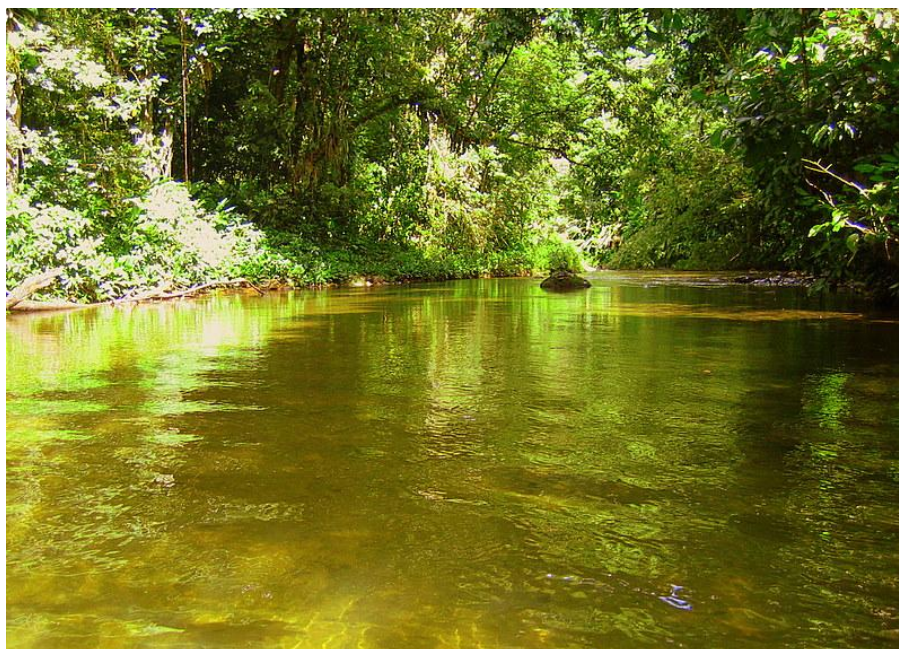




**Caribbean Natural Resources Institute
(CANARI)**

FORESTS AND LIVELIHOODS PROGRAMME



**CONSERVING THE GRANDE RIVIERE WATERSHED:
A case study of collaborative forest management
in north-east Trinidad**

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Acronyms

CANARI	Caribbean Natural Resources Institute
CBO	Community-based organization
CEPEP	Community-based Environmental Protection and Enhancement Programme
DFID	Department for International Development (UK)
ECIAF	Eastern Caribbean Institute of Agriculture and Forestry
ESA	Environmentally Sensitive Area
EMA	Environmental Management Authority
FO	Forest Officer
FRIM	Forest Resource Inventory and Monitoring
GREAT	Grande Riviere Environmental Awareness Trust
GRTDO	Grande Riviere Tourism Development Organization
GRNTGA	Grande Riviere Nature Tour Guides Association
HGW	Honorary Game Warden
M2M	Matura to Matelot Network of NGOs
MNP	Matura National Park
MNPSMC	Matura National Park Stakeholders Management Committee
MPUE	Ministry of Public Utilities and the Environment
NGO	Non-Governmental Organisation
NPO	National Parks Officer
NRWRP	National Reforestation and Watershed Rehabilitation Programme
PSIP	Public Sector Investment Programme
SAGRU	Stakeholders' Association for Grande Riviere United
TDC	Tourism Development Company Ltd.
TIDCO	Trinidad Industrial Development Company
TT	Trinidad and Tobago
UWI	University of the West Indies

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The majority of the research for this case study took place in 2008 and descriptions of roles and responsibilities date back to then. While CANARI has done its utmost to ensure the accuracy of

the information in this report, including holding a validation meeting with community stakeholders, the views expressed here are solely those of the author.



A guided forest hike



Executive Summary

This case study examines the forest management arrangements for the Grande Riviere watershed in Trinidad and the livelihood benefits which the community derives from them. It documents the lessons learned that are of wider relevance to forest management in Caribbean islands and concludes with specific recommendations as to how the institutional arrangements, capacities and policies could be enhanced to improve the sustainability of the arrangements and the equitable distribution of benefits to the community.

Grande Riviere is a small tranquil village on Trinidad's rugged north-east coast. It is a popular ecotourism destination offering nature-based attractions and the opportunity to view endangered Leatherback turtles (*Dermochelys coriacea*), and Piping Guan (*pipile pipile*), an endemic bird, known locally as the *pawi*. This has resulted in Grande Riviere having high levels of employment in comparison with surrounding communities, with reduced community reliance on extraction of forest resources for livelihood purposes. There are several active community-based organisations (CBOs) that manage conservation and ecotourism projects and a government-funded reforestation programme.

The Grande Riviere watershed covers an area of approximately 35 square kilometres, 80% of which lies within the Matura National Park. Much of this is undisturbed forest, home to a rich variety of wildlife including protected species red howler monkey (*Alouatta seniculus*), ocelot (*Felis pardalis*), and the endangered *Pawi*.

Key stakeholders in forest management in Grande Riviere include:

- the Forestry Division, which has primary responsibility for management of state forest and forest reserve including patrolling and enforcement to prevent illegal activities. Within the Forestry Division, the National Parks section manages the Matura National Park and the Wildlife Division is responsible for wildlife management.
- the National Reforestation and Watershed Rehabilitation Project (NRWRP), which selects community groups to replant degraded rainforest and protect watershed.
- the Environmental Management Authority (EMA) responsible for national coordination of environmental management. EMA designated the Matura National Park as an Environmentally Sensitive Area (ESA), established the the Matura National Park Stakeholder Management Committee (MNPSMC), and has funded participatory research in the area.
- the Grande Riviere community, and particularly the Grande Riviere Tourism Development Organization (GRTDO), which manages NRWRP, turtle patrols and tours, forest-based tours and other initiatives.

A number of factors have shaped forest management arrangements in Grande Riviere. Legislation and policy provide protection for state forest and the national park. However there is limited capacity to patrol and police the forest in Grande Riviere so Forestry Division and National Parks officers have grown to depend on the community for information about illegal forest activities. "*The community are our eyes,*" said one officer, although there is limited official recognition for this important support role.

Based initially on training for turtle conservation, the Grande Riviere community has benefited from over 15 years of capacity building in conservation skills, environmental awareness and other aspects of community development. The community has developed technical and forest management skills and a number of effective community-based organisations (CBOs), such as GRTDO, which advocate nationally and locally for local development based on the conservation of natural resources.

Levels of stakeholder participation in forest management and decision making in Grande Riviere are variable. There is a high degree of local participation in the NRWRP, with GRTDO actively involved in many aspects of project planning and implementation. The participatory processes have been driven primarily by GRTDO itself and such a high degree of participation is not characteristic of all NRWRP projects. From the outset, the Wildlife Division had a clear vision of collaborative turtle conservation, and there remains a high level of participation of all key stakeholders in the current arrangements. The head of National Parks section at the time of researching the case study is also a strong proponent of participatory practices but this does not appear to have been institutionalised as National Parks representation on the Matura National Park Stakeholder Management Committee, a participatory forum, is inconsistent. The community would like to build stronger partnerships and relationships with the Forestry Division, which as a whole is still perceived to operate in a 'top-down' fashion.

Livelihood benefits, for Grande Riviere community, as a result of forest management activities include:

- increased employment and training opportunities for men and women;
- empowerment of those participating in the reforestation project, resulting in the confidence to pursue higher education and training opportunities;
- enhanced physical infrastructure for ecotourism (Visitor Centre);
- an improved natural environment for recreation and protection of ecosystem services;
- effective CBOs that are seeking to drive development in a locally-appropriate way; and
- increased influence with, and recognition of, Grande Riviere CBOs by government agencies and other forest stakeholders.

However, there are some concerns about the long-term sustainability of these benefits as they are heavily dependent on short- to medium-term government programmes and use of state land, with no written guarantees at this stage of future rights to access and use. Additionally, current activities make heavy demands on volunteer time, and particularly on the leaders of GRTDO, with a high risk of burnout. The absence of a strategic vision and plan for the future, including a succession plan for the next generation of leaders, gives cause for concern about the sustainability of GRTDO.

Lessons from the Grande Riviere experience include:

- a community ecotourism business that depends upon nature-based tourism attractions provides a strong incentive for conservation and offers a viable alternative to more destructive forest activities;
- participatory arrangements, such as the turtle co-management programme, can encourage the community to recognise their role as custodians responsible for the sustainability of their natural resources;

- high performing CBOs can play a significant role in advocating for appropriate community development, influencing community attitudes and supporting forest management;
- changing community attitudes towards unsustainable forest use takes time to and can best be achieved through a combination of building conservation awareness, providing capacity building, and developing initiatives that provide individual and community rewards (both financial and other livelihood assets).

1. Introduction

1.1. Project Background

This case study of forest management in the Grande Riviere Watershed is one of a series of case studies under **CANARI's Forests and Livelihoods Programme** which seek to analyse the relationship between the institutional arrangements for forest management (including the process of developing the arrangements) and the livelihood benefits derived by the rural poor. Specifically, the case study is an output of a regional project entitled **"Practices and policies that improve forest management and the livelihoods of the rural poor in the insular Caribbean"** funded by the European Commission's Programme on Tropical Forests and other Forests in Developing Countries [2007-2009]. This project is being implemented in Barbados, Commonwealth of Dominica, Grenada, Jamaica, Saint Christopher (St. Kitts) & Nevis, Saint Lucia, Saint Vincent & the Grenadines, and Trinidad & Tobago but it is anticipated that the lessons learned will be of relevance to other Caribbean islands. Other case studies and project outputs can be found at <http://www.canari.org/forests.asp>.

