

A livelihoods analysis of the water taxi operators in the Grenadines

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ABSTRACT

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The natural resources of the the Grenadine Islands of Grenada and St. Vincent and the Grenadines area, including the many beaches, reefs and cays, especially the Tobago Cays Marine Park (TCMP) are the resource base for their water taxi operation. These resources form part of the water taxi operators' natural assets according to the definition by the Department for International Development (DFID). Given the importance of the natural resources to the water taxi operators, their potential for environmental stewardship may be realized through the monitoring of the same yachts that they supply. They can ensure, possibly through co-management of the Park, that their natural assets are not undermined by a sector that is poorly regulated. The other livelihood assets are classified into the physical, social, human and financial. The vulnerability context and the livelihood strategies were also assessed. The results show that water taxi operators depend on fishing to supplement their livelihoods, both for subsistence and sale to yachts, especially the latter.

Keywords: livelihoods analysis, water taxi operators, Grenadines

ACRONYMS

CC – Counterpart Caribbean

CEC – Carriacou Environmental Committee

CERMES – Centre for Resource Management and Environmental Studies

CPMWTa – Carriacou and Petite Martinique Water Taxi Association

DFID – Department for International Development

GEF-SGP - Global Environment Facility Small Grant Programme

GPS – Global Positioning System

MPA – Marine Protected Area

SGP – Sustainable Grenadines Project

SGWTA – Southern Grenadines Water Taxi Association

SLA – Sustainable Livelihoods Analysis

SMMA – Soufriere Marine Management Area

SPSS – Statistical Package for Social Sciences

TCMP – Tobago Cays Marine Park

UWI – University of the West Indies

WTop - Water Taxi Operator

WTA – Water Taxi Association

WTP – Water Taxi Project

XCD – Eastern Caribbean Dollar

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1 INTRODUCTION

The Grenadine Islands are located between the two mainland states of Grenada and St. Vincent and the Grenadines (Figure 1.1). Their sustainable development has become an important theme in the Grenadines and is being promoted through the establishment of the Sustainable Grenadines Project (SGP) in 2002. The project recognizes that the people of the Grenadines are dependent on their marine and coastal environment and hence an integrated approach to its sustainable development is paramount. The SGP provides the basis for the Water Taxi Project (WTP) considering that the water taxi operators (W Tops) are one of the primary users of the marine environment and are an important component of socio-economic well-being in the islands. The W Tops provide a valuable service by transporting visitors, locals and goods throughout the Grenadines. They are also potential stewards for environmental protection. For these reasons, they were identified as a priority during participatory strategic planning in Phase 1 of the Sustainable Grenadines Project (CCA/CaMMP, 2002; CERMES, 2004).



Figure 1.1 Location of the Grenadine Islands

Adapted from Mahon et al. 2002

The WTP seeks to assist these ‘small-scale operators who are struggling to make a living’ (CEC¹, 2005: 4). ‘They operate small, open, outboard-powered boats commonly known as cigarettes. They are currently largely unregulated and the boats are often poorly equipped. The operators are seldom trained in the skills that are required to operate a passenger craft or a small business and many lack the necessary capacity to provide safe and efficient service’ (CEC¹, 2005: 4). For the WTops to fully engage in, and benefit from the tourism sector it will be necessary for them to upgrade their boats and practices to provide safe and dependable service.

There has been no research on the livelihood assets, strategies or the vulnerability of the WTops in the Grenadines. The Global Environment Facility – Small Grants Programme (GEF-SGP) proposal provides several reasons for such research including the fact the WTO are primary users of the marine environment with potentially dangerous practices such as improper garbage disposal and careless grounding and anchoring which cause damage to the marine environment (CEC¹, 2005: 4).

The WTops have taken a step in moving toward sustainability in that they have come together to form associations. These associations have undertaken a visioning exercise to determine where they want to go in the future (CERMES, 2004). This is an initial step in the direction of sustainable livelihoods according to the Department for International Development (DFID) since institutional support is important to sustainability (DFID, 1999).

The WTP is funded by the GEF-SGP, The European Union and The Lighthouse Foundation. The project was developed jointly by the Carriacou Environmental Committee (CEC) which is also the implementing agency, Counterpart Caribbean (CC), the Centre for Resource Management and Environmental Studies (CERMES), UWI, and the SGP. The WTP is being pursued under four major objectives with associated activities as outlined within its Planning-Inception Report (CEC², 2005). These objectives include environmental education, customer service training, safety at sea and organisational strengthening. Education plays a vital role in the conservation of the natural resources and building the capacity of the WTops as denoted by the overall and specific objectives of the WTP in Box 1.

Planning for WTops will require a livelihoods analysis to determine the assets and vulnerabilities of this group as well as the requirements for enhancement. This will inform the development of appropriate inputs that may enhance their livelihoods and also serve as a baseline for assessing changes due to the inputs. The project will focus on the livelihood assets and strategies as well as the evident and perceived stresses and shocks (vulnerability) that have affected or are likely to affect the WTops. The Sustainable Livelihoods Approach (SLA) (DFID, 1999) will be used and is discussed in the literature review. However the entire SLA process will not be undertaken in this project. The vulnerability and livelihood assets and strategies of the sustainable livelihoods framework will be utilised in assessing the WTops. Their livelihoods strategies will also be described and categorized depending on the complexity of the operators.

The aim of this project is to carry out a livelihoods analysis of the WTops in the Grenadine Islands. The specific objectives that will be pursued are:

- To estimate of the number of WTops in the Grenadines.
- To determine the vulnerability context of the WTops.
- To determine the livelihood assets of the WTops.
- To determine the livelihood strategies of the WTops.

Box 1.1 Objectives of the Water Taxi Project

The objectives of the project are:

1. To strengthen the capacity of the WTops of the Grenadines Islands. It should be noted that the two water taxi associations mentioned in this proposal do not include all WTops in the Grenadine Islands but it is expected that all WTops in the area will be involved in this project and will receive the appropriate training. This is expected to encourage them to join the relevant associations.
2. To enable WTops to make a substantial contribution to the conservation of marine resources in the area through participating in co-management as responsible, knowledgeable users, thereby allowing them to become better stewards of the environment upon which their livelihoods depend.
3. To allow the WTops to pursue their livelihoods in a sustainable way by gaining an equitable share of the market.

The Specific Objectives and training activities within the project are:

1. Environmental Education
 - Green Boat Operation Training
 - Training in the management of the natural resources and environmental stewardship
 - Production and distribution of environmental education material
2. Customer Service Training
 - Customer service and attitude/self marketing/negotiation training
 - Self-marketing skills training
 - Training in negotiation skills
3. Safety at Sea
 - Acquisition of safety demonstration equipment
 - Safety equipment demonstration
 - safety procedures training
4. Organisational strengthening
 - Production of WTAs website
 - Training of CEC and WTA leaders
 - Individual level record keeping training
 - Acquisition of office equipment and supplies
 -

Adapted from the CEC¹, 2005 and CEC², 2005.

2 LITERATURE REVIEW

The Sustainable Livelihoods Approach (SLA) was developed by DFID, the development agency of the Government of the United Kingdom. DFID “supports policies and actions which promote

sustainable livelihoods” (DFID, 1997: 3). DFID has thus produced guidance sheets and several reports which detail the various aspects of the (SLA).

Sustainability is an important concept, which has been used over the years and especially since the United Nations Convention on Environment and Development in 1992. DFID has defined sustainability in a number of ways with respect to livelihoods. These include:

- Resilience in the face of external shocks and stresses
- Independence of external support (both economically and institutionally)
- Maintenance of long-term productivity of natural resources
- Avoidance of compromising livelihoods options of others

The SLA framework as devised by DFID (Figure 2.1) is one of several approaches to assessing livelihoods and has forged linkages with several of them. These other approaches include Participatory Development, Sector-wide Approaches, National Strategies for Sustainable Development and Integrated Rural Development. The SLA is thought to have built on the pitfalls of these approaches with the emphasis being people-centredness and poverty reduction. The SLA seeks to reduce poverty and ultimately to build up the human capital of the poor. Literacy is seen as a critical tool in achieving enhanced sustainable livelihoods, since it not only contributes to human capital but may also lead to the development and improvement of other assets (DFID, 2002).

The SLA has been applied in various circumstances across the world with lessons learnt from the process being of much importance for the improvement of the approach and to development projects (Ashley, 2000). A study on the livelihoods within the fishing community of Gouyave in Grenada revealed three livelihood strategies: combining specialization and multitasking, livelihood diversification and maintaining social safety nets (networking and sharing) (Grant, 2004). These are the types of outcomes that are yielded from the SLA and are integral to achieving sustainable livelihoods.

Knowledge of the various aspects of the livelihoods provides information that can be useful in identifying suitable 'entry points' for external support that are compatible with, and appropriate to, vulnerable people's survival strategies and priorities (Farrington *et al.*, 1999). This knowledge can also inform policies at the level of government for appropriate intervention. Knowledge of the physical assets required by operators and consequently the provision of adequate facilities may contribute to the increased safety at the various government-owned docks.

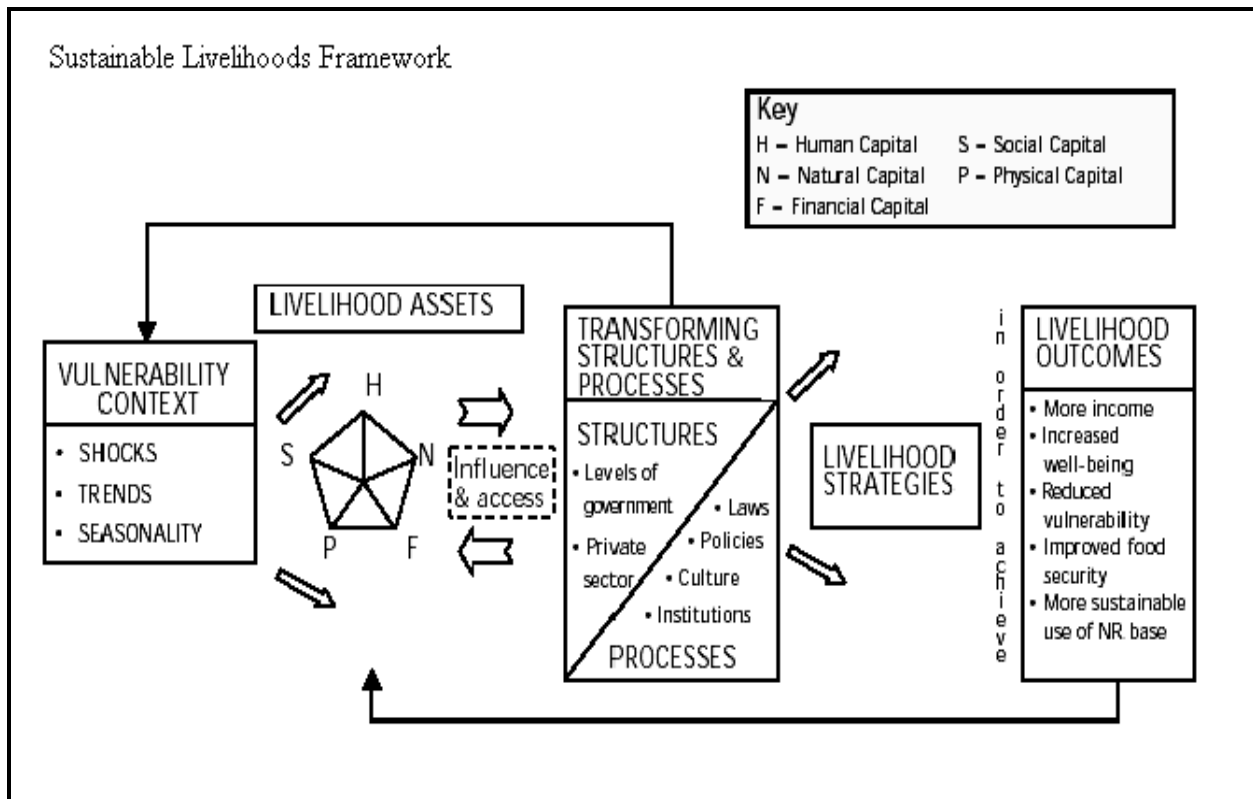


Figure 2.1 Sustainable Livelihoods Framework (DFID Guidance Sheets, 1997)

3 METHODOLOGY

The study proceeded in two stages. The first was a preliminary survey used to establish an inventory of the number of WTop throughout the Grenadine Islands (Appendix 1). This was done by visiting each of the islands, recording all the WTop encountered until no more new operators were found. The data was entered and analysed using the Statistical Package for Social Sciences (SPSS). This information was used to produce a preliminary report on the number of operators along with general information on their operation. The preliminary work was conducted and compiled in conjunction with Dominique Lizama who investigated the environmental practices of operators within a 'green boat' study.

