 19th centuries when the island’s salt industry peaked². The current TCI government is debating whether to allow a major cruise company to build a dock and allow cruise day-trippers on the tiny island of Salt Cay. This would require not only the construction of a dock but additional creation of land-based activities. These activities often include low impact tours to the abandoned salt-production areas and the colonial ‘White House’ or beach activities near the cruise ship such as beach volley-ball and snorkeling. But shore-visits often include high-speed buggies around these isolated locations, causing noise and air pollution as well as damage to local roads and perhaps vegetation. In addition to environmental disruption, these and other motorized activities also disturb local residents and wildlife, especially Salt Cay’s unique birdlife (Pienkowski & Pienkowski, n.d.). Many local residents have expressed disinterest in cruise ships as they recognize the potential negative impact on their environmental and socio-cultural landscapes, including turning Salt Cay into a ‘Disneyland’ for cruise passengers (see below Figure 9).

Figure 4: Turks & Caicos Islands Land-based vs. Cruise Passenger Arrivals



(Sources: Kairi Consultants Ltd, 2006a, 2006b; TCI Tourist Board, 2019)

The other option is to attract the investment of a luxury resort such as the one proposed almost a decade ago (Salt Cay Devco, 2011). This would require a long stretch of beach in addition to the destruction of some local vegetation for the construction of luxury suites and residences, common facilities such as the lobby, kitchens and bars, and perhaps the introduction of non-indigenous plants for surrounding gardens. This option cannot co-exist with the cruise terminal, as

² Until 1964, the salt industry was TCI’s main economic activity. Salt production operations closed on Grand Turk and South Caicos in 1964, and Salt Cay in 1975. Since then, TCI has looked to offshore financial services, fishing and tourism as economic drivers. Tourism is the largest contributor to GDP and employment. (Kairi Consultants Ltd, 2006a)

the luxury resort company has stated categorically that it would not invest if cruise ships are allowed to dock.

The TCI government is seriously considering the plans for a private company to build a cruise terminal on their North Beach. Therefore, the suggestion of a luxury accommodation as an alternative is proposed as less environmentally-invasive and more socially sustainable. However, building a luxury property on North Beach has the potential to bring negative stressors such as land clearance, heavy water consumption (Tuppen, 2013) and diesel generated electricity (Fortis, 2016). For these reasons, a glamping³ development has also been proposed as a possible alternative.

Method

The cost-benefit (CB) method in general serves to “provide policymakers and funders with a summary of the extent to which expectations about the outcomes of an intervention have been met or not” (Arvidson *et al.*, 2013; Rossi *et al.*, 2004). Specifically, this tourism assessment for Salt Cay loosely followed the guidelines of the ‘Guide to Social Return on Investment (SROI)’ by the Scottish Government’s Office of the Third Sector (Nicholls *et al.*, 2009). The general framework has six cascading steps: establish the scope; identify key stakeholders; map the inputs, outputs and outcomes; evidence and value the outcomes; establish the impacts of each outcome; calculate the SROI; and report. In order to support the six-stage evaluation of the nine combined investment-scenarios, we use both quantitative and qualitative material from academic journals, databases, and industry and consulting reports. However, as these scenario-impacts are multidimensional and complex, various aspects proposed in this report were inferences made through specialized knowledge. One example is supplementing the cost-benefit analysis with a multi-criteria analysis to better account for the important qualitative and intangible elements. The social criteria selected for this multi-criteria analysis were weighted as a function of the desired outcomes: a sustainable resident population and local environment in addition to a healthy local economy.

Before conducting the CB, we analyzed TCI macro-economic trends (GDP, employment, balance of trade and foreign direct investment) and estimated Salt Cay’s carrying capacity based on best practices and the multiplier effects of the different investment types. Following a literature review and macro-economic analysis, we began with the first step of the social CB analysis, an assessment of the stakeholders and the island ecosystem.

Island Stakeholders and Physical Characteristics

Stakeholders

Through discussions with those knowledgeable about Salt Cay, we identified the following key stakeholders, as well as their priorities and needs. These are summarized in Table 1.

³ Glamping is glamorous camping, a form of camping involving luxurious accommodations and facilities including in-suite showers, elegant dining, and first-class service, etc. For more information, consult <https://howtostartanllc.com/business-ideas/glamping>

Table 1: List of stakeholder groups

Stakeholders	Priorities	Needs
Turks and Caicos Government	<ul style="list-style-type: none"> ▪ Economic Revenue ▪ Tax Revenue 	<ul style="list-style-type: none"> ▪ Increase in Tourism
Local Business Owners	<ul style="list-style-type: none"> ▪ Environmental Integrity ▪ Profit ▪ Safety 	<ul style="list-style-type: none"> ▪ Adequate Demand
Belongers*	<ul style="list-style-type: none"> ▪ Living Wage ▪ Quality of Life ▪ Stable Employment 	<ul style="list-style-type: none"> ▪ Infrastructure ▪ Permanent Jobs ▪ Standard of Living
Cruise Terminal Company	<ul style="list-style-type: none"> ▪ Profit ▪ Safety 	<ul style="list-style-type: none"> ▪ Safe Docking Area ▪ Excursions
Resort Hotel	<ul style="list-style-type: none"> ▪ Profit ▪ Safety ▪ Sustainability 	<ul style="list-style-type: none"> ▪ Adequate Demand ▪ Facility Space ▪ Workforce
Tourists	<ul style="list-style-type: none"> ▪ Affordability ▪ Safety ▪ Unique Experience 	<ul style="list-style-type: none"> ▪ Excursions
Retirees	<ul style="list-style-type: none"> ▪ Quality of Life 	<ul style="list-style-type: none"> ▪ Peace and Quiet

*Belongers are individuals free from immigration restrictions, in other words full citizens of TCI (<https://gov.tc/immigration/naturalization>)

To summarize, the islanders’ key goals are non-intrusive economic activity providing a living wage and attracts tourists that respect Salt Cay’s unique cultural and historical setting leading to sufficient permanent residents to justify social services.

Geological, Meteorological and Physical Characteristics of Salt Cay

The island of Salt Cay has the following characteristics (Kairi Consultants Ltd, 2006a, 2006b; Salt Cay Devco, 2011; *Visit Turks & Caicos Islands: Visit Salt Cay*, 2020):

- **Geology:** The island mainly consists of soft limestone formed by coral, called karst topography, which is permeable and extremely porous. For that reason, there are no wells on the island and freshwater is obtained mainly from rain collection and backed up by a reverse osmosis system.
- **Topography:** The highest point on the island is 57 feet (17 m) above sea level (Taylor Hill), bounded by a coral reef which protects the coastline from wave action, storm surge and erosion.
- **Fauna and Flora:** The island consists of abandoned salt reservoirs, marine ponds and low elevation dry tropical brushlands⁴. It supports some species of water birds, endemic rock iguanas and is a nesting area for Green and Hawksbill turtles. The island also houses feral donkeys and cattle from the salt-mining days (Pienkowski & Pienkowski, n.d.) now

⁴ In an attempt to prevent rainfall which affected salt production, the early salt-rakers removed much of the dense vegetative cover. This deteriorated the limited soil on the island which is now being further affected by feral animals.

abandoned after the industry closed. These feral animals are having a negative impact on the local vegetation.

- Sea life: Humpback whales and dolphins are common between Salt Cay and Grand Turk from January to March, currently Salt Cay's most important attraction along with scuba diving.
- Meteorology: The average temperature is 76F (24C) in winter and 83F (28C) in summer, with an average annual rainfall of 27 in (69 cm). Salt Cay is located within the hurricane belt (see Appendix II). The hurricanes to hit TCI include Donna 1969, Kate 1985, Frances 2004, Ike 2008 (Category 4), Joaquin 2015 (Category 4), Irma 2017 (Category 5) and Maria 2017 (Category 5). The 2017 hurricanes devastated the infrastructure of Salt Cay, affecting up to 80% of the island's construction (see Appendix I for a list of hurricane damage to human-engineered infrastructure).
- Beaches: The most important and pristine beach is North Beach, an estimated 3 mi (5 km) long (Figure 5).

Figure 5: Northern Salt Cay Island



(Source: Google Maps)

Considering these physical characteristics along with the stakeholders' priorities and needs, we estimated the island's carry capacity as a crucial factor to determine the best tourism investment that would re-establish the island residents while ensuring ecosystem resilience.

Carrying Capacity

Carrying capacity measures the number of people that an area, such as Salt Cay Island, can support without environmental degradation or overcrowding. To estimate, we used a recent study published in Florida by Division of Recreation and Parks (DEP, 2018). Based on their well-analyzed measures, Salt Cay has an average capacity of 1,000 people on the island proper with absolute maximum per day of 1,700 people along the beach, including tourists, workers, and residents (Table 2). We based our calculations on the land-based attractions only: North Beach, island-tour visitors, the cultural-historical attractions of the White House and salt ponds (Figure 6), and hiking both on trails and off-trails. Estimating the off-trail visits is particularly important

as this requires trampling the local flora. Excessive numbers of individuals walking off trails could permanently damage the local environment.

Figure 6: North Beach and the Salt Ponds



(Source: <https://www.visittei.com/salt-cay>)

Table 2: Salt Cay Carrying Capacity Estimates

North Bay's coastline between sandy beach and shallow shoreline	3 mi (5 km) with a width of 600 feet or 220 acres	1/8 th of an acre per visitor	1,760 beach-goers/swimmers per day
Culturally-significant White House and salt ponds	21,870 sq. ft land attraction	20 ft ² / visitor	1,094 visitors per day
Bicycling or buggy riding	2.6 mi ² (6.7 km ²)	10 vehicles per mile	26 bicyclists or buggies per day
Hiking : prepared trails	1664 acres total; min. 25 acres per linear mile of trail	20 tourists x 6.6 miles of trails	132 hikers on prepared nature trails per day
Hiking: off trails (primitive), walking on native vegetation	1664 acres; 100 acres per mile walking	6 tourists x 16.6	35 hikers off-trail per day

(Source: DEP, 2018 Appendix B)

In view of Salt Cay's capacity, we considered indirect income and employment generation in addition to direct employment that the potential investment would create and therefore add to the island's permanent population.

Multiplier

A multiplier is simply the cascading effect in the economy of injecting extra income. If the additional income is not saved, it leads to spending by the earner which creates more income for a recipient who then goes on to spend. This spiral of spending creates indirect employment, those jobs that emerge alongside and to service the main activity. Usually tourism multipliers are calculated using total and direct tourism expenditure. Due to insufficient data for the TCI, we used multipliers from islands with characteristics similar to those of Salt Cay. TCI's estimated multiplier ranges from 0.37 to 0.58. This range is very low because of high levels of imports needed to service international tourists. With the exception of fresh fish and salt, Salt Cay must import all foodstuffs, building materials, and sometimes drinking water.

One comparison is the Republic of Kiribati, an island group topographically similar to Salt Cay: both are poorly suited for fauna growth and have low amounts of fresh water. Meyer (2006) estimated Kiribati's multiplier to be 0.37 (Meyer, 2006) while the islands' government estimated that tourism multiplier to be 0.55 (Kiribati, 2014).

Other comparisons are islands nearer to TCI, the Caribbean islands of Antigua, Bahamas, British Virgin Islands, and Caymans. Meyer (2006) estimated that the tourism income multiplier of Antigua is 0.88, the Bahamas is 0.78-0.79, the British Virgin Islands is 0.58 and the Caymans is 0.65. Similar to TCI, these islands depend heavily on tourism and varying levels of imports to satisfy foreign tourists.

In view of the multiplier for other tourism-dependent island nations, an income multiplier of 0.37 to 0.58 is realistic, with the higher end trending towards an optimistic estimate. Otherwise said, although an increase in Salt Cay tourists may have some impact on indirect employment, it will not have an important effect on indirect income due to the high levels of imports needed to supply Salt Cay's tourism enterprises, especially if the tourism type is luxury. However, economic multipliers are just one measure. Tourism enterprises can be instrumental for social sustainability, here measured by tax revenue and subsequent social services provided.

Outcomes and Outputs – TCI Taxes and Public Services

Social Return on Investment (SROI) is a financial proxy to measure the impacts on stakeholders of non-market intangibles such as the long-term outcomes of good education, a healthy diet and proper housing. However, this study is not a strict SROI. Rather than measuring long-term intangibles, we measure tax receipts because of quick calculations with few questionable long-term assumptions. Estimating taxes does adhere to the principals of SROI in that the return collected is expected to be used efficiently and effectively for the communities to provide the benefits of education, health care and infrastructure for housing. Thus, the benefits calculated are the taxes and excises plus the payments into social security and health funds (Table 4). With these taxes and fees, the government is assumed to build a law enforcement office staffed with three officers and an assistant; an elementary school with eight staff members; and a full-time clinic with one doctor, two nurses and one administrator, the public services estimated to support a permanent population and carrying capacity of 1,000 residents of young to the elderly.

Public Sector Costs and the Social Discount Rate (SDR)

With the tax receipts, a government could build the minimum infrastructure (capital assets also called property, plant and equipment – PPE) to provide the services to attract and retain permanent residents, in particular young families. This infrastructure is a law enforcement office, a school and a clinic. Construction costs are based on the 2019 RSMeans square foot (ft²) median prices (Gordian, 2019) and the buildings are the assumed to be the smallest square footage (Gordian, 2016). In the case of the clinic it is estimated to be 4,200 ft² (390 m²), a law enforcement station of 4,000 ft² (370 m²) and an elementary school of 12,000 ft² (1,100 m²) (see Appendix III for detailed calculations). The estimated construction costs are U\$ 0.9 Mn, U\$ 1 Mn, and U\$ 1.9 Mn respectively, for a total of U\$ 3.8 Mn over three years (Table 3). Construction starts in year 2 for law enforcement, and continues in year 3 to 4 with the clinic and the elementary school. The whole life is estimated to be 30 years.

Table 3: Summary of the Present Value Costs for Public Infrastructure

Public Sector Costs	Social Discount Rate (SDR)	Present Value of Costs (PV)	Total Capital Costs	Total Whole Life Costs (incl staff)
Catastrophic	9.50%	\$ 5,641,345	\$ 3,886,600	\$ 12,928,889
Normal	5.38%	\$ 7,457,502	\$ 3,886,600	\$ 12,928,889
Optimistic	4.00%	\$ 8,388,348	\$ 3,886,600	\$ 12,928,889

Capital costs (building construction & equipment PPE) plus staffing.

