

GOVERNMENT OF GUYANA

MINISTRY OF AGRICULTURE

Through

NATIONAL AGRICULTURAL RESEARCH INSTITUTE

GUYANA MANGROVE RESTORATION PROJECT



PROGRESS UPDATE

**IMPLEMENTATION OF NATIONAL MANGROVE
MANAGEMENT ACTION PLAN**

FEBRUARY - AUGUST 2010

Funded by



Project Title and Number:

*Sustainable Coastal Zone Protection through Mangrove
Management:
GY/DCI-ENV/21549
Mangrove Management - 1301900*

Period of Performance:

Starting Date: *Sept. 2010*
Ending Date: *Sept. 2112*

Sub Project Title:

Guyana Mangrove Restoration Project

Report Information:

Type: Progress Update
Number: 001
Period: Feb - August, 2010
Date: Sept 6, 2010

Executing Agency

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Code: TR/PU/001

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1. INTRODUCTION

1.1. BACKGROUND

The essential role that mangroves could play in the defence of the coastal zone, their role in carbon sequestration, and the increased risks posed by the predicted rise in sea level and the rising cost of maintenance of the sea defense structure, have prompted a commitment on the part of the government of Guyana to the conservation, restoration and protection of the mangrove forest.

In recent decades, the mangrove belt has been severely depleted and the natural cycle of erosion and recovery is apparently at disequilibrium. Although the cycle mechanisms are poorly understood, it is generally assumed that heavy damage by humans, the loss of old groynes (constructed during colonial times but largely left to disintegrate since then), and increases in sea level and wave energy are the principal factors explaining the depletion. Whatever the cause, the protection of mangroves is a major concern.

The current widespread institutional interest in mangrove ecosystems and the recent surge in mangrove literature, clearly indicate that these ecosystems have increasingly received much attention during the last decades. This essentially implies that the economic roles of mangroves in tropical coastal environments, their efficiency in coastal protection, their biological and cultural diversity and their links with coastal fisheries, are currently better recognised and understood. Nevertheless, the incessant degradation, transformation and conversion to other uses of these vital ecosystems due to ignorance, mismanagement and poor law enforcement are a great source of worry globally.

In Guyana, while mangroves contribute substantially to sea defence by damping wave action and protecting coastal banks, they have also been a source of raw materials and this has led to degradation of mangrove fields despite the important ecological services they perform. The Government of Guyana's recent inclusion of climate change considerations in public policy has been enshrined in the Low-Carbon Development Strategy (2009) wherein there is a central focus on forest conservation, including the protection of the substantial mangrove belts along the coasts and estuaries. More specifically, Guyana has developed a Sea and River Defence Policy, which calls for alternative solutions to traditional hard structures including the re-establishment of mangroves for effective flood defence and to protect environmental resources.

The National Mangrove Management Action Plan presents a concise overview of the key issues related to the sustainable management of the national mangrove forest. The associated guidelines presented have been identified as national imperatives for the protection and sustainable management of mangroves.

It aims to restore, rehabilitate and protect mangrove belts wherever they occur as part of overall forest protection.

1.2. OBJECTIVES

The overall objective is to respond to climate change and to mitigate its effects through the protection, rehabilitation and wise use of Guyana's mangrove ecosystems through processes that maintain their protective function, values and biodiversity while meeting the socio-economic development and environmental protection needs in estuarine and coastal areas.

The specific objectives of the plan are:

- To establish the administrative capacity for the management of mangroves in Guyana
- To promote sustainable management of mangrove forest.
- To establish and complete a legal framework for mangrove ecosystem management which encourages community-based participation.
- To support research and development of Guyana's mangrove forest
- To develop effective protection and/or rehabilitation of mangrove ecosystems
- To increase public awareness and education on the benefits of the mangrove forests

1.3. EXPECTED RESULTS

Rehabilitation of mangrove fields: A selection of sites will have to be made that includes extension and protection of existing forests (maximum mangrove cover) and sites that are more difficult to rehabilitate and will require some hard structures for protection, but have high value for sea defence. Seedlings will either be obtained from existing mangrove stands or from nurseries.