The second stage was a qualitative in-depth survey that assessed the various livelihood assets and strategies and the vulnerability context of WTop (Appendix 2). 19 persons from across the Grenadine Islands were interviewed. Four came from Bequia, five each from Union Island and Carriacou, three from Mayreau and two from Petite Martinique. The only operator from Canouan was unavailable for an interview. These operators were selected based on who operators and other community members thought were knowledgeable of the water taxi business and those who were willing to share their experiences. Respondents were also identified based on the years of experience in water taxiing as indicated in the preliminary survey. The choice of operators was also based on the level of interaction and the information that operators shared in the preliminary survey.

A major limitation was that the time-frame limited the study to the analysis of the livelihood assets, strategies and the vulnerability context of the WTop as opposed to the full application of the SLA. The transforming structures and processes which relate to issues of governance were

not assessed. These however may influence the livelihood outcomes of the operators which include income, reduction of vulnerability and more sustainable use of the natural resource base. The time-frame also limited the number of WTops interviewed for the in-depth survey which may have led to a less representative depiction of the livelihoods of the operators given their diversity.

4 RESULTS

4.1 Initial survey of water taxi operators

The group is mostly male oriented with an initial survey revealing that from a total of 100 water taxi boat owners, only three were women. These three women who assisted in the operation of the water taxi along with their male partners. The respondents in this survey ranged in age from 21 to 45 with experience in water taxiing ranging from one year to more than 30 years. WTops in the Grenadines have various motivations for becoming such. They posited reasons such as mere coincidence to the need to survive. Many of them, having been raised around the sea find it inconceivable to move away from this familiar environment. Others were involved in the tourism industry in hotels prior to water taxiing and having a love for interacting with tourists, saw this as an opportunity to do so whilst being self-employed.

One hundred water taxi owners were found in this survey with some people owning more than one boat. The number of boats engaged in water taxi operations was 118. Of the 100 boat owners, 97 were male and 3 were females. Union Island had the largest percentage of water taxis (36.4%) with the majority of these operating from Clifton. Union Island was followed by Carriacou and then Bequia with 27.1% and 15.3% of the water taxis respectively (Figure 4.1).

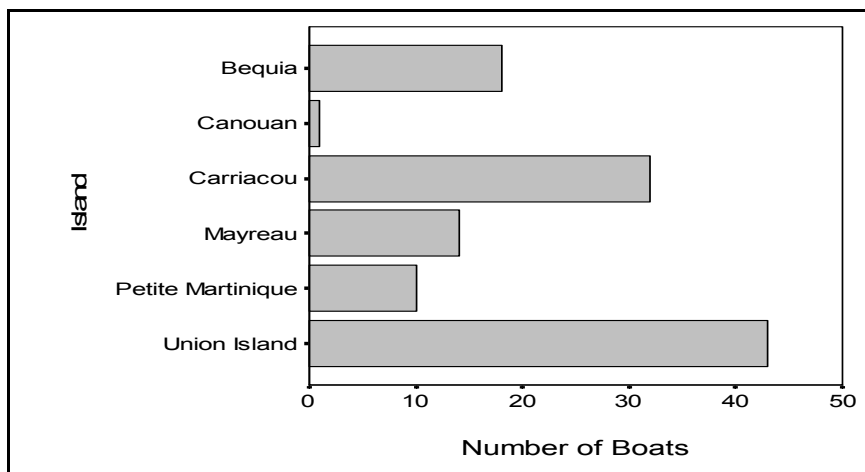


Figure 4.1 Distribution of the Number of Boat Owners by Island

There is some variation in each island, in terms of the sites that are most utilised as home bases for docking (Figure 4.2). In Carriacou, the majority of the WTops dock in Windward and Hillsborough. In Bequia a large majority of them dock in Admiralty Bay while in Mayreau, Saline Bay is most utilised.

Overall there were approximately 242 persons involved in water taxiing as owners and operators based on the survey. The number of operators is larger than the number of boat owners because at different times, there are various operators who may operate a given boat. The water taxis

were operated both solely (by the owner or otherwise) or by several operators. Figure 4.3 shows the distribution of boats operated by the respective number of persons.

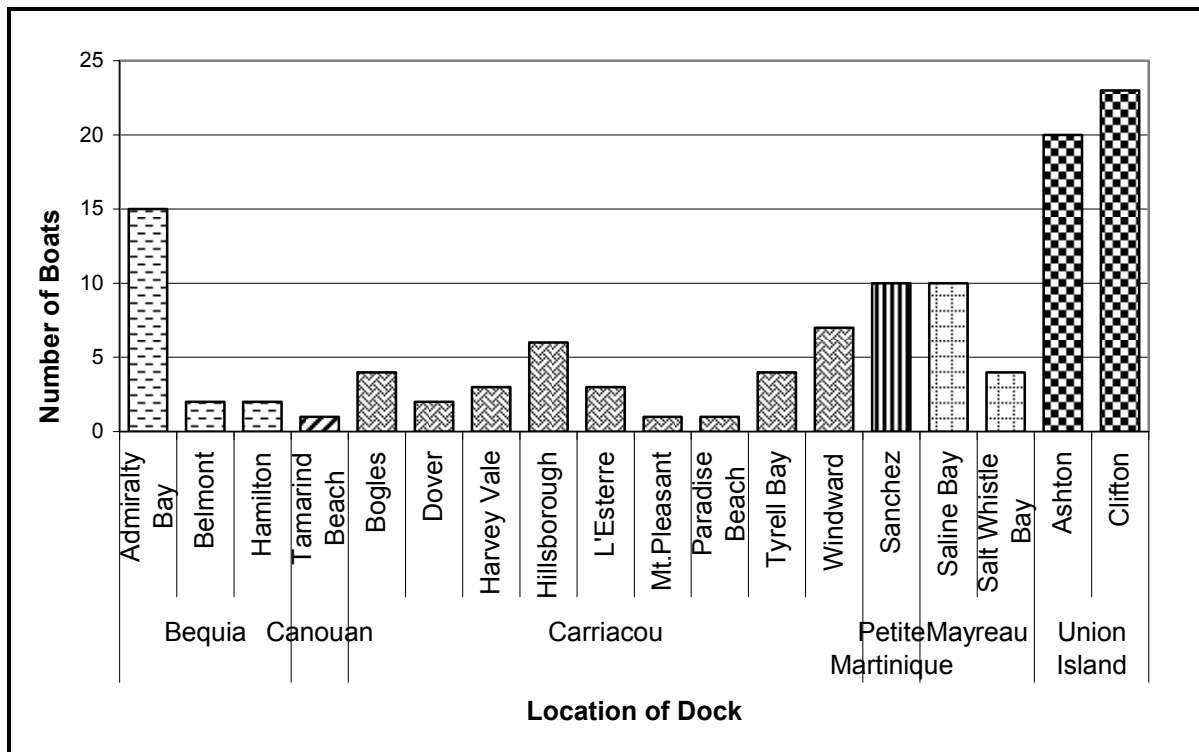


Figure 4.2 Distribution of Boats by Dock Location in the Grenadines

There were 58 persons who are members of either the Southern Grenadines Water Taxi Association or the Carriacou and Petite Martinique Water Taxi Association. There were 26 persons who were not members of either. Union Island had the highest number of registered WTops with 26 persons. Petite Martinique had the lowest number of registered WTops, however this represented more than half the total number of persons who are WTops in Petite Martinique. Bequia was excluded from this analysis because there is no water taxi association there (Figure 4.4). There were 33 persons who are registered members of the Southern Grenadines Water Taxi association. There were 25 persons who are members of the Carriacou and Petite Martinique water taxi association.