Salaries are assumed to increase by 1.5% year on year starting Year 4

To better understand the present value of the whole life costs (capital costs plus annual staffing), we conducted a sensitivity analysis based on three scenarios: normal, optimistic and catastrophic (see detailed scenario descriptions below). A Social Discount Rate (SDR) is based on the idea that money loses its value over time due to inflation, risk and opportunity costs. The present value (PV) allows us to compare the long-term outcomes of the different alternatives in today’s dollars.

The SDR differs from the traditional financial discount rate because of a longer time horizon and the social benefits measured. Because the benefits should accrue to the future as well as the current generation, applying a higher financial rate and shorter horizon to social projects would make those long-term social projects unattractive today. Social projects, in addition to considering future generations, are based on moral and ethical considerations, not just financial. With an eye to community long-term benefits and positive outcomes, SDRs are now being calculated in a variety of countries. For example, well-developed economies such as Canada and the UK openly declare a SDR for public projects (SROI, 2010) and Scotland, for example, has selected 3.5% (Nicholls *et al.*, 2009).

In the case of the emerging economy and the strong dependence on tourism, TCI is a higher risk investment. We investigated the government borrowing rate for major government projects. In 2016, the TCI issued U\$ 5Mn in government bonds at **5.38%** for the installation across the islands of diesel generators (Fortis, 2016). From this ‘normal’ scenario we then considered the current COVID-19 virus as our catastrophe scenario. Tourism is now considered very high risk so countries such as Canada are only offering 9% plus the base rate of 0.5% (personal communication), for a total of **9.5%** to tourism enterprises. For the optimistic scenario of escalating tourism demand and very low country risk of default, we lowered the rate to base (0.5%) plus developed market SROI of 3.5% for a total of **4%** because investors were very ‘bullish’ about TCI hospitality investments as recently as 2019 (KPMG, 2018). Diesel generators are just one example of the public services (Costs) built using borrowed funds that are repaid by fiscal receipts, here referred to simply as Benefits.

Public Sector Benefits

Benefit calculation is facilitated by the TCI fiscal revenue consisting of indirect taxes⁵ only. Most countries have income taxes (corporate and personal) also called direct taxes⁶, but TCI has no such income or property taxes. Government revenues are generated through customs, excise, customs-processing fees, lodging taxes, passengers dock fees, among other smaller charges on the declared amounts. (VTCI, n.d.). In addition, the government charges employees and employers for the National Insurance (NI) and the National Health Insurance Plan (NHIP) (Table 4).

Table 4: TCI Tax Structure based on Indirect Taxes

<u>BENEFITS: PAYMENTS TO THE TCI GOVERNMENT</u>		
Customs Duties	30.0%	Normal
	10.0%	Building Materials
	0.0%	Food
All Goods	7.5%	Custom processing fee – charged on all goods including foods
Lodging	12.0%	Per Occupied Room
Departure tax	\$3.50	per passenger
Facility Tax	\$1.90	per cruise passenger (shared equally by government and dock company)
Natl Insurance	8.0%	of salary (paid 3.4% by employee and 4.6% by the employer)
Natl Health	6.0%	of salary (paid 3% by employee and 3% by the employer)

(Source: VTCI, n.d.)

Although these last two (national insurance and health) are independent of general government revenue and are expected to be self-sustaining, they are included because NI and NHIP are necessary for resident wellbeing and are an important resource to achieve the outcome of resident wellbeing. With fuller employment, these insurance funds should see net increases. The question is which of the potential tourism investments provide the greatest net benefit to the Salt Cay community: cruise day-trippers, a luxury resort or a glamping operation?

Inputs – Three Potential Tourism Investments

Prior to the analysis of the three options, first presented is a brief overview of the different tourism types followed by the three scenarios: optimistic, normal and catastrophic. As investment is an input, it is essential to understand the benefits to TCI of each investment type. Based on TCI's tax structure, we calculated the benefits of each investment type and scenario assumption to produce a matrix of nine combined investment-scenarios. These combinations demonstrated the

⁵ Indirect taxes are not to be confused with indirect employment, although this employment also generates fiscal benefits through taxes and social payments.

⁶ Income taxes are referred to as direct taxes as taxes are paid directly to the tax authorities by the person owing the taxes. Conversely, indirect taxes are those collected by a company or other authority on behalf of the government. These include lodging taxes collected by the hotel from its guests to be remitted to the government, passenger docks fees collected by cruise companies and remitted to the respective governments, sales taxes collected by stores, and customs duties on imports, among others.

net benefits in terms of the present value TCI government revenue less the present value of the long-term costs of public sector expenditure for law enforcement, education and health under different economic scenarios (sensitivity analysis). While the ultimate outcome is Salt Cay repopulation and resident well-being, public sector services provide an indicator of the potential to achieving these goals along with an eventual increase in the number of young families.

Description of the three types of tourism investments – alphabetical order

Investment 1 – Cruise ships and day passengers or day-trippers

The current TCI government is considering the private investment of a cruise dock on the north-west corner of North Beach to allow cruise day-trippers on the tiny island of Salt Cay (Figure 7). This would require not only the construction of the dock but creation of land-based activities. These activities often include low impact tours such as visits to abandoned salt-production areas and the colonial White House or beach activities near the cruise ship such as beach volley-ball and snorkeling (Figure 8). While visits to these historic sites would promote cultural and heritage tourism, shore-visits often include high-speed buggies around these isolated locations causing noise and air pollution as well as damage to local roads and perhaps vegetation, in addition to disturbing local residents and wildlife, especially Salt Cay’s unique bird population (Pienkowski & Pienkowski, n.d.). Moreover, the company plans to install zip lines, a tram and cable cars.

Private investors have approached the TCI government interested in developing the NW corner and these investors made an initial presentation to the Salt Cay islanders in March 2020 (Figure 9). In addition to the dock for onloading and offloading cruise passengers, the company wants to build an amusement park called ‘Wreckers Yard’ that would cover the entire north-east corner.⁷ The investors must provide an environmental impact study in the next step of the approval process.

Figure 7: Proposed Recreational Area for Cruise Passengers



⁷ As can be seen from the photos in Figure 9, the theme is that of a pirate cove which could be culturally-insensitive considering T&C’s slave history.

Figure 8: Photo of North Beach and the northwest point



Figure 9: Planned Cruise Dock & Entertainment Center



The map in Figure 5 shows that the sea floor topography is relatively shallow even to the west. Therefore, ships should be limited to mid-sized with a maximum of 2394 passengers (pax) per cruise, similar to NCL Gem⁸, used in the CBA. However, even mid-sized, such as a 2394-passenger cruise ship, have drafts up to 30 ft (8.3 m), widths of 125 ft (38 m) and gross tonnage of 94,000. At each ship arrival, about 70% of passengers will disembark, an estimated 1,650 passengers when the ship is at 100% occupancy. In addition to cruise passengers crew also disembarks. With a passenger to crew ratio of 1:0.4, there would be about 1000 crew members on board. From expert knowledge we know that 35% of crew members disembark bringing the total island day visitors to 2,000 people. Even in low season with fewer ship arrivals and 70% ship occupancy, Salt Cay day-trippers would be an estimated 1,400 visitors.

Investment 2 – Glamping

In stark contrast to a large scale, large impact cruise dock and entertainment facility, is the option of a small-scale glamping site. Glamping or glamorous camping is offered around the world from safaris in Kenya to nearby British Virgin Islands (Figure 10), a form of camping that incorporates the best of both camping and the hotel industry. While it is less profitable for the government than a resort, there are several benefits.

⁸ See https://en.wikipedia.org/wiki/Norwegian_Gem

According to the 2018 Turks and Caicos tourism report, Europe is Turk and Caicos' fastest growing visitor market, where glamping is increasing in popularity. Considering the size of the island and potential environmental impacts of larger scale projects, we evaluate the potential of glamping because it is low impact, (s)low investment allowing the site to grow with occupancy and is easily removed or partially dismantled in the event of a hurricane. We do recognize, though, that to date no investor has shown interest in a 30 to 50 tent luxury camping operation, unlike the international investors promoting a cruise dock company and the luxury resort despite its potential for economic returns, social benefits and environmental protection.

A research study by Budiasa *et al.*, (2019) in Bali showed that this green tourism concept, upon careful implementation, provides local economic opportunity, cultural diversity, a sense of environmental responsibility, in short, an overall rich visitor experience. Glampers typically are well-educated, millennials and baby-boomers sensitive to environmental protection with high socio-economic levels. And glampers tend to stay at the destination for 10 days compared to the 5-day stay of US-originating luxury resort guests, a significant benefit to Salt Cay's economy. There is also a high repeat rate for glampers at 66% (Bonifacic *et al.*, 2019).

Figure 10: Glamping Anegada Beach Club, British Virgin Islands



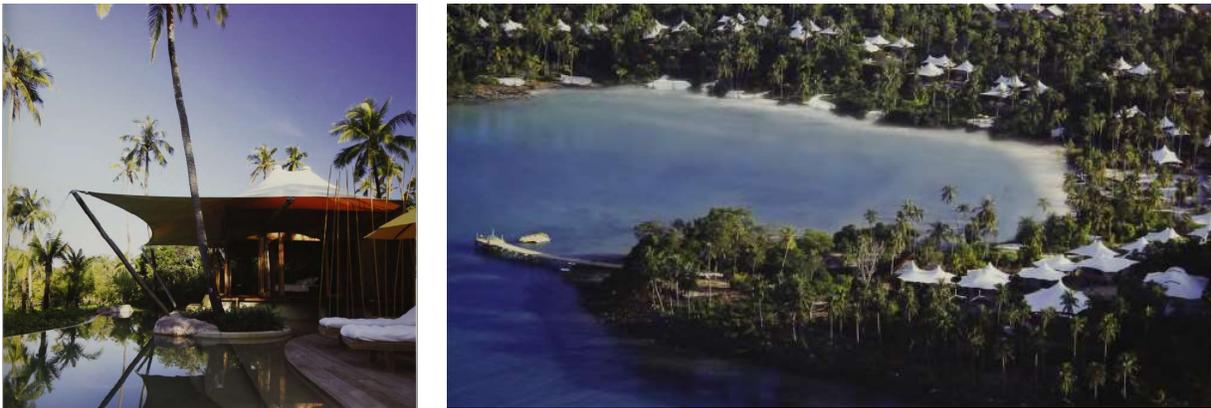
(Source: <https://www.glamping.com/destination/central-america-caribbean/anegada/keel-point/anegada-beach-club>)

This type of tourism can bring an increased number of visitors to Salt Cay without having a severe impact on the environment. But for both glamping and a luxury resort the same suggestions apply: buy local to the extent possible, and implement policy and planning techniques.

Investment 3 – Luxury Resort

The last but not least option is to proceed with the investment of a luxury resort such as the one promoted almost a decade ago. On the northeast point of North Beach, this international luxury resort corporation proposed the construction of 80 large luxury suites plus 50 residences including swimming pools and extensive gardens (Salt Cay Devco, 2011). This requires a long stretch of beach in addition to the destruction of some local vegetation for the construction of luxury suites and residences, common facilities such as the lobby, kitchens and bars, and perhaps the introduction of non-indigenous plants for surrounding gardens. It is important to note that a cruise terminal is incompatible with a luxury resort which means that the options are mutually exclusive.

Figure 11: Six Senses Resorts Asia



(Source: Salt Cay Devco, 2011, p.212)

Tourism is hypersensitive to any form of insecurity, be it financial (2008), political (9/11) or health (Covid-19). Therefore, the strengths and weaknesses of the three investment types must be tested alongside different economic scenarios of business-as-usual, a booming economy or a severe economic downturn from a localized hurricane or a global pandemic.

Description of the three scenarios: Normal, Catastrophic, and Optimistic

Although the real-world economy runs the gamut from a recession to extremely “bullish”, we selected just three distinct points: catastrophic, normal, and optimistic. The scenarios are assumed to affect the length of time for construction which could be extended over a longer period of time and require fewer construction workers; the discount rate because of the change in default-risk perceptions; and occupancy be it resort suites, tent units or cruise ship berths which impacts the total number of island visitors on a given day as well as taxes and fees collected. While economic variations are fluid in reality, providing a snapshot allows for clearer comparison and contrast. We start with ‘normal’ as our baseline.

Normal Scenario

This scenario is modeled on the trends experienced from 2015 to 2019 with rising demand worldwide for tourism and a relatively healthy job market in TCI source markets: the USA, Canada, and the UK. The last major public sector bond issuance in the TCI was at 5.38%, the SDR we apply under this scenario. Based on research and pro-forma statements, the normal scenario construction timeline and then occupancy for cruises, resort and glamping are as follows:

- Cruise ships have a room occupancy of 85% in high season (November then January to April), 68% in low season the months of May to September; and 100% over the Winter, Spring Break and Easter holidays. Because of the extensive construction of a dock plus the entertainment park, construction is expected to take about 3 years employing 200 construction workers. After construction, permanent employees will fall sharply 25 permanent jobs on the island, 10 for maintenance and 15 for other positions.
- Glamping construction is very fast, in fact just months, due to prefabricated tents and kitchen facilities assembled in the USA and imported to Salt Cay. Therefore, the main

construction consists of the bar, restaurant and kitchen buildings. Glamping operations will start after just one year and are expected to have similar occupancy in high and holiday seasons to that of a resort increasing from 58% in the early years. Occupancy peaks at 70% due to operation closure from August through October due to hurricanes with only security staff on-site. While operating, this glamping employs as many as the resort: 3 employees per unit or key. However, unlike a physical resort, employees are unemployed for three months. Transfer pricing between the non-TCI reservations' office and the Salt Cay resort, lowers the TCI declared room rate. We estimate that the amount invoiced by the local operations to the non-TCI office is, for the first two years, 90% of the full amount paid by the guests, then 80% for the next five years and 70% starting in year 7 once fixed costs have stabilized. In other words, between 10% and 30% of the full room rate is undeclared in TCI lowering the lodging taxes remitted.

- Resorts will have a similar seasonal fluctuation and occupancy to that of cruise ships. Construction of the first units will take two years. Once construction is complete, the site workers will be replaced with permanent resort staff so job numbers offset one another. Average annual occupancy will slowly increase from 58% to 75% for the suites and from 40% to 65% for the residences. There are three jobs created for every room occupied. Therefore, jobs are a function of keys and occupancy. The resort's transfer pricing is far more aggressive than glamping. Between the reservations' office and the Salt Cay resort, for the first ten years 70% of the passenger invoice will be re-invoiced and after ten years 60% of the passenger invoice will be re-invoiced between international reservations and local operations. In other words, between 30% and 40% of the original invoice is not declared in TCI lowering the amount of lodging taxes remitted.