Mangrove monitoring: Mapping of mangroves, including GIS, is necessary to accurately establish current mangrove sites (in coordination with the MRV exercise for REDD+).

Input to Forest Plan: Mangroves will be fully considered in the new draft of the Forest Plan. The quality and effectiveness of regulations protecting mangroves will be reviewed.

Public awareness and community involvement: Participation of populations living close to mangrove fields is important both for protection and for mangrove monitoring. Community organizations, local government and church groups, where appropriate, will be involved in mobilizing local people to restore and protect mangroves through suitable schemes.

2. STATUS OF INTERVENTIONS AND IMPLEMENTATION OF NMMAP

2.1. GENERAL

The start up and first seven months of implementation of the National Mangrove Management Action Plan has been defined by the following activities:

- Completion and handover of the updated National Mangrove Management Action Plan to the Hon. Minister of Agriculture.
- Formulation of the Mangrove Action Committee.
- Establishment of Mangrove Project Office and recruitment of project personnel.
- Commencement of Public Awareness campaign on the importance of mangroves.
- Procurement of mangrove seedlings
- Restoration of Hope and Mon Repos pilot sites
- Community involvement in mangrove management and support to project activities.

2.2. INSTITUTIONAL DEVELOPMENT AND CAPACITY BUILDING

2.2.1. Legislation

On the 29th, January, 2010 in exercise of the powers conferred upon him by section 42 of the Forest Act and after consultation with the Guyana Forestry Commission the Minister of Agriculture made an amendment of Regulation 17 of the Principal Regulations by the substitution of the following:

Protected Trees 17. (1) “No bullet-wood tree or red, black or white mangrove trees shall be felled without first obtaining the permission in writing of an authorized forest officer not below the rank of an Assistant Commissioner of Forests”

2.2.2. The Mangrove Action Committee - MAC

The MAC was established and is fully functioning with representatives from twelve agencies providing guidance for the successful implementation of the project. The MAC is under the Chairmanship of Mrs. Annette Arjoon-Martins. Initially MAC meetings were scheduled quarterly to facilitate project startup; however this was later revised to monthly after the project had gained momentum. To-date, ten (10) MAC meetings have been held.

The MAC completed the revision and updating of the NMMAP which was handed over to the Hon. Robert Persaud, Minister of Agriculture on 23rd July 2010 in the presence of representatives from the Delegation of European Union and NAO Task. The NMMAP was presented to Cabinet on 27th July 2010 by the Minister of Agriculture where it received approval for tabling in the National Assembly.

2.2.3. Mangrove Project Office

a) Staffing

Recruitment of key staff to implement the project activities was completed with the engagement of Bissasar Chintamanie, Project Coordinator, Paul McAdam, Community Development Specialist, Kene Moseley, Admin/Finance Officer and Adeash Teckchand, Driver/Mechanic.

The Action Plan provides for the engagement of a GIS Expert to implement the Mapping and Inventory component of the Project; however the decision was taken to partner with the Guyana Forestry Commission through the signing of a Memorandum of Understanding to implement this component. GFC has the technical personnel and knowledge base in-house to effectively execute the mapping and inventory of the mangrove forest. The MoU will also facilitate capacity building of GFC personnel which will feed into the long term sustainability of mangrove management.

The project benefited from technical assistance received through the EU Technical Assistance for Capacity Building and Institutional Strengthening of the Sea Defences project which provided for the engagement of Ms. Claire Ackroyd, Mangrove Specialist, Mr. Owen Bovell and Public Awareness Consultant Mr. Christopher Chin.

b) Project Office

Office accommodations have been provided in NARI main building and all required furnishings and project equipment were procured.

Permanent Project Office is currently being renovated, (former Post Harvest building in NARI Compound) and is expected to be completed by 30th September 2010; when completed this will house the project office and resource library.

2.2.4. NARI Nurseries:

Contract was signed with Linton Nicholls Enterprise in June 2010 for the construction of concrete floor, plant shed and trestle to house the mangrove nursery. Implementation of contract is approximately 70% completed. Contract completion date is 30th September 2010.