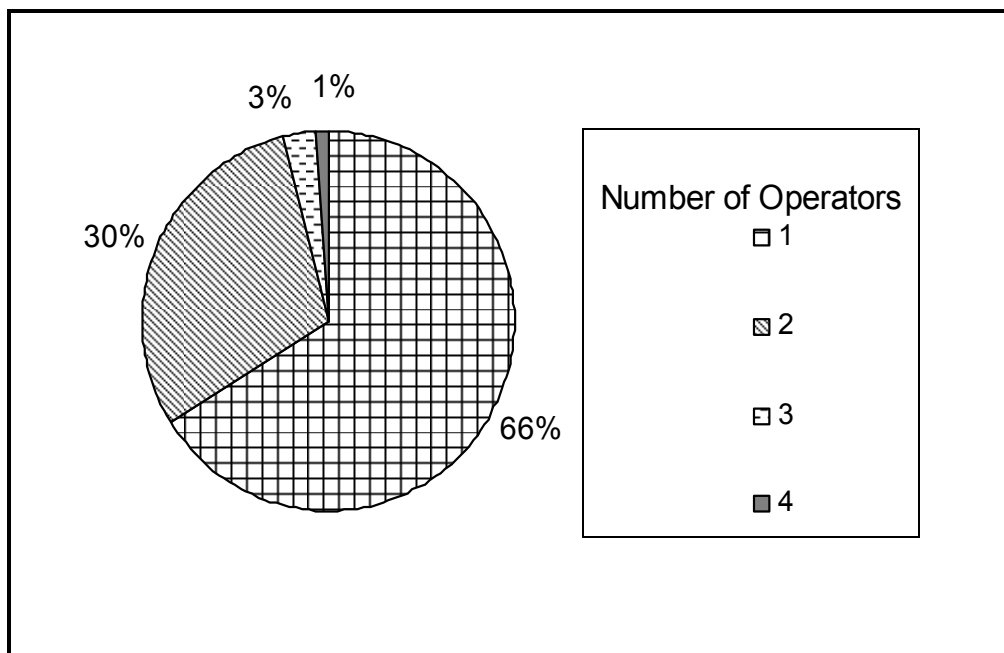


Figure 4.3 Distribution of boats by number of operators

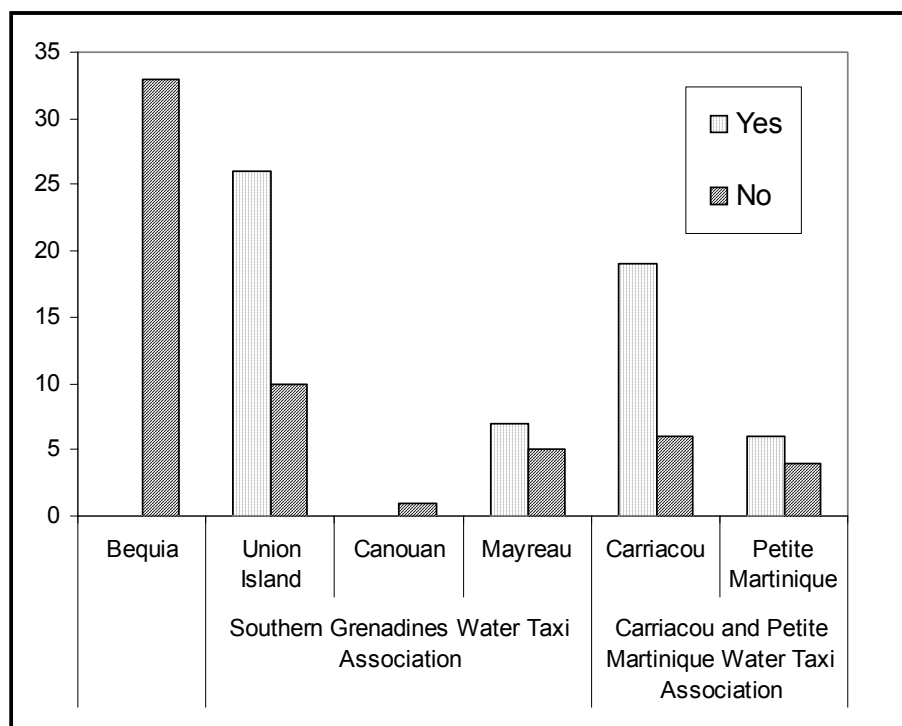


Figure 4.4: Bar chart showing the number of WTA members by island

The sizes of the boats range from 3.6 m to 15 m with the distribution of these boats being normally distributed around a mean size of 5.9 m. The most common boat length was 5.5 m (18 ft). Extreme outliers were seen in Carriacou which tended to have larger sized boats than any of the other islands. The relationship between the horsepower and the mean length of the boats was

a positive one, whereby an increase in the mean length of the boat showed a corresponding increase in horsepower. This is expected because a larger boat would require greater power to drive it. 31% of the boats carried engines with a horsepower of 40 while 18% had a horsepower of 85% (Figure 4.5).

The majority of the boats were open, partially-decked, locally called cigarette boats which accounted for 81.4% of the 118 boats surveyed (Figure 4.6). This type was followed by pirogues and flat sterns which were much less popular (9.3% and 6.8% respectively). The majority of the cigarette boats were made of wood and fiberglass (Figure 4.6).

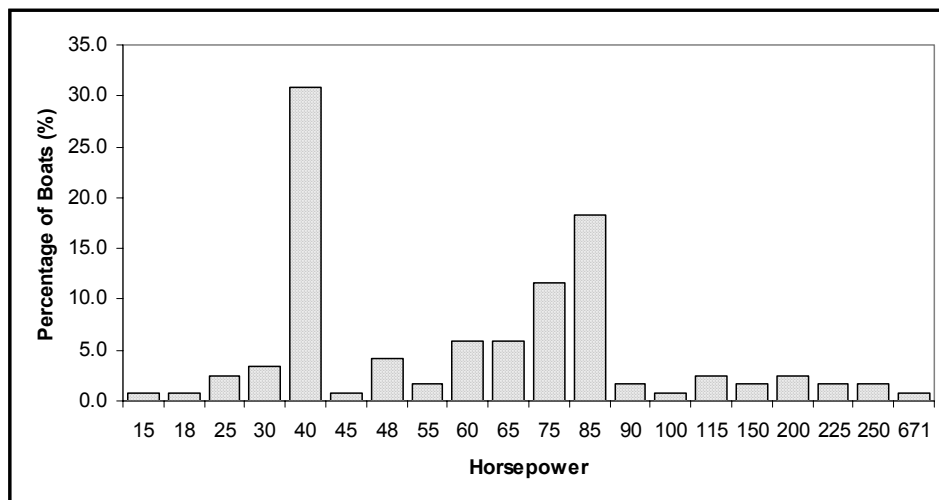


Figure 4.5: Bar chart showing the distribution of the horsepower of engines

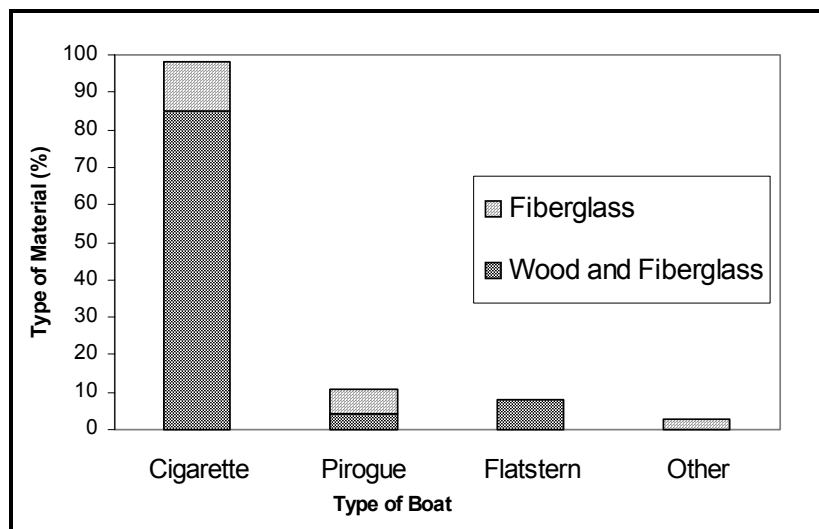


Figure 4.6 Types of water taxis in the Grenadines

The total number of boats with one engine was one hundred and eleven (111) and the total number of boats with two engines was seven (7). Union Island had the highest number of boats with one engine (42 engines), followed by Carriacou (27 engines) (Figure 4.7).

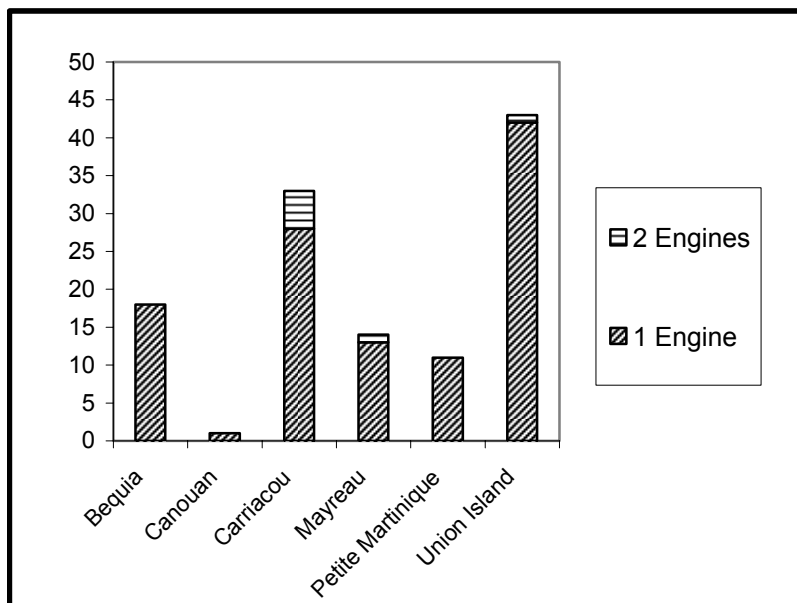


Figure 4.7 Bar chart showing the number of engines per boat by island

Of the total one hundred and eighteen boats, Yamaha accounts for 90% of the engines (Figure 4.8). The second most common engine was Mercury with 3% while only a few operators used other engine brands including Evinrude, Johnson, General Motors, Honda, Mariner and Perkins Diesel.

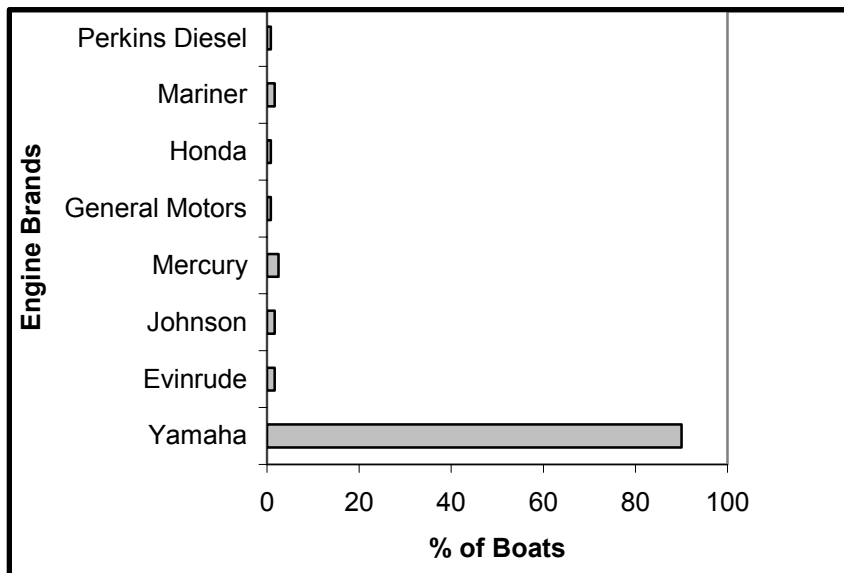


Figure 4.8 Bar chart showing the distribution of engine brands

4.2 Sustainable livelihoods survey

4.2.1 *Livelihood assets*

Human capital

Human Capital is defined as the ‘the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. At a household level human capital is a factor of the amount and quality of labour available; this varies according to household size, skill levels, leadership potential and health status’ (DFID, 1999: 7).

Household size varied among the operators with some of them living alone, some with their immediate family members and others within an extended family arrangement. Those who live alone may nonetheless have dependents on the same island, throughout the Grenadines and farther away (Appendix 3). Several of the operators have children and partners in North America, whom they support on a regular basis.

Few operators incur high costs from ill-health in their household. This is not only important to their ability to provide adequately for their household but also to the well-being of their operation. The good health of their families means that operators have to spend less money on doctor’s bills and they do not have to take days off to attend to sick family members. One operator from PM stated that ‘the people here are healthy because we eat mostly seafood and ground provisions’. This was supported by one from Union Island who said ‘I do not go the doctor because I take care of myself; what you put in you get out’.