Within its Forests and Livelihoods Programme, CANARI defines **Forest management** as *"the art and science of managing forests in a purposeful and objective driven manner. The objectives include provision of goods and services that provide benefits to people and sustaining the functions of the forest."*

1.2. Methodology

The case study was informed by

- a desktop review of previous research and workshops undertaken in the Grande Riviere area; (July 2008)
- formal and informal interviews with:
 - government stakeholders and representatives in Port of Spain and Sangre Grande(July to August 2008;
 - a range of Grande Riviere community stakeholders, community-based organisations; (CBOs) and individuals, including both those directly involved in forest management and members of the wider community. (August 2008)
- a four-day site visit to Grande Riviere to conduct interviews, learn about the Grande Riviere community, visit the forests, and view current community and forest management projects.(August 2008)
- A meeting with stakeholders to review and get feedback on the draft case study.

The following theoretical frameworks were used in the analysis of this case study:

- the livelihoods framework for CANARI's Forests and Livelihoods Programme, which examines livelihoods in terms of **human, natural, social, physical, financial and political assets**.
- the **stakeholder capacity assessment matrix** (Krishnarayan et al. 2002) was used to analyse the capacities of key stakeholders in terms of their **world view, culture, structure, adaptive strategies, skills, material resources and linkages**;

- the “**types of participation**” from Bass *et al*, 1995 were used as the basis for the analysis of the type and extent of community participation in the forest management arrangements as shown in Table 1 below.

Table 1 Types of participation (Bass *et al*, 1995).

Type	Characteristics
1. Manipulative participation	Participation is simply a pretence, with 'people's representatives on official boards but who are unelected and have no power
2. Passive participation	People participate by being told what has been decided or has already happened. It involves unilateral announcements by an administration or project management without any listening to people's responses. The information being shared belongs only to external professionals
3. Participation by consultation	People participate by being consulted or answering questions. External agents define problems and information gathering processes, and so control analysis. Such a consultative process does not concede any share in decision-making, and professionals are under no obligation to take on board people's views
4. Participation for material incentives	People participate by contributing resources, for example labour, in return for food, cash or other material incentives. [People] ... are involved in neither experimentation nor the process of learning. It is very common to see this called participation, yet people have no stake in prolonging technologies or practices when the incentives end
5. Functional participation	Participation is seen by external agencies as a means to achieve project goals, especially reduced costs. People may participate by forming groups to mete predetermined objectives related to the project. Such involvement may be interactive and involve shared decision-making, but tends to arise only after major decisions have already been made by external agents. At worst, local people may still only be co-opted to serve external goals
6. Interactive participation	People participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just the means to achieve project goals. The process involves interdisciplinary methodologies that seek multiple perspectives and make use of systemic and structured learning processes. As groups take control over local decisions and determine how available resources are used, so they have a stake in maintaining structures and practices
7. Self-mobilisation	People participate by taking initiatives independently of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Self-mobilisation can spread if governments and NGOs provide an enabling framework of support. Such self-initiated mobilisation may or may not challenge existing distributions of wealth and power.

2. The Grande Riviere community

2.1. Location



Figure 1. Map of Trinidad showing Grande Riviere

Source: <http://www.ezilon.com/maps/north-america/trinidad-and-tobago-physical-maps.html>

Grande Riviere is a small community on the north-east coast of Trinidad, about three hours by road from the capital, Port of Spain. Its population at the 2000 census was 334 and locals estimate that this has now increased to around 400.

Table 2: Details of Grande Riviere Census 2000

Population	334	184 male	55%
		150 female	65%
Ethnicity	273	African	
	4	Indian	
	11	Mixed	
Age Groups	0-10	48	16 %
	10-20	63	21 %
	20-30	31	10 %
	30-40	40	13 %
	40-60	57	19 %
	60+	59	20 %
Households	116		
Buildings	161	147 dwellings; 12 businesses, 2 institutions	
Neighbouring community populations	Matelot	500 people	
	Monte Video	153 people	

2.2. Economy and livelihood activities

2.2.1. *Agriculture and fishing*

Employment in the area has traditionally been in fishing or agriculture. The growth of tourism and the development of a range of government employment schemes have provided new opportunities. A recent report noted that Grande Riviere was fortunate and unique amongst the communities bordering Matura National Park (MNP) since community members are less reliant on the forest for their livelihoods (Van den Eyden 2007). This perception was validated by several of the interviewees.

The agricultural sector has declined significantly since its heyday in the 19th and first half of the 20th century, when the area was known for its high quality cocoa and coffee. Following independence in 1962, many other opportunities opened up in government unemployment schemes, construction and the oil sector. Many people were eager to escape work on the plantation and migrated to town for better jobs and educational opportunities, eventually forcing the majority of the agricultural estates to shut down.

In the early 1990s Grande Riviere estate, the largest plantation in the area (260 hectares), was purchased by a saw miller who cleared the forests, then resold the land. Mt Plaisir Estate Hotel is built on the site of the original cocoa estate headquarters. The state purchased other estate land. Some was turned into forest reserve while other plots were made available to the community as leased agricultural land, although official lease documents have never been finalised. Training, loans and financial incentives were offered for agricultural development. Hot peppers were exported for a time. However the work was hard, some became sick from pesticide use and some crops were destroyed by diseases (Peters, McEachnie *pers comm.*).

Many households maintain some form of small home garden for personal consumption ranging from two or three fruit trees to a mixed vegetable plot with a few yard fowl, cows and goats. Cocoa continues to grow wild but prices are low and few people continue to harvest. As one ex-cocoa farmer remarked: "*Cocoa has too much of 'It'. You have to pick it, assemble it, heap it, crack it, tote it, sweat it, dance it, then sell it.*"

2.2.2. *Government Employment*

Government agencies provides a range of permanent, semi-permanent and temporary employment opportunities for community members, including the following:

Table 3 Government employees in Grande Riviere

Agency	Number of employees from Grande Riviere at the time of the interviews	Notes
Sangre Grande Regional Corporation (SGRC)	25	SGRC is responsible for maintenance of roads, drains etc.
Water and Sewerage Authority	2	
Ministry of Education	5	Teachers at local primary school.
North-East Regional Health Authority	1	Nurse at local health centre.
Community Environmental Protection and Enhancement	20	Mainly semi- or un-skilled workers involved in cleaning, grass-cutting,

Agency	Number of employees from Grande Riviere at the time of the interviews	Notes
Programme (CEPEP)		<p>maintenance and planting along roadside and public community areas.</p> <p>The CEPEP contractor based in Grande Riviere is responsible for a total team of 60, 20 each from Grande Riviere, Matelot and Monte Video. CEPEP provides employment for semi-skilled workers in communities to improve the local environment. They are frequently involved in cleaning, grass-cutting, maintenance and planting along roadside and public community areas</p>
NRWRP	35	

2.2.3. The development of livelihood opportunities in tourism, conservation and forest management

Since the 1990s, ecotourism and conservation have become the major economic drivers in Grande Riviere. The beach is an important nesting site for the endangered Leatherback turtle (*Dermochelys coriacea*), and attracts thousands of visitors each year. The three local hotels are filled to capacity during nesting season (March – August). Several local guesthouses have also been built, and some local families rent out rooms to visitors.

This has generated the employment or entrepreneurship opportunities for the local community, including:

- hotel work, especially for women;
- forest, birding and turtle tour guiding
- conservation work, including the turtle patrols and government National Reforestation and Watershed Rehabilitation Programme (NRWRP);
- providing assistance on educational and research projects; and
- small businesses associated with tourism, such as craft stores, stores and clubs.

Table 4: Chronology of tourism and conservation development in Grande Riviere

Date	Driver	Opportunities for employment/livelihood development
Late 1980s	Growing recognition worldwide and locally of the endangered status of Leatherback turtles and piping guan	<ul style="list-style-type: none"> • Communities (Grande Riviere, Matura) provide volunteer assistance to Wildlife Division to monitor illegal slaughter of nesting females along Trinidad's north and east coast beaches.
1992	Wildlife Division recognition that it cannot achieve conservation objectives alone, particularly night-time patrols.	<ul style="list-style-type: none"> • Wildlife Division proposes co-management arrangement for turtle protection. • Capacity built in conservation through awareness and training programmes (turtle and <i>Pawi</i>) • <i>Pawi</i> feeding site near Grande Riviere is popular with birding groups, and sightings are common
1992	Need for more structured	<ul style="list-style-type: none"> • Grande Riviere Environmental Awareness Trust

Date	Driver	Opportunities for employment/livelihood development
	group to act as co-management partner	(GREAT) established.
1993-1997	Wildlife appoints Honorary Game Wardens (HGW) Voluntary turtle patrols	<ul style="list-style-type: none"> • HGWs selected for Grande Riviere (in 2008 5 HGWs) to police illegal hunting activities and promote conservation • Unpaid turtle patrols conducted by community 1993 to 1997
1993-present	Mt Plaisir Estate Hotel refurbished and reopens, promoting ecotourism to guests (awarded Ernst and Young's Entrepreneur of the Year for Tourism and Hospitality in 1998)	<ul style="list-style-type: none"> • Local guides provide turtle and forest tours, hikes, birding, and cultural explorations • Hotel employs local staff and buys local produce from farmers, craft and furniture from local artisans.
1997	Minister of Agriculture, Land and Marine Resources declared Grande Riviere protected during turtle nesting season (Mar 1- Aug 31, 6pm - 6am).	<ul style="list-style-type: none"> • Visitors wishing to see turtles must now purchase a permit (money goes to the state) and join an authorized community-guided tour (money goes to community group). • GREAT awarded contract for turtle patrols 1997 – 1999
1998	TIDCO establish GRTAC (16 TACs established in Trinidad in communities with tourism potential)	<ul style="list-style-type: none"> • TIDCO invites 13 community from Grande Riviere to become part of GRTAC and develop a <i>Community Tourism Plan</i>. • Meetings held twice monthly for several years. Many groups lose interest and stop attending, complaining that nothing is happening. GRTAC continues to lobby for tourism development and land allocation for Visitor Centre.
1999	National Parks tour guide training	<ul style="list-style-type: none"> • Capacity built through training 3 days per week for 9 months for 15 community members in NP tour guiding including dendrology, wildlife, identification of species, safety, customer relations
1999 - present	Grande Riviere Nature Tour Guides Association (GRNTGA) established	<ul style="list-style-type: none"> • GRNTGA awarded contract for turtle patrols from 2000 onwards. Permit sales and tours have increased steadily from: 2506 in 2000 to 9600 in 2006. • Forestry pay 2 staff (6pm – 1am) for turtle patrols during turtle season and GRNTGA pay 2 staff (1am – 6am) from their own revenue • GRNTGA expand tourism operation to include forest tours, hiking and bird watching. Currently 24 guides employed. 21 from Grande Riviere • (Today GREAT is primarily responsible for voluntarily protecting and releasing turtle hatchlings).
1999-present	As tourism increases other hotels are built including: Mc Eachie's Haven (1999), Le Grande Almandier (2000), Acajou (2004) and locals start to rent rooms to visitors	<ul style="list-style-type: none"> • McEachnies and Grande Almandier are locally owned and managed. • All provide some local employment