2.3. PUBLIC EDUCATION, AWARENESS AND TRAINING

2.3.1. Website Development

The Project website is currently under construction and is expected to be completed and available live on 20th September 2010. The website will be the main instrument of the Project's public awareness campaign. Through it, information will be released, educational materials distributed, newsletters published, and reports of damage to mangroves reported. The website will serve to keep persons informed about the activities of the project and opportunities to volunteer.

2.3.2. Media Campaign

Stakeholders and the general populace have been kept updated on the importance of mangroves to Guyana's sea defence and the activities of the Project through extensive media coverage in all daily newspapers.

Presentation was made to media entities, print, television and radio, on the aims and objectives on the project in May 2010. Journalist were encouraged accompany the project on community out reaches and other project activities.

Mangrove messages were published in all four daily newspapers and radio (98.1FM and VoG) during the month of May 2010.

The Project received support, free of cost, from Guyanese celebrity personality Mr. David Martins through the production of two infomercial advertisements on the importance of mangroves and the recording of a mangrove jingle.

2.3.3. Publicity Campaign

Five (5) informational billboards were erected along the coastline, Ruimzeight, Kitty (Russian Embassy and GTT Earth Station), Mon Repos and Hope Beach, to increase public awareness of the importance of mangroves to Guyana's sea defence. These billboards were sponsored by private and public sector partner agencies.

A brochure, Mangrove Forest Guide, was prepared providing information on the mangrove species and characteristics and what individuals can do to support the protection and restoration of the coastal mangrove forest.

Community flyer on the importance of mangroves and do's and don'ts for protection of mangroves was prepared and distributed in communities.

The Project capitalized on the Berbice Expo and Fisherfolk Convention to increase the awareness of key stakeholders about the importance of mangroves to their livelihoods and sea defence.

2.3.4. Public Education

Presentations on mangroves and their importance was made to schools and institutions along the coastline by Mangrove Specialist and Community Development Specialist. These included presentation to BV Practical Institute, BV Community High, University of Guyana Faculty of Forestry and Agriculture, Cyril Potter College of Education, Mon Repos Primary School and Hope Secondary School.

Proposal has been prepared for the development of a curriculum on mangroves to be used in Primary and Secondary Schools.

2.3.5. Community Involvement

Communities residing close to mangrove forest were targeted for awareness and involvement in the project's activities to encourage support and commitment to project activities. Community involvement was garnered through the implementation of Regional workshops and community "grass-roots" level meetings.

Regional stakeholders' workshops were conducted during 16th April to 28th May in Regions 1 to 6. The workshops were attended by a wide cross section of stakeholders including Regional Democratic Councils, Neighbourhood Democratic Councils, and Community Development Councils, farmers, students, teachers, fishermen and residents living near mangrove forest. The project received fully support for the implementation of its activities to protect and restore the mangrove forest.

Community focal group 'grass-roots' meetings targeting fishermen, farmers, beekeepers and Community Development Councils and Neighbourhood Democratic Councils were held in Regions 2 to 6. Meetings were held in the communities of Anna Regina, Charity, Better Success, Supenaam, Leguan, Wakenaam, Suddie, Edinburgh, Kintyre/Borlam NDC, # 19 Village East Bank Berbice, #63, 66, 43, Berbice, Vreed-en-Hoop, Demerara, Siparuta and Orealla.

Meetings were held with beekeepers to explore the possibility of creating an apiculture alternative livelihood program related to mangrove protection. The initial objective is to provide marketing support to entrepreneurs who establish their apiculture farms in mangrove forest.

During the period extensive house to house visits were conducted in the communities of Hope and Mon Repos to sensitize residents about the project objectives activities with specific focus on replanting being undertaken in the community.

Youths residing in the Hope and Mon Repos areas benefited from a one day Mangrove Summer Camp hosted by the project at the respective beaches in these communities.

The Hope Beach summer camp which was held on 15th August 2010 saw an attendance of over 45 youths who learned about the ecology of mangroves, their importance in protecting the coastline from sea and what they can do to help protect the mangroves in their community.