WTops generally have the support of their partners and relatives with whom they share their home. In most cases, they said that they were assisted with the various types of bills to be paid around the house. There were not however many operators who had family members within or from outside their household involved in their operation. The type of involvement was in the form of providing business for the operator. This was the case for example with one WTO who receives business from his uncle who runs a guesthouse and requires his service in transporting guests. Another also benefits from a similar arrangement whereby his mother solicits customers for him while selling on the beach. From the initial survey, it was recognized that several members of the same family were WTops. In several instances there were brothers and cousins involved in water taxiing, whether from the same island or across the Grenadines.

A significant proportion of the operators have not had a secondary education. Many of those who had did not capitalize on the opportunity as they became involved in various delinquent activities including drug abuse. Those who completed their secondary education, like the current President of the CPMWTA, are better able to share information with respect to the environment with their customers and with those that they may teach about water taxiing. Some of the skills required for water taxiing are not necessarily taught in the classroom, but may be learned social behaviour, including courtesy, good hygiene and honesty. ‘Education can take place outside the classroom’ is the position of an operator from Bequia who was taught to read by a woman from the church. Local knowledge is also an important component of the knowledge possessed by WTops. This is especially true with respect to boat handling skills and the safe routes to travel. Operators cited family members as the source of this knowledge and although they considered themselves self-taught, it is likely that they would have observed family and friends who were involved in various boating activities.

There are some skills however which must be certified where people are involved especially international tourists. Many of the operators said that they have no formal training in life-saving with many of them claiming to be self-taught. This is an important issue given the fact that when WTops take customers on day-trips, the customers may be in the water at some point and there is therefore the possibility of them getting into life-threatening situations that would require life-saving skills. One operator shared an experience whereby he went out to the Tobago Cays Marine Park (TCMP) on a snorkeling trip with visitors who claimed to be good swimmers but on seeing a barracuda one of them panicked. He was without a second person on-board at the time and because he could not anchor, he had a difficult time in trying to handle the boat and save the woman at the same time. This shows also that it is important to have more than one person on board to assist, especially with a large group.

The fact that many operators do not have a secondary education dictates a need for training especially with respect to environmental issues. The level of detail and type of delivery must however be tailored to such a group. This is the type of 'entry point' that is being sought by this livelihood analysis.

Social capital

Social capital is defined as the 'the social resources upon which people draw in pursuit of their livelihood objectives. These are developed through networks and connectedness, membership of more formalized groups and relationships of trust, reciprocity and exchanges that facilitate cooperation' (DFID, 1999: 9).

There is a strong social network in the Grenadines wherein many of the operators have relatives within their community, elsewhere on the island on which they live and throughout the Grenadines as a whole (Appendix 4). There were strong family ties for example between Mayreau and Union Island which were discovered in the preliminary survey. Despite this integration throughout the Grenadines, many operators said that their relatives would not be able to provide assistance to them. In many cases the operators stated that they were independent and did not have to rely on relatives while others conceded that their relatives simply did not have the ability to help. 'Everybody is struggling to make a living' said one operator.

Although there was a general lack of WTops involved in community groups, operators seemed to be well integrated into their communities, providing assistance to community members in various ways. They are involved in clean-up campaigns and are often willing to 'do anything just to help out' as one said. This sentiment was echoed by many of the operators. Some operators stated that because they know the locals that they transport, and some may even be relatives, they find it hard to charge them anything other than 'gas change'. The notion that the neighbour's child is also the responsibility of the community or village is still evidenced by the actions of one WTO who buys books for the less fortunate children and seeks out those children who have not been attending school.

Based on the preliminary survey, disregarding the 18 WTops from Bequia in this analysis since there is no association there, 61% of the WTops belonged to water taxi associations. This is seen as a positive step in building the capacity of WTops, as such a group may contribute to the enhancement of the social and human capital of the operators.

Members cited various reasons for membership of such an association including the fact that they were encouraged to join and thought it would be a good thing. More specific reasons such as the improved professionalism and organisation among operators were given by some. There is also the belief that the associations can represent them collectively to achieve cooperation between the operators and tourism sector, especially when the objective of a maximum level of safety and comfort for visitors is regulated by the associations and achieved by operators. One WTO hopes to see ‘improved communication among operators which could ensure greater safety at sea’.

Natural capital

Natural capital refers to ‘the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production’ (DFID 1999: 11).

WTops utilise the many beaches and cays throughout the Grenadines as natural capital for their businesses (Table 4.1). Some operators have pre-packaged various activities to include day-trips with stopovers along the way at the various islands (Box 4.1).

Table 4.1 Locations cited as being most frequently visited by operators from the Grenadines Islands				
Carriacou	Petite Martinique	Union Island	Mayreau	Bequia
<ul style="list-style-type: none"> • Tobago Cays • Sandy Island • White Island • Mopion • Black Rock • Mayreau Garden (TCMP) • Cays off Grenada • Palm Beach • Sail Rock • Anse La Roche • Paradise Beach 	<ul style="list-style-type: none"> • Tobago Cays • Sandy Island • White Island • Mopion • Punaise 	<ul style="list-style-type: none"> • Tobago Cays • Sandy Island • Beach on Petite St. Vincent • Chatham Bay • Beach on Palm Island 	<ul style="list-style-type: none"> • Tobago Cays • Sandy Island • Mopion • Wreck off Mayreau • Salt Whistle Bay 	<ul style="list-style-type: none"> • Tobago Cays • Admiralty Bay • Moon Hole • Princess Margaret Beach • Beach on Petite Nevis

A diversity of activities is promoted in these packages including snorkeling, swimming, bird watching and diving around the cays and wrecks. On request, the trip may include lunch which the operators may prepare on the beach; barbeque-style or they may prepare sandwiches. This is all taken into consideration when a price is cited to the customer. One operator from Union Island has established a business which entails transporting customers to his restaurant in

Chatham Bay from hotels or from their yachts. He has been able to secure business from international yachting companies the Moorings and Sunsail. WTops have suggested that it is time that they benefit more from the many cruise ships that come to the area. They argue that they receive little business and in the case of Mayreau it is only to transport visitors from Saline Bay to Salt Whistle Bay.

The TCMP is one of the most popular sites for day trips and for soliciting business from yachts. Goods sold to the yachts may include bread, fruit and vegetables, gasoline and t-shirts. One operator from Bequia has been supplying yachts for over thirty years with these types of items. He commences his operation at 6:00 a.m. every morning going from yacht to yacht with his goods. He bakes the bread and grows his own limes for sale. He is therefore the first person to recognize if an unoccupied yacht has been vandalized and reports this to the police. Given their mobility and presence, WTops have the capacity to help ensure that the law is enforced throughout the Grenadines.

Locals require transport from one island to another and may also make the occasional excursion. Given the irregularity of a formal ferry service between the islands of Grenada and St. Vincent and the Grenadines, WTops play an important role in providing this service. Some people go from Carriacou, for example, to take the mail boat from Union Island. When they return from their trip they also require transportation back to Carriacou with their goods.

WTops travel all across the Grenadines but there is a tendency for operators from Grenada's Grenadine Islands to frequent the more southerly sites like Sandy Island, White Island, Punaise, Mopion and the various cays around the Carriacou and Petite Martinique. Although these operators do go to the Tobago Cays, it appears to be a less frequent occurrence. WTops from the Grenada Grenadines experience no difficulty in crossing the boundary between jurisdictions to visit the various attractions. One operator said that it is inconvenient to stop while doing his job to seek clearance from the immigration department. One operator from Carriacou shared that 'the authorities would be overwhelmed on a daily basis' because of the frequency with which he and other operators go to Union Island. He also shared that he is known to be a Grenadian and when he is in Union Island, he encounters no problems from the authorities.

Box 4.1 Packages offered by one WTO from Carriacou (per person)

Trip to the Tobago Cays for snorkeling, swimming, etc

1. US \$55.00 - Trip and stop-over in Mayreau
Lunch is the responsibility of customer.
2. US \$65.00 - Trip to Tobago Cays (lunch and snacks inclusive)
3. US \$70.00 - Trip to Tobago Cays with stop-over in Union Island
(Lunch included).

Physical capital

Physical capital ‘comprises the basic infrastructure and producer goods needed to support livelihoods. Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive whereas producer goods are the tools and equipment that people use to function more productively (DFID, 1999: 13).

The physical capital of the WTops refers to the facilities that they use to carry out their operations. WTops beach and stern anchor at the various beaches and cays mainly because of the lack of sufficient moorings or total absence in some places. They drop their anchor in the near shore area and further secure their boat by tying the bow to an object on the beach.



Figure 4.9 Jetty at Ashton, Union Island

At the various islands, they use the jetties provided by the governments along with privately owned jetties, for example, those at Lambi's Guesthouse in Clifton, Union Island and Frangipani's in Bequia.

The government-owned jetties have been deemed appropriate generally but a few of them were cited as being in need of repair or improvement. These include the Ashton jetty (Figure 4.9) which has a gaping hole at its end and the Clifton jetty which does not have fenders for small boats. A few of the private jetties are also thought to be in a state of disrepair and are thus hazardous to those who utilise them (Figure 4.10). There are numerous jetties around Admiralty Bay, so that there was no concern as to inadequacy there. WTops in Bequia also beach anchor for convenience.



Figure 4.10 Privately owned jetty in Union Island

Operators usually pull up their boats on the beach (Figure 4.11) or take them to their homes. The fisheries complex in Clifton, Union Island (Figure 4.12) serves as a haul-up site for those who



Figure 4.11 Boats hauled up on the beach at Saline Bay, Mayreau.



Figure 4.12 Fisheries complex at Clifton, Union Island

mainly operate from Clifton. During storm events, operators pull their boats as far inland as possible to reduce damage to them. The Ashton WTop has developed their wharf area by building it up on the discarded conch shells and this serves as a drop-off area for passengers especially when the small jetty is in use (Figure 4.13). This shows a level of pro-activeness on the part of the Ashton operators, seeing the need for the infrastructure although lacking the legal authority to create such a structure.

The Public Relations Officer for the SGWTA and Community Development Officer for the Grenadines, who is also a WTop, highlighted that there is a general lack of moorings throughout the Grenadines and especially in the TCMP, which WTop and yachts frequent on a daily basis. He sees

moorings as very important infrastructure for the protection of the natural environment, especially after visiting the SMMA in St. Lucia and seeing the mooring system there.