Date	Driver	Opportunities for employment/livelihood development
2002	Grande Riviere Tourism Development Organisation (GRTDO) established	<ul style="list-style-type: none"> • TIDCO (subsequently TDC) alters status of GRTAC to GRTDO • GRNTGA is a member of GRTDO focusing on tourism operations • GRTDO develops tourism opportunities and promotes conservation agenda including forest, Pawi, birding and hiking tours. • GRNTGA provide tours and patrolling services
2002	Local lobbying results in government funding for visitor centre.	<ul style="list-style-type: none"> • Visitor Centre, camp ground and car park provides some employment
2004	ESA legislation facilitates declaration of Matura ESA.	<ul style="list-style-type: none"> • Increased potential for eco- and research tourism and long-term potential for direct employment of locals in park management
2005	EMA funds biological survey of forest resources, administered by Van Den Eynden .	<ul style="list-style-type: none"> • Community involved and trained as researchers, interviewers.
2005	Launch of NRWRP in Grande Riviere.	<ul style="list-style-type: none"> • GRTDO is management agency, employing 38 people: 17 from Grande Riviere, 21 from neighboring communities. • Additional opportunities for revenue generation through <ul style="list-style-type: none"> ○ clearing and maintenance of 52 miles of forest trails of forest and development 4 forest hiking tours ○ development of seedling nursery for private sales.



Grande Riviere Nursery



Waitress at a GR Hotel

3. Grande Riviere Forest

3.1. Overview

For the purposes of this study, the Grande Riviere forest refers to the Grande Riviere watershed, an area of approximately 35 square kilometres, containing some of the most pristine rainforest in Trinidad and Tobago. Approximately 80% of this mostly contiguous unbroken forest lies within the north-eastern section of the Matura National Park Environmentally Sensitive Area (ESA).

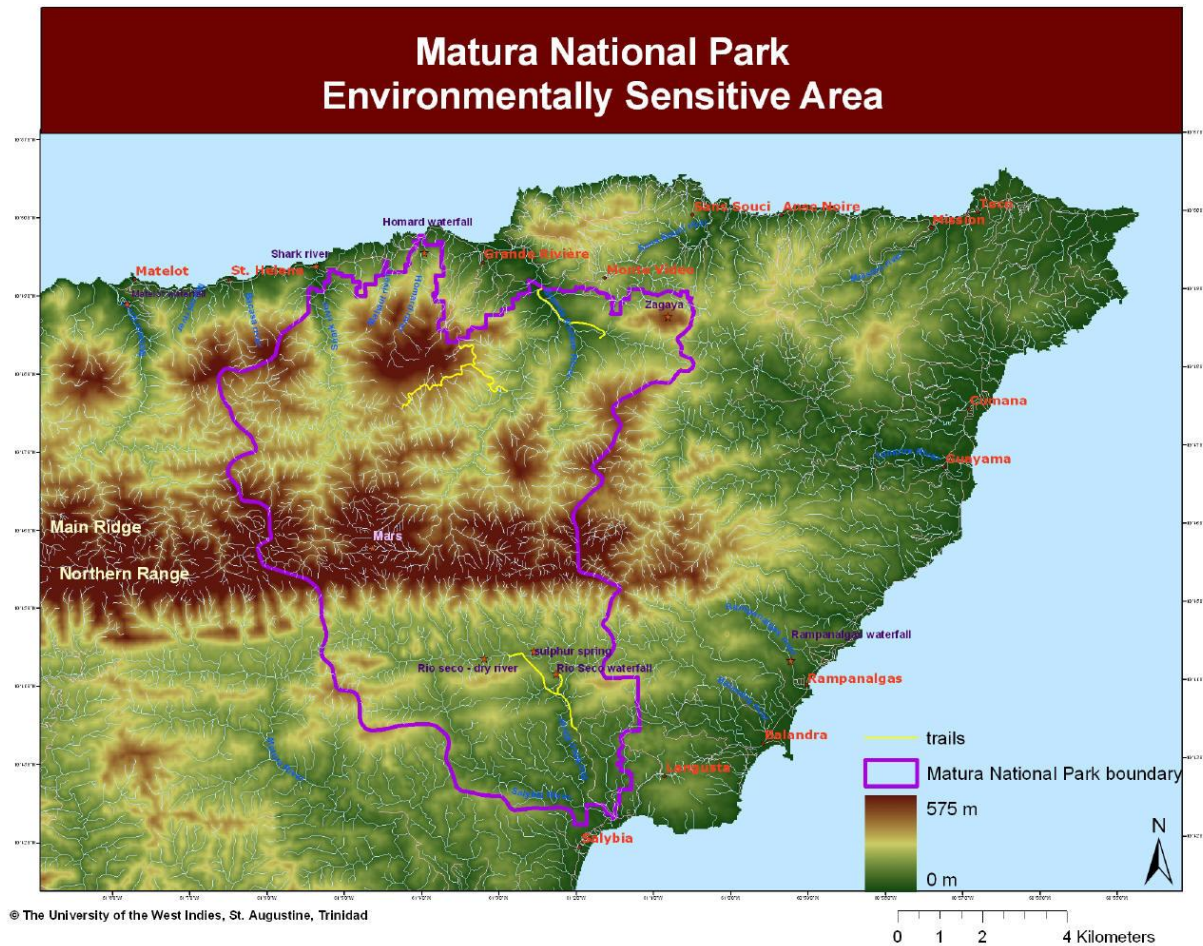


Figure 2: Map of Northeast Trinidad showing the Matura National Park

Source: The University of the West Indies St. Augustine

The Matura National Park was selected to be the first ESA in Trinidad and Tobago, and was formally declared in 2004. The ESA legislation provides protection for Matura National Park's large areas of primary tropical rainforest and for a number of endangered and rare animals and plant species including the piping guan (*Pipile pipile*), Trinidad's only endemic and seriously endangered bird, known locally as the *Pawj*; ocelot (*Felis pardalis*); and red howler monkey (*Alouatta seniculus*).

3.2. Forest type

The Grande Riviere watershed ranges in altitude from sea-level to 500 metres. Forest type is evergreen seasonal forest, secondary evergreen seasonal forest and, at higher elevations, montane forest and secondary montane forest. At least 70% of Matura National Park is undisturbed forest. The watershed is bounded to the south by the Matura Reserve ridge. From this ridge a series of narrow ridges with steep slopes run more or less north-south separated by streams, bounding the watershed on the east and west (adapted from Van Den Eynden 2007).

3.3. Forest land ownership and tenure, access and use

3.3.1. Land ownership and tenure

The majority of the Grande Riviere watershed is state land, much of it declared as forest reserve or National Park. The state land is interspersed with sections of private land, with approximately 10% of the MNP being privately owned (Van Den Eynden 2007). Some sections of the state lands have been leased to local people for agriculture. Thirty-eight plots of around 5-12 acres each have been leased for 30-year terms, although the formal leases have not been issued (Peters *pers. comm.*).

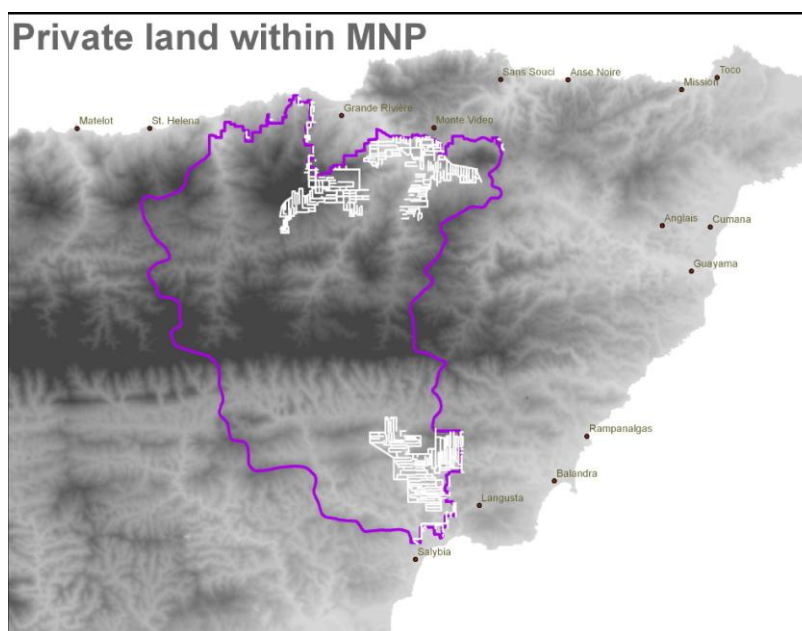


Figure 3: Map of Matura National Park showing private lands within MNP

Source: Van Den Eynden

3.3.2. Land access

Access to the Grande Riviere watershed is currently unrestricted, except to a few private areas, and the boundaries of the MNP have not been physically designated. This leads to considerable uncertainty in the community about ownership and rights of access. Many Grande Riviere families have a traditional connection with the forest, having lived locally for generations,

working in the plantations, hunting in the forest and clearing and planting crops on the land. They therefore continue to act as if the forest resources, except those on occupied private property, are a common property resource. Fruit or crops growing on abandoned land are harvested by whoever happens upon them, although this practice has diminished as employment has increased.