Mon Repos youths benefited from a similar activity on 22nd August 2010. Approximately 20 youths between the ages 8-18 years attended the session. The youths were informed via interactive discussions about the various types of mangroves and how to identify them, the dos and don'ts about preserving the saltwater tolerant plants and benefits to the coastline and their neighboring community.

The Project took advantage of Sunday Cricket competition organized by the fishermen, boat builders and community members of Mon Repos 26th August 2010 at Mon Repos Beach. The competition attracted a large group of residents to the beach. Project staff met with the residents in an informal setting, and promoted awareness of the mangrove restoration efforts in their community and fielded questions on how they can contribute to the restoration and protection activities and across the Guyana coastal regions.

Communities also played a vital role in the restoration of pilot sites at Hope Beach and Mon Repos. Community workers attached to the Drainage and Irrigation projects are the primary

labour force involved in the planting activities. An average of thirty five (35) D&I workers have been involved in replanting of the Hope and Mon Repos Pilot sites.

Volunteering:

In addition to the D&I workers, residents from the both Hope and Mon Repos communities volunteered their time to participate in the replanting activities by cleaning up the beach area and planting seedlings.

The importance of mangroves is being imprinted into the consciousness of citizens; this is evident by the participation of 100 PYARG volunteers in the project activities at Hope Beach and 100 corporate volunteers at Mon Repos.

PYARG volunteers supported the mangrove restoration at Hope, East Coast Demerara, by conducting in a comprehensive garbage cleanup of Hope Beach.

The Cooperate community has also come on board with the project. Demerara Tobacco, in addition to sponsoring a mangrove informational billboard, supported the restoration of mangrove forest at Mon Repos through volunteering in planting and garbage cleanup of the Mon Repos beach. Other cooperate partners include GT&T, sponsorship of mangrove billboard; Digicel and China Trading.

2.3.6. Training

Training program was conducted for agencies, community workers and students on mangrove ecology, planting and management on 8th & 9th July 2010. The training included interactive classroom session and visits to several mangrove sites along the East Coast fo Demerara for practical field exercise. Nineteen (19) participants from various institutions attended the workshop. They represented the various agencies - NARI (3), Guyana Forestry Commission (4), Fisheries Department (1), Sea Defence Division (3); University of Guyana (3); community mangrove planters (3) and the Guyana School of Agriculture (2).

Training was also provided to communities on how to plant mangrove seedlings. These were live trainings conducted during replanting of Hope and Mon Repos Pilot sites.

2.4. RESEARCH AND DEVELOPMENT

2.4.1. Coastal Survey and profiling all mangroves and relevant coastal feature

Memorandum of Understanding was signed with the Guyana Forestry Commission on 23rd July 2010 for the mapping and inventory of the mangrove forest. GFC has commenced preliminary mapping of mangrove forest along the coast line starting with Region 5.

The Project has also partnered with the Guyana Water Inc. for sharing of data (images of Guyana's coastline) through a MoU which resulted in acquisition of Ikonos images of Regions 5 and 6.

2.4.2. Technical Research

Situational analysis of Guyana’s coastal mangrove sites (Shell Beach to Mahaica) was completed in May 2010 by Mangrove Specialist, Mr. Owen Bovell. The situational analysis presented the current status of mangroves at the various sites and recommendations for restoration activities. Recommendations for interventions coming out of the situational analysis were inputted into the updated NMMAP.

The Project facilitated University College London MSc. student in conducting research on “Community Involvement in Mangrove Management”. The focus of the research was the Mon Repos community.

The Project has commenced partnering with the University of Guyana through the attachment of three final year students from the Faculty of Forestry and Agriculture. These students will be conducting studies on community involvement in mangrove management, with a focus on fishermen and the monitoring restoration sites.

2.5. MONITORING, REPORTING AND ENFORCEMENT

2.5.1. Monitoring and Reporting

Two community rangers have been engaged to conduct monitoring of Hope Beach and Mon Repos Pilot sites.

The monitoring of seedling growth and development is being conducted by University of Guyana and Guyana School of Agriculture students attached to the project.