Catastrophic Scenario

The world is currently facing an outbreak of a novel coronavirus, known as COVID-19, that has affected populations worldwide. There are many economic and cultural reactions to the virus that will negatively affect tourism for one year or more. It is likely that tourism rates will return to normal once the recession ends, however, there will be several years when hotel occupancy rates and cruise passengers are lower than average.

In addition to the impact of COVID-19, Salt Cay is at risk to other environmental effects. In 2017, two Category 5 hurricanes hit the Turks and Caicos, damaging 80% of the infrastructure on the island. As global warming increases and the prevalence of the weather conditions that, because hurricanes are occurring at higher rates than ever before, Salt Cay is at risk of extreme infrastructure damage including downed power lines, flooding, and lack of access to health and transportation services.

Under this scenario of catastrophe, construction for any type of tourism investment will start and continue much slower as investment shrinks and borrowing costs increase. As explained above, the social discount rate applied to this scenario, both private and public investment, is 9.5%. As for occupancy of each investment type, it will return to 'normal' after five years. In the interim, construction and subsequent occupancy are assumed to be as follows:

- Cruise ships have a room occupancy of 65% in high season (January to April plus July and November), 48% in low season the months of May, June, and August to October; and 80% over the Winter, Spring Break and Easter holidays. Because of the extensive construction of a dock plus the entertainment park, construction is expected to take about 3 years employing 150 construction workers. After construction, permanent employees will fall sharply to ten maintenance workers and ten general employees for a total of 20 permanent jobs.
- Glamping construction is very fast, in fact just months because the tents are prefabricated in the USA and imported. But again, the operation will now be scaled down and slowly enlarge as demand increases. Therefore, the main construction consists of a smaller bar, restaurant and kitchen facilities. Again, operations will close in low season and perhaps other months as well if demand is low, further destabilizing employment. However, glamping has the advantage to ramp up quickly by ordering more tents and the initial investment is far lower than the cruise or resort investments, therefore less risky. Glamping operations will start after just one year but with only five tents, increasing five tents per year until there is a total of 30 tents. Occupancy peaks at 60% due to operation closure from August through October due to hurricanes with only security staff on-site. While operating, this glamping employs as many as the resort: 3 employees per unit or key. Because fixed costs are high and occupancy is relatively low, the full amount of the client's invoice is re-invoiced between the reservation's office and the Salt Cay resort until year 6 when 30% is retained by the reservation office.
- Resort room construction begins very slowly with only 10 'keys' (or units) which open the following year. Each year the resort builds another 9 suites plus 1 residence, adding 10 keys a year until there is a total of 80 suites and 10 residences. Average annual occupancy begins at 30% and peaks years later at 70%. Once construction is complete, the site workers are replaced with permanent resort staff so job numbers offset one another. Transfer pricing is less aggressive due to high fixed costs and continuous construction. It starts at 10% and steadily increases to 50% by year 10. In other words, the resort declares initially 90% of lodging income decreasing to 50% within a decade lowering the lodging taxes remitted to the TCI government.

Optimistic Scenario

Until March 2020, the investment outlook for hospitality, and TCI in particular, was very positive (KPMG, 2018). Tourism demand for these islands as well as the number of inbound cruise passengers is expected to rise. TCI was approached by various cruise companies to lease land in order to add additional intermediate stops to their itineraries so as to attract more return cruise passengers (Guo *et al.*, 2019).

Under this scenario of optimism, construction will be the same as 'normal' because of the heavy demand for construction workers. The social discount rate is 4.0%. The scenarios are as follows:

- Each cruise ship is limited but the frequency of arrivals is increased. Cruise ships have an annual average occupancy of 78%. Dock construction is expected to take about 3 years employing 200 construction workers. After construction, permanent employees will fall sharply to 40 permanent jobs.
- After 15 glamping tents, these investors start building villas. As the number of tents increases to 25, villa construction starts with 5 units and increase 5 units per year until there is a total of 35 villas. Occupancy starts at 65% and quickly peaks at an average annual of 78%. Both glamping and villas employ 3 employees per unit. Through transfer pricing between the reservation's office and the Salt Cay resort, the amount re-invoiced between off-shore reservations and local operations is 40% for ten years, then 50% after that. In other words, between 50% and 60% of the original invoice is not declared in TCI lowering the lodging taxes remitted.
- The resort opens with 80 suites and 10 residences. Within ten years there are 80 suites and 60 residences with an annual average occupancy of 78%. Transfer pricing is aggressive starting at 50% and increasing to 60% by year 8 when all the construction is completed. In other words, the resort declares initially 50% of lodging income declining to 40%.

Cost Benefit (CB) Analysis of the Nine Investment-Scenarios

NORMAL Economic Conditions

1. Investment-Scenario: Cruise - Normal (SDR = 5.38%)

The assumptions for the cruise line specifically are that the dock begins to operate at the in Year 3, with tourist arrival rate remaining constant after that, as these ships are monoliths and itineraries defined well in advance. The cruise company is assumed to pay an annual land lease fee of US\$ 250,000 for 30 years plus excise and processing on construction materials. And once operating the annual payments include departure tax and passenger facility fees (see Table 4).

In High Season (Nov to Apr, except Dec), an estimated six ships weekly would arrive at Salt Cay; Low Season (May to Oct) two ships weekly; and during holiday weeks in December, Spring Break and Easter there would be 7 ships weekly. Based on these assumptions, the annual frequency is 216 ships for the total disembarking passengers to reach 400,000 annually⁹.

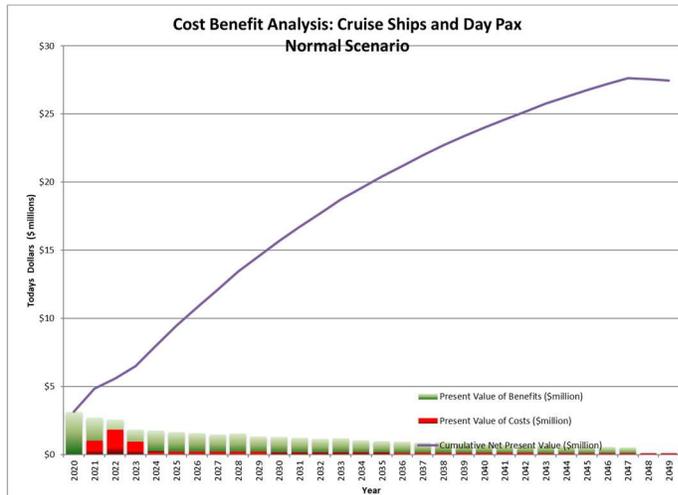
Furthermore, the infrastructure needed to build a cruise port would be US\$ 20mn, in addition to water and energy upgrades (AP, 2020a, 2020b; Korbee *et al.*, 2015). The cost for a movable gangway would be US\$ 1.8mn for an initial investment of US\$ 25mn. Every five years major maintenance and upgrades will cost US\$1mn.

The cost-benefit (CB) chart based on the above information illustrates that the net present value (NPV) reaches almost US\$ 30mn in 30 years with the tax benefits five times the costs of public infrastructure and staffing (Figure 12). As described in the costs, the government expends initially in public infrastructure which dips the net returns slightly in years 2, 3, and 4. Although

⁹ A special thanks to Caecilia He who obtained through her unique sources this information impossible to find elsewhere.

the overall net benefit appears positive throughout, there are serious disadvantages to this investment.

Figure 12: CB Cruise-Normal



IN USD	CRUISE
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	5.38%
Present Value of Benefits	\$34,932,867
Present Value of Costs	-\$7,457,502
Benefit Cost Ratio	4.68
Net Present Value	\$27,475,364

In terms of carrying capacity, 70% for passengers and 35% of crew will disembark from each arriving cruise ship for a total of 1,350 to 2,000 day-visitors. This large number exceeds Salt Cay’s carrying capacity of a maximum of 1,200 including residents. In terms of employment, after the initial burst of temporary construction workers, the number of employees on the island is estimated at 25 employees and perhaps 60 additional permanent residents to those today. In short, while the tax and fee collection are sufficient to pay for public sector costs, the extremely high number of day visitors from just one¹⁰ cruise line plus the low number of permanent residents may not justify the investment even with a normal economy.

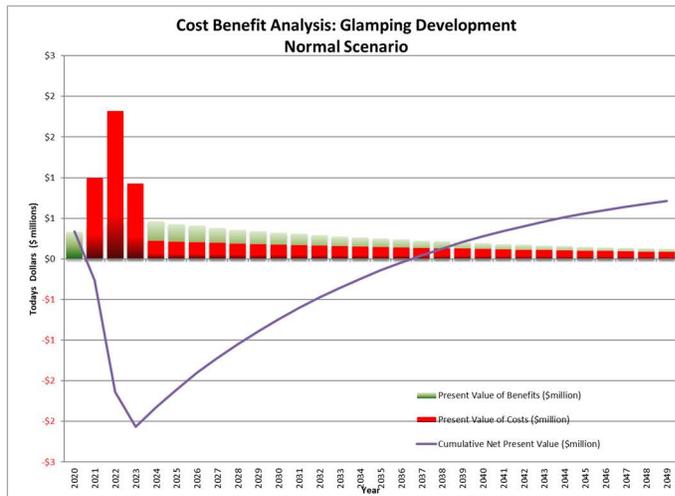
2. Investment-Scenario: Glamping - Normal (SDR = 5.38%)

With a shorter construction period, glamping operations begin much faster than a cruise terminal, after construction of the first 15 tents and the kitchen facilities. Here too, the operation is assumed to pay an annual land leasing fee of U\$ 250,000. After construction, this type of investment is expected to generate 3 employees per day per occupied tent from management to waiters to cleaning and maintenance staff. The tent occupancy is highly seasonal closes operations during the hurricane months from August to October which would disrupt employment depending on management philosophy¹¹. While positive, the NPV of government receipts minus expenditure on public services is less than U\$ 6mn over 30 years and the benefits are less than two times the costs to the public sector (Figure 13). Here the dip is sharp, even negative (government outlays before returns) but eventually returns to positive after seven years. Despite this disadvantage, this investment option has the advantage of creating more jobs than the cruise ship and therefore attracting more permanent residents.

¹⁰ Note on Figure 9 above that the proposed dock has two docking areas for simultaneous arrivals of two cruise ships. Our analysis is based on just one ship arriving on a given day.

¹¹ To retain well-trained staff, small hotels often close with everyone taking holidays at the same time.

Figure 13: CB Glamping-Normal



IN USD	GLAMPING
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	5.38%
Present Value of Benefits	\$8,169,736
Present Value of Costs	-\$7,457,502
Benefit Cost Ratio	1.10
Net Present Value	\$712,233

The Cost Benefit Chart, presented above, showcases the loss that will occur in the first 6 years after the initial construction. After year 6, the net present value will begin to rise and will create a net long-term benefit of almost US\$ 5 Mn. While the return from the glamping resort is not as great as from the cruise ship, the glamping resort is well within the carrying capacity of the island. In addition, glamping guests are more independent and therefore will spend money off the glamping site creating sustainable indirect employment opportunities and income.

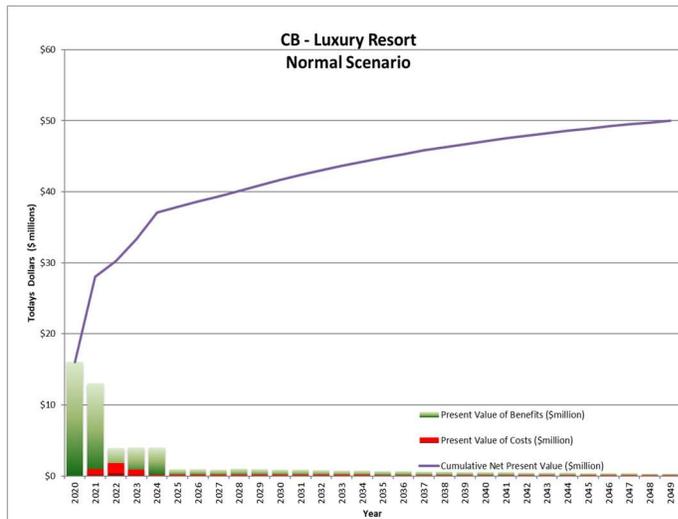
Unlike the cruise terminal, the glamping resort has a much higher propensity to create a sustainable residential population (an estimated 50 to 375 residents¹²) thanks to a higher level of job creations (20 to 150 permanent positions) on Salt Cay.

3. Investment-Scenario: Luxury Resort - Normal (SDR = 5.38%)

Construction of the resort will take place mainly in the first three years with 90 suites and 10 villas. The initial construction cost of the resort is US\$ 92mn which is taxed at 10% excise plus 7.5% processing fees. After that, construction continues slowly adding 10 villas per year until there is a total of 50 villas. The luxury resort opens at the beginning of Year 3, hiring 3 employees per unit based on estimated occupancy. The occupancy rates are 90% occupancy in high season, 30% in low season, and 95% in the holiday season.

¹² The number of permanent residents per job is estimated to be 2.5.

Figure 14: CB Luxury Resort - Normal



IN USD	LUXURY RESORT
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	5.38%
Present Value of Benefits	\$57,442,366
Present Value of Costs	-\$7,457,502
Benefit Cost Ratio	7.70
Net Present Value	\$49,984,864

Clearly, an investment in a permanent resort is the best option returning 8 times the fiscal benefits compared to the social service costs based on construction and operations of 130 keys. The import of building materials, while enjoying a reduced excise from 30 to 10%, still generates sufficient customs duties to exceed the construction and staffing costs from Year 2 onward, producing a NPV of U\$ 53.8 Mn over 30 years (Figure 14). Moreover, the resort is open year-round and thus provides the highest number jobs, an estimated 100 to 390. This will attract an estimated 250 to 975 permanent residents. These residents plus tourists would be within the bounds of Salt Cay’s carrying capacity. However, this option does have some disadvantages as well.

Based on the company’s initial proforma statements, the estimated average annual occupancy is 60%. Considering that the critical resource on Salt Cay is fresh water, the impacts of the resort must be measured first and foremost in water production, consumption and disposal. Hotel water consumption is a function of climate and category. High-end, luxury properties located in the tropics consume an average of 150 gallons of fresh water per occupied guest room per day, or about 55,000 gallons of water per occupied room per year. However, this accounts for only 34% of water consumed at luxury tropical properties (Tuppen, 2013). In other words, the resort property of large gardens, pools, several restaurants and 90 to 130 keys with an average annual occupancy of 60% would consume 9 to 10 million gallons per year or 24,000 gallons of desalinated water per day and could peak at 30,000 gallons per day in high season.