3.3.3. Land Use

Housing

Much of the housing in Grande Riviere village is built on state land, mainly in the form of unregularised informal settlement.

Extraction of timber and non timber forest products and use of the forest for recreation

The following have been identified (Van den Eynden 2007, *pers comms.*) as the major forest uses:

- **Recreation:** there is currently unrestricted public access to the Matura National Park for recreational purposes at various entry points and there are some marked trails. In Grande Riviere, four forest trails have been developed for hiking under the NRWRP programme.
- **Agriculture:** Forest lands are also used for agriculture. Slash and burn agriculture still occurs although community members claim that many people now practice more sustainable gardening practices. Commercial farming of cocoa and hot peppers was popular for a period, but the work is hard and most people now prefer jobs with a regular income even if the overall revenue is less.
- **Timber extraction** from private lands was widespread in the early 1990s, but is now rare. Good forest timber can still be found on private land but it is mostly inaccessible due to the mountainous terrain or poor road access. Costs to remove and transport logs to licensed sawmills in Cumana (recently damaged by fire) or Matelot are prohibitive, making the venture unprofitable for small quantities of timber (Forest officers, *pers.comm.*). A limited amount of illegal tree extraction still occurs, using illegal portable sawmills. Trees are felled and milled on site. Milled timber is more easily concealed and transported and sold direct to carpenters or furniture shops, realizing greater profits for the owner than whole logs. This practice is 'tolerated' by the community and goes unreported.
- **Hunting** is considered a traditional recreational and sports activity in Trinidad as well as a source of food. Hunting is permitted in season (October to February) with a Hunting Permit. Approximately 16% of the GR community hunts, which is significantly less than in other communities bordering MNP. Hunters now report travelling further into the forest in search of game but deny that wildlife numbers have reduced. However, wild game fetches high prices (TT\$100/lb), which provides a strong incentive for illegal (i.e. out of season or protected species) hunting, which still occurs.
- **Extraction of other non-timber forest products**
 - Families in Grande Riviere collect forest plants for their flower gardens.
 - The traditional extraction of medicinal plants has declined now that pharmaceutical drugs are readily available at the Local Health Centre and traditional knowledge is dying out.
 - Marijuana is still cultivated along several forested mountaintops and can generate high financial returns, with a relatively low risk of being caught.
 - Some use of seeds for craft but the majority of craft in Grande Riviere is based on driftwood.

Most interviewees noted that Grande Riviere has significantly lower levels of forest and natural resource use compared to other communities bordering the Matura National Park. Van den Eyden identifies the drivers of this as being alternative employment opportunities. Thanks to successful ecotourism and turtle conservation initiatives and, more recently, the reforestation project, several options for paid employment are available. People have a high awareness of the importance of conservation, with direct involvement in turtle and *pawi* conservation. Van Den Eyden concludes that this indicates that effective conservation requires a combination of economic benefits obtained directly from conservation and education to increase local awareness about the value of bio-diversity and its conservation (Van den Eyden 2007).

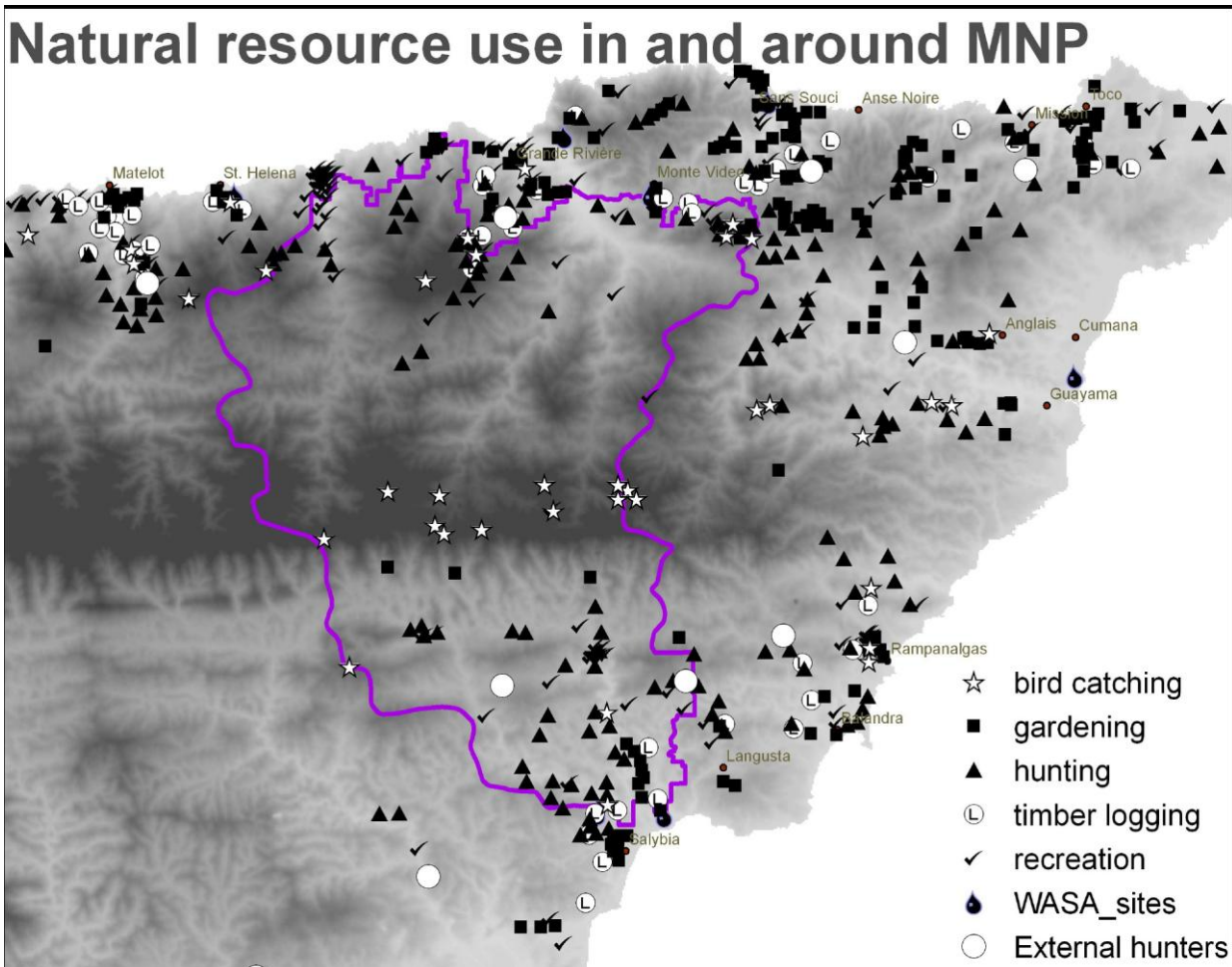


Figure 4: Map of Matura National Park showing natural resource uses in and around MNP

Source: Van den Eyden

4. Institutional arrangements for forest management

Table 5 below outlines the key stakeholders in the management of the Grande Riviere watershed and the main laws, policies or other sources of their rights and responsibilities:

Table 5: Key stakeholders and their rights, responsibilities and interests

Key Stakeholders	Rights, responsibilities and interests
GOVERNMENT	
<p>Ministry of Agriculture, Land and Marine Resources</p> <ul style="list-style-type: none"> • Forestry Division <ul style="list-style-type: none"> - NE Conservancy (Forestry Division is organized into 6 regional conservancies). - National Parks Section - Wildlife Division (under National Parks Section) - Honorary Game Wardens 	<p>Forestry Division has the legal mandate (under the Forests Act 66:01) to manage state forest including:</p> <ul style="list-style-type: none"> • sustainable planting and harvesting of forest timber on approved state land (although none occurs in Grande Riviere area) • prevention of illegal forest activities including hunting and timber extraction from state land and forest reserve • research and technical advice on forest products – timber, minor forest produce • issuing of permits for transport of all forest timbers. <p>National Parks Section has responsibility for management of the Matura National Park. National Parks Officers described their role as:</p> <ul style="list-style-type: none"> • forest protection • support for research and recreational opportunities to meet increasing demand from schools, universities and the wider community <p>Wildlife Division has responsibility for:</p> <ul style="list-style-type: none"> • Sale of State Game Licenses for hunting of approved species during hunting season, • Coordination and day-to-day management of the the Honorary Game Warden Programme <p>Honorary Game Wardens have the responsibility for:</p> <ul style="list-style-type: none"> • along with Game Wardens employed on a full time basis by the state, enforcing the Conservation of Wildlife Act Ch. 67:01 (Act 16 of 1958).
Ministry of Planning, Housing and the Environment	Responsibilities include:

Key Stakeholders	Rights, responsibilities and interests
<ul style="list-style-type: none"> - Environmental Management Authority (EMA) 	<ul style="list-style-type: none"> • Designation of Matura National Park Environmentally Sensitive Area • Education and awareness raising • Funding and support for research (e.g. Van Den Eyden 2007) • Co-chairing Matura National Park Stakeholder Management Committee • Updating of MNP Management Plan
<p>Ministry of Tourism</p> <ul style="list-style-type: none"> - Tourism Development Company (TDC) 	<p>Responsible for</p> <ul style="list-style-type: none"> - Marketing of Grande Riviere as a tourism destination - Development of Grande Riviere Tourism Action Committee (which subsequently became Grande Riviere Tourism Development Company) - Construction and maintenance of Grande Riviere Visitor Centre
CIVIL SOCIETY	
<p>Grande Riviere Tourism Development Company (GRTDO) formed initially as Grande Riviere Tourism Action Committee to be the umbrella organisation to identify and develop tourism opportunities.</p> <p>- includes Grande Riviere Nature Tour Guides Association (GRNTGA).</p>	<p>Responsible for:</p> <ul style="list-style-type: none"> - management of Grande Riviere NRWRP programme - (through GRNTGA) for tour guiding in forest - representing the community in conservation forums - operating the Visitor Centre, camp ground, issuing turtle permits and designing tours.
FOREST USERS	
Tourists/visitors	Interested in forest for recreation, mainly on weekends and holiday periods..
Hunters	Interested in access to places to hunt and keeping wildlife population at a reasonable level.
Grande Riviere Community	Interested in retaining traditional uses of forest (see Section 3.3.3)
University of the West Indies, ENGOs and others with research interests	.Interested in research into and conservation of forest resources.