2.5.2. Enforcement

The challenge of enforcing the laws which govern the protection of mangroves against destruction is being address through meetings with the Guyana Police Force and Community Policing Groups in the communities along the coast line.

Meetings have been held with the Commander of B Division and ranks of Cove and John Police station to encourage their support to enforce the protection of mangroves in their jurisdiction.

2.6. MANGROVE RESTORATION PROGRAM

2.6.1. Production of seedlings

There has been substantial progress in the production of seedlings to be utilized in restoration of pilot sites. The project partnered with individuals, and community groups close to the pilot sites to produce seedlings thereby ensuring community involvement and ownership of the project activities.

Thirteen (13) contracts valued G\$4.9M were signed with community groups and individuals for the production of seventy seven thousand (77,000) mangrove seedlings. This includes 65,000 black mangrove seedlings, 8,000 red mangrove seedlings and 4,000 white mangrove seedlings.

Twenty three thousand (23,000) seedlings (13,000 black, 8,000 red and 2,000 white) have been completed and utilized in the replanting on the Hope and Mon Repos Pilot sites.

2.6.2. Restoration of pilot sites

The report of the situational analysis of the coastal mangrove sites conducted by Mangrove Specialist identified Hope Beach, Mon Repos and Lima as having ideal conditions for mangrove restoration during the first year of the project.

Experimental planting was conducted at Lima and Belle Alliance, Essequibo Coast, Region 2 during June 2010. One hundred and fifty (150) and two hundred and ten (210) black mangrove seedlings were planted at the two sites respectively by Guyana School of Agriculture students. Monitoring mission conducted in July showed 85% survival rate at Belle Alliance and 100% at Lima.

Hope, East Coast Demerara:

The 1st Phase restoration of the Hope Beach Pilot site commenced on 7th August 2010 and was completed on 19th August 2010. Due to the nature of planting mangroves, planting commenced at 5:00hrs when the tide was relatively low and continued for approximately four hours daily.

A total of 10,340 mangrove seedlings planted on 13 hectares of coastline. Seedlings planted included 7,000 *Avicennia* SPP (Black), 2,340 *Rhizophora* SPP (Red) and 1,000 *Laguncularia racemosa* (White).

Labour force utilized comprised 21 D&I workers, 9 UG Students, 5-10 Community volunteers and 100 PYARG Volunteers (used to cleanup beach).

Seedlings were planted at a distance of approximately 1 - 1.5meters apart (3-4 plants per square meter).

Mon Repos, East Coast Demerara:

Restoration of the Mon Repos Pilot site commenced on 21st August 2010 and is anticipated to be completed within 15 to 20 days.

To date, a total of 13,300 seedlings, 8,000 Black, 4,300 Red and 1,000 white mangrove seedlings have been planted. Labour force comprises 22 D&I workers from the Hope Beach replanting and 15 D&I workers from Mon Repos on 22nd and 23rd August to clean up the beach and erect “No Dumping” signs.

One hundred volunteers, primarily representing cooperate partners, participated a one day replanting and garbage cleanup on 5th August.

3. CONSTRAINTS TO PROJECT EXECUTION

The Project was launched in February 2010 with a budget of GYD124M for execution of first year’s activities. Twenty four million (G\$24M) of this budget was expected from Specific funds.

However the Financing Agreement between the Government of Guyana and the European Union was not signed until August 2010. These funds were therefore not available to the project and thus the activities programmed for execution utilizing these funds could not be fully implemented. These include, networking with similar projects in the Region i.e. sharing expertise and experience on mangrove management and restoration, procurement of nursery equipment and implementation of educational campaign. Similarly the Project has been unable to commence full implementation of the Research component of its 2010 work plan.

Additional releases from the Ministry of Finance were not forthcoming for the first four months of implementation. The Project received its first release of GY\$3M on 27th May 2010 following a more significant release of G\$7M and G\$41.4 in July and August respectively. The implementation of the project's activities was therefore totally dependent on NARI's resources, which while forthcoming, resulted in reduced level of implementation of some activities.