If the desalination plant is not designed with solar panels¹³, the resort would require diesel generators for this and other electricity needs. The Canadian company Fortis installed three diesel generators housed in one building which may not have excess capacity. Few of the occupied houses have solar panels on the roof and these residences still require generator electricity to power the air conditioners. In short, all houses require the generators the cost of which is triple that of

¹³ To be sustainable, the resort could consider a solar desalination plant. See <https://interestingengineering.com/solar-powered-plant-in-kenya-gives-drinking-water-to-35000-people-a-day>

Washington DC per kW hr. In addition to electricity requirements, there is a question of how to dispose of the toxic brine which is a by-product of desalination.

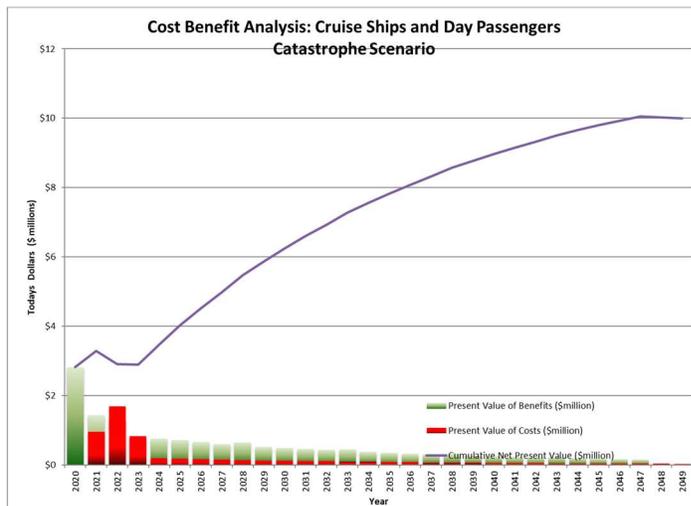
As for island air access, currently sufficient for the cruise and glamping options, flights to the island may have to increase to daily service from three times a week currently. The airport was rebuilt after Hurricane Irma in 2017 at a cost of US\$ 4.5 million. The now-extended runway is 2677 ft. (816 m) long but the largest craft that can land is a Twin-Otter which has a maximum capacity of 19 passengers and 2 flight deck crew.

CATASTROPHIC Economic Conditions

4. Investment-Scenario: Cruise - Catastrophic (SDR = 9.5%)

This scenario has been described above. The important changes are those to the leasing fee (reduced to US\$ 150,000 for five years and then to the normal lease of US\$ 250,000 thereafter) and a reduction in the cruise departure tax to US\$ 2 per passenger from the normal US\$ 3.50.

Figure 15: CB Cruise - Catastrophic



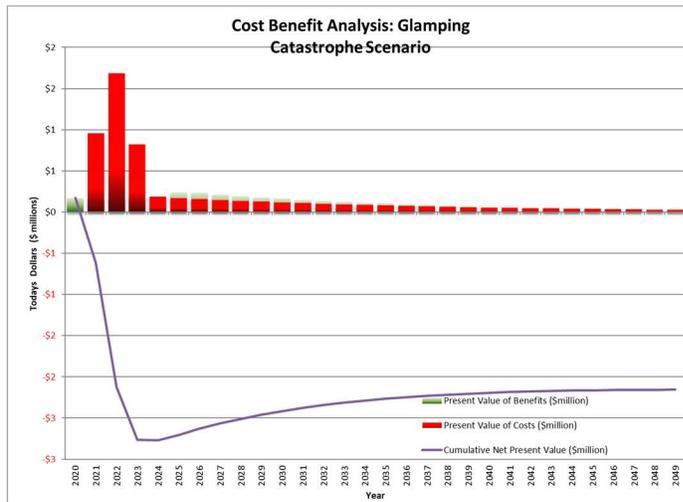
IN USD	CRUISE
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	9.50%
Present Value of Benefits	\$15,640,099
Present Value of Costs	-\$5,641,345
Benefit Cost Ratio	2.77
Net Present Value	\$9,998,754

In this scenario, the cruise option returns more than 3 times the investment over 30 years even at a discount rate of almost 10% (Figure 15). Nonetheless, cruises passengers will still greatly exceed the island's carrying capacity the annual number of day-trippers would be 280,000 with as few as two ships per week in low season and seven ships during holiday weeks. And job creation is even lower, a total of 20 permanent jobs and 50 permanent residents making this investment unattractive when the island's ecosystem and island repopulation are taken into consideration.

5. Investment-Scenario: Glamping - Catastrophic (SDR = 9.5%)

As in the above scenario, the government reduces the land lease US\$ 150,000 for five years (then to US\$ 250,000 thereafter) and lodging tax is lowered from 12% to 8%. Even so, glamping rates are lowered to US\$ 100 per night and will increase to the normal US\$ 250 after five years.

Figure 16: CB Glamping - Catastrophic



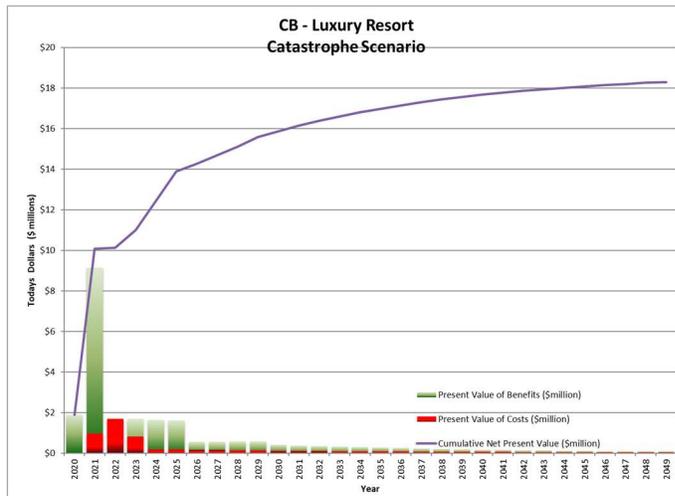
IN USD	GLAMPING
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	9.50%
Present Value of Benefits	\$3,485,014
Present Value of Costs	-\$5,641,345
Benefit Cost Ratio	0.62
Net Present Value	-\$2,156,332

From a public sector perspective fiscal perspective, this type of investment under this economic condition is the least attractive just covering the social service investment at the discount rate of 9.5% demonstrated by the sharp dip in the NPV (Figure 16). However, in terms of employment, while not as attractive as a luxury resort, it is still more attractive than the cruise ship because the number of permanent employees over the long term could be as many as 90. This number of permanent employees, almost five times that of a cruise ship, could increase resident population to more than 200. Moreover, in a crisis with high local unemployment, public sector construction often helps to alleviate unemployment irrespective of fiscal returns. Therefore, a glamping construction combined with public service construction, even if fiscally unattractive in the short term, could prove an important government stimulus to the local economy and Salt Cay’s population over the long-term.

6. Investment-Scenario: Luxury Resort - Catastrophic (SDR = 9.5%)

The resort investment is offered the same reductions as glamping assumptions: land lease reduced to U\$ 150,000 for five years (then to U\$ 250,000 thereafter) and lodging taxes reduced to 8%.

Figure 17: CB Luxury Resort - Catastrophic



IN USD	LUXURY RESORT
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	9.50%
Present Value of Benefits	\$23,938,361
Present Value of Costs	-\$5,641,345
Benefit Cost Ratio	4.24
Net Present Value	\$18,297,016

From a public sector perspective fiscal perspective, this option, even with the economic catastrophe, is still attractive over the long run because it produces almost five times the initial investment (Figure 17) even with tax planning and transfer pricing. Equally, in terms of employment, it is more attractive than either the cruise ship or glamping because even with a reduction in the number of keys, the investment could create an estimated 270 jobs once the economy returns to normal (almost twenty times that of a cruise ship) with resident population from this economic activity increasing of 675. Moreover, in a crisis with high local unemployment, public sector construction is an important stimulus. Here again, resort construction combined with public service construction will boost the local economy.

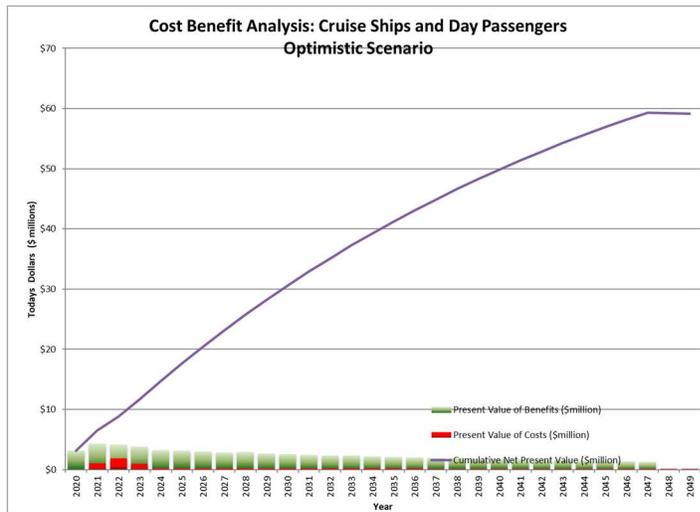
OPTIMISTIC Economic Conditions

In this scenario, tourism is at the optimal demand rate to meet and even exceed the supply that TCI has to offer. Therefore, the additional investments to increase room capacity is not only welcome but needed. The high demand from tourists to visit, especially from a wealthy demographic, allows the government to increase lodging and cruise fees. Tourism demand is strong thanks to TCI reputation of a safe and secure destination.

7. Investment-Scenario: Cruise - Optimistic (SDR = 4.0%)

Because demand is strong, the TCI government has increased the cruise departure tax to US\$ 5 per passenger as the government has added a US\$ 1.50 environmental charge to the US\$ 3.50 passenger fee. Also, the land lease starts at US\$ 250,000 for 5 years and then increased to US\$ 400,000 for the next 25 years.

Figure 18: CB Cruise Passengers - Optimistic



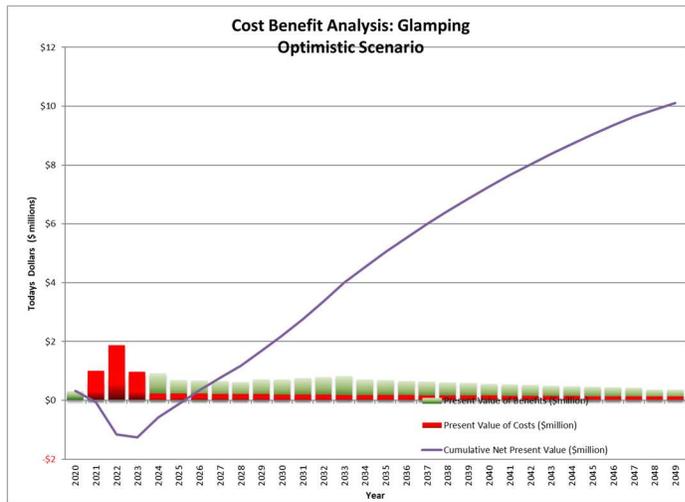
USD	CRUISE
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	4.0%
Present Value of Benefits	\$67,492,894
Present Value of Costs	-\$8,388,348
Benefit Cost Ratio	8.05
Net Present Value	\$59,104,546

In terms of carrying capacity, cruise ships will seriously exceed Salt Cay’s carrying capacity with a greater number of ship arrivals each with higher than normal occupancy with day-trippers exceeding 2,000 per ship arrival. This number of passengers could perhaps damage irreversibly the islands ecosystem and motivate residents to leave the island, the opposite of the desired outcome. Moreover, the additional transit would not increase employment substantially. Only an estimated additional 10 permanent jobs on the island for a total of 40 employees, or an estimated total of 100 permanent residents at best. While the tax and fee collection are more than sufficient to pay for public sector costs (Figure 18), daily visitor totals that greatly exceed carrying capacity combined with the low number of additional permanent residents make this investment unattractive.

8. Investment-Scenario: Glamping - Optimistic (SDR = 4.0%)

As an important reminder, thanks to the success of glamping, the investors start to build residences and have 20 glamping tents plus 30 residences by year 12. The tent average annual rate is US\$ 250 per night and the villa is US\$ 700. With their solid construction, the villas are available year-round. While the daily rates are those advertised to guests, the investors practice relatively aggressive transfer pricing. Again, land leasing costs US\$ 250,000 for the first 5 years and then increases to US\$ 400,000.

Figure 19: CB Glamping & Villas - Optimistic



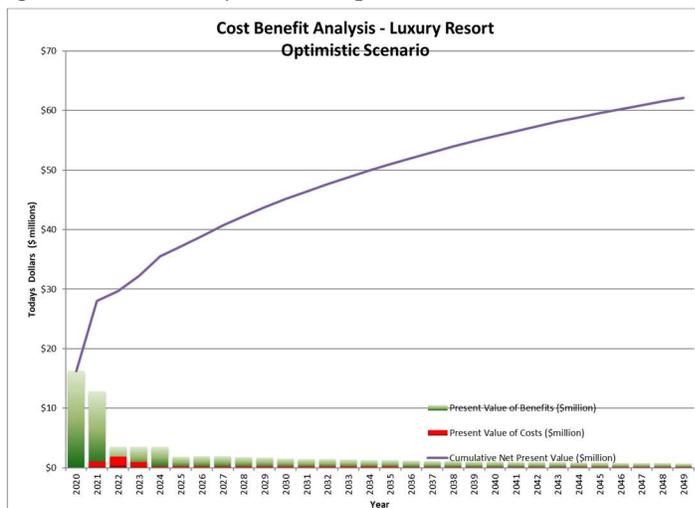
USD	GLAMPING
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	4.0%
Present Value of Benefits	\$18,499,384
Present Value of Costs	-\$8,388,348
Benefit Cost Ratio	2.21
Net Present Value	\$10,111,036

As with the previous scenarios, the construction of a glamping resort initially creates a net loss on the island, but under this scenario the loss is minimal (Figure 19). The limited number of tents on the island attracts fewer guests and is well within Salt Cay’s carrying capacity of 1,200 (including residents). The combined glamping-villas employs 165 people boosting the permanent resident population to around 400. While net gain is less than cruise ships, this option respects the island’s environmental and social integrity.

9. Investment-Scenario: Luxury Resort - Optimistic (SDR = 4.0%)

Land leasing costs are the same as above: US\$ 250,000 for the first 5 years and then US\$ 400,000 for the next 25 years. The luxury resort cost US\$ 950 per night and villas cost US\$ 1,200. With their solid construction, the units are available year-round. While these daily rates are those advertised to guests, the investors practice very aggressive transfer pricing.