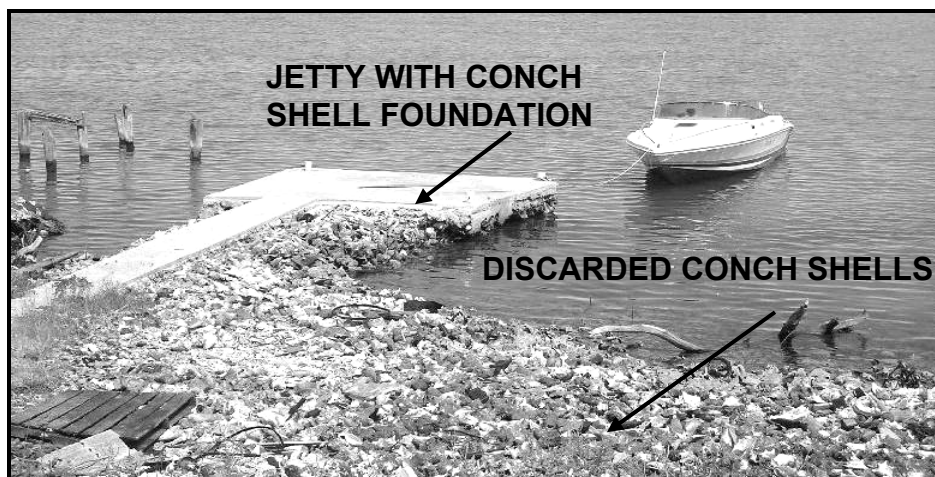


Figure 4.13 Makeshift jetty at Ashton, Union Island

Physical capital also extends to boat ownership and the type of equipment that WTOPs carry on-board. From the initial study, there was an estimated 100 boat taxi owners with an estimated 118 boats. A few of them are successful enough to own more than one boat. There were thirteen such boat taxi owners from Bequia (2), Mayreau (2) Union Island (3) and Carriacou (6). The preliminary survey revealed that 85% of the boats were owner-operated.

Boats may be built by WTOPs or purchased either within the Grenadines or from as far as the United States of America. There are boat builders throughout the Grenadines with Bequia, Union Island, Carriacou and Petite Martinique cited as places from which boats were both purchased and custom built. Many of the operators were able to purchase their boats from their savings, with a few of them gaining assistance through loans. An operator from Carriacou stated that he was able to build his boat 'piece by piece' as he obtained the funds. A WTO from Union Island is also a boat builder and was recently able to build his own boat after using someone else's boat to carry out his operation. Many operators use the beach to both build and maintain their boats (Figures 4.14 and 4.15).



Figure 4.14 Boat building area in Windward, Carriacou



Figure 4.15 Boat repairs on the beach in Petite Martinique

Other physical capital includes the emergency equipment and supplies that the WTOPs carry on-board. WTOPs generally possessed anchor lines, tools for repair at sea, water, lights and in most cases, life jackets. Many operators did not possess day and night time flares and first aid kits. These are important safety items, especially the flares. Although the WTOPs usually have life jackets, passengers are seldom asked to wear them. This diminishes the value of this investment, particularly given the small size of the boats, the speed at which they travel and the minimal skills-level of the operators in life saving. Other pieces of equipment may include steering wheels, cables, and a Global Positioning System (GPS), which is owned by the most established WTO from Carriacou.

WTops vary with respect to their personal physical assets. About equal proportions own their home, rent their home, and reside on family property. Many of the homes are of concrete with only a few being a combination of wood and wall. The ability to own their own land and home was not uniform across the entire group. Some have been able to own their own home and land solely through water taxiing, while others have had to depend on other livelihood activities to achieve this.

Access to basic amenities was good, with all the operators having electricity and piped water that is collected in tanks from the roofs of their homes. The majority have indoor plumbing with a few having outdoor toilet facilities.

The availability of land for farming was definitely not an issue, however, ownership was unclear. Most of the operators are involved in planting crops and rearing animals. This activity was mostly for their subsistence, however, with the main crops planted being corn, tomatoes, watermelon, lettuce and peas. Many operators cited time as a major factor that prevents them from farming. The lack of sufficient rainfall was also posited as another reason.



Fuel stations are neither common in the Grenadines nor easily accessible by boats and thus, WTops carry their tanks on land to get their fuel. Operators from the Southern Grenadines often utilise the only fuel station accessible to boats, located on the jetty in Petite Martinique (Figure 4.16).

Figure 4.16 Fuel station at Sanchez in Petite Martinique

This allows for direct filling of tanks, but is

inconvenient for those who must travel from Union Island. One operator from Mayreau goes to Union Island daily to get fuel. Operators from Union Island go to both Petite Martinique and Canouan.

Financial capital

Financial capital ‘denotes the financial resources that people use to achieve their livelihood objectives. The definition used here is not economically robust in that it includes flows as well as stocks and it can contribute to consumption as well as production. However, it has been adopted to try to capture an important livelihood building block, namely the availability of cash or equivalent, which enables people to adopt different livelihood strategies’ (DFID, 1999: 15).

Operators either buy or build their boats along with the necessary equipment from their savings. WTops were able to secure loans from the bank to cover either the boat or the engine and in some cases, both. The average boat costs US\$5,000 (US\$800 to \$29,000) while the average engine costs US\$6,000.00 (US\$600 to \$15,000) (Appendix 5). WTops strongly believe that

saving money is important given the certainty of very little business in the low tourist season. There are some operators who prefer to save their money at the credit union. Others keep their cash at home and may even 'bury it to keep it safe' as one operator put it. The ability to save depends however on the amount of business that is secured against the various expenses that they must incur. One operator drew the analogy that 'a boat is like a sinking ship, the more money you pour into, the heavier it gets and the further it sinks'. This is based on his experience as a WTO with the constant maintenance of the engine and the bi-annual refurbishment of the boat.

The major daily operating costs relate to the gasoline and oil consumed for the water taxi operation. The cost of preparing food for customers when requested is incurred by some operators. Few operators could give an accurate account of how much they spend. Many could however estimate the cost of gasoline and oil for daily operation and in some cases for a trip to the Tobago Cays (Appendix 6). According to one operator from Carriacou, his boat which is 6.5 m long uses up to 75 litres of gas per day costing up to US\$60.00 along with the four bottles of oil which cost US\$5.00/bottle.

Some operators drive around 'hustling' for business opportunities and are therefore increasing operation costs. Some stated that they go for days without getting any business. The level of organisation of the operators can be beneficial especially if operators wish to capitalise on the tourism industry. The organisation of the operators from a base on each island would also have a similar effect is reducing operation costs. This organisation may take the form of a rotation system such as that in operation at the Soufriere Marine Management Area in St. Lucia as reported by a WTO who went to the area on a one-week study attachment from the SGP.

The majority of the repairs to engines are carried out in mechanic shops across the Grenadines. Operators, especially from Bequia, may take their boats to St. Vincent for maintenance and repairs. The range of repairs and their associated costs vary considerably depending on the severity of damage to the boat or the engine (Appendix 7). Most WTOPs refurbish their boats yearly by painting and re-fiber-glassing. One operator contended however that if the engine and the boat are well taken care of, there will be less wear and tear and therefore lower maintenance costs. He said 'it depends on how you take care of you boat'. This sentiment was echoed by every operator. An operator from Union Island, for example, has his boat serviced in Ashton every six months at a cost of US \$260.00 each time. His boat is painted once every year in Petite Martinique at a cost of US \$450.00.

Many operators paint their own boats at home or on the beach. Despite the fact that painting is done by the operators themselves, the costs associated with painting and fiber-glassing are still high, especially for those who use special marine paint. Painting is done throughout the Grenadines by craftsmen with Petite Martinique being one of the places where operators take their boats most frequently.

Many operators do not have insurance for their boats: liability or boat loss. This is due to the difficulty in getting insurance for wooden boats. Two operators do however have their boats insured. One is among the largest boats which has passed the inspections of the Grenada Port Authority. The premium is US \$5000.00 each year. In addition he is required to pay XCD\$275.00 in tax each year on his operation. These costs along with the other operation, maintenance and repair costs are proving to be burdensome given the low recent tourist arrivals in Carriacou.

4.2.2 Livelihood strategies

Livelihood strategies is the ‘the overarching term used to denote the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals’ (DFID, 1999: 23). In the Grenadines, complexity defines the livelihoods of WTop. They are involved in other livelihoods activities that are both boat-related and otherwise (Figure 4-17). This complexity may be defined as livelihood multiplicity.

The relative importance of water taxiing as an income-earning activity varies among operators and may range from being a pastime to a means of survival. Its importance depends on the skills and other capital that individuals may possess. Of their income, the majority originates from business with visitors, ranging from 25% up to 100%. The average percentage of income earned from visitors was 70%, with locals accounting for approximately 20% and the sale and transport of goods for 10%.

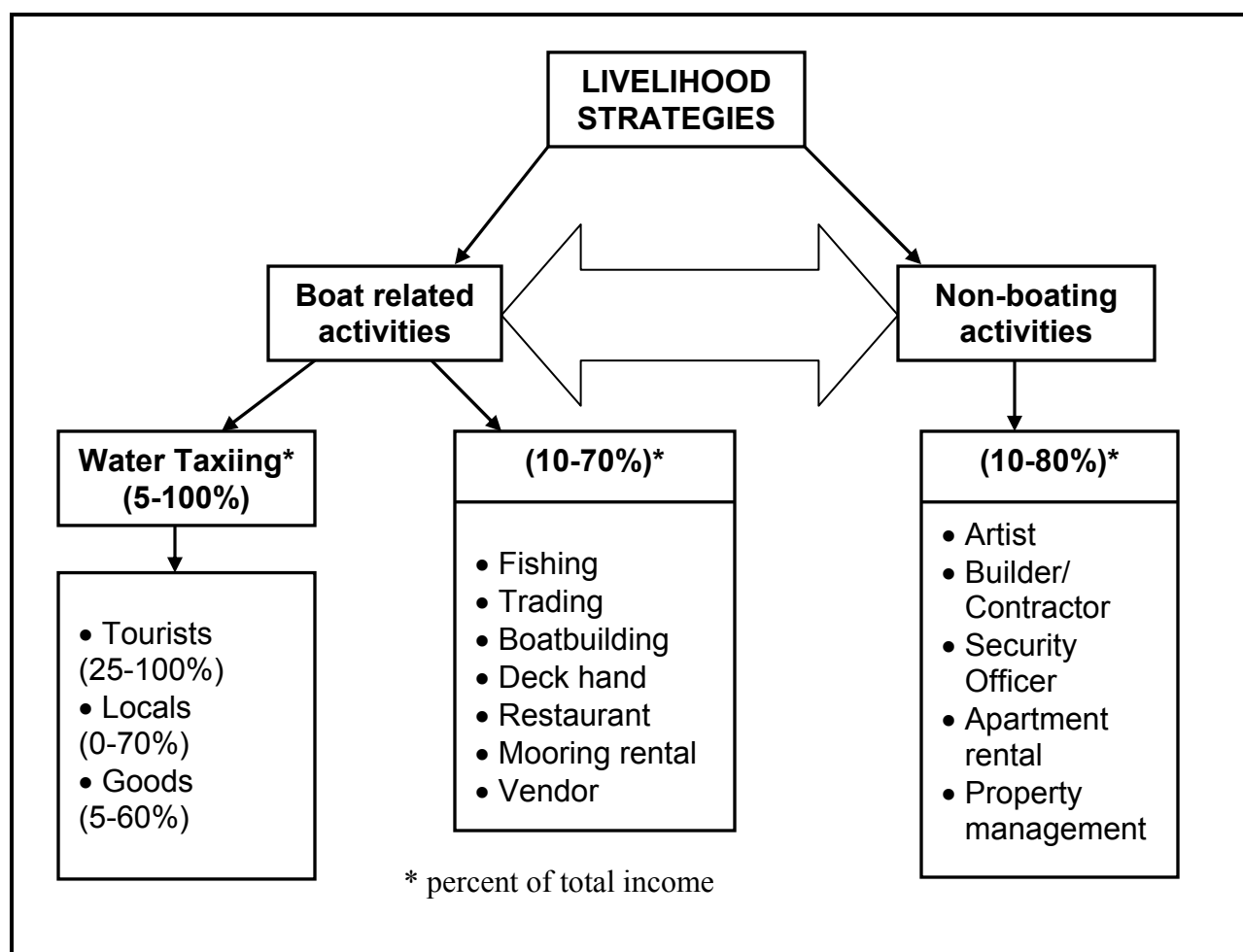


Figure 4.17 Livelihood activities of WTop

The sale of goods is important for some operators ranging from 5% to 60% of their income within water taxiing. They not only supply yachts, but fishing boats from Martinique, hotels and restaurants with a variety of seafood, including lobster, red hind and snapper. Some operators set up vending points, for example on the beaches in the Tobago Cays which are manned by their spouses while they solicit sales from the yachts.