5. Analysis of Stakeholder Capacity for Participatory Forest Management

Table 6 below analyses the capacity of key stakeholders in the management of the Grande Riviere watershed.

Table 6

Key Stakeholders	Worldview / Culture	Human resources, skills, funding, equipment etc.	General comments on capacity for participation
Ministry of Agriculture, Land and Marine Resources			
Forestry Division <ul style="list-style-type: none"> • General and N.E, Conservancy 	<p>Focus is shifting from planting and harvesting of timber to biodiversity conservation and provision of ecosystem goods and services.</p> <p>Generally hierarchical internal structures, and 'top-down' decision making processes with some resistance to participatory processes and co-management. However, some individuals have a strong commitment to participatory processes.</p> <p>Increasing recognition within Forestry Division that Grande Riviere community (especially GRTDO and other local CBOs) share similar environmental objectives.</p> <p>Interviewed Forest officers said:</p> <ul style="list-style-type: none"> • "We can't do it alone" and • "The community are our eyes". 	<p>Two permanent staff patrol the forest from Matura to Matelot, and visit Grande Riviere forests irregularly.</p> <p>Patrolling and enforcement in Grande Riviere is intermittent, due to:</p> <ul style="list-style-type: none"> • large areas of forest to cover with limited forestry manpower • limited experience and willingness of newer FOs to venture into the forest. • frequent rotation of FOs from one Conservancy to another, often with little or no 'hand-over', so new FOs must regain local forest knowledge and re-establish community relationships • Most forest officers are trained through the ECIAF Associate Degree in Forestry. This has an academic focus, is difficult to translate into day-to-day forest management practices and provides little insight into co-management practices. <p>Some forestry staff have had formal training in participatory tools and methods but participatory practices are not widely understood or practiced by FOs with</p>	<p>Restricted by limited staff numbers and skills</p>

Key Stakeholders	Worldview / Culture	Human resources, skills, funding, equipment etc.	General comments on capacity for participation
		communities.	
<ul style="list-style-type: none"> National Parks Section 	<p>The head of National Parks at the time of the case study data collection, Neemdass Chandool, expressed a strong commitment to community participation but it is not clear whether this has been institutionalised.</p> <p>National Parks Officers (NPOs) are all trained initially as Forest officers and tend to share their culture / world-view - as described above.</p> <p>Some NPOs claimed the community 'are our eyes' for policing and enforcement..</p>	<p>Perception from some interviewees that there is limited capacity to manage Matura National Park, due to:</p> <ul style="list-style-type: none"> limited skills and capacity of NPOs who have minimal training as park managers (short course at ECIAF and brief introduction when they transfer into NP section). MNP Management Strategy does not easily translate into procedures for managing a NP budget constraints: no allowance provided for infrastructure or materials <p>However many NPOs have limited understanding or training in participatory processes</p>	<p>NP section's attendance at MNP Stakeholder Management Committee has been inconsistent.</p> <p>NPOs delivered tour guide training to Grande Riviere community in 1990s.</p> <p>GRTDO participant claimed "National Parks is our second parent" in a 2007 workshop.</p>
<ul style="list-style-type: none"> Wildlife Division (within National Parks section) 	<p>Pioneered community co-management models in Trinidad and Tobago in support of Leatherback turtle conservation</p> <p>Focused in early 1990s on community education and capacity building to develop first co-management CBOs and conservation awareness about endangered species (Leatherback Turtles, <i>Pawi</i>, cage birds)</p>	<ul style="list-style-type: none"> Depend upon HGWs (5 in Grande Riviere) for policing and enforcement 	
NRWRP	<p>Mission statement reads: <i>"To rehabilitate & protect forests & watersheds using community-driven, creative and sustainable approaches to provide forest products and services through a committed, competent staff"</i></p>	<p>The NRWRP Officer for the NE region visits regularly to monitor GRTDO activities on the project but the frequency of visits is to some extent dependent on the individual occupying the post.</p>	<p>The NRWRP in Grande Riviere is characterized by participatory decision making in many aspects of project planning and operation.</p> <p>This supports NRWRP objectives</p>

Key Stakeholders	Worldview / Culture	Human resources, skills, funding, equipment etc.	General comments on capacity for participation
	<p><i>working in collaboration with our partners."</i></p> <p>Two core values are:</p> <ul style="list-style-type: none"> • Community-based, and • Partnership driven 	<p>Grande Riviere project has 35 employees, (21 from 3 neighbouring communities). Informal hiring policy favours employment of women who have proven to be hard working and reliable.</p> <p>NRWRP launched in 2005 with political support and ambitious targets. But in the haste to begin and with limited resources, critical planning factors were overlooked, e.g. mapping, site selection criteria, maintenance and monitoring requirements. These have since been corrected.</p>	<p>and is enabled by GRTDOs experience and forest management capacity. Negotiated outcomes include:</p> <ul style="list-style-type: none"> • Joint selection of replanting sites and daily work schedules • Development of forest trails for tourism • Replanting of coastal hills to protect village from winds during hurricane season • Enrichment planting to attract wildlife • Support for training to improve technical and forest management skills • Increasing inventory for use by tour guides • Consideration of agro forestry opportunities, • Development of community seedling nursery <p>However no agreement / MOU / contracts developed to formalize these arrangements.</p>
Ministry of Planning, Housing and Environment			
EMA	Strong culture, particularly in the Biodiversity Dept, of using participatory processes in legislative review, research, protected areas planning, and education	<p>EMA:</p> <ul style="list-style-type: none"> • Designated MNP as an ESA in 2004. ESA legislation provides the framework for bio-diversity protection within MNP • Provided funding for education and research, including the UWI survey • Currently co-chairs the MNPSMC • Intends to update the MNP 	<p>MNPSMC was designed as a participative forum, to discuss issues related to MNP.</p> <ul style="list-style-type: none"> • Stakeholders encouraged to organize their own meetings. This has not yet occurred. • Decisions do not appear to influence Forestry or MNP policy or practices.

Key Stakeholders	Worldview / Culture	Human resources, skills, funding, equipment etc.	General comments on capacity for participation
		Management Plan at some future date.	<ul style="list-style-type: none"> Nonetheless there appears to be growing recognition that government and communities share many forest management objectives.
Other Stakeholders			
GRTDO	<p>GRTDO's objective is to:</p> <ul style="list-style-type: none"> protect Grande Riviere's natural resources and attractions identify and develop tourism and economic opportunities for Grande Riviere community <p>Strong commitment to participatory processes</p>	<p>Membership of approximately 35.</p> <p>Access to Visitor Centre, equipped with projector, screen, television etc.</p> <p>Equipment for reforestation and turtle monitoring.</p> <p>GRTDO and the community:</p> <ul style="list-style-type: none"> have strong traditional links with the forest, acknowledged by all stakeholders have the most comprehensive working knowledge of the forest and biodiversity support Forestry and National Parks forest management objectives formally and informally: <ul style="list-style-type: none"> as HGWs advising FOs of tree extraction, illegal hunting and other matters. <p>Additional capacity has developed as a result of:</p> <ul style="list-style-type: none"> 15 years of conservation awareness and community development experience in turtle co-management participation in MNPSMC and M2M forums organisational, forest management and technical skills further developed 	GRTDO has strong capacity for participatory forest management as it combines competent leadership and organisational skills with technical forest management skills and commitment to conservation

Key Stakeholders	Worldview / Culture	Human resources, skills, funding, equipment etc.	General comments on capacity for participation
		<p>through participation in NRWRP, and forest research.</p> <ul style="list-style-type: none"> • operation of community forest tours • 4 Honorary Game Wardens in GRTDO • maintenance of strong relationships with influential stakeholders and individuals • influence within the Grande Riviere community. <i>“We are involved in everything in the community”</i> said Michael James, founder. 	

6. Factors that have facilitated or hindered effective participatory forest management and the optimisation of livelihood benefits

6.1. Laws and Policy

The protection for the Grande Riviere watershed falls mainly under the Forests Act Ch. 66:01, the Conservation of Wildlife Act Ch. 67:01 (Act 16 of 1958), and the Environmental Act 2000 under its subsidiary rules, ESA rules 2001. Declaring Grande Riviere beach a protected area in 1997 was integral to the first community co-management initiative for turtle protection.

The Matura National Park was declared an Environmentally Sensitive Areas in 2004 with provision for the establishment of the Stakeholder Management Committee. However participation by government stakeholders has been irregular and the committee lacks authority to determine policy or practice, which still resides primarily with the Forestry Division.

The draft Trinidad and Tobago Forest Policy and Protected Area Policy indicate a shift away from the traditional focus on forest production and harvesting towards provision and conservation of ecosystem services. However, the recent transfer of the Forestry Division into the Ministry of Agriculture, Land and Marine Resources appears to run counter to this trend.

- MNP declared an ESA in 2004. ESA legislation provides protection for the park's bio-diversity and habitat.
- No current TT legislation to declare a national park
- MNP Management Strategy governs management of MNP but does not readily translate into step by step practices for park management making it difficult for NPOs to implement.