Figure 20: CB Luxury Resort - Optimistic



USD	LUXURY RESORT
Appraisal period (years)	30
Capital Costs	-\$3,886,600
Whole of Life Costs	-\$12,928,889
CBA at the SDR of	4.0%
Present Value of Benefits	\$70,495,109
Present Value of Costs	-\$8,388,348
Benefit Cost Ratio	8.40
Net Present Value	\$62,106,761

Clearly, an investment in a permanent resort is the best option returning over 8 times the fiscal benefits compared to the social service costs based on construction and operations of 140

keys (Figure 20) even with aggressive tax planning to avoid lodging taxes. The downside of the aggressive transfer pricing is that this investment during tourist high-demand yields little additional fiscal benefits to the TCI government than under normal economic conditions with a benefit-cost ratio of 8.71. The benefits are more in terms of job creation.

The resort is open year-round and high occupancy year-round would a high number of stable jobs, over 400 which could attract an estimated 1000 permanent residents¹⁴. These residents plus resort guests would still be within the bounds of Salt Cay’s carrying capacity so long as the resort is no larger 150 units or a maximum of 300 guests.

The nine scenario-investments quantified the net benefits to the TCI government. To complete the analysis, we must scrutinize each combination in terms of key qualitative criteria identified by the stakeholders.

Multi-Criteria Analysis (MCA)

Multi-Criteria Analysis (MCA) begins with an expert panel defining the desired (often competing) goals. Each criterion is weighted as to its importance to achieving those goals. Re-establishing a permanent population is the overarching outcome. This goal requires sustainable employment with a living wage, social services paid for by government receipts, and indirect job opportunities (multiplier) while ensuring ecosystem resilience (carrying capacity). Satisfying these criteria depends on what the TCI government allows as investments. The choice of investment-type will impact their long-term revenue stream. But these revenues must be weighed alongside sustainable employment providing a living wage (25%), resident well-being through social service delivery (25%), indirect employment created thanks to the investment-type (15%) and ecosystem resilience of these fragile islands (35%). Following a review of the literature and discussion among the researchers, we scored each investment from 1 to 10 in each criterion. The weighted score based on these qualitative criteria were 8.35 for glamping, 7.90 for the resort and 3.95 for cruise ships and day-trippers (Figure 21).

Figure 21: Multi-Criteria Analysis Investment Scores

MULTI CRITERIA ANALYSIS (MCA)		Option 1 CRUISE SHIPS & DAY PAX		Option 2 GLAMPING DEVELOPMENT		Option 3 LUXURY RESORT	
Criteria	Criteria Weight	Score (out of 10)	Weighted Score	Score (out of 10)	Weighted Score	Score (out of 10)	Weighted Score
Sustainable Employment	25%	4	1.00	6	1.50	9	2.25
Social Services	25%	10	2.50	8	2.00	10	2.50
Indirect employment	15%	3	0.45	9	1.35	7	1.05
Carrying Capacity, i.e. ecosystem	35%	0	0.00	10	3.50	6	2.10
SCORES			3.95		8.35		7.90
			100.0%				

Following is an explanation of each criterion and the justification for the weighting.

Sustainable Employment and a Living Wage (25%)

According to the World Tourism Organization (2004), there should be positive socio-economic and economic benefits for host communities. This could include income earning opportunities and social services via stable employment (Lansing & De Vries, 2007). However,

¹⁴ The number of permanent residents per job is estimated to be 2.5.

these jobs should be paid sufficiently to maintain a normal standard of living. Living wages are calculated as the hourly minimum needed for a household to meet their basic needs. A household can be defined as a couple with two children, a single parent with two children, a couple or a person living alone. Each of these households require different living wages. In most countries, the minimum wage is below the living. For example, in 2016 Alberta in Canada has a minimum wage of C\$ 15.60 per hour. To work at the world-renowned tourism destination of Banff, Alberta, the cost of living was so high that each parent in a household of four needed to earn C\$ 23.50 per hour to reside there. Wages paid barely above minimum wage are common in the tourism industry world-wide which is why employment to be considered ‘sustainable’ must be at least the living wage.

Resident Population Wellbeing provided by Social Services (25%)

Ensuring resident well-being is especially important in sustainable tourism, in particular in island tourism development. In order for local prosperity, policies need to be in place that constantly monitor attitudes towards the sector that will simultaneously improve their quality of life, and facilitate socio-cultural and economic revitalization (Boukas & Ziakas, 2016).

The issues of sustainable employment and resident population wellbeing were both decided on being the highest and equally distributed as they are essential in order to reach Salt Cay’s goal to repopulate the island. Re-populating the island will require an appropriate amount of tourism jobs that supports the permanent residents in a way that allows them to remain on the island with their families. Furthermore, it is important that the residents are happy with tourism on the island, not feeling overrun, and job satisfaction to ensure that they remain.

Indirect Employment and Multipliers (15%)

While multipliers are important to consider, it was weighed at 15% because leakage is a challenge for all Caribbean islands. While important, the key is job creation, that the largest investment creates indirect employment as well as direct.

Caribbean cruise ship arrivals have been accelerating. Researchers suggest that the only solution is for local governments to plan strategically and provide necessary infrastructure. Yet cruise ships are notorious for encouraging passengers to buy on-board thereby boosting cruise revenues while depriving local businesses of badly-needed income (Hall & Braithwaite, 1990). This is equally true of all-inclusive resorts that offer as many services inhouse as possible (Ambrosie, 2015). Resorts are often internationally owned and rely on imported goods (Scheyvens, 2011). However, glamping attracts a more adventurous tourist. Moreover, these operations are usually not all-inclusive which means their guests are more likely to frequent local establishments thus creating more employment opportunities indirectly.

Carrying Capacity (35%):

“How many is too many?” is an important consideration in the management of sustainable tourism development. Carrying capacity is an indicator of what a destination and its environment can handle, in particular regarding visitor experience, resource protection, and the limits of acceptable change (McCool *et al.*, 2001). Carrying capacity was weighed as 35% as it is important

to ensure environmental sustainability for the island. Salt Cay has an extremely fragile ecosystem so the island needs to be protected as well as maintain the attractiveness of the island and tourist satisfaction. This will safeguard the local jobs and support population wellbeing.

Discussion

The tourism industry can provide numerous benefits including boosting tax revenue, diversifying exports, generating foreign exchange, and expanding the local job market. However, this economic activity can come at a serious cost if planning and monitoring are not put into place. Salt Cay has the potential to replicate a similar product offering if the economic activity is chosen wisely and planned effectively. The absence of planning comes with a serious cost. For example, while over 1 million tourists venture to the archipelago of islands Maldives every year, research suggests that resort operations are environmentally damaging from sand pumping, sewage, construction and coral reef conditions. In the Maldives, luxury resorts and sustainability appear to be incompatible (Cowburn *et al.*, 2018). In order to effectively bring tourism to Salt Cay in a way that will preserve both the natural and cultural heritage of the island, a serious evaluation of the costs and benefits (CB) of each type of tourism investment is essential.

This report has analyzed three scenarios for Salt Cay: a 130-key luxury resort, a cruise dock and entertainment area, and a 50-tent glamping enterprise. We began by building a tourism forecast, analyzing macro-economic trends, assessing different economic and income multipliers, and calculating Salt Cay's carrying capacity. Next, we assessed the priorities and needs of the islands' stakeholders, the first step of the CB analysis. For the majority, the goal is a non-intrusive tourism activity attracting that respects Salt Cay's unique setting providing sufficient fiscal resources to justify social services and attract permanent residents to the island. We broadly assumed that the basic infrastructure includes a law enforcement office, a school, and a medical clinic. A sensitivity analysis then analyzed the variations in the costs and benefits of each investment option under three economic conditions: optimistic, normal, and catastrophic. The CB and sensitivity analyses were reinforced by a multi-criteria analysis to weigh the importance of the most critical outcomes to achieve the goal of increasing Salt Cay's permanent residents: sustainable employment providing a living wage, the appropriate social services, indirect employment opportunities while remaining within the bounds of the ecosystem carrying capacity.

The following matrix presents the final results of the nine combinations of scenarios-investments (Figure 22) shows that even in the case of aggressive tax planning and the worst scenario, a luxury resort of even 90 rooms could provide up to 270 permanent jobs for an estimated permanent population of 600 residents without exceeding the carrying capacity of the island even with the addition of 200 tourists. TCI's government would have net benefits of more than US\$ 20 Mn after 30 years and the provision of the vital social services. While providing some fiscal benefits to the government, a cruise ship dock with just one ship arrival per day (and not the two ships per day in the current proposal) would far exceed the capacity of Salt Cay while providing insufficient permanent employment for population re-establishment. The middle choice providing break-even or up to US\$ 5 Mn of net fiscal benefits is that of glamping. While the best option for

environmental protection, it also would provide sufficient employment to attract permanent residents if the social services are in place.

Figure 22: Summary Table of Salt Cay Cost-Benefit and Multi-Criteria Analyses

BENEFITS TO COSTS based on a Social Discount Rate (SDR) - a function of the economy and perceived risk				NET PRESENT VALUES (NPV) in USD after 30 yrs.		
Benefit to Cost (B/C) Ratio	Cruise	Glamping	Luxury Resort	Cruise	Glamping	Luxury Resort
Catastrophic (Disasters), SDR = 9.5%	2.77	0.62	4.24	\$ 9,998,754	\$ (2,156,332)	\$ 18,297,016
Normal, SDR = 5.38%	4.68	1.10	7.70	\$ 27,475,364	\$ 712,233	\$ 49,984,864
Optimistic, SDR = 4%	8.05	2.21	8.40	\$ 59,104,546	\$ 10,111,036	\$ 62,106,761

Direct Employment Creation Range*	Cruise		Glamping		Luxury Resort	
	From	To**	From	To	From	To
Catastrophic (Pandemic/Hurricanes)	100	20	10	90	30	270
Normal	200	25	20	150	100	390
Optimistic	200	40	45	165	270	420

* Permanent residents are estimated at 2.5 persons per stable job (i.e. excluding initial construction)
 **After the initial burst of dock construction, employment falls sharply.

Luxury Resort (MCA Score =7.9)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To	
Catastrophic (Disasters), SDR = 9.5%	4.24	\$ 18,297,016	30	270
Normal, SDR = 5.38%	7.70	\$ 49,984,864	100	390
Optimistic, SDR = 4%	8.40	\$ 62,106,761	270	420

Glamping (MCA Score = 8.2)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To	
Catastrophic (Disasters), DR = 9.5%	0.62	\$ (2,156,332)	10	90
Normal, DR = 5.38%	1.10	\$ 712,233	20	150
Optimistic, DR = 4%	2.21	\$ 10,111,036	45	165

Cruise Ships and Day Visitors (MCA Score = 3.1)	Benefits to Costs Ratio	NPV in USD over 30 yrs	Permanent Jobs: From - To**	
Catastrophic (Disasters), SDR = 9.5%	2.77	\$ 9,998,754	100	20
Normal, SDR = 5.38%	4.68	\$ 27,475,364	200	25
Optimistic, SDR = 4%	8.05	\$ 59,104,546	200	40

**After the initial burst of dock construction, employment falls sharply.

MULTICRITERIA WEIGHTED SCORE - not dependent on scenarios; intrinsic to the investment type, not the economy							
MULTI CRITERIA ANALYSIS (MCA)							
Criteria	Criteria Weight	Option 1 CRUISE SHIPS & DAY PAX		Option 2 GLAMPING DEVELOPMENT		Option 3 LUXURY RESORT	
		Score (out of 10)	Weighted Score	Score (out of 10)	Weighted Score	Score (out of 10)	Weighted Score
Sustainable Employment	25%	4	1.00	6	1.50	9	2.25
Social Services	25%	10	2.50	8	2.00	10	2.50
Indirect employment	15%	3	0.45	9	1.35	7	1.05
Carrying Capacity, i.e. ecosystem	35%	0	0.00	10	3.50	6	2.10
SCORES		100.0%		3.95		8.35	
						7.90	

Cruise Ship Terminal

According to the results of the prior data analysis, cruise ships cannot be considered an effective plan in relation to sustainable tourism development as they bring mass amounts of uncontrolled tourism (Marsh, 2012); this can especially be noted in their score of 0 for carrying capacity. Furthermore, when looking into past cases, islands worldwide such as Mallorca, the Great Barrier Reef, Santorini, the Galapagos Islands, and others, are all suffering serious repercussions of allowing cruise ships into their destinations. From land, air, and water pollution, destinations are increasingly overcrowded (Source: Insider, 2020). Therefore, although the short-term fiscal returns appear attractive, the negative consequences greatly outweigh the estimated fiscal benefits. Cruise ships, already exempt from lodging taxes, could be beneficial in an isolated area or an island with no infrastructure whatsoever. In this case, the country benefits by leasing

the land, charging a use and/or environmental fee but should not provide expensive infrastructure such as water and electricity.

Glamping Operation:

Glamping can bring an increased number of visitors to Salt Cay without severe environmental impact. A research study by Budiasa *et al.*, (2019) in Bali showed that this green tourism concept, upon careful implementation, can provide local economic opportunity, cultural diversity, a sense of environmental responsibility, overall a rich visitor experience. While it offers lower returns to the TCI government than a resort, there are several benefits. According to the 2018 Turks and Caicos tourism report, Europe is Turks and Caicos' fastest growing visitor market. With glamping as one of the most important tourist products in the area (particularly Eastern Europe), there is a prime opportunity to create a tourism product that will appeal to these visitors as an offer on its own or in combination with a resort on another island thus extending visitor-duration in TCI.

Glamping also attracts a specific target market that is appealing for Salt Cay. Glampers are typically well-educated with high income levels, popular with millennials but appealing to baby-boomers as well. Glampers are typically environmentally conscious and value beachside access. They value cultural tourism, relaxation, and beach access - exactly what Salt Cay offers. Additional benefits are that glampers also tend to stay in their destination for 10 days and have a high repeat rate at 66% (Bonifacic *et al.*, 2019). As TCI is a mature tourism destination, this innovative product (Bonifacic *et al.*, 2017) creates a more diverse tourism industry without exceeding the island's carrying capacity.

Luxury Resort:

The luxury resort is the most attractive investment as it offers long term employment opportunities and the potential for increasing the resident population. Building a resort will also increase government payments through the excise taxes collected on the importation of the construction materials. If these payments to the government are appropriately channeled into the providing social services, population and wellbeing are sure to improve. However, this comes with an important caveat. In the Seychelles, there is heavy stakeholder involvement to oversee public policies and the environmental, socio-cultural, and economic impacts. Sustainability and luxury resorts can go hand-in-hand when planning and monitoring are in place (de-Miguel-Molina *et al.*, 2014). Proper policies properly implemented are essential to achieving the overarching goal of permanent population re-establishment on the fragile island of Salt Cay. However, the need for good planning is policies is not only true for the resort but also true for whichever tourism investment is selected.