Water taxiing and fishing are often linked as income-earning activities, because the physical capital required for water taxiing and fishing are largely transferable. Fishers have said that they become involved in water taxiing because they can sell their catch to the yachts, restaurants, hotels and locals. The physical assets are largely, but not entirely transferable, therefore, many of the boats originally built for fishing are not properly equipped with emergency equipment and supplies and are not fit for passengers given their size. Like the fishers, many operators who do not depend solely on water taxiing, use their boats to supplement their income especially in the low season.

Locals and visitors are both important to WTops given the fact that business with visitors varies seasonally. In the tourist high season, operators may receive business up to seven days of the week as opposed to the slow low season when two days may be the maximum for a week. WTops need business from locals in the low season to sustain themselves, although many of them take this time to travel and some to seek more lucrative employment locally or overseas. The amount of business varies from season to season and between the earnings from locals and visitors. In many cases operators were unable to place monetary value on the income gained from each client group but estimated the percentages.

4.2.3 Vulnerability context

Natural disasters along with international events both have an impact on the livelihoods of the people of the Grenadines with the WTops being no exception. The major type of natural disaster affecting the WTops has been hurricanes, particularly given the lack of appropriate storage for boats during such events. International events and trends such September 11th and rising oil prices were also recognised by two operators in Carriacou as potential threats to the livelihoods of WTops.

Hurricanes are considered a major threat to the livelihoods of WTops especially in the wake of Hurricane Ivan in 2004 and Hurricane Emily in 2005, two significant hurricanes which affected the area in two consecutive hurricane seasons. A macro-socio-economic assessment was carried out for Grenada and although it was based on the fisheries sub sector, the results were applicable to water taxis considering that many WTops are fishers as well as the fact that the two groups utilise similar physical capital. The report highlighted that ‘the 2,200 fishermen in the sector lost engines, hulls, fishing gear, safety equipment, communicating facilities, and housing’. Damages were estimated at EC\$5,732,500 (OECS, 2004: 29).

Oil prices have been increasing globally, with an increase at the pump in Petite Martinique from US\$3.00/gallon in September to US\$4.50/gallon in October. WTops see the rising oil prices as an issue since their operation costs will also rise putting them further out of the reach of business with visitors and locals especially.

WTops believe that a fall in tourist arrivals would have a significant impact on the viability of their business as a whole. An operator stated that ‘the business has not been the same since September 11th, 2001’. He believes that ‘government needs to invest more in marketing the islands if WTops are to make a living from tourism’. He has invested in marketing on the internet for his business but this is not aggressive enough to lure visitors to the island.

Many WTops throughout the Grenadines and especially in the Southern Grenadines have indicated that when they offer a price to customers based on the price list they have established, their prices may be undercut by operators who are not members of the association. Those from

Union Island have noted that these operators approach their customers, offering lower prices resulting in them losing business. This has aggravated operators to the point of arguing openly in the presence of visitors, thus giving the impression of being unprofessional.

Since members of the association are also guilty of this, the issue has to be addressed at the level of the WTA, having established such a list. Some way of building unity and respect for each other must be devised in order that there can be fewer of these types of incidences. There must also be penalties for members who break the rules and regulations of the association.

A similar issue emerged from interviews with the operators from Carriacou and Petite Martinique. They have expressed concern over the varying prices to various locations not necessarily due to undercutting of prices but as a result of varying sizes of engines and the number of engines on the boats which determines the amount of money an operator must spend on fuel. The fact that operators do not all work from the same location also contributes to the variation in prices.

5 DISCUSSION AND CONCLUSIONS

Through recent studies, the livelihoods approach has recognised that diversity of livelihood strategies may occur at various levels; over geographic areas, across sectors, within households and over time (DFID, 1999). This study of WTops in the Grenadines lends support to these findings with operators being involved in multiple livelihood activities. The combination of activities at various times throughout the year has been adopted by 80% of the operators to meet their needs. This 'livelihood diversification' has been identified as a characteristic of the socio-cultural fabric of the Caribbean. It has been used by WTops probably to reduce their vulnerability so that they can continue to earn a living when one livelihood option is no longer viable (McConney et al, 2003). Livelihood diversity as a strategy should not be discouraged given the seasonality of their income which is mostly derived from tourism. It is a coping strategy used to reduce uncertainty which allows operators to take advantage of a wide range of opportunities.

WTops are stakeholders who are involved in a number of activities also related to the coastal resources. They therefore have the potential to play a role in the co-management of coastal resources given their dependence on these resources for their natural capital as WTops and other livelihood activities. Their development has been undertaken by the WTP which seeks to raise awareness with regards to the everyday practices of the operators which impact negatively on the environment. The project seeks also to mould WTops into responsible stakeholders who are able to see the benefits of protecting and caring for their environment while continuing to make a living. The possibilities for such an arrangement may be a consideration for the Grenada which is seeking to develop marine protected areas (MPAs) in its Grenadine islands.

Operators from the southern Grenadines and Carriacou and Petite Martinique identified the varying prices as an ongoing issue throughout the Grenadines. A solution to this issue is difficult given the various factors that contribute to varying prices. One solution may be to regulate the size of boats and have a graded scale of prices with respect to the size of the boat or size of the engine. Another might be to have a price on the value of the experience to the various sites (valuation) with the additional cost being for the price of gas, level of comfort provided and the time spent at the site. This would result in the need for promotion of one's business and may be advertised by the tourist board in the particular island. Overall however there needs to be an

economic analysis of the WTops since their operational and maintenance expenses appear at times to exceed their receipts, which are unpredictable.

WTops may address costs by conserving on fuel through various measures both on and off the water (Box 5.1). These fuel-saving measures relate to engine and boat maintenance as well as consideration of the weight on board the boat (Squires, 2001).

Box 5.1 Fuel-saving options for WTops

MAINTENANCE

- Keep your engine well tuned. Be familiar with the number of hours that your engine should run before it requires a major overhaul.
- Ensure that your propeller is right for your boat and repair or replace it if it's damaged. According to a propeller specialist, Ray Curtis, propeller specialist from Temple Hills, MD, "if you don't have the right propeller for your boat, it doesn't matter how well your engine runs -- you'll be spending lots more money for gas." It is also therefore important to ensure that you have the right match for your engine and there are no misalignments or dents to slow it down.
- Install a fuel-flow, if you have a large engine. This monitors consumption, showing not only how much fuel you've used but how fast you're using it, helps you find your most efficient cruising rpms, suggests Annapolis, MD marine engine expert Karl Allen. Installing trim tabs on a planing hull can also improve fuel consumption, he said.
- Use the right antifouling paint and keep your bottom clean. Even a slightly dirty bottom can keep your boat from planing or, on a displacement hull, can slow it down dramatically.

ON THE WATER

- Carry less weight on board. It is not necessary to fill all fuel tanks to the brim.
- Do not overload your boat with people, coolers or other gear, and distribute weight evenly.

Source: Adapted from B. Squires, 2001.

The President of the CPMWTA is also concerned about other aspects of 'free lancers' who are neither part of the association nor very serious about water taxiing. 'They harass tourists and dispose of garbage poorly while overcharging for the service', he said. This issue was raised also by an operator from Union Island who witnessed operators taking garbage from yachts, charging for the service and quickly disposing of it overboard when they believe that they are out of sight. He said that he was the target of vandalism by these 'free lancers' because he has developed a relationship with various yachting companies which precludes others from benefiting from the yachts visiting the Chatham Bay area.

There is very little that can be done to curb indiscriminant garbage disposal except intervention from government and education that leads to peer pressure and community sanctions. Improved surveillance of the entire Grenadines area is one option that would have to be approached by the government. One operator suggested that the penalties are not tough enough to deter the delinquent operators.

Disrespect of visitors is another issue that was raised by many operators. Problems arise when visitors are approached by operators and they decline their services. It is alleged that abusive language is sometimes directed toward visitors and the offenders may even become violent, using weapons. An operator lamented that he has been called by customers that he has taken to various sites with complaints that they were being harassed. There is also difficulty in identifying the perpetrators.

An approach to this problem lies in the establishment of a fully functional WTA with registration numbers placed prominently on the boats for easy identification. This allows for easier tracing of the offender if he belongs to an association. The two associations are at different stages in this process but it is an important aspect that needs to be implemented.

Training for operators in customer service and conflict management has been recognised by the water taxi project as an important development activity. Training in life-saving should also be a priority if operators are to be considered proficient.

The water taxi project can contribute to the enhancement of livelihoods of WTops through capacity building activities. There are some areas however which require awareness education, training and further research. These include:

- A full sustainable livelihoods study to address the areas omitted in this study
- Educational awareness of the impacts of poor garbage disposal on the health of marine organisms and the marine environment to improve the human and natural capital of the operators:
- Training in life-saving so as to improve the proficiency of operators,
- Training to foster mutual respect and trust among operators so as to reduce conflicts among operators,
- An economic study to determine the viability of water taxiing,
- A Knowledge-Attitude-Perception (KAP) study at the end of the project to determine the impact of the WTP

Most WTops are eager to learn how to improve their livelihoods. Many however lack the financial capital to do much of the improvements that are necessary while some are limited by their educational backgrounds. In order to address the needs of WTops in a way that is most effective a practical approach should be adopted in the execution of the WTP.

It has been recognised that multiple livelihood activities is a coping strategy that operators adopt to protect themselves from vulnerability. Training should therefore not only be applicable to water taxiing but to developing all aspects of the water taxi operator. There is the need for the development of other skills so that WTops can pursue other livelihood activities in the low tourist season. This may contribute to improving the lives of operators through increasing income which has spin-off benefits.

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7 APPENDICES

Appendix 1: Preliminary survey of water taxi operators in the Grenadines

Preliminary Survey of Water Taxi Operators

Purpose of Questionnaire: To establish a database of water taxi operators throughout the Grenadines for the Sustainable Grenadines Project. It will also provide a basis for selecting a sample size for the in-depth survey to be carried out on the livelihoods and green boat practices of water taxi operators.