6.2. Limited Forestry Division capacity combined with increasing built trust

The combination of limited staff and resources in Forestry Division, Wildlife Division and National Parks section and growing mutual respect and trust have led to increasing dependence on community partners.

For example in Grande Riviere these led to:

- appointment of volunteer Honorary Game Wardens in the early 1990s to provide local information and enforcement,
- increasing reliance by forest and parks officers on the community for forest information, including illegal activities. "*We can't do it alone*" said one forest officer, and "*The community are our eyes*" said a national parks officer. However there is no official recognition or compensation for these strategic community roles. It was also noted that informal social networks and relationships with the community are not as strong as they once were.
- establishment of the first co-management models, between the community and Wildlife Division in 1992, to protect nesting leatherback turtles on Grande Riviere beach. This was a pioneering and controversial approach in Trinidad. Dr Carol James, head of Wildlife Division in 1992, later described the success of turtle co-management, developed first in Matura, and later adopted in Grande Riviere as follows:

"This project demonstrated that communities can be entrusted with the management of their natural resources and that not only can negative impacts upon their natural resources be halted but that these resources can be utilized for socioeconomic and other benefits in a sustainable manner." (James and Fournillier, 1993)

6.3. Fifteen years of conservation awareness and capacity building

The Grande Riviere community has benefited from 15 years of conservation awareness and community development training. This has resulted in:

- increased community support for conservation
- enhanced technical and forest management skills
- development of high performing CBOs with the capacity to:
 - advocate for community development and enterprise such as ecotourism,
 - participate actively in forest management programmes such as the NRWRP.

6.3.1. Community commitment to conservation

Growing conservation awareness in Grande Riviere schools and community since the early 1990s has influenced community attitudes towards forest management, including a reduction in unsustainable and illegal forest and natural resource. There is widespread community support for protection of Leatherback turtles and *Pawi* and greater understanding of human impacts on forest ecology and the links between forest and marine environments. In the past, high levels of timber extraction and removal of river rocks for house construction caused erosion and flooding that destroyed the beach-front and disturbed sand quality, vital for turtle nesting but this has greatly improved.

6.3.2. Technical and forest management skills

Several Forest officers indicated that the Grande Riviere community as a whole, and GRTDO in particular, have a comprehensive working knowledge of the surrounding forest. Community members' skills have been enhanced through participation in a variety of training programmes including tour guide training, including identification of plant and wildlife species; involvement in scientific research and a forest-use survey of the Matura National Park; and involvement in the NRWRP reforestation scheme.

6.3.3. Ecotourism and the growth of community-based organisations

The early 1990s saw an increase in the number and range of community-based organisations, in part because the Wildlife Section saw effective CBOs as the cornerstone of the turtle co-management model. The first CBOs had a strong focus on turtle protection but limited organisational capacity. However, as capacity grew, the CBOs became better able to coordinate community support and advocate for community development.

The GRTDO was established in 2002, building on the earlier GRTAC, to take advantage of community ecotourism opportunities. Beginning with the established market for turtle tours and patrols, they later expanded into forest tourism. Grande Riviere has now become one of Trinidad's most popular eco-tourism destinations and its success is dependent on protection of its forest and other natural attractions. Forest management has thus become integral to GRTDO's objectives.

6.3.4. Participatory involvement in the National Reforestation and Watershed Rehabilitation Project

NRWRP is currently the most significant contributor to reforestation and watershed rehabilitation in Grande Riviere. The Grande Riviere project is notable for high levels of participation by GRTDO in decision making about many aspects of project planning and implementation. The project incorporates broader community development and livelihood objectives and has

benefited from GRTDO's experience and expertise. NRWRP officers consider it to be one of the more successful NRWRP projects operating in Trinidad.

6.4. Hotel and guesthouse development

Grande Riviere's first hotel, Mt. Plaisir Estate Hotel, opened under its current owner in 1993 and was an important step forward for tourism, allowing visitors to stay overnight in quality accommodation. Hotel owner, Piero Guerrini, is a prime example of Grande Riviere's appeal to foreigners. Guerrini, a photojournalist at that time, was captivated by Grande Riviere after visiting on the recommendation of poet and Nobel laureate Derek Walcott, whom he had come to photograph. Walcott told him that Grande Riviere was one of the few places where the untouched Caribbean of his youth existed. Guerrini abandoned his career in photojournalism and opened Mt. Plaisir Estate Hotel. (Outside Magazine April 1998, Inns and Lodges, <http://outside.away.com/outside/magazine/0498/9804destget.html>)

There are now four hotels, of which two are owned and run by people born outside Trinidad, and a number of smaller family-run guesthouses catering to the increased demand from international and domestic tourists.

6.5. Networking and relationships between stakeholders

6.5.1. Grande Riviere community and government agencies

GRTDO representatives maintain relationships with many external forest stakeholders and regularly attend MNPSMC meetings and other forums. They have historical connections with a number of forest officers, especially from National Parks and Wildlife Division, who worked and trained in the community.

Many of these forest officers have moved on to influential positions with other agencies but retain their connections with the community. Once former forest officer recalled: "[Grande Riviere was] a community we loved. Whenever they call us now [for advice or support] we always try to help out." However GRTDO members are concerned that their interactions with the current forest officers are more limited.

Michael James, a former PNM Councillor and founder of GRTDO, used his connections with people in the Forestry Division and other government departments to lobby for allocation of state land for the Visitor Centre and camp ground. GRTDO is now seeking Forestry endorsement for a proposed agro-forestry project on state land.

6.5.2. Forestry and other government stakeholders

Since the Forestry Division has the primary responsibility for forest management, the quality of relationships it develops with other stakeholders directly affects the information and support they receive for forest management. Within the Forestry Division, Forest Officers are often seconded between different sections but according to one Forest Officer: "*We work together mutually with no contradictions.*"

There was some conflict initially with the NRWRP since some believed that reforestation was the domain of Forestry Division, and that they should have managed the project. The EMA has also occasionally been viewed with suspicion although its mandate is confined to establishing the relevant legislation for protected areas and species. However, its strong participatory focus as evidenced by the creation of the MNP Stakeholder Management Committee, created some

tensions initially with other government stakeholders, who were unaccustomed to participatory processes.

Within the NRWRP, stakeholder engagement has not been effective. No consistent strategy has been established to engage and inform stakeholders such as the Forestry Division, State Lands, Agricultural extension officers, National Security (who police for marijuana plots) and may find NRWRP workers in these areas. A simple bulletin mailed or emailed out regularly to provide information, seek input, help and opportunities for cooperative involvement could resolve this problem (Phillips *pers. comm.*).

6.6. Sustained and successful operations of GRTDO

GRTDO is the currently the main CBO involved in forest management and community-based enterprise in Grande Riviere. The turtle co-management and ecotourism project and the NRWRP reforestation programme contribute to conservation and the local economy providing part or full time employment for over 50 people from the local and surrounding communities.

The continued success of GRTDO and sustainability of its business and conservation projects will depend on addressing certain risk factors, including:

- the current dependence on one or two leaders, with no clear succession planning for future leadership;
- excessive demands on volunteer time of several key leaders;
- high dependence on the government-funded NRWRP to generate employment, which has a limited time frame (2005-2015), and could be affected by changes in government or policy;
- future plans for development of agro-forestry and a Pawi bird-watching trail that are dependent on securing approval for use of state lands; and
- failure to date to adequately document its achievements.

6.7. Illegal forest activities

Despite the claim that Grande Riviere has lower rates of unsustainable and illegal forest use, illegal forest activities are often tolerated in the community, provided they are small-scale, for the benefit of community members and outsiders are not involved. These activities include informal settlement, illegal hunting, timber extraction and milling using illegal portable saw mills, and slash and burn agriculture.

The following were cited as indicators of the continuing illegal extraction of forest resources:

- Honorary Game Wardens have been threatened when trying to enforce hunting regulations;
- GRTDO, whilst a strong advocate for conservation, still has members who occasionally kill an iguana out of season if they are hungry; and
- forest tourism trails, planted with 'feeder' trees to attract birds and wild life, are used by hunters;
- marijuana growing has if anything increased due to growing demand and poses threats (e.g. traps) to those who venture into those areas.

6.8. National Reforestation and Watershed Rehabilitation Programme (NRWRP)

According to Phillips (*pers. comm.*) the Grande Riviere group is perceived within NRWRP to be one of the best they have and the outcomes of the project reflect this. GRTDO is seen as a mature and proactive CBO that has excellent negotiation skills, the ability to manage conflict, and make the NRWRP project activities work to meet both reforestation objectives and their own training and development needs.

Phillips noted that NRWRP policy requires that reforested plots must be returned to Forestry Division to manage after 5 years. However this transition has not been well planned. Forestry does not have the capacity to manage the reforested areas in Grande Riviere. One solution may be to continue community involvement in management, with the livelihood benefits being derived from agro-forestry and harvesting rather than from government salaries. However this would require development of agreements with and issuing of permits from the Forestry Division which has to date been unwilling to participate in such negotiations.

6.9. Participatory Arrangements

A number of factors have been identified that restrict participation in forest management in Trinidad and Tobago (CANARI, 2006) of which the following are evident in Grande Riviere:

- overlapping responsibilities between the agencies responsible for managing forest resources have led to conflicting perspectives on stakeholder participation
- government agencies are unwilling to share power, thus hindering participatory approaches
- limited capacity amongst government agencies for facilitating or participating in participatory processes
- perceived lack of community capacity to play a key role in planning, decision-making
- Mechanisms for formalising participatory approaches, such as contracts and long-term partnership arrangements, are weak or absent.

The remainder of this section considers the perceptions of interviewees with regard to degree and types of stakeholder participation in forest management arrangements and decision making in Grande Riviere. These are analysed using the *Types of Participation* and *Spectrum of Decision Making* (Bass *et al*, 1995) outlined in Table 1 above.