Conclusion

It is advised that the TCI government should strongly consider the long-term implications of each tourism product offering building such projects. In light of the numerous positive benefits including high government returns and long-term direct employment, the luxury resort would

provide the most long-term benefits to Salt Cay and TCI simultaneously. Glamping, while not sustainable as an initial tourism investment, could be brought onto the island in the future as a supplemental product offering form of tourism.

The construction of a cruise ship terminal would provide both economic and environmental devastation to the island, as well as serving as a direct antithesis to the goal of the Salt Cay government. Not only will the cruise ship bring an excess of tourists that spend little money on the island and can potentially harm the environmental ecosystem, there will be few full-time employment opportunities to increase the permanent residential population of Salt Cay.

In addition to the investment in a luxury resort, it is advised for Salt Cay to implement a sustainability strategy in order to ensure the most effective tourism operations that respects the island and brings the type of tourist that TCI would be most beneficial: culture-seekers. A multi-year tourism plan and strategy should focus on the environmental, economic, socio-cultural pillars, and regularly evaluated to produce a feedback for improvements. This plan should also include ways to promote off-peak and shoulder tourism seasons; consider crisis and emergency management strategies; assign the different roles and responsibilities to the appropriate stakeholders; report tourist expenditure data, and the direct and indirect economic contributions. Furthermore, programs should be in place that provide educational training for residents, businesses, and visitors that guide individuals on how to act environmentally and culturally responsible, i.e. energy/water consumption and treatment, appropriate attraction behavior. Having these plans and practices in place should work towards keeping tourism activity in Salt Cay within its sustainable limits while supporting both the citizens and the TCI government.

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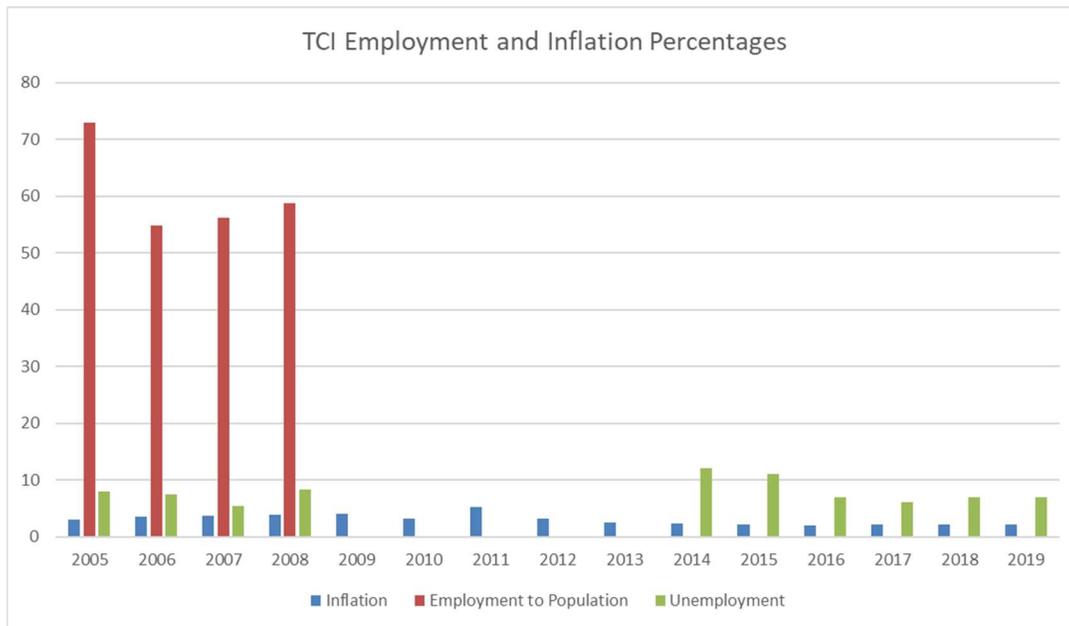
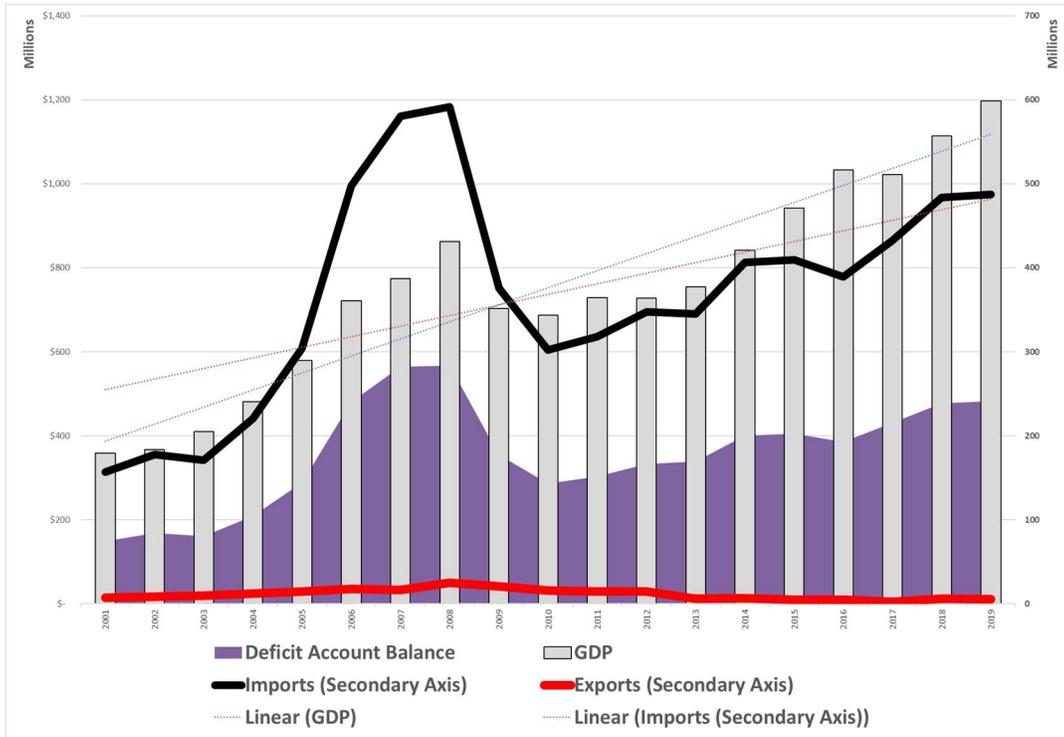
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Appendices

Appendix I – Turks & Caicos Islands 2001-2019 Macroeconomic Data



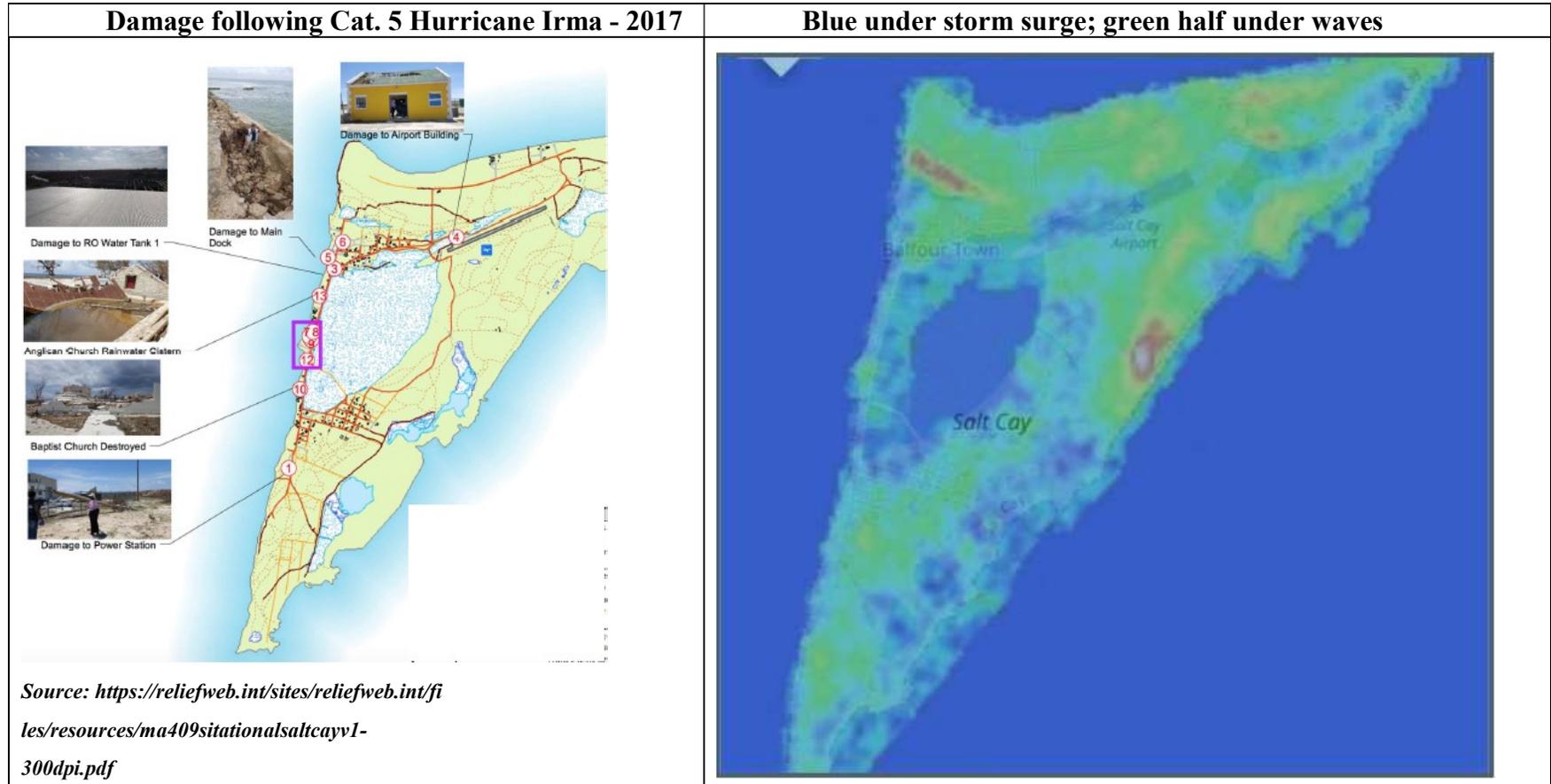
Source: World Bank (<https://databank.worldbank.org/reports.aspx?source=2&country=TCA#>)

Appendix II - Inventory of Salt Cay Damage following 2017 Hurricane Irma

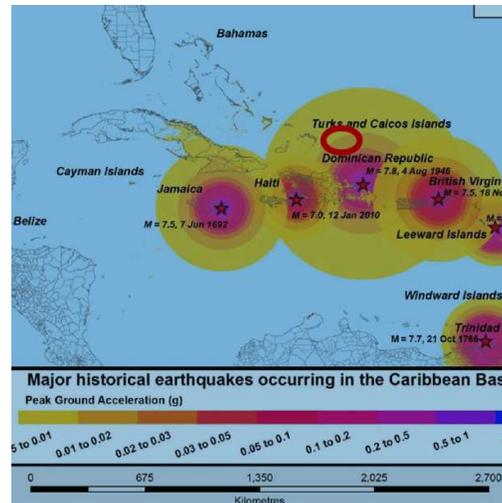
Number	Facility	Damage	Type
1	Electrical Power plant	No electricity services, est 75 % of power lines down; over 20 % of Electric poles destroyed, surrounding fence not diesel fuel tanks	Infrastructure
2	Rain Water Cisterns	Extensively used water cisterns (capacity from 700 lts to 4000 lts) experienced ~70% damage to roof therefore contaminated by dirt, sand and other debris into tanks	Infrastructure
3	Government RO water plant	Plant undamaged, but potable water tank 1 roof 50% damaged and so is contaminated, Tank 2 (25% size of Tank 1) is undamaged. Water distribution network assessment is yet to be made	Infrastructure
4	Salt Cay Airport	The airport building is still partially flooded inside. Counter equipment is damaged. 30 % of the exterior fencing is down and livestock have been seen entering the airstrip.	Infrastructure
5	Port / Harbour	The dock wall used for cargo boats is heavily damaged making it inoperative for disembarked heavy equipment needed for the restoration phase.	Infrastructure
6	Police Station	Heavily damaged and does not present working conditions as well as Police residence	Government
7	Mary Robinson Primary School	flooded with damages to over 50% of equipment	Government
8	Salt Cay Health Clinic	Clinic is functional; the structure held its ground and up to 10% of the facility needs debris removal, disinfection and cleaning	Health
9	DC Offices	roof damages and over 70% of furniture, office supplies and equipment's destroyed	Government
10	Baptist Church	Building Completely destroyed	Worship
12	White House	Significant damage to roof	Government
13	Anglican Church	Roof damage, flooding, cistern damaged	Worship