Surveyor Name: _____

Respondent #: _____

Date: _____

1. Name of Boat: _____
2. Registration Number: _____
3. (a) Name of Owner: _____
(b) ☐ Male ☐ Female
4. (a) If name of boat operator is different from the owner of the boat, please provide the name of the person: _____
☐ Male ☐ Female
5. How many persons operate this water taxi? _____
6. Name and sex of Operator/s:
Name: _____ Sex: _____
Name: _____ Sex: _____
7. Length of Boat: _____
8. Type of Boat: _____
9. Where do you dock your boat? _____
10. Are you a member of a Water Taxi Association (WTA)?
☐ Yes ☐ No
11. Which WTA? _____
12. Number of Engines: _____
13. Type of Engine: _____
14. Horse Power: _____ and _____

We will be conducting two in-depth surveys in approximately two weeks on your livelihoods and your boating practices. We would therefore appreciate if we could interview you again at your convenience.

Appendix 2: In-depth survey of the livelihoods of water taxi operators in the Grenadines

Water Taxi Livelihoods Analysis

This questionnaire inquires about the livelihoods of water taxi operators in six Grenadine Islands: their livelihood assets and strategies as well as their vulnerability. It is a baseline study for the Water Taxi Project under the Sustainable Grenadines Project as well as a contribution to my research paper.

Name of Surveyor: _____

Location: _____

Questionnaire No.: _____

Respondent #: _____

1. Age of Respondent: _____

2. Name of Boat Owner (if different from respondent): _____

3. Home Dock: _____

4. Island: _____

5. Gender: Male ☐ female ☐

6. Marital Status:

☐ Single

☐ Married

☐ Widowed

☐ Divorced

Other, specify _____

7. Boat Name: _____

8. Boat Type: _____

9. Registration No.: _____

10. How many years of experience do you have as a water taxi operator? _____

11. Why did you start water taxiing?

Livelihood Assets

12. Where do you operate your water taxi to? (Where do you run?)

13. How do you secure your boat at these various places mentioned above?

14. During a hurricane where would you store your boat?

15. Is your home

- ☐ Self-owned
- ☐ Rented
- ☐ Family-owned
- ☐ Other

Please specify _____

16. Is your home of

- ☐ wood
- ☐ wall
- ☐ both
- ☐ Other

Please Specify _____

17. Do you have access to

- ☐ electricity
- ☐ running water
- ☐ in-door toilet facilities
- ☐ out-door toilet facilities

18. What has your water taxi operation helped you to achieve in life?

19. Is the land you occupy

- ☐ Self-owned
☐ Rented
☐ Family-owned
☐ Other

20. (a) Do you have access to gardening/farming land?

- ☐ Yes ☐ No

(b) What farming activities are you involved in and for what purpose?

Farming Activity	Subsistence	Sale
Animals		
Crops		
Both		

21. Is water taxiing your primary occupation?

- ☐ Yes ☐ No

22. What are your income-earning activities in order of importance?

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |

23. Which of these groups do you cater to?

- ☐ tourists
☐ locals
☐ goods
☐ others, specify _____.

What are the services that you provide for the groups below along with number of times/week and the approximate income /week or proportion of you income that you may earn from these services?

Groups	24. Services	25. Income earned from these services (or proportion of earnings)
Tourists		
Locals		
Goods		
Other		

How many times/week and months in the year are you able to carry out these services?

Groups 26. No. times/week 27. No. of Months/Year

Tourists

Locals

Goods

Other

28. Do you take your customers to for day trips? (If not mentioned above, inquire about this)

☐ Yes ☐ No

If yes, where to?

29. On average, how many passengers do you transport/take on a trip?

_____.

30. Are you aware of any conflict among boat taxi operators?

☐ Yes ☐ No

If so, what is the nature of this conflict? (What are the issues, how has this impacted on your business and has this conflict been resolved - how?)

_____.

31. Are you aware of any conflict between boat taxi operators and other people? (related to water taxi operation)

☐ Yes ☐ No

If yes, what is the nature of this conflict?

_____.

32. Do you have relatives on the island//across the Grenadines?

Community	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Island	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Grenadines	<input type="checkbox"/> Yes	<input type="checkbox"/> No

33. (a) Do they provide assistance to you in times of need?

☐ Yes ☐ No

(b) If yes, in what ways?

_____.

If no, why not?

_____.
34. Are you a member of a community group?

☐ Yes ☐ No

35. Do they provide help for group members in times of need?

36. How so?

_____.
37. Do you assist members of your community?

☐ Yes ☐ No

(b) If yes, how so?

_____.
38. (a) Are you a member of a WTA

☐ Yes ☐ No

(b) If yes/no, why?

_____.
39. What level of schooling did you achieve? _____.

40. How many persons are there in your household? _____.

41. How many dependents do you have? _____.

42. In the last 12 months were any of the members of your household ill? _____.

43. How many persons in your household work? _____.

44. Do they contribute to the household?

☐ Yes ☐ No

Specify

45. Do any of your family members assist with your water taxi operation? (both within and outside of household)

☐ Yes ☐ No

If so, in what ways?

_____.

46. Where did you learn to drive a boat? _____.

47. How did you learn the routes? _____.

48. Do you teach others about water taxiing?

☐ Yes ☐ No

If yes, what kind of information do you share with them? _____

_____.

49. Are you able to save someone if they fell overboard?

☐ Yes ☐ No

50. Where did you learn to do this?

_____.

51. What safety equipment do you have on-board?

(If the person does not have one or more of these, inquire as to the reason)

☐ day and nighttime flares

☐ first aid kit

☐ life jackets

☐ tools for repairs at sea

☐ VHF radio

☐ water

☐ anchor lines

☐ lights

52. The boat that you operate is

- ☐ self-owned
- ☐ rented
- ☐ family-owned
- ☐ friend
- ☐ other

Please Specify _____.

53. Did you build or buy your boat? _____.

54. How were you able to afford your boat?

- ☐ loan
- ☐ borrow from family savings
- ☐ savings
- ☐ Other

Please Specify _____.

55. Do you save money?

- ☐ Yes
- ☐ No

56. How do you save?

- ☐ bank deposits
- ☐ cash
- ☐ jewelry
- ☐ other

Specify _____.

57. Is there a community saving method?

- ☐ Yes
- ☐ No

If yes, what is it called and how does it work?

_____.

58. What are your sources of savings?

- ☐ income
- ☐ remittances
- ☐ pensions
- ☐ other

Specify _____.

Daily Operating Costs

59. What is your average variable cost/trip?

Item	Amount	Cost
Gas/trip		
Oil/trip		
Other(food preparation if applicable)		
Other		

Maintenance/Repair Costs

60. Item **61. Location** **62. Cost** **63. How often**

Engine Maintenance

Painting

Re-fiberglass

Seating

Scrubbing

Insurance

other

Initial Investment

64. What are your long term costs?

Item **Cost** **Life Expectancy (how long will it last?)**

Original Boat Cost

Engine

Other Equipment

Other

Vulnerability Context

65. What are the things that can stop you from making a living as a water taxi operator?

66. Have you suffered any loss/damage to your boat? (e.g. natural disaster, theft, etc?)

☐ Yes ☐ No

If so, how?

67. Is there anything else that you would like to share with me about your water taxi operation?

End of Questionnaire

Appendix 3: Human capital of water taxi operators

Name	Education Level	# in House	No. of Dependents	Illness in household in last 12 months	No. persons in household that work	Do They Contribute to the Household	Family involved in your water taxi operation?	Boat Skills			Information Sharing
								Boat Handling	Routes	Life-saving	
7	Primary	3	2 kids	No	1	N/A	No	Friends	Observe	Oil Tanker - required	Respect for people, boat handling
72	Primary	4	1 child	No	3	Yes – Food, bills, etc	No	Observe	Observe	Red Cross Member	None
55	Secondary	5	2 old	Yes – treatment in Barbados	2	No	Yes – when absent	Friend	Old Job - ferry	Self-taught	None
51	Secondary – Grade 3	3	2-mom brother	No	3	Yes – food, rent, bills	No	Friends	Observe	Self-taught	How to drive a boat
61	College – 2 nd year (USA)	1	3	No	N/A	N/A	No	Friend/ Observe	Observe, Compass	Self-taught	How to drive a boat
92	High School (USA)	1	0	Yes – treatment in New York	N/A	N/A	No	Family	Observe	Previous Job – every 6 mnths required	None
63	Secondary	1	6	No	N/A	N/A	No	Father	Maps	CPR course	Dangers, Navigation, Compass reading
81	Secondary	1	2	No	N/A	N/A	Yes – assist as 2 nd hand	Observe/Family	Observe/ Family	Self-taught	Hygiene, Courtesy, Environmental information.
67	University Diploma	4	3	No	2	Yes – household assistance	No	Self-taught	Self-taught	Self-taught	Good communication skills
47	Primary	5	0	No	2	Yes – bills, food, etc	Yes – business from Uncle's guest house	Father	Father	Self-taught	None
1	Primary	7	5	Yes – Asthma SVG	1	N/A	Very Rarely	Self-taught	Observe, charts	Self-taught books	How to approach tourists
49	Secondary – Grade 3	4	0	No	4	Yes – bills, food, etc	Yes – business from mom who is a vendor on beach	Observe	Observe	Self-taught television	How to operate a boat
89	College	1	1	No	1	N/A	No	Observe	Observe	Never tried before	How to deal with people, speed, passenger comfort
102	Primary	5	4	No*****	1	N/A	Yes- If busy, use boat for business	Family	Self-taught	Self-taught	None
19	Primary	4	2	Yes – sickly child	1	N/A	Yes – drives boat	Self-taught	Self-taught	Self-taught – T.V.	None
13	Primary	2	0	No	2	Yes - food	No	Observe	Maps	Self-taught	Respect for tourists, honesty, speeding in harbour
2	Secondary – 3 rd form	2	2	No	2	Yes – pay bills	No	Friend	Friend	Scuba diving rescuing certificate	How to drive, deal with people
5	Primary	4	2	No	2	Yes - bills	No	Family	Observe	Save the Children Fund	Emergency supplies, dealing with people, comfort of customers
31	Primary	7	5	Yes – 1 child	2	Yes - bills	Yes – help drive, take out people	Observe	Observe	Interviewed for yachting - required	How to approach people

Appendix 4: Social capital of water taxi operators

Operator #	Connections	Provide Assistance?	Member of Community Group?	Do you provide assistance to your community (If yes, how?)	Member of WTA? (Why, if yes)
7	I,G	No - Independent	No	Yes – Provide school books for less fortunate children. In any way required.	N/A
72	I,G	Yes – Backing for bank loan	No	Neighbourhood clean-up	N/A
55	C,I,G	No - Independent	No	Yes - Provide fish, help with monetary problems, food, etc	N/A
51	I,G	No- Independent	No	Yes - Provide transport if needed	N/A
61	C,I,G	Yes – In whatever way required.	No	Yes – In any way possible.	Yes – To improve communication among WTops as well as to ensure greater safety at sea
92	C,I,G	No – Independent	No	Yes – Help to fix the road	No – Boat is not really for water taxiing
63	C,I,G	Yes	Yes – CEC		Yes – more professional approach.
81	C, I, G	No – Not sure	Yes - Church-based group	Clean-ups for the elderly, Provide elderly with food and clothing once per year.	Yes – It is beneficial to WTops and the protection of the environment.
67	C,I,G	No – independent	No	Help boatmen with mending sails, preparing financial estimates free of charge.	Yes – Important to development of water taxi operation.
47	C,I,G	Yes – Anything needed	No	Yes – transport	Yes – Encouraged to join but is unaware of what is happening.
1	C,I,G	No – they are not able to help.	No	Yes – transport, help with any work they need done.	Yes – Want to see the safe water taxi operation.
49	C,I,G	Yes – food and accommodation	No	Yes – transport.	Yes – Encouraged to join.
89	C,I,G	No – Everybody is struggling to make a living.	No	Yes – clean-up, organisation of fund-raising activities to help the school, donations to the school.	Yes – Thought it would bring help to WTops who were struggling.
102	C	No – Everybody for themselves	Fishermen's Cooperative – assist with search for other boats, help those with damaged boats.	Yes – In whatever way requested, e.g. construction of water tanks.	No
19	St. Vincent	N/A	No	Yes – employ men who need work especially young school-leavers, lend money to those who ask.	