The NRWRP Reforestation Programme as it operates in Grande Riviere is the best example of a participatory process and could be considered to be *interactive participation*. This is largely due to GRTDO's management capacity, ability to advocate for community development objectives and the readiness of NRWRP Officers to implement the project's social and community development objectives. This degree of participation was not generally reflected at the inception of other NRWRP community projects, where decision making was reported to be predominantly *'top down'* and community participation only *passive*, for *material incentives (i.e. wages)* or *functional* at best. This appears to be changing with time, although the more widespread participation at community level has arisen in part because the NRWRP no longer has a full complement of technical staff to support the programme.

The Leatherback turtle co-management programme, as it developed in Grande Riviere and other turtle nesting villages in north-east Trinidad, was the pioneering model for community co-management practices in Trinidad and Tobago. The Wildlife Section engaged the community in meetings, turtle awareness training and encouraged communities to recognise that they could attract greater benefits from turtle protection and guiding rather than hunting. It can be said to have evolved from participation for *material incentives* (paid turtle patrols, and tour guides, and Honorary Game Wardens paid a monthly stipend) through *functional participation* to its current status of *interactive participation* as the community developed more expertise with turtle conservation and management skills.

Day-to-day **forest management** falls under the jurisdiction of **Forestry Division** and **National Parks** section and is implemented by forest and national parks officers in the field. This mostly involves *top down decision making* with *passive participation* of other stakeholders although

there is limited but important involvement of the community as voluntary informants, although their involvement and support is not well recognized or rewarded. There are sometimes opportunities for *participation by consultation*, which usually involves ‘*selling the decisions*’ [about forestry laws] to community stakeholders.

The decision to develop new Forest and Protected Areas policies through a participatory process, facilitated by CANARI, indicates a trend towards more *interactive participation*, at least at the policy level. However, senior forest officers commented that, although their participatory culture is evolving, the Forestry Division remains a large hierarchical bureaucracy, reflecting its colonial heritage, so change may be slow. Additionally, some forest officers believe that the community has neither the legal understanding nor the commitment or capacity to participate and contribute to forest management. Most forest officers also lack training in facilitating participatory processes.

The **National Parks Section** has responsibility for management of the Matura National Park. The Head of National Parks at the time case study data was being collected was an advocate for community involvement and participatory processes but it is unclear to what extent this approach has been institutionalised. Attendance by National Parks representatives at the Matura National Park Stakeholder Management Committee has been irregular and appears to have limited influence. In general, participation the Matura National Park can be characterised as *functional participation* where community support is encouraged but decision-making remains top-down with ‘*selling or discussion of tentative decisions*’.

The role of the **Environmental Management Authority (EMA)** has a strong commitment to participatory processes but a limited mandate which constrains its ability to implement them in the context of forest management. The Matura National Park Stakeholders Management Committee has the potential for *interactive participation of stakeholders* but it is currently advisory only so could be considered more as *participation by consultation* or even *manipulative participation* given the poor attendance of government representatives at the meetings. The MNP UWI forest research project, initiated and funded by the EMA, provided both *functional* and *interactive participation*. Community members were hired as interviewers and credited as co-authors of the final document.

7. Livelihood Benefits and Costs

7.1. Breakdown of costs and benefits

This section considers the community livelihood benefits and costs associated with the various forest management initiatives described above, broken down by human, social, physical, natural and political benefits and costs. The analysis also considers factors such as the degree of equity and transparency in the distribution of benefits; whether groups have been marginalised or excluded; potential benefits that may accrue; and trade-offs between benefits.

Table 7: Analysis of livelihood benefits and costs

Livelihood Benefits/ Costs	
<p>Human Benefits (e.g. skills, education, knowledge, health)</p>	<p>Individuals in Grande Riviere have benefited from a range of training programmes associated with conservation and forest management including:</p> <ul style="list-style-type: none"> • National Parks training in tour guide training, safety and first aid, mapping, dendrology - identification of plant species, identification of historical sites, customer service and public relations <ul style="list-style-type: none"> • 3 certified community tour guides are registered by TTHTI • 1 certified general Tour Guide is qualified to guide tours anywhere in T&T. • NRWRP 'on-the-job' training in reforestation, replanting and plant maintenance enhanced the community's already comprehensive forest knowledge. • Enhanced knowledge and skills through support for scientific and forestry research projects. • Extensive <i>Pawi</i> and turtle conservation awareness and training conducted in schools and the community during the early 1990s leading to co-management of Grande Riviere beach and development of <i>Pawi</i> tours. <p>Active and influential CBOs that now operate in Grande Riviere are a direct result of community development initiatives that began in support of conservation and co-management objectives. Current CBOs, notably GR TDO and GRNTGA, are cohesive organisations with good leadership, organisational and technical skills and the capacity to manage conflict and implement community and business projects. They advocate strongly for community, enterprise and conservation objectives.</p> <p>An unexpected outcome of the NRWRP programme has been the empowering and esteem-building effect it has had on some of the employees, and particularly women (see Box 1 below).</p>
<p>Social Benefits (e.g. family, community and wider social networks & relationships)</p>	<p>Grande Riviere is a small, safe and socially cohesive community. Several local women comment that Grande Riviere is a good place to raise a family, safe for children and that "bad men" were not tolerated. Community members generally show high levels of confidence, self-respect and are hospitable and cordial to visitors. The owner of Mt Plaisir Estate Hotel is proud of his community relationships and says that his guests and their possession are always safe.</p> <p>These social benefits can be attributed, at least in part, to successful community and tourism development associated with forest management and conservation training, and the community's wide-spread exposure to tourists, scientific researchers and government specialists.</p>
<p>Physical Benefits</p>	<p>Conservation initiatives, both related to forests and turtles, have contributed to physical infrastructure in Grande Riviere, primarily through the construction of the Visitors'</p>

Livelihood Benefits/ Costs	
(e.g.: standard of & access to infrastructure, transport)	<p>Centre, car park and camp ground and the development of forest trails for bird-watching and tourism.</p> <p>Overall, -though not directly related to forest management - Grande Riviere enjoys good utilities, water, electricity, and telephone system. The town has several small food stores and clubs. There is a Health Centre and primary school. However people must travel to Sangre Grande for banking or to shop at larger stores.</p> <p>Transport is a major service gap in Grande Riviere. Only 3 taxis operate in the community so 80% of the taxis servicing Grande Riviere come from outside, meaning transport is unreliable and waiting times uncertain. A bus service once operated but ceased partly due to deteriorating road conditions. North coast roads and bridges have been upgraded recently and there is talk of restarting a bus service but no commitments have been made.</p>
Natural Benefits (e.g. ownership of or access to healthy natural resources, including land and ecosystem services)	<p>Forest management and conservation efforts have improved the quality of the forest, rivers and water supply, reduced tree extraction, removal of river rocks and contributed to maintaining beach quality.</p> <p>The NRWPR project provides important natural benefits including:</p> <ul style="list-style-type: none"> • improved ecosystem services, wildlife conservation and wind protection as a result of replanting degraded and clear-felled forest and agricultural gardens; • provision of opportunities for agro-forestry, subject to permission being granted for access to agricultural land; and • improved recreational opportunities as a result of the development of forest trails.
Political Benefits (e.g.: access to and influence over decision-making processes)	<p>Community and CBO leaders in Grande Riviere have developed strong political assets including:</p> <ul style="list-style-type: none"> • ability to influence the management of the NRWPR and participating actively in all levels of local decision making; • co-management of the turtle protection on Grande Riviere beach, with responsibility for day to day operations and management decisions; • successful advocacy, primarily through Michael James, GRTDOs founder, for allocation of state lands to build the Visitor Centre, car park and camp ground; • influence within Grande Riviere community on a wide range of issues ("<i>We are involved in all aspects of community life</i>" according to founder Michael James); • capacity and built respect that facilitates effective advocacy on issues related to conservation, community and enterprise development; and • relationships built and maintained with many forest stakeholders and active representation of the community in a range of forums including the MNP Stakeholder Management, Turtle Village Trust, and Matura to Matelot Network Committees <p>Costs</p> <ul style="list-style-type: none"> • The high demands on volunteer time, particularly by the (unpaid) chairman of GRTDO, and risk of 'burn-out'.
Financial	Grande Riviere community enjoys widespread employment opportunities. "Anyone who

Livelihood Benefits/ Costs	
Benefits	<p>wants a job can find work” said one GRTDO member. The NRWRP programme, managed by GRTDO, employs 35 staff (14 from Grande Riviere, 21 from neighbouring communities) and generates income for the organisation of 20% of project costs, to be used for management costs including project manager, and administrator. Sales of seedlings from the associated plant nursery also generate revenue.</p> <p>GRTDO and GRNTGA employ 24 tour guides of whom 16 work as turtle guides, with the remainder others specialising in beach patrols, tagging, or manning the Visitor Centre. Four turtle guides work each night, two paid by Wildlife Section and two by GRTDO. Tour guide pay is TT\$180 for a turtle tour or beach patrol, with the potential for up to 10 nights work per month in season. All tour guides have other jobs or sources of income/livelihood activity. Several are also forest tour guides and one is a birding specialist, paid \$120 per person per tour. They operate forest hikes, birding and waterfall tours. Forest tourism is not yet well developed or regulated.</p> <p>Income is also generated from turtle permit sales, night patrols and tours during nesting season, though a considerable proportion of this reverts to the state consolidated fund. For example, 9400 permits were sold (revenue to state) and tours conducted (revenue to GRTDO)</p> <p>Other financial benefits associated with the fact that Grande Riviere is a nature-based tourism attraction include:</p> <ul style="list-style-type: none"> • employment, particularly for women, in the three hotels and other family-run guesthouses. The hotels typically employ between 5 and 15 staff • community owned food outlets, beach-front craft shops, clubs and private stores that cater to tourists
(continued)	

Box 1: Women flourish in and beyond the Grande Riviere NRWRP project...and beyond

During the validation session with GRTDO and other community members in May 2010, the NRWRP coordinators highlighted the unanticipated gender dimension and empowering effect of participation in the NRWRP programme. Having started with an assumption that the project would employ more men than women because of the hard physical work, they rapidly discovered that women were outperforming men and taking advantage of the training offered to build their confidence to move on to more skilled work. While this meant that the turnover of staff had been high, it fulfilled GRTDO’s aspiration for the programme to provide a springboard to more secure employment.