Appendix III – Short, Medium and Long-term Risks for Salt Cay

Short to Medium Term Risk: Hurricanes



Medium to Long Term (irregular) Risks = Earthquakes



Long Term Risk: Sea Level Rise 2050 and 2100



Appendix IV – Excel Worksheets of Scenario and Investments

NORMAL SCENARIO INVESTMENTS

ITEMIZED BENEFITS AND COSTS		NORMAL																					
ONLY CHANGE THE VARIABLES/NUMBERS IN THE YELLOW CELLS																							
LUXURY RESORT		GLAMPING					CRUISES					BENEFITS: PAYMENTS TO THE T&C GOVERNMENT											
Resort construction emplmt	100	Glamping Constr Empl Yr1	20	Dock construction emplmt	200	Customs Duties	30.0%	Regular															
Resort expansion emplmt	20	Glamping Constr Empl Yr2+	10	Dock maintenance emplmt	10	All Goods	10.0%	Building Materials															
Resort emplmt per key	3	Operation emplmt/ Tent	3	Cruise employees on island	15	Lodging	0.0%	Food															
Constructn workers per yr	\$10,000	Constructn workers per yr	\$10,000	Passengers Disembarking	70%	Land Lease	7.5%	Custom processing fee - All															
Annual salary employees	\$15,000	Annual salary employees	\$15,000	Crew Disembarking*	15%	Departure tax	12.0%	Per Occupied Room															
Construction per suite key	\$1,000,000	Cost constr per tent incl core	\$25,000	Construct workers per yr	\$10,000	Facility Tax	\$ 250,000	Per year for 30 years															
Construction per res key	\$1,200,000	Number of tents beg	20	Maintenance workers per yr	\$20,000	Natl Insurance	\$ 0.95	per passenger															
Resort suites key number	80	Annl incr tents until 50	10	Cruise employees on island	\$15,000	Natl Health	8.0%	of salary															
Resort residences	10	Glamping Ave. Annual Unit rat	\$200				6.0%	of salary															
				*Pax to Crew ratio = 1:0.4 and 35% crew disembark																			
				Pax fees charged on total pax but not crew																			
				Disembarkation affects carrying capacity not fees.																			
INSTRUCTIONS:		Assumption: Salt Cay disembarkation pax per ship																					
SENSITIVITY ANALYSIS - Click on each cell to see if LINKED to another cell. If so, go to that cell to change the information. State your ASSUMPTIONS. See hyperlinks for information.		Cruise pax assumptions Max pax per ship*: 2394 GROWTH: Annual pax growth is 0.0% After 10 years, cruise pax growth is 0.0% Based on Gran Turks monthly volume Assumption: f Gran Turk > 80,000, then ships to Salt Cay = 3 arrivals/wk; if 40000 to 80000 pax then 2 arrivals/wk; less than 40,000 then 1 arrival per week)																					
Est'd frequency to Salt Cay	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC										
Ships/wk	51	6	6	6	6	2	2	4	2	2	2	6	7										
Ships annual & month	216	30	24	24	24	10	8	16	10	8	10	24	28										
Average Annual Occupancy	78%	85%	85%	85%	85%	68%	68%	68%	68%	68%	68%	85%	100%										
Passengers	424,360	61,047	48,838	48,838	48,838	16,279	13,023	26,047	16,279	13,023	16,279	48,838	67,032										
		* The Norwegian Cruise Line cruiseship GEM is our example as this is the size of ship that can safely dock on Salt Cay																					
BENEFITS: PAYMENTS TO THE T&C GOVERNMENT																							
One-time Upfront	Info Source	Year 0	Annual Ongoing	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CRUISE																							
1	Pier & Recreation Annual Pax	0	0	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	424,360	
	Pier & Recreation Construction & upgrades	15,000,000	5,000,000	5,000,000				1,000,000						1,000,000									1,000,000
	Energy & Water incl in construction & upgrades	Included																					
	(Govt Taxes) BENEFITS Taxes on Materials	2,625,000	500,000	500,000	0	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000	0
	(Govt fees) BENEFITS Land leasing & pax fees	\$250,000	\$250,000	\$250,000	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	\$2,138,404	
	Contrib to NI (8% of salary of which 4% pd by employer)	\$160,000	\$160,000	\$160,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	\$34,000	
	Contrib to NHIP (6% of salary of which 3% paid by empl)	\$180,000	\$120,000	\$120,000	\$25,500	\$25,500	\$31,500	\$25,500	\$25,500	\$25,500	\$25,500	\$31,500	\$25,500	\$25,500	\$25,500	\$25,500	\$31,500	\$25,500	\$25,500	\$25,500	\$25,500	\$25,500	
GLAMPING																							
	Annual Construction	\$ 375,000	\$ 250,000	\$ 250,000	\$ 250,000	125,000																	
	TRANSFER PRICING on Units**	10%	10%	20%	20%	20%	20%	20%	20%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
	Annual Revenue declared in T&C	\$ 453,330	\$ 788,400	\$ 1,022,000	\$ 1,226,400	\$ 1,226,400	\$ 1,226,400	\$ 1,226,400	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	\$ 1,073,100	
	(Govt Taxes) BENEFITS Taxes on Materials	65,625	43,750	43,750	43,750	12,500																	
	(Govt fees) BENEFITS Lodging Taxes & Land Lease	\$ 250,000	275,024	295,412	311,320	338,301	338,301	338,301	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	327,263	
	Contrib to NI (8% of salary of which 4% pd by employer)	16,000	62,000	98,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	134,000	
	Contrib to NHIP (6% of salary of which 3% paid by empl)	12,000	46,500	73,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	
	Estd Occupancy Suites / Tents	peaks at 60 % annual because of annual close	46%	48%	50%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	
	Estd Occupancy Villas	peaks at 70 % annual because open all year	31%	38%	44%	47%	49%	52%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	
		** The percentage that the non-T&C reservation center will retain, transferring only the difference to Salt Cay to cover operations.																					
LUXURY RESORT																							
1	Resort (90 -130 keys) Annual Revenue fm PROFORMA*		12,760,400	15,437,310	18,175,248	19,751,951	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	20,667,438	
	TRANSFER PRICING**		30%	30%	30%	30%	30%	30%	30%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	
	Resort Proforma Construction	92,000,000	12,000,000	12,000,000	12,000,000	12,000,000																	
2	Energy & Water incl in construction	Included																					
	(Govt Taxes) BENEFITS Taxes on Materials	16,100,000	2,100,000	2,100,000	2,100,000	2,100,000																	
	(Govt fees) BENEFITS Lodging Taxes & Land Lease	\$ 250,000	1,781,248	2,102,477	2,431,030	2,620,234	994,028	994,028	994,028	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	1,242,037	
	Contrib to NI (8% of salary of which 4% pd by employer)	80,000	159,640	167,920	175,840	205,720	190,440	191,520	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	192,600	
	Contrib to NHIP (6% of salary of which 3% paid by empl)	60,000	119,730	125,940	131,880	154,290	142,830	143,640	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	144,450	
	Construction workers	100 yr 0 then 20 per year	100	20	20	20	20																
	Htl employees 3 per key x occupancy		120	127	133	158	159	160	161	161	161	161	161	161	161	161	161	161	161	161	161	161	
		* "Normal" revenue based on actual proforma provided by the hotel group that planned a resort																					
		** The percentage that the non-T&C Head Office will retain, transferring only the difference to the resort for operations.																					
COSTS TO THE T&C GOVERNMENT																							
YEAR																							
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20																							
SOCIAL RESIDENT POPULATION																							
Key Assumption: All three investments will generate the need for the SAME public services and the same levels of delivery.																							
1	Road repairs																						
2	Solar panel water production																						
3	Waste treatment facility																						
4	Eco-friendly energy																						
5	Clinic of 4,200 ft2 (390 m2)	4		894,600	86,400	87,696	89,011	90,347	91,702	93,077	94,473	95,891	97,329	98,789	100,271	101,775	103,301	104,851	106,424	108,020	109,640		
6	Elem School 12,000 ft2 (1,100 m2)	8		1,944,000	115,200	115,200	116,928	118,682	120,462	122,269	124,103	125,965	127,854	129,772	131,719	133,694	135,700	137,735	139,801	141,898	144,027	146,187	
7	Police Station 4,000 ft2 (370 m2)	4		1,048,000	76,800	76,800	77,952	79,121	80,308	81,513	82,735	83,975	85,236	86,515	87,812	89,130	90,466	91,823	93,201	94,599	96,018	97,458	
	ASSUMPTIONS:	Employees	Police / immigration station has 4 employees with an annual salary each of US 20,000, the school has 8 employees (US 15,000 each) and the clinic has 1 receptionist and jr nurse at \$15,000 and senior nurse and 1 doctor at 30,000.																				
		Govt cost for employees	In other words, net is 14,400 19,200 28,800 after deductions.																				
			From Year 5 onward, salaries increase by 1.50% year on year																				
			Construction costs are based on RSMeans (2019) sq foot median prices and buildings are the smallest sq footage																				

CATASTROPHIC SCENARIO INVESTMENTS

ITEMIZED BENEFITS AND COSTS		CATASTROPHE SCENARIOS																																																																																									
ONLY CHANGE THE VARIABLES/NUMBERS IN THE YELLOW CELLS																																																																																											
LUXURY RESORT		GLAMPING					CRUISES					BENEFITS: PAYMENTS TO THE T&C GOVERNMENT					ONLY CHANGE THE NUMBERS / VARIABLES IN THE YELLOW CELLS. ALL OTHER CELLS AUTO-CALCULATE AND AUTO-POPULATE Pax fees charged on total pax but not crew Disembarkation affects carrying capacity not fees.																																																																										
Resort construction emplmt	30	Glamping Constr Empl Yr1	10	Dock construction emplmt	100	Customs Duties	30.0%	Regular		Resort expansion emplmt	30	Glamping Constr Empl Yr2+	10	Dock maintenance emplmt	10	10.0%						Building Materials		Resort emplmt per key	3	Operation emplmt/ Tent	3	Cruise employees on island	10	0.0%	Food																																																												
Constructn workers per yr	\$10,000	Constructn workers per yr	\$10,000	Passengers Disembarking	70%	All Goods	7.5%	Custom processing fee - All		Annual salary employees	\$15,000	Annual salary employees	\$15,000	Crew Disembarking*	15%	Lodging	8.0%	Per Occupied Room		Construction per suite key	\$1,000,000	Cost constr per tent incl core	\$15,460	Constructn workers per yr	\$10,000	Land Lease	\$150,000	Per year for years 0 to 4																																																															
Construction per res key	\$1,200,000	Number of tents beg	5	Maintenance workers per yr	\$20,000	Land Lease	\$250,000	Per year for years 6 to 29		Resort suite rates Yrs 1-5	\$500	Annl incr tents until 30	5	Cruise employees on island	\$15,000	Departure tax	\$2.00	per passenger		Residence rate Yrs 1 - 5	\$1,200	Glamping tent rate Yr 1-5	\$100	*Pax to Crew ratio = 1:0.4 and 35% crew disembark		Facility Tax	\$0.95	per passenger																																																															
		Glamping tent rate Yr 6 +	\$250	Pax fees charged on total pax but not crew		Natl Insurance	8.0%	of salary						Disembarkation affects carrying capacity not fees.		Natl Health	6.0%	of salary																																																																									
INSTRUCTIONS:		Assumption: Salt Cay disembarkation pax per ship Max pax per ship: 2,394 GROWTH: Annual pax growth is 1.5% After 10 years, cruise pax growth is 3.0% Based on Gran Turks monthly volume Assumption: f Gran Turk > 80,000, then ships to Salt Cay = 3 arrivals/wk; if 40000 to 80000 pax then 2 arrivals/wk; less than 40,000 then 1 arrival per week																																																																																									
SENSITIVITY ANALYSIS - Click on each cell to see if LINKED to another cell. If so, go to that cell to change the information. State your ASSUMPTIONS. See hyperlinks for information.		<table border="1"> <thead> <tr> <th>Est'd frequency to Salt Cay</th> <th>ANNUAL</th> <th>JAN</th> <th>FEB</th> <th>MAR</th> <th>APR</th> <th>MAY</th> <th>JUN</th> <th>JUL</th> <th>AUG</th> <th>SEP</th> <th>OCT</th> <th>NOV</th> <th>DEC</th> </tr> </thead> <tbody> <tr> <td>Ships/wk</td> <td>49</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>6</td> <td>7</td> </tr> <tr> <td>Ships annual & month</td> <td>188</td> <td>24</td> <td>24</td> <td>24</td> <td>24</td> <td>6</td> <td>6</td> <td>8</td> <td>6</td> <td>6</td> <td>8</td> <td>24</td> <td>28</td> </tr> <tr> <td>Average Annual Occupancy</td> <td>58%</td> <td>65%</td> <td>65%</td> <td>65%</td> <td>65%</td> <td>48%</td> <td>48%</td> <td>48%</td> <td>48%</td> <td>48%</td> <td>48%</td> <td>65%</td> <td>80%</td> </tr> <tr> <td>Passengers</td> <td>286,322</td> <td>37,346</td> <td>37,346</td> <td>37,346</td> <td>37,346</td> <td>6,895</td> <td>6,895</td> <td>9,193</td> <td>6,895</td> <td>6,895</td> <td>9,193</td> <td>37,346</td> <td>53,626</td> </tr> </tbody> </table>																				Est'd frequency to Salt Cay	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Ships/wk	49	6	6	6	6	2	2	2	2	2	2	6	7	Ships annual & month	188	24	24	24	24	6	6	8	6	6	8	24	28	Average Annual Occupancy	58%	65%	65%	65%	65%	48%	48%	48%	48%	48%	48%	65%	80%	Passengers	286,322	37,346	37,346	37,346	37,346	6,895	6,895	9,193	6,895	6,895	9,193	37,346	53,626
Est'd frequency to Salt Cay	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC																																																																														
Ships/wk	49	6	6	6	6	2	2	2	2	2	2	6	7																																																																														
Ships annual & month	188	24	24	24	24	6	6	8	6	6	8	24	28																																																																														
Average Annual Occupancy	58%	65%	65%	65%	65%	48%	48%	48%	48%	48%	48%	65%	80%																																																																														
Passengers	286,322	37,346	37,346	37,346	37,346	6,895	6,895	9,193	6,895	6,895	9,193	37,346	53,626																																																																														
		* The Norwegian Cruise Line cruiseship GEM is our example as this is the size of ship that can safely dock on Salt Cay																																																																																									
BENEFITS: PAYMENTS TO THE T&C GOVERNMENT																																																																																											
One-time Upfront	Info Source	Year 0	Annual Ongoing																																																																																								
CRUISE		Year Number	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20																																																																				
1	Pier & Recreation Annual Pax		0	0	0	286,322	286,322	286,322	290,617	294,976	299,401	303,892	308,451	317,704	327,235	337,052	347,164	357,579	368,306	379,355	390,736	402,458	414,532																																																																				
	Pier & Recreation Construction & upgrades		15,000,000	5,000,000	5,000,000			1,000,000					1,000,000					1,000,000					1,000,000																																																																				
	Energy & Water ind in construction & upgrades		Included																																																																																								
	(Govt Taxes) BENEFITS Taxes on Materials		2,625,000	500,000	500,000	0	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000																																																																				
	(Govt fees) BENEFITS Land leasing & pax fees		\$150,000	\$150,000	\$150,000	\$994,651	\$994,651	\$1,094,651	\$1,107,321	\$1,120,181	\$1,133,233	\$1,146,482	\$1,159,929	\$1,187,227	\$1,215,344	\$1,244,304	\$1,274,133	\$1,304,857	\$1,336,503	\$1,369,098	\$1,402,671	\$1,437,251	\$1,472,869																																																																				
	Contrib to NI (8% of salary of which 4% pd by employer)		\$80,000	\$80,000	\$80,000	\$14,000	\$14,000	\$36,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000																																																																				
	Contrib to NHIP (6% of salary of which 3% paid by empl)		\$90,000	\$60,000	\$60,000	\$10,500	\$15,750	\$27,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000																																																																				
GLAMPING		Year Number	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20																																																																				
	Camp construction		\$ 77,300	\$ 77,300	\$ 77,300	\$ 77,300	\$ 77,300	\$ 77,300																																																																																			
	Tent rate per night		Annual Revenue declared in T&C	\$ 83,950	\$ 193,450	\$ 328,500	\$ 438,000	\$ 547,500	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750	\$ 1,149,750																																																																				
	TRANSFER PRICING on Units**			0%	0%	0%	0%	0%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%																																																																				
	Number of Tents Available			5	10	15	20	25	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30																																																																				
	(Govt Taxes) BENEFITS Taxes on Materials		13,528	13,528	13,528	13,528	7,730	7,730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																				
	(Govt fees) BENEFITS Lodging Taxes & Land Lease		\$ 150,000	\$ 153,089	\$ 158,202	\$ 165,768	\$ 171,024	\$ 276,280	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188	\$ 305,188																																																																				
	Contrib to NI (8% of salary of which 4% pd by employer)		8,000	16,280	27,080	40,400	51,200	62,000	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800																																																																				
	Contrib to NHIP (6% of salary of which 3% paid by empl)		6,000	12,210	20,310	30,300	38,400	46,500	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600	48,600																																																																				
	Estd Occupancy Suites / Tents		peaks at 60 % annual because of annual close	40%	46%	53%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%																																																																				
	Estd Occupancy Villas		peaks at 70 % annual because open all year	31%	38%	44%	47%	49%	52%	55%	65%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%																																																																				
LUXURY RESORT		YEAR	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20																																																																				
	SUITE Keys Available	Totals by year	0	9	18	27	36	45	54	63	72	80	80	80	80	80	80	80	80	80	80	80	80																																																																				
	VILLA Keys Available	Totals by year	0	1	2	3	4	5	6	7	8	9	10	10	10	10	10	10	10	10	10	10	10																																																																				
	TRANSFER PRICING**		10%	10%	10%	10%	20%	20%	20%	20%	20%	20%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%																																																																				
	Annual Revenue declared in T&C		713,502	1,659,582	2,870,762	4,288,896	4,800,480	5,823,648	6,867,840	8,129,280	9,215,520	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000	9,913,000																																																																				
	Cost Construction		10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000	10,200,000																																																																				
	Energy & Water ind in construction		Included																																																																																								
	(Govt Taxes) BENEFITS Taxes on Materials		1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000	1,785,000																																																																				
	(Govt fees) BENEFITS Lodging Taxes & Land		\$ 150,000	\$ 207,080	\$ 282,767	\$ 379,661	\$ 493,112	\$ 634,038	\$ 715,892	\$ 799,427	\$ 900,342	\$ 987,242	\$ 1,100,000	\$ 1,223,040	\$ 1,353,040	\$ 1,488,000	\$ 1,627,040	\$ 1,770,000	\$ 1,917,040	\$ 2,068,000	\$ 2,223,040	\$ 2,382,000	\$ 2,545,040																																																																				
	Contrib to NI (8% of salary of which 4% pd by employer)		24,000	40,020	61,080	87,072	108,528	130,020	151,872	173,940	198,240	219,480	248,000	280,000	315,040	353,040	394,000	438,000	485,040	535,000	588,040	644,000	703,040																																																																				
	Contrib to NHIP (6% of salary of which 3% paid by empl)		18,000	30,015	45,810	65,304	81,396	97,515	113,904	130,455	148,680	164,610	182,500	203,500	227,540	254,500	284,500	317,500	353,500	393,500	437,500	485,500	537,500																																																																				
	Construction workers		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30																																																																				
	Htl employees 3 per key x occupancy			13	31	53	70	88	107	125	145	163	165	165	165	165	165	165	165	165	165	165	165																																																																				
COSTS TO THE T&C GOVERNMENT																																																																																											
SOCIAL RESIDENT POPULATION		Key Assumption: All three investments will generate the need for the SAME public services and the same levels of delivery.																																																																																									
1	Road repairs																																																																																										
2	Solar panel water production																																																																																										
3	Waste treatment facility																																																																																										
4	Eco-friendly energy																																																																																										
5	Clinic of 4200 sq ft	4			894,600	86,400	87,696	89,011	90,347	91,702	93,077	94,473	95,891	97,329	98,789	100,271	101,775	103,301	104,851	106,424	108,020	109,640																																																																					
6	Elem School 12000 sq ft	8		1,944,000	115,200	115,200	116,928	118,682	120,462	122,269	124,103	125,965	127,854	129,772	131,719	133,694	135,700	137,735	139,801	141,898	144,027	146,187																																																																					
7	Police Station 4000 sq ft	4		1,048,000	76,800	76,800	76,800	77,952	79,121	80,308	81,513	82,735	83,976	85,236	86,515	87,812	89,130	90,466	91,823	93,201	94,599	96,018	97,458																																																																				
ASSUMPTIONS:		Employees Police / immigration station has 4 employees with an annual salary each of US \$20,000, the school has 8 employees (US \$15,000 each) and the clinic has 1 receptionist and jr nurse at \$15,000 and senior nurse and 1 doctor at 30,000. Govt cost for employees In other words, net is 14,400 19,200 28,800 after deductions. From Year 5 onward, salaries increase by 1.50% year on year Construction costs are based on RSMeans (2019) sq foot median prices and buildings are the smallest sq footage																																																																																									