Operator #	Connections	Provide Assistance?	Member of Community Group?	Do you provide assistance to your community (If yes, how?)	Member of WTA? (Why, if yes)
13	C	No- Do not need help. Bank Account.	No	Yes – Assist with food, money	No
2	C,I,G	No – Not financially able	No	Yes – clean-up campaigns	Yes – Hope for standards to be set. Training for the operators
5	St. Vincent	Relatives overseas – Send money if needed	No	No	Yes – togetherness resulting in compliance with rules and regulations. Hope for collaboration with hotels.
31	I,G	No – Independent	No	Yes – help in any way required.	Yes – Unity to save Tobago Cays.

Appendix 5: Financial capital of water taxi operators

Respondent Number	Built/Bought	How Purchased	Do You Save?	Method of Savings	Sources of Savings	Boat Cost	Engine Cost
7	Bought	Loan Savings	Yes	Bank deposits	income	5,000.00	7,000.00
72	Bought	Loan	Yes	Bank deposits	income	6,000.00	12,000.00
55	Built	Savings	Yes	Bank deposits	income	15,00.00	8,500.00
51	Bought	Loan Family savings	Yes	Bank deposits	income	8,000.00	12,000.00
61	Built	Savings	No	Bank deposits		18,000.00	32,000.00
92	Bought	Savings	Yes	Bank deposits	Income/ pension	24,300.00	5,400.00
63	Bought	Savings	Yes	Bank deposits	income	59,400.00 (total)	
81	Built	Savings	Yes	Bank deposits, Cash	income	10,000.00	18,000.00
67	Bought	Savings	Yes	Bank deposits	income	40,000.00	
47	Bought	Savings	Yes	Bank deposits, Cash	income	7,000.00	11,000.00
1	Bought	Savings Loan	Yes	Bank deposits	income	5,000.00	7,700.00
49	Not the owner	N/A	Yes	Cash - bury	income	N/A	
89	Built	Savings	Yes	Bank deposits	income	17,000.00	35,000.00
102	Built	Savings	Yes	Bank deposits	income	8,000.00	7,500.00
19	Bought	Savings	Yes	Bank Deposits, Cash, Credit	income	6,000.00	11,000.00

Respondent Number	Built/Bought	How Purchased	Do You Save?	Method of Savings	Sources of Savings	Boat Cost	Engine Cost
				Union			
13	Bought	Savings	Yes	Cash, Credit Union	income	2,000.00	5,000.00
2	Bought	Loan	Yes	Bank Deposits, Credit Union	income	20,000.00	9,000.00
5	Bought	Loan	Yes	Bank deposits	income	9,000.00	11,000.00
31	Bought	Savings	Yes	Bank deposits	income	5,000.00	1,500.00

Appendix 6: Daily costs associated with water taxiing

Respondent #	Amount of Gas	Associated Cost	Bottles of Oil Required	Associated Cost	Other Costs
74	15 gallons/day	\$105.00	2/day	\$20.00	Prepares fish the he catches.
72	6 gallons/day	\$50.00	1/day	\$10.00	
55	6 gallons/day	\$48.00	1/day	\$10.00	
51	8 gallons/day	\$64.00	1/day	\$10.00	Would prepare approximately \$100.00 in food for 4 persons.
61	7 gallons/day	\$56.00	1/day	\$12.00	
92	9 ¾ gallons/day	\$65.00	1/day	\$12.00	
63	40 gallons/trip (To Tobago Cays from Carriacou)	\$320.00	8/trip	\$96.00	Drinks usually included in entire package.
81	20 gallons/day	\$160.00	4/day	\$52.00	Prepares sandwiches for a minimum of 4 persons - \$50.00
67	Unable to determine the amount				
47	6 gallons/trip (To Tobago Cays from Mayreau)	\$50.00	1/trip	\$10.00	
1	6 gallons/day	\$54.00	1/day	\$11.00	
103	3 gallons/day	\$27.00	1/day	\$10.00	\$100.00 for 4 persons.
89	10 gallons/day	\$80.00	2/day	28.00	
102	10 gallons/day	\$80.00	2/day	\$24.00	Prepares food for 4 persons - \$100.00
19	12 gallons/trip (Trip to Tobago Cays from Union Island)	\$120.00	1/trip	\$10.00	
13	10 gallons/day	\$95.00	2/day	\$24.00	For 20 persons, food and drinks may cost between \$500.00 and \$800.00. The cost may depend on the menu.
2	6-12 gallons/trip	\$54.00 - \$100.00	1/trip	\$10.00	Approximately \$300.00 to \$500.00 for

Respondent #	Amount of Gas	Associated Cost	Bottles of Oil Required	Associated Cost	Other Costs
					food and drinks depending on the number of customers.
5	12 gallons/trip	\$120.00	1/trip	\$12.00	For 4 persons the preparation of food and drinks may cost \$310.00.
31	12 gallons/day	\$120.00	2/day	\$20.00	

Appendix 7 Maintenance and repair costs

Respondent #	Engine Maintenance (Regularity and Costs Associated with Regular Engine Maintenance (EC\$))	Location	Types of Repairs and Associated Costs	Painting (Regularity, Cost (EC\$) Associated and Location)	Other Costs
74	2/month - \$300.00	Workshop in Bequia, Howard's in St. Vincent	Variable	1/year - \$700.00 – includes fiberglass work at Southside in Bequia.	
72	1/month - \$60.00	Workshop in Bequia	Variable	1/year - \$500.00. Done by operator on the beach.	
55	3/year - \$1300.00	St. Vincent	Variable	2/year - \$600.00 each time. Painting done by operator on the beach.	
51	4/year - Approx. \$500.00	Paget Farm, Bequia, K.P Marine in St. Vincent	Variable	1/year - \$700.00. Painting done by the operator on the beach.	
61	4/year - Self	Beach in Hillsborough	Variable	1/year - \$2400.00. Painting and re-fibreglassing are done in Petite Martinique.	
92	New Boat with new engine – no costs incurred as yet.				
63	1/month - Approx. \$400.00	Petite Martinique	Depends on parts to be replaced	Boat is waxed each time it is docked.	Insurance of US \$5000.00/yr. Taxes in Carriacou - \$375.00/yr.
81	Every 2 years – Cost Variable	Petite Martinique	Replaced 1 zinc plate - \$600.00	1/year - \$2400.00. Glossed and painted in St. Vincent	
67	1/month - Self	Beach in Windward	Variable	1/year - \$2000.00. Done by operator in boat building area on the beach.	
47	Every 2 months - Self	Beach	Depends on what needs	Not often – only if there is damage.	

Respondent #	Engine Maintenance (Regularity and Costs Associated with Regular Engine Maintenance (EC\$))	Location	Types of Repairs and Associated Costs	Painting (Regularity, Cost (EC\$) Associated and Location)	Other Costs
			to be done		
1	Every 3 weeks - Approx. \$120.00	Mechanic – Union Island	Depends on damage	3/year - \$330.00 each time. Painting and some re-fibreglassing is done by the operator on the beach.	
103	Not Applicable – Not the owner of the boat.				
89	1/week - Self	Beach in Petite Martinique, Mechanic as well	Changed 3 engines within 1 year. Approximately \$1500.00 for repairs	1/year - \$2000.00. Painting is done at home by operator.	Boat is insured for \$60,000.00. Premiums of \$1500.00/yr.
102	1/year - Self	Beach/Mechanic	Depends on what needs to be done	2/year - \$1500.00 total. Done at the beach or at home.	
19	When necessary – Cost Variable	Clifton	Change - piston \$4000.00	1/year - \$300.00. Done by operator on the beach.	
13	3/year - Variable	Clifton – Mechanic	600.00-700.00 – Spark Plugs – \$15.00, 3 coils - \$187.00, Cables - \$40.00,	Painting is done when necessary. May cost approximately \$150.00. Done by operator at the dock.	
2	2/year - Up to \$700.00 each time	Ashton, Mechanic	Up to \$3000.00	1/year - \$1200.00. Painting and re-fibreglassing are done in Petite Martinique.	
5	4/year - \$100.00 each time	Clifton - Mechanic	Unable to say	2/year - \$750.00 each time. Painting and re-fibreglassing are done by the operator at the dock.	
31	Every 2 months - At least \$100.00 each time	Clifton - Mechanic	Variable in cost depending on what needs to be done	2/year - \$100.00 each time. Done by the operator in docking area.	

Appendix 8: Division of activities by water taxi operators

Respondent Number	% Tourism	% Locals	% Goods
7	70	30	Sells to yachts every morning
72	Uncertain of the contribution.		
55	100	0	On request
51	80	15	5
61	50	50	Goods along with people
92	N/A	N/A	N/A
63	95	5 (Locals do not like to pay)	0
81	80	20	N/A
67	30	70	N/A
47	60	40	N/A
1	100	0 (Transport for gas change)	0
49	70	1	N/A
89	25	15	60
102	40	30	30
19	90	10	N/A
13	100	0	Sells goods to yachts
2	80	20	N/A
5	60	30	10 – sells goods to yachts
31	70	20	10 – sells goods to yachts

Appendix 9 Livelihood strategies of water taxi operators

Respondent Number	Primary (%)	Secondary (%)	Tertiary (%)	Quaternary (%)
7	Water taxiing - 100			
72	Water taxiing - 50	Fishing - 30	Working w/boats - 10	Labour - 10
55	Property Mgr – 60	Mooring Rentals - 20	Water taxiing – 10	P-T Sailor - 10
51	Water taxiing - 80	Painter - 20		
61	Water taxiing - 100			
92	Rental Apts - 60	Supermarket - 35	Water taxiing - 5	
63	Builder/Contractor – 80	Water taxiing - 20		
81	Water taxiing - 50	Construction - 25	Fish - 25	
67	Gov't Officer - 50	Build Boats - 30	Water taxiing - 20	
47	Fishing - 70	Water taxiing - 30		
1	Water taxiing - 70	Security Officer - 30		
49	Water taxiing - 80	Other - 20		
89	Water taxiing - 90	Retail fish - 10		
102	Fishing - 60	Water taxiing – 40		
19	Restaurant - 60	Carving - 30	Water taxiing – 10 (linked with restaurant	
13	Water taxiing - 100			
2	Water taxiing - 100			
5	Water taxiing - 80	Artist - 10	Handyman - 10	
31	Fishing - 50	Water taxiing - 50		