With great pride – and some amusement at “how wrong we were:”, they described the outstanding achievements of one female member of the team who is now in her third year of psychiatric nursing. When she first applied to be part of the NRWRP project, they didn’t want to refuse her outright but were sure she would not be able to make the grade, given her “challenging” circumstances and background. So they took her out to the harshest and most remote part of the forest, certain that this would deter her. Far from it! Not only did she do fine there, she continued to thrive in the programme and demonstrate independent leadership skills. She completed an ECIAF dendrology training and started to apply her learning to Grande Riviere, producing a very good manual on the species she found in the forest. First Aid training may have been the trigger that set her on the route to nursing. But one thing is for certain, “she used the programme as a vehicle” and now in now a role model for others in the community.

7.2. Distribution of Benefits

Distribution of benefits from GRTDO's projects appears to be equitable in terms of gender, with women participating in all projects. They work as tour guides, in the Visitor Centre and several participated in the community forest use survey. GRTDO now has an informal policy to try and hire woman, because they have proven to be more reliable workers. All the nine workers who had been fired from the NRWRP project (at the time of writing) were men. GRTDO also introduced a deliberate policy of hiring people from the surrounding communities Sans Souci and Montevideo to ensure that benefits were also distributed geographically. It is less clear to what extent the poorest and most excluded members of the community have been deliberately targeted.

Some concern was expressed about the limited involvement of youth (20-30 years old) and the tendency for young people to leave the area. But to some extent this is a natural phenomenon. Young people intending to pursue their education or a career, must go to larger centres. Urban drift from rural areas is also common especially amongst younger people wanting to experience the 'bright lights and big city'. GRTDO leaders maintain that anyone can apply to join their organisation as a member, although they must maintain organisational standards. Nonetheless stronger involvement of youth is a priority.

Social and natural benefits such as a safe community and access to clean water, rivers and a tranquil natural environment all contribute to quality of life which is beneficial for the whole community.

7.3. Transparency of Benefits

Several interviewees expressed concern about the lack of transparency of GRTDOs financial records. However this may be just a community perception. GRTDO leaders claim that they fulfil all requirements for financial reporting and that financial records are available for members to review. On the other hand, officers of GRTDO are contributing substantial amounts of unpaid volunteer time and this is not captured in the financial records.



Grande Riviere's NRWRP team head out for the day

8. Lessons learned

8.1. Community-based tourism can contribute to natural resource protection (and vice versa)

A community with several nature-based tourism attractions provides multiple opportunities for livelihood activities that serve both conservation and socio-economic objectives. These offer viable alternatives to more destructive traditional activities such as large scale tourism development, over-extraction of resources or slash and burn agriculture.

In Grande Riviere, GRTDOs community ecotourism programme operates forest, birding and turtle tours. This provides part-time employment for 24 community guides and is a strong incentive for them to protect the natural resources and educate other community members about sustainable forest practices. Some of the most knowledgeable and informative forest guides were formerly hunters, although some continue to hunt.

8.2. Identifying and marketing the community's tourism niche is critical to success

Tourism is one of the world's largest industries and highly competitive. Beautiful scenery and natural attractions are found in many parts of the world, but successful tourism also requires other ingredients. These include accessibility, a variety of activities and quality tours, quality accommodations, and a safe, friendly, local community. Strategic marketing is also required to get the message out.

Grande Riviere is an example of a small-scale but viable ecotourism destination. It is not a mass tourism destination, but attracts a 'niche' market. Visitors include Trinidadians, expatriates working in Trinidad and international visitors. Many tourists visit Grande Riviere on the recommendation of friends and some return on a regular basis. Such 'word of mouth' advertising and repeat business form a solid foundation for a successful tourism business.

The **tourists** who were interviewed characterised Grande Riviere's prime attraction as the nesting leatherback turtles and their hatchlings. Other attractions that were mentioned included:

- the secluded scenic, nature-based location, yet accessible from Port of Spain in three hours;
- the variety of hotel and guesthouse accommodations;
- the variety of activities available including turtle tours; a beach and nearby river safe for children and families; and other nature-based attractions such as forest hikes, waterfalls and birding tours.
- a safe, small village and friendly local population. The area retains its local flavor and charm
- and is not overrun with tourists or mass tourism developments;
- general community support for conservation.

Strategic marketing has also been vital for promoting Grande Riviere's unique appeal. In addition to 'word of mouth', links to the T&T's tourism website, partnerships with inbound tour operators and write-ups in travel magazines and Trinidad guide books, marketing has focused on:

- associations with international conservation organizations;
- attracting support for leatherback turtle research and conservation initiatives;
- active marketing to attract niche groups such as artists and conservation workshops;

8.3. High performing CBOs can drive and facilitate community participation in conservation and business initiatives

In many destinations, tourism is controlled by private businesses with limited involvement of the local community except as workers. This provides little incentive for the community to support conservation of the natural resources (forests, wildlife) on which the tourism depends.

GRTDO was established specifically for the community to participate and benefit from tourism. It operates all Grande Riviere's turtle patrols and tours and is the driving force for protection of turtles and nesting habitat. However, its capacity has been built by a variety of different training programmes, mainly funded and/or facilitated by state agencies.

8.4. Built trust can provide a substitute for formal long-term contracts

Grande Riviere provides evidence that a strong vision, combined with built capacity, can result in a community-based organisation playing a key role in natural resource management, even if formal power lies elsewhere. In Grande Riviere, GRTDO effectively controls and manages all turtle protection, with occasional visits by Wildlife Officers, yet it operates on the basis of an annually renewed contract, with no long-term commitment from the government. It has also driven the direction in which it wanted the NRWRP to go, for example, through the inclusion of trail development and agro-forestry, although again there is no formal contract.

8.5. Changing community behaviour takes time, education and continuing pressure from conservation leaders within and outside the community

Changing community attitudes towards forest conservation has been a gradual process. Livelihood benefits associated with conservation have been a powerful motivator but education is also needed. Long-term change is most effectively achieved through building community consensus and ongoing peer pressure.

According to several locals and forest officers, including the NRWRP manager and GRTDO Chair, public awareness initiatives over 15 years have resulted in the gradual evolution of conservation awareness. The protected status of leatherback turtles and *Pawi* are now widely respected, but some illegal forest harvesting still occurs.

8.6. Private sector support for community development can act as a powerful catalyst

Several small and large scale private sector interests have contributed significantly to conservation and community development initiatives in Grande Riviere.

- The 1993 opening of the Mt Plaisir Estate Hotel was an important early catalyst for tourism, conservation and community involvement in Grande Riviere. The hotel hosted early community and conservation meetings, proved that tourism was a viable business, encouraged locals to become involved, and provided quality accommodation and marketing that raise the profile of Grande Riviere internationally as an ecotourism destination. There are now four hotels (two established by foreigners) and a number of smaller family-run guesthouses catering to the increased demand from international and domestic tourists.
- BHP Billiton and the Turtle Village Trust are other important initiatives that make valuable contributions to capacity building, turtle conservation and forest ecotourism initiatives.

8.7. A close-knit, cohesive community may contribute to conservation by protecting their natural resources for local use rather than exploitation by outsiders.

A strong sense of community is evident in Grande Riviere, and the community is protective of its natural resources for local use, even to the extent of taking forcible action to prevent 'outsiders' from over-extracting resources such as crayfish. The informal rule has been that extraction for individual personal consumption is acceptable but not for commercial purposes. GRTDO's community-based ecotourism business was established primarily to enable the community to take control of and benefit from its local tourism attractions. Other examples of community guardianship of natural resources include community protests in the 1990s against indiscriminate tree harvesting by outside private loggers, and stories of outside hunters being vigorously discouraged.

9. Recommendations

The following recommendations are intended to build community involvement, participatory arrangements and strong CBOs that have contributed to Grande Riviere forest management to date.

9.1. Enhance current participatory forest management in Grande Riviere by

- expanding the role of the Matura National Park Stakeholder Management from merely advisory to participatory decision- and policy-making;
- implementing the provisions of the draft Forestry Policy, notably in the area of more effective participatory processes and co-management arrangements;
- revising the Matura National Park management strategy to provide more practical park management tools and incorporate participatory arrangements;
- ensuring that community consultations are effectively facilitated and the outcomes taken into account in policy decisions and management arrangements, in order to avoid 'consultation burn-out'.

9.2. Enhance the long-term sustainability of GRTDO through strategic visioning and planning and better documentation of results

GRTDO needs to address several strategic issues in order to sustain its current success, including

- development of a clear vision for future community development including enterprise projects and funding opportunities to replace the NRWRP projects if funding ceases in 2015;
- reduction in the current high demand on volunteer time, particularly by the chairman of GRTDO, who must also maintain a livelihood and family, and is consequently in danger of 'burn-out';
- reduction in the dependence on one or two leaders with no apparent succession plan for future leadership;
- development of a strategic plan, preferably with a neutral facilitator, to guide GRTDO's future development;

9.3. Develop a monitoring and evaluation framework

Documentation of all GRTDO activities and successes needs to be more systematic, to facilitate both fundraising and evaluation. Communities are more likely to support forest conservation initiatives if livelihood benefits can be clearly demonstrated and quantified. A monitoring and evaluation framework should therefore be established which includes quantification of the livelihood benefits described in Section 7, to assess how and why these increase or decrease over time, and to evaluate their relative importance to the Grande Riviere community. As baseline ecological data is collected, a similar framework should be developed to evaluate the impacts of the forest management arrangements on the resources.

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