OPTIMISTIC SCENARIO INVESTMENTS

ITEMIZED BENEFITS AND COSTS		OPTIMISTIC SCENARIOS	
ONLY CHANGE THE VARIABLES/NUMBERS IN THE YELLOW CELLS			
LUXURY RESORT		GLAMPING	
Resort construction emplmt	150	Glamping Constr Empl Yr1 & 2	20
Resort expansion emplmt	50	Villa Constr Empl Yr3 & 4	20
Resort employmt per key	3	Operation Empl per Unit	3
Constructn workers per yr	\$10,000	Constructn workers per yr	\$10,000
Annual salary employees	\$15,000	Annual salary employees	\$15,000
Construction per suite key	\$1,000,000	Cost constr per tent incl core	\$25,000
Construction per res key	\$1,200,000	Cost constr per villa	\$300,000
Resort suite rates	\$900	Annual Construction Tents	5
Residence rate Yrs 1 - 5	\$1,200	Annual Construction Villas	5
		Glamping tent rate	\$250
		Villa rate per night	\$750
		CRUISES	
		Dock construction emplmt	200
		Dock maintenance emplmt	20
		Cruise employees on island	20
		Passengers Disembarking	70%
		Crew Disembarking*	15%
		Constructn workers per yr	\$10,000
		Maintenance workers per yr	\$20,000
		Cruise employees on island	\$15,000
		*Pax to Crew ratio = 1:0.4 and 35% crew disembark	
		Pax fees charged on total pax but not crew	
		Disembarkation affects carrying capacity not fees.	
		BENEFITS: PAYMENTS TO THE T&C GOVERNMENT	
		Customs Duties	30.0% Regular
			10.0% Building Materials
			0.0% Food
		All Goods	7.5% Custom processing fee - All
		Lodging	8.0% Per Occupied Room
		Land Lease	\$250,000 Per year for years 0 to 4
		Land Lease	\$400,000 Per year for years 6 to 29
		Departure tax	\$5.00 per passenger
		Facility Tax	\$0.95 per passenger
		Natl Insurance	8.0% of salary
		Natl Health	6.0% of salary

ONLY CHANGE THE NUMBERS / VARIABLES IN THE YELLOW CELLS. ALL OTHER CELLS AUTO-CALCULATE AND AUTO-POPULATE

Pax fees charged on total pax but not crew
Disembarkation affects carrying capacity not fees.

INSTRUCTIONS:		Assumption: Salt Cay disembarkation pax per ship	
SENSITIVITY ANALYSIS - Click on each cell to see if LINKED to another cell. If so, go to that cell to change the information. State your ASSUMPTIONS. See hyperlinks for information.		Cruise pax assumptions	Max pax per ship: 2394
		Based on Gran Turk > 80,000, then ships to Salt Cay = 3 arrivals/wk; if 40000 to 80000 pax then 2 arrivals/wk; less than 40,000 then 1 arrival per week)	GROWTH: Annual pax growth is 0.0%
			After 10 years, cruise pax growth is 0.0%
		Est'd frequency to Salt Cay	ANNUAL
		Ships/wk	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
		Ships annual & month	72 8 8 8 8 4 3 5 3 4 8 10
		Ship rooms occupied	307 40 32 32 32 20 12 20 15 12 20 40
		Passengers	78% 85% 85% 85% 85% 68% 68% 68% 68% 68% 85% 100%
			598,787 81,396 65,117 65,117 65,117 32,558 19,535 32,558 24,419 19,535 32,558 95,760

* The Norwegian Cruise Line cruiseship GEM is our example as this is the size of ship that can safely dock on Salt Cay

BENEFITS: PAYMENTS TO THE T&C GOVERNMENT

CRUISE	Year Number	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Pier & Recreation Annual Pax		0	0	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787	598,787
Pier & Recreation Construction & upgrades		15,000,000	5,000,000	5,000,000	5,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Energy & Water incl in construction & upgrades		Included																				
(Govt Taxes) BENEFITS Taxes on Materials		2,625,000	500,000	500,000	500,000	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000	0	0	0	0	175,000
(Govt fees) BENEFITS Land leasing & pax fees		\$250,000	\$250,000	\$250,000	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784	\$3,812,784
Contrib to NI (8% of salary of which 4% pd by employer)		\$160,000	\$160,000	\$160,000	\$56,000	\$56,000	\$72,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000	\$28,000
Contrib to NHIP (6% of salary of which 3% paid by empl)		\$180,000	\$120,000	\$120,000	\$42,000	\$42,000	\$54,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000

GLAMPING	Year Number	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Construction		\$ 250,000	\$ 1,625,000	\$ 1,625,000	\$ 1,625,000	\$ 1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	
Annual Revenue declared in T&C		\$ 533,813	\$ 2,171,750	\$ 3,513,125	\$ 4,599,000	\$ 4,790,625	\$ 4,982,250	\$ 4,982,250	\$ 4,982,250	\$ 4,982,250	\$ 4,982,250	\$ 5,694,000	\$ 6,761,625	\$ 7,829,250	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875	\$ 8,896,875
TRANSFER PRICING on Units**			40%	40%	40%	40%	40%	40%	40%	40%	40%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Number of Tents Available		0	15	20	25	25	25	25	25	25	25	20	20	20	20	20	20	20	20	20	20	20
Number of Villas Available		0	0	5	10	15	15	15	15	15	15	20	25	30	35	35	35	35	35	35	35	35
(Govt Taxes) BENEFITS Taxes on Materials		43,375	284,375	284,375	284,375	262,500	0	0	0	0	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
(Govt fees) BENEFITS Lodging Taxes & Land Lease		\$ 250,000	292,705	423,740	531,050	617,920	633,250	648,580	648,580	648,580	648,580	705,520	790,930	876,340	961,750	961,750	961,750	961,750	961,750	961,750	961,750	961,750
Contrib to NI (8% of salary of which 4% pd by employer)		16,000	51,100	77,200	104,200	119,680	124,000	128,320	128,320	128,320	128,320	142,360	162,360	170,440	170,440	170,440	170,440	170,440	170,440	170,440	170,440	170,440
Contrib to NHIP (6% of salary of which 3% paid by empl)		12,000	38,325	57,900	78,150	89,760	93,000	96,240	96,240	96,240	96,240	106,770	127,830	142,830	157,830	157,830	157,830	157,830	157,830	157,830	157,830	157,830
Estd Occupancy Suites / Villas / Tents			65%	68%	70%	72%	75%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%
Estd Occupancy Lux Residences			peaks at 70 % annual because open all year	45%	48%	52%	55%	60%	62%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%

LUXURY RESORT	YEAR	Construction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SUITE Keys Available	Totals by year	0	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
VILLA Keys Available	Totals by year	0	10	20	30	40	50	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60
TRANSFER PRICING**			50%	50%	50%	50%	50%	50%	50%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
Estd Annual Revenue declared to T&C			9,526,500	11,037,600	12,614,400	14,278,800	16,425,000	17,038,200	17,914,200	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760	15,557,760
Cost Construction	Construction	92,000,000	12,000,000	12,000,000	12,000,000	12,000,000	0	0	12,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy & Water incl in construction	Included																					
(Govt Taxes) BENEFITS Taxes on Materials		16,100,000	2,100,000	2,100,000	2,100,000	2,100,000	0	0	2,100,000	0	0	0	0	0	0	0	0	0	0	0	0	0
(Govt fees) BENEFITS Lodging Taxes & Land		\$ 250,000	\$ 1,012,120	\$ 1,133,008	\$ 1,259,152	\$ 1,392,304	\$ 1,564,000	\$ 1,763,056	\$ 1,833,136	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621	\$ 1,644,621
Contrib to NI (8% of salary of which 4% pd by employer)		120,000	323,400	350,400	377,760	406,560	444,000	456,240	470,640	495,840	495,840	375,840	375,840	375,840	375,840	375,840	375,840	375,840	375,840	375,840	375,840	375,840
Contrib to NHIP (6% of salary of which 3% paid by empl)		90,000	242,550	262,800	283,320	304,920	333,000	342,180	352,980	371,880	371,880	281,880	281,880	281,880	281,880	281,880	281,880	281,880	281,880	281,880	281,880	281,880
Construction workers		150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Htl employees 3 per key x occupancy			170	192	215	239	270	280	292	313	313	313	313	313	313	313	313	313	313	313	313	313

COSTS TO THE T&C GOVERNMENT

SOCIAL	RESIDENT POPULATION	YEAR	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Key Assumption: All three investments will generate the need for the SAME public services and the same levels of delivery.																				
1	Road repairs																			
2	Solar panel water production																			
3	Waste treatment facility																			
4	Eco-friendly energy																			
5	Clinic of 4200 sq ft	4			894,600	86,400	87,696	89,011	90,347	91,702	93,077	94,473	95,891	97,329	98,789	100,271	101,775	103,301	104,851	106,424
6	Elem School 12000 sq ft	8		1,944,000	115,200	115,200	116,928	118,682	120,462	122,269	124,103	125,965	127,854	129,772	131,719	133,694	135,700	137,735	139,801	141,898
7	Police Station 4000 sq ft	4		1,048,000	76,800	76,800	76,800	77,952	79,121	80,308	81,513	82,735	83,976	85,236	86,515	87,812	89,130</			